

**AIR EMISSION PERMIT NO. 12300015- 003**

**IS ISSUED TO**

**3M COMPANY**

for

**3M - R&D FACILITY - MAPLEWOOD**

3M Center, I-94 and McKnight Road

Maplewood, Ramsey County, Minnesota 55144-1000

The emission units, control equipment and emission stacks at the stationary source authorized in this permit are as described in the following permit application(s):

Permit Type	Application Date	Permit Number
Total Facility Operating Permit	July 29, 1997	12300015-002
Administrative Amendment	NA	12300015-003

This permit replaces Air Emission Permit No. 12300015-002, and authorizes the Permittee to operate and modify the stationary source at the address listed above unless otherwise noted in Table A. The Permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

**Permit Type:** Federal ; PSD/NSR      Administrative Amendment

**Issue Date:** May 14, 1998      **Issue Date:**

**Expiration:** May 14, 2003      **July 27, 1998**

All Title I Conditions do not expire.

Peggy Bartz for  
Michael J. Sandusky  
Division Manager  
Air Quality Division

for Peder A. Larson  
Commissioner  
Minnesota Pollution Control Agency

MLB:yma

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**NOTICE TO THE PERMITTEE:**

Your stationary source may be subject to the requirements of the Minnesota Pollution Control Agency's (MPCA) solid waste, hazardous waste, and water quality programs. If you wish to obtain information on these programs, including information on obtaining any required permits, please contact the MPCA general information number at:

Metro Area	(651)296-6300
Outside Metro Area	1-800-657-3864
TTY	(651)282-5332

The rules governing these programs are contained in Minn. R. chs. 7000-7105. Written questions may be sent to: Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4194.

Questions about this air emission permit or about air quality requirements can also be directed to the telephone numbers and address listed above.

**PERMIT SHIELD:**

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. Certain requirements which have been determined not to apply are listed in Table A of this permit.

The permit shield, however does not apply to:

1. Any national ambient air quality standard adopted under section 109 of the Clean Air Act or increment or visibility requirement under part C of Title I of the Clean Air Act,
2. Any state ambient air quality standard under Minn. R. ch. 7009, and
3. The state noise pollution control rules, Minn. R. ch. 7030.

**FACILITY DESCRIPTION:**

This permit authorizes the modification and operation of the existing 3M Research and Development complex located at I-94 and McKnight Road in Maplewood, Minnesota. Even though the entire site is considered one stationary source, it will be covered by two Part 70 permits for administrative reasons. When determining applicability, the Permittee must consider the entire stationary source, not just the operations covered by one of the permits.

This permit covers the Research and Development (R&D) operations at the stationary source, which includes the pilot plants, the laboratories, and maintenance operations. The administrative portion of the stationary source will be covered by a separate permit. This permit supersedes all permits issued to the facility described in the Air Quality Division files under file number 23E except the following permits for the administrative buildings: 23E-76-O-1, 23E-92-I/O-10, and 23E-92-P-3.

The R&D operations result in emissions of Volatile Organic Compounds (VOC), Hazardous Air Pollutants (HAP), Carbon Monoxide (CO), Nitrous Oxides (NO<sub>x</sub>), Sulfur Dioxide (SO<sub>2</sub>), and Particulate Matter/Particulate Matter less than 10 µm in size (PM/PM<sub>10</sub>).

The permitted potential to emit is greater than the major source thresholds in 40 CFR § 52.21 and 40 CFR pt. 70, so the facility is considered a major source under the New Source Review program, Part 70 permitting program (Minn. R. 7007.0200), and is major under the National Emission Standards for Hazardous Air Pollutants for Source Categories (40 CFR pt. 63). HAP emissions are not specifically addressed in this permit because U.S. Environmental Protection Agency (EPA) has not yet promulgated standards for research and development facilities.

The permit authorizes a Prevention of Significant Deterioration (PSD) modification for VOC and pre-authorizes certain other changes to take place at the facility as long as the limits and other permit conditions are met. The permit addresses a certain defined set of applicable requirements. If the facility proposes to make a change that triggers a requirement not listed in the permit (e.g., 112(g)), then that change is not pre-authorized and would need to go through traditional permitting. If a change is specifically pre-authorized by this permit, notifications as described under Minn. R. 7007.1150, subp. C, and Minn. R. 7007.1250, subp. 4, are not required for those changes.

