Table 1
Maintenance and Repair Shop—Product Usage Threshold Analysis
PCC Structurals, Inc. - SSBO

Table 3-A. Product Summary

Product	TAC	CAS	Weight Percentage [1] (%)	Specific Gravity [2]	Annual Product Usage		Annual TAC Usage [a] (lb/yr)
					(gal/yr) [3]	(lb/yr)	
Loctite Threadlocker Blue 242 Removable	Cumene hydroperoxide	80-15-9	3.00	1.10	0.037	0.34 [b]	0.010
	Cumene	98-82-8	0.55				1.9E-03
Loctite 567 PST Pipe Sealant	Cumene hydroperoxide	80-15-9	0.55	1.14	0.73	6.94 [b]	0.038
	Ethylene glycol	107-21-1	0.55				0.038
	Cumene	98-82-8	0.55				0.038
ZEP ID Red 20N13	Isopropyl alcohol	67-63-0	4.00	0.69	--	349 [3]	14.0
I.D. Red	Isopropyl alcohol	67-63-0	10.0	0.75	--	12.0 [3]	1.20
	Methanol	67-56-1	3.00				0.36
3M Super 77 Multipurpose Adhesive	Acetone	67-64-1	22.5	0.73	--	11.0 [3]	2.48
	Cyclohexane	110-82-7	15.0				1.65
	Hexane	110-54-3	0.25				0.028
	Toluene	108-88-3	0.15				0.017
Loctite EA 445 Hardener	Styrene	100-42-5	3.00	1.40	0.022	0.26 [b]	7.7E-03
	Ethylene glycol	107-21-1	3.00				7.7E-03
Loctite EA 445 Resin	Ethylene glycol	107-21-1	0.55	1.68	0.022	0.31 [b]	1.4E-03
Loctite 290	Cumene hydroperoxide	80-15-9	2.00	1.07	0.022	0.20 [b]	3.9E-03
	Methyl methacrylate	80-62-6	0.55				1.1E-03
Loctite 404 Instant Adhesive	Hydroquinone	123-31-9	0.55	1.09	--	0.68 [3]	3.7E-03

Table 3-B. TAC Summary

TAC	CAS	Total Annual Usage (lb/yr)	Reporting Threshold [4] (lb/yr)	Exceeds Reporting Threshold? (Yes/No)
Acetone	67-64-1	2.48	> 1,000	No
Cumene	98-82-8	0.040	> 1,000	No
Cumene hydroperoxide	80-15-9	0.052	Not Listed	No
Cyclohexane	110-82-7	1.65	> 1,000	No
Ethylene glycol	107-21-1	0.047	> 1,000	No
Hexane	110-54-3	0.028	> 1,000	No
Hydroquinone	123-31-9	3.7E-03	Not Listed	No
Isopropyl alcohol	67-63-0	15.2	> 1,000	No
Methanol	67-56-1	0.36	> 1,000	No
Methyl methacrylate	80-62-6	1.1E-03	> 1,000	No
Styrene	100-42-5	7.7E-03	> 1,000	No
Toluene	108-88-3	0.017	> 1,000	No

NOTES:

gal = gallon.

lb = pound.

TAC = Toxic Air Contaminant.

yr = year.

(a) Annual TAC usage (lb/yr) = (annual product usage [lb/yr]) x (TAC weight percentage [%] / 100)

(b) Annual product usage (lb/yr) = (annual product usage [gal/yr]) x (specific gravity) x (8.345 lb/gal)

REFERENCES:

(1) Information from product safety data sheet. Value represents average of the range presented.

(2) Information from product safety data sheet.

(3) Information provided by PCC Structurals, Inc. Represents 1.5 times the average annual purchases between 2019 and 2021.

(4) Oregon Department of Environmental Quality "Cleaner Air Oregon Exempt TEU Reporting" (March 21, 2022), see Appendix A.

Table 2

Maintenance and Repair Shop—Welding Threshold Analysis

PCC Structurals, Inc. - SSBO

Reporting Threshold [1] (lb/yr)	Welding Type	Electrode Type	Annual Usage [2] (lb/yr)	Exceeds Reporting Threshold? [3] (Yes/No)
> 500	FCAW	E70T	--	--
		E71T	--	--
	GMAW	E70S	88.0	No
	SAW	EM12K	--	--
	SMAW	E6010	--	--
		E6011	--	--
		E6012	--	--
		E6013	--	--
		E7024	--	--
	Total Annual Usage (lb/yr)		88.0	No
> 50	FCAW	E110	--	--
	GMAW	E308	20.0	No
		ER316	--	--
		ERNiCrMo	--	--
		ERNiCu	--	--
		ER4043 [4]	3.50	No
	SMAW	E7018	5.0	No
		E7028	--	--
		E8018	--	--
		Eni-Cl	--	--
		Eni-Cu	--	--
	Total Annual Usage (lb/yr)		28.5	No
> 0	FCAW	E11018	--	--
		E308	--	--
		E316	--	--
	SMAW	14Mn-4Cr	--	--
		E11018	--	--
		E308	--	--
		E310	--	--
		E316	2.50	Yes
		E410	--	--
		E9015	--	--
		E9018	--	--
		ECoCr	--	--
		ENiCrMo	--	--
		E309 [5]	5.00	Yes
	Total Annual Usage (lb/yr)		7.50	Yes

NOTES:

FCAW = flux core arc welding

GMAW = gas metal arc welding.

lb = pound.

SAW = submerged arc welding.

SMAW = shielded metal arc welding.

yr = year.

REFERENCES:

(1) Oregon Department of Environmental Quality "Cleaner Air Oregon Exempt TEU Reporting" (March 21, 2022), see Appendix B.

(2) Information provided by PCC Structurals, Inc. Represents 1.5 times the average annual purchases between 2019 and 2021.

(3) If the total exceeds a given reporting threshold, then each individual welding type within that reporting threshold category is shown as exceeding the threshold.

(4) Assumed a reporting threshold of greater than 50 pounds per year for electrodes of unspecified classification or of a type not included in the DEQ guidance.

(5) Assumed a reporting threshold of "any annual usage" for E309 electrode as shared safety data sheet as the E316 product used at SSBO.

Table 3
Maintenance and Repair Shop—Welding PTE TAC Emissions Estimate
PCC Structurals, Inc. - SSBO

Product	Pollutant	CAS	Emission Factor (lb/Mlb of electrode consumed)	Annual Usage [1] (lb/yr)	Annual Emissions Estimate [a] (lb/yr)
SMAW E316	Chromium (Non-hexavalent)	7440-47-3	0.522 [2]	2.50	1.3E-03
	Chromium (VI)	18540-29-9	0.332 [2]		8.3E-04
	Manganese	7439-96-5	0.544 [2]		1.4E-03
	Nickel	7440-02-0	0.055 [2]		1.4E-04
SMAW E309	Chromium (Non-hexavalent)	7440-47-3	0.522 [3]	5.00	2.6E-03
	Chromium (VI)	18540-29-9	0.332 [3]		1.7E-03
	Manganese	7439-96-5	0.544 [3]		2.7E-03
	Nickel	7440-02-0	0.055 [3]		2.8E-04
Total	Chromium (Non-hexavalent)	7440-47-3	--	7.50	3.9E-03
	Chromium (VI)	18540-29-9	--		2.5E-03
	Manganese	7439-96-5	--		4.1E-03
	Nickel	7440-02-0	--		4.1E-04

NOTES:

lb = pound.

Mlb = thousand pounds.

SMAW = shielded metal arc welding.

yr = year.

(a) Annual emissions estimate (lb/yr) = (emission factor [lb/Mlb]) x (annual electrode usage [lb/yr]) / (1,000 lb/Mlb)

REFERENCES:

(1) See Table 2, Threshold Analysis—Maintenance and Repair Shop Welding.

(2) 2020 Air Toxics Emissions Inventory Welding Emission Factor Search Tool provided by the Oregon Department of Environmental Quality.

(3) Assumes same emission factors as SMAW E316.

Close this window SDS

Common Name: ALUMINUM ALLOY SOLID WIRE WELDING ELECTRODE AND RODS, 1001

Manufacturer: WELDING MATERIAL SALES

SDS Revision Date: 6/1/2020

SDS Format: GHS-US

Item Number(s): 20YD96, 20YD97, 20YD98, 20YD99, 20YE01, 20YE02, 20YE03, 20YE04, 20YE05, 20YE06, 20YE07, 20YE08, 225M10, 225M11, 225M12, 225M50, 225M51, 225M52, 225M53, 225M54, 225M55, 225M56, 225M57, 225M58, 225M59, 225M60, 225M61, 225M62, 225M72, 225M73, 225M74, 225M75, 225M76, 225M77, 225M78, 225M79, 225M80, 225M81, 225M82, 225M83, 225M84, 24D957, 24D958, 24D959, 24D960, 24D961, 41R291, 41R292, 41R293, 41R294, 41R295, 41R296, 41R297, 41R298, 41R299, 41R301, 41R302, 41R303, 41R304, 41R363, 41R364, 41R365, 41R366, 41R367, 41R368, 41R369, 41R370, 41R371, 41R372, 41R373, 41R374, 54JK91, 54JK92

Manufacturer Model Number(s):

SDS Table of Contents

Click the desired link below to jump directly to that section in the SDS.

SDS NO: 1001

REVISED: MAY 2017

REVIEWED: JUNE 2020

SAFETY DATA SHEET

THIS SAFETY DATA SHEET (SDS) IS FOR WELDING CONSUMABLES AND RELATED PRODUCTS AND MAY BE USED TO COMPLY WITH OSHA'S HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200, AND SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 PUBLIC LAW 99-499 AND CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) PER HEALTH CANADA ADMINISTRATIVE POLICY. THE OSHA STANDARD MUST BE CONSULTED FOR SPECIFIC REQUIREMENTS. THIS SAFETY DATA SHEET COMPLIES WITH ISO 11014-1 AND ANSI Z400.1. THIS DOCUMENT IS TRANSLATED IN SEVERAL LANGUAGES AND IS AVAILABLE ON OUR WEBSITE AT WWW.WELDINGMATERIALSALES.COM, FROM YOUR SALES REPRESENTATIVE OR BY CALLING CUSTOMER SERVICE AT 1 (630) 232-6421.

SECTION 1 - IDENTIFICATION

top

PCCSSB000176

MANUFACTURER/SUPPLIER:

NAME: WELDING MATERIAL SALES, INC

ADDRESS:
1340 REED ROAD
GENEVA, IL 60134

TELEPHONE NO: +1(630)232-6421

EMERGENCY NO: +1(800)424-9300

WEBSITE: WWW.WELDINGMATERIALSALES.COM

PRODUCT TYPE: ALUMINUM ALLOY SOLID WIRE WELDING ELECTRODE AND RODS

TRADE NAME: ER1100, ER4043, ER4047, ER5356, ER5554, ER5556

AWS SPECIFICATION: A5.10

RECOMMENDED USE: ALUMINUM AND ALUMINUM ALLOY ELECTRODES ABD RODS

RESTRICTIONS ON USE: USE ONLY AS INDICATED FOR WELDING OPERATIONS

SECTION 2 - IDENTIFICATION OF HAZARDS

top

HAZARD CLASSIFICATION:
THE PRODUCTS DESCRIBED IN SECTION 1 ARE NOT CLASSIFIED AS HAZARDOUS ACCORDING TO APPLICABLE GHS HAZARD CLASSIFICATION CRITERIA AS REQUIRED AND DEFINED IN OSHA HAZARD COMMUNICATION STANDARD (29 CFR PART 1910.1200).

LABEL ELEMENTS:
HAZARD SYMBOL: NO SYMBOL REQUIRED
HAZARD STATEMENT: NOT APPLICABLE

SIGNAL WORD: NO SIGNAL WORD REQUIRED

PRECAUTIONARY STATEMENT: NOT APPLICABLE

HAZARDS NOT OTHERWISE CLASSIFIED:

WARNING!

AVOID BREATHING WELDING FUMES AND GASES, THEY MAY BE DANGEROUS TO YOUR HEALTH. ALWAYS USE ADEQUATE VENTILATION. ALWAYS USE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT.

PRIMARY ROUTES OF ENTRY: RESPIRATORY SYSTEM, EYES AND/OR SKIN.

ARC RAYS: THE WELDING ARC CAN INJURE EYES AND BURN SKIN.

ELECTRIC SHOCK:
ARC WELDING AND ASSOCIATED PROCESSES CAN KILL. SEE SECTION 8.

FUMES AND GASES: CAN BE DANGEROUS TO YOUR HEALTH.

WELDING FUMES AND GASES CANNOT BE CLASSIFIED SIMPLY. THE COMPOSITION AND QUANTITY OF BOTH ARE DEPENDENT UPON THE METAL BEING WELDED, THE PROCESS, PROCEDURES AND ELECTRODES USED. MOST FUME INGREDIENTS ARE PRESENT AS COMPLEX OXIDES AND COMPOUNDS AND NOT AS PURE METALS. WHEN THE ELECTRODE IS CONSUMED, THE FUME AND GAS DECOMPOSITION PRODUCTS GENERATED ARE DIFFERENT IN PERCENT AND FORM FROM THE INGREDIENTS LISTED IN SECTION 3. DECOMPOSITION PRODUCTS OF NORMAL OPERATION INCLUDE THOSE ORIGINATING FROM THE VOLATILIZATION, REACTION OR OXIDATION, PLUS THOSE FROM THE BASE METAL AND COATING, ETC., OF THE MATERIALS SHOWN IN SECTION 3 OF THIS SAFETY DATA SHEET. MONITOR FOR THE COMPONENT MATERIALS IDENTIFIED IN THE LIST IN

SECTION 3.

FUMES FROM THE USE OF THIS PRODUCT MAY CONTAIN COMPLEX OXIDES OR COMPOUNDS OF THE FOLLOWING ELEMENTS AND MOLECULES:
AMORPHOUS SILICA FUME, CHROMIUM AND MANGANESE. OTHER REASONABLY EXPECTED CONSTITUENTS OF THE FUME WOULD ALSO INCLUDE COMPLEX OXIDES OF IRON AND SILICON. GASEOUS REACTION PRODUCTS MAY INCLUDE CARBON MONOXIDE AND CARBON DIOXIDE. OZONE AND NITROGEN OXIDES MAY BE FORMED BY THE RADIATION FROM THE ARC. OTHER CONDITIONS WHICH ALSO INFLUENCE THE COMPOSITION AND QUANTITY OF THE FUMES AND GASES TO WHICH WORKERS MAY BE EXPOSED INCLUDE:
COATINGS ON THE METAL BEING WELDED (SUCH AS PAINT, PLATING OR GALVANIZING), THE NUMBER OF WELDERS AND THE VOLUME OF THE WORK AREA, THE QUALITY AND AMOUNT OF VENTILATION, THE POSITION OF THE WELDER'S HEAD WITH RESPECT TO THE FUME PLUME, AS WELL AS THE PRESENCE OF CONTAMINANTS IN THE ATMOSPHERE (SUCH AS CHLORINATED HYDROCARBON VAPORS FROM CLEANING AND DEGREASING ACTIVITIES). ONE RECOMMENDED WAY TO DETERMINE THE COMPOSITION AND QUANTITY OF FUMES AND GASES TO WHICH WORKERS ARE EXPOSED IS TO TAKE AN AIR SAMPLE INSIDE THE WELDER'S HELMET IF WORN OR IN THE WORKER'S BREATHING ZONE. SEE ANSI/AWS F1.1 AND F1.3, AVAILABLE FROM THE "AMERICAN WELDING SOCIETY", 8669 NW 36 STREET, # 130, MIAMI, FLORIDA 33166-6672, PHONE: 800-443-9353 OR 305-443-9353.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

top

HAZARDOUS INGREDIENTS:
IMPORTANT - THIS SECTION COVERS THE HAZARDOUS MATERIALS FROM WHICH THIS PRODUCT IS MANUFACTURED. THIS DATA HAS BEEN CLASSIFIED ACCORDING TO THE CRITERIA OF THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELING OF CHEMICALS (GHS) AS REQUIRED AND DEFINED IN OSHA HAZARD COMMUNICATION STANDARD (Z9 CFR PART 1910.1200). THE FUMES AND GASES PRODUCED DURING WELDING WITH NORMAL USE OF THIS PRODUCT ARE ADDRESSED IN SECTION 8.

INGREDIENT	CAS NO.	EINECS(R)	% WEIGHT
ALUMINUM	7429-90-5	231-072-3	80-99.7
CHROMIUM (METAL)	7440-47-3	231-157-5	0-0.5
COPPER	7440-50-8	231-159-6	0-0.5
IRON	7439-89-6	231-096-4	0-1
MAGNESIUM	7439-95-4	231-104-6	0-6
MANGANESE	7439-96-5	231-105-1	0-2
(AMORPHOUS SILICA FUME)	69012-64-2	273-761-1	---
SILICON	7440-21-3	231-130-8	0-14
TITANIUM	7440-32-6	231-142-3	0-0.2
TITANIUM DIOXIDE (FUME)	13463-67-7	236-675-5	--
ZINC	7440-66-6	231-175-3	0-0.25
ZIRCONIUM	7440-67-7	231-176-9	0-0.2
HEXAVALENT CHROMIUM [CHROMIUM (VI) TRIOXIDE] (FUME CONSTITUENT)	1333-82-0	215-607-8	VARIES

INGREDIENT	GHS CLASSIFICATION(S)	GHS HAZARD STATEMENTS (SEE SECTION 16 FOR COMPLETE PHRASES)
ALUMINUM	POWDER (PYROPHORIC):	

	PYR. SOL. 1(1)	H250
	WATER-REACT. 2(2)	H261
	POWDER (STABILIZED):	
	FLAM. SOL. 1(3)	H228
	WATER-REACT. 2(2)	H261
CHROMIUM (METAL)	NONE	
COPPER	NONE	
IRON	NONE	
MAGNESIUM	POWDER (PYROPHORIC):	
	PYR. SOL. 1(1)	H250
	WATER-REACT. 1(2)	H260
	POWDER OR TURNINGS:	
	FLAM. SOL. 1(3)	H228
	SELF-HEAT. 1(4)	H252
	WATER-REACT. 2(2)	H261
MANGANESE	ACUTE TOX. 4 (INHALATION)(5)	H332
	ACUTE TOX. 4 (ORAL)(5)	H302
	STOT RE 1(6)	H372
(AMORPHOUS SILICA FUME)	NONE	
SILICON	NONE	
TITANIUM	NONE	
TITANIUM DIOXIDE (FUME)	CARC. 2(7)	H351
ZINC	POWDER (PYROPHORIC):	
	PYR. SOL. 1(1)	H250
	WATER-REACT. 1(2)	H260
ZIRCONIUM	PYR. SOL. 1(1)	H250
	WATER-REACT. 1(2)	H260
HEXAVALENT CHROMIUM [CHROMIUM (VI) TRIOXIDE] (FUME CONSTITUENT)	OX. SOL. 1(8)	H271
	CARC. 1A(7)	H350
	MUTA. 1B(9)	H340
	REPR. TOX. 2(10)	H361F
	ACUTE TOX. 2 (INHALATION)(5)	H330
	ACUTE TOX. 3 (SKIN & ORAL)(5)	H311, H301
	STOT RE 1(6)	H372
	SKIN CORR. 1A(11)	H314
	SKIN SENS. 1(12)	H317
	RESP. SENS. 1(13)	H334, H317
	AQUATIC ACUTE 1	H400
	AQUATIC CHRONIC 1	H410

---:
DASHES INDICATE THE INGREDIENT IS NOT PRESENT WITHIN THE GROUP OF PRODUCTS

(R): EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES NUMBER

(1): PYROPHORIC SOLID (CAT. 1)

(2):
SUBSTANCE OR MIXTURE WHICH IN CONTACT WITH WATER EMITS FLAMMABLE GASES
(CAT. 1, 2 AND 3)

(3): FLAMMABLE SOLID (CAT. 1 AND 2)

PCCSSB000179

(4): SELF-HEATING SUBSTANCE OR MIXTURE (CAT. 1 AND 2)

(5): ACUTE TOXICITY (CAT. 1, 2, 3 AND 4)

(6):
SPECIFIC TARGET ORGAN TOXICITY (STOT) - REPEATED EXPOSURE (CAT. 1 AND 2)

(7): CARCINOGENICITY (CAT. 1A, 1B AND 2)

(8): OXIDIZING SOLID (CAT. 1, 2 AND 3)

(9): GERM CELL MUTAGENICITY (CAT. 1A, 1B AND 2)

(10): REPRODUCTIVE TOXICITY (CAT. 1A, 1B AND 2)

(11): SKIN CORROSION/IRRITATION (CAT. 1, 1A, 1B, 1C AND 2)

(12): SKIN SENSITIZATION (CAT. 1, SUB-CAT. 1A AND 1B)

(13): RESPIRATORY SENSITIZATION (CAT. 1, SUB-CAT. 1A AND 1B)

SECTION 4 - FIRST AID MEASURES

top

INGESTION:
NOT AN EXPECTED ROUTE OF EXPOSURE. DO NOT EAT, DRINK, OR SMOKE WHILE WELDING; WASH HANDS THOROUGHLY BEFORE PERFORMING THESE ACTIVITIES. IF SYMPTOMS DEVELOP, SEEK MEDICAL ATTENTION AT ONCE.

INHALATION DURING WELDING:
IF BREATHING IS DIFFICULT, PROVIDE FRESH AIR AND CONTACT PHYSICIAN. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION AND OBTAIN MEDICAL ASSISTANCE AT ONCE.

SKIN CONTACT DURING WELDING:
REMOVE CONTAMINATED CLOTHING AND WASH THE SKIN THOROUGHLY WITH SOAP AND WATER. IF SYMPTOMS DEVELOP, SEEK MEDICAL ATTENTION AT ONCE.

EYE CONTACT DURING WELDING:
DUST OR FUME FROM THIS PRODUCT SHOULD BE FLUSHED FROM THE EYES WITH COPIOUS AMOUNTS OF CLEAN, TEPID WATER UNTIL VICTIM IS TRANSPORTED TO AN EMERGENCY MEDICAL FACILITY. DO NOT ALLOW VICTIM TO RUB OR KEEP EYES TIGHTLY CLOSED. OBTAIN MEDICAL ASSISTANCE AT ONCE. ARC RAYS CAN INJURE EYES. IF EXPOSED TO ARC RAYS, MOVE VICTIM TO DARK ROOM, REMOVE CONTACT LENSES AS NECESSARY FOR TREATMENT, COVER EYES WITH A PADDED DRESSING AND REST. OBTAIN MEDICAL ASSISTANCE IF SYMPTOMS PERSIST.

SECTION 11 OF THIS SDS COVERS THE ACUTE EFFECTS OF OVEREXPOSURE TO THE VARIOUS INGREDIENTS WITHIN THE WELDING CONSUMABLE. SECTION 8 OF THIS SDS LISTS THE EXPOSURE LIMITS AND COVERS METHODS FOR PROTECTING YOURSELF AND YOUR CO-WORKERS.

SECTION 5 - FIRE-FIGHTING MEASURES

top

FIRE HAZARDS:
WELDING CONSUMABLES APPLICABLE TO THIS SHEET AS SHIPPED ARE NONREACTIVE, NONFLAMMABLE, NON-EXPLOSIVE AND ESSENTIALLY NONHAZARDOUS UNTIL WELDED.

WELDING ARCS AND SPARKS CAN IGNITE COMBUSTIBLES AND FLAMMABLE PRODUCTS. IF THERE ARE FLAMMABLE MATERIALS, INCLUDING FUEL OR HYDRAULIC LINES, IN THE WORK AREA AND THE WORKER CANNOT MOVE THE WORK OR THE FLAMMABLE MATERIAL, A FIRE-RESISTANT SHIELD SUCH AS A PIECE OF SHEET METAL OR FIRE RESISTANT BLANKET SHOULD BE PLACED OVER THE FLAMMABLE MATERIAL. IF WELDING WORK IS CONDUCTED WITHIN 35 FEET OR SO OF FLAMMABLE MATERIALS, STATION A RESPONSIBLE PERSON IN THE WORK ZONE TO ACT AS FIRE WATCHER TO OBSERVE WHERE SPARKS ARE FLYING AND TO GRAB AN EXTINGUISHER, OR SOUND THE ALARM IF

NEEDED.

UNUSED WELDING CONSUMABLES MAY REMAIN HOT FOR A PERIOD OF TIME AFTER COMPLETION OF A WELDING PROCESS. SEE AMERICAN NATIONAL STANDARD INSTITUTE (ANSI) Z49.1 FOR FURTHER GENERAL SAFETY INFORMATION ON THE USE AND HANDLING OF WELDING CONSUMABLES AND ASSOCIATED PROCEDURES.

SUITABLE EXTINGUISHING MEDIA:
THIS PRODUCT IS ESSENTIALLY NONFLAMMABLE UNTIL WELDED; THEREFORE, USE A SUITABLE EXTINGUISHING AGENT FOR A SURROUNDING FIRE.

UNSUITABLE EXTINGUISHING MEDIA: NONE KNOWN.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

top

IN THE CASE OF A RELEASE OF SOLID WELDING CONSUMABLE PRODUCTS, SOLID OBJECTS CAN BE PICKED UP AND PLACED INTO A DISPOSAL CONTAINER. IF AIRBORNE DUST AND/OR FUME IS PRESENT, USE ADEQUATE ENGINEERING CONTROLS AND, IF NEEDED, PERSONAL PROTECTION TO PREVENT OVEREXPOSURE. REFER TO RECOMMENDATIONS IN SECTION 8. WEAR PROPER PERSONAL PROTECTIVE EQUIPMENT WHILE HANDLING. DO NOT DISCARD AS GENERAL TRASH.

SECTION 7 - HANDLING AND STORAGE

top

HANDLING:
NO SPECIFIC REQUIREMENTS IN THE FORM SUPPLIED. HANDLE WITH CARE TO AVOID CUTS. WEAR GLOVES WHEN HANDLING WELDING CONSUMABLES. AVOID EXPOSURE TO DUST. DO NOT INGEST. SOME INDIVIDUALS CAN DEVELOP AN ALLERGIC REACTION TO CERTAIN MATERIALS. RETAIN ALL WARNING AND PRODUCT LABELS.

STORAGE:
KEEP SEPARATE FROM ACIDS AND STRONG BASES TO PREVENT POSSIBLE CHEMICAL REACTIONS.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

top

READ AND UNDERSTAND THE INSTRUCTIONS AND THE LABELS ON THE PACKAGING. WELDING FUMES DO NOT HAVE A SPECIFIC OSHA PEL (PERMISSIBLE EXPOSURE LIMIT) OR ACGIH TLV (THRESHOLD LIMIT VALUE). THE OSHA PEL FOR PARTICULATES - NOT OTHERWISE REGULATED (PNOR) IS 5 MG/M3 - RESPIRABLE FRACTION, 15 MG/M3 - TOTAL DUST. THE ACGIH TLV FOR PARTICLES - NOT OTHERWISE SPECIFIED (PNOS) IS 3 MG/M3 - RESPIRABLE PARTICLES, 10 MG/M3 - INHALABLE PARTICLES. THE INDIVIDUAL COMPLEX COMPOUNDS WITHIN THE FUME MAY HAVE A LOWER OSHA PEL OR ACGIH TLV THAN THE OSHA PNOR AND ACGIH PNOS. AN INDUSTRIAL HYGIENIST, THE OSHA PELS FOR AIR CONTAMINANTS (29 CFR 1910.1000), AND THE ACGIH TLVS SHOULD BE CONSULTED TO DETERMINE THE SPECIFIC FUME CONSTITUENTS PRESENT AND THEIR RESPECTIVE EXPOSURE LIMITS. ALL EXPOSURE LIMITS ARE IN MILLIGRAMS PER CUBIC METER (MG/M3).

INGREDIENT	CAS	EINECS	OSHA PEL	ACGIH TLV
ALUMINUM###	7429-90-5	231-072-3	5 R*, 15 (DUST)	1 R* {A4} 5 (WELDING FUMES, AS Al)
CHROMIUM#	7440-47-3	231-157-5	1 (METAL) 0.5 (Cr II & Cr III CPNDS) 0.005 (CR VI CPNDS, CALIF.	0.5 (METAL) {A4} 0.5 (Cr III CPNDS) {A4} 0.05 (Cr VI

			OSHA PEL)	SOL CPNDS) {A1} 0.01 (Cr VI INSOL CPNDS) {A1}
COPPER	7440-50-8	231-159-6	0.1 (FUME), 1 (DUST)	0.2 (FUME), 1 (DUST)
IRON+	7439-89-6	231-096-4	5 R*	5 R* (Fe2O3) {A4}
IRON OXIDE	1309-37-1	215-168-2	10 (OXIDE FUME)	5R* (Fe2O3) {A4}
MAGNESIUM+	7439-95-4	231-104-6	5 R*	3 R*
MANGANESE#	7439-96-5	231-105-1	5 CL** (FUME) 1, 3 STEL***^	0.1 I* {A4} $ 0.02 R* $ $
(AMORPHOUS SILICA FUME)	69012-64-2	273-761-1	0.8	2 R*
SILICON+	7440-21-3	231-130-8	5 R*	3 R*
TITANIUM+	7440-32-6	231-142-3	5 R*	3 R*
TITANIUM DIOXIDE (TITANIUM DIOXIDE FUME)	13463-67-7	236-675-5	15 (DUST)	10 {A4}
ZINC	7440-66-6	231-175-3	NOT ESTABLISHED	NOT ESTABLISHED
ZIRCONIUM	7440-67-7	231-176-9	5 (Zr CPNDS) 5, 10 STEL***^ (Zr CPNDS)	5, 10 STEL*** (Zr CPNDS) {A4}

R*: RESPIRABLE FRACTION

I*: INHALABLE FRACTION

**: CEILING LIMIT

***: SHORT TERM EXPOSURE LIMIT

+:
AS A NUISANCE PARTICULATE COVERED UNDER "PARTICULATES NOT OTHERWISE REGULATED" BY OSHA OR "PARTICULATES NOT OTHERWISE SPECIFIED" BY ACGIH

++:
CRYSTALLINE SILICA IS BOUND WITHIN THE PRODUCT AS IT EXISTS IN THE PACKAGE. HOWEVER, RESEARCH INDICATES SILICA IS PRESENT IN WELDING FUME IN THE AMORPHOUS (NONCRYSTALLINE) FORM

#: REPORTABLE MATERIAL UNDER SECTION 313 OF SARA

###: REPORTABLE MATERIAL UNDER SECTION 313 OF SARA AS DUST OR FUME

^ NIOSH REL TWA AND STEL
$: LIMIT OF 0.1 MG/M3 IS FOR INHALABLE MN IN 2015 BY ACGIH

$ $: LIMIT OF 0.02 MG/M3 IS FOR RESPIRABLE MN IN 2015 BY ACGIH

ELE: ELEMENT

SOL: SOLUBLE

INSOL: INSOLUBLE

INORG: INORGANIC

CPNDS: COMPOUNDS

NOS: NOT OTHERWISE SPECIFIED

{A1}: CONFIRMED HUMAN CARCINOGEN PER ACGIH

{A2}: SUSPECTED HUMAN CARCINOGEN PER ACGIH

{A3}: CONFIRMED ANIMAL CARCINOGEN WITH UNKNOWN RELEVANCE TO HUMANS PER ACGIH

{A4}: NOT CLASSIFIABLE AS A HUMAN CARCINOGEN PER ACGIH

{A5}: NOT SUSPECTED AS A HUMAN CARCINOGEN PER ACGIH (NONCRYSTALLINE FORM)

EINECS: EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES

OSHA: U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

ACGIH: AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS

VENTILATION:
USE ENOUGH VENTILATION OR LOCAL EXHAUST AT THE ARC OR BOTH TO KEEP THE FUMES AND GASES BELOW THE PEL/TLV IN THE WORKER'S BREATHING ZONE AND THE GENERAL AREA. TRAIN THE WELDER TO KEEP HIS HEAD OUT OF THE FUMES.

RESPIRATORY PROTECTION:
USE NIOSH-APPROVED OR EQUIVALENT FUME RESPIRATOR OR AIR SUPPLIED RESPIRATOR WHEN WELDING IN CONFINED SPACE OR WHERE LOCAL EXHAUST OR VENTILATION DOES NOT KEEP EXPOSURE BELOW THE REGULATORY LIMITS.

EYE PROTECTION:
WEAR HELMET OR USE FACE SHIELD WITH FILTER LENS FOR OPEN ARC WELDING PROCESSES. AS A RULE OF THUMB BEGIN WITH SHADE NUMBER 14. ADJUST IF NEEDED BY SELECTING THE NEXT LIGHTER AND/OR DARKER SHADE NUMBER. PROVIDE PROTECTIVE SCREENS AND FLASH GOGGLES, IF NECESSARY, TO SHIELD OTHERS FROM THE WELD ARC FLASH.

PROTECTIVE CLOTHING:
WEAR HAND, HEAD AND BODY PROTECTION WHICH HELP TO PREVENT INJURY FROM RADIATION, SPARKS AND ELECTRICAL SHOCK. SEE ANSI Z49.1. AT A MINIMUM THIS INCLUDES WELDER'S GLOVES AND A PROTECTIVE FACE SHIELD, AND MAY INCLUDE ARM PROTECTORS, APRONS, HATS, SHOULDER PROTECTION AS WELL AS DARK NON-SYNTHETIC CLOTHING. TRAIN THE WELDER NOT TO TOUCH LIVE ELECTRICAL PARTS AND TO INSULATE HIMSELF FROM WORK AND GROUND.

PROCEDURE FOR CLEANUP OF SPILLS OR LEAKS: NOT APPLICABLE

SPECIAL PRECAUTIONS (IMPORTANT):
WHEN WELDING WITH ELECTRODES THAT REQUIRE SPECIAL VENTILATION (SUCH AS STAINLESS OR HARDFACING, OR OTHER PRODUCTS WHICH REQUIRE SPECIAL VENTILATION, OR ON LEAD- OR CADMIUM-PLATED STEEL AND OTHER METALS OR COATINGS LIKE GALVANIZED STEEL, WHICH PRODUCE HAZARDOUS FUMES) MAINTAIN EXPOSURE BELOW THE PEL/TLV. USE INDUSTRIAL HYGIENE MONITORING TO ENSURE THAT YOUR USE OF THIS MATERIAL DOES NOT CREATE EXPOSURES WHICH EXCEED PEL/TLV. ALWAYS USE EXHAUST VENTILATION.

REFER TO THE FOLLOWING SOURCES FOR IMPORTANT ADDITIONAL INFORMATION:
AMERICAN NATIONAL STANDARD INSTITUTE (ANSI) Z49.1; SAFETY IN WELDING AND CUTTING PUBLISHED BY THE AMERICAN WELDING SOCIETY, 8669 NW 36 STREET, # 130, MIAMI, FLORIDA 33166-6672, PHONE: 800-443-9353 OR 305-443-9353; AND OSHA PUBLICATION 2206 (29 CFR 1910), U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, DC 20402.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

top

PCCSSB000183

WELDING CONSUMABLES APPLICABLE TO THIS SHEET AS SHIPPED ARE NONREACTIVE, NONFLAMMABLE, NON-EXPLOSIVE AND ESSENTIALLY NONHAZARDOUS UNTIL WELDED.

