

217/782-2113

CONSTRUCTION PERMIT

PERMITTEE

Sun Chemical (GPI)  
Attn: Grant Bush  
135 West Lake Drive  
Northlake, Illinois 60164

Application No.: 02020036 I.D. No.: 031471AAE  
Subject: 2 Tanks, 2 Mixers, 4 Shot Mills Date Received: February 11, 2002  
Date Issued: July 10, 2002  
Location: 135 West Lake Street, Northlake

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of two new mixing tanks (C20 and C21) for the cutters emission group and two mixers (PM5 and 6) and four vertical shot mills (VM1, 2, 3, and 4) for the regular grinding emission group as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1.0 Unit Specific Conditions

1.1 Emission Unit 12: Cutters

1.1.1 Description

Cutters are a batch operation producing clear coatings or finished ink. In the Cutters Department, solvent, varnish, and other additives such as resin or pigment are added to a mixing vessel. The clear coating or ink is mixed, adjusted to final specifications, filtered, and packaged or transferred to bulk storage.

1.1.2 List of Emission Units and Pollution Control Equipment

Description	Emission Control Equipment
2 Cutters (C20-21)	Dust Collector #1 (DC01)

1.1.3 Applicability Provisions and Applicable Regulations

- a. The "affected cutters" for the purpose of these unit specific conditions, are Cutters C20 and 21, which produce ink or coating through mixing of raw materials.
- b. The affected cutters are subject to 35 IAC 218, Subpart AA: Paint and Ink Manufacturing, because the source has the potential to emit 22.7 Mg (25 tons) or more of VOM per year, in aggregate. These requirements are described in Condition 1.1.5(a).

c. The affected cutters are subject to 35 IAC Section 218.301, which provides that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 218.302 and with the following exception: if no odor nuisance exists the limitation shall apply only to photochemically reactive material.

d. The affected cutters are 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 process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.321 (See also Attachment 1) [35 IAC 212.321(a)].

e. Malfunction and Breakdown Provisions

In the event of a malfunction or breakdown of a dust collector or cover for an affected cutter, the Permittee is authorized to continue operation of the affected cutter in violation of the applicable requirements of 35 IAC 212.321 or 35 IAC 218.624, as necessary to prevent risk of injury to personnel or severe damage to equipment. This authorization is subject to the following requirements:

i. The Permittee shall repair the damaged feature(s) of the affected cutter or remove the affected cutter from service as soon as practicable. This shall be accomplished within 7 days unless the feature(s) can not be repaired within 7 days and the affected cutter can not be removed from service within 7 days, and the Permittee obtains an extension from the Illinois EPA. The request for such an extension must document that repair or replacement parts or maintenance service are unavailable and specify a schedule of actions the Permittee will take that will assure the feature(s) will be repaired or replaced as soon as possible.

- ii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 1.1.9(a) and 1.1.10(a).

1.1.4 Non-Applicability of Regulations of Concern

N/A

1.1.5 Operational Limits and Work Practices

The Permittee shall comply with the following requirements:

a. Open-top mills, tanks, vats or vessels

- i. The mill, tank, vat or vessel is equipped with a cover which completely covers the mill, tank, vat or 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 [35 IAC 218.624(a)].
- ii. The cover remains closed except when production, sampling, maintenance or inspection procedures require access [35 IAC 218.624(b)].
- iii. The cover is 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 [35 IAC 218.624(c)].

- b. Operation of the cutters shall not exceed the following limits:

Total Production Rate	
(Ton/Mo)	(Ton/Yr)
220	2150

1.1.6 Emission Limitations

The affected cutters are subject to the following:

- a. VOM emissions shall not exceed the following limits:

VOM Emissions	
(Ton/Mo)	(Ton/Yr)
0.135	1.35

These limits are based on the total maximum emission rate for the cutters and the maximum hours of operation (8760 hr/yr).

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

- b. This permit is issued based on negligible emissions of PM from the affected cutters. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hr and 0.44 ton/yr.
- c. This permit is issued based on negligible emissions of VOM from Dust Collector #1. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hr and 0.44 ton/yr.

#### 1.1.7 Testing Requirements

Upon request of the Illinois EPA or USEPA, the VOM emissions from an affected cutter shall be determined in accordance with Reference Method 18, 25 or 25A, specified in 40 CFR 60 Appendix A, pursuant to 35 IAC 218.105. Use of an adaptation of these test methods may not be used unless approved by the Illinois EPA and the USEPA on a case by case basis. The Permittee must submit sufficient documentation for the Illinois EPA and the USEPA to find that the test methods specified above will yield inaccurate results or are otherwise inappropriate and that the proposed adaptation is appropriate [35 IAC 218.105(f)].

