

217/782-2113

CONSTRUCTION PERMIT

PERMITTEE

Sun Chemical Corporation - Northlake, Illinois Plant
Attn: Richard Combes, Plant Manager
135 West Lake Street
Northlake, Illinois 60164

Application No.: 10030026

I.D. No.: 031471AAE

Applicant's Designation:

Date Received: March 8, 2010

Subject: Varnish Project

Date Issued:

Location: 135 West Lake Street, Northlake, Cook County, 60164

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a plant expansion project as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1. Introduction

- a. This permit authorizes an expansion project for Sun Chemical's Northlake plant, which produces ink and ink raw materials (ink bases and varnishes). The project would include installation of new equipment to increase the capabilities and capacity of the plant. The new emission units and the existing emission units that would remain at the plant (the affected units) are listed in Attachment A.

Emissions of volatile organic material (VOM) would generally be controlled by work practices. Emissions of particulate matter (PM) from handling of dry materials associated with the new operations would be controlled by a central dust collection system connected to an existing baghouse, Baghouse DC-01. Because much of the existing equipment at the plant would be permanently shut down, the project would not be accompanied by a significant increase in VOM emissions (See Attachment B).

- b. This permit does not relax or otherwise revise any requirements and conditions that apply to the existing operations at the source, including applicable monitoring, testing, recordkeeping, and reporting requirements in the current CAAPP permit for the source.

2. Applicable State Emission Standards for Particulate Matter and Opacity

- a. Each affected unit is subject to 35 IAC 212.123, which provides that no person shall cause or allow the emissions of smoke or other PM, with an opacity greater than 30 percent, into the atmosphere from any emission unit.

- b. Each affected unit is subject to 35 IAC 212.321, which provides that no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar new process emission units at a source or premises, exceeds the allowable emission rates specified in 35 IAC 212.321(c).
3. Applicable State Emission Standards for Volatile Organic Material (VOM)
- a. Each affected unit, other than storage tanks, is subject to 35 IAC 218.301, which generally provides that no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 218.302, 218.303, 218.304 and the following exception: If no odor nuisance exists this limitation shall apply only to photochemically reactive material as defined in 35 IAC 211.4690.
 - b.
 - i. Each affected mixer is subject 35 IAC 218.624(a), which provides that the mixer shall be equipped with a cover, which completely covers the vessel opening except for an opening no larger than necessary to allow for safe clearance for a mixer shaft. Such cover shall extend at least 1.27 cm (0.5 in) beyond the outer rim of the opening or be attached to the rim.
 - ii. The cover shall remain closed except when production, sampling, maintenance or inspection procedures require access pursuant to 35 IAC 218.624(b).
 - iii. The cover shall be maintained in good condition such that, when in place, it maintains contact with the rim of the opening for at least 90 percent of the circumference of the rim pursuant to 35 IAC 218.624(c).
 - c. Each affected ball mill or grinding mill is subject to 35 IAC 218.625, which provides that:
 - i. No person shall operate a grinding mill for the production of paint or ink which is not maintained in accordance with the manufacturer's specifications.
 - ii. No person shall operate a grinding mill fabricated or modified after the effective date of this Subpart which is not equipped with fully enclosed screens.
 - iii. The manufacturer's specifications shall be kept on file at the plant by the owner or operator of the grinding mill and be made available to any person upon verbal or written request during business hours.

- d. Affected storage tanks, other than Storage Tank TK-154 (formerly TK-54), are subject to 35 IAC 218.626, which provides that:
 - i. The owner or operator shall equip tanks storing VOL with a vapor pressure greater than 10 kPa (1.5 psi) at 20°C (68°F) with pressure/vacuum conservation vents set as a minimum at +/-0.2 kPa (0.029 psi).
 - ii. Stationary VOL storage containers with a capacity greater than 946 liters (250 gallons) shall be equipped with a submerged-fill pipe or bottom fill.
- e. The plant is subject to 35 IAC 218.628, which provides that the owner or operator of a paint or ink manufacturing source shall, for the purpose of detecting leaks, conduct an equipment monitoring program as set forth below:
 - i. Each pump shall be checked by visual inspection each calendar week for indications of leaks, that is, liquids dripping from the pump seal. If there are indications of liquids dripping from the pump seal, the pump shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected.
 - ii. Any pump, valve, pressure relief valve, sampling connection, open-ended valve and flange or connector containing a fluid which is at least 10 percent VOM by weight which appears to be leaking on the basis of sight, smell or sound shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected.
 - iii. A weather proof, readily visible tag, in bright colors such as red or yellow, bearing an identification number and the date on which the leak was detected shall be attached to leaking equipment. The tag may be removed upon repair, that is, when the equipment is adjusted or otherwise altered to allow operation without leaking.
 - iv. When a leak is detected, the owner or operator shall record the date of detection and repair and the record shall be retained at the source for at least two years from the date of each detection or each repair attempt. The record shall be made available to any person upon verbal or written request during business hours.
- f. Clean-up of the affected units is subjected to 35 IAC 218.630, which provides that:
 - i. No person shall clean paint or ink manufacturing equipment with organic solvent unless the equipment being cleaned is

completely covered or enclosed except for an opening no larger than necessary to allow safe clearance for proper operation of the cleaning equipment, considering the method and materials being used.

