

**MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY  
AIR QUALITY DIVISION**

August 4, 2021

**PERMIT TO INSTALL**  
213-96N

**ISSUED TO**  
Koppers Performance Chemicals

**LOCATED AT**  
52430 Duncan Avenue, M-26  
Hubbell, Michigan 49934

**IN THE COUNTY OF**  
Houghton

**STATE REGISTRATION NUMBER**  
B8596

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environment, Great Lakes, and Energy. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: <b>July 1, 2021</b>	
DATE PERMIT TO INSTALL APPROVED: <b>August 4, 2021</b>	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

## PERMIT TO INSTALL

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### COMMON ACRONYMS

AQD	Air Quality Division
BACT	Best Available Control Technology
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
COMS	Continuous Opacity Monitoring System
Department/department/EGLE	Michigan Department of Environment, Great Lakes, and Energy
EU	Emission Unit
FG	Flexible Group
GACS	Gallons of Applied Coating Solids
GC	General Condition
GHGs	Greenhouse Gases
HVLP	High Volume Low Pressure*
ID	Identification
IRSL	Initial Risk Screening Level
ITSL	Initial Threshold Screening Level
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
MAERS	Michigan Air Emissions Reporting System
MAP	Malfunction Abatement Plan
MSDS	Material Safety Data Sheet
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NSR	New Source Review
PS	Performance Specification
PSD	Prevention of Significant Deterioration
PTE	Permanent Total Enclosure
PTI	Permit to Install
RACT	Reasonable Available Control Technology
ROP	Renewable Operating Permit
SC	Special Condition
SCR	Selective Catalytic Reduction
SNCR	Selective Non-Catalytic Reduction
SRN	State Registration Number
TBD	To Be Determined
TEQ	Toxicity Equivalence Quotient
USEPA/EPA	United States Environmental Protection Agency
VE	Visible Emissions

\*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

### POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm	Actual cubic feet per minute
BTU	British Thermal Unit
°C	Degrees Celsius
CO	Carbon Monoxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
°F	Degrees Fahrenheit
gr	Grains
HAP	Hazardous Air Pollutant
Hg	Mercury
hr	Hour
HP	Horsepower
H <sub>2</sub> S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO <sub>x</sub>	Oxides of Nitrogen
ng	Nanogram
PM	Particulate Matter
PM10	Particulate Matter equal to or less than 10 microns in diameter
PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
pph	Pounds per hour
ppm	Parts per million
ppmv	Parts per million by volume
ppmw	Parts per million by weight
psia	Pounds per square inch absolute
psig	Pounds per square inch gauge
scf	Standard cubic feet
sec	Seconds
SO <sub>2</sub>	Sulfur Dioxide
TAC	Toxic Air Contaminant
Temp	Temperature
THC	Total Hydrocarbons
tpy	Tons per year
µg	Microgram
µm	Micrometer or Micron
VOC	Volatile Organic Compounds
yr	Year

## GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to Rule 210 (R 336.1210), operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to Rule 219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of Rule 219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal condition or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of Rule 301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with Rule 303 (R 336.1303). **(R 336.1301)**
  - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
  - b) A visible emission limit specified by an applicable federal new source performance standard.
  - c) A visible emission limit specified as a condition of this Permit to Install.
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001. **(R 336.2001)**

## EMISSION UNIT SPECIAL CONDITIONS

### EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

<b>Emission Unit ID</b>	<b>Emission Unit Description (Including Process Equipment &amp; Control Device(s))</b>	<b>Flexible Group ID</b>
EUCUCPROCESS	Processes used for manufacturing copper carbonate. This process includes twelve open-style and three sealed-type digesters, six rotary distillers, three oxidation towers, three air-oxidation towers, one CO <sub>2</sub> input tower, two water recovery units, and two agitated flash dryers for the copper carbonate production and any other equipment that is part of the manufacturing and packaging process. Portions of this process are controlled by the ammonia recovery system which is made up of the ammonia absorber, two ammonia scrubbers operating in parallel, and the ammonia distillation towers. During normal operations, the basic copper carbonate (BCC) filter/agitated dryer operations unit #1 and ammonia recovery system will exhaust through stack (SVC2). During normal operations BCC filter/agitated flash dryer operations unit #2 will exhaust through SVC3.	NA

Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1291.

