

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

BUREAU OF AIR

DIVISION of AIR POLLUTION CONTROL

PERMIT SECTION

PROJECT SUMMARY for the
DRAFT TITLE V - CLEAN AIR ACT PERMIT PROGRAM (CAAPP) PERMIT

3M

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Building 42-2E-27

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I. INTRODUCTION

This source has applied for a significant modification to its Clean Air Act Permit Program (CAAPP) operating permit. The CAAPP is the program established in Illinois for the operating permits for significant stationary sources required by the federal Clean Air Act, as amended in 1990. The conditions in a CAAPP permit are enforceable by both the Illinois Environmental Protection Agency (Illinois EPA) and the USEPA.

The 3M Cordova Film and Materials Resource Division (3M) manufacturing facility produces numerous chemical products. These products are adhesives, resins, fluorochemicals, and other specialty chemicals. Some products are only made once or twice per year in small quantities while others are produced almost year around in large quantities. Production is by batch operations and semi-continuous operations. Almost no equipment is dedicated to making a specific product. Most every production unit is called upon to make a wide variety of products. A basic production unit, referred to as a burden center, consists of a key piece of equipment such as a chemical reactor and various ancillary parts. These ancillary pieces of equipment are stationary but may be reconfigured in a variety of ways, i.e. using flexible hoses, and used as part of another burden center. Ancillary pieces of equipment may include one or more of the following types of equipment: an overhead condenser, receiver, weigh tank, or a vacuum system.

The significant modification is for the primary purpose of limiting HAP emissions so that the source becomes a minor source of HAPs and therefore not subject to several NESHAPs that have future compliance dates. To achieve the goal of becoming a minor source of HAPs, several construction permits for control equipment or emission reduction methods are being incorporated into this permit.

This revised permit includes several variable limits or modes of operation. For instance, the source is not yet a minor source of HAPs so HAP emission are not currently limited to minor source status. However, it is specified that the source must be minor for HAPs prior to the compliance date for several NESHAPs with future compliance dates. Note that becoming minor for HAPs in the future does not affect applicability of several NESHAPs that are already applicable. These are listed in Condition 7.1.3.

It is also specified that some of the control equipment being installed for the discretionary purpose of reducing HAP emissions and the control equipment may be removed or not operated if the source becomes major for HAPs again in the future and thus subject to one or more new NESHAPs but that applicable NESHAP does not require control of the specific equipment on which the control is located. For example, a storage tank may be small enough not to require control equipment by a NESHAP, but the Permittee installed it to assist in achieving minor HAP source status.

The specific NESHAPs that the Permittee is attempting to avoid MACT requirements are 40 CFR 63 Subpart FFFF (Miscellaneous Organic Chemical Manufacturing), Subpart HHHHH (Miscellaneous Coating Manufacturing), Subpart ZZZZ (Reciprocating Internal Combustion Engines), and Subpart DDDDD (Industrial, Commercial and Institutional Boilers and Process Heaters). These rules have different compliance dates. If the source is not minor for HAPs by December 10, 2006 Subpart HHHHH will become an applicable requirement and likewise June 15, 2007 for Subpart ZZZZ, September 13, 2007 for Subpart DDDDD and May 7, 2008 for Subpart FFFF.

II. EMISSION UNITS

Significant emission units at this source are as follows:

Emission Unit	Description	Date Constructed	Emission Control Equipment
Building 2			
Small Packaging	Tanks and Columns for Purification	May, 2002	None
2-4 System BC-4T	TDX Pouch Process	July, 1997	None
Building 3			
3-1 System BC-3A	3-1-A-1 Reactor	February, 1970	None
3-1 System BC-2A	3-1-A-4 Receiver	November, 1969	None
3-2 System BC-3B	3-2-A-1 Reactor	December, 1970	None
3-2 System BC-2B	3-2-A-2 Reactor	December, 1970	None
3-3 System BC-3C	3-3-A-1 Reactor	June, 1973	None
3-4 System BC-3D	3-4-A-1 Reactor	September, 1969	None
3-4 System	3-4-A-2 Receiver	September, 1969	None
3-5 System BC-3E	3-5-A-3 Reactor	October, 1973	None
3-5 System BC-3E	3-5-E-1 Conical Dryer	July, 1970	None
3-6 System BC-3F	3-6-A-1 Reactor	January, 1993	None

