

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION**

April 28, 2014

**PERMIT TO INSTALL**  
153-13

**ISSUED TO**  
Sun Chemical

**LOCATED AT**  
4925 Evanston Avenue  
Muskegon, Michigan

**IN THE COUNTY OF**  
Muskegon

**STATE REGISTRATION NUMBER**  
B5966

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. 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:

**February 4, 2014**

DATE PERMIT TO INSTALL APPROVED:

**April 28, 2014**

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

## PERMIT TO INSTALL

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**Common Abbreviations / Acronyms**

<b>Common Acronyms</b>		<b>Pollutant / Measurement Abbreviations</b>	
AQD	Air Quality Division	BTU	British Thermal Unit
BACT	Best Available Control Technology	°C	Degrees Celsius
CAA	Clean Air Act	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	dscf	Dry standard cubic foot
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter
CO <sub>2</sub> e	Carbon Dioxide Equivalent	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H <sub>2</sub> S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
GHGs	Greenhouse Gases	kW	Kilowatt
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfuction Abatement Plan	NO <sub>x</sub>	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality (Department)	PM	Particulate Matter
MSDS	Material Safety Data Sheet	PM10	PM with aerodynamic diameter ≤10 microns
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	PM with aerodynamic diameter ≤ 2.5 microns
NSPS	New Source Performance Standards	pph	Pounds per hour
NSR	New Source Review	ppm	Parts per million
PS	Performance Specification	ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight
PTE	Permanent Total Enclosure	psia	Pounds per square inch absolute
PTI	Permit to Install	psig	Pounds per square inch gauge
RACT	Reasonably Available Control Technology	scf	Standard cubic feet
ROP	Renewable Operating Permit	sec	Seconds
SC	Special Condition	SO <sub>2</sub>	Sulfur Dioxide
SCR	Selective Catalytic Reduction	THC	Total Hydrocarbons
SRN	State Registration Number	tpy	Tons per year
TAC	Toxic Air Contaminant	µg	Microgram
TEQ	Toxicity Equivalence Quotient	VOC	Volatile Organic Compound
VE	Visible Emissions	yr	Year

\* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

### 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 Environmental Quality, 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 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 R 336.1219 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 R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(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 conditions 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 R 336.1301, 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 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 R 336.1370(2). **(R 336.1370)**
  
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

**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 (Process Equipment &amp; Control Devices)</b>	<b>Flexible Group ID</b>
EU-SSlurry04T008	South Slurry Mix Tank (ID # 04T008), exhausts to SV-Stack6	FG-IB
EU-NSlurry04T018	North Slurry Mix Tank (ID # 04T018), exhausts to SV-Stack6	FG-IB
EU-NDecon04T7302	North Decontamination Tank (ID # 04T7302), exhausts to SV-Stack6	FG-IB
EU-SDecon04T7312	South Decontamination Tank (ID # 04T7312), exhausts to SV-Stack6	FG-IB
EU-HdTnk04T4205	Head Tank (ID # 04T4205) (Sodium Nitrite), uncontrolled, exhausts into building	FG-TZ
EU-HdTnk04T4215	Head Tank (ID # 04T4215) (Sodium Nitrite), uncontrolled, exhausts into building	FG-TZ
EU-Tank04T4206	Tank/Overflow (ID # 04T4206) (HCl), exhausts to SV-Stack4	FG-TZ
EU-Tank04T4216	Tank/Overflow (ID # 04T4216) (HCl), exhausts to SV-Stack4a	FG-TZ
EU-Tank04T4208	Tank/Overflow (ID # 04T4208) (DCB Slurry), exhausts to SV-Stack4	FG-TZ
EU-Tank04T4218	Tank/Overflow (ID # 04T4218) (DCB Slurry), exhausts to SV-Stack4a	FG-TZ
EU-TZ4302	Tetrazo Tank (ID # 04T4302), exhausts to SV-Stack4	FG-TZ
EU-TZ4312	Tetrazo Tank (ID # 04T4312), exhausts to SV-Stack4a	FG-TZ
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 336.1290.		