PHYSICAL STATE: SOLID

APPEARANCE: ROUND WIRE

COLOR: SILVER/GRAY

ODOR: NOT APPLICABLE

ODOR THRESHOLD: NOT APPLICABLE

PH: NOT APPLICABLE

MELTING POINT/FREEZING POINT: NOT AVAILABLE

INITIAL BOILING POINT AND BOILING RANGE: NOT AVAILABLE

FLASH POINT: NOT AVAILABLE

EVAPORATION RATE: NOT APPLICABLE

FLAMMABILITY (SOLID, GAS): NOT AVAILABLE

UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS: NOT AVAILABLE

VAPOR PRESSURE: NOT APPLICABLE

VAPOR DENSITY: NOT APPLICABLE

RELATIVE DENSITY: NOT AVAILABLE

SOLUBILITY(IES): NOT AVAILABLE

PARTITION COEFFICIENT N-OCTANOL/WATER: NOT APPLICABLE

AUTO-IGNITION TEMPERATURE: NOT AVAILABLE

DECOMPOSITION TEMPERATURE: NOT AVAILABLE

VISCOSITY: NOT APPLICABLE

SECTION 10 - STABILITY AND REACTIVITY

top

GENERAL:
WELDING CONSUMABLES APPLICABLE TO THIS SHEET ARE SOLID AND NONVOLATILE AS SHIPPED. THIS PRODUCT IS ONLY INTENDED FOR USE PER THE WELDING PARAMETERS IT WAS DESIGNED FOR. WHEN THIS PRODUCT IS USED FOR WELDING, HAZARDOUS FUMES MAY BE CREATED. OTHER FACTORS TO CONSIDER INCLUDE THE BASE METAL, BASE METAL PREPARATION AND BASE METAL COATINGS. ALL OF THESE FACTORS CAN CONTRIBUTE TO THE FUME AND GASES GENERATED DURING WELDING. THE AMOUNT OF FUME VARIES WITH THE WELDING PARAMETERS.

STABILITY: THIS PRODUCT IS STABLE UNDER NORMAL CONDITIONS.

REACTIVITY: CONTACT WITH ACIDS OR STRONG BASES MAY CAUSE GENERATION OF GAS.

SECTION 11 - TOXICOLOGICAL INFORMATION

top

SHORT-TERM (ACUTE) OVEREXPOSURE EFFECTS:

WELDING FUMES:
MAY RESULT IN DISCOMFORT SUCH AS DIZZINESS, NAUSEA OR DRYNESS OR IRRITATION

OF NOSE, THROAT OR EYES.

ALUMINUM OXIDE: IRRITATION OF THE RESPIRATORY SYSTEM.

CHROMIUM:
INHALATION OF FUME WITH CHROMIUM (VI) COMPOUNDS CAN CAUSE IRRITATION OF THE RESPIRATORY TRACT, LUNG DAMAGE AND ASTHMA-LIKE SYMPTOMS. SWALLOWING CHROMIUM (VI) SALTS CAN CAUSE SEVERE INJURY OR DEATH. DUST ON SKIN CAN FORM ULCERS. EYES MAY BE BURNED BY CHROMIUM (VI) COMPOUNDS. ALLERGIC REACTIONS MAY OCCUR IN SOME PEOPLE.

COPPER:
METAL FUME FEVER CHARACTERIZED BY METALLIC TASTE, TIGHTNESS OF CHEST AND FEVER. SYMPTOMS MAY LAST 24 TO 48 HOURS FOLLOWING OVEREXPOSURE.

IRON, IRON OXIDE: NONE ARE KNOWN. TREAT AS NUISANCE DUST OR FUME.

MAGNESIUM:
OVEREXPOSURE TO THE OXIDE MAY CAUSE METAL FUME FEVER CHARACTERIZED BY METALLIC TASTE, TIGHTNESS OF CHEST AND FEVER. SYMPTOMS MAY LAST 24 TO 48 HOURS FOLLOWING OVEREXPOSURE.

MANGANESE:
METAL FUME FEVER CHARACTERIZED BY CHILLS, FEVER, UPSET STOMACH, VOMITING, IRRITATION OF THE THROAT AND ACHING OF BODY. RECOVERY IS GENERALLY COMPLETE WITHIN 48 HOURS OF THE OVEREXPOSURE.

SILICON (AMORPHOUS SILICA FUME):
DUST AND FUMES MAY CAUSE IRRITATION OF THE RESPIRATORY SYSTEM, SKIN AND EYES.

TITANIUM DIOXIDE: IRRITATION OF RESPIRATORY SYSTEM.

ZINC:
METAL FUME FEVER STOMACH CRAMPS, SKIN IRRITATIONS, VOMITING, NAUSEA AND ANEMIA.

ZIRCONIUM:
MAY CAUSE IRRITATION OF THE EYES, NOSE AND THROAT DUE TO MECHANICAL EFFECTS.

LONG-TERM (CHRONIC) OVEREXPOSURE EFFECTS:

WELDING FUMES:
EXCESS LEVELS MAY CAUSE BRONCHIAL ASTHMA, LUNG FIBROSIS, PNEUMOCONIOSIS OR "SIDEROSIS." STUDIES HAVE CONCLUDED THAT THERE IS SUFFICIENT EVIDENCE FOR OCULAR MELANOMA IN WELDERS.

ALUMINUM OXIDE: PULMONARY FIBROSIS AND EMPHYSEMA.

CHROMIUM:
ULCERATION AND PERFORATION OF NASAL SEPTUM. RESPIRATORY IRRITATION MAY OCCUR WITH SYMPTOMS RESEMBLING ASTHMA. STUDIES HAVE SHOWN THAT CHROMATE PRODUCTION WORKERS EXPOSED TO HEXAVALENT CHROMIUM COMPOUNDS HAVE AN EXCESS OF LUNG CANCERS. CHROMIUM (VI) COMPOUNDS ARE MORE READILY ABSORBED THROUGH THE SKIN THAN CHROMIUM (III) COMPOUNDS. GOOD PRACTICE REQUIRES THE REDUCTION OF EMPLOYEE EXPOSURE TO CHROMIUM (III) AND (VI) COMPOUNDS.

COPPER:
COPPER POISONING HAS BEEN REPORTED IN THE LITERATURE FROM EXPOSURE TO HIGH LEVELS OF COPPER. LIVER DAMAGE CAN OCCUR DUE TO COPPER ACCUMULATING IN THE LIVER CHARACTERIZED BY CELL DESTRUCTION AND CIRRHOSIS. HIGH LEVELS OF COPPER MAY CAUSE ANEMIA AND JAUNDICE. HIGH LEVELS OF COPPER MAY CAUSE CENTRAL NERVOUS SYSTEM DAMAGE CHARACTERIZED BY NERVE FIBER SEPARATION AND CEREBRAL DEGENERATION.

IRON, IRON OXIDE FUMES:
CAN CAUSE SIDEROSIS (DEPOSITS OF IRON IN LUNGS) WHICH SOME RESEARCHERS BELIEVE MAY AFFECT PULMONARY FUNCTION. LUNGS WILL CLEAR IN TIME WHEN EXPOSURE TO IRON AND ITS COMPOUNDS CEASES. IRON AND MAGNETITE (Fe3O4) ARE

NOT REGARDED AS FIBROGENIC MATERIALS.

MAGNESIUM:
NO ADVERSE LONG TERM HEALTH EFFECTS HAVE BEEN REPORTED IN THE LITERATURE.

MANGANESE:
LONG-TERM OVEREXPOSURE TO MANGANESE COMPOUNDS MAY AFFECT THE CENTRAL NERVOUS SYSTEM. SYMPTOMS MAY BE SIMILAR TO PARKINSON'S DISEASE AND CAN INCLUDE SLOWNESS, CHANGES IN HANDWRITING, GAIT IMPAIRMENT, MUSCLE SPASMS AND CRAMPS AND LESS COMMONLY, TREMOR AND BEHAVIORAL CHANGES. EMPLOYEES WHO ARE OVEREXPOSED TO MANGANESE COMPOUNDS SHOULD BE SEEN BY A PHYSICIAN FOR EARLY DETECTION OF NEUROLOGIC PROBLEMS. OVEREXPOSURE TO MANGANESE AND MANGANESE COMPOUNDS ABOVE SAFE EXPOSURE LIMITS CAN CAUSE IRREVERSIBLE DAMAGE TO THE CENTRAL NERVOUS SYSTEM, INCLUDING THE BRAIN, SYMPTOMS OF WHICH MAY INCLUDE SLURRED SPEECH, LETHARGY, TREMOR, MUSCULAR WEAKNESS, PSYCHOLOGICAL DISTURBANCES AND SPASTIC GAIT.

SILICON (AMORPHOUS SILICA FUME):
RESEARCH INDICATES THAT SILICA IS PRESENT IN WELDING FUME IN THE AMORPHOUS FORM. LONG TERM OVEREXPOSURE MAY CAUSE PNEUMOCONIOSIS. NON CRYSTALLINE FORMS OF SILICA (AMORPHOUS SILICA) ARE CONSIDERED TO HAVE LITTLE FIBROTIC POTENTIAL.

TITANIUM DIOXIDE: PULMONARY IRRITATION AND SLIGHT FIBROSIS.

ZINC:
DAMAGE THE PANCREAS AND DISTURB THE PROTEIN METABOLISM, AND CAUSE ARTERIOSCLEROSIS.

ZIRCONIUM: MAY CAUSE PULMONARY FIBROSIS AND PNEUMOCONIOSIS.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:
PERSONS WITH PRE-EXISTING IMPAIRED LUNG FUNCTIONS (ASTHMA-LIKE CONDITIONS). PERSONS WITH A PACEMAKER SHOULD NOT GO NEAR WELDING AND CUTTING OPERATIONS UNTIL THEY HAVE CONSULTED THEIR DOCTOR AND OBTAINED INFORMATION FROM THE MANUFACTURER OF THE DEVICE. RESPIRATORS ARE TO BE WORN ONLY AFTER BEING MEDICALLY CLEARED BY YOUR COMPANY-DESIGNATED PHYSICIAN.

EMERGENCY AND FIRST AID PROCEDURES:
CALL FOR MEDICAL AID. EMPLOY FIRST AID TECHNIQUES RECOMMENDED BY THE AMERICAN RED CROSS. IF IRRITATION OR FLASH BURNS DEVELOP AFTER EXPOSURE, CONSULT A PHYSICIAN.

CARCINOGENICITY:
CHROMIUM VI COMPOUNDS ARE CLASSIFIED AS IARC GROUP 1 AND NTP GROUP K CARCINOGENS. TITANIUM DIOXIDE AND WELDING FUMES ARE CLASSIFIED AS IARC GROUP 2B CARCINOGENS.

CALIFORNIA PROPOSITION 65:

WARNING:
THESE PRODUCTS CONTAIN OR PRODUCE A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS (OR OTHER REPRODUCTIVE HARM). (CALIFORNIA HEALTH & SAFETY CODE SECTION 25249.5 ET SEQ.)

INGREDIENT	CAS	IARC(E)	NTP(Z)	OSHA(H)	65@
ALUMINUM	7429-90-5	---	---	---	---
CHROMIUM	7440-47-3	3$ 1$$	K$$	X$$	X$$
COPPER	7440-50-8	---	---	---	---
IRON	7439-89-6	---	---	---	---
IRON OXIDE	1309-37-1	3	---	---	---
MAGNESIUM	7439-95-4	---	---	---	---

MANGANESE	7439-96-5	---	---	---	---
(AMORPHOUS SILICA FUME)	69012-64-2	3	---	---	---
SILICON	7440-21-3	---	---	---	---
TITANIUM	7440-32-6	---	---	---	---
TITANIUM DIOXIDE	13463-67-7	2B	---	---	X
(TITANIUM DIOXIDE FUME)	---	---	---	---	---
WELDING FUMES	---	2B	---	---	---
ZINC	7440-66-6	---	---	---	---
ZIRCONIUM	7440-67-7	---	---	---	---

E: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER
1 - CARCINOGENIC TO HUMANS
2A - PROBABLY CARCINOGENIC TO HUMANS
2B - POSSIBLY CARCINOGENIC TO HUMANS
3 - NOT CLASSIFIABLE AS TO ITS CARCINOGENICITY TO HUMANS
4 PROBABLY NOT CARCINOGENIC TO HUMANS

Z: US NATIONAL TOXICOLOGY PROGRAM
K - KNOWN CARCINOGEN
S - SUSPECTED CARCINOGEN

H: OSHA DESIGNATED CARCINOGEN LIST

@: CALIFORNIA PROPOSITION 65
(X - ON PROPOSITION 65 LIST)

---:
DASHES INDICATE THE INGREDIENT IS NOT LISTED WITH THE IARC, NTP, OSHA OR PROP 65

$: METAL AND CHROMIUM III COMPOUNDS

$$: CHROMIUM VI

@: SILICA CRYSTALLINE

: QUARTZ

SECTION 12 - ECOLOGICAL INFORMATION

top

WELDING PROCESSES CAN RELEASE FUMES DIRECTLY TO THE ENVIRONMENT. WELDING WIRE CAN DEGRADE IF LEFT OUTSIDE AND UNPROTECTED. RESIDUES FROM WELDING CONSUMABLES AND PROCESSES COULD DEGRADE AND ACCUMULATE IN THE SOIL AND GROUNDWATER.

SECTION 13 - DISPOSAL CONSIDERATIONS

top

USE RECYCLING PROCEDURES IF AVAILABLE. DISCARD ANY PRODUCT, RESIDUE, PACKAGING, DISPOSABLE CONTAINER OR LINER IN AN ENVIRONMENTALLY ACCEPTABLE MANNER, IN FULL COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS,

SECTION 14 - TRANSPORT INFORMATION

top

NO INTERNATIONAL REGULATIONS OR RESTRICTIONS ARE APPLICABLE. NO SPECIAL PRECAUTIONS ARE NECESSARY.

SECTION 15 - REGULATORY INFORMATION

top

READ AND UNDERSTAND THE MANUFACTURER'S INSTRUCTIONS, YOUR EMPLOYER'S SAFETY PRACTICES AND THE HEALTH AND SAFETY INSTRUCTIONS ON THE LABEL AND THE SAFETY DATA SHEET. OBSERVE ALL LOCAL AND FEDERAL RULES AND REGULATIONS. TAKE ALL NECESSARY PRECAUTIONS TO PROTECT YOURSELF AND OTHERS.

UNITED STATES EPA TOXIC SUBSTANCE CONTROL ACT:
ALL CONSTITUENTS OF THESE PRODUCTS ARE ON THE TSCA INVENTORY LIST OR ARE EXCLUDED FROM LISTING.

CERCLA/SARA TITLE III:
REPORTABLE QUANTITIES (RQS) AND/OR THRESHOLD PLANNING QUANTITIES (TPQS):

INGREDIENT NAME	RQ(LB)	TPQ (LB)

PRODUCTS ON THIS SDS ARE A SOLID SOLUTION IN THE FORM OF A SOLID ARTICLE.

SPILLS OR RELEASES RESULTING IN THE LOSS OF ANY INGREDIENT AT OR ABOVE ITS RQ REQUIRE IMMEDIATE NOTIFICATION TO THE NATIONAL RESPONSE CENTER AND TO YOUR LOCAL EMERGENCY PLANNING COMMITTEE.

SECTION 311 HAZARD CLASS:
AS SHIPPED: IMMEDIATE
IN USE: IMMEDIATE DELAYED

EPCRA/SARA TITLE III 313 TOXIC CHEMICALS:
THE FOLLOWING METALLIC COMPONENTS ARE LISTED AS SARA 313 "TOXIC CHEMICALS" AND POTENTIALLY SUBJECT TO ANNUAL SARA 312 REPORTING:
ALUMINUM, CHROMIUM, COPPER AND MANGANESE. SEE SECTION 3 FOR WEIGHT PERCENTAGE.

CANADIAN WHMIS CLASSIFICATION: CLASS D; DIVISION 2, SUBDIVISION A

CANADIAN CONTROLLED PRODUCTS REGULATION:
THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR AND THE SDS CONTAINS ALL OF THE INFORMATION REQUIRED BY THE CPR.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA):
ALL CONSTITUENTS OF THESE PRODUCTS ARE ON THE DOMESTIC SUBSTANCE LIST (DSL).

SECTION 16 - OTHER INFORMATION

top

THE FOLLOWING HAZARD STATEMENTS, PROVIDED IN THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR PART 1910.1200) CORRESPOND TO THE COLUMNS LABELED 'GHS HAZARD STATEMENTS' WITHIN SECTION 3 OF THIS SAFETY DATA SHEET. TAKE APPROPRIATE PRECAUTIONS AND PROTECTIVE MEASURES TO ELIMINATE OR LIMIT THE ASSOCIATED HAZARD.

H250: CATCHES FIRE SPONTANEOUSLY IF EXPOSED TO AIR

H260:
IN CONTACT WITH WATER RELEASES FLAMMABLE GASES WHICH MAY IGNITE SPONTANEOUSLY

H271: MAY CAUSE FIRE OR EXPLOSION; STRONG OXIDIZER

H301: TOXIC IF SWALLOWED

H302: HARMFUL IF SWALLOWED

H311: TOXIC IN CONTACT WITH SKIN

H314: CAUSES SEVERE SKIN BURNS AND EYE DAMAGE

H317: MAY CAUSE AN ALLERGIC SKIN REACTION

H319: CAUSES SERIOUS EYE IRRITATION

H330: FATAL IF INHALED

H332: HARMFUL IF INHALED

H334:
MAY CAUSE ALLERGY OR ASTHMA SYMPTOMS OR BREATHING DIFFICULTIES IF INHALED

H335: MAY CAUSE RESPIRATORY IRRITATION

H340: MAY CAUSE GENETIC DEFECTS

H350: MAY CAUSE CANCER

H351: SUSPECTED OF CAUSING CANCER

H361F: SUSPECTED OF DAMAGING FERTILITY OR THE UNBORN CHILD

H372: CAUSES DAMAGE TO ORGANS THROUGH PROLONGED OR REPEATED EXPOSURE

H373: MAY CAUSE DAMAGE TO ORGANS THROUGH PROLONGED OR REPEATED EXPOSURE

H400: VERY TOXIC TO AQUATIC LIFE.

H410: VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS

H412: HARMFUL TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

FOR ADDITIONAL INFORMATION PLEASE REFER TO THE FOLLOWING SOURCES:

USA:
AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) Z49.1 "SAFETY IN WELDING AND CUTTING", ANSI/AMERICAN WELDING SOCIETY (AWS) F1.5 "METHODS FOR SAMPLING AND ANALYZING GASES FROM WELDING AND ALLIED PROCESSES", ANSI/AWS FL.L "METHOD FOR SAMPLING AIRBORNE PARTICLES GENERATED BY WELDING AND ALLIED PROCESSES", AWSF3.2M/F3.2 "VENTILATION GUIDE FOR WELD FUME", AMERICAN WELDING SOCIETY, 8669 NW 36 STREET, # 130, MIAMI, FLORIDA 33166-6672, PHONE: 800-443-9353 OR 305-443-9353. SAFETY AND HEALTH FACT SHEETS AVAILABLE FROM AWS AT WWW.AWS.ORG.

OSHA PUBLICATION 2206 (29 C.F.R. 1910), U.S. GOVERNMENT PRINTING OFFICE, SUPERINTENDENT OF DOCUMENTS, P.O. BOX 371954, PITTSBURGH, PA 15250-7954.

THRESHOLD LIMIT VALUES AND BIOLOGICAL EXPOSURE INDICES, AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)
6500 GLENWAY AVE.
CINCINNATI, OHIO 45211
USA.

NFPA 51B "STANDARD FOR FIRE PREVENTION DURING WELDING, CUTTING AND OTHER HOT WORK" PUBLISHED BY THE NATIONAL FIRE PROTECTION ASSOCIATION
1 BATTERYMARCH PARK
QUINCY, MA 02169.

CANADA:
CSA STANDARD CAN/CSA-W117.2-01 "SAFETY IN WELDING, CUTTING AND ALLIED PROCESSES".

WELDING MATERIAL SALES, INC STRONGLY RECOMMENDS THE USERS OF THIS PRODUCT STUDY THIS SDS, THE PRODUCT LABEL INFORMATION AND BECOME AWARE OF ALL HAZARDS ASSOCIATED WITH WELDING. WELDING MATERIAL SALES, INC BELIEVES THIS DATA TO BE ACCURATE AND TO REFLECT QUALIFIED EXPERT OPINION REGARDING CURRENT RESEARCH. HOWEVER, WELDING MATERIAL SALES, INC CANNOT MAKE ANY

EXPRESSED OR IMPLIED WARRANTY AS TO THIS INFORMATION.

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Common Name: SHIELDED METAL ARC WELDING (SMAW) ELECTRODES, 1501

Manufacturer: WELDING MATERIAL SALES

SDS Revision Date: 6/1/2020

SDS Format: GHS-US

Item Number(s): 225L51, 225L53, 225L54, 225L55, 225L56, 225L57, 225L58, 225L59, 225L63, 225L64, 225L65, 225N30, 225N31, 23XL60, 23XL61, 23XL68, 23XL70, 23XL71, 23XL72, 23XL75, 23XL77, 23XL78, 23XL82, 23XL83, 23XL93, 23XL95, 23XL96, 23XL98, 23XL99, 23XM01, 23XM02, 23XM03, 23XM04, 23XM05, 23XM06, 23XM08, 23XM14, 23XM15, 23XM16, 24D942, 24D946, 24D947, 24D948, 24D949, 24D950, 24D951, 30XN49, 30XN50, 30XN51, 30XN52, 30XN53, 30XN54, 30XN55, 30XN56, 30XN57, 30XN58, 30XN59, 30XN60, 30XN61, 30XN62, 30XN63, 30XN64, 30XN65, 30XN66, 30XN67, 30XN68, 30XP15, 30XP16, 30XP17, 30XP18, 30XP19, 30XP20, 30XP21, 30XP22, 30XP23, 30XP58, 30XP59, 30XP60, 30XP61, 33M409, 33M411, 33M413, 41R170, 41R171, 41R172, 41R173, 41R174, 41R175, 41R176, 41R177, 41R178, 41R179, 41R180, 41R181, 41R182, 41R184, 41R185, 41R186, 41R187, 41R188, 41R189, 41R190, 41R191, 41R192, 41R193, 41R194, 41R195, 41R196, 41R197, 41R198, 41R199, 41R201, 41R202, 41R203, 41R204, 41R205, 41R312, 41R313, 41R314, 41R315, 41R335, 41R336, 41R337, 54JK85, 54JK86, 54JK87

Manufacturer Model Number(s):

SDS Table of Contents

Click the desired link below to jump directly to that section in the SDS.

SDS NO: 1501

REVISED: MAY 2017

REVIEWED: JUNE 2020

SAFETY DATA SHEET

THIS SAFETY DATA SHEET (SDS) IS FOR WELDING CONSUMABLES AND RELATED PRODUCTS AND MAY BE USED TO COMPLY WITH OSHA'S HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200, AND SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 PUBLIC LAW 99-499 AND CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) PER HEALTH CANADA ADMINISTRATIVE POLICY. THE OSHA STANDARD MUST BE CONSULTED FOR SPECIFIC REQUIREMENTS. THIS SAFETY DATA SHEET COMPLIES WITH ISO 11014-1 AND ANSI Z400.1. THIS DOCUMENT IS TRANSLATED IN SEVERAL LANGUAGES AND IS AVAILABLE ON OUR WEBSITE AT WWW.WELDINGMATERIALSALES.COM, FROM YOUR SALES REPRESENTATIVE OR BY CALLING CUSTOMER SERVICE AT 1 (630) 232-6421.

PCCSSB000191

SECTION 1 - IDENTIFICATION

top

MANUFACTURER/SUPPLIER:

NAME: WELDING MATERIAL SALES, INC.

ADDRESS:
1340 REED ROAD
GENEVA, IL 60134

TELEPHONE NO: +1 (630) 232-6421

EMERGENCY NO: +1 (800) 424-9300

WEBSITE: WWW.WELDINGMATERIALSALES.COM

PRODUCT TYPE: SHIELDED METAL ARC WELDING (SMAW) ELECTRODES

GROUP A:
PRODUCT FOR: STAINLESS STEEL COVERED ARC WELDING ELECTRODES

TRADE NAME:
E308/308L-16, E309/309L-16, E310-16, E312-16, E316/316L-16, E317L-16, E320LR-16, E330-16, E347-16, E410-16, E410NiMo-16, E2209-16, E2553-16, BD3000

AWS SPECIFICATION: A5.4

GROUP B:
PRODUCT FOR: CAST IRON ARC WELDING ELECTRODES AND RODS

TRADE NAME: ENi-Cl; ENiFe-Cl, ENiFe-Cl, EST (CASTARC)

AWS SPECIFICATION: A5.15

RECOMMENDED USE: SHIELDED METAL ARC WELDING (SMAW) ELECTRODES

RESTRICTIONS ON USE: USE ONLY AS INDICATED FOR WELDING OPERATIONS

SECTION 2 - IDENTIFICATION OF HAZARDS

top

HAZARD CLASSIFICATION:
THE PRODUCTS DESCRIBED IN SECTION 1 ARE NOT CLASSIFIED AS HAZARDOUS ACCORDING TO APPLICABLE GHS HAZARD CLASSIFICATION CRITERIA AS REQUIRED AND DEFINED IN OSHA HAZARD COMMUNICATION STANDARD (29 CFR PART 1910.1200).

LABEL ELEMENTS:
HAZARD SYMBOL: NO SYMBOL REQUIRED
SIGNAL WORD: NO SIGNAL WORD REQUIRED
HAZARD STATEMENT: NOT APPLICABLE
PRECAUTIONARY STATEMENT: NOT APPLICABLE

HAZARDS NOT OTHERWISE CLASSIFIED:

WARNING!

AVOID BREATHING WELDING FUMES AND GASES, THEY MAY BE DANGEROUS TO YOUR HEALTH. ALWAYS USE ADEQUATE VENTILATION. ALWAYS USE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT.

PRIMARY ROUTES OF ENTRY: RESPIRATORY SYSTEM, EYES AND/OR SKIN.

ARC RAYS: THE WELDING ARC CAN INJURE EYES AND BURN SKIN.

ELECTRIC SHOCK:
ARC WELDING AND ASSOCIATED PROCESSES CAN KILL. SEE SECTION 8.

FUMES AND GASES: CAN BE DANGEROUS TO YOUR HEALTH.

WELDING FUMES AND GASES CANNOT BE CLASSIFIED SIMPLY. THE COMPOSITION AND QUANTITY OF BOTH ARE DEPENDENT UPON THE METAL BEING WELDED, THE PROCESS, PROCEDURES AND ELECTRODES USED. MOST FUME INGREDIENTS ARE PRESENT AS COMPLEX OXIDES AND COMPOUNDS AND NOT AS PURE METALS. WHEN THE ELECTRODE IS CONSUMED, THE FUME AND GAS DECOMPOSITION PRODUCTS GENERATED ARE DIFFERENT IN PERCENT AND FORM FROM THE INGREDIENTS LISTED IN SECTION 3. DECOMPOSITION PRODUCTS OF NORMAL OPERATION INCLUDE THOSE ORIGINATING FROM THE VOLATILIZATION, REACTION OR OXIDATION, PLUS THOSE FROM THE BASE METAL AND COATING, ETC., OF THE MATERIALS SHOWN IN SECTION 3 OF THIS SAFETY DATA SHEET. MONITOR FOR THE COMPONENT MATERIALS IDENTIFIED IN THE LIST IN SECTION 3.

FUMES FROM THE USE OF THESE PRODUCTS MAY CONTAIN COMPLEX OXIDES OR COMPOUNDS OF THE FOLLOWING ELEMENTS AND MOLECULES:
AMORPHOUS SILICA FUME, CALCIUM OXIDE, CHROMIUM, COPPER, FLUORSPAR OR FLUORIDES, MANGANESE, NICKEL, SILICA AND ZIRCONIUM. OTHER REASONABLY EXPECTED CONSTITUENTS OF THE FUME WOULD ALSO INCLUDE COMPLEX OXIDES OF IRON, TITANIUM, SILICON AND MOLYBDENUM. GASEOUS REACTION PRODUCTS MAY INCLUDE CARBON MONOXIDE AND CARBON DIOXIDE. OZONE AND NITROGEN OXIDES MAY BE FORMED BY THE RADIATION FROM THE ARC.

OTHER CONDITIONS WHICH ALSO INFLUENCE THE COMPOSITION AND QUANTITY OF THE FUMES AND GASES TO WHICH WORKERS MAY BE EXPOSED INCLUDE:
COATINGS ON THE METAL BEING WELDED (SUCH AS PAINT, PLATING OR GALVANIZING), THE NUMBER OF WELDERS AND THE VOLUME OF THE WORK AREA, THE QUALITY AND AMOUNT OF VENTILATION, THE POSITION OF THE WELDER'S HEAD WITH RESPECT TO THE FUME PLUME, AS WELL AS THE PRESENCE OF CONTAMINANTS IN THE ATMOSPHERE (SUCH AS CHLORINATED HYDROCARBON VAPORS FROM CLEANING AND DEGREASING ACTIVITIES). ONE RECOMMENDED WAY TO DETERMINE THE COMPOSITION AND QUANTITY OF FUMES AND GASES TO WHICH WORKERS ARE EXPOSED IS TO TAKE AN AIR SAMPLE INSIDE THE WELDER'S HELMET IF WORN OR IN THE WORKER'S BREATHING ZONE. SEE ANSI/AWS F1.1 AND F1.3, AVAILABLE FROM THE "AMERICAN WELDING SOCIETY", 8669 NW 36 STREET, # 130, MIAMI, FLORIDA 33166-6672, PHONE: 800-443-9353 OR 305-443-9353.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

top

HAZARDOUS INGREDIENTS:

IMPORTANT:
THIS SECTION COVERS THE HAZARDOUS MATERIALS FROM WHICH THIS PRODUCT IS MANUFACTURED. THIS DATA HAS BEEN CLASSIFIED ACCORDING TO THE CRITERIA OF THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELING OF CHEMICALS (GHS) AS REQUIRED AND DEFINED IN OSHA HAZARD COMMUNICATION STANDARD (29 CFR PART 1910.1200). THE FUMES AND GASES PRODUCED DURING WELDING WITH NORMAL USE OF THIS PRODUCT ARE ADDRESSED IN SECTION 8.

INGREDIENT	CAS NO.	EINECS(R)	GROUP AND %WEIGHT A	B
ALUMINUM	7429-90-5	231-072-3	---	0-5
ALUMINUM OXIDE	1344-28-1	215-691-6	0-3	---
ANTIMONY TRIOXIDE	1309-64-4	215-175-0	---	0-1
BARIUM CARBONATE	513-77-9	208-167-3	---	0-15
CALCIUM CARBONATE	1317-65-3	215-279-6	2-10	1-6
CHROMIUM (METAL)	7440-47-3	231-157-5	3-35	---
COLUMBIUM	7440-03-1	231-113-5	0-2	---

COPPER	7440-50-8	231-159-6	0-4	0-2
FLUORSPAR	7789-75-5	232-188-7	1-10	1-5
IRON	7439-89-6	231-096-4	20-70	2-50
MAGNESIUM	7439-95-4	231-104-6	---	0-1
MANGANESE	7439-96-5	231-105-1	1-10	0-2
MICA	12001-26-2	NONE	0-6	---
MOLYBDENUM	7439-98-7	231-107-2	0-4	---
NICKEL	7440-02-0	231-111-4	0-30	25-80
POTASSIUM SILICATE	1312-76-1	215-199-1	0-2	0-2
SILICA	14808-60-7	238-878-4	1-10	1-10
(AMORPHOUS SILICA FUME)	69012-64-2	273-761-1	---	---
SILICON	7440-21-3	231-130-8	1-10	1-10
SODIUM SILICATE	1344-09-8	215-687-4	0-2	0-2
STRONTIUM CARBONATE	1633-05-2	216-643-7	---	0-25
TITANIUM DIOXIDE	13463-67-7	236-675-5	1-13	---
TUNGSTEN	7440-33-7	231-143-9	0-4	---
ZIRCONIUM	7440-67-7	231-176-9	0-2	0-2
HEXAVALENT CHROMIUM [CHROMIUM (VI) TRIOXIDE] (FUME CONSTITUENT)	1333-82-0	215-607-8	VARIES	VARIES

INGREDIENT	GHS CLASSIFICATION(S)	GHS HAZARD STATEMENTS (SEE SECTION 16 FOR COMPLETE PHRASES)
ALUMINUM	POWDER (PYROPHORIC): PYR. SOL. 1(1) WATER-REACT. 2(2)	 H250 H261
	POWDER (STABILIZED): FLAM. SOL. 1(3) WATER-REACT. 2(2)	 H228 H261
ALUMINUM OXIDE	NONE	
ANTIMONY TRIOXIDE	CARC. 2(4)	H351
BARIUM CARBONATE	ACUTE TOX. 4 (ORAL)(5)	H302
CALCIUM CARBONATE	NONE	
CHROMIUM (METAL)	NONE	
COLUMBIUM	NONE	
COPPER	NONE	
FLUORSPAR	NONE	

IRON	NONE	
MAGNESIUM	POWDER (PYROPHORIC):	
	PYR. SOL. 1(1)	H250
	WATER-REACT. 1(2)	H260
	POWDER OR TURNINGS:	
	FLAM. SOL. 1(3)	H228
	SELF-HEAT. 1(6)	H252
	WATER-REACT. 2(2)	H261
MANGANESE	ACUTE TOX. 4 (INHALATION)(5)	H332
	ACUTE TOX. 4 (ORAL)(5)	H302
	STOT RE 1(7)	H372
MICA	NONE	
MOLYBDENUM	STOT RE 2(7)	H373
	EYE IRRIT. 2(8)	H319
	STOT SE 3(9)	H335
NICKEL	POWDER/ELEMENT:	
	CARC. 2(4)	H351
	SKIN SENS. 1(10)	H317
	STOT RE 1(7)	H372
	AQUATIC CHRONIC 3	H412
POTASSIUM SILICATE	NONE	
SILICA	STOT RE 2(7)	H373
	CARC. 2(4)	H351
	ACUTE TOX. 4 (INHALATION)(5)	H332
(AMORPHOUS SILICA FUME)	NONE	
SILICON	NONE	
SODIUM SILICATE	NONE	
STRONTIUM CARBONATE	NONE	
TITANIUM DIOXIDE	CARC. 2(4)	H351
TUNGSTEN	NONE	
ZIRCONIUM	PYR. SOL. 1(1)	H250
	WATER-REACT. 1(2)	H260
HEXAVALENT CHROMIUM [CHROMIUM (VI) TRIOXIDE] (FUME CONSTITUENT)	OX. SOL. 1(11)	H271
	CARC. 1A(4)	H350
	MUTA. 1B(12)	H340
	REPR. TOX. 2(13)	H361F
	ACUTE TOX. 2 (INHALATION)(5)	H330
	ACUTE TOX. 3 (SKIN & ORAL)(5)	H311, H301
	STOT RE 1(7)	H372
	SKIN CORR. 1A(14)	H314
	SKIN SENS. 1(10)	H317
	RESP. SENS. 1(15)	H334, H317
	AQUATIC ACUTE 1	H400
	AQUATIC CHRONIC 1	H410

---:
DASHES INDICATE THE INGREDIENT IS NOT PRESENT WITHIN THE GROUP OF PRODUCTS

(R): EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCE NUMBER

(1): PYROPHORIC SOLID (CAT. 1)

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(2):
SUBSTANCE OR MIXTURE WHICH IN CONTACT WITH WATER EMITS FLAMMABLE GASES (CAT. 1, 2 AND 3)

(3): FLAMMABLE SOLID (CAT. 1 AND 2)

(4): CARCINOGENICITY (CAT. 1A, 1B AND 2)

(5): ACUTE TOXICITY (CAT. 1, 2, 3 AND 4)

(6): SELF-HEATING SUBSTANCE OR MIXTURE (CAT. 1 AND 2)

(7):
SPECIFIC TARGET ORGAN TOXICITY (STOT) - REPEATED EXPOSURE (CAT. 1 AND 2)

(8): SERIOUS EYE DAMAGE/EYE IRRITATION (CAT. 1 AND 2)

(9):
SPECIFIC TARGET ORGAN TOXICITY (STOT) - SINGLE EXPOSURE (CAT. 1, 2) AND CAT. 3 FOR NARCOTIC EFFECTS AND RESPIRATORY TRACT IRRITATION, ONLY)

(10): SKIN SENSITIZATION (CAT. 1, SUB-CAT. 1A AND 1B)

(11): OXIDIZING SOLID (CAT. 1, 2 AND 3)

(12): GERM CELL MUTAGENICITY (CAT. 1A, 1B AND 2)

(13): REPRODUCTIVE TOXICITY (CAT. 1A, 1B AND 2)

(14): SKIN CORROSION/IRRITATION (CAT. 1, 1A, 1B, 1C AND 2)

(15): RESPIRATORY SENSITIZATION (CAT. 1, SUB-CAT. 1A AND 1B)

SECTION 4 - FIRST AID MEASURES

top

INGESTION:
NOT AN EXPECTED ROUTE OF EXPOSURE. DO NOT EAT, DRINK, OR SMOKE WHILE WELDING; WASH HANDS THOROUGHLY BEFORE PERFORMING THESE ACTIVITIES. IF SYMPTOMS DEVELOP, SEEK MEDICAL ATTENTION AT ONCE.

