ENGINEERING EVALUATION REPORT
SYNTHETIC MINOR OPERATING PERMIT
VALSPAR COATINGS
PLANT #501
APPLICATION #8247

BACKGROUND

Valspar Coatings (Valspar) operates a facility located at 31500 Hayman Street, Hayward, California. At this facility Valspar manufactures solvent and water based epoxy coatings and vinyl ester resins. The air pollutants of primary concern are hazardous air pollutants (HAPs) namely butyl cellosolve, cumene, ethylbenzene, formaldehyde, glycol ether, methyl ethyl ketone, methyl isobutyl ketone, toluene, and xylene. Valspar's total historical HAP emissions are less than 14 tpy (including fugitive), and no individual HAP emissions have exceeded 7 tpy (including fugitive), which are below the applicability thresholds of 40CFR63, Subpart HHHHH; however, the facility is physically capable of emitting HAPs above applicability threshold and the facility's permit lacks practically enforceable condition to limit the potential to emit of HAPs. Valspar has proposed to have a practically enforceable permit condition applied to the facility to limit HAP emissions so that the facility is not subject to the requirements of 40CFR63, Subpart HHHHH, National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Miscellaneous Coatings Manufacturing. The Subpart HHHHH applies to coating and resin manufacturing facilities that are a major source of HAPs (emissions $\geq$10 tpy for individual HAP; $\geq$25 tpy for total combined HAPs)

Valspar has applied to obtain a Synthetic Minor Operating Permit for this facility. The following sources are identified at this facility:

Permitted Sources

S-25 Resin Kettle RK-1, 200 gallons/hr max.
S-26 Blend Tank LD-1, fixed roof, Stainless steel, Multi-liquid, 10K gallon capacity,
S-27 Blend Tank LD-2, fixed roof, Stainless steel, Multi-liquid, 10K gallon capacity,
S-28 Water-based Epoxy Coating Storage Tank, Stainless steel, Tank-4, 12K gallon capacity.
S-29 Weigh Tank, fixed roof, Stainless steel, 1K gallon capacity, heated.
S-30 Monomer Drop Tank, fixed roof, Stainless steel, 1K gallon capacity.
S-31 Truck/Rail Loading Station, Resin, 1 gasoline filler.
S-32 Drum Filling Station, Resin.
S-47 Tank-14, N-Butanol storage, fixed roof, Aluminum insulation jacket, 12K gallon capacity.
S-49 Vinyl Ester Resin Tank 16, fixed roof, Aluminum, 20K gallon capacity.
S-53 Feed Tank, fixed roof, white, Multi-liquid, 2700 gallon capacity.
S-54 Latex Holding Tank, fixed roof, white, 12.8K gallon capacity.
S-112 Butyl Cellosolve Wash Storage Tank T-112, fixed roof, white, 2500 gallon capacity.

S-175 Standby Diesel engine-generator, Caterpillar, Model 3406B.

Exempt Sources

S-1 Dryer (Laboratory oven), natural gas fired, 400K BTU/hr.
S-44 Solvent-based Epoxy Resin Storage Tank-18, fixed roof, Aluminum insulation jacket, 20K gallon capacity.
S-45 Styrene Storage Tank-17, fixed roof, White, 20K gallon capacity.
S-46 Epoxy Resin Storage Tank-15, fixed roof, Aluminum insulation jacket, 20K gallon capacity.
S-48 Butyl cellosolve storage Tank-13, fixed roof Tank, Aluminum insulation jacket, 12K gallon capacity.
S-101 Waste water tank, Stainless steel, 3400 gallon capacity.
S-109 Xylene Storage Tank , fixed roof, 10K gallon capacity.
S-111 Naphtha Petroleum (Solvent-100) storage Tank, fixed roof, 2500 gallon capacity.
S-116 Diesel fuel Storage Tank, fixed roof, yellow, 250 gallon capacity.
S-117 Glacial Methacrylic acid Storage Tank-7, fixed roof, Aluminum insulation jacket, 8K gallon capacity.
S-167 Heating oil heater, natural gas fired, 9460K Btu/hr.
S-168 Inert gas generator, natural gas fired, 1143K BTU/hr.
S-171 Caustic waste storage tank.

EMISSION LIMITS STRATEGY

To obtain a synthetic minor operating permit, a facility must have practically enforceable emission or operational conditions that limit its potential to emit to less than the applicability threshold. In this case, the applicability threshold for 40 CFR63, Subpart HHHH is 9 tons per year of each single hazardous air pollutant (HAP), and 23 tons per year of any combination of HAPs.