Emission Unit	Description	Date Constructed	Emission Control Equipment
3-6 System BC-2F	3-6-A-2 Receiver	January, 1970	None
3-7 System BC-3G	3-7-A-1 Reactor	January, 1985	None
3-7 System BC-2G	3-7-A-2 Reactor	January, 1985	None
3-8 System BC-3H	3-8-A-1 Reactor	August, 1974	None
3-9 System BC-3J	3-9-A-1 Reactor	October, 1974	None
3-9 System BC-2J	3-9-A-2 Reactor	September, 1974	None
3-10 System BC-3K	3-10-A-1 Reactor	December, 1974	None
3-11 System BC-3L	3-11-A-1 Reactor	January, 1985	None
3-11 System BC-2L	3-11-A-2 Receiver	December, 1973	None
3-12 System BC-3M	3-12-A-1 Reactor	April, 1977	None
3-12 System BC-2M	3-12-A-2 Receiver	December, 1973	None
3-13 System BC-3N	3-13-A-1 Reactor	April, 1975	None
3-13 System BC-2N	3-13-A-2 Reactor	May, 1975	None
3-14 System BC-3P	3-14-A-1 Reactor	August, 1987	None
3-14 System BC-2P	3-14-A-2 Reactor	December, 1987	None
3-21 System BC-4S and 1R	3-21-A-2 Pony Tub 3-21-A-2 Cowles Tank 3-21-E-1 Roll Mill 3-21-E-2 No. Pony Mixer 3-21-E-3 So. Pony Mixer 3-21-E-8 Homo Mixer 3-21-E-9 Mixer 3-21-E-12 Drum Tumbler	June, 1970 Except: E-8 = N/A E-12 = May, 1992	Dust Collectors Associated with Some Units Labeled Insignificant Under Section 3.1

Emission Unit	Description	Date Constructed	Emission Control Equipment
3-22 System BC-4T, 7T and 7S	3-22-E-9 Marion Mixer 3-22E-18 Grinder	E-9 = December, 1979 E-18 – N/A	Dust Collectors 3-22-E-10 3-22-E-14 3-22-E-15
3-25 System BC-75	3-25-E-1 Double Drum Dryer	April, 1970	None
3-26 System BC-43	3-26-E-1 Double Drum Dryer	March, 1974	None
3-27 System BC-50	3-27-E-1 Double Drum Dryer	April, 1987	None
3-25, 3-26, 3-27 System	Common Disperser Tanks 3-25-A-3, 3-25-A-4 3-26-A-3, 3-26-A-4 3-27-A-3, 3-27-A-4	25-A-3 and 4 = April, 1970 26-A-3 and 4 = March, 1974 27-A-3 and 4 = April, 1987	None
3-32 System BC-6B	3-32-A-1 Reactor	June, 1989	None
3-32 System BC-5B	3-32-A-2 Receiver	October, 1977	None
3-32 System BC-4B	3-32-E-4 Flaker	October, 1972	Dust Collector 3-32-E-9
3-32 System BC-6B	3-32-E-7 Flaker	August, 1999	Dust Collector 3-32-E-7
3-34 System BC-1D	3-34-E-1 Dryer	N/A	None
3-40 System BC-6K	3-40-A-1 Reactor	January, 1989	None
3-40 System BC-5K	3-40-A-2 Receiver	April, 1970	None
3-43-C-1 System BC-5N	Eimco Filter	N/A	None
3-57 System BC-3M	3-57-A-1 Thru 4 Tanks	1997	None
3-62 System BC-4G	3-62-C-1 S Press	December 1987	None
3-66 System BC-4F	3-66-A-1 Reactor	April, 1970	None

Emission Unit	Description	Date Constructed	Emission Control Equipment
3-68 System BC-6H	3-68-A-1 Reactor	April, 1974	None
Building 4			
4-1 System BC-41	4-1-A-1 Reactor	September, 1970	None
4-1 System BC-42	4-1-A-2 Receiver	September, 1970	None
4-2 System BC-52	4-2-A-1 Reactor	September, 1970	Scrubber (NH ₃)
4-32 System BC-53	4-32-A-1 Reactor	September, 1970	None
Building 20^{a, b}			
20-01 System BC-01	Electrochemical Cells 20-1-A-1 Thru 6, 20-1-A-21, 20-1-A-22	November, 1975	Scrubber*
20-02 System BC-02	Electrochemical Cells 20-2-A-1 Thru 12	January, 1997 Except: A-3, 6, and 12 = October, 1998	Scrubber*
20-03 System BC-03	Electrochemical Cells 20-3-A-1 Thru 12	January, 1987 Except: A-3 = August, 2001	Scrubber*
20-04 System BC-04	Electrochemical Cells 20-4-A-1 Thru 3	June, 1992	Scrubber*
20-11 System BC-11	20-11-A-7 Distillation Column	January, 1992	Scrubber*
20-12 System BC-12	20-12-A-1 Distillation Column	January, 1992	Scrubber*
20-21 System BC-21	20-21-A-4 Silica Gel Column	February, 1999	None
20-22 System BC-22	20-22-D-1 Discotherm	January, 1990	Scrubber*
20-33 System BC-33	20-33-A-1, 2, 13 Distillation Columns	A-1 = May, 1995 A-2 = May, 1995 A-13 = July, 1996	Scrubber*
20-34 System BC-34	Dessicant Dryer Columns 20-34-A-1, 20-34-A2	November, 1998	None
20-41 System BC-41	20-41-A-1 Reactor	June, 1996	Scrubber*