INHALATION DURING WELDING:
IF BREATHING IS DIFFICULT, PROVIDE FRESH AIR AND CONTACT PHYSICIAN. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION AND OBTAIN MEDICAL ASSISTANCE AT ONCE.

SKIN CONTACT DURING WELDING:
REMOVE CONTAMINATED CLOTHING AND WASH THE SKIN THOROUGHLY WITH SOAP AND WATER. IF SYMPTOMS DEVELOP, SEEK MEDICAL ATTENTION AT ONCE.

EYE CONTACT DURING WELDING:
DUST OR FUME FROM THIS PRODUCT SHOULD BE FLUSHED FROM THE EYES WITH COPIOUS AMOUNTS OF CLEAN, TEPID WATER UNTIL THE VICTIM IS TRANSPORTED TO AN EMERGENCY MEDICAL FACILITY. DO NOT ALLOW VICTIM TO RUB OR KEEP EYES TIGHTLY CLOSED. OBTAIN MEDICAL ASSISTANCE AT ONCE.

ARC RAYS CAN INJURE EYES. IF EXPOSED TO ARC RAYS, MOVE VICTIM TO DARK ROOM, REMOVE CONTACT LENSES AS NECESSARY FOR TREATMENT, COVER EYES WITH A PADDED DRESSING AND REST. OBTAIN MEDICAL ASSISTANCE IF SYMPTOMS PERSIST.

SECTION 11 OF THIS SDS COVERS THE ACUTE EFFECTS OF OVEREXPOSURE TO THE VARIOUS INGREDIENTS WITHIN THE WELDING CONSUMABLE. SECTION 8 OF THIS SDS LISTS THE EXPOSURE LIMITS AND COVERS METHODS FOR PROTECTING YOURSELF AND YOUR CO-WORKERS.

SECTION 5 - FIRE-FIGHTING MEASURES

top

FIRE HAZARDS:
WELDING CONSUMABLES APPLICABLE TO THIS SHEET AS SHIPPED ARE NONREACTIVE, NONFLAMMABLE, NON-EXPLOSIVE AND ESSENTIALLY NONHAZARDOUS UNTIL WELDED.

WELDING ARCS AND SPARKS CAN IGNITE COMBUSTIBLES AND FLAMMABLE PRODUCTS. IF THERE ARE FLAMMABLE MATERIALS, INCLUDING FUEL OR HYDRAULIC LINES, IN THE WORK AREA AND THE WORKER CANNOT MOVE THE WORK OR THE FLAMMABLE MATERIAL, A FIRE-RESISTANT SHIELD SUCH AS A PIECE OF SHEET METAL OR FIRE RESISTANT BLANKET SHOULD BE PLACED OVER THE FLAMMABLE MATERIAL. IF WELDING WORK IS CONDUCTED WITHIN 35 FEET OR SO OF FLAMMABLE MATERIALS, STATION A RESPONSIBLE PERSON IN THE WORK ZONE TO ACT AS FIRE WATCHER TO OBSERVE WHERE SPARKS ARE FLYING AND TO GRAB AN EXTINGUISHER OR SOUND THE ALARM IF NEEDED.

UNUSED WELDING CONSUMABLES MAY REMAIN HOT FOR A PERIOD OF TIME AFTER COMPLETION OF A WELDING PROCESS. SEE AMERICAN NATIONAL STANDARD INSTITUTE (ANSI) Z49.1 FOR FURTHER GENERAL SAFETY INFORMATION ON THE USE AND HANDLING OF WELDING CONSUMABLES AND ASSOCIATED PROCEDURES.

SUITABLE EXTINGUISHING MEDIA:
THIS PRODUCT IS ESSENTIALLY NONFLAMMABLE UNTIL WELDED; THEREFORE, USE A SUITABLE EXTINGUISHING AGENT FOR A SURROUNDING FIRE.

UNSUITABLE EXTINGUISHING MEDIA: NONE KNOWN.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

top

IN THE CASE OF A RELEASE OF SOLID WELDING CONSUMABLE PRODUCTS, SOLID OBJECTS CAN BE PICKED UP AND PLACED INTO A DISPOSAL CONTAINER. IF AIRBORNE DUST AND/OR FUME IS PRESENT, USE ADEQUATE ENGINEERING CONTROLS AND, IF NEEDED, PERSONAL PROTECTION TO PREVENT OVEREXPOSURE. REFER TO RECOMMENDATIONS IN SECTION 8. WEAR PROPER PERSONAL PROTECTIVE EQUIPMENT WHILE HANDLING. DO NOT DISCARD AS GENERAL TRASH.

SECTION 7 - HANDLING AND STORAGE

top

HANDLING:
NO SPECIFIC REQUIREMENTS IN THE FORM SUPPLIED. HANDLE WITH CARE TO AVOID CUTS. WEAR GLOVES WHEN HANDLING WELDING CONSUMABLES. AVOID EXPOSURE TO DUST. DO NOT INGEST. SOME INDIVIDUALS CAN DEVELOP AN ALLERGIC REACTION TO CERTAIN MATERIALS. RETAIN ALL WARNING AND PRODUCT LABELS.

STORAGE:
KEEP SEPARATE FROM ACIDS AND STRONG BASES TO PREVENT POSSIBLE CHEMICAL REACTIONS.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

top

READ AND UNDERSTAND THE INSTRUCTIONS AND THE LABELS ON THE PACKAGING. WELDING FUMES DO NOT HAVE A SPECIFIC OSHA PEL (PERMISSIBLE EXPOSURE LIMIT) OR ACGIH TLV (THRESHOLD LIMIT VALUE). THE OSHA PEL FOR PARTICULATES - NOT OTHERWISE REGULATED (PNOR) IS 5 MG/M3 - RESPIRABLE FRACTION, 15 MG/M3 - TOTAL DUST. THE ACGIH TLV FOR PARTICLES - NOT OTHERWISE SPECIFIED (PNOS) IS 3 MG/M3 - RESPIRABLE PARTICLES, 10 MG/M3 - INHALABLE PARTICLES. THE INDIVIDUAL COMPLEX COMPOUNDS WITHIN THE FUME MAY HAVE A LOWER OSHA PEL OR ACGIH TLV THAN THE OSHA PNOR AND ACGIH PNOS. AN INDUSTRIAL HYGIENIST, THE OSHA PELS FOR AIR CONTAMINANTS (29 CFR 1910.1000), AND THE ACGIH TLVS SHOULD BE CONSULTED TO DETERMINE THE SPECIFIC FUME CONSTITUENTS PRESENT AND THEIR RESPECTIVE EXPOSURE LIMITS. ALL EXPOSURE LIMITS ARE IN MILLIGRAMS PER CUBIC METER (MG/M3).

INGREDIENT	CAS	EINECS	OSHA PEL	ACGIH TLV

ALUMINUM###	7429-90-5	231-072-3	5 R*, 15 (DUST)	1 R* {A4} 5 (WELDING FUMES, AS Al)
ALUMINUM OXIDE##	1344-28-1	215-691-6	5 R*	1 R* {A4} 10 (AS Al, TOT PARTICULATE)
ANTIMONY TRIOXIDE	1309-64-4	215-175-0	0.5 (AS Sb)	0.5 (AS Sb) {A2}
BARIUM CARBONATE	513-77-9	208-167-3	0.5 (AS Ba)	0.5 (AS Ba) {A4}
CALCIUM CARBONATE	1317-65-3	215-279-6	5 R*, 5 (AS CaO)	3 R*, 2 (AS CaO)
CHROMIUM#	7440-47-3	231-157-5	1 (METAL) 0.5 (Cr II & Cr III CPNDS) 0.005 (Cr VI CPNDS, CALIF. OSHA PEL)	0.5 (METAL) {A4} 0.5 (Cr III CPNDS) {A4} 0.05 (Cr VI SOL CPNDS) {A1} 0.01 (Cr VI INSOL CPNDS) {A1}
COLUMBIUM+	7440-03-1	231-113-5	5 R*	3 R*
COPPER	7440-50-8	231-159-6	0.1 (FUME), 1 (DUST)	0.2 (FUME), 1 (DUST)
FLUORSPAR	7789-75-5	232-188-7	2.5 (AS F)	2.5 (AS F) {A4}
IRON+	7439-89-6	231-096-4	5 R*	5 R* (Fe2O3) {A4}
IRON OXIDE	1309-37-1	215-168-2	10 (OXIDE FUME)	5R*(Fe2O3) {A4}
MAGNESIUM+	7439-95-4	231-104-6	5 R*	3 R*
MANGANESE#	7439-96-5	231-105-1	5 CL ** (FUME) 1, 3 STEL*** ^	0.1 I* {A4} $ 0.02 R* $$
MICA	12001-26-2	NONE	3R*^	3 R*
MOLYBDENUM	7439-98-7	231-107-2	5 R*	3 R*; 10 I* (ELE AND INSOL) 0.5 R* (SOL CPNDS) {A3}
NICKEL#	7440-02-0	231-111-4	1 (METAL) 1 (SOL CPNDS) 1 (INSOL CPNDS)	1.5 I* (ELE) {A5} 0.1 I* (SOL CPNDS) {A4} 0.2 I* (INSOL CPNDS) {A1}
POTASSIUM SILICATE	1312-76-1	215-199-1	NOT ESTABLISHED	NOT ESTABLISHED
SILICA++	14808-60-7	238-878-4	0.1 R*	0.025 R* {A2}
(AMORPHOUS SILICA FUME)	69012-64-2	273-761-1	0.8	2 R*
SILICON+	7440-21-3	231-130-8	5 R*	3 R*

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SODIUM SILICATE	1344-09-8	215-687-4	NOT ESTABLISHED	NOT ESTABLISHED
STRONTIUM CARBONATE+	1633-05-2	216-643-7	5 R*	3 R*
TITANIUM DIOXIDE	13463-67-7	236-675-5	15 (DUST)	10 {A4}
TUNGSTEN	7440-33-7	231-143-9	1 (SOL CPNDS)	1, 3 STEL*** (SOL CPNDS)
			1, 3 STEL***^ (SOL CPDS)	
			5 (INSOL CPNDS)	5, 10 STEL*** (INSOL CPNDS)
			5, 10 STEL***^ (INSOL CPNDS)	
ZIRCONIUM	7440-67-7	231-176-9	5 (Zr CPNDS)	5, 10 STEL*** (Zr CPNDS) {A4}
			5, 10 STEL***^ (Zr CPNDS)	

R*: RESPIRABLE FRACTION

I*: INHALABLE FRACTION

**: CEILING LIMIT

***: SHORT TERM EXPOSURE LIMIT

+:
AS A NUISANCE PARTICULATE COVERED UNDER "PARTICULATES NOT OTHERWISE REGULATED" BY OSHA OR "PARTICULATES NOT OTHERWISE SPECIFIED" BY ACGIH

++:
CRYSTALLINE SILICA IS BOUND WITHIN THE PRODUCT AS IT EXISTS IN THE PACKAGE. HOWEVER, RESEARCH INDICATES SILICA IS PRESENT IN WELDING FUME IN THE AMORPHOUS (NONCRYSTALLINE) FORM

#: REPORTABLE MATERIAL UNDER SECTION 313 OF SARA

##: REPORTABLE MATERIAL UNDER SECTION 313 OF SARA ONLY IN FIBROUS FORM

###: REPORTABLE MATERIAL UNDER SECTION 313 OF SARA AS DUST OR FUME

^: NIOSH REL TWA AND STEL

$: LIMIT OF 0.1 MG/M3 IS FOR INHALABLE Mn IN 2015 BY ACGIH

$$: LIMIT OF 0.02 MG/M3 IS FOR RESPIRABLE Mn IN 2015 BY ACGIH

ELE: ELEMENT

SOL: SOLUBLE

INSOL: INSOLUBLE

INORG: INORGANIC

CPNDS: COMPOUNDS

NOS: NOT OTHERWISE SPECIFIED

{A1}: CONFIRMED HUMAN CARCINOGEN PER ACGIH

{A2}: SUSPECTED HUMAN CARCINOGEN PER ACGIH

{A3}:
CONFIRMED ANIMAL CARCINOGEN WITH UNKNOWN RELEVANCE TO HUMANS PER ACGIH

{A4}: NOT CLASSIFIABLE AS A HUMAN CARCINOGEN PER ACGIH

{A5}: NOT SUSPECTED AS A HUMAN CARCINOGEN PER ACGIH (NONCRYSTALLINE FORM)

EINECS: EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES

OSHA: U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

ACGIH: AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS

VENTILATION:
USE ENOUGH VENTILATION OR LOCAL EXHAUST AT THE ARC OR BOTH TO KEEP THE FUMES AND GASES BELOW THE PELS/TLVS IN THE WORKER'S BREATHING ZONE AND THE GENERAL AREA. TRAIN THE WELDER TO KEEP HIS HEAD OUT OF THE FUMES.

RESPIRATORY PROTECTION:
USE NIOSH-APPROVED OR EQUIVALENT FUME RESPIRATOR OR AIR SUPPLIED RESPIRATOR WHEN WELDING IN CONFINED SPACE OR WHERE LOCAL EXHAUST OR VENTILATION DOES NOT KEEP EXPOSURE BELOW THE REGULATORY LIMITS.

EYE PROTECTION:
WEAR HELMET OR USE FACE SHIELD WITH FILTER LENS FOR OPEN ARC WELDING PROCESSES. AS A RULE OF THUMB BEGIN WITH SHADE NUMBER 14. ADJUST IF NEEDED BY SELECTING THE NEXT LIGHTER AND/OR DARKER SHADE NUMBER. PROVIDE PROTECTIVE SCREENS AND FLASH GOGGLES, IF NECESSARY, TO SHIELD OTHERS FROM THE WELD ARC FLASH.

PROTECTIVE CLOTHING:
WEAR HAND, HEAD AND BODY PROTECTION WHICH HELP TO PREVENT INJURY FROM RADIATION, SPARKS AND ELECTRICAL SHOCK. SEE ANSI Z49.1. AT A MINIMUM THIS INCLUDES WELDER'S GLOVES AND A PROTECTIVE FACE SHIELD, AND MAY INCLUDE ARM PROTECTORS, APRONS, HATS, SHOULDER PROTECTION AS WELL AS DARK NON-SYNTHETIC CLOTHING. TRAIN THE WELDER NOT TO TOUCH LIVE ELECTRICAL PARTS AND TO INSULATE HIMSELF FROM WORK AND GROUND.

PROCEDURE FOR CLEANUP OF SPILLS OR LEAKS: NOT APPLICABLE

SPECIAL PRECAUTIONS (IMPORTANT):
WHEN WELDING WITH ELECTRODES THAT REQUIRE SPECIAL VENTILATION (SUCH AS STAINLESS OR HARDFACING, OR OTHER PRODUCTS WHICH REQUIRE SPECIAL VENTILATION, OR ON LEAD- OR CADMIUM-PLATED STEEL AND OTHER METALS OR COATINGS LIKE GALVANIZED STEEL, WHICH PRODUCE HAZARDOUS FUMES) MAINTAIN EXPOSURE BELOW THE PELS/TLVS. USE INDUSTRIAL HYGIENE MONITORING TO ENSURE THAT YOUR USE OF THIS MATERIAL DOES NOT CREATE EXPOSURES WHICH EXCEED PELS/TLVS. ALWAYS USE EXHAUST VENTILATION.

REFER TO THE FOLLOWING SOURCES FOR IMPORTANT ADDITIONAL INFORMATION:
AMERICAN NATIONAL STANDARD INSTITUTE (ANSI) Z49.1; SAFETY IN WELDING AND CUTTING PUBLISHED BY THE AMERICAN WELDING SOCIETY, 8669 NW 36 STREET, # 130, MIAMI, FLORIDA 33166-6672, PHONE: 800-443-9353 OR 305-443-9353; AND OSHA PUBLICATION 2206 (29 CFR 1910), U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, DC 20402.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

top

WELDING CONSUMABLES APPLICABLE TO THIS SHEET AS SHIPPED ARE NONREACTIVE, NONFLAMMABLE, NON-EXPLOSIVE AND ESSENTIALLY NONHAZARDOUS UNTIL WELDED.

PHYSICAL STATE: SOLID

APPEARANCE: CORED/ROUND WIRE

COLOR: GRAY

ODOR: NOT APPLICABLE

ODOR THRESHOLD: NOT APPLICABLE

PH: NOT APPLICABLE

MELTING POINT/FREEZING POINT: NOT AVAILABLE

INITIAL BOILING POINT AND BOILING RANGE: NOT AVAILABLE

FLASH POINT: NOT AVAILABLE

EVAPORATION RATE: NOT APPLICABLE

FLAMMABILITY (SOLID, GAS): NOT AVAILABLE

UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS: NOT AVAILABLE

VAPOR PRESSURE: NOT APPLICABLE

VAPOR DENSITY: NOT APPLICABLE

RELATIVE DENSITY: NOT AVAILABLE

SOLUBILITY(IES): NOT AVAILABLE

PARTITION COEFFICIENT N-OCTANOL/WATER: NOT APPLICABLE

AUTO-IGNITION TEMPERATURE: NOT AVAILABLE

DECOMPOSITION TEMPERATURE: NOT AVAILABLE

VISCOSITY: NOT APPLICABLE

SECTION 10 - STABILITY AND REACTIVITY

top

GENERAL:
WELDING CONSUMABLES APPLICABLE TO THIS SHEET ARE SOLID AND NONVOLATILE AS SHIPPED. THIS PRODUCT IS ONLY INTENDED FOR USE PER THE WELDING PARAMETERS IT WAS DESIGNED FOR. WHEN THIS PRODUCT IS USED FOR WELDING, HAZARDOUS FUMES MAY BE CREATED. OTHER FACTORS TO CONSIDER INCLUDE THE BASE METAL, BASE METAL PREPARATION AND BASE METAL COATINGS. ALL OF THESE FACTORS CAN CONTRIBUTE TO THE FUME AND GASES GENERATED DURING WELDING. THE AMOUNT OF FUME VARIES WITH THE WELDING PARAMETERS.

STABILITY: THIS PRODUCT IS STABLE UNDER NORMAL CONDITIONS.

REACTIVITY: CONTACT WITH ACIDS OR STRONG BASES MAY CAUSE GENERATION OF GAS.

SECTION 11 - TOXICOLOGICAL INFORMATION

top

SHORT-TERM (ACUTE) OVEREXPOSURE EFFECTS:

WELDING FUMES:
MAY RESULT IN DISCOMFORT SUCH AS DIZZINESS, NAUSEA OR DRYNESS OR IRRITATION OF NOSE, THROAT OR EYES.

ALUMINUM OXIDE: IRRITATION OF THE RESPIRATORY SYSTEM.

ANTIMONY COMPOUNDS: IRRITATION OF NOSE, THROAT, EYES AND SKIN.

BARIUM:
ACHING EYES, RHINITIS, FRONTAL HEADACHE, WHEEZING, LARYNGEAL SPASMS, SALIVATION OR ANOREXIA.

CALCIUM OXIDE:
DUST OR FUMES MAY CAUSE IRRITATION OF THE RESPIRATORY SYSTEM, SKIN AND EYES.

CHROMIUM:
INHALATION OF FUME WITH CHROMIUM (VI) COMPOUNDS CAN CAUSE IRRITATION OF THE RESPIRATORY TRACT, LUNG DAMAGE AND ASTHMA-LIKE SYMPTOMS. SWALLOWING CHROMIUM (VI) SALTS CAN CAUSE SEVERE INJURY OR DEATH. DUST ON SKIN CAN FORM ULCERS. EYES MAY BE BURNED BY CHROMIUM (VI) COMPOUNDS. ALLERGIC REACTIONS MAY OCCUR IN SOME PEOPLE.

COLUMBIUM:
DUST OR FUMES MAY CAUSE IRRITATION OF THE RESPIRATORY SYSTEM, SKIN AND EYES.

COPPER:
METAL FUME FEVER CHARACTERIZED BY METALLIC TASTE, TIGHTNESS OF CHEST AND FEVER. SYMPTOMS MAY LAST 24 TO 48 HOURS FOLLOWING OVEREXPOSURE.

FLUORIDES:
FLUORIDE COMPOUNDS EVOLVED MAY CAUSE SKIN AND EYE BURNS, PULMONARY EDEMA AND BRONCHITIS.

IRON, IRON OXIDE: NONE ARE KNOWN. TREAT AS NUISANCE DUST OR FUME.

MAGNESIUM, MAGNESIUM OXIDE:
OVEREXPOSURE TO THE OXIDE MAY CAUSE METAL FUME FEVER CHARACTERIZED BY METALLIC TASTE, TIGHTNESS OF CHEST AND FEVER. SYMPTOMS MAY LAST 24 TO 48 HOURS FOLLOWING OVEREXPOSURE.

MANGANESE:
METAL FUME FEVER CHARACTERIZED BY CHILLS, FEVER, UPSET STOMACH, VOMITING, IRRITATION OF THE THROAT AND ACHING OF BODY. RECOVERY IS GENERALLY COMPLETE WITHIN 48 HOURS OF THE OVEREXPOSURE.

MICA: DUST MAY CAUSE IRRITATION OF THE RESPIRATORY SYSTEM, SKIN AND EYES.

MOLYBDENUM: IRRITATION OF THE EYES, NOSE AND THROAT.

NICKEL, NICKEL COMPOUNDS:
METALLIC TASTE, NAUSEA, TIGHTNESS IN CHEST, METAL FUME FEVER, ALLERGIC REACTION.

POTASSIUM SILICATE:
DUST OR FUMES MAY CAUSE IRRITATION OF THE RESPIRATORY SYSTEM, SKIN AND EYES

SILICA (AMORPHOUS):
DUST AND FUMES MAY CAUSE IRRITATION OF THE RESPIRATORY SYSTEM, SKIN AND EYES.

SODIUM SILICATE:
DUST OR FUMES MAY CAUSE IRRITATION OF THE RESPIRATORY SYSTEM, SKIN AND EYES.

STRONTIUM COMPOUNDS:
STRONTIUM SALTS ARE GENERALLY NON-TOXIC AND ARE NORMALLY PRESENT IN THE HUMAN BODY. IN LARGE ORAL DOSES, THEY MAY CAUSE GASTROINTESTINAL DISORDERS, VOMITING AND DIARRHEA.

TITANIUM DIOXIDE: IRRITATION OF RESPIRATORY SYSTEM.

TUNGSTEN:
DUST MAY CAUSE IRRITATION OF THE SKIN AND EYES. INHALATION OF DUST MAY CAUSE ACUTE AIRWAYS OBSTRUCTIVE ASTHMA WHICH IS REVERSIBLE FOLLOWING OVEREXPOSURE. SYMPTOMS ARE TIGHTENING CHEST AND PRODUCTIVE COUGH.

ZIRCONIUM:
MAY CAUSE IRRITATION OF THE EYES, NOSE AND THROAT DUE TO MECHANICAL EFFECTS.

LONG-TERM (CHRONIC) OVEREXPOSURE EFFECTS:

WELDING FUMES:
EXCESS LEVELS MAY CAUSE BRONCHIAL ASTHMA, LUNG FIBROSIS, PNEUMOCONIOSIS OR "SIDEROSIS." STUDIES HAVE CONCLUDED THAT THERE IS SUFFICIENT EVIDENCE FOR OCULAR MELANOMA IN WELDERS.

ALUMINUM OXIDE: PULMONARY FIBROSIS AND EMPHYSEMA.

ANTIMONY COMPOUNDS:
METAL FUME FEVER, DERMATITIS, KERATITIS, CONJUNCTIVITIS AND ULCERATION AND PERFORATION OF THE NASAL SEPTUM. AVOID CONDITIONS IN WHICH FRESH HYDROGEN WILL REACT WITH ANTIMONY TO FORM STIBINE WHICH IS EXTREMELY TOXIC.

BARIUM:
LONG TERM OVEREXPOSURE TO SOLUBLE BARIUM COMPOUNDS MAY CAUSE NERVOUS DISORDERS AND MAY HAVE DELETERIOUS EFFECTS ON THE HEART, CIRCULATORY SYSTEM AND MUSCULATURE.

CALCIUM OXIDE:
PROLONGED OVEREXPOSURE MAY CAUSE ULCERATION OF THE SKIN AND PERFORATION OF THE NASAL SEPTUM, DERMATITIS AND PNEUMONIA.

CHROMIUM:
ULCERATION AND PERFORATION OF NASAL SEPTUM. RESPIRATORY IRRITATION MAY OCCUR WITH SYMPTOMS RESEMBLING ASTHMA. STUDIES HAVE SHOWN THAT CHROMATE PRODUCTION WORKERS EXPOSED TO HEXAVALENT CHROMIUM COMPOUNDS HAVE AN EXCESS OF LUNG CANCERS. CHROMIUM (VI) COMPOUNDS ARE MORE READILY ABSORBED THROUGH THE SKIN THAN CHROMIUM (III) COMPOUNDS. GOOD PRACTICE REQUIRES THE REDUCTION OF EMPLOYEE EXPOSURE TO CHROMIUM (III) AND (VI) COMPOUNDS.

COLUMBIUM:
NO ADVERSE LONG TERM HEALTH EFFECTS HAVE BEEN REPORTED IN THE LITERATURE.

COPPER:
COPPER POISONING HAS BEEN REPORTED IN THE LITERATURE FROM EXPOSURE TO HIGH LEVELS OF COPPER. LIVER DAMAGE CAN OCCUR DUE TO COPPER ACCUMULATING IN THE LIVER CHARACTERIZED BY CELL DESTRUCTION AND CIRRHOSIS. HIGH LEVELS OF COPPER MAY CAUSE ANEMIA AND JAUNDICE. HIGH LEVELS OF COPPER MAY CAUSE CENTRAL NERVOUS SYSTEM DAMAGE CHARACTERIZED BY NERVE FIBER SEPARATION AND CEREBRAL DEGENERATION.

FLUORIDES: SERIOUS BONE EROSION (OSTEOPOROSIS) AND MOTTLING OF TEETH.

IRON, IRON OXIDE FUMES:
CAN CAUSE SIDEROSIS (DEPOSITS OF IRON IN LUNGS) WHICH SOME RESEARCHERS BELIEVE MAY AFFECT PULMONARY FUNCTION. LUNGS WILL CLEAR IN TIME WHEN EXPOSURE TO IRON AND ITS COMPOUNDS CEASES. IRON AND MAGNETITE (Fe_3O_4) ARE NOT REGARDED AS FIBROGENIC MATERIALS.

MAGNESIUM, MAGNESIUM OXIDE:
NO ADVERSE LONG TERM HEALTH EFFECTS HAVE BEEN REPORTED IN THE LITERATURE.

MANGANESE:
LONG-TERM OVEREXPOSURE TO MANGANESE COMPOUNDS MAY AFFECT THE CENTRAL NERVOUS SYSTEM. SYMPTOMS MAY BE SIMILAR TO PARKINSON'S DISEASE AND CAN INCLUDE SLOWNESS, CHANGES IN HANDWRITING, GAIT IMPAIRMENT, MUSCLE SPASMS AND CRAMPS AND LESS COMMONLY, TREMOR AND BEHAVIORAL CHANGES. EMPLOYEES WHO ARE OVEREXPOSED TO MANGANESE COMPOUNDS SHOULD BE SEEN BY A PHYSICIAN FOR EARLY DETECTION OF NEUROLOGIC PROBLEMS. OVEREXPOSURE TO MANGANESE AND MANGANESE COMPOUNDS ABOVE SAFE EXPOSURE LIMITS CAN CAUSE IRREVERSIBLE DAMAGE TO THE CENTRAL NERVOUS SYSTEM, INCLUDING THE BRAIN, SYMPTOMS OF WHICH MAY INCLUDE SLURRED SPEECH, LETHARGY, TREMOR, MUSCULAR WEAKNESS, PSYCHOLOGICAL DISTURBANCES AND SPASTIC GAIT.

MICA:
PROLONGED OVEREXPOSURE MAY CAUSE SCARRING OF THE LUNGS AND PNEUMOCONIOSIS CHARACTERIZED BY COUGH, SHORTNESS OF BREATH, WEAKNESS AND WEIGHT LOSS.

MOLYBDENUM:

PROLONGED OVEREXPOSURE MAY RESULT IN LOSS OF APPETITE, WEIGHT LOSS, LOSS OF MUSCLE COORDINATION, DIFFICULTY IN BREATHING AND ANEMIA.

NICKEL, NICKEL COMPOUNDS:
LUNG FIBROSIS OR PNEUMOCONIOSIS. STUDIES OF NICKEL REFINERY WORKERS INDICATED A HIGHER INCIDENCE OF LUNG AND NASAL CANCERS

POTASSIUM SILICATE:
PROLONGED OVEREXPOSURE MAY CAUSE ULCERATION OF THE SKIN AND PERFORATION OF THE NASAL SEPTUM, DERMATITIS AND PNEUMONIA.

SILICA (AMORPHOUS):
RESEARCH INDICATES THAT SILICA IS PRESENT IN WELDING FUME IN THE AMORPHOUS FORM. LONG TERM OVEREXPOSURE MAY CAUSE PNEUMOCONIOSIS. NONCRYSTALLINE FORMS OF SILICA (AMORPHOUS SILICA) ARE CONSIDERED TO HAVE LITTLE FIBROTIC POTENTIAL.

SODIUM SILICATE:
PROLONGED OVEREXPOSURE MAY CAUSE ULCERATION OF THE SKIN AND PERFORATION OF THE NASAL SEPTUM, DERMATITIS AND PNEUMONIA.

STRONTIUM COMPOUNDS:
STRONTIUM AT HIGH DOSES IS KNOWN TO CONCENTRATE IN BONE. MAJOR SIGNS OF CHRONIC TOXICITY, WHICH INVOLVE THE SKELETON, HAVE BEEN LABELED AS "STRONTIUM RICKETS".

TITANIUM DIOXIDE: PULMONARY IRRITATION AND SLIGHT FIBROSIS.

TUNGSTEN:
LONG TERM OVEREXPOSURE MAY CAUSE PULMONARY FIBROSIS CHARACTERIZED BY A RAPID ONSET OF COUGH, SPUTUM AND DYSPNEA ON EXERTION.

ZIRCONIUM: MAY CAUSE PULMONARY FIBROSIS AND PNEUMOCONIOSIS.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:
PERSONS WITH PRE-EXISTING IMPAIRED LUNG FUNCTIONS (ASTHMA-LIKE CONDITIONS). PERSONS WITH A PACEMAKER SHOULD NOT GO NEAR WELDING AND CUTTING OPERATIONS UNTIL THEY HAVE CONSULTED THEIR DOCTOR AND OBTAINED INFORMATION FROM THE MANUFACTURER OF THE DEVICE. RESPIRATORS ARE TO BE WORN ONLY AFTER BEING MEDICALLY CLEARED BY YOUR COMPANY-DESIGNATED PHYSICIAN.

EMERGENCY AND FIRST AID PROCEDURES:
CALL FOR MEDICAL AID. EMPLOY FIRST AID TECHNIQUES RECOMMENDED BY THE AMERICAN RED CROSS. IF IRRITATION OR FLASH BURNS DEVELOP AFTER EXPOSURE, CONSULT A PHYSICIAN.

CARCINOGENICITY:
CHROMIUM VI COMPOUNDS, NICKEL COMPOUNDS AND SILICA (CRYSTALLINE QUARTZ) ARE CLASSIFIED AS IARC GROUP 1 AND NTP GROUP K CARCINOGENS. ANTIMONY TRIOXIDE, NICKEL, TITANIUM DIOXIDE AND WELDING FUMES ARE CLASSIFIED AS IARC GROUP 2B CARCINOGENS.

CALIFORNIA PROPOSITION 65:

WARNING:
THESE PRODUCTS CONTAIN OR PRODUCE A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS (OR OTHER REPRODUCTIVE HARM). (CALIFORNIA HEALTH & SAFETY CODE SECTION 25249.5 ET SEQ.)