USEPA has stated via a memo from John Seitz entitled “Guidance on Limiting Potential to Emit” dated June 13, 1989, that operational or throughput limits are required in addition to emission limitations. However, the guidance make an exception for operations involving solvent evaporating sources where the type and amounts of coatings and solvents used are unpredictable. In that case, detailed recordkeeping is required.

The majority of operations at this facility are sources of volatile organic compounds (VOC) such as blend and storage tanks, mixer, and reactor, which are used to manufacture coatings and resins.

DISCUSSION OF EXISTING CONDITIONS

Valspar currently operates under several pre-existing permits and permit conditions that have been imposed over the years as the District has evaluated the installation of new sources or modifications of existing sources. The following is a list of the existing permit conditions that have been imposed through the District’s permitting program:

Condition Number	Sources Affected
449	S-49
604	S-101
775	S-32
7434	S-47
7568	S-137
11119	S-25, S-26, S-27, S-31
19533	S-175

The text of the each of these conditions is attached. Synthetic minor conditions do not invalidate District permit conditions issued under the New Source Review (NSR) Program. If a source is operating under an NSR condition limiting operation to a specific level and a synthetic minor condition includes a higher level of operation, the source is still subject to the lower limit. The sole purpose of the Synthetic Minor Operating Permit is to formally limit Valspar's *potential to emit*. For clarity, these pre-existing conditions will remain separate from the synthetic minor conditions.

INSIGNIFICANT SOURCES

The following sources emit NOx, CO, SO2, VOC, and particulate matter. These pollutants are not the pollutant of concern with regard to Title V applicability for Valspar and no permit conditions are necessary for these sources in the Synthetic Minor Operating Permit.

S-1 Dryer (laboratory oven), natural gas fired, 400K BTU/hr.
S-167 Heating oil heater, natural gas fired, 9460K Btu/hr.
S-168 Inert gas generator, natural gas fired, 1143K BTU/hr.
S-175 Standby Diesel engine-generator, Caterpillar, Model 3406B.

EMISSION CALCULATION

At the facility different type of solvent-based and water-based epoxy coatings and vinyl ester resins are manufactured. The VOC emissions are production related and non-production (such as storage tanks and fugitive emissions) related.

1. Production Related

In a typical process, powdered and liquid materials are added into the reactor and heated to begin a chemical reaction. Once the reaction is complete, the material is pumped to mixing vessels for final material additions. Once the material meets specification requirements, it is packaged in 55-gallon drums, 330-gallon totes, or pumped to the storage tank farm for storage or a tank truck for shipment.

Valspar has presented production related emission estimates for the facility on the basis of USEPA recommended procedures and methods. The methods described in "Preferred and Alternative Methods for Estimating Air Emissions from Paint

and Ink Manufacturing Facilities, USEPA, Emission Inventory Improvement Program (EIIP), Volume II: Chapter 8, March 1998" allow the estimation of emissions based on production and various operating parameters such as temperature and cycle time. The individual methods used from this reference include loading losses, heat-up losses, surface evaporation, and filling (packaging) losses. A complete discussion of the methods, assumptions, and procedures used to estimate emission factors is attached. After emission factors for all of the various steps within each categorical coating have been calculated, they are summarized into overall emission factor for each coating. Then, each categorical coating's emission factor is multiplied by the category's actual and potential annual production throughput to determine actual and potential facility emissions.

Emissions:

a. Based on actual throughput and controlled

VOC = 3.72 tpy
HAPs = 1.74 tpy
Styrene = 0.939 tpy

b. Based on projected maximum throughput and controlled

VOC = 5.21 tpy
HAPs = 2.43 tpy
Styrene = 1.315 tpy

2. Non-Production Related

2.1 Clean-up Solvent Emissions

Solvent-based clean-up solvents are used to rinse the production equipment after a batch has been completed. To estimate these emission, a sum of the emissions estimated by using a 1% AP-42 (5th Edition, Volume 1, Chapter 6.4.1) loss factor and loading losses calculated by the EIIP emission model is used. The solvents after rinsing are used as an ingredient in the new process batch.

2.2 Storage Tank Emissions

Emissions of VOC from the various storage tanks are estimated using the most recent version of the API Tanks Program. The Tanks software uses AP-42 Section 7.1 equations to estimate emissions.

