From:	WESTERSUND Joe
To:	DAVIS George; GRUNOW Greg; KAUTH Dave; PALERMO Jaclyn; FELDON Leah; JOHNSON Keith; GARRAHAN Paul
Cc:	artglass2016
Subject:	summary of today"s art glass meeting
Date:	Friday, August 19, 2016 12:52:20 PM

Hi All,

Thank you for the productive meeting today. I'll send out an invite for another one next week.

Here's a summary of the discussion (let me know if you see omissions or errors):

- **Applicability threshold**
  - we decided to set it at **5 tpy** of HAP-containing glass
  - to make it harder for facilities to game the system if close to the threshold, we decided to add language so that after the compliance date, facilities that grow to be above threshold must have permit in hand and be in compliance. (Can't repeatedly go over the threshold, then dip back below.)
- We discussed the **definition of 'raw material'**- should it include colored glass added to a batch?
  - No, raw material shouldn't include 'finished' colored glass added to a batch. But, the definition of raw material should include the special, concentrated glasses that are used to add color to batches. These require gloves for handling and are not usable as a 'finished' glass. George is working on language to define 'finished' and Jaclyn will ask Katie McClintock for thoughts about this language.
- We discussed but did not reach a decision on **baghouse leak detection systems**. (Jaclyn will decide).
  - Proposals discussed:
    - facilities could choose between grain loading source test or baghouse leak detection system
    - Tier 2 facilities could be required to install BLDS and install bags meeting a particular spec (X% capture efficiency at Y particle size), with no grain loading test required.
    - Tier 2 facilities could be required to do grain loading source test and install BLDS, Tier 1 facilities could choose one or the other
    - EPA Method 29 test at the outlet could substitute for the grain loading source test(?)
- We discussed but did not reach a decision on **whether additional HAPs should be added to the list**
  - We've earlier decided to add selenium and cobalt to the list of 'glassmaking HAPs' in the rule. The list below shows other materials used in glassmaking.
  - We discussed adding **uranium** to the list of glassmaking HAPs in the rule.
  - The EPA's original list of 189 HAPs includes 'Radionuclides (including radon)' with a footnote defining that as 'A type of atom which spontaneously undergoes radioactive decay.' Joe thinks that would include uranium but George feels that needs verification. **Maybe adding 'radionuclides' to the list instead of 'uranium' would get around this.**
  - Paul said from a legal perspective DEQ is not limited to the EPA list of HAPs but Jaclyn says that would be a policy decision.
  - George said Bullseye has made batches with uranium in the past but not often.

Table 2-2. Inorganic Colorants for Glass (Tooley, 1984)

	Color Produced	
Material	Under Oxidation	Under Reduction
Cadmium Sulfide	None	Yellow
Cadmium Sulfide, Selenium	None	Ruby
Cobalt Oxide	Blue-violet	Blue-violet
Copper Oxide	Greenish blue	Greenish blue
Cuprous Oxide	Greenish blue	Ruby
Cerium Oxide	Titania Yellow	Yellow
Chromic Oxide	Yellowish green	Emerald green
Gold	Ruby	
Iron Oxide	Yellowish green	Bluish green
Manganese dioxide	Amethyst to purple	None
Neodymium oxide	Violet	Violet
Nickel oxide	Violet in K_2O glass	Violet in K_2O glass
Nickel oxide	Brown in Na_2O glass	Brown in Na_2O glass
Selenium	Fugitive	Pink
Sulfur	None	Yellow to amber
Uranium	Yellow with green fluorescence	Green with fluorescence

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