INGREDIENT	CAS	IARC(E)	NTP(Z)	OSHA(H)	65(@)
ALUMINUM	7429-90-5	---	---	---	---
ALUMINUM OXIDE	1344-28-1	---	---	---	---
ANTIMONY TRIOXIDE	1309-64-4	2B	---	---	X
BARIUM	513-77-9	---	---	---	---

CARBONATE					
CALCIUM CARBONATE	1317-65-3	---	---	---	---
CHROMIUM	7440-47-3	3(SIGMA), 1(SIGMA) (SIGMA)	K(SIGMA) (SIGMA)	X(SIGMA) (SIGMA)	X(SIGMA) (SIGMA)
COLUMBIUM	7440-03-1	---	---	---	---
COPPER	7440-50-8	---	---	---	---
FLUORSPAR	7789-75-5	---	---	---	---
IRON	7439-89-6	---	---	---	---
IRON OXIDE	1309-37-1	3	---	---	---
MAGNESIUM	7439-95-4	---	---	---	---
MANGANESE	7439-96-5	---	---	---	---
MICA	12001-26-2	---	---	---	---
MOLYBDENUM	7439-98-7	---	---	---	---
NICKEL	7440-02-0	2B(BETA), 1(BETA) (BETA)	S(BETA), K(BETA) (BETA)	---	X(BETA), XX(BETA) (BETA)
POTASSIUM SILICATE	1312-76-1	---	---	---	---
SILICA	14808-60-7	1(PSI)	K	---	X
(AMORPHOUS SILICA FUME)	69012-64-2	3	---	---	---
SILICON	7440-21-3	---	---	---	---
SODIUM SILICATE	1344-09-8	---	---	---	---
STRONTIUM CARBONATE	1633-05-2	---	---	---	---
TITANIUM DIOXIDE	13463-67-7	2B	---	---	X
TUNGSTEN	7440-33-7	---	---	---	---
WELDING FUMES	---	2B	---	---	---
ZIRCONIUM	7440-67-7	---	---	---	---

(E): INTERNATIONAL AGENCY FOR RESEARCH ON CANCER
1 - CARCINOGENIC TO HUMANS
2A - PROBABLY CARCINOGENIC TO HUMANS
2B - POSSIBLY CARCINOGENIC TO HUMANS
3 - NOT CLASSIFIABLE AS TO ITS CARCINOGENICITY TO HUMANS
4 - PROBABLY NOT CARCINOGENIC TO HUMANS

(Z): US NATIONAL TOXICOLOGY PROGRAM
K - KNOWN CARCINOGEN
S - SUSPECTED CARCINOGEN

(H): OSHA DESIGNATED CARCINOGEN LIST

PCCSSB000205

(@): CALIFORNIA PROPOSITION 65 (X - ON PROPOSITION 65 LIST)

(SIGMA): METAL AND CHROMIUM III COMPOUNDS

(SIGMA)(SIGMA): CHROMIUM VI

(BETA): NICKEL METAL AND ALLOYS

(BETA)(BETA): NICKEL COMPOUNDS

(PSI): SILICA CRYSTALLINE

(ALPHA): QUARTZ

---:
DASHES INDICATE THE INGREDIENT IS NOT LISTED WITH THE IARC, NTP, OSHA OR PROPOSITION 65

SECTION 12 - ECOLOGICAL INFORMATION

top

WELDING PROCESSES CAN RELEASE FUMES DIRECTLY TO THE ENVIRONMENT. WELDING WIRE CAN DEGRADE IF LEFT OUTSIDE AND UNPROTECTED. RESIDUES FROM WELDING CONSUMABLES AND PROCESSES COULD DEGRADE AND ACCUMULATE IN THE SOIL AND GROUNDWATER.

SECTION 13 - DISPOSAL CONSIDERATIONS

top

USE RECYCLING PROCEDURES IF AVAILABLE. DISCARD ANY PRODUCT, RESIDUE, PACKAGING, DISPOSABLE CONTAINER OR LINER IN AN ENVIRONMENTALLY ACCEPTABLE MANNER, IN FULL COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

SECTION 14 - TRANSPORT INFORMATION

top

NO INTERNATIONAL REGULATIONS OR RESTRICTIONS ARE APPLICABLE. NO SPECIAL PRECAUTIONS ARE NECESSARY.

SECTION 15 - REGULATORY INFORMATION

top

READ AND UNDERSTAND THE MANUFACTURER'S INSTRUCTIONS, YOUR EMPLOYER'S SAFETY PRACTICES AND THE HEALTH AND SAFETY INSTRUCTIONS ON THE LABEL AND THE SAFETY DATA SHEET. OBSERVE ALL LOCAL AND FEDERAL RULES AND REGULATIONS. TAKE ALL NECESSARY PRECAUTIONS TO PROTECT YOURSELF AND OTHERS.

UNITED STATES EPA TOXIC SUBSTANCE CONTROL ACT:
ALL CONSTITUENTS OF THESE PRODUCTS ARE ON THE TSCA INVENTORY LIST OR ARE EXCLUDED FROM LISTING.

CERCLA/SARA TITLE III:
REPORTABLE QUANTITIES (RQS) AND/OR THRESHOLD PLANNING QUANTITIES (TPQS):

INGREDIENT NAME	RQ (LB)	TPQ (LB)

PRODUCTS ON THIS SDS ARE A SOLID SOLUTION IN THE FORM OF A SOLID ARTICLE.

SPILLS OR RELEASES RESULTING IN THE LOSS OF ANY INGREDIENT AT OR ABOVE ITS RQ REQUIRE IMMEDIATE NOTIFICATION TO THE NATIONAL RESPONSE CENTER AND TO YOUR LOCAL EMERGENCY PLANNING COMMITTEE.

SECTION 311 HAZARD CLASS:

AS SHIPPED: IMMEDIATE
IN USE: IMMEDIATE DELAYED

EPCRA/SARA TITLE III 313 TOXIC CHEMICALS:
THE FOLLOWING METALLIC COMPONENTS ARE LISTED AS SARA 313 "TOXIC CHEMICALS" AND POTENTIALLY SUBJECT TO ANNUAL SARA 312 REPORTING:
ALUMINUM, ALUMINUM OXIDE, ANTIMONY TRIOXIDE, BARIUM CARBONATE, CHROMIUM, COPPER, MANGANESE AND NICKEL. SEE SECTION 3 FOR WEIGHT PERCENTAGE.

CANADIAN WHMIS CLASSIFICATION: CLASS D; DIVISION 2, SUBDIVISION A

CANADIAN CONTROLLED PRODUCTS REGULATION:
THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR AND THE SDS CONTAINS ALL OF THE INFORMATION REQUIRED BY THE CPR.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA):
ALL CONSTITUENTS OF THESE PRODUCTS ARE ON THE DOMESTIC SUBSTANCE LIST (DSL).

SECTION 16 - OTHER INFORMATION

top

THE FOLLOWING HAZARD STATEMENTS, PROVIDED IN THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR PART 1910.1200) CORRESPOND TO THE COLUMNS LABELED 'GHS HAZARD STATEMENTS' WITHIN SECTION 3 OF THIS SAFETY DATA SHEET. TAKE APPROPRIATE PRECAUTIONS AND PROTECTIVE MEASURES TO ELIMINATE OR LIMIT THE ASSOCIATED HAZARD.

H228: FLAMMABLE SOLID

H250: CATCHES FIRE SPONTANEOUSLY IF EXPOSED TO AIR

H252: SELF-HEATING IN LARGE QUANTITIES; MAY CATCH FIRE

H260:
IN CONTACT WITH WATER RELEASES FLAMMABLE GASES WHICH MAY IGNITE SPONTANEOUSLY

H261: IN CONTACT WITH WATER RELEASES FLAMMABLE GASES

H271: MAY CAUSE FIRE OR EXPLOSION; STRONG OXIDIZER

H301: TOXIC IF SWALLOWED

H302: HARMFUL IF SWALLOWED

H311: TOXIC IN CONTACT WITH SKIN

H314: CAUSES SEVERE SKIN BURNS AND EYE DAMAGE

H317: MAY CAUSE AN ALLERGIC SKIN REACTION

H319: CAUSES SERIOUS EYE IRRITATION

H330: FATAL IF INHALED

H332: HARMFUL IF INHALED

H334:
MAY CAUSE ALLERGY OR ASTHMA SYMPTOMS OR BREATHING DIFFICULTIES IF INHALED

H335: MAY CAUSE RESPIRATORY IRRITATION

H340: MAY CAUSE GENETIC DEFECTS

H350: MAY CAUSE CANCER

H351: SUSPECTED OF CAUSING CANCER

H361F: SUSPECTED OF DAMAGING FERTILITY OR THE UNBORN CHILD

H372: CAUSES DAMAGE TO ORGANS THROUGH PROLONGED OR REPEATED EXPOSURE

H373: MAY CAUSE DAMAGE TO ORGANS THROUGH PROLONGED OR REPEATED EXPOSURE

H400: VERY TOXIC TO AQUATIC LIFE.

H410: VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS

H412: HARMFUL TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

FOR ADDITIONAL INFORMATION PLEASE REFER TO THE FOLLOWING SOURCES:

USA:
AMERICAN NATIONAL STANDARD INSTITUTE (ANSI) Z49.1 "SAFETY IN WELDING AND CUTTING", ANSI/AMERICAN WELDING SOCIETY (AWS) F1.5 "METHODS FOR SAMPLING AND ANALYZING GASES FROM WELDING AND ALLIED PROCESSES", ANSI/AWS F1.1 "METHOD FOR SAMPLING AIRBORNE PARTICLES GENERATED BY WELDING AND ALLIED PROCESSES", AWSF3.2M/F3.2 "VENTILATION GUIDE FOR WELD FUME", AMERICAN WELDING SOCIETY, 8669 NW 36 STREET, # 130, MIAMI, FLORIDA 33166-6672, PHONE: 800-443-9353 OR 305-443-9353. SAFETY AND HEALTH FACT SHEETS AVAILABLE FROM AWS AT WWW.AWS.ORG.

OSHA PUBLICATION 2206 (29 C.F.R. 1910), U.S. GOVERNMENT PRINTING OFFICE, SUPERINTENDENT OF DOCUMENTS, P.O. BOX 371954, PITTSBURGH, PA 15250-7954.

THRESHOLD LIMIT VALUES AND BIOLOGICAL EXPOSURE INDICES, AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH), 6500 GLENWAY AVE., CINCINNATI, OHIO 45211, USA.

NFPA 51B "STANDARD FOR FIRE PREVENTION DURING WELDING, CUTTING AND OTHER HOT WORK" PUBLISHED BY THE NATIONAL FIRE PROTECTION ASSOCIATION, 1 BATTERYMARCH PARK, QUINCY, MA 02169.

CANADA:
CSA STANDARD CAN/CSA-W117.2-01 "SAFETY IN WELDING, CUTTING AND ALLIED PROCESSES".

WELDING MATERIAL SALES, INC. STRONGLY RECOMMENDS THE USERS OF THIS PRODUCT STUDY THIS SDS, THE PRODUCT LABEL INFORMATION AND BECOME AWARE OF ALL HAZARDS ASSOCIATED WITH WELDING. WELDING MATERIAL SALES, INC. BELIEVES THIS DATA TO BE ACCURATE AND TO REFLECT QUALIFIED EXPERT OPINION REGARDING CURRENT RESEARCH. HOWEVER, WELDING MATERIAL SALES, INC. CANNOT MAKE ANY EXPRESSED OR IMPLIED WARRANTY AS TO THIS INFORMATION.

PCCSSB000208

Revision Number: 007.1

Issue date: 02/19/2014

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Loctite® Threadlocker Blue 242 Removable
Product type: Anaerobic Sealant

IDH number: 209728
Item number: 24200
Region: United States

Company address:
Henkel Corporation
One Henkel Way
Rocky Hill, Connecticut 06067

Contact information:
Telephone: 860.571.5100
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HMIS:

Physical state: Liquid
Color: Blue
Odor: Mild

HEALTH: *2
FLAMMABILITY: 1
PHYSICAL HAZARD: 1
Personal Protection: See MSDS Section 8

WARNING: CAUSES EYE IRRITATION.
MAY CAUSE SKIN IRRITATION.
MAY CAUSE ALLERGIC SKIN REACTION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects

Inhalation: May cause respiratory tract irritation.
Skin contact: May cause allergic skin reaction. May cause skin irritation.
Eye contact: Contact with eyes will cause irritation.
Ingestion: Not expected to be harmful by ingestion.

Existing conditions aggravated by exposure: Eye, skin, and respiratory disorders.

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Polyglycol dimethacrylate	Proprietary	60 - 100
Polyglycol oleate	Proprietary	10 - 30
Silica, amorphous, fumed, crystal-free	112945-52-5	1 - 5
Cumene hydroperoxide	80-15-9	1 - 5
Propane-1,2-diol	57-55-6	1 - 5
Cumene	98-82-8	0.1 - 1

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Keep warm and quiet. Get medical attention.

Skin contact: Wash with soap and water. Remove contaminated clothing and footwear. Wash clothing before reuse. If symptoms develop and persist, get medical attention.

Eye contact: Flush with copious amounts of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time. Get medical attention.

Ingestion: Do not induce vomiting. Keep individual calm. Get medical attention.

5. FIRE FIGHTING MEASURES

Flash point: > 93.3 °C (> 199.94 °F) Tagliabue closed cup

Flame projection: Not applicable

Autoignition temperature: Not determined

Flammable/Explosive limits - lower: 2.6 % (propylene glycol)

Flammable/Explosive limits - upper: 12.5 % (propylene glycol)

Extinguishing media: Foam, dry chemical or carbon dioxide.

Special firefighting procedures: None

Unusual fire or explosion hazards: None

Hazardous combustion products: Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Irritating organic vapours.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Do not allow product to enter sewer or waterways.

Clean-up methods: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Store in a partly filled, closed container until disposal.

7. HANDLING AND STORAGE

Handling: Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling.

Storage: For safe storage, store between 0 °C (32°F) and 32 °C (89.6 °F)
Keep in a cool, well ventilated area away from heat, sparks and open flame.
Keep container tightly closed until ready for use.

For information on product shelf life contact Henkel Customer Service at (800) 243-4874.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Polyglycol dimethacrylate	None	None	None	None
Polyglycol oleate	None	None	None	None
Silica, amorphous, fumed, crystal-free	10 mg/m3 TWA Inhalable dust. 3 mg/m3 TWA Respirable fraction.	20 MPPCF TWA 0.8 mg/m3 TWA	None	None
Cumene hydroperoxide	None	None	1 ppm (6 mg/m3) TWA (SKIN)	None
Propane-1,2-diol	None	None	10 mg/m3 TWA Aerosol.	None
Cumene	50 ppm TWA	50 ppm (245 mg/m3) PEL (SKIN)	None	None

Engineering controls: No specific ventilation requirements noted, but forced ventilation may still be required if concentrations exceed occupational exposure limits.

Respiratory protection: Use NIOSH approved respirator if there is potential to exceed exposure limit(s).

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Use impermeable gloves and protective clothing as necessary to prevent skin contact. Neoprene gloves. Butyl rubber gloves. Natural rubber gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid
Color: Blue
Odor: Mild
Odor threshold: Not available.
pH: Not applicable
Vapor pressure: < 5 mm hg (27 °C (80.6 °F))
Boiling point/range: > 149 °C (> 300.2 °F)
Melting point/ range: Not available.
Specific gravity: 1.1 at 23.9 °C (75.02 °F)
Vapor density: Not available.
Flash point: > 93.3 °C (> 199.94 °F) Tagliabue closed cup
Flame projection: Not applicable
Flammable/Explosive limits - lower: 2.6 % (propylene glycol)
Flammable/Explosive limits - upper: 12.5 % (propylene glycol)
Autoignition temperature: Not determined
Evaporation rate: Not available.
Solubility in water: Slight
Partition coefficient (n-octanol/water): Not available.
VOC content: 0.56 %; 6.17 g/l

10. STABILITY AND REACTIVITY

Stability: Stable

Hazardous reactions: Will not occur.

Hazardous decomposition products: Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Irritating organic vapours.

Incompatible materials: Strong oxidizing agents. Free radical initiators. Strong reducing agents. Alkalis. Oxygen scavengers. Other polymerization initiators. Copper. Iron. Zinc. Aluminum. Rust.

Conditions to avoid: See "Handling and Storage" (Section 7) and "Incompatibility" (Section 10).

11. TOXICOLOGICAL INFORMATION

Acute oral product toxicity: LD50 (rat) > 10,000 mg/kg

Acute dermal product toxicity: LD50 (rabbit) > 5,000 mg/kg

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Polyglycol dimethacrylate	No	No	No
Polyglycol oleate	No	No	No
Silica, amorphous, fumed, crystal-free	No	No	No
Cumene hydroperoxide	No	No	No
Propane-1,2-diol	No	No	No
Cumene	No	Group 2B	No

Hazardous components	Health Effects/Target Organs
Polyglycol dimethacrylate	Allergen, Irritant
Polyglycol oleate	Irritant
Silica, amorphous, fumed, crystal-free	Nuisance dust
Cumene hydroperoxide	Allergen, Central nervous system, Corrosive, Irritant, Mutagen
Propane-1,2-diol	Irritant
Cumene	Central nervous system, Irritant, Lung

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

Hazardous waste number: Not a RCRA hazardous waste.

14. TRANSPORT INFORMATION

The shipping classifications in this sections are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

International Air Transportation (ICAO/IATA)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

Water Transportation (IMO/IMDG)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status:	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification:	None above reporting de minimis
CERCLA/SARA Section 302 EHS:	None above reporting de minimis
CERCLA/SARA Section 311/312:	Immediate Health, Delayed Health
CERCLA/SARA Section 313:	This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Cumene hydroperoxide (CAS# 80-15-9).
California Proposition 65:	This product contains a chemical known in the State of California to cause cancer. This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada Regulatory Information

CEPA DSL/NDSL Status:	All components are listed on or are exempt from listing on the Canadian Domestic Substances List.
WHMIS hazard class:	D.2.A, D.2.B

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: 2 and 16

Prepared by: Diane Annis, Sr. Regulatory Affairs Specialist

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Revision Number: 006.3

Issue date: 01/22/2018

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **LOCTITE 567 THREAD SEALANT known as LOCTITE® 567™ PST® PIPE SEALAN**

IDH number: 135491

Product type: Anaerobic Sealant

Item number: 56747

Restriction of Use: None identified

Region: United States

Company address:
Henkel Corporation
One Henkel Way
Rocky Hill, Connecticut 06067

Contact information:
Telephone: (860) 571-5100
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW	
WARNING:	CAUSES SKIN AND EYE IRRITATION. MAY CAUSE AN ALLERGIC SKIN REACTION.

HAZARD CLASS	HAZARD CATEGORY
SKIN IRRITATION	2
EYE IRRITATION	2B
SKIN SENSITIZATION	1

PICTOGRAM(S)

Precautionary Statements

Prevention: Avoid breathing dust or fumes. Wash affected area thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves.

Response: IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation or rash occurs: Get medical attention. If eye irritation persists: Get medical attention. Take off contaminated clothing.

Storage: Not prescribed

Disposal: Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations.

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component(s)	CAS Number	Percentage*

Polyglycol laurate	9004-81-3	10 - 20
Ethene, homopolymer	9002-88-4	5 - 10
Ethene, tetrafluoro-, homopolymer	9002-84-0	5 - 10
Titanium dioxide	13463-67-7	1 - 5
Silica, amorphous, fumed, crystal-free	112945-52-5	1 - 5
Saccharin	81-07-2	1 - 5
Epichlorohydrin-4,4'-isopropylidene diphenol resin	25068-38-6	1 - 5
Cumene hydroperoxide	80-15-9	0.1 - 1
Ethylene glycol	107-21-1	0.1 - 1
Cumene	98-82-8	0.1 - 1

* Exact percentages may vary or are trade secret. Concentration range is provided to assist users in providing appropriate protections.

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Skin contact: Immediately flush skin with plenty of water (using soap, if available). Remove contaminated clothing and footwear. Wash clothing before reuse. Get medical attention.

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Ingestion: DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Symptoms: See Section 11.

5. FIRE FIGHTING MEASURES

Extinguishing media: Water spray (fog), foam, dry chemical or carbon dioxide.

Special firefighting procedures: Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear. In case of fire, keep containers cool with water spray.

Unusual fire or explosion hazards: Uncontrolled polymerization may occur at high temperatures resulting in explosions or rupture of storage containers.

Hazardous combustion products: Oxides of carbon. Oxides of nitrogen. Oxides of sulfur. Toxic fluorine compounds. Irritating organic vapours.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Do not allow product to enter sewer or waterways.

Clean-up methods: Remove all sources of ignition. Evacuate and ventilate spill area; dike spill to prevent entry into water system; wear full protective equipment during clean-up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Scrape up as much material as possible. Store in a partly filled, closed container until disposal. Refer to Section 8 "Exposure Controls / Personal Protection" prior to clean up.

7. HANDLING AND STORAGE

Handling: Use only with adequate ventilation. Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling. Keep container closed. Refer to Section 8.

Storage: For safe storage, store at or below 38 °C (100.4 °F)
Keep in a cool, well ventilated area away from heat, sparks and open flame.
Keep container tightly closed until ready for use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Polyglycol laurate	None	None	None	None
Ethene, homopolymer	10 mg/m3 TWA Inhalable particles. 3 mg/m3 TWA Respirable particles.	15 MPPCF TWA Respirable fraction. 15 mg/m3 TWA Total dust. 50 MPPCF TWA Total dust. 5 mg/m3 TWA Respirable fraction. 5 mg/m3 PEL Respirable fraction. 15 mg/m3 PEL Total dust.	None	None
Ethene, tetrafluoro-, homopolymer	None	None	None	10 mg/m3 TWA Total dust. 5 mg/m3 TWA Respirable fraction.
Titanium dioxide	10 mg/m3 TWA	15 mg/m3 PEL Total dust. 15 MPPCF TWA Respirable fraction. 15 mg/m3 TWA Total dust. 50 MPPCF TWA Total dust. 5 mg/m3 TWA Respirable fraction.	None	None
Silica, amorphous, fumed, crystal-free	10 mg/m3 TWA Inhalable dust. 3 mg/m3 TWA Respirable fraction.	20 MPPCF TWA 0.8 mg/m3 TWA	None	None
Saccharin	None	None	None	None
Epichlorohydrin-4,4'-isopropylidene diphenol resin	None	None	None	None
Cumene hydroperoxide	None	None	1 ppm (6 mg/m3) TWA (SKIN)	None
Ethylene glycol	25 ppm TWA Vapor fraction 50 ppm STEL Vapor fraction 10 mg/m3 STEL Aerosol, inhalable.	None	None	None
Cumene	50 ppm TWA	50 ppm (245 mg/m3) PEL (SKIN)	None	None

Engineering controls:	Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.
Respiratory protection:	Use a NIOSH approved supplied air respirator with an organic cartridge if the potential to exceed established exposure limits exists. If this material is handled at elevated temperatures or under mist forming conditions, without engineering controls, a NIOSH approved respirator must be used.
Eye/face protection:	Safety goggles or safety glasses with side shields. Full face protection should be used if the potential for splashing or spraying of product exists. Safety showers and eye wash stations should be available.
Skin protection:	Neoprene, Butyl-rubber, or nitrile-rubber gloves. Use chemical resistant, impermeable clothing including gloves and either an apron or body suit to prevent skin contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Paste
Color:	White
Odor:	Mild
Odor threshold:	Not available.
pH:	Not applicable
Vapor pressure:	< 5 mm hg (27 °C (80.6 °F))
Boiling point/range:	> 300 °F (> 148.9 °C)None
Melting point/ range:	Not available.
Specific gravity:	1.14
Vapor density:	Not available.
Flash point:	> 93.3 °C (> 199.94 °F)
Flammable/Explosive limits - lower:	Not available.
Flammable/Explosive limits - upper:	Not available.
Autoignition temperature:	Not available.
Flammability:	Not applicable
Evaporation rate:	Not available.
Solubility in water:	Slight
Partition coefficient (n-octanol/water):	Not available.
VOC content:	0.13 %; 1.38 g/l Method 40 CFR Part 63 Appendix A to Subpart PPPP
Viscosity:	Not available.
Decomposition temperature:	Not available.

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions of storage and use.
Hazardous reactions:	None under normal processing. Polymerization may occur at elevated temperature or in the presence of incompatible materials.
Hazardous decomposition products:	Oxides of nitrogen. Oxides of carbon. Oxides of sulfur. Toxic fluorine compounds. Phenolics. Irritating organic vapours.
Incompatible materials:	Free radical initiators. Amines. Aldehydes. Alkalis. copper Aluminum. Rust. Bases. Acids. Strong oxidizing agents. Peroxides. Iron. Reducing agents. Zinc.
Reactivity:	Not available.
Conditions to avoid:	Elevated temperatures. Heat, flames, sparks and other sources of ignition. Store away from incompatible materials. Exposure to sunlight.

11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure: Skin, Inhalation, Eyes, Ingestion

Potential Health Effects/Symptoms

Inhalation: Inhalation of vapors or mists of the product may be irritating to the respiratory system.
Skin contact: Causes skin irritation. May cause allergic skin reaction.
Eye contact: Causes eye irritation.
Ingestion: May cause gastrointestinal tract irritation if swallowed.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Polyglycol laurate	None	Allergen, Irritant
Ethene, homopolymer	None	No Target Organs
Ethene, tetrafluoro-, homopolymer	None	No Target Organs
Titanium dioxide	None	Irritant, Respiratory, Some evidence of carcinogenicity
Silica, amorphous, fumed, crystal-free	None	Nuisance dust
Saccharin	Oral LD50 (Mouse) = 17 g/kg	No Target Organs
Epichlorohydrin-4,4'-isopropylidene diphenol resin	None	Allergen, Irritant
Cumene hydroperoxide	Inhalation LC50 (Mouse, 4 h) = 200 mg/l	Allergen, Central nervous system, Corrosive, Irritant, Mutagen
Ethylene glycol	Oral LD50 (Rat) = 5.89 g/kg Oral LD50 (Mouse) = 14.6 g/kg Dermal LD50 (Rabbit) = 9,530 mg/kg	Blood, Bone Marrow, Central nervous system, Developmental, Eyes, Irritant, Kidney, Liver, Metabolic
Cumene	Oral LD50 (Rat) = 2.91 g/kg Oral LD50 (Rat) = 1,400 mg/kg Inhalation LC50 (Rat, 4 h) = 8000 ppm	Central nervous system, Irritant, Lung

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Polyglycol laurate	No	No	No
Ethene, homopolymer	No	No	No
Ethene, tetrafluoro-, homopolymer	No	No	No
Titanium dioxide	No	Group 2B	No
Silica, amorphous, fumed, crystal-free	No	No	No
Saccharin	No	No	No
Epichlorohydrin-4,4'-isopropylidene diphenol resin	No	No	No
Cumene hydroperoxide	No	No	No
Ethylene glycol	No	No	No
Cumene	Reasonably Anticipated to be a Human Carcinogen.	Group 2B	No

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

Hazardous waste number: D018: Benzene.

14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: RQ, Environmentally hazardous substance, liquid, n.o.s.
Hazard class or division: 9
Identification number: UN 3082
Packing group: III
DOT Hazardous Substance(s): alpha,alpha-Dimethylbenzylhydroperoxide

International Air Transportation (ICAO/IATA)

Proper shipping name: RQ, Environmentally hazardous substance, liquid, n.o.s.
Hazard class or division: 9
Identification number: UN 3082
Packing group: III

Water Transportation (IMO/IMDG)

Proper shipping name: RQ, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Hazard class or division: 9
Identification number: UN 3082
Packing group: III

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification: Ethene, tetrafluoro-, homopolymer (CAS# 9002-84-0).

CERCLA/SARA Section 302 EHS: None above reporting de minimis.
CERCLA/SARA Section 311/312: Immediate Health, Delayed Health
CERCLA/SARA Section 313: This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Saccharin (CAS# 81-07-2).
CERCLA Reportable quantity: Cumene hydroperoxide (CAS# 80-15-9) 10 lbs. (4.54 kg)

California Proposition 65: This product contains a chemical known in the State of California to cause cancer. This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada Regulatory Information

CEPA DSL/NDSL Status: Contains one or more components listed on the Non-Domestic Substances List. All other components are listed on or are exempt from listing on the Domestic Substances List. Components listed on the NDSL must be tracked by all Canadian Importers of Record as required by Environment Canada. They may be imported into Canada in limited quantities. Please contact Regulatory Affairs for additional details.

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: Reviewed SDS. Reissued with new date.

Prepared by: Product Safety and Regulatory Affairs

Issue date: 01/22/2018

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SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Material name : ZEP ID RED 20N13 12CT

Material number : 000000000000009601

Manufacturer or supplier's details

Company : Zep Inc.

Address : 350 Joe Frank Harris Parkway, SE
Emerson, GA 30137

Telephone : 404-352-1680

Emergency telephone numbers

For SDS Information	:	Compliance Services 1-877-428-9937
For a Medical Emergency	:	877-541-2016 Toll Free - All Calls Recorded
For a Transportation Emergency	:	CHEMTREC: 800-424-9300 - All Calls Recorded. In the District of Columbia 202-483-7616

Recommended use of the chemical and restrictions on use

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	Aerosol containing a compressed gas
Colour	clear
Odour	hydrocarbon-like

GHS Classification

Flammable aerosols : Category 1
Gases under pressure : Compressed gas
Skin irritation : Category 2
Eye irritation : Category 2A
Specific target organ toxicity - single exposure : Category 3 (Central nervous system)
Aspiration hazard : Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H222 Extremely flammable aerosol.
H280 Contains gas under pressure; may explode if heated.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.

H336 May cause drowsiness or dizziness.
H370 Causes damage to organs.

Precautionary statements : **Prevention:**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211 Do not spray on an open flame or other ignition source.
P251 Pressurized container: Do not pierce or burn, even after use.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves.
Response:
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor.
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
Storage:
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F.
Disposal:
P501 Dispose of contents/container in accordance with local regulation.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration [%]
Naphtha (petroleum), hydrotreated light	64742-49-0	>= 70 - < 90
ethanol	64-17-5	>= 5 - < 10
carbon dioxide	124-38-9	>= 3 - < 5
propan-2-ol	67-63-0	>= 3 - < 5
heptane	142-82-5	>= 1 - < 3

The exact percentages of disclosed substances are withheld as trade secrets.

SECTION 4. FIRST AID MEASURES

General advice	:	Move out of dangerous area. Show this safety data sheet to the doctor in attendance. Do not leave the victim unattended. Get medical attention immediately.
If inhaled	:	Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.
In case of skin contact	:	If skin irritation persists, call a physician. Wash off immediately with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse.
In case of eye contact	:	Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist. Rinse immediately with plenty of water for at least 15 minutes.
If swallowed	:	Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Take victim immediately to hospital.
Most important symptoms and effects, both acute and delayed	:	Effects are immediate and delayed. Symptoms of overexposure may include disorientation; dizziness; and confusion. May progress to unconsciousness, paralysis, and convulsions. Symptoms may include irritation, redness, pain, and rash. Effects are dependent on exposure (dose, concentration, contact time). Symptoms may include shortness of breath, dry cough, and irritation of the nose, eyes, lips, mouth, and throat. Aspiration may cause pulmonary oedema and pneumonitis. Causes skin irritation. May cause drowsiness or dizziness. Review section 2 of SDS to see all potential hazards.
Notes to physician	:	Treat symptomatically. Symptoms may be delayed.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Dry chemical Carbon dioxide (CO2) Alcohol-resistant foam
Unsuitable extinguishing media	:	High volume water jet

Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Carbon dioxide (CO2) Carbon monoxide Smoke
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains, inform respective authorities.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Sweep up or vacuum up spillage and collect in suitable container for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Do not breathe vapours or spray mist. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations. Always replace cap after use.

Conditions for safe storage : BEWARE: Aerosol is pressurized. Keep away from direct sun exposure and temperatures over 50 °C. Do not open by force or throw into fire even after use. Do not spray on flames or red-hot objects.
No smoking.
Keep in a dry, cool and well-ventilated place.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

Materials to avoid : Keep away from oxidizing agents and strongly acid or alkaline materials.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
ethanol	64-17-5	TWA	1,000 ppm	ACGIH
		TWA	1,000 ppm 1,900 mg/m3	NIOSH REL
		TWA	1,000 ppm 1,900 mg/m3	OSHA Z-1
		TWA	1,000 ppm 1,900 mg/m3	OSHA P0
		STEL	1,000 ppm	ACGIH
		PEL	1,000 ppm 1,900 mg/m3	CAL PEL
carbon dioxide	124-38-9	TWA	5,000 ppm	ACGIH
		STEL	30,000 ppm	ACGIH
		TWA	5,000 ppm 9,000 mg/m3	NIOSH REL
		ST	30,000 ppm 54,000 mg/m3	NIOSH REL
		TWA	5,000 ppm 9,000 mg/m3	OSHA Z-1
		TWA	10,000 ppm 18,000 mg/m3	OSHA P0
		STEL	30,000 ppm 54,000 mg/m3	OSHA P0
		PEL	5,000 ppm 9,000 mg/m3	CAL PEL
		STEL	30,000 ppm 54,000 mg/m3	CAL PEL
propan-2-ol	67-63-0	TWA	200 ppm	ACGIH
		STEL	400 ppm	ACGIH
		TWA	400 ppm 980 mg/m3	NIOSH REL
		ST	500 ppm 1,225 mg/m3	NIOSH REL
		TWA	400 ppm	OSHA Z-1

			980 mg/m3	
		TWA	400 ppm 980 mg/m3	OSHA P0
		STEL	500 ppm 1,225 mg/m3	OSHA P0
		PEL	400 ppm 980 mg/m3	CAL PEL
		STEL	500 ppm 1,225 mg/m3	CAL PEL
heptane	142-82-5	TWA	85 ppm 350 mg/m3	NIOSH REL
		C	440 ppm 1,800 mg/m3	NIOSH REL
		TWA	500 ppm 2,000 mg/m3	OSHA Z-1
		TWA	400 ppm 1,600 mg/m3	OSHA P0
		STEL	500 ppm 2,000 mg/m3	OSHA P0
		PEL	400 ppm 1,600 mg/m3	CAL PEL
		STEL	500 ppm 2,000 mg/m3	CAL PEL
		TWA	400 ppm	ACGIH
		STEL	500 ppm	ACGIH

Biological occupational exposure limits

Component	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
PROPAN-2-OL	67-63-0	Acetone	Urine	End of shift at end of workweek	40 mg/l	ACGIH BEI

Engineering measures : effective ventilation in all processing areas

Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Hand protection
Material : Protective gloves
Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Aerosol containing a compressed gas
Colour	:	clear
Odour	:	hydrocarbon-like
Odour Threshold	:	No data available
pH	:	Not applicable
Melting point/freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	-18 °C
Evaporation rate	:	> 1 n-Butyl Acetate = 1.0
Flammability (solid, gas, liquid)	:	Extremely flammable aerosol.
Upper explosion limit	:	6.7 %(V)
Lower explosion limit	:	1.2 %(V)
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Density	:	0.69 g/cm3
Solubility(ies)		
Water solubility	:	insoluble
Solubility in other solvents	:	not determined
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	not determined
Thermal decomposition	:	No data available
Viscosity		
Viscosity, kinematic	:	No data available
Heat of combustion	:	40.71 kJ/g

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Vapours may form explosive mixture with air. No decomposition if stored and applied as directed.
Conditions to avoid	:	Heat, flames and sparks. Extremes of temperature and direct sunlight.
Incompatible materials	:	Strong oxidizing agents

SECTION 11. TOXICOLOGICAL INFORMATION

Potential Health Effects

Aggravated Medical Condition	:	None known.
Symptoms of Overexposure	:	Effects are immediate and delayed. Symptoms of overexposure may include disorientation; dizziness; and confusion. May progress to unconsciousness, paralysis, and convulsions. Symptoms may include irritation, redness, pain, and rash. Effects are dependent on exposure (dose, concentration, contact time). Symptoms may include shortness of breath, dry cough, and irritation of the nose, eyes, lips, mouth, and throat. Aspiration may cause pulmonary oedema and pneumonitis. Causes skin irritation. May cause drowsiness or dizziness. Review section 2 of SDS to see all potential hazards. Treat symptomatically. Symptoms may be delayed.

