

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

N082342666

FACILITY: S P KISH INDUSTRIES INC		SRN / ID: N0823
LOCATION: 600 W SEMINARY ST, CHARLOTTE		DISTRICT: Lansing
CITY: CHARLOTTE		COUNTY: EATON
CONTACT: Mahesh "Mike" Desai , Technical Director		ACTIVITY DATE: 11/28/2017
STAFF: Michelle Luplow	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Scheduled, unannounced inspection to determine compliance with PTI No 70-84A.		
RESOLVED COMPLAINTS:		

Inspected by: Michelle Luplow (author) and Sue Thelen (AQD Permit Section)
Personnel Present: Mahesh (Mike) Desai, Technical Director (kishindustries@voyager.net)

Purpose: Conduct an unannounced, scheduled compliance inspection by determining compliance with S. P. Kish's Permit to Install (PTI) No. 70-84A for paint manufacturing equipment and a small paint booth. This facility was last inspected August 14, 2013.

Facility Background/Regulatory Overview: SP Kish is a paint manufacturing facility that has been in business since the mid-1960's. Mike Desai, Technical Director and Chief Chemist, said that 90% of the coatings manufactured are used to coat structures that store automotive parts. Customers will purchase the paint in bulk for these purposes. The limitations of the current permit maintain the source as a true minor source. Because SP Kish is a minor source of HAPs, they are not subject to the MACT Subpart FFFF for Miscellaneous Organic Chemical Manufacturing.

M. Desai said they run one 8-hr shift per day on average. He also explained that the company originally produced solvent-based paints; however, around 1987, they started to increase their production of water-based paints and decrease production of solvent-based paints. As a result of this progression to water-based coatings, VOC emissions have gradually been reduced over time.

Table 1 contains a list of all the equipment present onsite. I verified with M. Desai that there are no emergency generators, boilers, parts washer, or paint booths (in addition to the testing paint booth) present at this facility.

Table 1. Equipment listing and descriptions for current processes

Unit	Description	PTI/ Exemption	Compliance
5 Mills	Used to disperse the paint pigment to create paint intermediates (a component of the finished paint product). Both are connected to the shaker baghouse for capturing pigment particulate <ul style="list-style-type: none"> • 3 are sand mills (aka "media" mills): a continuous process used to disperse the pigment. Operates overnight. One of the 3 is smaller and according to M. Desai, rarely used. • 2 are steel ball mills: batch processes that will process a batch, remove the finished batch, and create a new batch 	70-84A	Yes
6 paint mixers	Mixers are used to make the finished paint product. These units are not mentioned in the PTI 70-84A application, but are considered in M. Desai's VOC calculations for final product	70-84A	Yes
Testing paint booth	Used for quality control testing. Fabric filters used for particulate control prior to exiting from exhaust stack	70-84A/ 287(2)(c)	Yes

Inspection: On November 28, 2017 at approximately 8:20 a.m., Sue Thelen and I arrived at SP Kish. We met with Mike Desai, Technical Director and Chief Chemist. We discussed PTI exemptions, and I provided him with a copy of the January 2017 Permit to Install Exemptions Handbook. We discussed installation of equipment and the need for review under an exemption prior to installing any new equipment. M. Desai provided telephone notes where he explained that AQD permit engineer, Nick Zabrodsky, said that if SP Kish installed new equipment and the installation doesn't increase their VOC output/emissions, they will not need a new permit. I explained to him that this may or may not be true, depending on the process, quantity of VOC's emitted, etc. I pointed out Rules 278/278(a) and 285 exemptions in the handbook and explained to M. Desai that any time SP Kish installs a new piece of equipment, they should review the exemptions handbook and keep documentation, according to the exemption criteria within the exemption that they choose, to demonstrate that the equipment does not need a new permit.

PTI No 70-84A – Paint Mills, and Baghouse Filter

The mills referenced in the PTI are the units that SP Kish uses to create the paint intermediate, which includes dispersing the paint pigment within the solution. M. Desai said these units are all enclosed; I verified that all lines that run the components into the mills are enclosed. The steel ball mills are loaded with the intermediate components through the top, and the final dispersed product is captured from the bottom of the mill and poured into drums. The sand mills ("media mills") are also fully enclosed systems. The permit requires that the mills be controlled by a baghouse for control of the paint pigment. The units are vented to a shaker baghouse where M. Desai said the pigment particulate is captured. M. Desai mentioned that the pigment contains no chromium or lead and therefore, SP Kish disposes of the waste pigment by mixing it with waste sludge before disposing of it non-hazardous waste. He also mentioned that Bryan Grochowski, hazardous waste inspector for the Waste Management and Radiological Protection Division, has been there in the past to ensure waste was disposed of properly.

The 6 mixing vessels that create the finished paint product are open to atmosphere with local exhaust ventilation.

