west virginia department of environmental protection

Division of Air Quality
601 57th Street, SE
Charleston, WV 25304-2345
Phone: 304 926 0475 • Fax: 304 926 0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

MEMORANDUM

To: Beverly McKeone, NSR Program Manager

From: Ed Andrews, Engineer

Date: November 14, 2016

Subject: Class II Administrative Update Request to Permit R13-3065B (R13-3065C) for Elementis Specialties, Inc.

On September 22, 2016, Elementis Specialties Inc. filed a request to administratively update Permit R13-3065B. This request is for one separator vessels and six additional storage vessels. The separator vessel will be used as a gravity separator to recovery toluene from the finish product, which is currently preformed in finishing tank. The recovered toluene will be routed to one of the two new toluene tanks (T-580 & T-581). This recovered toluene will be reused in the process for additional batches. The finish product will be routed to one of the four new finish product storage tanks (T-590, T-591, T-592, & T-593) or totes.

These changes are specific for the manufacturing of two new dispersants at the facility. The applicant has determined that these changes will debottleneck the process overall by preforming the finish product separation downstream of the finishing tank (T-241).

The applicant estimated the VOC and volatile organic hazardous air pollutants (VOHAPs) from the process to include the additional storage vessels using Emission Master. Emission Master is a process simulator that take into account exact process steps/activities to predict emissions throughout the process. The writer reviewed the results of the Emission Master calculations from application and previous submitted applications. The Emission Master predicts that the process manufacturing the two new product could emit 62.58 pounds of VOCs per batch. The other product emit sleight less VOCs but has the potential to emit 57.29 of VOHAPs per batch. Of this 57.29 pounds, nearly all the VOHAPs is toluene. The maximum hourly emission rate of toluene is 1.04 pounds, which was based on the batch emission rate.

Annualizing the hourly toluene rate, toluene emission from the new products would be 4.55 tons per which is less than 5 tons. Since the potential emission increase from the new products is less than 2 pounds or 5 ton per year of HAPs on a aggregated basis. The proposed new products does not trigger the modification threshold under 45 CSR 13.

In the past, the applicant has been focus on ensuring that permitted emission limits allow flexibility for recipe changes or process improvements while ensuring the site remains as an area source of HAPs. During manufacturing of the two new products, the dispersants process emits a significant amount of toluene. Thus, toluene emissions are dictating where the source becomes major source or remains as area source. Therefore, the applicant is requested a four ton per year increase of the total HAP limit with no increase of any individual HAPs beyond the existing limit of 8.9 tons per year. Also, the applicant is asking that the VOC limit be the same as the total HAP limit. Elementis does not emit any non-volatile organic HAPs (i.e. HCl or metals) at the facility.

The writer attempted to evaluate the emissions from the gravity separator (T-570) using ProMax 4.0. The writer was unable to get toluene to separate out from the mixture. The predicted working and breathing losses from T-570 were based on a mixture instead of layers (lights on top of the heavies). The model predicted nearly 3.24 tons of the 3.26 ton per year of predicted emissions to occur from working losses. The hourly rate of total HAPs was 0.74 pounds per hour. The inlet conditions (temperature and pressures) significant contributed to the working losses that were predicted. Since separation of mixture did not occur in the separator, the emissions predicted should be only as a means to be evaluated the applicant predicted emission rates whether they are under or over predicting their emissions beyond what is reasonably possible.

The writer evaluated the potential emissions from these new vessels to determine if individual emission limits needs to be established for the new tanks. This evaluation was preformed using ProMax 4.0 with continuous feed going to these vessels. The combined hourly toluene and VOC emissions from the two recycled toluene was predicted to be 0.02 pound per hour. The combined hourly VOC emissions from the finish product tanks was predicted to be 4.01E-06 pound per hour. These predicted emissions included working, breathing, and loading losses. No flashing losses (emissions) were predicted from any of the vessels.

The existing monitoring of the emissions relied on using batch specific emission factors generated using Emission Master to determine compliance with the overall emissions limits. The revised batch emissions Emission Master predicted emissions includes working and breather losses from the vessels. Thus, the existing method to determine compliance with the emission limits is acceptable. These predicted emissions rates are fairly low and the writer recommend that no specific emission limit be established for these new storage vessels.

All of the proposed new vessels will have a maximum storage capacity of less than 50,000 liters (13,210 gallons), which is less than the size trigger threshold for Subpart Kb to Part 60. The new vessels would not be subject to any federal or state emission standards.

The additional separator and storage vessels created new emission points that were not noted in Permit R13-3065B. Thus, there is a potential for an emission increase from the process and thus a Class II Administrative Update was filed. As part of this request, Elementis paid the correct filing fee and published a Class I Legal Ad on September 21, 2016 in the *Wetzel Chronicle*.

The other changes to the permit that are not part of increasing the emission limits in Conditions 4.1.1. and 4.1.2. or incorporating the additional equipment into Table 1.0. were correcting typographic error in Table 1.0. and specifically noting that S-507 is not an odor control device. S-507 is an exhauster/educator that is used to maintain a draft on the vent system. This piece of equipment was not relied on to reduce emissions for the source to avoid any other permitting programs or emission standards. Since this is not a control device, the monitoring requirements in Condition 4.2.2. is not appropriate for this piece of equipment. Thus, "S-507" was omitted from Condition 4.2.2. No other changes were made to the permit.

Therefore, the writer recommends to the Director to grant Elementis Specialties Inc. a Class II Administrative Update by issuing Permit R13-3065C in accordance with 45 CSR 13.