Carcinogenicity:

IARC	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH	Confirmed animal carcinogen with unknown relevance to humans ethanol 64-17-5
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Acute toxicity

Product:

Acute oral toxicity : Acute toxicity estimate : > 5,000 mg/kg
Method: Calculation method

Components:

ethanol:
Acute oral toxicity : LD50 Oral Rat: 7,060 mg/kg

Acute inhalation toxicity : LC50 Rat: 124.7 mg/l
Exposure time: 4 h
Test atmosphere: vapour

propan-2-ol:
Acute oral toxicity : LD50 Oral Rat: 4,396 mg/kg
Method: Calculation method

heptane:
Acute inhalation toxicity : LC50 Rat: 103 mg/l
Exposure time: 4 h

Skin corrosion/irritation

Product:

Remarks: Irritating to skin.

Serious eye damage/eye irritation

Product:

Remarks: May irritate eyes.

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Aspiration toxicity

Product:

May be fatal if swallowed and enters airways.

Further information

Product:

Remarks: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting., Concentrations substantially above the TLV value may cause narcotic effects., Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

Product:

Partition coefficient: n-octanol/water	:	Remarks: No data available

Components:

ethanol :

Partition coefficient: n-octanol/water	:	Remarks: No data available

propan-2-ol :

Partition coefficient: n-octanol/water	:	log Pow: 0.05

heptane :

Partition coefficient: n-octanol/water	:	log Pow: 5

Mobility in soil

No data available

Other adverse effects

No data available

Product:

Regulation	40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks	This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological	:	An environmental hazard cannot be excluded in the

information	event of unprofessional handling or disposal., Harmful to aquatic life., Toxic to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of in accordance with local regulations.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

Transportation Regulation: 49 CFR (USA):
UN1950, AEROSOLS, FLAMMABLE, 2.1, - Limited quantity

Transportation Regulation: IMDG (Vessel):
UN1950, AEROSOLS, FLAMMABLE, 2.1, - Limited quantity

Transportation Regulation: IATA (Cargo Air):
UN1950, AEROSOLS, FLAMMABLE, 2.1, - Limited quantity

Transportation Regulation: IATA (Passenger Air):
UN1950, AEROSOLS, FLAMMABLE, 2.1, - Limited quantity

Transportation Regulation: TDG (Canada):
UN1950, AEROSOLS, FLAMMABLE, 2.1, - Limited quantity

The product as delivered to the customer conforms to packaging requirements for shipment by road under US Department of Transportation (DOT) regulations. Additional transportation classifications noted above are for reference only, and not a certification or warranty of the suitability of the packaging for shipment under these alternative transport regulations.

SECTION 15. REGULATORY INFORMATION

TSCA list	:	No substances are subject to a Significant New Use Rule. No substances are subject to TSCA 12(b) export notification requirements.

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
Gases under pressure
Skin corrosion or irritation
Specific target organ toxicity (single or repeated exposure)
Serious eye damage or eye irritation
Aspiration hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

DSL	All components of this product are on the Canadian DSL
TSCA	On TSCA Inventory

For information on the country notification status for other regions please contact the manufacturer's regulatory group.

Inventory Acronym and Validity Area Legend:

TSCA (USA), DSL (Canada), NDSL (Canada)

SECTION 16. OTHER INFORMATION

Further information

NFPA:

HEALTH	2
FLAMMABILITY	4
INSTABILITY	0
SPECIAL HAZARD.	

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme

HMIS III:

HEALTH	3
FLAMMABILITY	4
PHYSICAL HAZARD	2

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

OSHA - GHS Label Information:

Hazard pictograms :

Flame | Gas cylinder | Health hazard | Exclamation mark

Signal word : **Danger:**

Hazard statements : Extremely flammable aerosol. Contains gas under pressure; may explode if heated. May be fatal if swallowed and enters airways. Causes skin irritation. May cause drowsiness or dizziness. Causes damage to organs.

Precautionary statements :

Prevention: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Pressurized container: Do not pierce or burn, even after use. Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. Wash skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves.
Response: IF SWALLOWED: Immediately call a POISON CENTER/doctor. IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. IF exposed or concerned: Call a POISON CENTER/doctor. Do NOT induce vomiting. If

skin irritation occurs: Get medical advice/ attention. Take off contaminated clothing and w ash it before reuse.
Storage: Store in a w ell-ventilated place. Keep container tightly closed. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F.
Disposal: Dispose of contents/container in accordance w ith local regulation.

Version:	8.0
Revision Date:	04/23/2021
Print Date:	05/23/2022

We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. Users should make their own investigations to determine the suitability and applicability of the information for their particular purposes. This SDS has been prepared by the Compliance Services organization supporting this manufacturer, supplier or distributor.

ZEP Inc.
11627 178th Street
Edmonton, Alberta T5S 1N6
1-877-I-BUY-ZEP (428-9937)
www.zep.com

Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

Product name **I.D. RED (LIQUID)**

Product use Fast Evaporating Industrial Degreaser

Product code **0570**

Date of issue **02/12/14** **Supersedes 04/14/11**

Emergency Telephone Numbers

For MSDS Information:
Technical Services Group
Telephone (780) 453-8100
(Business Hours 8:00am - 5:00pm)

For Medical or Transportation Emergency
CANUTEC (24 Hours)
(613) 996-6666 - Call Collect

Prepared By
Technical Services Group
11627 178th Street
Edmonton, Alberta T5S 1N6

Section 2. Hazards Identification

Emergency overview

DANGER !

EXTREMELY FLAMMABLE LIQUID AND VAPOR. FLAMMABLE.
VAPOR MAY CAUSE FLASH FIRE.

Keep away from heat, sparks and flame. Do not breathe vapor or mist. Avoid contact with skin and clothing. Contains material that may cause target organ damage, based on animal data. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use.

NOTE: MSDS data pertains to the product as delivered in the original shipping container(s). Risk of adverse effects are lessened by following all prescribed safety precautions, including the use of proper personal protective equipment.

Acute Effects **Routes of Entry** Absorbed through skin. Inhalation.

Eyes May cause eye irritation. Inflammation of the eye is characterized by redness, watering and itching.

Skin May cause skin irritation. Skin inflammation is characterized by itching, scaling, or reddening. Defatting properties, may aggravate an existing dermatitis. permeator.

Inhalation Harmful by inhalation. Over-exposure by inhalation may cause respiratory irritation. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Medical conditions aggravated by over-exposure Respiratory

Ingestion Aspiration hazard if swallowed. Can enter lungs and cause damage. Vomiting increases risk of chemical pneumonia or pulmonary edema caused by aspiration of hydrocarbon solvents.

Chronic effects Contains material which may cause damage to the following organs: kidneys, lungs, liver, heart, brain, peripheral nervous system, eyes, central nervous system (CNS), ears, pancreas.
Prolonged skin contact may cause dermatitis with drying and cracking of skin. Overexposure of this product by inhalation or absorption can produce central nervous system depression resulting in headache, nausea and/or dizziness.

Additional Information: See Toxicological Information (Section 11)

Section 3. Composition/Information on Ingredients

Name of Hazardous Ingredients	CAS number	% by Weight
HEPTANE; n-heptane	142-82-5	60 - 100
ISOPROPYL ALCOHOL; ipa; dimethylcarbinol; 2-propanol	67-63-0	7 - 13
METHANOL; methyl alcohol; wood alcohol; columbia spirits	67-56-1	1 - 5

Section 4. First Aid Measures

Eye Contact Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Skin Contact Flush affected skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Inhalation Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention.

Ingestion Aspiration hazard if swallowed. Can enter lungs and cause damage. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Never give anything by mouth to an unconscious person. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention.

Section 5. Fire Fighting Measures

Flash Point Closed cup: <-18°C (<0°F) (Tagliabue.)

Flammable Limits Lower: 1.2% Upper: 6.7%

Flammability Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and oxidizing materials.

Auto-ignition Temperature

Fire-Fighting Procedures Use dry chemical or CO_2. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Fire hazard Extremely flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Products of Combustion carbon oxides (CO, CO_2) and other unidentified organic compounds

Explosion hazard Not available.

Section 6. Accidental Release Measures

Spill Clean up Eliminate all ignition sources. Put on appropriate personal protective equipment (see Section 8). Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. To clean the floor and all objects contaminated by this material, use detergent solution. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Section 7. Handling and Storage

Handling Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Do not reuse container. Wash thoroughly after handling.

Storage Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store between the following temperatures: 40°F - 120°F (4.4°C - 49°C). Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Keep out of the reach of children. Avoid all possible sources of ignition (spark or flame).

Section 8. Exposure Controls/Personal Protection

Product name **Exposure limits**

No exposure limit value known.

Personal Protective Equipment (PPE)

Eyes Recommended: splash goggles

Hands and Body Recommended: Chemical-resistant gloves. Nitrile Neoprene Viton® Synthetic apron.

Respiratory Recommended: Use with adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Wear appropriate respirator when ventilation is inadequate. Approved/certified respirator with organic vapor cartridge.

Section 9. Physical and Chemical Properties

Physical State Liquid.
pH Not available.
Boiling Point 64°C (147.2°F)
Specific Gravity 0.75 (Water = 1)
Solubility Insoluble in the following materials: cold water and hot water.
Freezing Point

Color Clear
Odor Hydrocarbon. [Slight]
Vapor Pressure 17.9 kPa (134 mm Hg)
Vapor Density 3 [Air = 1]
Evaporation Rate 8 (butyl acetate = 1)
VOC (Consumer) 100% 6.25 (lb/gal) 749 (g/l)

Section 10. Stability and Reactivity

Stability and Reactivity The product is stable.
Incompatibility Avoid contact with strong oxidizers, excessive heat, sparks or open flame.
Hazardous Polymerization Will not occur.
Hazardous Decomposition Products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological Information

Carcinogenicity Not available.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
heptane	LC50 Inhalation Gas.	Mouse	18295 ppm	2 hours
	LC50 Inhalation Gas.	Rat	48000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	103 g/m³	4 hours
	LD50 Oral	Mouse	15000 mg/kg	-
Isopropyl alcohol	LC50 Inhalation Vapor	Rat	16000 ppm	4 hours
	LD50 Dermal	Rabbit	5030 mg/kg	-
	LD50 Oral	Rat	5000 mg/kg	-
	LD50 Oral	Rat	5045 mg/kg	-
methanol	LC50 Inhalation Gas.	Rat	145000 ppm	1 hours
	LC50 Inhalation Gas.	Rat	64000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	64000 ppm	4 hours
	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-
	LD50 Oral	Rat	5628 mg/kg	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

PCCSSB000237

Section 12. Ecological Information

Environmental Effects No known significant effects or critical hazards.

Aquatic Ecotoxicity

Not available.

Section 13. Disposal Considerations

Waste Information

Waste must be disposed of in accordance with applicable regulations. Consult your local or regional authorities for additional information.

Waste Stream Code: D001
Classification: - [Hazardous waste.]
Origin: - [RCRA waste.]

Section 14. Transport Information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	UN1993	FLAMMABLE LIQUIDS, N. O.S. (Heptane, Isopropyl Alcohol)	3	II		**Explosive Limit and Limited Quantity Index** 1
IMDG Class						-

NOTE: DOT classification applies to most package sizes. For specific container size classifications or for size exceptions, refer to the Bill of Lading with your shipment. Limited Quantity: Small quantities of controlled goods are not regulated as Dangerous Goods according to TDG regulations.

PG* : Packing group

Section 15. Regulatory Information

Canada

WHMIS (Canada) Class B-2: Flammable liquid
Class D-1B: Material causing immediate and serious toxic effects (Toxic).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 16. Other Information

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Safety Data Sheet

Document Group:	16-3472-4	**Version Number:**	44.01
Issue Date:	03/23/22	**Supercedes Date:**	10/04/21

SECTION 1: Identification

1.1. Product identifier
3M™ Super 77™ Multipurpose Adhesive (Aerosol)

Product Identification Numbers

ID Number	UPC	ID Number	UPC
62-4977-2924-4	000-21200-96228-8	62-4977-2928-5	500-21200-96467-6
62-4977-4730-3		62-4977-4922-6	
62-4977-4923-4		62-4977-4925-9	00-21200-21210-9
62-4977-4929-1		62-4977-4930-9	00-21200-21210-9
62-4977-4935-8			

7000046597, 7000000931, 7000121447, 7010366502, 7010366503, 7010330395

1.2. Recommended use and restrictions on use

Recommended use
Adhesive aerosol, General Purpose Aerosol adhesive

This chemical/product is not and cannot be distributed in commerce (as defined in TSCA section 3(5)) or processed (as defined in TSCA section 3(13)) for consumer paint or coating removal.

1.3. Supplier's details

MANUFACTURER:	3M
DIVISION:	Industrial Adhesives and Tapes Division
ADDRESS:	3M Center, St. Paul, MN 55144-1000, USA
Telephone:	1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number
1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

2.1. Hazard classification
Flammable Aerosol: Category 1.
Gas Under Pressure: Liquefied gas.
Serious Eye Damage/Irritation: Category 2A.
Reproductive Toxicity: Category 1B.
Simple Asphyxiant.

Specific Target Organ Toxicity (single exposure): Category 1.
Specific Target Organ Toxicity (single exposure): Category 3.

2.2. Label elements
Signal word
Danger

Symbols
Flame | Gas cylinder | Exclamation mark | Health Hazard |

Pictograms

Hazard Statements
Extremely flammable aerosol.
Contains gas under pressure; may explode if heated.

Causes serious eye irritation.
May cause drowsiness or dizziness.
May damage fertility or the unborn child.
May displace oxygen and cause rapid suffocation.

Causes damage to organs:
cardiovascular system |

Precautionary Statements
General:
Keep out of reach of children.

Prevention:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Do not spray on an open flame or other ignition source.
Pressurized container: Do not pierce or burn, even after use.
Do not breathe dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wear protective gloves and eye/face protection.
Do not eat, drink or smoke when using this product.
Wash thoroughly after handling.

Response:
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF exposed or concerned: Get medical advice/attention.
Specific treatment (see Notes to Physician on this label).

Storage:
Protect from sunlight. Do not expose to temperatures exceeding 50C/122F.

Keep container tightly closed.
Store locked up in a well-ventilated place.

Disposal:
Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

Notes to Physician:
Exposure may increase myocardial irritability. Do not administer sympathomimetic drugs unless absolutely necessary.

Supplemental Information:
Intentional concentration and inhalation may be harmful or fatal.

2% of the mixture consists of ingredients of unknown acute dermal toxicity.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
Acetone	67-64-1	15 - 30 Trade Secret *
Propane	74-98-6	15 - 30 Trade Secret *
Non-Volatile Components - NJTS Registry No. 04499600-6433P	Trade Secret*	10 - 30 Trade Secret *
2-Methylpentane	107-83-5	10 - 20 Trade Secret *
Cyclohexane	110-82-7	10 - 20 Trade Secret *
Terpene Phenolic	Trade Secret*	< 10 Trade Secret *
Ethyl Alcohol	64-17-5	< 5 Trade Secret *
Pentane	109-66-0	< 5 Trade Secret *
Petroleum Resins	64742-16-1	< 5 Trade Secret *
Non-Volatile Resin	Trade Secret*	< 5 Trade Secret *
Hexane	110-54-3	< 0.5 Trade Secret *
Toluene	108-88-3	< 0.3 Trade Secret *

NJTS or NJTSRN: New Jersey Trade Secret Registry Number.

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Remove person to fresh air. Get medical attention.

Skin Contact:
Wash with soap and water. If signs/symptoms develop, get medical attention.

Eye Contact:
Immediately flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. Get medical attention.

If Swallowed:
Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Central nervous system depression (headache, dizziness, drowsiness, incoordination, nausea, slurred speech, giddiness, and

unconsciousness). Target organ effects. See Section 11 for additional details.

4.3. Indication of any immediate medical attention and special treatment required
Exposure may increase myocardial irritability. Do not administer sympathomimetic drugs unless absolutely necessary.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
Use a fire fighting agent suitable for the surrounding fire.

5.2. Special hazards arising from the substance or mixture
Closed containers exposed to heat from fire may build pressure and explode.

Hazardous Decomposition or By-Products

Substance	Condition
Aldehydes	During Combustion
Hydrocarbons	During Combustion
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Irritant Vapors or Gases	During Combustion

5.3. Special protective actions for fire-fighters
Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up
If possible, seal leaking container. Place leaking containers in a well-ventilated area, preferably an operating exhaust hood, or if necessary outdoors on an impermeable surface until appropriate packaging for the leaking container or its contents is available. Contain spill. Cover spill area with a fire-extinguishing foam. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible using non-sparking tools. Place in a metal container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Keep out of reach of children. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing.

Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.) Use personal protective equipment (gloves, respirators, etc.) as required.

7.2. Conditions for safe storage including any incompatibilities
Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight. Do not expose to temperatures exceeding 50C/122F. Store away from heat. Store away from acids. Store away from oxidizing agents.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits
If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
2-Methylpentane	107-83-5	ACGIH	TWA:500 ppm;STEL:1000 ppm	
Toluene	108-88-3	ACGIH	TWA:20 ppm	A4: Not class. as human carcin, Ototoxicant
Toluene	108-88-3	OSHA	TWA:200 ppm;CEIL:300 ppm	
Pentane	109-66-0	ACGIH	TWA:1000 ppm	
Pentane	109-66-0	OSHA	TWA:2950 mg/m3(1000 ppm)	
Hexane	110-54-3	ACGIH	TWA:50 ppm	Danger of cutaneous absorption
Hexane	110-54-3	OSHA	TWA:1800 mg/m3(500 ppm)	
Cyclohexane	110-82-7	ACGIH	TWA:100 ppm	
Cyclohexane	110-82-7	OSHA	TWA:1050 mg/m3(300 ppm)	
Ethyl Alcohol	64-17-5	ACGIH	STEL:1000 ppm	A3: Confirmed animal carcin.
Ethyl Alcohol	64-17-5	OSHA	TWA:1900 mg/m3(1000 ppm)	
Acetone	67-64-1	ACGIH	TWA:250 ppm;STEL:500 ppm	A4: Not class. as human carcin
Acetone	67-64-1	OSHA	TWA:2400 mg/m3(1000 ppm)	
Propane	74-98-6	ACGIH	Limit value not established:	simple asphyxiant
Propane	74-98-6	OSHA	TWA:1800 mg/m3(1000 ppm)	

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
CMRG : Chemical Manufacturer's Recommended Guidelines
OSHA : United States Department of Labor - Occupational Safety and Health Administration
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls
Do not remain in area where available oxygen may be reduced. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face

protection(s) are recommended:
Indirect Vented Goggles

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.
Gloves made from the following material(s) are recommended: Polymer laminate

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapors and particulates
Half facepiece or full facepiece supplied-air respirator
Organic vapor respirators may have short service life.

For questions about suitability for a specific application, consult with your respirator manufacturer.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
Physical state	Liquid aerosol
Color	Colorless
Specific Physical Form:	Aerosol
Odor	Sweet Odor, Fruity Odor
Odor threshold	*No Data Available*
pH	*No Data Available*
Melting point	*No Data Available*
Boiling Point	*Not Applicable*
Flash Point	-42.00 ºF [*Test Method:*Tagliabue Closed Cup]
Evaporation rate	1.9 [*Ref Std:*ETHER=1]
Flammability (solid, gas)	Not Applicable
Flammable Limits(LEL)	*No Data Available*
Flammable Limits(UEL)	*No Data Available*
Vapor Pressure	[*Details:*Compressed gas]*Not Applicable*
Vapor Density	2.97 [*Ref Std:*AIR=1]
Density	0.726 g/ml
Specific Gravity	0.726 [*Ref Std:*WATER=1]
Solubility in Water	Nil
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*No Data Available*
Decomposition temperature	*Not Applicable*
Viscosity	*Not Applicable*
Hazardous Air Pollutants	<=0.5 % weight [*Test Method:*Calculated]
Volatile Organic Compounds	<=570 g/l [*Details:*EU VOC content]
Percent volatile	<=75 % weight [*Details:*all volatiles]
VOC Less H2O & Exempt Solvents	<=56 % [*Test Method:*calculated per CARB title 2]
Solids Content	>=22.4 %

SECTION 10: Stability and reactivity

10.1. Reactivity
This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Heat

10.5. Incompatible materials
Strong oxidizing agents

10.6. Hazardous decomposition products

Substance	Condition
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:
Simple Asphyxiation: Signs/symptoms may include increased heart rate, rapid respirations, drowsiness, headache, incoordination, altered judgement, nausea, vomiting, lethargy, seizures, coma, and may be fatal.

Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

May cause additional health effects (see below).

Skin Contact:
Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness.

Eye Contact:
Severe Eye Irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

Ingestion:
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

May cause additional health effects (see below).

Additional Health Effects:

Single exposure may cause target organ effects:
Central Nervous System (CNS) Depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

Single exposure, above recommended guidelines, may cause: Cardiac Sensitization: Signs/symptoms may include irregular heartbeat (arrhythmia), faintness, chest pain, and may be fatal.

Reproductive/Developmental Toxicity:
Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Additional Information:
This product contains ethanol. Alcoholic beverages and ethanol in alcoholic beverages have been classified by the International Agency for Research on Cancer as carcinogenic to humans. There are also data associating human consumption of alcoholic beverages with developmental toxicity and liver toxicity. Exposure to ethanol during the foreseeable use of this product is not expected to cause cancer, developmental toxicity, or liver toxicity.

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >5,000 mg/kg
Overall product	Inhalation-Vapor(4 hr)		No data available; calculated ATE >50 mg/l
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Propane	Inhalation-Gas (4 hours)	Rat	LC50 > 200,000 ppm
Acetone	Dermal	Rabbit	LD50 > 15,688 mg/kg
Acetone	Inhalation-Vapor (4 hours)	Rat	LC50 76 mg/l
Acetone	Ingestion	Rat	LD50 5,800 mg/kg
2-Methylpentane	Dermal		LD50 estimated to be > 5,000 mg/kg
2-Methylpentane	Inhalation-Vapor		LC50 estimated to be > 50 mg/l
2-Methylpentane	Ingestion		LD50 estimated to be > 5,000 mg/kg
Cyclohexane	Dermal	Rat	LD50 > 2,000 mg/kg
Cyclohexane	Inhalation-Vapor (4 hours)	Rat	LC50 > 32.9 mg/l
Cyclohexane	Ingestion	Rat	LD50 6,200 mg/kg
Non-Volatile Components - NJTS Registry No. 04499600-6433P	Dermal		LD50 estimated to be > 5,000 mg/kg
Non-Volatile Components - NJTS Registry No. 04499600-6433P	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
Petroleum Resins	Dermal	Rabbit	LD50 > 2,000 mg/kg
Petroleum Resins	Ingestion	Rat	LD50 > 5,000 mg/kg
Ethyl Alcohol	Dermal	Rabbit	LD50 > 15,800 mg/kg
Ethyl Alcohol	Inhalation-Vapor (4 hours)	Rat	LC50 124.7 mg/l
Ethyl Alcohol	Ingestion	Rat	LD50 17,800 mg/kg

Pentane	Dermal	Rabbit	LD50 3,000 mg/kg
Pentane	Inhalation-Vapor (4 hours)	Rat	LC50 > 18 mg/l
Pentane	Ingestion	Rat	LD50 > 2,000 mg/kg
Non-Volatile Resin	Ingestion	Mouse	LD50 > 2,000 mg/kg
Toluene	Dermal	Rat	LD50 12,000 mg/kg
Toluene	Inhalation-Vapor (4 hours)	Rat	LC50 30 mg/l
Toluene	Ingestion	Rat	LD50 5,550 mg/kg
Hexane	Dermal	Rabbit	LD50 > 2,000 mg/kg
Hexane	Inhalation-Vapor (4 hours)	Rat	LC50 170 mg/l
Hexane	Ingestion	Rat	LD50 > 28,700 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Propane	Rabbit	Minimal irritation
Acetone	Mouse	Minimal irritation
2-Methylpentane	Professional judgement	Mild irritant
Cyclohexane	Rabbit	Mild irritant
Non-Volatile Components - NJTS Registry No. 04499600-6433P	Professional judgement	Minimal irritation
Petroleum Resins	Human	Minimal irritation
Ethyl Alcohol	Rabbit	No significant irritation
Pentane	Rabbit	Minimal irritation
Toluene	Rabbit	Irritant
Hexane	Human and animal	Mild irritant

Serious Eye Damage/Irritation

Name	Species	Value
Propane	Rabbit	Mild irritant
Acetone	Rabbit	Severe irritant
2-Methylpentane	Professional judgement	Moderate irritant
Cyclohexane	Rabbit	Mild irritant
Petroleum Resins	Human	Mild irritant
Ethyl Alcohol	Rabbit	Severe irritant
Pentane	Rabbit	Mild irritant
Toluene	Rabbit	Moderate irritant
Hexane	Rabbit	Mild irritant

Skin Sensitization

Name	Species	Value
Ethyl Alcohol	Human	Not classified
Pentane	Guinea pig	Not classified
Toluene	Guinea pig	Not classified
Hexane	Human	Not classified

Photosensitization

Name	Species	Value
Petroleum Resins	Human	Not sensitizing

Respiratory Sensitization

For the component/components, either no data are currently available or the data are not sufficient for classification.

Germ Cell Mutagenicity

Name	Route	Value
Propane	In Vitro	Not mutagenic
Acetone	In vivo	Not mutagenic
Acetone	In Vitro	Some positive data exist, but the data are not sufficient for classification
Cyclohexane	In Vitro	Not mutagenic
Cyclohexane	In vivo	Some positive data exist, but the data are not sufficient for classification
Petroleum Resins	In vivo	Not mutagenic
Petroleum Resins	In Vitro	Some positive data exist, but the data are not sufficient for classification
Ethyl Alcohol	In Vitro	Some positive data exist, but the data are not sufficient for classification
Ethyl Alcohol	In vivo	Some positive data exist, but the data are not sufficient for classification
Pentane	In vivo	Not mutagenic
Pentane	In Vitro	Some positive data exist, but the data are not sufficient for classification
Toluene	In Vitro	Not mutagenic
Toluene	In vivo	Not mutagenic
Hexane	In Vitro	Not mutagenic
Hexane	In vivo	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
Acetone	Not Specified	Multiple animal species	Not carcinogenic
Petroleum Resins	Not Specified	Human and animal	Some positive data exist, but the data are not sufficient for classification
Ethyl Alcohol	Ingestion	Multiple animal species	Some positive data exist, but the data are not sufficient for classification
Toluene	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Toluene	Ingestion	Rat	Some positive data exist, but the data are not sufficient for classification
Toluene	Inhalation	Mouse	Some positive data exist, but the data are not sufficient for classification
Hexane	Dermal	Mouse	Not carcinogenic
Hexane	Inhalation	Mouse	Some positive data exist, but the data are not sufficient for classification

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
Acetone	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,700 mg/kg/day	13 weeks
Acetone	Inhalation	Not classified for development	Rat	NOAEL 5.2	during

				mg/l	organogenesis
Cyclohexane	Inhalation	Not classified for female reproduction	Rat	NOAEL 24 mg/l	2 generation
Cyclohexane	Inhalation	Not classified for male reproduction	Rat	NOAEL 24 mg/l	2 generation
Cyclohexane	Inhalation	Not classified for development	Rat	NOAEL 6.9 mg/l	2 generation
Ethyl Alcohol	Inhalation	Not classified for development	Rat	NOAEL 38 mg/l	during gestation
Ethyl Alcohol	Ingestion	Not classified for development	Rat	NOAEL 5,200 mg/kg/day	premating & during gestation
Pentane	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	during organogenesis
Pentane	Inhalation	Not classified for development	Rat	NOAEL 30 mg/l	during organogenesis
Toluene	Inhalation	Not classified for female reproduction	Human	NOAEL Not available	occupational exposure
Toluene	Inhalation	Not classified for male reproduction	Rat	NOAEL 2.3 mg/l	1 generation
Toluene	Ingestion	Toxic to development	Rat	LOAEL 520 mg/kg/day	during gestation
Toluene	Inhalation	Toxic to development	Human	NOAEL Not available	poisoning and/or abuse
Hexane	Ingestion	Not classified for development	Mouse	NOAEL 2,200 mg/kg/day	during organogenesis
Hexane	Inhalation	Not classified for development	Rat	NOAEL 0.7 mg/l	during gestation
Hexane	Ingestion	Toxic to male reproduction	Rat	NOAEL 1,140 mg/kg/day	90 days
Hexane	Inhalation	Toxic to male reproduction	Rat	LOAEL 3.52 mg/l	28 days

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Propane	Inhalation	cardiac sensitization	Causes damage to organs	Human	NOAEL Not available	
Propane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Propane	Inhalation	respiratory irritation	Not classified	Human	NOAEL Not available	
Acetone	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Acetone	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
Acetone	Inhalation	immune system	Not classified	Human	NOAEL 1.19 mg/l	6 hours
Acetone	Inhalation	liver	Not classified	Guinea pig	NOAEL Not available	
Acetone	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse
2-Methylpentane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	
2-Methylpentane	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	

2-Methylpentane	Inhalation	cardiac sensitization	Not classified	Dog	NOAEL Not available	
2-Methylpentane	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	
Cyclohexane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human and animal	NOAEL Not available	
Cyclohexane	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human and animal	NOAEL Not available	
Cyclohexane	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	
Ethyl Alcohol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	LOAEL 9.4 mg/l	not available
Ethyl Alcohol	Inhalation	central nervous system depression	Not classified	Human and animal	NOAEL not available	
Ethyl Alcohol	Ingestion	central nervous system depression	Not classified	Multiple animal species	NOAEL not available	
Ethyl Alcohol	Ingestion	kidney and/or bladder	Not classified	Dog	NOAEL 3,000 mg/kg	
Pentane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Multiple animal species	NOAEL Not available	not available
Pentane	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Not available	NOAEL Not available	not available
Pentane	Inhalation	cardiac sensitization	Not classified	Dog	NOAEL Not available	not available
Pentane	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	not available
Toluene	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Toluene	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
Toluene	Inhalation	immune system	Not classified	Mouse	NOAEL 0.004 mg/l	3 hours
Toluene	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse
Hexane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	not available
Hexane	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Rabbit	NOAEL Not available	8 hours
Hexane	Inhalation	respiratory system	Not classified	Rat	NOAEL 24.6 mg/l	8 hours

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Acetone	Dermal	eyes	Not classified	Guinea pig	NOAEL Not available	3 weeks
Acetone	Inhalation	hematopoietic system	Not classified	Human	NOAEL 3 mg/l	6 weeks
Acetone	Inhalation	immune system	Not classified	Human	NOAEL 1.19 mg/l	6 days
Acetone	Inhalation	kidney and/or bladder	Not classified	Guinea pig	NOAEL 119 mg/l	not available

Acetone	Inhalation	heart | liver	Not classified	Rat	NOAEL 45 mg/l	8 weeks
Acetone	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 900 mg/kg/day	13 weeks
Acetone	Ingestion	heart	Not classified	Rat	NOAEL 2,500 mg/kg/day	13 weeks
Acetone	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 200 mg/kg/day	13 weeks
Acetone	Ingestion	liver	Not classified	Mouse	NOAEL 3,896 mg/kg/day	14 days
Acetone	Ingestion	eyes	Not classified	Rat	NOAEL 3,400 mg/kg/day	13 weeks
Acetone	Ingestion	respiratory system	Not classified	Rat	NOAEL 2,500 mg/kg/day	13 weeks
Acetone	Ingestion	muscles	Not classified	Rat	NOAEL 2,500 mg/kg	13 weeks
Acetone	Ingestion	skin | bone, teeth, nails, and/or hair	Not classified	Mouse	NOAEL 11,298 mg/kg/day	13 weeks
2-Methylpentane	Inhalation	peripheral nervous system	Not classified	Rat	NOAEL 5.3 mg/l	14 weeks
2-Methylpentane	Ingestion	peripheral nervous system	Not classified	Rat	NOAEL Not available	8 weeks
2-Methylpentane	Ingestion	kidney and/or bladder	Not classified	Rat	LOAEL 2,000 mg/kg	28 days
Cyclohexane	Inhalation	liver	Not classified	Rat	NOAEL 24 mg/l	90 days
Cyclohexane	Inhalation	auditory system	Not classified	Rat	NOAEL 1.7 mg/l	90 days
Cyclohexane	Inhalation	kidney and/or bladder	Not classified	Rabbit	NOAEL 2.7 mg/l	10 weeks
Cyclohexane	Inhalation	hematopoietic system	Not classified	Mouse	NOAEL 24 mg/l	14 weeks
Cyclohexane	Inhalation	peripheral nervous system	Not classified	Rat	NOAEL 8.6 mg/l	30 weeks
Petroleum Resins	Inhalation	respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
Ethyl Alcohol	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Rabbit	LOAEL 124 mg/l	365 days
Ethyl Alcohol	Inhalation	hematopoietic system | immune system	Not classified	Rat	NOAEL 25 mg/l	14 days
Ethyl Alcohol	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 8,000 mg/kg/day	4 months
Ethyl Alcohol	Ingestion	kidney and/or bladder	Not classified	Dog	NOAEL 3,000 mg/kg/day	7 days
Pentane	Inhalation	peripheral nervous system	Not classified	Human	NOAEL Not available	occupational exposure
Pentane	Inhalation	heart | skin | endocrine system | gastrointestinal tract | bone, teeth, nails, and/or hair | hematopoietic system | liver | immune system | muscles | nervous system | eyes | kidney and/or bladder | respiratory	Not classified	Rat	NOAEL 20 mg/l	13 weeks

		system				
Pentane	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 2,000 mg/kg/day	28 days
Toluene	Inhalation	auditory system | eyes | olfactory system	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	poisoning and/or abuse
Toluene	Inhalation	nervous system	May cause damage to organs though prolonged or repeated exposure	Human	NOAEL Not available	poisoning and/or abuse
Toluene	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 2.3 mg/l	15 months
Toluene	Inhalation	heart | liver | kidney and/or bladder	Not classified	Rat	NOAEL 11.3 mg/l	15 weeks
Toluene	Inhalation	endocrine system	Not classified	Rat	NOAEL 1.1 mg/l	4 weeks
Toluene	Inhalation	immune system	Not classified	Mouse	NOAEL Not available	20 days
Toluene	Inhalation	bone, teeth, nails, and/or hair	Not classified	Mouse	NOAEL 1.1 mg/l	8 weeks
Toluene	Inhalation	hematopoietic system | vascular system	Not classified	Human	NOAEL Not available	occupational exposure
Toluene	Inhalation	gastrointestinal tract	Not classified	Multiple animal species	NOAEL 11.3 mg/l	15 weeks
Toluene	Ingestion	nervous system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 625 mg/kg/day	13 weeks
Toluene	Ingestion	heart	Not classified	Rat	NOAEL 2,500 mg/kg/day	13 weeks
Toluene	Ingestion	liver | kidney and/or bladder	Not classified	Multiple animal species	NOAEL 2,500 mg/kg/day	13 weeks
Toluene	Ingestion	hematopoietic system	Not classified	Mouse	NOAEL 600 mg/kg/day	14 days
Toluene	Ingestion	endocrine system	Not classified	Mouse	NOAEL 105 mg/kg/day	28 days
Toluene	Ingestion	immune system	Not classified	Mouse	NOAEL 105 mg/kg/day	4 weeks
Hexane	Inhalation	peripheral nervous system	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	occupational exposure
Hexane	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Mouse	LOAEL 1.76 mg/l	13 weeks
Hexane	Inhalation	liver	Not classified	Rat	NOAEL Not available	6 months
Hexane	Inhalation	kidney and/or bladder	Not classified	Rat	LOAEL 1.76 mg/l	6 months
Hexane	Inhalation	hematopoietic system	Not classified	Mouse	NOAEL 35.2 mg/l	13 weeks
Hexane	Inhalation	auditory system | immune system | eyes	Not classified	Human	NOAEL Not available	occupational exposure
Hexane	Inhalation	heart | skin | endocrine system	Not classified	Rat	NOAEL 1.76 mg/l	6 months
Hexane	Ingestion	peripheral nervous system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1,140 mg/kg/day	90 days
Hexane	Ingestion	endocrine system | hematopoietic system | liver | immune system | kidney and/or bladder	Not classified	Rat	NOAEL Not available	13 weeks

Aspiration Hazard

Name	Value
2-Methylpentane	Aspiration hazard
Cyclohexane	Aspiration hazard
Pentane	Aspiration hazard
Toluene	Aspiration hazard
Hexane	Aspiration hazard

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

Ecotoxicological information

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

Chemical fate information

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

SECTION 13: Disposal considerations

13.1. Disposal methods

Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of waste product in a permitted industrial waste facility. Facility must be capable of handling aerosol cans.