**EUCUCPROCESS  
 EMISSION UNIT CONDITIONS**

**DESCRIPTION**

Processes used for manufacturing copper carbonate. This process includes twelve open-style and three sealed-type digesters, six rotary distillers, three oxidation towers, three air-oxidation towers, one CO2 input tower, two water recovery units, and (2) agitated flash dryers for the copper carbonate production and any other equipment that is part of the manufacturing and packaging process. Portions of this process are controlled by the ammonia recovery system which is made up of the ammonia absorber, two ammonia scrubbers operating in parallel, and the ammonia distillation towers. During normal operations, basic copper carbonate (BCC) filter/agitated flash dryer operations unit #1, and ammonia recovery system will exhaust through stack SVC2. During normal operations, BCC filter/agitated flash dryer operations unit #2 will exhaust through SVC3.

**Flexible Group ID:** NA

**POLLUTION CONTROL EQUIPMENT**

Ammonia recovery system and dust collector.

**I. EMISSION LIMIT(S)**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period / Operating Scenario</b>	<b>Equipment</b>	<b>Monitoring / Testing Method</b>	<b>Underlying Applicable Requirements</b>
1. Ammonia	44.0 pph <sup>1</sup>	Daily average*	Equipment vented through stack SVC2	SC V.1, VI.2, VI.3, VI.4, VI.5, VI.6, VI.7, VI.8	R 336.1224, R 336.1225
2. Ammonia	41.0 pph <sup>1</sup>	Daily average*	Equipment vented through stack SVC3	SC V.1, VI.2, VI.3, VI.4, VI.5, VI.6, VI.7, VI.8	R 336.1224, R 336.1225
3. Ammonia	9.0 pph <sup>1</sup>	Daily average*	Ammonia Recovery System.	SC V.1, VI.3, VI.4, VI.5, VI.6, VI.7, VI.8	R 336.1224, R 336.1225
4. PM	0.01 pound per 1,000 pounds exhaust gases	Testing	Agitated Flash Dryer #1	GC 13	R 336.1331
5. PM	0.15 pph	Testing	Agitated Flash Dryer #1	GC 13	R 336.1331
6. PM	0.01 pound per 1,000 pounds exhaust gases	Testing	Agitated Flash Dryer #2	GC 13	R 336.1331
7. PM	0.15 pph	Testing	Agitated Flash Dryer #2	GC 13	R 336.1331

\* As determined parametrically using data required by the Special Conditions.

**II. MATERIAL LIMIT(S)**

1. The fresh ammonia addition rate to EUCUCPROCESS shall not exceed the amount of ammonia contained in finished product plus 0.065 pounds of ammonia per pound of copper contained in product, based on a 12-month rolling average as determined at the end of each calendar month.<sup>1</sup> (R 336.1224, R 336.1225)

### **III. PROCESS/OPERATIONAL RESTRICTION(S)**

1. Exhaust gases from the following process equipment shall be vented through the ammonia absorber and the ammonia scrubbers operated in parallel, hereinafter "ammonia recovery system." **(R 336.1224, R 336.1225, R 336.1910)**
  - all digesters
  - all ammonia solution storage tanks
  - recycle tower
  - vapor liquid separators
  - two ammonia distillation towers
  - all oxidation towers
  - all sumps
2. The permittee shall not operate any of the equipment listed in SC III.1 unless the ammonia recovery system is installed, maintained, and operated in a satisfactory manner as defined in the malfunction abatement plan. **(R 336.1224, R 336.1225, R 336.1910)**
3. The permittee shall not operate EUCUCPROCESS unless a malfunction abatement plan (MAP) as described in Rule 911(2), for ammonia scrubbing, has been submitted within 60 days of permit issuance, and is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1910, R 336.1911)**