- ii. No person shall store organic wash solvent in other than closed containers, unless closed containers are demonstrated to be a safety hazard, or dispose of organic wash solvent in a manner such that more than 20 percent by weight is allowed to evaporate into the atmosphere.

4. Applicable Requirements from Adjusted Standard AS 99-4

- a. For Storage Tank TK-154, the Permittee shall meet all terms and conditions of Adjusted Standard AS 99-4. In particular, as long as no odor nuisance exists at this plant, the vapor pressures of materials stored in Storage Tank TK-154 shall be less than 0.5 psia at 70°F.

Note: Sun Chemical Corporation is subject to an adjusted standard from the control requirements of 35 IAC 218.626(b), Alternative Standard AS 99-4, granted by the Pollution Control Board on May 20, 1999. Only three of the 17 resin storage tanks that were addressed by this Adjusted Standard, (TK-154, TK-155, and TK-160) are still in use. TK-155 and TK-160 have since been equipped with submerged fill pipes so they are no longer subject to AS 99-4.

5. Nonapplicability Provisions

- a.
 - i. This permit is issued based on this project not being a major modification subject to 35 IAC Part 203, Major Stationary Sources Construction and Modification (MSSCAM) because the net increase in emissions of volatile organic material (VOM) is less than 40 tons/year. (See Attachment B.)
 - ii. Within 180 days of initial startup of the new operations, the Permittee shall permanently shut down the following existing departments and emission units:

System/Department	CAAPP Permit Designation	Notes
Ball Mills	Emission Unit 01	---
Ball Mills (See Notes)	Emission Unit 02	Except MBM-22 and MBM-23, now BM-740 and BM-741
Regular Grinding (See Notes)	Emission Units 03 thru 07 and 22	Except for the Basket Mill Premixer for Grinder 03, now IM-742
Bulk Grinding	Emission Units 08 thru 11	---

System/Department	CAAPP Permit Designation	Notes
Cutters	Emission Unit 12	---
Blending	Emission Unit 13	---
Compounding Operations	Emission Unit 19	---

- b. This permit is issued based on the affected units not being subject to the National Emissions Standards for Hazardous Air Pollutants: Miscellaneous Coatings Manufacturing, 40 CFR 63 Subpart HHHHH (MCM MACT), or 40 CFR 63 Subpart FFFF, National Emission Standards for Miscellaneous Organic Chemical Production and Processes (the MON rule). This is because the source is not a major source for emissions of hazardous air pollutants (HAP).
- c. This permit is issued based on affected units not being subject to 35 IAC 218, Subpart TT. This is because the units are subject to 35 IAC 218, Subparts B or AA.
- d. This permit is issued based on the affected units not being subject to the National Emissions Standards for Hazardous Air Pollutants for Area Sources: Paints and Allied Products Manufacturing (40 CFR 63 Subpart CCCCCC). This is because the source does not process, use, or generate materials containing HAP as defined in 63.11607 (i.e., benzene, methylene chloride, or compounds of cadmium, chromium, lead, and/or nickel, in amounts greater than or equal to 0.1% by weight). The paints and allied products manufacturing operations at the site would become an affected source under this rule according to 40 CFR 63.11599(b)(3) if the processing, using, or generating of materials containing HAP, as defined in 63.11607, were to commence.

6. Work Practices

- a. At all times, the Permittee shall maintain and operate the affected units in a manner consistent with good air pollution control practice for minimizing emissions.
- b. The Permittee shall follow good operating practice for Baghouse DC-01, including periodic inspection, routine maintenance and prompt repair of defects.