EPA Hazardous Waste Number (RCRA): D001 (Ignitable), D035 (Methyl ethyl ketone)

SECTION 14: Transport Information

For Transport Information, please visit http://3M.com/Transportinfo or call 1-800-364-3577 or 651-737-6501.

SECTION 15: Regulatory information

15.1. US Federal Regulations

Contact 3M for more information.

EPCRA 311/312 Hazard Classifications:

Physical Hazards
Flammable (gases, aerosols, liquids, or solids)
Gas under pressure

Health Hazards
Reproductive toxicity
Serious eye damage or eye irritation
Simple Asphyxiant
Specific target organ toxicity (single or repeated exposure)

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

Ingredient	C.A.S. No	% by Wt
Cyclohexane	110-82-7	Trade Secret 10 - 20

Additional TSCA Information
This chemical/product is not and cannot be distributed in commerce (as defined in TSCA section 3(5)) or processed (as defined in TSCA section 3(13)) for consumer paint or coating removal.

15.2. State Regulations
Contact 3M for more information.

California Proposition 65

Ingredient	C.A.S. No.	Listing
Toluene	108-88-3	Developmental Toxin
n-Hexane	110-54-3	Male reproductive toxin

15.3. Chemical Inventories
The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

Contact 3M for more information.

15.4. International Regulations
Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: Other information

NFPA Hazard Classification
Health: 2 **Flammability:** 4 **Instability:** 0 **Special Hazards:** None
Aerosol Storage Code: 3

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

HMIS Hazard Classification
Health: *4 **Flammability:** 4 **Physical Hazard:** 0 **Personal Protection:** X - See PPE section.

Hazardous Material Identification System (HMIS® IV) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS® IV ratings are to be used with a fully implemented HMIS® IV program. HMIS® is a registered mark of the American Coatings Association (ACA).

Document Group:	16-3472-4	**Version Number:**	44.01
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3M USA SDSs are available at www.3M.com

Revision Number: 007.0

Issue date: 04/16/2018

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **LOCTITE EA 445 HARDENER known as Fast Cure Epoxy HARDENER**

IDH number: 701941

Product type: Epoxy Hardener

Item number: 21425_150445

Restriction of Use: None identified

Region: United States

Company address:
Henkel Corporation
Henkel Way One
Rocky Hill, Connecticut 06067

Contact information:
Telephone: +1 (860) 571-5100
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW	
DANGER:	CAUSES SKIN IRRITATION. MAY CAUSE AN ALLERGIC SKIN REACTION. CAUSES SERIOUS EYE DAMAGE. SUSPECTED OF CAUSING CANCER. CAUSES DAMAGE TO ORGANS THROUGH PROLONGED OR REPEATED EXPOSURE. MAY CAUSE DAMAGE TO ORGANS THROUGH PROLONGED OR REPEATED EXPOSURE.

HAZARD CLASS	HAZARD CATEGORY
SKIN IRRITATION	2
SERIOUS EYE DAMAGE	1
SKIN SENSITIZATION	1
CARCINOGENICITY	2
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE	1
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE	2

PICTOGRAM(S)

Precautionary Statements

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe vapors, mist, or spray. Wash affected area thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves, clothing, eye and face protection.

Response: IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical attention. If skin irritation or rash occurs: Get medical attention. Take off contaminated clothing.

Storage: Store locked up.

Disposal: Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations.

3 % of the mixture consists of ingredient(s) of unknown acute toxicity.

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component(s)	CAS Number	Percentage*
Aluminium hydroxide	21645-51-2	40 - 50
2,4,6-Tris(dimethylaminomethyl)phenol	90-72-2	5 - 10
Distillates, petroleum, heavy thermal cracked	64741-81-7	1 - 5
Residues (petroleum), thermal cracked	64741-80-6	1 - 5
Styrene	100-42-5	1 - 5
Silica, amorphous, fumed, crystal-free	112945-52-5	1 - 5
Ethylene glycol	107-21-1	1 - 5
Bis[(dimethylamino)methyl]phenol	71074-89-0	1 - 5

* Exact percentages may vary or are trade secret. Concentration range is provided to assist users in providing appropriate protections.

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Skin contact: Immediately flush skin with plenty of water (using soap, if available). Remove contaminated clothing and footwear. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Ingestion: DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Symptoms: See Section 11.

5. FIRE FIGHTING MEASURES

Extinguishing media: Water spray (fog), foam, dry chemical or carbon dioxide.

Special firefighting procedures: Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear. In case of fire, keep containers cool with water spray.

Unusual fire or explosion hazards: Closed containers may rupture (due to build up of pressure) when exposed to extreme heat.

Hazardous combustion products: Oxides of carbon. Oxides of nitrogen. Oxides of sulfur. Alcohols. Aldehydes. Ammonia. Ethers. Hydrogen sulfide. Nitric acid. Toxic fumes. Irritating vapors.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Do not allow product to enter sewer or waterways.

Clean-up methods: Remove all sources of ignition. Evacuate and ventilate spill area; dike spill to prevent entry into water system; wear full protective equipment during clean-up. Refer to Section 8 "Exposure Controls / Personal Protection" prior to clean up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Scrape up spilled material and place in a closed container for disposal.

7. HANDLING AND STORAGE

Handling: Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation. Refer to Section 8.

Storage: Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials. Keep away from heat, spark and flame. Store in original container until ready to use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Aluminium hydroxide	1 mg/m3 TWA Respirable fraction. 10 mg/m3 TWA (as Al) Total dust.	15 mg/m3 TWA (as Al) Total dust. 5 mg/m3 TWA (as Al) Respirable fraction. 15 MPPCF TWA Respirable fraction. 15 mg/m3 TWA Total dust. 5 mg/m3 TWA Respirable fraction. 50 MPPCF TWA Total dust.	None	None
2,4,6-Tris(dimethylaminomethyl)phenol	None	None	None	None
Distillates, petroleum, heavy thermal cracked	None	None	None	None
Residues (petroleum), thermal cracked	None	None	None	None
Styrene	20 ppm TWA 40 ppm STEL	100 ppm TWA 200 ppm Ceiling 600 ppm MAX. CONC 5 minutes in any 3 hours	None	None
Silica, amorphous, fumed, crystal-free	10 mg/m3 TWA Inhalable dust. 3 mg/m3 TWA Respirable fraction.	20 MPPCF TWA 0.8 mg/m3 TWA	None	None
Ethylene glycol	25 ppm TWA Vapor fraction 50 ppm STEL Vapor fraction 10 mg/m3 STEL Aerosol, inhalable.	None	None	None
Bis[(dimethylamino)methyl]phenol	None	None	None	None

Engineering controls: Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

Respiratory protection: Use a NIOSH approved air-purifying respirator if the potential to exceed established exposure limits exists.

Eye/face protection: Safety goggles or safety glasses with side shields. Full face protection should be used if the potential for splashing or spraying of product exists. Safety showers and eye wash stations should be available.

Skin protection: Use chemical resistant, impermeable clothing including gloves and either an apron or body suit to prevent skin contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Paste
Color: Black
Odor: Mercaptan
Odor threshold: Not available.
pH: Not applicable
Vapor pressure: Negligible
Boiling point/range: > 149 °C (> 300.2 °F)
Melting point/ range: Not available.
Specific gravity: 1.4
Vapor density: Not available.

Flash point:	> 93 °C (> 199.4 °F) Tagliabue closed cup
Flammable/Explosive limits - lower:	Not available.
Flammable/Explosive limits - upper:	Not available.
Autoignition temperature:	Not available.
Flammability:	Not applicable
Evaporation rate:	Not available.
Solubility in water:	Slight
Partition coefficient (n-octanol/water):	Not available.
VOC content:	0.04 % (value for resin and hardener together)
Viscosity:	Not available.
Decomposition temperature:	Not available.

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions of storage and use.
Hazardous reactions:	None under normal processing.
Hazardous decomposition products:	Oxides of carbon. Oxides of nitrogen. Oxides of sulfur. Alcohols. Aldehydes. Ammonia. Ethers. Hydrogen sulfide. Nitric acid. Toxic fumes. Irritating vapors.
Incompatible materials:	Acids. Bases. Oxidizing agents. Sodium hypochlorite. Peroxides. Copper. Copper alloys. Halogens. Metal salts.
Reactivity:	Not available.
Conditions to avoid:	Excessive heat. Store away from incompatible materials. Heat, flames, sparks and other sources of ignition.

11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure: Skin, Inhalation, Eyes, Ingestion

Potential Health Effects/Symptoms

Inhalation: May cause respiratory tract irritation. Vapors may cause headaches, nausea, dizziness and respiratory tract irritation. May cause irritation to nose and throat.
Skin contact: Causes skin irritation. May cause allergic skin reaction.
Eye contact: Causes serious eye damage.
Ingestion: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Aluminium hydroxide	Oral LD50 (Rat) = > 5,000 mg/kg	Irritant, Lung, Respiratory
2,4,6-Tris(dimethylaminomethyl)phenol	None	Irritant, Allergen
Distillates, petroleum, heavy thermal cracked	None	No Target Organs
Residues (petroleum), thermal cracked	None	No Data
Styrene	Oral LD50 (Mouse) = 316 mg/kg Oral LD50 (Rat) = 1 g/kg Oral LD50 (Rat) = 5,000 mg/kg Inhalation LC50 (Rat, 4 h) = 24 mg/l	Blood, Ear, Eyes, Irritant, Liver, Mutagen, Nervous System, Some evidence of carcinogenicity
Silica, amorphous, fumed, crystal-free	None	Nuisance dust
Ethylene glycol	Oral LD50 (Rat) = 5.89 g/kg Oral LD50 (Mouse) = 14.6 g/kg Dermal LD50 (Rabbit) = 9,530 mg/kg	Blood, Bone Marrow, Central nervous system, Developmental, Eyes, Irritant, Kidney, Liver, Metabolic
Bis[(dimethylamino)methyl]phenol	None	No Records

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Aluminium hydroxide	No	No	No
2,4,6-Tris(dimethylaminomethyl)phenol	No	No	No
Distillates, petroleum, heavy thermal cracked	No	Group 2B	No
Residues (petroleum), thermal cracked	No	No	No
Styrene	Reasonably Anticipated to be a Human Carcinogen.	Group 2B	No
Silica, amorphous, fumed, crystal-free	No	No	No
Ethylene glycol	No	No	No
Bis[(dimethylamino)methyl]phenol	No	No	No

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

Hazardous waste number: Not a RCRA hazardous waste.

14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

International Air Transportation (ICAO/IATA)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

Water Transportation (IMO/IMDG)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status:	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification:	None above reporting de minimis
CERCLA/SARA Section 302 EHS:	None above reporting de minimis.
CERCLA/SARA Section 311/312:	Immediate Health, Delayed Health
CERCLA/SARA Section 313:	This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Styrene (CAS# 100-42-5). Ethylene glycol (CAS# 107-21-1).
CERCLA Reportable quantity:	Styrene (CAS# 100-42-5) 1,000 lbs. (454 kg)
California Proposition 65:	This product contains a chemical known in the State of California to cause cancer. This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada Regulatory Information

CEPA DSL/NDSL Status:	All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: 2,3

Prepared by: Product Safety and Regulatory Affairs

Issue date: 04/16/2018

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Revision Number: 007.1

Issue date: 04/13/2018

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **LOCTITE EA 445 RESIN known as Fast Cure Epoxy RESIN**

IDH number: 701930

Product type: Epoxy resin

Item number: 21425_150345

Restriction of Use: None identified

Region: United States

Company address:
Henkel Corporation
Henkel Way One
Rocky Hill, Connecticut 06067

Contact information:
Telephone: +1 (860) 571-5100
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW	
WARNING:	CAUSES SKIN IRRITATION. MAY CAUSE AN ALLERGIC SKIN REACTION. CAUSES SERIOUS EYE IRRITATION.

HAZARD CLASS	HAZARD CATEGORY
SKIN IRRITATION	2
EYE IRRITATION	2A
SKIN SENSITIZATION	1

PICTOGRAM(S)

Precautionary Statements

Prevention: Avoid breathing vapors, mist, or spray. Wash affected area thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves, eye protection, and face protection.

Response: IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation or rash occurs: Get medical attention. If eye irritation persists: Get medical attention. Take off contaminated clothing.

Storage: Not prescribed

Disposal: Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations.

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component(s)	CAS Number	Percentage*
Epichlorohydrin-4,4'-isopropylidene diphenol resin	25068-38-6	40 - 50
Aluminium hydroxide	21645-51-2	40 - 50
Titanium dioxide	13463-67-7	5 - 10
Bisphenol A, polymer with formaldehyde and epichlorohydrin	28906-96-9	1 - 5
Ethylene glycol	107-21-1	0.1 - 1
Distillates, petroleum, heavy thermal cracked	64741-81-7	0.1 - 1

* Exact percentages may vary or are trade secret. Concentration range is provided to assist users in providing appropriate protections.

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Skin contact: Immediately flush skin with plenty of water (using soap, if available). Remove contaminated clothing and footwear. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Ingestion: DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Symptoms: See Section 11.

5. FIRE FIGHTING MEASURES

Extinguishing media: Water spray (fog), foam, dry chemical or carbon dioxide.

Special firefighting procedures: Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear. In case of fire, keep containers cool with water spray.

Unusual fire or explosion hazards: Closed containers may rupture (due to build up of pressure) when exposed to extreme heat.

Hazardous combustion products: Oxides of carbon. Acids. Aldehydes. Irritating vapors.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Do not allow product to enter sewer or waterways.

Clean-up methods: Remove all sources of ignition. Evacuate and ventilate spill area; dike spill to prevent entry into water system; wear full protective equipment during clean-up. Refer to Section 8 "Exposure Controls / Personal Protection" prior to clean up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Scrape up spilled material and place in a closed container for disposal.

7. HANDLING AND STORAGE

Handling: Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling. Use only with adequate ventilation. Keep container closed. Refer to Section 8.

Storage: Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials. Keep away from heat, spark and flame. Store in original container until ready to use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Epichlorohydrin-4,4'-isopropylidene diphenol resin	None	None	None	None
Aluminium hydroxide	1 mg/m3 TWA Respirable fraction. 10 mg/m3 TWA (as Al) Total dust.	15 mg/m3 TWA (as Al) Total dust. 5 mg/m3 TWA (as Al) Respirable fraction. 15 MPPCF TWA Respirable fraction. 15 mg/m3 TWA Total dust. 5 mg/m3 TWA Respirable fraction. 50 MPPCF TWA Total dust.	None	None
Titanium dioxide	10 mg/m3 TWA	15 mg/m3 PEL Total dust. 15 MPPCF TWA Respirable fraction. 15 mg/m3 TWA Total dust. 50 MPPCF TWA Total dust. 5 mg/m3 TWA Respirable fraction.	None	None
Bisphenol A, polymer with formaldehyde and epichlorohydrin	None	None	None	None
Ethylene glycol	25 ppm TWA Vapor fraction 50 ppm STEL Vapor fraction 10 mg/m3 STEL Aerosol, inhalable.	None	None	None
Distillates, petroleum, heavy thermal cracked	None	None	None	None

Engineering controls: Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

Respiratory protection: Use a NIOSH approved air-purifying respirator if the potential to exceed established exposure limits exists.

Eye/face protection: Safety goggles or safety glasses with side shields. Full face protection should be used if the potential for splashing or spraying of product exists. Safety showers and eye wash stations should be available.

Skin protection: Use chemical resistant, impermeable clothing including gloves and either an apron or body suit to prevent skin contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Paste
Color:	White
Odor:	Mild
Odor threshold:	Not available.
pH:	Not applicable
Vapor pressure:	Negligible
Boiling point/range:	> 149 °C (> 300.2 °F)
Melting point/ range:	Not available.
Specific gravity:	1.68
Vapor density:	Not available.
Flash point:	> 93 °C (> 199.4 °F) Tagliabue closed cup
Flammable/Explosive limits - lower:	Not available.
Flammable/Explosive limits - upper:	Not available.
Autoignition temperature:	Not available.
Flammability:	Not applicable
Evaporation rate:	Not available.
Solubility in water:	Slight
Partition coefficient (n-octanol/water):	Not available.
VOC content:	0.47 %; 7.9 g/l 0.04 % (value for resin and hardener together)
Viscosity:	Not available.
Decomposition temperature:	Not available.

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions of storage and use.
Hazardous reactions:	Reaction with some curing agents may produce an exothermic reaction which in large masses could cause runaway polymerization.
Hazardous decomposition products:	Oxides of carbon. Acids. Aldehydes. Irritating vapors.
Incompatible materials:	Strong bases. Strong oxidizing agents. Strong acids.
Reactivity:	Not available.
Conditions to avoid:	Keep away from heat, ignition sources and incompatible materials. Note: Heating the epoxy resin in this product above 148.9 °C (300 °F) in the presence of air may cause slow oxidative decomposition. Above 260 °C (500 °F) polymerization of the epoxy resin may occur. Aliphatic polyamines can produce exothermic reactions with epoxy resins which in large masses can cause runaway polymerization and charring of the reactants. Fumes and vapors from these thermal and chemical decompositions vary widely in composition and toxicity. Do not breathe fumes.

11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure: Skin, Inhalation, Eyes, Ingestion

Potential Health Effects/Symptoms

Inhalation: May cause respiratory tract irritation.
Skin contact: Causes skin irritation. May cause allergic skin reaction.
Eye contact: Causes serious eye irritation.
Ingestion: May cause gastrointestinal tract irritation if swallowed.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Epichlorohydrin-4,4'-isopropylidene diphenol resin	None	Allergen, Irritant
Aluminium hydroxide	Oral LD50 (Rat) = > 5,000 mg/kg	Irritant, Lung, Respiratory
Titanium dioxide	None	Irritant, Respiratory, Some evidence of carcinogenicity
Bisphenol A, polymer with formaldehyde and epichlorohydrin	None	Irritant, Allergen
Ethylene glycol	Oral LD50 (Rat) = 5.89 g/kg Oral LD50 (Mouse) = 14.6 g/kg Dermal LD50 (Rabbit) = 9,530 mg/kg	Blood, Bone Marrow, Central nervous system, Developmental, Eyes, Irritant, Kidney, Liver, Metabolic
Distillates, petroleum, heavy thermal cracked	None	No Target Organs

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Epichlorohydrin-4,4'-isopropylidene diphenol resin	No	No	No
Aluminium hydroxide	No	No	No
Titanium dioxide	No	Group 2B	No
Bisphenol A, polymer with formaldehyde and epichlorohydrin	No	No	No
Ethylene glycol	No	No	No
Distillates, petroleum, heavy thermal cracked	No	Group 2B	No

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

Hazardous waste number: Not a RCRA hazardous waste.

14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

International Air Transportation (ICAO/IATA)

Proper shipping name:	Environmentally hazardous substance, liquid, n.o.s. (Epoxy resin)
Hazard class or division:	9
Identification number:	UN 3082
Packing group:	III

Water Transportation (IMO/IMDG)

Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Epoxy resin)
Hazard class or division:	9
Identification number:	UN 3082
Packing group:	III
Marine pollutant:	Epoxy resin

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status:	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification:	None above reporting de minimis
CERCLA/SARA Section 302 EHS:	None above reporting de minimis.
CERCLA/SARA Section 311/312:	Immediate Health, Delayed Health
CERCLA/SARA Section 313:	None above reporting de minimis.
California Proposition 65:	This product contains a chemical known in the State of California to cause cancer. This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada Regulatory Information

CEPA DSL/NDSL Status:	All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: 2,3

Prepared by: Product Safety and Regulatory Affairs

Issue date: 04/13/2018

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Safety Data Sheet according to (EC) No 1907/2006 as amended

SDS No. : 153486
V005.1
LOCTITE 290
Revision: 23.06.2020
printing date: 18.05.2021
Replaces version from: 16.04.2018

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
LOCTITE 290

1.2. Relevant identified uses of the substance or mixture and uses advised against
Intended use:
Threadlocker

1.3. Details of the supplier of the safety data sheet
Henkel Ltd
Wood Lane End
HP2 4RQ Hemel Hempstead

Great Britain

Phone: +44 1442 278000
Fax-no.: +44 1442 278071

ua-productsafety.uk@henkel.com

1.4. Emergency telephone number
24 Hours Emergency Tel: +44 (0)1442 278497

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (CLP):

Serious eye irritation	Category 2
H319 Causes serious eye irritation.	
Specific target organ toxicity - single exposure	Category 3
H335 May cause respiratory irritation.	
Target organ: respiratory tract irritation	
Chronic hazards to the aquatic environment	Category 3
H412 Harmful to aquatic life with long lasting effects.	

2.2. Label elements

Label elements (CLP):

Hazard pictogram:

Contains Cumene hydroperoxide

Signal word:	Warning
Hazard statement:	H319 Causes serious eye irritation. H335 May cause respiratory irritation. H412 Harmful to aquatic life with long lasting effects.
Supplemental information	Contains: methyl methacrylate May produce an allergic reaction.
Precautionary statement:	"***" ***For consumer use only: P101 If medical advice is needed, have product container or label at hand. P102 Keep out of reach of children. P501 Dispose of contents/container in accordance with national regulation.***
Precautionary statement: Prevention	P261 Avoid breathing vapors. P273 Avoid release to the environment.
Precautionary statement: Response	P337+P313 If eye irritation persists: Get medical advice/attention.

2.3. Other hazards
None if used properly.
Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General chemical description:
Anaerobic Sealant

Declaration of the ingredients according to CLP (EC) No 1272/2008:

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Cumene hydroperoxide 80-15-9	201-254-7 01-2119475796-19	1- < 3 %	Acute Tox. 4; Dermal H312 STOT RE 2 H373 Acute Tox. 4; Oral H302 Org. Perox. E H242 Acute Tox. 3; Inhalation H331 Aquatic Chronic 2 H411 Skin Corr. 1B H314
N,N-Diethyl-p-toluidine 613-48-9	210-345-0	0,1- < 1 %	Acute Tox. 3; Oral H301 Acute Tox. 3; Dermal H311 Acute Tox. 3; Inhalation H331 STOT RE 2 H373 Aquatic Chronic 3 H412
N,N-dimethyl-o-toluidine 609-72-3	210-199-8	0,1- < 1 %	Acute Tox. 3; Inhalation H331 Acute Tox. 3; Dermal H311 Acute Tox. 3; Oral H301 STOT RE 2 H373 Aquatic Chronic 3 H412
methyl methacrylate 80-62-6	201-297-1 01-2119452498-28	0,1- < 1 %	Flam. Liq. 2 H225 STOT SE 3 H335 Skin Irrit. 2 H315 Skin Sens. 1 H317
1,4-Naphthalenedione 130-15-4	204-977-6	0,01- < 0,1 %	Acute Tox. 3; Oral H301 Skin Irrit. 2; Dermal H315 Skin Sens. 1 H317 Eye Irrit. 2 H319 Acute Tox. 1; Inhalation H330 STOT SE 3; Inhalation H335 Aquatic Acute 1 H400 Aquatic Chronic 1 H410 M factor (Acute Aquat Tox): 10 M factor (Chron Aquat Tox): 10

For full text of the H - statements and other abbreviations see section 16 "Other information". Substances without classification may have community workplace exposure limits available.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Move to fresh air. If symptoms persist, seek medical advice.

Skin contact:
Rinse with running water and soap.
Obtain medical attention if irritation persists.

Eye contact:
Rinse immediately with plenty of running water (for 10 minutes), seek medical attention from a specialist.

Ingestion:
Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

4.2. Most important symptoms and effects, both acute and delayed
EYE: Irritation, conjunctivitis.

Prolonged or repeated contact may cause skin irritation.

RESPIRATORY: Irritation, coughing, shortness of breath, chest tightness.

4.3. Indication of any immediate medical attention and special treatment needed
See section: Description of first aid measures

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media:
Carbon dioxide, foam, powder

Extinguishing media which must not be used for safety reasons:
None known

5.2. Special hazards arising from the substance or mixture
In the event of a fire, carbon monoxide (CO) and carbon dioxide (CO2) can be released.

5.3. Advice for firefighters
Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

Additional information:
In case of fire, keep containers cool with water spray.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Ensure adequate ventilation.
Avoid contact with skin and eyes.
Wear protective equipment.

6.2. Environmental precautions
Do not empty into drains / surface water / ground water.

6.3. Methods and material for containment and cleaning up
For small spills wipe up with paper towel and place in container for disposal.
For large spills absorb onto inert absorbent material and place in sealed container for disposal.
Dispose of contaminated material as waste according to Section 13.

6.4. Reference to other sections
See advice in section 8

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Use only in well-ventilated areas.
Prolonged or repeated skin contact should be avoided to minimise any risk of sensitisation.
Avoid skin and eye contact.
See advice in section 8

Hygiene measures:

Good industrial hygiene practices should be observed.
Wash hands before work breaks and after finishing work.
Do not eat, drink or smoke while working.

7.2. Conditions for safe storage, including any incompatibilities

Ensure good ventilation/extraction.
Refer to Technical Data Sheet

7.3. Specific end use(s)

Threadlocker

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Valid for
Great Britain

Ingredient [Regulated substance]	ppm	mg/m³	Value type	Short term exposure limit category / Remarks	Regulatory list
Methyl methacrylate 80-62-6 [METHYL METHACRYLATE]	100	416	Short Term Exposure Limit (STEL):		EH40 WEL
Methyl methacrylate 80-62-6 [METHYL METHACRYLATE]	50	208	Time Weighted Average (TWA):		EH40 WEL
Methyl methacrylate 80-62-6 [METHYL METHACRYLATE]	100		Short Term Exposure Limit (STEL):	Indicative	ECTLV
Methyl methacrylate 80-62-6 [METHYL METHACRYLATE]	50		Time Weighted Average (TWA):	Indicative	ECTLV

Occupational Exposure Limits

Valid for
Ireland

Ingredient [Regulated substance]	ppm	mg/m³	Value type	Short term exposure limit category / Remarks	Regulatory list
Methyl methacrylate 80-62-6 [METHYL METHACRYLATE]	50		Time Weighted Average (TWA):	Indicative OELV	IR_OEL
Methyl methacrylate 80-62-6 [METHYL METHACRYLATE]	100		Short Term Exposure Limit (STEL):	Indicative	ECTLV
Methyl methacrylate 80-62-6 [METHYL METHACRYLATE]	50		Time Weighted Average (TWA):	Indicative	ECTLV
Methyl methacrylate 80-62-6 [METHYL METHACRYLATE]	100		Short Term Exposure Limit (STEL):	15 minutes Indicative OELV	IR_OEL

Predicted No-Effect Concentration (PNEC):

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide 80-15-9	aqua (freshwater)		0,0031 mg/l				
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide 80-15-9	aqua (marine water)		0,00031 mg/l				
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide 80-15-9	aqua (intermittent releases)		0,031 mg/l				
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide 80-15-9	Sewage treatment plant		0,35 mg/l				
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide 80-15-9	sediment (freshwater)				0,023 mg/kg		
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide 80-15-9	sediment (marine water)				0,0023 mg/kg		
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide 80-15-9	Soil				0,0029 mg/kg		
methyl methacrylate 80-62-6	aqua (freshwater)		0,94 mg/l				
methyl methacrylate 80-62-6	aqua (marine water)		0,94 mg/l				
methyl methacrylate 80-62-6	aqua (intermittent releases)		0,94 mg/l				
methyl methacrylate 80-62-6	sewage treatment plant (STP)		10 mg/l				
methyl methacrylate 80-62-6	sediment (freshwater)				5,74 mg/kg		
methyl methacrylate 80-62-6	Soil				1,47 mg/kg		

Derived No-Effect Level (DNEL):

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide 80-15-9	Workers	inhalation	Long term exposure - systemic effects		6 mg/m3	
methyl methacrylate 80-62-6	Workers	dermal	Acute/short term exposure - local effects		1,5 mg/cm2	
methyl methacrylate 80-62-6	Workers	dermal	Long term exposure - systemic effects		13,67 mg/kg	
methyl methacrylate 80-62-6	Workers	Inhalation	Long term exposure - systemic effects		208 mg/m3	
methyl methacrylate 80-62-6	Workers	dermal	Long term exposure - local effects		1,5 mg/cm2	
methyl methacrylate 80-62-6	Workers	Inhalation	Long term exposure - local effects		208 mg/m3	
methyl methacrylate 80-62-6	General population	dermal	Acute/short term exposure - local effects		1,5 mg/cm2	
methyl methacrylate 80-62-6	General population	dermal	Long term exposure - systemic effects		8,2 mg/kg	
methyl methacrylate 80-62-6	General population	Inhalation	Long term exposure - systemic effects		74,3 mg/m3	
methyl methacrylate 80-62-6	General population	dermal	Long term exposure - local effects		1,5 mg/cm2	
methyl methacrylate 80-62-6	General population	Inhalation	Long term exposure - local effects		104 mg/m3	

Biological Exposure Indices:
None

8.2. Exposure controls:

Engineering controls:
Ensure good ventilation/extraction.

Respiratory protection:
Ensure adequate ventilation.
An approved mask or respirator fitted with an organic vapour cartridge should be worn if the product is used in a poorly ventilated area
Filter type: A (EN 14387)

Hand protection:
Chemical-resistant protective gloves (EN 374).
Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):
nitrile rubber (NBR; >= 0.4 mm thickness)
Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):
nitrile rubber (NBR; >= 0.4 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:
Safety glasses with sideshields or chemical safety goggles should be worn if there is a risk of splashing.
Protective eye equipment should conform to EN166.

Skin protection:
Wear suitable protective clothing.
Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.

Advices to personal protection equipment:

The information provided on personal protective equipment is for guidance purposes only. A full risk assessment should be conducted prior to using this product to determine the appropriate personal protective equipment to suit local conditions. Personal protective equipment should conform to the relevant EN standard.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	liquid green
Odor	mild
Odour threshold	No data available / Not applicable
pH	Not applicable
Melting point	No data available / Not applicable
Solidification temperature	No data available / Not applicable
Initial boiling point	> 150 °C (> 302 °F)
Flash point	> 93,3 °C (> 199.94 °F); Tagliabue closed cup
Evaporation rate	Not available.
Flammability	No data available / Not applicable
Explosive limits	No data available / Not applicable
Vapour pressure (27 °C (80.6 °F))	< 5 mm hg
Vapour pressure (50 °C (122 °F))	< 300 mbar
Relative vapour density:	Not available.
Density ()	1,07 g/cm3
Bulk density	No data available / Not applicable
Solubility	No data available / Not applicable
Solubility (qualitative) (Solvent: Water)	Slight
Solubility (qualitative) (Solvent: Acetone)	Miscible
Partition coefficient: n-octanol/water	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Decomposition temperature	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Oxidising properties	No data available / Not applicable

9.2. Other information

No data available / Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity
Reaction with strong acids.
Reacts with strong oxidants.

10.2. Chemical stability
Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions
See section reactivity

10.4. Conditions to avoid
No decomposition if used according to specifications.

10.5. Incompatible materials
See section reactivity.

10.6. Hazardous decomposition products
Irritating organic vapours.

SECTION 11: Toxicological information

General toxicological information:
Prolonged or repeated contact may cause skin irritation.

11.1. Information on toxicological effects

Acute oral toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Species	Method
Cumene hydroperoxide 80-15-9	LD50	382 mg/kg	rat	other guideline:
methyl methacrylate 80-62-6	LD50	9.400 mg/kg	rat	not specified
1,4-Naphthalenedione 130-15-4	LD50	190 mg/kg	rat	not specified

Acute dermal toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Species	Method
Cumene hydroperoxide 80-15-9	LD50	530 - 1.060 mg/kg	rat	other guideline:
Cumene hydroperoxide 80-15-9	Acute toxicity estimate (ATE)	1.100 mg/kg		Expert judgement
methyl methacrylate 80-62-6	LD50	> 5.000 mg/kg	rabbit	not specified

Acute inhalative toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Test atmosphere	Exposure time	Species	Method
methyl methacrylate 80-62-6	LC50	29,8 mg/l	vapour	4 h	rat	not specified

Skin corrosion/irritation:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	corrosive		rabbit	Draize Test

Serious eye damage/irritation:

No data available.

Respiratory or skin sensitization:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Test type	Species	Method
methyl methacrylate 80-62-6	sensitising	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)

Germ cell mutagenicity:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	positive	bacterial reverse mutation assay (e.g Ames test)	without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
methyl methacrylate 80-62-6	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		not specified

Carcinogenicity

No data available.

Reproductive toxicity:

No data available.

STOT-single exposure:

No data available.

STOT-repeated exposure::

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result / Value	Route of application	Exposure time / Frequency of treatment	Species	Method
Cumene hydroperoxide 80-15-9		inhalation: aerosol	6 h/d 5 d/w	rat	not specified
methyl methacrylate 80-62-6	LOAEL 2000 ppm	inhalation	14 weeks 6 hrs/day, 5 days/wk	mouse	Dose Range Finding Study
methyl methacrylate 80-62-6	NOAEL 1000 ppm	inhalation	14 weeks 6 hrs/day, 5 days/wk	mouse	Dose Range Finding Study

Aspiration hazard:

No data available.

SECTION 12: Ecological information

General ecological information:
Cured Loctite products are typical polymers and do not pose any immediate environmental hazards.
Do not empty into drains / surface water / ground water.

12.1. Toxicity

Toxicity (Fish):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	LC50	3,9 mg/l	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
N,N-dimethyl-o-toluidine 609-72-3	LC 50	46 mg/l	96 h	Fathead minnow (Pimephales promelas)	
methyl methacrylate 80-62-6	LC50	350 mg/l	96 h	Leuciscus idus	OECD Guideline 203 (Fish, Acute Toxicity Test)

Toxicity (Daphnia):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	EC50	18 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
methyl methacrylate 80-62-6	EC50	69 mg/l	48 h	Daphnia magna	EPA OTS 797.1300 (Aquatic Invertebrate Acute Toxicity Test, Freshwater Daphnids)

Chronic toxicity to aquatic invertebrates

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
methyl methacrylate 80-62-6	NOEC	37 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)

Toxicity (Algae):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	ErC50	3,1 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
methyl methacrylate 80-62-6	EC50	170 mg/l	96 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
methyl methacrylate 80-62-6	NOEC	100 mg/l	96 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
1,4-Naphthalenedione 130-15-4	EC50	0,011 mg/l	72 h	Dunaliella bioculata	OECD Guideline 201 (Alga, Growth Inhibition Test)

Toxicity to microorganisms

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	EC10	70 mg/l	30 min		not specified
methyl methacrylate 80-62-6	EC20	> 150 - 200 mg/l	30 min	activated sludge, domestic	ISO 8192 (Test for Inhibition of Oxygen Consumption by Activated Sludge)

12.2. Persistence and degradability

The product is not biodegradable.