#### 1.1.8 Monitoring Requirements

N/A

#### 1.1.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for each affected cutter to demonstrate compliance with Condition 1.1.3, pursuant to Section 39.5(7)(b) of the Act:

- a. Records for Malfunctions and Breakdowns of Affected Cutters

The Permittee shall maintain records, pursuant to 35 IAC 201.263, of continued operation of an affected cutter subject to 35 IAC 212.321 and 35 IAC 218.624 during malfunctions and breakdown of the control

features of the affected cutter, which as a minimum, shall include:

- i. Date and duration of malfunction or breakdown;
  - ii. A detailed explanation of the malfunction or breakdown;
  - iii. An explanation why the damaged feature(s) could not be immediately repaired or the affected cutter removed from service without risk of injury to personnel or severe damage to equipment;
  - iv. The measures used to reduce the quantity of emissions and the duration of the event;
  - v. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and
  - vi. The amount of release above typical emissions during malfunction/breakdown.
- b. For each affected cutter, the Permittee shall maintain all records necessary to demonstrate compliance with 35 IAC 218, Subpart AA at the source for a period of three years [35 IAC 218.637(b)], or for such longer period as may be required by this permit.
- c. 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 [35 IAC 218.625(c)].
- d. Monthly and annual records of the following items for all affected cutters as a group:
- i. Amount of ink, base, and coating production (ton/mo and ton/yr);
  - ii. Amount of ink, base, and coating production for Cutters #20 and 21 (ton/mo and ton/yr);
  - iii. VOM content for the ink, base, and coating production (weight percent);
  - iv. Total VOM emissions calculated based on the compliance procedures in Condition 1.1.12. If the total VOM emissions for all cutters are

less than the emission limit in Condition 1.1.6(a), then the separate records for the six cutters in (ii) above are not required.

#### 1.1.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an affected cutter with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

##### a. Reporting of Malfunctions and Breakdowns for Affected Cutters

The Permittee shall provide the following notification and reports to the Illinois EPA, Compliance Section and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of an affected cutter subject to Condition 1.1.3(e) during malfunction or breakdown of the control features of the affected cutter.

- i. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than three (3) days, upon the occurrence of noncompliance due to malfunction, or breakdown.
- ii. Upon achievement of compliance, the Permittee shall give a written follow-up notice to the Illinois EPA, Compliance Section and Regional Field Office, providing a detailed explanation of the event, an explanation why continued operation of the affected cutter was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or when the affected cutter was taken out of service.
- iii. If compliance is not achieved within 5 working days of the occurrence, the Permittee shall submit interim status reports to the Illinois EPA, Compliance Section and Regional Field Office, within 5 days of the occurrence and every 14 days thereafter, until compliance is achieved. These interim reports shall provide a brief explanation of the nature of the

malfunction or breakdown, corrective actions accomplished to date, actions anticipated to occur with schedule, and the expected date on which repairs will be complete or the affected cutter will be taken out of service.

1.1.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to the affected cutters without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

- a. Changes in raw materials and ink formulations, as long as such changes do not cause a violation of the emission limitations in Condition 1.1.6.
- b. Replacement of equipment in kind, provided that the replacement does not increase the amount of any specified air contaminant emitted by such equipment and does not result in the emission of any specified air contaminant not previously emitted.

1.1.12 Compliance Procedures

- a. Compliance with the PM limitations in this section is assured and achieved by the proper operation, maintenance, and work-practices inherent in operation of each affected cutter and associated control equipment.
- b. Compliance with emission limitations in this section and shall be based on the recordkeeping requirements in Condition 1.1.9 or by use of emission factors derived from a site specific emission factor if that emission factor was developed from stack test data and based on the worst case scenario:
  - i. Total VOM emissions from each affected cutter, = the sum of VOM emissions from process operations, process equipment leaks, solvent cleaning, tanker loading, and filter openings.
  - ii. VOM emissions from process operations, solvent cleaning, and filter openings:

VOM emissions = Production or Solvent Use (lb)  
 x VOM Content (%VOM) x Emission Factor (lb/lb  
 VOM) .

iii. VOM emissions from process equipment leaks:

VOM emissions = Charging Hours (hr) x Emission  
 Rate (lb/hr) .

iv. VOM emissions from tanker loading:

VOM emissions = Number of Loads x Emission  
 Factor (lb/load) .

c. Compliance of the affected cutters with the emission  
 limitation in Condition 1.1.3(c) is assumed to be  
 achieved by the work-practices inherent in the  
 operation of the affected cutters, so that no  
 compliance procedures are set in this permit  
 addressing this regulation.

## 1.2 Regular Grinding

### 1.2.1 Description

Regular Grinding is a batch operation that produces either  
 a base or a finished ink. During regular grinding, the  
 solvent, varnish, and pigment are combined in a mixing  
 vessel. Following premixing, the base is air mixed and  
 pumped through a horizontal mill for grinding. The base  
 is then transferred to a mixing vessel and process at  
 another mixer where it is adjusted to final  
 specifications. Finally, the finished ink is passed  
 through a filter and transferred to packaging for  
 shipment.