7. Production Limitations

- a. Material usage by various department(s) shall not exceed the following (pounds/year):

Department	Production	VOM Usage	HAP Usage
White Solvent-Based Ink Bases	30,000,000	19,500,000	390,000
Solvent-Based Varnishes	17,850,000	17,700,000	17,630,000
White Water-Based Ink Bases	7,500,000	820,000	52,000

Department	Production	VOM Usage	HAP Usage
Water-Based Varnishes	8,250,000	2,022,000	776,000
Crystophane Blending	3,150,000	1,644,000	1,457,000
Nitrocellulose Varnishes	18,000,000	14,850,000	5,400
Small Batch	12,750,000	12,750,000	8,390,000
UV Coating and Packaging Wax	110,000,000	74,000,000	2,000,000
Total	207,500,000	143,300,000	30,700,400

- b. Compliance with these annual limits and other annual limits in this permit shall be determined from a running total of 12 months of data, i.e., from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

8. Emission Limitations

- a. Emissions of VOM and HAPs from the plant and the different departments and activities at the plant shall not exceed the following limits.

Department(s)/Activity(ies)	VOM		HAPS	
	Tons/Mo	Tons/Yr	Tons/Mo	Tons/Yr
Solvent-Based White Ink Bases	1.55	15.50	0.02	0.20
Solvent-Based Varnishes	0.27	2.71	0.24	2.38
Nitrocellulose Varnishes	1.03	10.31	0.01	0.001
Crystophane Varnishes	0.06	0.61	0.05	0.47
Water-Based Ink Bases	0.06	0.63	0.0001	0.001
Water-Based Varnishes	0.14	1.37	0.002	0.02
Small Batch Ink Bases And Varnishes	0.29	2.91	0.21	2.10
Packaging Wax	0.21	2.13	0.02	0.13
UV Coating	0.28	2.79	0.01	0.04
Tank Farm (Storage Tanks)	0.19	1.94	0.02	0.16
Equipment Leaks	0.42	4.21	0.28	2.80
Other Activities (e.g., Tub Washer)	1.0	1.10	0.05	0.50
Total	---	46.20	---	8.80

- b. i. Stack emission of particulate matter (PM) from the affected units (Baghouse DC-01), in total, shall not exceed 1.2 pounds/hour and 4.2 tons/year.
- ii. This permit is issued based on minimal emissions of PM other than stack emissions from the affected units. For this purpose, emissions shall not exceed 0.25 pounds/hour and 1.1 tons/year.

9. Testing Requirements

- a. Upon written request by the Illinois EPA or USEPA, the Permittee shall promptly have emission testing conducted at its expense by a qualified independent testing service for the VOM and HAP emissions from the affected units. This testing shall be

conducted during operating conditions that are representative of maximum emissions.

- b. The following methods and procedures shall be used for testing of emissions, unless the Illinois EPA approves use of other USEPA Reference method: Refer to 40 CFR 60, Appendix A, for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Flue Gas Weight	USEPA Method 3
Moisture	USEPA Method 4
VOM and HAPs	USEPA Method 18 and Method 25 or 25A (if outlet VOM cont. < 50 ppmv as C Non CH4)

- c. At least 60 days prior to the actual date of testing, a written test plan shall be submitted to the Illinois EPA. This plan shall describe the specific procedures for testing, including as a minimum:
 - i. The person(s) who will be performing sampling and analysis and their experience with similar tests.
 - ii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for the emission unit and any control equipment will be determined.
 - iii. The specific determinations of emissions and operation, which are intended to be made, including sampling and monitoring locations.
 - iv. The test method(s), which will be used, with the specific analysis method, if the method can be used with different analysis methods.
 - v. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.
 - vi. The format and content of the Source Test Report.
- d. The Illinois EPA shall be notified prior to these tests to enable the Illinois EPA to observe these tests. Notification of the expected date of testing shall be submitted a minimum of thirty days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of five working days prior to the actual date of the test. The Illinois EPA may at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept

such notifications if it interferes with the Illinois EPA's ability to observe testing.

- e. Copies of the Final Report(s) for these tests shall be submitted to the Illinois EPA within 14 days after the test results are compiled and finalized. The Final Report shall include as a minimum:
 - i. A summary of results.
 - ii. General information.
 - iii. Description of test method(s), including description of sampling points, sampling train, analysis equipment, and test schedule.
 - iv. Detailed description of test conditions, including:
 - A. Process information, i.e., mode(s) of operation, process rate, e.g. fuel or raw material consumption; and
 - B. Control equipment information, i.e., equipment condition and operating parameters during testing.
 - v. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.

10. Monitoring Requirements

- a.
 - i. The Permittee shall measure and record the pressure drop across Baghouse DC-01 on at least a weekly basis to confirm proper operation.
 - ii. The Permittee shall observe the emissions from Baghouse DC-01 on at least a weekly basis to confirm that the baghouse is operating properly and record the results of the observations.