VOC = 1.214 tpy
HAPs = 1.109 tpy
Styrene = 0.1 tpy

2.3 Fugitive Emissions

The emissions from fugitive components (valves, flanges, hatches, pumps) are estimated based on emission factors taken from "Guidelines for Fugitive Emission Calculations, Petroleum Industry" (June 1999, South Coast AQMD). The fugitive emissions summary is as follows:

VOC = 10.15 tpy
Butyl cellosolve = 2.57 tpy
Styrene = 5.52 tpy
Xylene = 2.06 tpy

2.4 Combustion Emissions

The contribution of combustion emissions of HAPs is insignificant.

EMISSION SUMMARY

Emission calculations and summaries are detailed in the application package. Since the calculated maximum projected emissions are below the 95 ton per year limit for VOC, the 9 ton per year limit for individual HAP, and the 23 ton per year limit for total HAPs, this analysis is adequate at this time. Should Valspar expand its operation such that its emissions approach the SMOP limits, the basis and the calculation can be re-evaluated.

Total projected VOC emissions = 5.21 tpy + 1.214 tpy + 10.15 tpy + 0.26 tpy
= 16.834 tpy
Total projected HAPs emissions = 2.43 tpy + 1.109 tpy + 10.15 tpy
= 13.689 tpy
Total projected Styrene emissions = 0.939 tpy + 1.315 tpy + 0.1 tpy + 5.52 tpy
= **7.874 tpy**

STATEMENT OF COMPLIANCE

This facility is in compliance with the necessary requirements in Regulation 2, Rule 6 to obtain a synthetic minor operating permit. The facility wide emission rate of VOC is less than 95 tons per year (excluding certain emissions as set forth in the federal Clean Air Act), individual HAP is less than 9 tons per year, and total HAPs is less than 23 tons per year.

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Dharam Singh
Air Quality Engineer II
Engineering Division

--- SYNTHETIC MINOR OPERATING PERMIT ---

VALSPAR COATINGS
PARENT COMPANY: THE VALSPAR CORPORATION
31500 Hayman Street
Hayward, CA 94544.

Application #8247
Plant #A0501

Permitted Sources:

S-25 Resin Kettle RK-1
S-26 Blend Tank LD-1
S-27 Blend Tank LD-2
S-28 Water-Based Epoxy Coating Storage Tank
S-29 Weigh Tank
S-30 Monomer Drop Tank
S-31 Truck/Rail Loading Station
S-32 Drum Filling Station
S-47 N-Butanol Storage Tank #14
S-49 Vinyl Ester Resin Storage Tank #16
S-53 Monomer Feed Tank
S-54 Latex Holding Tank
S-112 Storage Tank - wash solvent T-112
S-175 Emergency standby diesel engine-generator

Permitted Abatement Devices:

A-1 Fume Scrubber
A-5 Carbon Adsorption Unit
A-6 Condenser
A-7 Condenser- water/ethylene glycol
A-8 Vent Condenser
A-9 Condenser- water/ethylene glycol
A-25 Carbon adsorption/carbon regeneration thermal Oxidizer system
A-100 Vapor Balance/recovery system

Exempt Sources:

S-1 Laboratory Oven, natural gas, 400K BTU/hr
S-44 Solvent Based Epoxy Resin Storage Tank-18
S-45 Styrene Storage Tank-17
S-46 Epoxy Resin Storage Tank-15
S-48 Butyl Cellosolve Storage Tank-13
S-101 Waste Water Storage Tank-101

S-109 Xylene Storage Tank-5
S-111 Aromatic Solvent-100 Storage Tank-11
S-116 Diesel Storage tank
S-117 Storage Tank - Glacial Methacrylic Acid
S-167 Heating Oil Heater, natural gas, 9.46 MMBTU/hr
S-168 Inert Gas Generator, natural gas, 1.143 MMBTU/hr
S-171 Storage Tank - caustic waste

Valspar Coatings, Site # A0501 has a synthetic minor operating permit. This operating permit covers all sources existing at this facility as of permit issuance. The sources are listed above.

Synthetic minor conditions #*1-*8, each marked by an asterisk, establish the permit terms that ensure this plant is classified as a Synthetic minor Facility under District Regulation 2, Rule 6, Major Facility Review, and ensure it is not subject to the permitting requirements of Title V of the Federal Clean Air Act as amended in 1990 and 40 CFR Part 70. Any revision to a condition establishing this plant's status as a Synthetic Minor Facility or any new permit term that would limit emissions of a new or modified source for the purpose of maintaining the facility as a synthetic minor must under go the procedures specified by Rule 2-6, section 423.

Other conditions are District conditions that do not establish this facility as a synthetic minor. The facility must comply with all conditions, regardless of asterisks, and must comply with all District requirements for new and modified sources regardless of its status as a synthetic minor.