Due to the PSD modification, this permit establishes Best Available Control Technology (BACT) limits for VOC for the R&D operations at the stationary source as defined in Appendix I of the permit. This includes workpractice and inspection requirements, operational limits, and VOC usage limits. At permit reissuance, the Permittee will re-evaluate the BACT analysis.

The permit also carries forth previous federally enforceable operating limits that limit emissions of both PM<sub>10</sub> and PM that were taken in order to avoid classification as major modifications under the New Source Review program (40 CFR § 52.21). The permit also establishes limits on fuel usage to limit emissions of VOC, both PM<sub>10</sub> and PM, NO<sub>x</sub>, SO<sub>2</sub>, and CO, in order to avoid classification as a major modification under the New Source Review program (40 CFR § 52.21 and 40 CFR pt. 51, Appendix S). The permit also contains requirements to control both PM<sub>10</sub> and PM from spray booths and the carpentry shops.

**TREATMENT OF CONFIDENTIAL INFORMATION:**

Much of the information that will be tracked by the facility as required by this permit is treated as confidential information under Minn. Stat. § 13.37 and 116.075, subd. 2.

**AMENDMENT DESCRIPTION:**

Air Emission Permit No. 1230005-003, is an Administrative Amendment under Minn. R. 7007.1400, subp. 1(G). This amendment incorporates an EPA approved Alternative Monitoring Plan (per 40 CFR § 60.13(i)), for equipment that was previously described by EU002 and EU003. The EPA approved plan is already an enforceable part of the permit, but this amendment will clarify which equipment can follow the plan and which equipment must still follow the New Source Performance Standard requirements. The following summarizes the equipment and which requirements apply:

<b>Equipment Number (EU)</b>	<b>Monitoring Required</b>
002	40 CFR pt. 60, subp. RR
003	40 CFR pt. 60, subp. SSS
124-129, 130 (GP 005)	Alternative Monitoring for 40 CFR pt. 60, subp. RR
131	Alternative Monitoring for 40 CFR pt. 60, subp. SSS

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Table A contains limits and other requirements with which your facility must comply. The limits are located in the first column of the table (What To do). The limits can be emission limits or operational limits. This column also contains the actions that you must take and the records you must keep to show that you are complying with the limits. The second column of Table A (Why to do it) lists the regulatory basis for these limits. Appendices included as conditions of your permit are listed in Table A under total facility requirements.**