Note: This observation need not be a USEPA Method 9 opacity test, nor does the observation need a USEPA Method 9 certified observer. This observation may be performed by personnel familiar with the operation of this baghouse who would be able to make a determination from the observations whether or not this baghouse is operating properly and, if necessary, initiate corrective action.

- b. The Permittee shall have observations of the opacity of Baghouse DC-01 using USEPA Method 9 conducted upon written request by the Illinois EPA.

11. Records for VOM/HAP Emissions

- a. The Permittee shall maintain all records necessary to demonstrate compliance with the requirements of 35 IAC 218, Subpart AA [35 IAC 218.637(b)].
- b. The Permittee shall maintain records of the following items for all affected units:
 - i. A file that contains records of the VOM and HAP content of each type or category of material used with the affected units, with source of data and date, and supporting documentation, e.g., analysis data, supplier formulation data, an MSDS, etc.
 - ii. Records of usage of VOM and HAP (pounds/month and pounds/year).
- c. The Permittee shall maintain records sufficient for demonstration of compliance with 35 IAC 218.301.
- d. The Permittee shall maintain records of the following items for all affected units:
 - i. Amount of ink and ink raw material production, by category (tons/month and tons/year); and
 - ii. Total VOM and HAP emissions (tons/month and tons/year).

12. Records for PM Emissions

- a. The Permittee shall maintain records of inspection of Baghouse DC-01 on at least a monthly basis to confirm proper operation.
- b. The Permittee shall keep logs of maintenance and repairs.
- c. The Permittee shall maintain records for Malfunctions and Breakdowns, which as a minimum, shall include:
 - i. Date and duration of the event;
 - ii. A detailed explanation of the event, including the measures used to reduce the quantity of emissions and the duration of the event and the steps taken to prevent similar events or reduce their frequency and severity; and
 - iii. The amount of emissions above typical emissions during the event.
- d. The Permittee shall maintain records of total PM emissions (tons/month and tons/year).

13. Retention and Availability of Records

- a. All records and logs required by this permit shall be retained for at least five years from the date of entry (unless a longer retention period is specified by the particular recordkeeping provision herein), shall be kept at a location at the source that is readily accessible to the Illinois EPA or USEPA, and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request.
- b. The Permittee shall retrieve and print, on paper during normal source office hours, any records retained in an electronic format (e.g., computer) in response to an Illinois EPA or USEPA request for records during the course of a source inspection.

14. Notification

- a. The Permittee shall promptly notify the Illinois EPA of any deviation from the requirements of this permit, consistent with provisions in its CAAPP permit, i.e., reports shall be promptly submitted and describe the deviation, the probable cause of such deviation, and corrective actions and any preventive measures taken.
- b. Two copies of reports required by this permit shall be made to the Illinois EPA at the following:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

Telephone: 217/782-5811 Fax: 217/782-6348

and one copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 Harrison
Des Plaines, Illinois 60016

Telephone: 847/294-4000 Fax: 847/294-4018

15. Authorization to Operate

- a. The Permittee is allowed to operate the affected units pursuant to this construction permit until final action is taken to address these operations in a revision to or a renewal of the source's CAAPP Permit.

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If you have any questions on this, please call Kevin Hecht at 217/782-2113.

Edwin C. Bakowski, P.E.
Manager, Permit Section
Division of Air Pollution Control

Date Signed: _____

ECB:KTH:psj

cc: Region 1

Attachment A: List of Process Equipment and
Emission Control Measures

New Emission Units				
System	Unit Description	Vessel ID	Emission Control	
			PM	VOM
Solvent-Based White Ink Bases	Blending Vessels	TK-600	Note a	---
		TK-602		
		TK-603		
	Liquid Hoppers	TK-254	---	---
		TK-256		
		TK-262		
	Bag Unloading Stations	BH-60001	Note a	---
		BH-60201		
BH-60301				
Packaging	---	---	---	
Fugitive Equipment Leaks	---	---	Note c	
Water-Based White Ink Bases	Blending Vessels	TK-601	Note a	---
		TK-604		
	Liquid Hoppers	TK-263	---	---
		TK-264		
	Bag Unloading Stations	BH-60101	Note a	---
		BH-60401		
	Packaging	---	---	---
	Tanker Truck Loading	---	---	---
Fugitive Equipment Leaks	---	---	Note c	
Solvent-Based Varnishes	Blending Vessels	TK-500	Note a	---
		TK-502		
		TK-504		
		TK-505		
	Liquid Hoppers	TK-265	---	---
		TK-266		
		TK-268		
		TK-269		
	Bag Unloading Stations	BH-50001	Note a	---
		BU-50201		
		BU-50501		
Packaging	---	---	---	
Tanker Truck Loading	---	---	---	
Fugitive Equipment Leaks	---	---	Note c	
Water-Based Varnishes	Blending Vessels	TK-503	Note a	---
	Liquid Hoppers	TK-258	---	---
	Bag Unloading Stations	BH-50301	Note a	---
	Packaging	---	---	---
	Fugitive Equipment Leaks	---	---	Note c
Crystophane Blending	Blending Vessels	TK-501	Note a	---
	Liquid Hoppers	TK-257	---	---
	Bag Unloading Stations	BU-50101	Note a	---
	Packaging	---	---	---
	Tanker Truck Loading	---	---	---