SYNTHETIC MINOR CONDITIONS

*1. Annual emissions of volatile organic compounds (VOCs) from all sources combined shall be no greater than 95 tons per any consecutive twelve-month period.

*2. Annual emissions of any single hazardous air pollutant (HAP) from all sources combined shall be no greater than 9 tons per any consecutive twelve-month period.

*3. Annual emissions of any combination of HAPs from all sources combined shall be no greater than 23 tons per any consecutive twelve-month period.

*4. The owner/operator shall maintain District approved throughput/production logs for all non-combustion sources. The logs shall be retained for at least five years and be made available for review during normal business hours by the District's representatives, and shall include the following information:

a. monthly records of the throughput/production at each source;
b. monthly records of the net usages of all clean up solvents; and
c. the density and the weight percents of VOC and individual HAPs in each coating produced, or other District approved recording methods that provide sufficient information including emission factors to calculate VOC and HAP emissions;

*5.The owner/operator shall prepare a monthly summary of VOC, individual HAP and combined HAP emissions along with detailed emission calculations within fifteen business days after the end of each fiscal month. Valspar fiscal month is based on a cycle of four-week, four week, and five week.

*6.The owner/operator shall prepare the year-to-date total emissions of VOC, each individual HAP and combined HAPs by summing the totals for the previous twelve months. The summaries shall be complete within fifteen business days after the end of each fiscal month.

*7.The owner/operator shall prepare and submit an annual report to the District's Enforcement Division. The report shall be prepared for the year ending on permit renewal date and shall be submitted within two months of the annual permit renewal date. The annual report for the first year following the date this permit is issued shall be compiled from records documenting throughput/production as required by the synthetic minor operating permit. This report shall contain:

a. the throughput/production of coatings, and clean up solvents for the previous twelve months;
b. the densities and weight percents of VOC and each HAP in the coatings, and solvents used, and/or equivalent information including emission factors sufficient to determine emissions from throughput/production data; and
c. the annual emissions of VOCs, individual HAPs and total HAPs as calculated for each of the previous twelve months based on actual throughput/production.

*8.The owner/operator shall notify the District within five working days of any determination that the facility has exceeded a rolling twelve month emission limit.

CONDITION # 449 ----------
For S-49:

1. In case of odor complaints leading to the issuance of a violation notice, due to the Tank Farm, The owner/operator shall install additional odor control devices on this storage tank.

CONDITION # 604 ----------
For S-112:
1. Tank shall have a submerged fill pipe as required per Regulation 8-5-301.

CONDITION # 775 ----------
For S-32:

1. If the District receives more than ten complaints within 90 days, and if it was determined that the source of odor was from the resin manufacturing building, The owner/operator shall improve or install additional control devices in order to remedy the odor problem.
2. In order to minimize the odorous emissions, the owner/operator shall keep the resin building under negative pressure, and except for one-man door shall keep all other doors at the resin building closed.

CONDITION # 7434 ----------
For S-47:

1. The owner/operator shall not exceed total liquid throughput of 200,000 gallons at Storage Tank, S-47, during any consecutive 12 month period.
2) In order to demonstrate compliance with the above conditions, the owner/operator of S-47 shall maintain the following records in a District approved log and make them available to the District upon request. These records shall be kept on site and be made available for District inspection for a period of 24 months from the date the record was made.

   a. The type and VOC content of all materials stored and the dates the materials were stored.
   b. The total daily throughput of each material stored, summarized on a monthly basis.

CONDITION # 11119 ----------
PERMIT CONDITIONS For S-25, 26, 27, and 31
(Revised: 12/2/96; Application #16770)