Emission Unit	Description	Date Constructed	Emission Control Equipment
20-50 System BC-51	20-50-A-1 Reactor	January, 1981	Scrubber*
20-60 System BC-61	20-60-A-1 Reactor	November, 1982	Scrubber*
20-66 System BC-66	20-66-A-11, 21, 41, 51 Distillation Columns	November, 1998	None
20-70 System BC-70	20-70-A-1 Reactor	January, 1997	Scrubber*
20-71 System BC-71	20-71-A-1 Reactor	January, 1997	Scrubber*
20-72 System BC-72	20-72-A-1 Columns	January, 1997	None
20-73 System BC-73	20-73-A-1 Tanks	March, 1997	Dust Collector 20-73-C-2 Listed as Insignificant in 3.1
20-90 System BC-90	20-90-A-1 and 11 Distillation Columns	February, 2002	None
20-93 System	20-93-A-1 Thru 6 Finishing Columns	June, 1997	None
20-95 System BC-95	20-95-A-1 Wash Columns	February, 1997	None
Building 20 Scrubbers	Building 20 Equipment Can be Served by Various Scrubbers.		20-31-C-2, 20-31-C-5, 20-2-C-5, 20-3-C-3, 20-3-C-10, 20-31-C-3, 20-33-C-7, 20-41-C-1, 20-50-D-9, 20-60-D-5, 20-70-C-1, 20-71-C-1, 20-73-C-1, 20-31-C-1
Building 23			
23-01 System BC-31	23-1-A-1 Reactor	September, 1988	None

Emission Unit	Description	Date Constructed	Emission Control Equipment
23-02 System BC-91	23-2-B-3 Wiped Film Evaporator	April, 1999	None
23-03 System BC-33	23-3-A-1 Reactor	October, 1985	None
23-03 System BC-23	23-3-A-2 Receiver	October, 1985	None
23-04 System BC-89	23-4-C-1 Wiped Film Evaporator	August, 1995	
23-05 System BC-35	23-5-A-1 Reactor	June, 1986	
23-05 System BC-15	23-5-E-3 LUWA Evaporator	August, 1995	None
23-06 System BC-6A	23-6-A-1 Reactor	January, 1996	None
23-07 System BC-36	23-7-A-1 Reactor	April, 1991	None
23-16 System BC-6B	23-16-A-1 Distillation Columns	October, 1995	None
23-17 System BC-34	323-17-A-1 Reactor	July, 1999	None
23-31 System BC-38	23-31-A-1 Reactor	July, 1999	None
23-32 and 34 Systems	Weigh and Hold Tanks 23-32-A-3, 4, 5 23-34-A-3	32-A-3, 4, and 5 = July, 1999 34-A-3 = May, 2000	None
23-35 System BC-39	23-35-A-1 Reactor	February, 2000	None
23-37 System BC-36	23-37-A-1 Reactor	April, 1991	None
23-38 System BC-08	23-38-A-1 Wiped Film Evaporator	June, 1997	None
Building 30^{a, b}			
30-01 System BC-05	30-1-A-1 (-12) Twelve Cell System	March, 1998	Scrubbers*
30-02 System BC-06	30-02-A-1 (-12) Twelve Cell System	March, 1998	Scrubbers*
30-06 System BC-80	30-06-A-1 & 11, 13-19 Distillation Column and Silica Columns	August, 1999	None

Emission Unit	Description	Date Constructed	Emission Control Equipment
30-07 System BC-40	30-07-A-1 and 2, 11 and 12 Columns	May, 1998	Scrubber*
30-08 System BC-81	30-08-A-1 Distillation System	November, 1999	Scrubbers*
30-09 System	30-9-A-1, 2 and 3 Tanks	May, 1998	Scrubber* Dust Collector 30-9-C-2 Listed as Insignificant in 3.1
30-20 System	30-20-A-1 Receiver	April, 1998	None
30-14 System	30-14-A-1 Thru 3 Columns	September, 2002	None
30-37 System	Weigh Tank 30-37-A-1	November, 1998	Scrubber*
30-61 System BC-23	30-61-A-3 Discotherm Evaporator	July, 1998	Scrubber*
30-67 System BC-45	30-67-A-1 and 11 Distillation Columns	November, 1998	Scrubber*
Building 30 Scrubbers	Building 30 Equipment Can be Served by Various Scrubbers.		30-1-C-4, 30-1-C-12, 30-2-C-4, 30-2-C-12, 30-09-C-4, 30-08-C-1, 30-61-C-1
Building 68			
Building 68 System	68-1-C-1 Repackaging Unit with Dust Collector	April, 2000	Dust Collector 68-1-C-1
Other			
BIS A	Bisphenol A Storage and Transfer/Silo	November, 1992	Dust Collector 1-1-C-7, 3-98-C-10, 3-98-C-11, 3-98-C-6, 3-98-C-9
Storage Tanks	Chemical or Gasoline Storage Tanks	See Attachment 2	Most are None but See Attachment 2