Records of material use and calculations identifying the quality, nature, and quantity of the air contaminant in sufficient detail to demonstrate that emissions meet the emission limits are required to be kept on file. The VOC emission rate from the mills is limited to 75 lb/batch of intermediate produced and 9.0 tons per year, based on a 12-month rolling period. The HAP emission rate from the mills is limited to 75 lbs/batch of intermediate produced and limited to 5.0 tons on a 12-month rolling period, as determined at the end of each calendar month. M. Desai said he was told by the DEQ that SP Kish could use a control factor of 3.4% (i.e. 3.4% of the total VOC's are emitted), which is an old MAERS emission factor. SP Kish has been consistently regulated using this 3.4% control factor for the life of their permit (based on past staff activity reports), and I will therefore determine compliance using the 3.4% control factor. The control factor is multiplied by the VOC lb/gal (including water) content of each coating.

M. Desai explained that there are 8 categories of paint intermediate, based on VOC content. The categories encompass water-based, solvent-based, and coatings with the least amount of VOC. M. Desai defines their water-based paints as those that contain less than 3.5lb/gal VOC minus water. M. Desai said the construction of paint categories was suggested by the DEQ in order to simplify the process of tracking emissions. He explained that not all of the intermediate that is produced goes into the final product at one time; only a fraction of each is used at a time. By calculating emissions produced from the intermediate batches we can therefore have worst-case lb/batch emissions. In order to calculate per batch VOC emissions, M. Desai chooses the largest batch created in any given month and multiplies that batch size by the lb/gallon (with 3.4% emission rate). M. Desai also explained that the largest batch the media mills could create is 330 gallons, whereas the largest batch the steel ball mills can create is 220 gallons.

Table 2 provides a VOC content, as well as a HAP content, for each category. The formulation sheets will not be included in this report as they are considered proprietary.

Using a maximum batch size of 330 gallons with the highest VOC content paint intermediate (category 3) and assuming only 3.4% of the VOC is emitted, SP Kish would never exceed 52 lb VOC/batch. Likewise, using the 330 gallons with the highest HAP content coating (2 lb/gal in category 4), SP Kish would never exceed 23 lb HAP/batch. M. Desai calculates the maximum lb VOC/batch by category. To do this, he multiplies the highest number of gallons produced per category in a particular month by the category's respective lb VOC/gallon content. According to SP Kish's actual data for the month of March 2017, M. Desai has demonstrated that none of the batches exceed the 75 lb/batch emissions; the highest VOC/batch emitted were 34.49 lb for category 4.

Table 2. Paint Categories with VOC content

Category	VOC Content without control factor (lb/gal) (w/ water)	VOC Content with control factor (lb/gal)	HAP Content without control factor (lb/gal) (w/ water)	HAP Content with control factor (lb/gal)
1	1.47	0.0499	0.058	0.002
2	1.34	0.0455	0.00041	0.00001
3	4.61	0.156	1.64	0.056
4	3.44	0.1169	1.0 (for each HAP)	0.034 (for each HAP)

5	0.62	0.0210	NA
6	0.86	0.0292	NA
7	0.04	0.0013	NA
8	1.11	0.0377	NA

Categories 1-4 contain HAPs: Category 1 contains glycol ether; category 2 contains triethylamine; category 3 contains xylol; and category 4 contains xylol and methyl isobutyl ketone. The highest HAP-containing coating is category 3. Categories 1 and 2 contain less than 1 lb/gal of a single HAP.

M. Desai provided me with 12-month rolling VOC emissions from 2013 – October 2017. Monthly VOC's are calculated by taking the number of gallons produced for each category and multiplying this number by each respective category's VOC lb/gal content. Attached are production records (gallons) for March 2017, the calculations of VOC emitted for March 2017, and the 12-month rolling total from November 2016 – October 2017. Total VOC's emitted during the Nov 2016 – Oct 2017 period was 3.74 tons. Although M. Desai does not keep track of HAP emissions, it can be assumed, based on VOC content versus HAP content, that HAPs can only be less than or equal to VOC emissions for the 12-month rolling period Nov 2016 – Oct 2017. As seen in Table 2, the HAP content with control factor for each category is at least 1 order of magnitude less than the VOC content with control factor. SP Kish would therefore be in compliance with the 5-ton HAP per 12-month rolling period.

I did mention to M. Desai that if production increases to the point where the 12-month rolling VOC emissions near 5 tons, that he should begin to track HAP emissions to ensure that the 5-ton limit for HAPs is not being exceeded.

Paint Testing Booth

A brief account of the emissions from the paint testing spray booth is required in addition to ensuring that all exhaust filters are installed and operating properly. There are no emission limits in this permit, but per review of the Permit Evaluation Form, the permit engineer believes this unit is operated under exemption Rule 287(2)(c) and therefore I will evaluate emissions under this guise. M. Desai said he does not keep a record of the amount of paint that is used in the paint testing booth; however, he did say that they use less than 1 oz of paint per test and conduct 2 -6 tests per day, 5 days per week. Maximum coating usage for a month, given what M. Desai said, equates to 120 ounces (~ 1 gallon). For the purposes of compliance, it is my professional judgment that this paint booth is exempt under Rule 287(2)(c). All appropriate filters were installed properly (M. Desai said they are changed daily), and usage is much less than the 200-gallon limit of the exemption (minus water). I will contact M. Desai and explain to him that records of usage must be tracked for this unit, and work with him to find an acceptable way to keep records of the usage.

Compliance Statement: At this time SP Kish is in compliance with PTI 70-84A.

NAME

M. Desai

DATE

12/27/17

SUPERVISOR

B. M.