New Emission Units					
System	Unit Description	Vessel ID	Emission Control		
			PM	VOM	
	Fugitive Equipment Leaks	---	---	Note c	
Nitrocellulose Varnish Blending	Blending Vessels	TK-509	---	---	
		TK-510			
	Liquid Hoppers	TK-272	---	---	
		TK-273			
	Packaging	---	---	---	
	Tanker Truck Loading	---	---	---	
	Fugitive Equipment Leaks	---	---	Note c	
Packaging Wax Production	Ball Mills	BM-740	Note a	---	
		BM-741			
	Basket Mill	IM-742	Note a	---	
	Packaging	---	---	---	
Small Batch Blending	Small Batch Mixers	MX-700	Note a	---	
		MX-701			
		MX-702			
		MX-703			
		MX-704			
		MX-705			
		MX-710			
		MX-711			
		MX-713			
		MX-714			
		MX-715			
		MX-716			
		MX-717			
		MX-718			
		MX-719			
		MX-720			
		MX-721			
		MX-722			
		MX-723			
		MX-724			
	MX-725				
	MX-726				
		Dispenser (Solvent-based)	U-800	---	---
		Dispenser (Water-based)	U-801	---	---
		Packaging	---	---	---
		Fugitive equipment leaks	---	---	Note c
	Bulk Storage	Solvent Raw Material Tanks	TK-101	None	
TK-102					
TK-103					
TK-106					
TK-109					
TK-111					
TK-113					
TK-114					
TK-116					
TK-118					
TK-120					

New Emission Units					
System	Unit Description	Vessel ID	Emission Control		
			PM	VOM	
Bulk Storage (Continued)	Varnish Raw Material Intermediate Tanks	TK-124	None		
		TK-134			
		TK-141			
		TK-150			
		TK-154			
		TK-155			
		TK-160			
		TK-161			
		TK-165			
		TK-166			
		TK-171			
		TK-172			
		TK-173			
		TK-174			
Tub washer	Cleaning of Ink Mixing Tubs	---	---		
Existing Emission Units					
UV Coating Production (existing Emission Unit 20)	Mixers	MUV1	Note b	Note b	
		MUV2			
		MUV3			
		MUV5			
		MUV6			
		MUV7			
		MUV8			
		MUV9			
		MUV10			
		MUV20			
					Packaging
		Fugitive equipment leaks	---	---	Note c

Notes:

- a. Baghouse DC-01 (existing)
- b. Scrubbers UV DC-01 and UV DC-02 (existing)
- c. Leak inspections according to 35 IAC 218.628

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Attachment B Evaluation of the Net Change in VOM Emissions (Tons/Year)

Table I - Project Emissions

<u>Item of Equipment</u>	<u>Emissions</u>
Future Plant Permitted Emissions	46.2
UV Coating Permitted Emissions	<u>- 2.79</u>
Project Emissions	43.4

Table II - Contemporaneous Emissions Increases
 Contemporaneous Period of March 2005 to March 2010

<u>Item of Equipment</u>	<u>Const. Permit</u>	<u>Emissions</u>
UV Process Modification	05030100	2.79
Emergency Generator	06100004	1.00
New Boiler	Insignificant Activity	0.10

Table III - Contemporaneous Emissions Decreases
 Equipment that will be permanently shutdown

<u>Emissions Units</u>	<u>Actual Emissions</u>
Ball Mills (Emission Units 01, 02)	-1.53
Regular Grinding (Emission Units 03-07, 22)	-3.11
Bulk Grinding (Emission Units 08-11)	-1.08
Cutters (Emission Unit 12)	-4.57
Blending (Emission Unit 13)	-0.16
Compound Operations (Emission Unit 19)	-0.40
Emergency Generator	<u>-0.05</u>
Total	-10.90

Table IV - Overall Emissions Increase

	<u>Emissions</u>
Increases Associated with New Construction	43.4
Contemporaneous Emission Increases	3.89
Contemporaneous Emission Decreases	<u>-10.90</u>
Net Increase	36.39

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