



**west virginia department of environmental protection**

Division of Air Quality  
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**ENGINEERING EVALUATION / FACT SHEET**

**BACKGROUND INFORMATION**

Application No.: R13-0882I  
Plant ID No.: 039-00663  
Applicant: Optima Belle LLC  
Facility Name: Belle  
Location: Belle, Kanawha County  
NAICS Code: 325199  
Application Type: Class II Administrative Update  
Received Date: January 28, 2016  
Engineer Assigned: Mike Egnor  
Fee Amount: \$300.00  
Date Received: January 29, 2016  
Complete Date: February 10, 2016  
Due Date: April 10, 2016  
Applicant Ad Date: February 2, 2016  
Newspaper: *The Charleston Gazette*  
UTM's: Easting: 451.90 km Northing: 4,232.60 km Zone: 17  
Description: An alternative operating scenario (Isocyanate Process) is benignly removed from this Permit. An alternative operating scenario (Sclareol Purification) is being added to this Permit. The emissions for this process are expected to be 0.3112 lbs/hr and 72.84 lbs/yr of VOC's and 0.044 lbs/hr and 9.48 lbs/yr of PM.

**INTRODUCTION**

On January 28, 2016 Optima Belle LLC submitted a Class II Administrative Update for the proposed revisions to process equipment located at the Belle Plant, currently covered under permit R13-0882H.

On February 11, 2016, Optima submitted an affidavit of publication indicating that the required legal notice was run in the Charleston Gazette on February 2, 2016, initiating the 30-day public notice period. Optima also submitted the application fee of \$300 January 29, 2016 to meet the requirements associated with the Application for Modification Permit.

**DESCRIPTION OF PROCESS**

**Sclareol Overview:**

Sclareol, an amber colored solid with a balsamic scent, is extracted from impurities by heptane.

Sclareol can be used in cosmetics, perfumes, food flavorings, and to kill human leukemic cells.

#### Process Summary:

Crude Sclareol is dissolved in Heptane, then stripped and filtered to remove impurities such as sugarcane, buffer salts, and yeast cell debris. Sclareol can then be recrystallized into the final product. Heptane, throughout the process, is recycled for use in current and subsequent batches.

The proposed distillation of Sclareol will be conducted within the existing permitted operating unit, currently permitted under R13-0882H. As a result, the changes associated with permit application R13-0882I will not result in any new emission sources or emission points.

#### SITE INSPECTION

No site inspection was performed by the permitting engineer for this modification as the facility is well known to the DAQ and is frequently inspected by members of the DAQ Enforcement Section.

#### ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emission Point 104.014, which is the exit of the incinerator (009) is stated as 99.9% efficient of VOC's. Since the solubility of heptane in water is only 0.0003% (@ 20 C), scrubber (010) would not provide any removal of this pollutant and therefore will not be used in this process. The emissions for this process are expected to be 0.0843 lbs/hr and 32 lbs/yr of VOC's. During changeout of the product drum filter (210) VOC's are vented from the system. These emissions are 0.2269 lbs/hr and 40.84 lbs/yr. Emission Points 104.003 and 107.022 are controlled by baghouses. However emissions are so insignificant the Permittee is not claiming any reduction in emissions by these dust collectors. Emission Point 208 is uncontrolled emissions due to personnel dumping bags of diatomaceous earth into the open vessel. The emissions would be 0.0008 lbs/hr and 1.6 lbs/yr. The above emissions are calculated on a 1 hour batch which is conservative as a batch will take over 63 hours to complete. Emission reductions due to the removal of the isocyanate process was not considered as the facility already had a consent order requiring them to not use this process.

#### **Emissions Summary**

The proposed changes addressed in permit application R13-0882I shall result in the affected emission points undergoing emissions as shown in the following Table 1 - Emissions Summary.

