

From: [Air.Pollution Control](#)
To: [APC Permitting](#)
Subject: FW: Please upload email to Mod Log 149061 - 65-0049 Heraeus Metal Processing, LLC 570857 Source 13 - Rhodium-oil furnace
Date: Friday, November 13, 2020 3:27:21 PM
Attachments: [image003.png](#)

From: Greg Forte <Greg.Forte@tn.gov>
Sent: Friday, November 13, 2020 15:05
To: Air.Pollution Control <Air.Pollution.Control@tn.gov>
Subject: Please upload email to Mod Log 149061 - 65-0049 Heraeus Metal Processing, LLC 570857 Source 13 - Rhodium-oil furnace

From: Collin Scherdell <Collin@stevensenvironmental.com>
Sent: Thursday, November 12, 2020 1:27 PM
To: Greg Forte <Greg.Forte@tn.gov>
Cc: Taylor, Jimmy E. <jimmy.taylor@heraeus.com>; Shea Cofer <shea@stevensenvironmental.com>
Subject: [EXTERNAL] RE: Application for Modification of Source 13 - Rhodium-oil furnace

Greg,

I am responding regarding the Source 13 Minor Modification Application for Heraeus. Please see the [comments that I have included in green](#) in your email below.

Regarding Opacity, Heraeus agrees to a 10% Opacity limit for this process. Are we required to submit an agreement letter for the 10%, or is this sufficient confirmation?

Please let us know if you have any further questions.

Thank you,
Collin Scherdell
Staff Engineer



6505 Forest Park Dr.
Signal Mountain, TN 37377
615.693.1856

From: Greg Forte <Greg.Forte@tn.gov>
Sent: Thursday, November 12, 2020 8:19 AM
To: Taylor, Jimmy E. <jimmy.taylor@heraeus.com>

Subject: [EXTERNAL] Application for Modification of Source 13 - Rhodium-oil furnace

Good Morning,

I am reviewing the Minor Modification request dated August 13, 2020 for the Source 13 Rhodium Oil furnace. I have a few questions concerning the application-

The current permit states "The facility operator has agreed to treat this source as if the raw material is 100% VOC emissions as if a surrogate monitor. The catalytic input material's SDS indicates that HAP emissions are 80% of the VOC content and are emitted. Therefore, the facility operator has agreed that tracking the input material is equivalent to tracking the VOC/HAPs emissions; as if 100% content of input material."

What is the nature of the input material- the process limit is on tons per year and the last page of the application expresses the annual throughput in gallons per year. Is the input material a type of oil with a density of (specific gravity of 0.875) 7.29 lb/gal, with a phosphorus content of 15% by weight? Would this mean a phosphorus content of 1.09 lb per gallon of input material? Is all PM assumed to be phosphorus? For the 125 lb/hr input material, the application indicates 100% VOC content- what is the nature of this VOC? The input material is an oil mixture composed primarily of butyraldehyde (<65%) and isobutyraldehyde (<30%). The Specific Gravity varies from 0.85 to 0.9, so 0.875 is used in the calculations. Yes, the phosphorus content is by weight, so your weight/gallon calculation is a correct maximum potential content. All PM is assumed to be phosphorus. See additional comments below regarding rhodium and phosphorus content.

If this is a rhodium furnace, only phosphorus is listed as an input Rhodium is extracted in small quantities. The precious metal content of the material is <0.25%, so it is treated as negligible compared to the potential phosphorus content.

Is the 15% phosphorus (or solids) weight % of charge material constant, or can it vary? Phosphorus compound content is <15% by weight, so HAP Particulate content is conservatively assumed at 15%. It may vary but should not exceed.

What type of unit is the new wet scrubber, is this a venturi, packed bed, or other? This system is neither a venturi or packed bed. The operation is described in the excerpt here:



Operation

Whirl Wet employs a unique process to create intensive mixing of the dust particles and water. To infuse dust particles with water droplets, the mixture is passed with high velocity through a fixed-position dual opposed blade system.

The mixing of the dust-laden airstream and liquid takes place and, to increase turbulence, a tangential airstream is injected through a linear slot in the lower blade assembly. Rotation is accelerated,

droplets in the airstream are eliminated through a mist eliminator located downstream, and particulate material is deposited on the bottom of the unit for recovery or disposal.

Water level is maintained automatically and make-up water is only necessary to compensate for evaporation or sludge removal. Whirl Wet can operate in the 99% efficiency range for a wide variety of applications, and over a wide range of micron sizes.

Because of the lower emission limit for PM, would you be willing to accept an opacity limit of 10% for this process?

Yes, Heraeus is willing to accept a 10% opacity limit for this process.

Thanks

Greg Forte