**FLEXIBLE GROUP SUMMARY TABLE**

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

<b>Flexible Group ID</b>	<b>Flexible Group Description</b>	<b>Associated Emission Unit IDs</b>
FG-IB	All process equipment involved in the unpacking and blending of 3,3'-dichlorobenzidine (DCB) into solution.	EU-SSlurry04T008, EU-NSlurry04T018, EU-NDecon04T7302, EU-SDecon04T7312
FG-TZ	All process equipment utilized in the formation of the tetrazo component.	EU-HdTnk04T4205, EU-HdTnk04T4215, EU-Tank04T4206, EU-Tank04T4216, EU-Tank04T4208, EU-Tank04T4218, EU-TZ4302, EU-TZ4312

**The following conditions apply to: FG-IB**

**DESCRIPTION:** All process equipment involved in the unpacking and blending of 3,3'-dichlorobenzidine (DCB) into solution.

**Emission Units:** EU-SSlurry04T008, EU-NSlurry04T018, EU-NDecon04T7302, EU-SDecon04T7312

**POLLUTION CONTROL EQUIPMENT:**

Absolute Filter ID #:  
 4AF7010  
 Caustic Scrubber ID #:  
 04S7010

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Hydrogen chloride (HCl)	1.02 mg/m <sup>3</sup> <sup>A, 1</sup>	Test protocol *	FG-IB	GC 13	R 336.1225
2. 3,3'-Dichlorobenzidine (DCB)	0.02 µg/m <sup>3</sup> <sup>A, 1</sup>	Test protocol *	FG-IB	SC VI.1	R 336.1224
3. PM	0.10 pound per 1,000 pounds of exhaust gases, calculated on a dry gas basis	Test protocol *	FG-IB	GC 13	R 336.1331
4. Opacity	0% <sup>B</sup>	6-minute average	FG-IB	SC VI.2	R 336.1301(1)(c)

<sup>A</sup> Corrected to 70 degrees F and 29.92 inches Hg  
<sup>B</sup> Except for uncombined water vapor  
 \* Test protocol shall specify averaging time.

**II. MATERIAL LIMITS**

NA

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall charge raw materials to the process equipment in a manner that minimizes fugitive emissions of air contaminants. **(R 336.1331, R 336.1702(a))**
2. The permittee shall not operate FG-IB unless an amended malfunction abatement plan (MAP) as described in Rule 911(2), for FG-IB, 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 AQD District Supervisor. The permittee shall submit any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 45 days of submittal, the 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 336.1910, R 336.1911)**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall equip and maintain the caustic scrubber (ID # 04S7010) with a liquid flow indicator and an audible malfunction alarm system. **(R 336.1910)**
2. The permittee shall equip and maintain the absolute filter (ID # 4AF7010) with pressure sensors with audible alarms that sound when the pressure drop is outside the range specified in the MAP. **(R 336.1910)**
3. The permittee shall not operate any of the equipment in FG-IB unless the control devices listed below are installed, maintained, and operated in a satisfactory manner:
  - a. Absolute filter (ID # 4AF7010)
  - b. Caustic scrubber (ID # 04S7010)Satisfactory operation includes maintaining operating parameters within the ranges specified in the MAP. **(R 336.1224, R 336.1225, R 336.1331, R 336.1910)**
4. The permittee shall label all equipment with permanent labels that correspond with the AQD permit and MAP. Labelling shall be completed within 60 days of permit issuance. **(R 336.1201(3))**

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

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

NA

#### **VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall monitor and record the DCB emissions from FG-IB on a quarterly basis, in a manner and with instrumentation acceptable to the Air Quality Division. The permittee shall perform four consecutive quarterly readings of the DCB emission rates from FG-IB. After successful completion of the four consecutive quarterly readings, the permittee may request an alternative monitoring schedule. Any request for an alternative monitoring schedule shall be submitted to the AQD District Supervisor for approval. **(R 336.1225)**
2. The permittee shall monitor and record, in a satisfactory manner, the operating parameters for absolute filter (ID # 4AF7010) and caustic scrubber (ID # 04S7010) as specified in the MAP at the frequency specified in the MAP. The permittee shall keep these records on file at the facility and make them available to the Department upon request. **(R 336.1910)**