### **IV. DESIGN/EQUIPMENT PARAMETER(S)**

1. The permittee shall equip and maintain the ammonia recovery system with liquid flow and temperature indicators on the liquid feed to each column and a vapor feed temperature indicator on the vapor feed to the first column. **(R 336.1224, R 336.1225, R 336.1910)**
2. The permittee shall not operate the agitated flash dryer unless the baghouse is installed, maintained, and operated in a satisfactory manner as defined in the malfunction abatement and preventative maintenance program. **(R 336.1331, R 336.1910)**
3. The permittee shall not operate the BCC filter operations unless the particulate filter is installed, maintained, and operated in a satisfactory manner as defined in the malfunction abatement and preventative maintenance program. **(R 336.1331, R 336.1910)**

### **V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall test each batch from EUCUCPROCESS to determine the quantity of ammonia and copper contained in the product.<sup>1</sup> **(R 336.1224, R 336.1225)**
2. Upon request from the AQD District Supervisor, the permittee may be required to verify PM emission rates from EUCUCPROCESS by testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1331)**

## **VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping.<sup>1</sup> **(R 336.1224, R 336.1225)**
2. The permittee shall monitor and record the total feed rate to the agitated flash dryer and the ammonia concentration in the feed to the agitated flash dryer on a daily basis. All data, including calculation of the ammonia emission rate from the agitated flash dryer, shall be kept on file for a period of at least five years and made available to the Department upon request.<sup>1</sup> **(R 336.1224, R 336.1225)**
3. The permittee shall monitor the liquid flow rate and temperature of each of the columns of the ammonia recovery system and the vapor feed temperature of the first column of the ammonia recovery system every four hours.<sup>1</sup> **(R 336.1224, R 336.1225)**
4. The permittee shall keep, in a satisfactory manner, records of the daily fresh ammonia addition to EUCUCPROCESS, daily production records with the amount of copper contained in each product produced and calculations showing the monthly fresh ammonia addition to EUCUCPROCESS in pounds of ammonia per pound of copper contained in product. The permittee shall keep all records on file and make them available to the Department upon request.<sup>1</sup> **(R 336.1224, R 336.1225)**
5. The permittee shall keep records of each batch produced, including the amount of copper and ammonia contained in the finished product of each batch as determined by testing. The permittee shall keep all records on file and make them available to the Department upon request.<sup>1</sup> **(R 336.1224, R 336.1225)**
6. The permittee shall measure and record the ammonia recovery rate of the ammonia recovery system when modifications are made to the equipment and/or operation of the process (provided the modifications do not require applicant to obtain a Permit to Install) that could appreciably alter the performance of and/or the ammonia emission rate from the ammonia recovery system in order to obtain new baseline data, by testing, according to a schedule and using a method approved in writing by the District Supervisor, Air Quality Division. The permittee shall keep all records, including calculation of the ammonia emission rate, on file for a period of at least five years and make them available to the Department upon request.<sup>1</sup> **(R 336.1224, R 336.1225)**
7. The permittee shall keep records of the readings taken every four hours of the liquid flow rate and temperature for each of the columns of the ammonia recovery system and the vapor feed temperature of the first column of the ammonia recovery system. The permittee shall keep all records on file and make them available to the Department upon request.<sup>1</sup> **(R 336.1224, R 336.1225)**
8. The permittee shall keep records, on a daily basis, of the calculations for determining the hourly ammonia emissions from the equipment vented through stack SVC2, the equipment vented through stack SVC3, and the ammonia recovery system. The permittee shall keep all records on file and make them available to the Department upon request.<sup>1</sup> **(R 336.1224, R 336.1225)**

## **VII. REPORTING**

NA

**VIII. STACK/VENT RESTRICTION(S)**

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter / Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SVC2	20	140	R 336.1225 40 CFR 52.21 (c) and (d)
2. SVC3	20	110	R 336.1225 40 CFR 52.21 (c) and (d)

**IX. OTHER REQUIREMENT(S)**

NA

**Footnotes:**

<sup>1</sup> This condition is state only enforceable and was established pursuant to Rule 201(1)(b)