Hazardous substances CAS-No.	Result	Test type	Degradability	Exposure time	Method
Cumene hydroperoxide 80-15-9		no data	0 %	28 d	OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)
methyl methacrylate 80-62-6	readily biodegradable	aerobic	94 %	14 d	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))
1,4-Naphthalenedione 130-15-4	not readily biodegradable.	no data	0 - 60 %		OECD 301 A - F

12.3. Bioaccumulative potential

Hazardous substances CAS-No.	Bioconcentration factor (BCF)	Exposure time	Temperature	Species	Method
Cumene hydroperoxide 80-15-9	9,1			calculation	OECD Guideline 305 (Bioconcentration: Flow-through Fish Test)

12.4. Mobility in soil

Cured adhesives are immobile.

Hazardous substances CAS-No.	LogPow	Temperature	Method
Cumene hydroperoxide 80-15-9	2,16		not specified
methyl methacrylate 80-62-6	1,38	20 °C	other guideline:
1,4-Naphthalenedione 130-15-4	1,71		not specified

12.5. Results of PBT and vPvB assessment

Hazardous substances CAS-No.	PBT / vPvB
Cumene hydroperoxide 80-15-9	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
methyl methacrylate 80-62-6	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
1,4-Naphthalenedione 130-15-4	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

12.6. Other adverse effects

No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product disposal:
Dispose of in accordance with local and national regulations.
Do not empty into drains / surface water / ground water.

Disposal of uncleaned packages:
After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.

Waste code

08 04 09 waste adhesives and sealants containing organic solvents and other dangerous substances
The valid EWC waste code numbers are source-related. The manufacturer is therefore unable to specify EWC waste codes for the articles or products used in the various sectors. The EWC codes listed are intended as a recommendation for users. We will be happy to advise you.

SECTION 14: Transport information

14.1. UN number

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

14.2. UN proper shipping name

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

14.3. Transport hazard class(es)

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

14.4. Packing group

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

14.5. Environmental hazards

ADR	not applicable
RID	not applicable
ADN	not applicable
IMDG	not applicable
IATA	not applicable

14.6. Special precautions for user

ADR	not applicable
RID	not applicable
ADN	not applicable
IMDG	not applicable
IATA	not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

VOC content (2010/75/EC) < 3 %

15.2. Chemical safety assessment

A chemical safety assessment has not been carried out.

SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

H225 Highly flammable liquid and vapor.
H242 Heating may cause a fire.
H301 Toxic if swallowed.
H302 Harmful if swallowed.
H311 Toxic in contact with skin.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H331 Toxic if inhaled.
H335 May cause respiratory irritation.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H411 Toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.

Further information:

This Safety Data Sheet has been produced for sales from Henkel to parties purchasing from Henkel, is based on Regulation (EC) No 1907/2006 and provides information in accordance with applicable regulations of the European Union only. In that respect, no statement, warranty or representation of any kind is given as to compliance with any statutory laws or regulations of any other jurisdiction or territory other than the European Union. When exporting to territories other than the European Union, please consult with the respective Safety Data Sheet of the concerned territory to ensure compliance or liaise with Henkel's Product Safety and Regulatory Affairs Department (ua-productsafety.de@henkel.com) prior to export to other territories than the European Union.

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

Dear Customer,
Henkel is committed to creating a sustainable future by promoting opportunities along the entire value chain. If you would like to contribute by switching from a paper to the electronic version of SDS, please contact the local Customer Service representative. We recommend to use a non-personal email address (e.g. SDS@your_company.com).

Relevant changes in this safety data sheet are indicated by vertical lines at the left margin in the body of this document. Corresponding text is displayed in a different color on shadowed fields.

Revision Number: 003.0

Issue date: 08/28/2014

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **LOCTITE 404 INSTANT ADHESIVE known as LOCTITE® 404™ INSTANT ADHESIVE**

IDH number: 135465

Product type: Cyanoacrylate

Item number: 46551

Restriction of Use: None identified

Region: United States

Company address:
Henkel Corporation
One Henkel Way
Rocky Hill, Connecticut 06067

Contact information:
Telephone: (860) 571-5100
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER:
BONDS SKIN IN SECONDS.
COMBUSTIBLE LIQUID.
CAUSES EYE IRRITATION.
MAY CAUSE RESPIRATORY IRRITATION.
MAY CAUSE GENETIC DEFECTS.

HAZARD CLASS	HAZARD CATEGORY
FLAMMABLE LIQUID	4
EYE IRRITATION	2B
GERM CELL MUTAGENICITY	1B
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE	3

PICTOGRAM(S)

Precautionary Statements

Prevention:

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, sparks, open flames, hot surfaces - no smoking. Avoid breathing vapors, mist, or spray. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves, eye protection, and face protection. Use personal protective equipment as required.

Response:

IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to remove. Continue rinsing. IF exposed or concerned: Get medical attention. If eye irritation persists: Get medical attention. In case of fire: Use foam, dry chemical or carbon dioxide to extinguish.

Storage:

Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.

Disposal:

Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations.

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component(s)	CAS Number	Percentage*
Ethyl 2-cyanoacrylate	7085-85-0	60 - 100
Thickener	Proprietary	5 - 10
Hydroquinone	123-31-9	0.1 - 1

* Exact percentage is a trade secret. Concentration range is provided to assist users in providing appropriate protections.

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. If symptoms develop and persist, get medical attention.

Skin contact: Do not pull bonded skin apart. Soak in warm soapy water. Gently peel apart using a blunt instrument. If skin is burned due to the rapid generation of heat by a large drop, seek medical attention. If lips are bonded, apply warm water to the lips and encourage wetting and pressure from saliva in mouth. Peel or roll lips apart. Do not pull lips apart with direct opposing force.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. Get medical attention. If eyelids are bonded closed, release eyelashes with warm water by covering with a wet pad. Do not force eye open. Cyanoacrylate will bond to eye protein and will cause a lachrymatory effect which will help to debond the adhesive. Keep eye covered until debonding is complete, usually within 1-3 days. Medical attention should be sought in case solid particles of polymerized cyanoacrylate trapped behind the eyelid caused abrasive damage.

Ingestion: Ensure breathing passages are not obstructed. The product will polymerize rapidly and bond to the mouth making it almost impossible to swallow. Saliva will separate any solidified product in several hours. Prevent the patient from swallowing any separated mass.

Symptoms: See Section 11.

Notes to physician: Surgery is not necessary to separate accidentally bonded tissues. Experience has shown that bonded tissues are best treated by passive, non-surgical first aid. If rapid curing has caused thermal burns they should be treated symptomatically after adhesive is removed.

5. FIRE FIGHTING MEASURES

Extinguishing media: Water spray (fog), foam, dry chemical or carbon dioxide.

Special firefighting procedures: Wear a self-contained breathing apparatus with a full face piece operated in pressure-demand or other positive pressure mode.

Unusual fire or explosion hazards: None

Hazardous combustion products: Trace amounts of toxic and/or irritating fumes may be released and the use of breathing apparatus is recommended.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Ventilate area. Do not allow product to enter sewer or waterways.

Clean-up methods: Do not use cloths for mopping up. Flood with water to complete polymerization and scrape off the floor. Cured material can be disposed of as non-hazardous waste. Refer to Section 8 "Exposure Controls / Personal Protection" prior to clean up.

7. HANDLING AND STORAGE

Handling: Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling. Avoid contact with fabric or paper goods. Contact with these materials may cause rapid polymerization which can generate smoke and strong irritating vapors, and cause thermal burns.

Storage: Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

For information on product shelf life contact Henkel Customer Service at (800) 243-4874.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Ethyl 2-cyanoacrylate	0.2 ppm TWA	None	None	None
Thickener	None	None	None	None
Hydroquinone	1 mg/m3 TWA (Dermal sensitization)	2 mg/m3 PEL	None	None

Engineering controls: Use positive down-draft exhaust ventilation if general ventilation is insufficient to maintain vapor concentration below established exposure limits.

Respiratory protection: Use a NIOSH approved supplied air respirator with an organic cartridge if the potential to exceed established exposure limits exists.

Eye/face protection: Safety goggles or safety glasses with side shields. Full face protection should be used if the potential for splashing or spraying of product exists.

Skin protection: Use nitrile gloves and aprons as necessary to prevent contact. Do not use PVC, nylon or cotton.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid
Color: Clear, Colorless
Odor: Sharp, Irritating
Odor threshold: 1 - 2 ppm
pH: Not applicable
Vapor pressure: < 0.2 mm hg
Boiling point/range: > 149 °C (> 300.2 °F)
Melting point/ range: Not determined
Specific gravity: 1.09 at 23.9 °C (75.02 °F)
Vapor density: 3 Approximately
Flash point: 80 - 93 °C (176°F - 199.4 °F) Tagliabue closed cup

Flammable/Explosive limits - lower:	Not determined
Flammable/Explosive limits - upper:	Not determined
Autoignition temperature:	485 °C (905°F)
Evaporation rate:	Not available.
Solubility in water:	Polymerises in presence of water.
Partition coefficient (n-octanol/water):	Not determined
VOC content:	< 2 %; < 20 g/l (California SCAQMD Method 316B) (Estimated)
Viscosity:	Not available.
Decomposition temperature:	Not available.

10. STABILITY AND REACTIVITY

Stability: Stable under recommended storage conditions.

Hazardous reactions: Rapid exothermic polymerization will occur in the presence of water, amines, alkalis and alcohols.

Hazardous decomposition products: None

Incompatible materials: Water, amines, alkalis and alcohols.

Reactivity: Not available.

Conditions to avoid: Spontaneous polymerization.

11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects/Symptoms

Inhalation: May cause respiratory tract irritation. Exposure to vapors above the established exposure limit results in respiratory irritation, which may lead to difficulty in breathing and tightness in the chest.

Skin contact: Bonds skin in seconds. May cause skin irritation. Cyanoacrylates have been reported to cause allergic reaction but due to rapid polymerization at the skin surface, an allergic response is rare. Cyanoacrylates generate heat on solidification. In rare circumstances a large drop will burn the skin. Cured adhesive does not present a health hazard even if bonded to the skin.

Eye contact: Irritating to eyes. Causes excessive tearing. Eyelids may bond.

Ingestion: Not expected to be harmful by ingestion. Rapidly polymerizes (solidifies) and bonds in mouth. It is almost impossible to swallow.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Ethyl 2-cyanoacrylate	None	Irritant, Allergen, Respiratory
Thickener	None	Irritant
Hydroquinone	Oral LD50 (RAT) = 320 mg/kg Oral LD50 (RABBIT) = 540 mg/kg Dermal LD50 (RAT) = > 900 mg/kg	Blood, Bone Marrow, Central nervous system, Developmental, Eyes, Immune system, Irritant, Liver, Mutagen, Skin, Thyroid

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Ethyl 2-cyanoacrylate	No	No	No
Thickener	No	No	No
Hydroquinone	No	No	No

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

Hazardous waste number: Not a RCRA hazardous waste.

14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name:	Combustible liquid, n.o.s. (Cyanoacrylate ester)
Hazard class or division:	Combustible Liquid
Identification number:	NA 1993
Packing group:	III
DOT Hazardous Substance(s):	Hydroquinone

International Air Transportation (ICAO/IATA)

Proper shipping name:	Aviation regulated liquid, n.o.s. (Cyanoacrylate ester)
Hazard class or division:	9
Identification number:	UN 3334
Packing group:	III
Exceptions:	(Not more than 500ml) Unrestricted

Water Transportation (IMO/IMDG)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status:	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification:	None above reporting de minimis
CERCLA/SARA Section 302 EHS:	None above reporting de minimis
CERCLA/SARA Section 311/312:	Immediate Health, Delayed Health, Fire, Reactive
CERCLA/SARA Section 313:	None above reporting de minimis
CERCLA Reportable quantity:	Hydroquinone (CAS# 123-31-9) 100 lbs. (45.4 kg)
California Proposition 65:	No California Proposition 65 listed chemicals are known to be present.

Canada Regulatory Information

CEPA DSL/NDSL Status:	All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: New Safety Data Sheet format.

Prepared by: Catherine Bimler, Regulatory Affairs Specialist

Issue date: 08/28/2014

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2325

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product Identifier

Product Name: **2325**

Other means of identification: N/A
Synonyms: None known

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use: Industrial Water Treatment
Recommended restrictions: All other uses other than that prescribed by Watercare Industrial Services, Inc. are strictly prohibited.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Importer/Supplier/Distributor information

Company Name: Watercare Industrial Services, Inc.
Company Address: PO Box 464
Washougal, WA 98671, USA
Company Telephone Number: 360-835-7284
Emergency Phone Number: INFOTRAC: 1-800-535-5053

2. Hazard(s) identification

Classification of the chemical in accordance with the OSHA 29 CFR 1910.1200, Hazard Communication Standard (HAZCOM) 2012.

2.1 Classification of the Substance or Mixture

Physical Hazards: Not Classified.

Health Hazards:
Skin Corrosion/Irritation – Category 2
Eye Damage – Category 2A

Hazard(s) not otherwise classified (HNOC): None known.

2.2 Label Elements:

Pictograms:

Signal Word: Warning

Hazard Phrases:
H315 – Causes skin irritation
H319 – Causes serious eye irritation

Precautionary Phrases:
Prevention:
P264 – Wash thoroughly after handling.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.

Response:
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.
P337+P313: IF EYE irritation persists: Get medical advice/attention.
P302+P352: IF ON SKIN: wash with plenty of water.
P332+P313: IF SKIN irritation occurs: Get medical advice/attention.
P321: Specific treatment (See sections 4-8 of this safety data sheet or any additional information on the product label).

P362: Take off contaminated clothing.

Storage: N/A

Disposal: N/A

2.3 Unknown Acute Toxicity: This product contains 3% ingredients with unknown acute toxicity dermal.
This product contains 3% ingredients with unknown acute toxicity inhalation.

3. Composition/information on ingredients

Mixture:

Ingredient	CAS Number	Concentration Wt. %
*Proprietary mixture containing 7 components	Trade Secret	100

* The concentration and specific chemical identity of this ingredient is being withheld as a trade secret and will be disclosed to authorized interested parties in accordance with 29CFR §1910.1200(i).

The balance of ingredients are not classified as hazardous or are below the concentration limit to be classified as hazardous, under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

4. First-aid measures

4.1 Description of necessary measures

General advice:

Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: seek a doctor/hospital. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: This substance may be hazardous to the person providing aid to give mouth-to-mouth resuscitation. Maintain an open airway. Seek immediate medical advice/attention.

Skin contact: Immediately remove contaminated clothing and thoroughly wash [shower] affected area with water for at least 20 minutes. It is very important to remove the substance from the skin immediately. Seek immediate medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

Eye contact: Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention (preferably from an ophthalmologist).

Ingestion: Seek immediate medical attention. Rinse mouth. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Never give anything by mouth to an unconscious or convulsing person.

4.2 Most important symptoms/effects, acute and delayed

Eye Contact: May cause irritation or damage to the eyes.

Inhalation: May cause irritation or damage to the nose, throat, and respiratory tract.

Ingestion: May irritate or burn mouth and throat.

Skin Contact: May cause irritation or damage to the skin.

Indication of any immediate medical attention and special treatment needed:

Call a POISON CENTER or doctor/physician if you feel unwell. If eye irritation develops obtain prompt consultation, preferably from an ophthalmologist. Aspiration of vomitus may cause lung injury. Patients with symptoms after ingestion of an irritant should be evaluated. Symptoms may be delayed. Therefore, close medical observation is required following extreme exposure. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Aggravated Medical Conditions: Pre-existing eye, skin or respiratory conditions.

Supplemental Health Information: The effects of long-term, low-level exposure to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures.

5. Fire-fighting measures

5.1 Extinguishing media:

Suitable and unsuitable extinguishing media: Use extinguishing media appropriate for surrounding fire. Do not use straight streams of water. Do NOT get water inside containers.

5.2 Specific fire hazards due to the substance or mixture:
During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Vapors may spread along the ground and collect in low or confined areas.

Hazardous Combustion Products:
During a fire: irritating, corrosive and toxic fumes, mist and gases may be generated including Carbon Oxides, Sodium Oxides, Sulfur Oxides, Potassium Oxides, Nitrogen Oxides, and Phosphorus Oxides.

5.3 Fire Fighting Instructions:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Containers close to fire should be removed immediately or cooled with water. Use water spray to keep fire-exposed containers cool. Use water with caution and in flooding amounts. Do NOT get water inside containers. During a fire: irritating, corrosive and toxic fumes, mist and gases may be generated including Carbon Oxides, Sodium Oxides, Sulfur Oxides, Potassium Oxides, Nitrogen Oxides, and Phosphorus Oxides. Continue to cool containers until well after fire is out. Extinguishing water from fire fighting may be strongly caustic. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations. Do not allow extinguishing water to enter drains, reach sewage or effluent systems.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:
Keep unnecessary personnel away. Wear recommended personal protective equipment (see Section 8). ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate area. Do not breathe vapors/mist/aerosol/spray. Stop leak if you can do it without risk. DO NOT GET WATER INSIDE CONTAINERS. (ERG, 2016).

6.2 Environmental precautions:
Prevent entry into drains, sewer, water system or soil.

6.3 Methods and material for containment for cleaning up:
Stop the flow of material, if this can be done without risk. Dike the material if possible. Absorb in vermiculite, dry sand, earth, or suitable absorbents, and place into containers for future disposal. DO NOT GET WATER INSIDE CONTAINERS. Following product recovery, flush area with water.

7. Handling and storage

7.1 Precautions for safe handling:
Use only with adequate ventilation. Wear recommended personal protective equipment (see Section 8). Never pour water into an acid or base. Minimize generation of mist/aerosol/vapor/spray. Do not breathe mist/aerosol/vapor/spray. Never add water to an acid or base. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Do not get this material on clothing. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Avoid release to the environment. Do not empty into drains.

7.2 Conditions for safe storage, including any incompatibilities:
Protect from freezing. Follow all SDS/label precautions even after container is emptied because it may retain product residues. For industrial use only. Store locked up. Store in original, tightly sealed container. Store in a cool, well-ventilated room, protected from direct sunlight. Store in a dry place. Store away from incompatible materials (See section 10 for incompatibles).

8. Exposure controls / personal protection equipment

8.1 Control parameters
Ingredients with established limits for occupational exposure are given below:

Ingredient	
Proprietary Component 1	Cal./OSHA PEL: Ceiling- 2 mg/m^3 NIOSH REL: Ceiling - 2 mg/m^3 ACGIH TLV: Ceiling - 2 mg/m^3

8.2 Engineering Controls:
Ensure adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. Ensure that eye wash stations and chemical showers are accessible and in good working order.

8.3 Individual protection measure, such as personal protective equipment:

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridge as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Skin Protection:

Hand Protection: Suitable glove types are Polyvinyl chloride (PVC), Neoprene, Nitrile, Rubber (natural or latex) and Butyl rubber. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection: Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace**.**

Eye Protection: Tightly fitting safety goggles and Face shield. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

General hygiene considerations: Handle in accordance with good industrial hygiene and safety practice. Wash contaminated clothing before reuse.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties:

Appearance:	Clear, light amber liquid
Color:	Clear, light amber
Odor:	No appreciable odor
Odor threshold:	Not available
pH:	10.0 +/- 0.5
Melting point:	Not available
Freezing point:	Not available
Initial boiling point:	220º F
Flash point:	Not available
Evaporation rate:	Not available
Flammability (solid, gas):	Not available
Upper flammability limits:	Not available
Lower flammability limits:	Not available
Upper explosive limits:	Not available
Lower explosive limits:	Not available
Relative density:	1.05
Vapor pressure:	Not available
Vapor density:	Not available
Solubility(ies):	Soluble in water
Partition coefficient:	Not available
Viscosity dynamic:	Not available
Ignition temperature:	Not available
Decomposition temperature:	Not available

9.2 Other information: No additional information.

10. Stability and reactivity

Chemical Stability: This product is stable under recommended storage and handling conditions.

Reactivity: Possibility of exothermic reaction in contact with water (moisture) and some acids.

Possibility of Hazardous Reactions: Possibility of exothermic reaction in contact with water (moisture) and some acids.

Conditions to Avoid: Never add water directly to an Acid or Base. Avoid sources of ignition, heat, open flame and sparks. Avoid contact with incompatible materials.

Incompatibility: Oxidizers, acidic materials and reactive metals. Do not add hot water to concentrated product.

Hazardous decomposition products: During a fire: irritating, corrosive and toxic fumes, mist and gases may be generated including Carbon Oxides, Sodium Oxides, Sulfur Oxides, Potassium Oxides, Nitrogen Oxides and Phosphorus Oxides.

11. Toxicological information

11.1 Information on likely routes of exposure

Routes of Exposure: Inhalation, Ingestion, Skin and Eyes.

Target Organs: Skin, eyes, respiratory system, digestive system.

11.2 Symptoms related to the physical, chemical, and toxicological characteristics

Eye Contact: May cause irritation or damage to the eyes.

Inhalation: May cause irritation or damage to the nose, throat, and respiratory tract.

Ingestion: May irritate or burn mouth and throat.

Skin Contact: May cause irritation or damage to the skin.

Delayed and immediate effects and chronic effects from short or long-term exposure:

Aggravated Medical Conditions: Pre-existing eye, skin or respiratory conditions.

Supplemental Health Information: The effects of long-term, low-level exposure to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures.

Acute Toxicity: Does not meet the criteria for classification based on information on the product and its ingredients.

Skin Irritation and Corrosion: Causes skin irritation.

Serious Eye Damage/ Eye Irritation: Causes serious eye irritation.

Respiratory Sensitization: Does not meet the criteria for classification based on information on the product and its ingredients.

Skin Sensitization: Does not meet the criteria for classification based on information on the product and its ingredients.

Germ Cell Mutagenicity: Does not meet the criteria for classification based on information on the product and its ingredients.

Carcinogenicity: Under IARC, NTP and OSHA, no ingredient in this product is present equal to or above 0.1 concentration that would be a confirmed, probable carcinogenic.

Reproductive Toxicity: Does not meet the criteria for classification based on information on the product and its ingredients.

Specific Target-Organ Toxicity – Single Exposure: Does not meet the criteria for classification based on information on the product and its ingredients.

Specific Target-Organ Toxicity – Repeated Exposure: Does not meet the criteria for classification based on information on the product and its ingredients.

Aspiration Hazard: Does not meet the criteria for classification based on information on the product and its ingredients.

Toxicity Data (Numerical Values such as Acute Toxicity Data) where available:

Proprietary Component 1	
LD50 Oral - Rat	273 mg/kg
LD50 Dermal	No data available
LC50 Inhalation	No data available

Proprietary Component 2	
LD50 Oral - Mouse	1800 mg/kg
LD50 Dermal	No data available
LC50 Inhalation	No data available

12. Ecological information

No information available.

13. Disposal considerations

Consult appropriate Federal, State, or Local regulatory agencies to ascertain proper disposal procedures.

14. Transportation information

US 49CFR/DOT:

UN Number	N/A
Proper Shipping Name:	Non-Regulated Material, Liquid
Hazard Class:	N/A
Packing Group:	N/A
Guide Number:	N/A

15. Regulatory information

Not meant to be all inclusive

Contact Watercare Industrial for regulatory information pertaining to a specific application.

Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
None present or none present in regulated quantities.

SARA Section 313 (Specific toxic chemical listings):
This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

16. Other information

Date Prepared: 1/7/98
Last Revision: 7/18/19

DISCLAIMER OF LIABILITY

Watercare Industrial Services expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein.

The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

2882

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product Identifier

Product Name: **2882**

Other means of identification: N/A
Synonyms: None known

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use: Industrial Water Treatment Per Label Instructions.
Recommended restrictions: All other uses other than that prescribed by Watercare Industrial Services, Inc. are strictly prohibited.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Importer/Supplier/Distributor information

Company Name: Watercare Industrial Services, Inc.
Company Address: PO Box 464
Washougal, WA 98671, USA
Company Telephone Number: 360-835-7284
Emergency Phone Number: INFOTRAC: 1-800-535-5053

2. Hazard(s) identification

Classification of the chemical in accordance with the OSHA 29 CFR 1910.1200, Hazard Communication Standard (HAZCOM) 2012.

2.1 Classification of the Substance or Mixture

Health Hazards:
Skin Corrosion – Category 1
Eye Damage – Category 1
Skin Sensitization – Category 1

Hazard(s) not otherwise classified (HNOC): None Known

2.2 Label Elements:

Pictograms:

Signal Word: DANGER

Hazard Phrases:
H314 – Causes severe skin burns and eye damage.
H318 – Causes serious eye damage.
H317 – May cause an allergic skin reaction

Precautionary Phrases:
Prevention:
P260 – Do not breathe mist, vapors or spray.
P264 – Wash thoroughly after handling.
P272 – Contaminated work clothing should not be allowed out of the workplace.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.

Response:
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 - IF ON SKIN (or hair): Take off Immediately all contaminated clothing. Rinse SKIN with water [or shower].
P333 + P13 - IF SKIN irritation or rash occurs: Get medical advice/attention.
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.
P310 - Immediately call a POISON CENTER or doctor/physician.

P321 - Specific treatment (See sections 4-8 of this safety data sheet or any additional information on the product label).
P363 - Wash contaminated clothing before reuse.

Storage: P405 - Store locked up.

Disposal: P501 - Dispose of contents/container to a suitable disposal site, in accordance with applicable local/regional/national and international regulations.

2.3 Unknown Acute Toxicity: This product contains 10% ingredients with unknown acute toxicity inhalation

3. Composition/information on ingredients

Mixture:

Ingredient	CAS Number	Concentration Wt. %
Potassium Dimethyldithiocarbamate	128-03-0	10

The balance of ingredients are not classified as hazardous or are below the concentration limit to be classified as hazardous, under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

4. First-aid measures

4.1 Description of necessary measures

General advice:
If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Description of necessary first aid measures

Eye contact:
- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor for further treatment advice.

Inhalation:
- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to- mouth if possible.
- Call a poison control center or doctor for further treatment advice.

Skin contact:
- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

Ingestion:
- Call poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water, if able to swallow.
- Do NOT induce vomiting unless told to do so by the poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

4.2 Most important symptoms/effects, acute and delayed

Indication of any immediate medical attention and special treatment needed:

Corrosive by all exposure routes. Ingestion, inhalation, skin, and eye contact require immediate medical attention. May cause an allergic skin reaction.

Notes to physician: Probable mucosal damage may contraindicate gastric lavage.
Aggravated Medical Conditions: Pre-existing eye, skin or respiratory conditions.

Supplemental Health Information: The effects of long-term, low-level exposure to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures.

5. Fire-fighting measures

5.1 Extinguishing media:
Suitable and unsuitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire. Do not use straight streams of water. Do NOT get water inside containers.

5.2 Specific fire hazards due to the substance or mixture:
During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Vapors may spread along the ground and collect in low or confined areas. In a fire or if heated, a pressure increase will occur and the container may burst. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous Combustion Products:
During a fire: irritating, corrosive and toxic fumes, mist and gases may be generated including carbon dioxide, carbon monoxide, nitrogen oxides, sulfur oxides, and metal oxide/oxides.

5.3 Fire Fighting Instructions:
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Containers close to fire should be removed immediately or cooled with water. Use water spray to keep fire-exposed containers cool. Use water with caution and in flooding amounts. Do NOT get water inside containers. During a fire: irritating, corrosive and toxic fumes, mist and gases may be generated including carbon dioxide, carbon monoxide, nitrogen oxides, sulfur oxides, and metal oxide/oxides. Continue to cool containers until well after fire is out. Extinguishing water from fire fighting may cause pollution. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations. Do not allow extinguishing water to enter drains, reach sewage or effluent systems.

Remark: Carbon disulfide and dimethylamine may be generated upon acidification. Thermal degradation may generate vapors of hydrogen sulfide. Contact with fire or strong oxidants may generate methyl isothiocyanates, oxides of sulfur, nitrogen, and carbon.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:
Keep unnecessary personnel away. No action shall be taken involving any personal risk or without suitable training. Wear recommended personal protective equipment (see Section 8 of this SDS). Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate area. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not breathe vapors/mist/aerosol/spray. Stop leak if you can do it without risk. DO NOT GET WATER INSIDE CONTAINERS.

6.2 Environmental precautions:
Prevent entry into drains, sewer, water system or soil. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and material for containment for cleaning up:

Small spill: Stop leak if can do without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if can do without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see product label and Section 13 of this SDS). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 of this SDS for emergency contact information, and the product label and Section 13 of this SDS for waste disposal.

7. Handling and storage

7.1 Precautions for safe handling:
Use only with adequate ventilation. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Wear recommended personal protective equipment (see product label and Section 8 of this SDS). Minimize generation of mist/aerosol/vapor/spray. Do not breathe mist/aerosol/vapor/spray. Avoid contact with eyes, skin and clothing. Do not ingest, taste or swallow. Do not get this material on clothing. Observe good industrial hygiene practices. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face thoroughly before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also product label and Section 8 of this SDS for additional information on hygiene measures. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Avoid release to the environment. Do not empty into drains.

7.2 Conditions for safe storage, including any incompatibilities:
Protect from extreme temperatures. Store in accordance with local regulations. Follow all SDS/label precautions even after container is emptied because it may retain product residues. For industrial use only. Store locked up. Store in original, tightly sealed container. Store in a dry. cool, well-ventilated room, protected from direct sunlight. Store away from incompatible materials, food, and drink. (See section 10 of this SDS for incompatibles). Separate from acids. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls / personal protection equipment

8.1 Control parameters
Ingredients with established limits for occupational exposure are given below:

Exposure guidelines have not been established. Ensure adequate ventilation.

8.2 Engineering Controls:
Ensure adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. Ensure that eye wash stations and chemical showers are accessible and in good working order.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

8.3 Individual protection measure, such as personal protective equipment:

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridge as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Skin Protection:

Hand Protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection: Complete suit protecting against chemicals. Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace**.**

Eye Protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

General hygiene considerations: Handle in accordance with good industrial hygiene and safety practice. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties:

Appearance:	Clear, green liquid
Color:	Clear, green
Odor:	Pungent, ammoniacal.
Odor threshold:	Not available
pH (neat):	>13.5
pH (10 Sol'n):	12.3
Melting point:	-35°C (-31°F)
Freezing point:	Not available
Initial boiling point:	Not available
Flash point:	Closed cup: >100°C (>212°F)
Evaporation rate:	Not available
Flammability (solid, gas):	Not available
Upper flammability limits:	Not available
Lower flammability limits:	Not available
Upper explosive limits:	Not available
Lower explosive limits:	Not available
Density:	8.68 lbs/gal
Vapor pressure:	Not available
Vapor density:	Not available
Solubility(ies):	Easily soluble in the following materials: cold water and hot water.
Partition coefficient:	Not available
Viscosity dynamic:	Not available
VOC	Not available
Ignition temperature:	Not available
Decomposition temperature:	Not available

9.2 Other information: No additional information.

Note: The physical data above are typical values and should not be construed as specifications.

10. Stability and reactivity

Chemical Stability: This product is stable under recommended storage and handling conditions.

Reactivity: No information available.

Possibility of Hazardous Reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to Avoid: Avoid sources of ignition, heat, open flame and sparks. Avoid contact with incompatible materials.

Incompatibility: Acids.

Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced. Carbon disulfide and dimethylamine may be generated upon acidification. Thermal degradation may generate vapors of hydrogen sulfide. Contact with fire or strong oxidants may generate methyl isothiocyanates, oxides of sulfur, nitrogen, and carbon. During a fire: irritating, corrosive and toxic fumes, mist and gases may be generated including carbon dioxide, carbon monoxide, nitrogen oxides, sulfur oxides, metal oxide/oxides.

11. Toxicological information

11.1 Information on likely routes of exposure

Routes of Exposure: Inhalation, Dermal, Eyes.
Routes of Exposure not anticipated: Oral.

Target Organs: Skin, eyes, respiratory system.

11.2 Symptoms related to the physical, chemical, and toxicological characteristics

Potential acute health effects

Eye contact: Causes serious eye damage. Adverse symptoms may include the following : pain, watering, redness.

Inhalation: No known significant effects or critical hazards known.

Skin contact: Causes severe burns. May cause an allergic skin reaction. Adverse symptoms may include the following: pain or irritation, redness, blistering may occur.

Ingestion: Adverse symptoms may include the following: stomach pains.

Delayed and immediate effects and chronic effects from short or long-term exposure:

Aggravated Medical Conditions: Pre-existing eye, skin or respiratory conditions.

Supplemental Health Information: The effects of long-term, low-level exposure to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures.

Acute Toxicity:

Product/ingredient name	Result	Species	Dose	Exposure
POTASSIUM DIMETHYLDITHIOCARBAMATE 50%	LD50 Dermal	Rabbit - Male	2990 mg/kg	-
	LD50 Dermal	Rabbit -Female	>3162 mg/kg	-
	LD50 Oral	Rat	2030 mg/kg	-

Sensitization

Product/ingredient name	Route of exposure	Species	Result
POTASSIUM DIMETHYLDITHIOCARBAMATE 50%	Skin	Rabbit	Sensitizing

Skin Sensitization: May cause an allergic skin reaction. This product has been shown to be a weak sensitizer according to animal data. No instances of human sensitization are known. 90 day exposure studies did not reveal any adverse effects. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Skin Irritation and Corrosion: Causes severe skin burns.

Serious Eye Damage/ Eye Irritation: Causes serious eye damage.

Respiratory Sensitization: Does not meet the criteria for classification based on information on the product and its ingredients.

Germ Cell Mutagenicity: Does not meet the criteria for classification based on information on the product and its ingredients.

Carcinogenicity: Under IARC, NTP and OSHA, no ingredient in this product is present equal to or above 0.1 concentration that would be a confirmed, probable carcinogenic.

Reproductive Toxicity: Does not meet the criteria for classification based on information on the product and its ingredients.

Specific Target-Organ Toxicity – Single Exposure: Does not meet the criteria for classification based on information on the product and its ingredients.

Specific Target-Organ Toxicity – Repeated Exposure: Does not meet the criteria for classification based on information on the product and its ingredients.

Aspiration Hazard: Does not meet the criteria for classification based on information on the product and its ingredients.

12. Ecological information

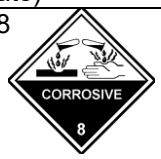
Toxicity

Product/ingredient name	Result	Species	Exposure
POTASSIUM DIMETHYLDITHIOCARBAMATE 50%	Acute EC50 0.34 mg/l	Daphnia - *Daphnia magna*	48 hours
	Acute LC50 0.06 mg/l	Fish	96 hours
	Acute LC50 0.36 mg/l	Fish	96 hours

13. Disposal considerations

Consult appropriate Federal, State, or Local regulatory agencies to ascertain proper disposal procedures.
See instructions on product label.