**Subject Item: Total Facility**

What to do	Why to do it
A. BACT LIMITS AND AUTHORIZATIONS	hdr
<p>VOC Changes Pre-authorized by R&amp;D BACT: The Permittee may make changes that are consistent with the R&amp;D process as defined in the BACT analyses and in Appendix I of this permit, provided the changes are in compliance with all permit requirements. This may include replacing emission units or stacks, moving existing emission units, changing existing emission units or stacks, or adding new emission units or stacks at the facility. If a proposed change triggers an applicable requirement that is not contained in this permit, or could cause an emissions increase of a different regulated pollutant (other than VOC), the change must go through the appropriate procedure in Minn. R. ch. 7007.</p>	Title I Condition: 40 CFR Section 52.21(j) (changes covered by BACT Limit)
<p>The Permittee shall conduct surveys of each R&amp;D building twice per calendar quarter. The survey shall verify that good laboratory practices are being followed as outlined in provisions relating to air emissions in the "3M Guide". An outline of the key air provisions are in Appendix II of this permit.</p> <p>3M will maintain records on-site documenting when and where the surveys were conducted, as well as the observations made, and the status of actions taken as a result of the surveys.</p> <p>The current 14 R&amp;D buildings are as follows: 201/203, 207, 208/218/219, 209, 212, 230, 235, 236, 240, 250/251/252, 253, 255, 260, and 270. If any additional buildings are used for R&amp;D after permit issuance, they shall be added to the survey program.</p>	Title I Condition: 40 CFR 52.21(j) (BACT Limit)
<p>R&amp;D Evaluation: The Permittee shall conduct an annual evaluation to verify that the operations authorized by the BACT limits in this permit are being operated in an R&amp;D mode and within the scope of the BACT analysis. The details of the evaluation, including deadlines for key items, can be found in Appendix III of this permit.</p>	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
B. VOC PURCHASES RECORDKEEPING	hdr
<p>VOC purchases shall be tracked as described below and in the 3M Center Chemical Tracking Protocol (dated February 1997).</p> <p>VOC Purchase Calculation Method: By the 20th day of each month, the Permittee shall do the following calculation for all R&amp;D facility non-combustion VOC purchases:</p> <p>a) Calculate the VOC purchased, in tons, for the previous month using the tracked VOC purchase data, VOC material content data, and the Scaling Factor described later in this permit.</p> <p>b) Calculate the cumulative 12-month VOC purchases in tons using data from the previous 12 months of calculations (or from the number of months since permit issuance).</p>	Minn. R. 7007.0800, subp. 5
<p>VOC Purchases Tracking: The Permittee shall track the purchases of 11 target VOCs by building on a monthly basis and shall specify whether they were purchased by a pilot plant or not and by which pilot plant. Details are shown in the 3M Center Chemical Tracking Protocol (dated February 1997). These monthly numbers will then be adjusted to determine the total VOC purchased each month by scaling the target VOC purchases with the VOC Scaling Factor as follows: tons of target VOC purchases x scaling factor = total VOC purchases in tons. The 11 target VOCs are listed below.</p> <p>Target VOCs: Ethyl Acetate, Ethyl Alcohol, Heptane, Hexane, Isopropyl Alcohol, Methyl Alcohol, Methyl Ethyl Ketone, Methyl Isobutyl Ketone, Toluene, Trichloroethylene, Xylene</p>	Minn. R. 7007.0800, subp. 5
<p>VOC Purchase Tracking cont.: Once 2 years of actual purchase data has been collected, the Permittee can propose to track a revised number of VOCs that represent at least 55% of total VOC purchases. The Permittee shall submit the proposal with a revised 3M Center Chemical Tracking Protocol to the MPCA. Once the MPCA approves the proposal in writing, the Permittee shall track the new list of VOCs instead of the list in this permit. The replacement list shall become a fully enforceable part of this permit. The MPCA shall file a paper copy in the AQD permit file.</p>	Minn. R. 7007.0800, subp. 5

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

VOC Scaling Factor: The VOC Scaling Factor is 1 divided by the weight fraction of the total VOC purchases at the stationary source that are the target VOCs per the 3M Center Chemical Tracking Protocol dated February 1997. (e.g., weight fraction of 0.85 gives a Scaling Factor of $1/0.85 = 1.18$ )	Minn. R. 7007.0800, subp. 5
VOC Scaling Factor cont.: On an annual basis, by February 20th of each year, the Permittee shall analyze the target VOCs and determine the following: the total purchases of the target VOCs and all VOC for the previous calendar year, and the new VOC Scaling Factor to be used until the next evaluation.  The new VOC Scaling Factor shall be used in the monthly calculations starting with the February 20th calculation.	Minn. R. 7007.0800, subp. 5
Material Content: VOC content of materials shall be determined by the Material Safety Data Sheet (MSDS) provided by the supplier, or by the lab or pilot plant formulation datasheets, for each material used. The Permittee can assume 100% VOC if exact VOC contents are not available or are too difficult to obtain. Other alternative methods approved by the MPCA may be used to determine the VOC content for demonstrating compliance with the VOC limits. The Division Manager reserves the right to require the Permittee to take samples of VOC containing materials and to conduct analyses of VOC content per EPA reference methods for the purpose of compliance demonstration. If the EPA reference method is used, it shall supersede the MSDS.	Minn. R. 7007.0800, subp. 5
C. VOC EMISSIONS RECORDKEEPING	hdr
VOC Emission Calculation Method: By the 20th day of each month, the Permittee shall do the following calculation for all R&D facility non-combustion VOC emissions:  a) Calculate the VOC emissions for the previous calendar month using purchase data gathered per the 3M Center Chemical Tracking Protocol, material content data, and the Scaling Factor.  --- Mass balance or emissions factors (as defined in Minn. R. 7005.0100) can be used to calculate VOC emissions from purchase data, or the Permittee can assume all purchases are emitted if mass balance or emissions factors are not feasible. --- The mass balance calculation can account for recovered/recycled VOCs as described under the Recovery/Recycling requirement.	Minn. R. 7007.0800, subp. 5
VOC Emission Calculation Method cont.: a) cont.  --- If a VOC control device (that was in compliance with Table A) was used to control VOC emissions during the previous month, the control efficiency given in Table A can be assumed for the amount of VOC that was vented through the control device. For solvent recovery control devices, mass balance shall be used.  b) Calculate the cumulative 12 month VOC emissions for the previous 12 months (or for the number of months since permit issuance).	Minn. R. 7007.0800, subp. 5
Recordkeeping: the Permittee shall keep and maintain records of operation and VOC purchases such that it can be determined which VOC emission calculation method applies to the various VOC purchases.  Anytime a control device is used for credit in emission calculations, the Permittee shall keep records of the VOC input to the control device (and output for CE004).	Minn. R. 7007.0800, subp. 5
Recovery/Recycling: For each waste material accounted for in a mass balance equation the Permittee shall: 1). Analyze a representative sample of the waste material for weight percent VOC, unless the waste content can reasonably be assumed to be equivalent to the VOC input content (e.g., waste is not mixed with wastes from other processes, VOC does not react to form other materials during the process, etc.). 2). Keep records of the weight of the recovered waste material. 3). Calculate the weight of the recovered VOC using the weight percent VOC and weight of the recovered waste material.	Minn. R. 7007.0800, subp. 5
D. EQUIPMENT RECORDKEEPING	hdr
Recordkeeping: the Permittee shall keep complete descriptions of each piece of equipment described by EU002, EU003, EU007, EU011, EU013, EU130, and EU131 using the latest MPCA forms at either the appropriate pilot plant or the owner's address. The description shall give each unit a unique identification (ID) number. The Permittee shall submit updated versions of these descriptions with the Annual Report or state that there weren't any changes.	Minn. R. 7007.0800, subp. 5
Labeling: The Permittee shall affix a label to each piece of equipment described by EU002, EU003, EU007, EU130, and EU131 labeling it as such and with its unique ID number.	Minn. R. 7007.0800, subp. 5