**Table 1 - Emissions Summary**

Emission Point ID	Device Type	Pollutant	Air Pollution Control Device ID	Maximum Potential Uncontrolled Emissions		Maximum Potential Controlled Emissions	
				lbs/hr	tons/yr	lbs/hr	lbs/yr
104.014	Incinerator	VOC	009	84.26	16.04	0.0843	32
104.003	Dust Collector	PM	114	0.0033	0.00030	0.0033	0.6
107.022	Dust Collector	PM VOC's	023 None	0.0404 40.8389	0.00364 0.0204	0.0404 0.2269	7.28 40.84
208	Reactor #6	PM	N/A	0.0008	0.00008	0.0008	1.6

**REGULATORY APPLICABILITY**

The following State and Federal regulations were considered for applicability to the subject facility:

The following regulations apply to this production unit: West Virginia Regulations 7, 13, 21, 30 and US EPA MACT Standards for the Miscellaneous Organic NESHAP.

**RULE 7 - PARTICULATE MATTER FROM MANUFACTURING SOURCES**

The processes are "Type a" Source Operation Types under Rule 7. The mass limits contained in 45CSR§7-4.1 would be 2.19 lbs/hr for Dust Collector 114, 1.44 lbs/hr for Dust Collector 023, and 0.03 lbs/hr for the loading of diatomaceous earth to Reactor No. 1 (205). The above limits are well below these Rule 7 mass limits. The opacity requirements for these sources are already permitted under their Title V Permit.

**RACT**

45CSR21-40.3.c requires RACT analysis on a case by case basis for those VOC emissions greater than 6 pph which are constructed, modified, or begin operation after the date 45CSR 21 becomes effective. The proposed changes to R13-0882I due not include an increase of VOC's greater than 6 pph.

This class II permit amendment application is being filed under 45CSR13 since a change in batch production is being requested. Overall, VOC emissions will be 0.0160 tons/year and PM emissions associated with the sources identified in this application will be 8.04 lbs/yr.

**TOXICITY OF CRITERIA REGULATED POLLUTANTS**

Heptane has the following exposure limits:

### ACGIH TLV

STEL: 2,050 mg/m<sup>3</sup> 15 minutes

STEL: 500 ppm 15 minutes

TWA: 1,640 mg/m<sup>3</sup> 8 hours

TWA: 400 ppm 8 hours

### NIOSH REL

CEIL: 1,800 mg/m<sup>3</sup> 15 minutes

CEIL: 440 ppm 15 minutes

TWA: 350 mg/m<sup>3</sup> 10 hours

TWA: 85 ppm 10 hours

### OSHA PEL

TWA: 2,000 mg/m<sup>3</sup> 8 hours

TWA: 500 ppm 8 hours

### TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Sclareol has limited toxicity information and is not listed by OSHA as a carcinogen. The information listed for Sclareol is an LD<sub>50</sub> oral for rats of > 5,000 mg/kg and LD<sub>50</sub> dermal for rabbits of > 5,000 mg/kg.

### MONITORING OF OPERATIONS

The Title V Permit provides monitoring requirements due to opacity readings. The facility is already required to monitor visible emissions (Condition 4.2.2), monitor their production (Condition 4.2.1), monitor the temperature of the incinerator (Condition 4.2.3), and monitor the pH and flow rate of the scrubber (Condition 4.2.4),

Changes to R13-0882I include:

1. Updated the Permit Number to R13-0882I.
2. Removed the isocyanate process in Section 4.1.2.1 and replaced it as described below.
3. Added Condition 4.1.2.1.1 to require that the dust collector (114) be used when solids are charged to the reactor.

4. Added Condition 4.1.2.1.2 to require that the incinerator (009) be used at emission point 114.014 during all periods of Sclareol production.
5. Added Condition 4.1.1.1.3 to require that Dust Collector (23) be used by emission point 107.022 when packaging solids to drums.
6. Added Condition 4.1.1.1.4 to require specific emissions limits for particulate matter and VOC's for the Sclareol Process.
7. Changed the facility name from "E.I. du Pont Nemours, Inc." to "Optima Belle LLC" and the company ID from "03900001" to "03900663" due to a change in ownership.

#### RECOMMENDATION TO DIRECTOR

Permit application, R13-0882I, submitted by Optima Belle, LLC, for the administrative permit update of the production facility located at the Belle Plant in Belle, Kanawha County, WV, has been reviewed and determined to meet all applicable requirements, and is therefore, recommended for approval.

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Mike Egnor  
Engineer

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Date