#### **VII. REPORTING**

NA

**VIII. STACK/VENT RESTRICTIONS**

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. SV-Stack6	Not restricted	30	R 336.1225, 40 CFR 52.21(c) & (d)

**IX. OTHER REQUIREMENTS**

NA

**Footnotes:**

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

**The following conditions apply to: FG-TZ**

**DESCRIPTION:** All process equipment utilized in the formation of the tetrazo component.

**Emission Units:** EU-HdTnk04T4205, EU-HdTnk04T4215, EU-Tank04T4206, EU-Tank04T4216, EU-Tank04T4208, EU-Tank04T4218, EU-TZ4302, EU-TZ4312

**POLLUTION CONTROL EQUIPMENT:**

Caustic Scrubber ID #s:  
 04S7020  
 04S7120

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Hydrogen chloride (HCl)	3.63 mg/m <sup>3</sup> A, 1	Test protocol *	Equipment in FG-TZ that exhausts to Stack4	GC 13	R 336.1225
2. 3,3'-Dichlorobenzidine (DCB)	0.02 µg/m <sup>3</sup> A, 1	Test protocol *	Equipment in FG-TZ that exhausts to Stack4	SC VI.1	R 336.1225
<sup>A</sup> Corrected to 70 degrees F and 29.92 inches Hg * Test protocol shall specify averaging time.					

**II. MATERIAL LIMITS**

NA

**III. PROCESS/OPERATIONAL RESTRICTIONS**

- The permittee shall not charge solid materials to FG-TZ unless they are in slurry form. **(R 336.1331)**
- The permittee shall not operate FG-TZ unless an amended malfunction abatement plan (MAP) as described in Rule 911(2), for FG-TZ, 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 AQD District Supervisor. The permittee shall submit any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 45 days of submittal, the 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 336.1910, R 336.1911)**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall equip and maintain each caustic scrubber (ID # 04S7020 and ID # 04S7120) with a liquid flow indicator and an audible malfunction alarm system. **(R 336.1910)**
2. The permittee shall not operate the equipment in FG-TZ that exhausts to SV-Stack4 unless caustic scrubber (ID # 04S7020) is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes maintaining operating parameters within the ranges specified in the MAP. **(R 336.1331, R 336.1910)**
3. The permittee shall not operate the equipment in FG-TZ that exhausts to SV-Stack4a unless caustic scrubber (ID # 04S7120) is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes maintaining operating parameters within the ranges specified in the MAP. **(R 336.1331, R 336.1910)**
4. The permittee shall label all equipment with permanent labels that correspond with the AQD permit and MAP. Labelling shall be completed within 60 days of permit issuance. **(R. 336.1201(3))**

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

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

NA

#### **VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall monitor and record the DCB emissions from the equipment in FG-TZ that exhausts to SV-Stack4 on a quarterly basis, in a manner and with instrumentation acceptable to the Air Quality Division. The permittee shall perform four consecutive quarterly readings of the DCB emission rates from FG-TZ. After successful completion of the four consecutive quarterly readings, the permittee may request an alternative monitoring schedule. Any request for an alternative monitoring schedule shall be submitted to the AQD District Supervisor for approval. **(R 336.1225)**
2. The permittee shall monitor and record, in a satisfactory manner, the operating parameters for caustic scrubbers (ID #s 04S7020, 04S7120) specified in the MAP at the frequency specified in the MAP. The permittee shall keep these records on file at the facility and make them available to the Department upon request. **(R 336.1910)**

#### **VII. REPORTING**

NA

#### **VIII. STACK/VENT RESTRICTIONS**

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. SV-Stack4	Not restricted	48.0	R 336.1225, 40 CFR 52.21(c)&(d)
2. SV-Stack4a	Not restricted	48.0	R 336.1225, 40 CFR 52.21(c)&(d)

**IX. OTHER REQUIREMENTS**

NA

**Footnotes:**

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