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

E. GENERAL REQUIREMENTS	hdr
The Permittee shall not begin construction of any single project or projects that are connected or phased which will cause a total increase in actual emissions of greater than 99 tons per year for any criteria pollutant without first getting a permit amendment to authorize the project. Connected and phased have meanings as defined in Minn. R. 4410.0200 subps. 9b and 60. The Permittee shall not begin construction of any other project which is listed in Minn. R. 4410.4300 or Minn. R. 4410.4400 without first getting a permit amendment to authorize the project. Such projects may require the completion of an Environmental Assessment Worksheet or an Environmental Impact Statement prior to the amendment being issued. This is a state only requirement and is not federally enforceable.	Minn. R. 4410.4300 and Minn. R. 4410.4400
The Permittee can make changes as allowed under Minn. R. 7007.1300 (Insignificant Modifications) and Minn. R. 7007.1250 (Insignificant Activities). Where applicable, these units are also included in the appropriate groups (GPs) or emissions units (EUs) listed in this permit.	Minn. R. 7007.1250; Minn. R. 7007.1300
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
Shutdowns: Notify the Commissioner at least 24 hours in advance of shutdown of any process or control equipment if the shutdown would cause any increase in the emissions of a regulated air pollutant. This does not apply to the following non-required control equipment listed in this permit: CE001, CE002, CE004, and CE006. At the time of notification, inform the Commissioner of the cause of the shutdown and the estimated duration. Notify the Commissioner again when the shutdown is over.	Minn. R. 7019.1000, subp. 3
Breakdowns: Notify the Commissioner within 24 hours of discovery of a breakdown of more than one hour duration of any process or control equipment if the breakdown causes any increase in the emissions of a regulated air pollutant. This does not apply to the following non-required control equipment listed in this permit: CE001, CE002, CE004, and CE006. At the time of notification or as soon thereafter as possible, the permittee shall also inform the Commissioner of the cause of the breakdown and the estimated duration. Notify the Commissioner again when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Monitoring Equipment: Install or make needed repairs to monitoring equipment within 60 days of issuance of the permit if monitoring equipment is not installed and operational on the date the permit is issued.	Minn. R. 7007.0800, subp. 4(D)
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).	Minn. R. 7007.0800, subp. 4(D)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	Minn. R. 7007.0800, subp. 4(D)
Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.	Minn. R. 7011.0020
Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A and/or B.	Minn. R. ch. 7017
Oral Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, orally notify the Commissioner of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
Discovery of Deviations Endangering Human Health or the Environment Report (written): due two working days after discovery of deviation, submit a written description of any deviation endangering human health or the environment to the Commissioner. Include the following information in this written description: cause of the deviation; exact dates of the period of the deviation; if the deviation has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1(A) through 1(E)
Application for Permit Amendment: If you need a permit amendment, submit application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R &amp; D Facility - Maplewood