### 1.2.2 List of Emission Units and Pollution Control Equipment

Description	Emission Control Equipment
2 Mixers (PM 5,6)	Dust Collector #2 (DC02)
4 Vertical Shot Mills (VM 1-4)	None

### 1.2.3 Applicability Provisions and Applicable Regulations

- a. An "affected regular grinding line" for the purpose  
 of these unit specific conditions, are the two mixers  
 (PM 5-6) and four vertical shot mills (VM 1-4) .
- b. The affected regular grinding lines are subject to 35  
 IAC 218, Subpart AA: Paint and Ink Manufacturing,  
 because the source has the potential to emit 22.7 Mg  
 (25 tons) or more of VOM per year, in aggregate.

These requirements are described in Conditions 5.4 and 1.2.5(a).

- c. The affected regular grinding lines are subject to 35 IAC Section 218.301, which provides that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 218.302 and with the following exception: if no odor nuisance exists the limitation shall apply only to photochemically reactive material.
- d. The affected regular grinding lines are subject to 35 IAC 212.322, which provides that:

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification commenced prior to April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar process emission units, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.322 (See also Attachment 1) [35 IAC 212.322(a)].

- e. Malfunction and Breakdown Provisions

In the event of a malfunction or breakdown of a dust collector or vessel cover for an affected regular grinding line, the Permittee is authorized to continue operation of the affected regular grinding line in violation of the applicable requirements of 35 IAC 212.322, 35 IAC 212.321, or 35 IAC 218.624, as necessary to prevent risk of injury to personnel or severe damage to equipment. This authorization is subject to the following requirements:

- i. The Permittee shall repair the damaged feature(s) of the affected regular grinding line or remove the affected regular grinding line from service as soon as practicable. This shall be accomplished within 7 days unless the feature(s) can not be repaired within 7 days and the affected regular grinding line can not be removed from service within 7 days, and the Permittee obtains an extension from the Illinois EPA. The request for such an extension must document that repair or replacement parts or maintenance service are unavailable and specify a schedule of actions the Permittee will take that will

assure the feature(s) will be repaired or replaced as soon as possible.

- ii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 1.2.9(a) and 1.2.10(a).

1.2.4 Non-Applicability of Regulations of Concern

N/A

1.2.5 Operational Limits and Work Practices

The Permittee shall comply with the following requirements:

a. Open-top mills, tanks, vats or vessels

- i. The mill, tank, vat or vessel is equipped with a cover which completely covers the mill, tank, vat or 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 [35 IAC 218.624(a)].
- ii. The cover remains closed except when production, sampling, maintenance or inspection procedures require access [35 IAC 218.624(b)].
- iii. The cover is 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 [35 IAC 218.624(c)].

- b. Operation of the affected regular grinding line shall not exceed the following limits:

Total Production Rate	
(Ton/Mo)	(Ton/Yr)
820	8150

1.2.6 Emission Limitations

The affected regular grinding lines are subject to the following:

- a. Emissions from the affected regular grinding line shall not exceed the following limits:

VOM Emissions		PM Emissions	
(Ton/Mo)	(Ton/Yr)	(Lb/Hr)	(Ton/Yr)
2.25	22.45	1.21	0.28

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

1.2.7 Testing Requirements

Upon request of the Illinois EPA or USEPA, the VOM emissions from an affected regular grinding line shall be determined in accordance Reference Method 18, 25 or 25A, specified in 40 CFR 60 Appendix A, pursuant to 35 IAC 218.105. Use of an adaptation of these test methods may not be used unless approved by the Illinois EPA and the USEPA on a case by case basis. The Permittee must submit sufficient documentation for the Illinois EPA and the USEPA to find that the test methods specified above will yield inaccurate results or are otherwise inappropriate and that the proposed adaptation is appropriate [35 IAC 218.105(f)].

1.2.8 Monitoring Requirements

N/A

1.2.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for each affected regular grinding line to demonstrate compliance with Condition 1.2.3, pursuant to Section 39.5(7)(b) of the Act:

a. Records for Malfunctions and Breakdowns of Affected Regular Grinding Lines

The Permittee shall maintain records, pursuant to 35 IAC 201.263, of continued operation of an affected regular grinding line subject to 35 IAC 212.322 and 35 IAC 218.624 during malfunctions and breakdown of the control features of the affected regular grinding line, which as a minimum, shall include:

- i. Date and duration of malfunction or breakdown;
- ii. A detailed explanation of the malfunction or breakdown;