1. Emissions from the third floor resin operation shall be vented to at least two carbon totes arranged in series. Emissions from the second floor resin operation shall be vented to at least one carbon tote. Emissions from the first floor resin operation shall be vented to at least two carbon totes arranged in series. Each carbon tote shall contain no less than 950 pounds of carbon.
2. For the carbon totes residing on the first and third floors, carbon changeout shall take place upon the detection of 300 ppmv, measured as methane, of organic compounds measured between the first and second carbon totes with a continuous scanning FID monitor. For the carbon tote residing on the second floor, carbon changeout shall take place upon the detection of 100 ppmv, measured as methane, of organic compounds measured from the carbon tote with a continuous scanning FID monitor. Carbon changeout shall occur as soon as practicable but no later than 6 hours after detection of breakthrough. The changeout procedure shall consist of removing the first carbon tote arranged in series from service, placing the second carbon tote in the lead position, and replacing the second carbon tote with regenerated or fresh carbon. In the event that the operator of this source installs two carbon totes arranged in series on the second floor, the carbon tote in the lead position shall be changed out upon detection of 300 ppmv, measured as methane, of organic compounds measured with a continuous scanning FID monitor.
3. The 300 ppmv breakthrough concentration limit stipulated in Condition Number 2, and the 50 ppmv concentration limit stipulated in Condition Number 4 may be adjusted after operation of the carbon abatement system, A-25, if record keeping demonstrates that a more representative breakthrough concentration limit would more accurately reflect actual breakthrough and quantify emissions from the stack. In order to adjust the carbon breakthrough limit stipulated in condition Number 2 or the concentration limit in Condition Number 4, the operator of the source shall submit, for District review, operating data for the carbon adsorption system indicating a more appropriate breakthrough limit. Written approval by the District must be received by the

Operator prior to a change to the breakthrough concentration limit or the stack concentration limit.

4. The operator shall install and operate a continuous emissions monitor (CEM) equipped with a strip chart recorder to determine organic concentrations from the main stack, P-75. In no event shall the concentration of organic compounds exceed 50 ppmv at the maximum flow rate of 3000 cfm, averaged over any consecutive 24 hour period, from P-75 as measured by the continuous scanning FID monitor.
5. In no event shall the concentration readings taken at P-75 exceed the maximum possible strip chart scale concentration for more than any consecutive 60 minute period. The operator of the continuous emissions monitor will mark the strip chart with a time and date at least once per week.

For the carbon regenerator:

1. The destruction efficiency of the thermal oxidizer for the carbon regenerator shall be maintained at a minimum of 98.5% by weight.
2. The thermal oxidizer shall be properly maintained and kept in good operating condition at all times. In no event shall the minimum operating temperature of the thermal oxidizer be less than 1400 degrees F, averaged over any consecutive 60 minute period during regeneration of a carbon tote.
3. To determine compliance with the above condition the thermal oxidizer shall be equipped with a continuous temperature measuring and recording instrumentation consisting of at least one temperature probe in the thermal oxidizer and at least one recording device, which will continuously record temperature.
4. The temperature measuring and recording instrumentation shall be installed, calibrated and operated to manufacturer's specifications.
5. The temperature data collected from the temperature recorder shall be maintained in a file which shall be available for District inspection for a period of at least two years following the last date of entry.
6. The operator of this source shall maintain the following records for each day of operation of the carbon regenerator and thermal oxidizer:
   a. The hours and time of operation
   b. The temperature strip chart shall be marked with a time and date at least once every two weeks.

These records shall be retained for at least five years from the date of recording and be made available to the BAAQMD staff upon request.

CONDITION # 19533 ----------
CONDITIONS FOR NON "ESSENTIAL" EMERGENCY ENGINE, S-175:

Stationary Equipment Requirements

1. Hours of Operation: The owner/operator shall operate the emergency standby engine(s) only to mitigate emergency conditions or for reliability-related activities. Operating while mitigating emergency conditions is unlimited. Operating for reliability-related activities is limited to 100 hours per any calendar year. [Basis: Regulation 9-8-330]

   "Emergency Conditions" is defined as any of the following:
   a. Loss of regular natural gas supply.
   b. Failure of regular electric power supply.
   c. Flood mitigation.
   d. Sewage overflow mitigation.
   e. Fire.
   f. Failure of a primary motor, but only for such time as needed to repair or replace the primary motor.
   [Basis: Regulation 9-8-231]

   "Reliability-related activities" is defined as any of the following:
   a. Operation of an emergency standby engine to test its ability to perform for an emergency use, or
   b. Operation of an emergency standby engine during maintenance of a primary motor.
   [Basis: Regulation 9-8-232]

2. The owner/operator shall equip the emergency standby engine(s) with either:
   a. a non-resettable totalizing meter that measures the hours of operation for the engine; or
   b. a non-resettable fuel usage meter, the maximum hourly fuel rate shall be used to convert fuel usage to hours of operation.
   [Basis: Regulation 9-8-530]

3. Records: The owner/operator shall maintain the

following monthly records in a District-approved log for at least 2 years and shall make the log available for District inspection upon request:

a. Hours of operation (total).

b. Hours of operation (emergency).

c. For each emergency, the nature of the emergency condition.

d. Fuel usage for engine(s) if a non-resettable fuel usage meter is utilized.

[Basis: Regulations 9-8-530 and 1-441]

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Engineering Division