Emission Unit	Description	Date Constructed	Emission Control Equipment
Boiler #1	Gas-Fired Boiler with #6 Oil Standby Fuel, Firing Rate: 50 mmBtu/hr	1970	None
Boiler #2	Gas-Fired Boiler with #6 Oil Standby Fuel, Firing Rate: 50 mmBtu/hr	1970	None
Boiler #3	Gas-Fired Boiler with #6 Oil Standby Fuel, Firing Rate: 75 mmBtu/hr	1986	None
Reactor Burner	3.8 mmBtu/hr	1980	None
Loading Operations	Various Units: 10 Loading Racks, 6 Fixed Roof Storage Tanks, Loading Directly From Process Vessels	Pre-1972	Five Loading Racks Vented to Flare
	Fugitive VOM Emission Source	----	

- ^a All major vents in Buildings 20 and 30 can discharge to a voluntary thermal oxidizer or scrubbers.
- ^b Buildings 20 and 30 have revisions to original construction permits issued in 2003 and therefore original construction dates are not relevant.

III. EMISSIONS

This source is required to have a CAAPP permit since it is a major source of emissions.

For purposes of fees, the source is allowed the following emissions:

Permitted Emissions of Regulated Pollutants

Pollutant	Tons/Year
Volatile Organic Material (VOM)	1,010.10
Sulfur Dioxide (SO ₂)	753.07
Particulate Matter (PM)	94.26
Nitrogen Oxides (NO _x)	320.66
HAP, not included in VOM or PM	53.19
Total	2,231.28

This permit is a combined Title I/CAAPP permit that may contain terms and conditions which address the applicability, and compliance if determined applicable, of Title I of the Clean Air Act and regulations promulgated thereunder, including 40 CFR 52.21 - federal Prevention of Significant Deterioration (PSD) and 35 IAC Part 203 - Major Stationary Sources Construction and Modification. Any such terms and conditions are identified within the permit by T1, T1R, or T1N. The source has requested that the Illinois EPA establish or revise such conditions in a Title I permit, consistent with the information provided in the CAAPP application. Any conditions established in a construction permit pursuant to Title I and not revised or deleted in this permit, remain in effect pursuant to Title I provisions until such time that the Illinois EPA revises or deletes them.

IV. APPLICABLE EMISSION STANDARDS

All emission sources in Illinois must comply with the Illinois Pollution Control Board's emission standards. The Board's emission standards represent the basic requirements for sources in Illinois.

All emission sources in Illinois must comply with the federal New Source Performance Standards (NSPS). The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement.

All emission sources in Illinois must comply with the federal National Emission Standards for Hazardous Air Pollutants (NESHAP). The Illinois EPA is administering NESHAP in Illinois on behalf of the United States EPA under a delegation agreement.

V. PROPOSED PERMIT

CAAPP

A CAAPP permit contains all conditions that apply to a source and a listing of the applicable state and federal air pollution control regulations that are the origin of the conditions. The permit also contains emission limits and appropriate compliance procedures. The appropriate compliance procedures may include inspections, work practices, monitoring, record keeping, and reporting to show compliance with these requirements. The Permittee must carry out these procedures on an on-going basis.

Title I

A combined Title I/CAAPP permit contains terms and conditions established by the Illinois EPA pursuant to authority found in Title I provisions, e.g., 40 CFR 52.21 - federal Prevention of Significant Deterioration (PSD) and 35 IAC Part 203 - Major Stationary

Sources Construction and Modification. Notwithstanding the expiration date on the first page of the permit, the Title I conditions remain in effect pursuant to Title I provisions until the Illinois EPA deletes or revises them in accordance with Title I procedures.

VI. REQUEST FOR COMMENTS

It is the Illinois EPA's preliminary determination that this source's permit application meets the standards for issuance of a CAAPP permit. The Illinois EPA is therefore proposing to issue a CAAPP permit, subject to the conditions proposed in the draft permit.

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