- iii. An explanation why the damaged feature(s) could not be immediately repaired or the affected regular grinding line removed from service without risk of injury to personnel or severe damage to equipment;
  - iv. The measures used to reduce the quantity of emissions and the duration of the event;
  - v. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and
  - vi. The amount of release above typical emissions during malfunction/breakdown.
- b. For each affected regular grinding line, the Permittee shall maintain all records necessary to demonstrate compliance with 35 IAC 218, Subpart AA at the source for a period of three years [35 IAC 218.637(b)].
  - c. 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 [35 IAC 218.625(c)].
  - d. Monthly and annual records of the following items for all affected regular grinding lines as a group:
    - i. Amount of ink and base production (ton/mo and ton/yr);
    - ii. VOM content for the ink and base production (weight percent);
    - iii. Total VOM emissions calculated based on the compliance procedures in Condition 1.2.12

#### 1.2.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an affected regular grinding line with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

- a. Reporting of Malfunctions and Breakdowns for Affected Regular Grinding Lines

The Permittee shall provide the following notification and reports to the Illinois EPA, Compliance Section and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of an affected regular grinding line subject to Condition 1.2.3(e) during malfunction or breakdown of the control features of the affected regular grinding line.

- i. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than three (3) days, upon the occurrence of noncompliance due to malfunction, or breakdown.
- ii. Upon achievement of compliance, the Permittee shall give a written follow-up notice to the Illinois EPA, Compliance Section and Regional Field Office, providing a detailed explanation of the event, an explanation why continued operation of the affected regular grinding line was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or when the affected regular grinding line was taken out of service.
- iii. If compliance is not achieved within 5 working days of the occurrence, the Permittee shall submit interim status reports to the Illinois EPA, Compliance Section and Regional Field Office, within 5 days of the occurrence and every 14 days thereafter, until compliance is achieved. These interim reports shall provide a brief explanation of the nature of the malfunction or breakdown, corrective actions accomplished to date, actions anticipated to occur with schedule, and the expected date on which repairs will be complete or the affected regular grinding line will be taken out of service.

#### 1.2.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to the affected regular grinding lines without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a

construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

- a. Changes in raw materials and ink formulations, as long as such changes do not cause a violation of the emission limitations in Condition 1.2.6.
- b. Replacement of equipment in kind, provided that the replacement does not increase the amount of any specified air contaminant emitted by such equipment and does not result in the emission of any specified air contaminant not previously emitted.

#### 1.2.12 Compliance Procedures

- a. Compliance with the PM limitations in this section is assured and achieved by the proper operation, maintenance, and work-practices inherent in operation of each affected regular grinding line and associated control equipment.
- b. Compliance with emission limitations in this section shall be based on the recordkeeping requirements in Condition 1.2.9 or by use of emission factors derived from a site specific emission factor if that emission factor was developed from stack test data and based on the worst case scenario:
  - i. Total VOM emissions from each affected regular grinding line = the sum of VOM emissions from process operations, process equipment leaks, and solvent cleaning.
  - ii. VOM emissions from process operations and solvent cleaning:  
$$\text{VOM emissions} = \text{Production or Solvent Use (lb)} \times \text{VOM Content (\%VOM)} \times \text{Emission Factor (lb/lb VOM)}.$$
  - iii. VOM emissions from process equipment leaks:  
$$\text{VOM emissions} = \text{Charging Hours (hr)} \times \text{Emission Rate (lb/hr)}.$$
- c. Compliance of the affected regular grinding lines with the emission limitation in Condition 1.2.3(c) is assumed to be achieved by the work-practices inherent in the operation of the affected regular grinding lines, so that no compliance procedures are set in this permit addressing this regulation.

2. The Permittee may operate the cutters and regular grinding emission groups under this construction permit until the CAAPP permit is next renewed.
- 3a. This permit is issued based on this project not constituting a major modification subject to Major Stationary Sources Construction and Modification (MSSCAM) 35 IAC Part 203, because the net increase in VOM emissions is not significant as explained in Table 1.
- b. Prior to startup of new equipment, the Permittee shall permanently shutdown the equipment listed in Table 1 Contemporaneous Emission Decreases.

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

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

DES:KKD:psj

cc: Region 1

Table 1: Changes in VOM Emissions (tons/year)

Permitted Project Emissions:

Mixers and Shot mills	22.45
Mixing Tanks	1.35

Contemporaneous Emissions Increase:

Ball Mill 33	2.57
Basket Mill	6.18

Contemporaneous Emissions Decrease:

BM 24	- 0.28
BM 27	- 0.11
BM 28	- 0.03
BM 29	- 0.11
BM 30	- 0.03
Blending Mixers 3-10	-10.53
Blending Air Mixers 1-5	- 0.22
Inkmakeer	- 0.91
Varnish(kettle 1,2,3 and tanks)	- 5.28
Kady Mills (MK 1, 2, 3)	- 0.03
PM3, HM1, 2, 3, 4	<u>- 3.26</u>

Net: 11.75 tons/year

KKD:psj