14. Transportation information

	DOT Classification	IMDG	IATA
UN Number	3267	3267	3267
UN Proper Shipping Name	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Potassium dimethyldithiocarbamate). Marine pollutant (Potassium dimethyldithiocarbamate)	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Potassium dimethyldithiocarbamate). Marine pollutant (Potassium dimethyldithiocarbamate)	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Potassium dimethyldithiocarbamate)
Transport Hazard Class(es)	8 	8 	8 
Packing Group	III	III	III
Environmental Hazards	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.
Additional Information	This product is not regulated as a marine pollutant when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes, provided the packagings meet the general provisions of §§ 173.24 and 173.24a. **Remarks** ERG Guide 153	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. **Emergency schedules (EmS)** **F-A, S-B** **IMDG Code Segregation Group** 18 – Alkalis **Remarks** ERG Guide 153, HazMat Code 4935263	The environmentally hazardous substance mark may appear if required by other transportation regulations. **Remarks** ERG Guide 153, ERG Code 8L

15. Regulatory information

Not meant to be all inclusive

Contact Watercare Industrial for regulatory information pertaining to a specific application.

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of nonpesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

DANGER: Corrosive. Causes eye and skin damage. Harmful if swallowed. Do not get in eyes, on skin, or on clothing. Avoid contamination of food. Wear goggles or face shield and rubber gloves when handling. Wash thoroughly after handling. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

ENVIRONMENTAL HAZARDS: This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

This product is a registered pesticide. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

EPA Est. No. 72520-WA-1 EPA Reg No. 1448-283-72520

SARA Section 313 (Specific toxic chemical listings):
Potassium Dimethyldithiocarbamate (CAS No. 128-03-0) Contains 10%.

16. Other information

Date Prepared: 1/12/00
Last Revision: 8/13/19

DISCLAIMER OF LIABILITY

Watercare Industrial Services expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein.

The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

2932

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product Identifier

Product Name: **2932**

Other means of identification: N/A
Synonyms: None known

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use: Industrial Water Treatment
Recommended restrictions: All other uses other than that prescribed by Watercare Industrial Services, Inc. are strictly prohibited.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Importer/Supplier/Distributor information

Company Name: Watercare Industrial Services, Inc.
Company Address: PO Box 464
Washougal, WA 98671, USA
Company Telephone Number: 360-835-7284
Emergency Phone Number: INFOTRAC: 1-800-535-5053

2. Hazard(s) identification

Classification of the chemical in accordance with the OSHA 29 CFR 1910.1200, Hazard Communication Standard (HAZCOM) 2012.

2.1 Classification of the Substance or Mixture

Physical Hazards:
Corrosive to Metals – Category 1

Health Hazards:
Acute Toxicity, Inhalation – Category 2
Skin Corrosion – Category 1
Eye Damage – Category 1
Specific Target Organ Toxicity, Repeated Exposure – Category 1
Specific Target Organ Toxicity, Single Exposure; Respiratory Tract Irritation – Category 3
Carcinogenicity – Category 1A

Hazard(s) not otherwise classified (HNOC): Reacts violently with water.

2.2 Label Elements:

Pictograms:

Signal Word: DANGER

Hazard Phrases:
H290 – May be corrosive to metals.
H330 – Fatal if inhaled.
H314 – Causes severe skin burns and eye damage.
H318 – Causes serious eye damage.
H372 – Causes damage to organs (teeth) through prolonged or repeated exposure to sulfuric acid mists.
H335 – May cause respiratory irritation.
H350i – May cause cancer by inhalation.

Precautionary Phrases:
Prevention:
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P234 - Keep only in original container.
P260 - Do not breathe mist, vapors or spray.

P264 - Wash thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P281 - Use personal protective equipment as required.
P284 - [In case of inadequate ventilation] Wear respiratory protection.

Response:
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 - IF ON SKIN (or hair): Take off Immediately all contaminated clothing. Rinse SKIN with water [or shower].
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes.
P310 - Immediately call a POISON CENTER or doctor/physician.
P308+P313 - IF EXPOSED OR CONCERNED: Get medical advice/attention.
P314 - Get medical advice/attention if you feel unwell.
P321 - Specific treatment **URGENT** (See sections 4-8 of this safety data sheet or any additional information on the product label).
P363 - Wash contaminated clothing before reuse.
P390 - Absorb spillage to prevent material damage.

Storage: P233 - Keep container tightly closed. P403 - Store in a well-ventilated place. P404 - Store in a closed container. P405 - Store locked up.

Disposal:
P501 - Dispose of contents/container to a suitable disposal site, in accordance with applicable local/regional/national and international regulations.

2.3 Unknown Acute Toxicity: This product contains 50% ingredients with unknown acute toxicity dermal.

3. Composition/information on ingredients

Mixture:

Ingredient	CAS Number	Concentration Wt. %
Sulfuric Acid	7664-93-9	50

The balance of ingredients are not classified as hazardous or are below the concentration limit to be classified as hazardous, under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

4. First-aid measures

4.1 Description of necessary measures

General advice:
Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: seek a doctor/hospital. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. **WARNING:** This is a corrosive substance and it may be hazardous to the person providing aid to give mouth-to-mouth resuscitation. If the victim is not breathing, perform artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Maintain an open airway. **SEEK IMMEDIATE MEDICAL ADVICE/ATTENTION.**

Skin contact: IMMEDIATELY remove contaminated clothing and thoroughly wash [shower] affected area with gently flowing water for at least 30 minutes. **DO NOT INTERRUPT FLUSHING**. It is very important to remove the substance from the skin immediately. **SEEK IMMEDIATE MEDICAL ATTENTION.** Chemical burns must be treated by a physician. Avoid direct contact. Take care not to contaminate unaffected areas. Continue flushing during transport to emergency care facility. Wash contaminated clothing before reuse.

Eye contact: IMMEDIATELY flush eyes with plenty of gently flowing water for at least 30 minutes. **SEEK IMMEDIATE MEDICAL ATTENTION** (preferably from an ophthalmologist). **DO NOT INTERRUPT FLUSHING.** Continue flushing during transport to emergency care facility. Avoid direct contact. Take care not to contaminate unaffected areas. Quickly transport victim to emergency care facility.

Ingestion: **SEEK IMMEDIATE MEDICAL ATTENTION.** Rinse mouth. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Never give anything by mouth to an unconscious or convulsing person.

4.2 Most important symptoms/effects, acute and delayed

Inhalation: Fatal if inhaled. Vapors, liquid and mists are extremely corrosive to the nose, throat, and mucus membranes. Bronchitis, pulmonary edema, and chemical pneumonitis may occur. Irritation, coughing, chest pain, and difficulty in breathing may occur with brief exposure, while prolonged exposure may result in more severe irritation and tissue damage. Symptoms may be delayed.

Skin Contact: Vapors, liquid and mists are extremely corrosive to the skin. Vapors will severely irritate the skin, and liquid and mists will severely burn the skin. Prolonged skin contact will burn or destroy surrounding tissue and death may accompany burns which extend over large portions of the body. A latent period may exist between exposure and sense of irritation.

Eye Contact: Vapors, liquid and mists are extremely corrosive to the eyes. Brief contact of the liquid or mists will severely damage the eyes and prolonged exposure may cause permanent eye injury which may be followed by blindness.

Ingestion: Vapors, liquid and mists are extremely corrosive to the mouth and throat. Swallowing the liquid burns the tissues, causes severe abdominal pain, nausea, vomiting, and collapse. Swallowing large quantities can cause death. Symptoms may be delayed.

Indication of any immediate medical attention and special treatment needed:

Corrosive by all exposure routes. Ingestion, inhalation, skin and eye contact require immediate medical attention. Chemical eye burns may require extended irrigation. Aspiration of vomitus may cause lung injury. Use of gastric lavage or emesis may be contraindicated. Pulmonary edema (fluid accumulation in the lungs) is a medical emergency. The symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed. Therefore, close medical observation is required following extreme exposure. Provide general supportive measures and treat symptomatically. Eye burns and Chemical Burns: Immediately flush with water. Take care not to contaminate unaffected areas. While flushing, remove clothes which do not adhere to affected areas. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm and under observation. Symptoms may be delayed.

Aggravated Medical Conditions: Pre-existing eye, skin, respiratory conditions, or cardiovascular disease.

Supplemental Health Information: The effects of long-term, low-level exposure to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures.

5. Fire-fighting measures

5.1 Extinguishing media:

Suitable and unsuitable extinguishing media: Use dry chemical, foam, or carbon dioxide. Do NOT use water on material. Contact with water generates heat. Do NOT use straight streams of water. Do NOT get water inside containers.

5.2 Specific fire hazards due to the substance or mixture: Sulfuric acid is not flammable or combustible. However, fires may result from heat generated by contact of concentrated sulfuric acid with combustible materials. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Decomposition possible if heated and in contact with sources of ignition. Thermal decomposition products of this solution can include carbon monoxide, carbon dioxide and oxides of sulfur. Vapors may spread along the ground and collect in low or confined areas. Contact with metals may evolve flammable hydrogen gas. Water and organic materials will cause this material to react violently resulting in evolution of heat and splattering of material. Containers may explode if heated or if contaminated with water.

Hazardous Combustion Products: During a fire: irritating, corrosive and toxic fumes, mist and gases may be generated including but not limited to carbon monoxide, carbon dioxide and oxides of sulfur.

5.3 Fire Fighting Instructions: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Isolate from alkalis, oxidizers, organics, extreme heat, and sources of ignition. Containers close to fire should be removed immediately or cooled. Use fog nozzles if water is used. Do NOT get water inside containers, or on material itself. Water and organic materials will cause this material to react violently resulting in evolution of heat and splattering of material. Contact with metals may evolve flammable hydrogen gas. During a fire: irritating, corrosive and toxic fumes, mist and gases may be generated. Decomposition possible if heated and in contact with sources of ignition. Thermal decomposition products of this solution can include carbon monoxide, carbon dioxide and oxides of sulfur. Continue to cool containers until well after fire is out. Extinguishing water from fire fighting may be strongly acidic. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations. Do not allow extinguishing water to enter drains, reach sewage or effluent systems.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:
Keep unnecessary personnel away. Wear recommended personal protective equipment (see Section 8). ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate area. Do not breathe vapors/mist/aerosol/spray. Stop leak if you can do it without risk. DO NOT GET WATER INSIDE CONTAINERS.

6.2 Environmental precautions:
Prevent entry into drains, sewer, water system or soil.

6.3 Methods and material for containment for cleaning up:
Stop the flow of material, if this can be done without risk. Dike the material if possible. Cover with DRY earth, DRY sand or other non-combustible suitable absorbents and use clean, non-sparking tools to place into containers for future disposal followed with plastic sheet to minimize spreading or contact with rain. DO NOT GET WATER INSIDE CONTAINERS.

7. Handling and storage

7.1 Precautions for safe handling:
Use only with adequate ventilation. Wear recommended personal protective equipment (see Section 8). Never pour water into an acid or base. Minimize generation of mist/aerosol/vapor/spray. Do not breathe mist/aerosol/vapor/spray. Never add water to an acid or base. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Do not get this material on clothing. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Avoid release to the environment. Do not empty into drains.

7.2 Conditions for safe storage, including any incompatibilities:
Protect from freezing and extreme temperatures. Follow all SDS/label precautions even after container is emptied because it may retain product residues. For industrial use only. Store locked up. Store in original, tightly sealed container. Store in a cool, well-ventilated room, protected from direct sunlight. Store in a dry place. Store away from incompatible materials (See section 10 for incompatibles). May react with some metals to release dangerous hydrogen gas. Corrosive to metals. Water and organic materials will cause this material to react violently resulting in evolution of heat and splattering of material.

8. Exposure controls / personal protection equipment

8.1 Control parameters
Ingredients with established limits for occupational exposure are given below:

Ingredient	
Sulfuric Acid CAS No. 7664-93-9	NIOSH REL: TWA 1 mg/M^3 OSHA PEL: TWA 1 mg/M^3

8.2 Engineering Controls:
Ensure adequate ventilation. Do not breathe mists, vapors, or spray. Airborne concentrations should be kept at the lowest level possible. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. Ensure that eye wash stations and chemical showers are accessible and in good working order.

8.3 Individual protection measure, such as personal protective equipment:

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridge as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Skin Protection:

Hand Protection: Acid resistant gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection: Acid resistant complete suit and boots protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace**.**

Eye Protection: Tightly fitting safety goggles and Face shield. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

General hygiene considerations: Handle in accordance with good industrial hygiene and safety practice. Wash contaminated clothing before reuse.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties:

Appearance:	Clear, colorless liquid
Color:	Clear, colorless
Odor:	No appreciable odor
Odor threshold:	Not available
pH:	<1
Melting point:	Not available
Freezing point:	Not available
Initial boiling point:	Not available
Flash point:	Not available
Evaporation rate:	Not available
Flammability (solid, gas):	Not available
Upper flammability limits:	Not available
Lower flammability limits:	Not available
Upper explosive limits:	Not available
Lower explosive limits:	Not available
Relative density:	1.4
Vapor pressure:	<0.3 mm of Hg @ 20°C
Vapor density:	Not available
Solubility(ies):	Soluble in water
Partition coefficient:	Not available
Viscosity dynamic:	Not available
Ignition temperature:	Not available
Decomposition temperature:	Not available

9.2 Other information: No additional information.

10. Stability and reactivity

Chemical Stability: This product is stable under recommended storage and handling conditions.

Reactivity: Reacts violently with water, organic substances and alkali solutions to generate heat and hazardous mists. May react with metals to release dangerous hydrogen gas.

Possibility of Hazardous Reactions: Reacts violently with water, organic substances and alkali solutions to generate heat and hazardous mists. Reacts with bases, reducing agents, alkali metals, carbides, cyanides, sulfides and metal powders. May react with metals to release dangerous hydrogen gas.

Conditions to Avoid: Never add water directly to an Acid or Base. Avoid sources of ignition, direct sunlight, heat, open flame and sparks. Avoid contact with incompatible materials.

Incompatibility: Water, alkaline materials, reactive metals, organic materials, excessive heat, chlorates, carbides, cyanides, sulfides, fulminates, powdered metals. Do not add water to concentrated product. Do not mix this product with sodium hypochlorite, sodium bisulfite, chlorine sanitizers, or chlorinated cleaners – a deadly gas can be formed. Corrosive to metals and releases hydrogen gas.

Hazardous decomposition products: During a fire: irritating, corrosive and toxic fumes, mist and gases may be generated. Decomposition possible if heated and in contact with sources of ignition. Thermal decomposition products of this solution can include carbon monoxide, carbon dioxide and oxides of sulfur.

11. Toxicological information

11.1 Information on likely routes of exposure

Routes of Exposure: Inhalation, Ingestion, Skin and Eyes.

Target Organs: Skin, eyes, respiratory system, lungs, digestive tract, and teeth.

11.2 Symptoms related to the physical, chemical, and toxicological characteristics

Corrosive by all routes of exposure.

Inhalation: Fatal if inhaled. Vapors, liquid and mists are extremely corrosive to the nose, throat, and mucus membranes. Bronchitis, pulmonary edema, and chemical pneumonitis may occur. Irritation, coughing, chest pain, and difficulty in breathing may occur with brief exposure, while prolonged exposure may result in more severe irritation and tissue damage.Symptoms may be delayed.

Skin Contact: Vapors, liquid and mists are extremely corrosive to the skin. Vapors will severely irritate the skin, and liquid and mists will severely burn the skin. Prolonged skin contact will burn or destroy surrounding tissue and death may accompany burns which extend over large portions of the body. A latent period may exist between exposure and sense of irritation.

Eye Contact: Vapors, liquid and mists are extremely corrosive to the eyes. Brief contact of the liquid or mists will severely damage the eyes and prolonged exposure may cause permanent eye injury which may be followed by blindness.

Ingestion: Vapors, liquid and mists are extremely corrosive to the mouth and throat. Swallowing the liquid burns the tissues, causes severe abdominal pain, nausea, vomiting, and collapse. Swallowing large quantities can cause death. Symptoms may be delayed.

Delayed and immediate effects and chronic effects from short or long-term exposure:

Aggravated Medical Conditions: Pre-existing eye, skin, respiratory conditions, or cardiovascular disease.

Supplemental Health Information: The effects of long-term, low-level exposure to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures.

Acute Toxicity: Fatal if inhaled. May be harmful if swallowed. Animal studies for acid aerosol observed in acute inhalation animal studies are low, and are most likely due to corrosive/irritant effect of this chemical.

Skin Irritation and Corrosion: Causes severe skin burns.

Serious Eye Damage/ Eye Irritation: Causes serious eye damage.

Respiratory Sensitization: Does not meet the criteria for classification based on information on the product and its ingredients.

Skin Sensitization: Does not meet the criteria for classification based on information on the product and its ingredients.

Germ Cell Mutagenicity: Does not meet the criteria for classification based on information on the product and its ingredients.

Carcinogenicity:

There is sufficient evidence that strong-inorganic-acid mists containing sulfuric acid is carcinogenic. Inhalation of sulfuric acid mists may cause an increase in upper respiratory tract cancers such as cancer of the larynx, resulting from chronic irritant effects on this tissue. Exposure to any mist or aerosol should be avoided.

IARC: Group 1. (The IARC classification refers to sulfuric acid contained in strong inorganic acid mists.)
NTPA (NTPA Report on Carcinogens): Known to be a human carcinogen.

ACGIH: Group A2; Suspected human carcinogen. (Classification refers to sulfuric acid contained in strong inorganic acid mists.)

Reproductive Toxicity: Does not meet the criteria for classification based on information on the product and its ingredients.

Specific Target-Organ Toxicity – Single Exposure: May cause respiratory irritation.

Specific Target-Organ Toxicity – Repeated Exposure: Prolonged inhalation of fumes or mists may cause erosion of the teeth. Prolonged or repeated inhalation may affect behavior (muscle contraction or spastically), urinary system (kidney damage), and cardiovascular system, heart and respiratory system/lungs (pulmonary edema, lung damage).

Aspiration Hazard: Does not meet the criteria for classification based on information on the product and its ingredients.

Toxicity Data (Numerical Values such as Acute Toxicity Data) where available:

Animal studies for acid aerosol observed in acute inhalation animal studies are low, and are most likely due to corrosive/irritant effect of this chemical.

Sulfuric Acid (Cas-No. 7664-93-9)	
LD50 Oral - Rat	2140mg/kg
LD50 Dermal	No data available
LC50 Inhalation - Rat	510mg/m3/2H

12. Ecological information

No information available.

13. Disposal considerations

Consult appropriate Federal, State, or Local regulatory agencies to ascertain proper disposal procedures.

14. Transportation information

US 49CFR/DOT:

UN Number:	UN 2796
Proper Shipping Name:	Sulfuric Acid
Hazard Class:	8
Packing Group:	II
Guide Number:	157

15. Regulatory information

Not meant to be all inclusive

Contact Watercare Industrial for regulatory information pertaining to a specific application.

Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Sulfuric Acid (CAS-No. 7664-93-9) (Contains 50%)

SARA Section 313 (Specific toxic chemical listings):
Sulfuric Acid [AEROSOL FORMS ONLY] (CAS-No. 7664-93-9) (Contains 50%)

CERCLA RQ's:
Sulfuric Acid (CAS-No. 7664-93-9) RQ: 1,000 lbs.

16. Other information

Date Prepared: **1/7/98**
Last Revision: **7/18/19**

DISCLAIMER OF LIABILITY

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The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

Justeq07

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 08/19/2020

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture

Product name : Justeq07

Product code : 9380

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Microbicide

1.3. Details of the supplier of the safety data sheet

Justeq, LLC
1660 Hertel Lane
Deerfield, IL 60015 - USA
T (224) 515-8352 - F (224) 515-8327
info@acechem.com - www.acechem.com

1.4. Emergency telephone number

Emergency number : For help in chemical emergencies, call Chemtrec day or night
Chemtrec 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Skin Corr. 1A H314

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :

GHS05

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H314 - Causes severe skin burns and eye damage
H290 - May be corrosive to metals

Precautionary statements (GHS-US) : P260 - Do not breathe dust, mist, spray
P264 - Wash all exposed body parts thoroughly after handling
P280 - Wear eye protection, face protection, protective clothing, protective gloves
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER, a doctor
P321 - Specific treatment - see First Aid measures on this label
P363 - Wash contaminated clothing before reuse
P405 - Store locked up
P501 - Dispose of contents/container to proper treatment facilities in accordance with all applicable local, state & federal regulations
Do not mix with acid or ammonia - may relase dangerous chlorine gas.
Do not mix with other products

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	GHS-US classification
sodium hypochlorite, solution, conc active chlorine=12.5%	(CAS No) 7681-52-9	40 - 70	Skin Corr. 1A, H314
sodium hydroxide, conc=50%, aqueous solution	(CAS No) 1310-73-2	1 - 10	Skin Corr. 1A, H314
sodium bromide	(CAS No) 7647-15-6	1 - 10	Not classified

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). If exposed or concerned: Get medical advice/attention.

First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Cover eyes aseptically. Take victim to an ophthalmologist. Do not apply neutralizing agents. Obtain medical attention if pain, blinking or redness persist.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Do not give activated charcoal. Do not give chemical antidote. Immediately call a POISON CENTER or doctor/physician. Take the container/vomit to the doctor/hospital. Ingestion of large quantities: immediately to hospital.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Causes severe skin burns and eye damage.

Symptoms/injuries after inhalation : EXPOSURE TO HIGH CONCENTRATIONS: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible laryngeal spasm/oedema. Risk of lung oedema. Respiratory difficulties.

Symptoms/injuries after skin contact : Caustic burns/corrosion of the skin. Slow-healing wounds.

Symptoms/injuries after eye contact : Corrosion of the eye tissue. Permanent eye damage.

Symptoms/injuries after ingestion : Vomiting. Burns to the gastric/intestinal mucosa. Possible esophageal perforation. Bleeding of the gastrointestinal tract. Shock. Disturbances of consciousness. FOLLOWING SYMPTOMS MAY APPEAR LATER: Tumours of the gastrointestinal tract.

Chronic symptoms : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Dry skin. Skin rash/inflammation. Possible inflammation of the respiratory tract.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Adapt extinguishing media to the environment.

Unsuitable extinguishing media : No unsuitable extinguishing media known. Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : INDIRECT FIRE HAZARD. Reactions involving a fire hazard: see "Reactivity Hazard".

Explosion hazard : INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard".

Reactivity : On burning: release of toxic and corrosive gases/vapours (chlorine, hydrogen chloride). Decomposes slowly on exposure to air: oxidation which increases fire hazard and release of toxic and corrosive gases/vapours (chlorine). This reaction is accelerated on exposure to light, on exposure to temperature rise and on exposure to (some) metals. Reacts violently with (some) acids/bases: release of toxic and corrosive gases/vapours (chlorine).

5.3. Advice for firefighters

Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Isolate from fire, if possible, without unnecessary risk.

6.1.1. For non-emergency personnel

Protective equipment : Gloves. Face-shield. Corrosion-proof suit. Large spills/in enclosed spaces: compressed air apparatus. Large spills/in enclosed spaces: gas-tight suit. See "Material-Handling" to select protective clothing.

Emergency procedures : Keep upwind. Mark the danger area. Seal off low-lying areas. Close doors and windows of adjacent premises. No naked flames. Wash contaminated clothes. Large spills/in confined spaces: consider evacuation. In case of reactivity hazard: consider evacuation.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the liquid spill. If reacting: dilute toxic gas/vapour with water spray. Take account of toxic/corrosive precipitation water. Heat exposure: dilute toxic gas/vapour with water spray.

Methods for cleaning up : Take up liquid spill into absorbent material, e.g.: dry sand/earth or powdered limestone. Scoop absorbed substance into closing containers. See "Material-handling" for suitable container materials. Carefully collect the spill/leftovers. Small quantities of liquid spill: wash down with an excess of water. Wash away neutralized product with plentiful water. Damaged/cooled tanks must be emptied. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : May be corrosive to metals.

Precautions for safe handling : Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Handle and open the container with care. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep away from naked flames/heat. Observe very strict hygiene - avoid contact. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not breathe dust, mist, spray. Provide good ventilation in process area to prevent formation of vapour. Avoid contact during pregnancy/while nursing.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.

Storage conditions : Keep only in the original container in a cool, well ventilated place away from : direct sunlight, heat sources, Keep container closed when not in use. Keep container closed when not in use.

Incompatible products : Strong bases. Strong acids.

Incompatible materials	:	Sources of ignition. Direct sunlight.
Heat and ignition sources	:	KEEP SUBSTANCE AWAY FROM: heat sources.
Prohibitions on mixed storage	:	KEEP SUBSTANCE AWAY FROM: reducing agents. (strong) acids. metals.
Storage area	:	Store in a cool area. Keep out of direct sunlight. Store in a dry area. Store in a dark area. Keep locked up. Provide for a tub to collect spills. Keep only in the original container. Meets the legal requirements.
Special rules on packaging	:	SPECIAL REQUIREMENTS: hermetical. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	:	SUITABLE MATERIAL: polyethylene. polypropylene. glass. stoneware/porcelain. MATERIAL TO AVOID: lead. aluminium. copper. tin. zinc. bronze.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Justeq07		
ACGIH	ACGIH Ceiling (mg/m³)	2 mg/m³
OSHA	Not applicable	

sodium hydroxide, conc=50%, aqueous solution (1310-73-2)		
ACGIH	ACGIH Ceiling (mg/m³)	2 mg/m³
OSHA	Not applicable	

sodium hypochlorite, solution, conc active chlorine=12.5% (7681-52-9)		
ACGIH	ACGIH Ceiling (mg/m³)	2 mg/m³
OSHA	Not applicable	

sodium bromide (7647-15-6)	
ACGIH	Not applicable
OSHA	Not applicable

8.2. Exposure controls

Personal protective equipment	:	Avoid all unnecessary exposure.
Materials for protective clothing	:	GIVE EXCELLENT RESISTANCE: nitrile rubber. GIVE GOOD RESISTANCE: No data available. GIVE LESS RESISTANCE: chlorinated polyethylene. styrene-butadiene rubber. nitrile rubber/PVC. GIVE POOR RESISTANCE: PVA. natural fibres.
Hand protection	:	Gloves. Wear eye protection, face protection, protective clothing, protective gloves protective gloves.
Eye protection	:	Chemical goggles or face shield. Face shield.
Skin and body protection	:	Corrosion-proof clothing. Wear suitable protective clothing.
Respiratory protection	:	Wear gas mask with filter type B if conc. in air > exposure limit. Wear appropriate mask.
Other information	:	Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Clear liquid.
Colour	:	Light yellow to yellow-brown
Odour	:	chlorine-like
Odour threshold	:	No data available
pH	:	12 - 13
pH solution	:	11 - 12
Melting point	:	No data available
Freezing point	:	< 0 °C
Boiling point	:	> 100 °C

Flash point	:	No data available
Relative evaporation rate (butylacetate=1)	:	No data available
Flammability (solid, gas)	:	No data available
Explosion limits	:	No data available
Explosive properties	:	No data available.
Oxidising properties	:	No data available.
Vapour pressure	:	No data available
Relative density	:	No data available
Relative vapour density at 20 °C	:	No data available
Density	:	1.24 g/ml
Solubility	:	Soluble in water. Water: 100 %
Log Pow	:	No data available
Log Kow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available

9.2. Other information

VOC content : 0 %

SECTION 10: Stability and reactivity

10.1. Reactivity

On burning: release of toxic and corrosive gases/vapours (chlorine, hydrogen chloride). Decomposes slowly on exposure to air: oxidation which increases fire hazard and release of toxic and corrosive gases/vapours (chlorine). This reaction is accelerated on exposure to light, on exposure to temperature rise and on exposure to (some) metals. Reacts violently with (some) acids/bases: release of toxic and corrosive gases/vapours (chlorine).

10.2. Chemical stability

Unstable on exposure to light.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases. Do not mix with acid or ammonia - may generate dangerous chlorine gas. May be corrosive to metals.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide. Chlorine. Thermal decomposition generates : Corrosive vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure : Dermal; Ingestion; Inhalation; oral; Skin and eye contact

Acute toxicity : Not classified

sodium hypochlorite, solution, conc active chlorine=12.5% (7681-52-9)	
LD50 oral rat	> 5000 mg/kg (Rat; Literature study)
LD50 dermal rabbit	> 10000 mg/kg (Rabbit; Literature study)

sodium bromide (7647-15-6)	
LD50 oral rat	2500 mg/kg (Rat)
LD50 dermal rabbit	> 2000 mg/kg (Rabbit)
ATE US (oral)	2500.000 mg/kg bodyweight

Skin corrosion/irritation : Causes severe skin burns and eye damage.
pH: 12 - 13

Serious eye damage/irritation	:	Not classified pH: 12 - 13
Respiratory or skin sensitisation	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified

sodium hypochlorite, solution, conc active chlorine=12.5% (7681-52-9)	
IARC group	3 - Not classifiable

Reproductive toxicity	:	Not classified
Specific target organ toxicity (single exposure)	:	Not classified
Specific target organ toxicity (repeated exposure)	:	Not classified
Aspiration hazard	:	Not classified
Potential adverse human health effects and symptoms	:	Based on available data, the classification criteria are not met.
Symptoms/injuries after inhalation	:	EXPOSURE TO HIGH CONCENTRATIONS: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible laryngeal spasm/oedema. Risk of lung oedema. Respiratory difficulties.
Symptoms/injuries after skin contact	:	Caustic burns/corrosion of the skin. Slow-healing wounds.
Symptoms/injuries after eye contact	:	Corrosion of the eye tissue. Permanent eye damage.
Symptoms/injuries after ingestion	:	Vomiting. Burns to the gastric/intestinal mucosa. Possible esophageal perforation. Bleeding of the gastrointestinal tract. Shock. Disturbances of consciousness. FOLLOWING SYMPTOMS MAY APPEAR LATER: Tumours of the gastrointestinal tract.
Chronic symptoms	:	ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Dry skin. Skin rash/inflammation. Possible inflammation of the respiratory tract.

SECTION 12: Ecological information

12.1. Toxicity

sodium hypochlorite, solution, conc active chlorine=12.5% (7681-52-9)	
LC50 fish 1	> 0.20 mg/l (96 h; Pimephales promelas; Solution <50%)

sodium bromide (7647-15-6)	
LC50 fish 1	> 1000 mg/l 96 h; Salmo gairdneri (Oncorhynchus mykiss)
EC50 Daphnia 1	> 1000 mg/l (48 h; Daphnia magna; GLP)
LC50 fish 2	16000 mg/l (96 h; Poecilia reticulata)
EC50 Daphnia 2	27.21 mg/l (504 h; Daphnia magna; Reproduction)
Threshold limit algae 1	2.5 g/l (72 h; Scenedesmus pannonicus; Growth rate)
Threshold limit algae 2	3200 mg/l (4 h; Microcystis aeruginosa)

12.2. Persistence and degradability

Justeq07	
Persistence and degradability	Not established.

sodium hydroxide, conc=50%, aqueous solution (1310-73-2)	
Persistence and degradability	Biodegradability: not applicable. Not established.

sodium hypochlorite, solution, conc active chlorine=12.5% (7681-52-9)	
Persistence and degradability	Biodegradability: not applicable. Low potential for adsorption in soil.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

sodium bromide (7647-15-6)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable

sodium bromide (7647-15-6)	
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

12.3. Bioaccumulative potential

Justeq07	
Bioaccumulative potential	Not established.

sodium hydroxide, conc=50%, aqueous solution (1310-73-2)	
Bioaccumulative potential	Bioaccumulation: not applicable. Not established.

sodium hypochlorite, solution, conc active chlorine=12.5% (7681-52-9)	
Bioaccumulative potential	Bioaccumulation: not applicable.

sodium bromide (7647-15-6)	
Bioaccumulative potential	Not bioaccumulative.

12.4. Mobility in soil

sodium hypochlorite, solution, conc active chlorine=12.5% (7681-52-9)	
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

12.5. Other adverse effects

Effect on the global warming : No known ecological damage caused by this product.

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Remove waste in accordance with local, state and/or national regulations. Remove for physico-chemical/biological treatment. Do not discharge into surface water. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to proper treatment facilities in accordance with all applicable local, state & federal regulations.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN1791 Hypochlorite solutions, 8, II

UN-No.(DOT) : UN1791

Proper Shipping Name (DOT) : Hypochlorite solutions

Transport hazard class(es) (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136

Hazard labels (DOT) : 8 - Corrosive

Packing group (DOT) : II - Medium Danger

DOT Packaging Non Bulk (49 CFR 173.xxx) : 202

DOT Packaging Bulk (49 CFR 173.xxx) : 242

DOT Special Provisions (49 CFR 172.102)	:	A7 - Steel packagings must be corrosion-resistant or have protection against corrosion. B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized. B15 - Packagings must be protected with non-metallic linings impervious to the lading or have a suitable corrosion allowance. IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. IP5 - IBCs must have a device to allow venting. The inlet to the venting device must be located in the vapor space of the IBC under maximum filling conditions. N34 - Aluminum construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material. T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3) TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively. TP24 - The portable tank may be fitted with a device to prevent the build up of excess pressure due to the slow decomposition of the hazardous material being transported. The device must be in the vapor space when the tank is filled under maximum filling conditions. This device must also prevent an unacceptable amount of leakage of liquid in the case of overturning.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	154
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	30 L
DOT Vessel Stowage Location	:	B - (i) The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) ‘‘On deck only’’ on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other	:	26 - Stow ‘‘away from’’ acids

Additional information

Other information : No supplementary information available.

ADR

No additional information available

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

Justeq07	
Not listed on the United States TSCA (Toxic Substances Control Act) inventory	

sodium hydroxide, conc=50%, aqueous solution (1310-73-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Not listed on the United States SARA Section 313	
RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb

sodium hypochlorite, solution, conc active chlorine=12.5% (7681-52-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Not listed on the United States SARA Section 313	
RQ (Reportable quantity, section 304 of EPA's List of Lists)	100 lb

sodium bromide (7647-15-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA
No additional information available

EU-Regulations
No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]
No additional information available

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
C; R35
R31
Full text of R-phrases: see section 16

National regulations
No additional information available

15.3. US State regulations

Justeq07()	
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

sodium hydroxide, conc=50%, aqueous solution (1310-73-2)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

sodium hypochlorite, solution, conc active chlorine=12.5% (7681-52-9)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Other information : None.

Full text of H-phrases:

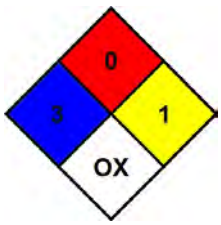
Skin Corr. 1A	Skin corrosion/irritation, Category 1A
H314	Causes severe skin burns and eye damage

NFPA health hazard : 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.

NFPA specific hazard : OX - This denotes an oxidizer, a chemical which can greatly increase the rate of combustion/fire.



HMIS III Rating		
Health	:	3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
Flammability	:	0 Minimal Hazard - Materials that will not burn
Physical	:	1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.
Personal Protection	:	D D - Face shield and eye protection, Gloves, Synthetic apron

SDS US (GHS HazCom 2012)