Permit Number: 12300015 - 003

Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150
Inspections: Upon presentation of credentials and other documents as may be required by law, allow the Agency, or its representative, to enter the Permittee's premises, to have access to and copy any records required by this permit, to inspect at reasonable times (which include any time the source is operating) any facilities, equipment, practices or operations, and to sample or monitor any substances or parameters at any location.	Minn. R. 7007.0800, subp. 9(A)
Recordkeeping: Maintain records describing any changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2) including records of the emissions resulting from those changes.	Minn. R. 7007.0800, subp. 5(B)
Recordkeeping: Retain all records at the stationary source or at the owner's address for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)
Extension Requests: The permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)
Modeling Protocol for PM10: due within 3 years of permit issuance. This protocol will describe the proposed modeling methodology and input data, in accordance with all requirements of 40 CFR pt. 51, App. W.	Minn. R. 7009 and 40 CFR pt. 50
Modeling Study Results for PM10: due within 4 years of permit issuance. To be submitted after the MPCA has reviewed and approved the modeling protocol.	Minn. R. 7009 and 40 CFR pt. 50
Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not federally enforceable.	Minn. R. 7030.0010 - 7030.0080
General Conditions: The Permittee shall comply with the General Conditions in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R &amp; D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item: GP 003 Facility Wide Firm Natural Gas Cap**

**Associated Items:**

- CE 001 Catalytic Afterburner
- CE 002 Direct Flame Afterburner
- CE 003 Mat or Panel Filter
- CE 004 Solvent Recovery Unit
- CE 005 Mat or Panel Filter
- EU 001 Miscellaneous Pilot Plant VOC Equipment (not subject to 40 CFR pt. 60)
- EU 002 PST Coating Equipment that uses solvent (subject to 40 CFR pt. 60, subp. RR)
- EU 003 Mag. Coating Equipment that uses solvent (subject to 40 CFR pt. 60, subp. SSS)
- EU 004 Ozone Generating Units
- EU 005 Direct Heating Equipment (e.g., ovens, furnaces)
- EU 006 Indirect Heating Equipment (e.g., boilers; not subject to 40 CFR pt. 60)
- EU 007 Indirect Heating Equipment (subject to 40 CFR pt. 60, subp. Dc)
- EU 008 Miscellaneous Laboratory Sources
- EU 009 Machine Shops
- EU 010 Carpentry Shops
- EU 011 Dry Cleaning Equipment -Bldg 260-B444
- EU 012 Pilot Plant Particulate Sources (non-combustion)
- EU 013 Booths Without Spray Application Equipment
- EU 014 Spray Booth 209- C163A - 1
- EU 015 Spray Booth 209-C163A-2
- EU 016 Spray Booth 209-N-132
- EU 017 Ethylene Oxide Sterilizers -- Bldg 201, Nurse; Bldg 270, NB352 and NB358
- EU 018 Spray Booth 216-2S
- EU 019 270-636448, 270-000112 Coater/Oven
- EU 020 Spray Booth 230-G43B
- EU 022 Spray Booth 235-WN-116
- EU 023 Spray Booth 235-A-353
- EU 024 270-583991, 270-583990 Coater/Oven
- EU 025 Spray Booth 240-SE Wall
- EU 026 Spray Booth 250-E-126A
- EU 027 Spray Booth 250-E-127
- EU 028 Spray Booth 250-E-118
- EU 029 Spray Booth 250-E-123A
- EU 030 LPB Pilot Plant
- EU 031 Spray Booth 251-B-230
- EU 032 Spray Booth 251-B-242
- EU 033 Spray Booth 251-B-330
- EU 034 Can Spray Booth 250-23E-91-I/O-8, # 11; 250-E-313
- EU 124 Coater 230000015
- EU 125 Coater 230549184
- EU 126 Coater 230635265
- EU 127 Coater 230652536
- EU 128 Coater 230652791
- EU 129 Coater 270700602
- EU 130 New Solventless PST Coating Equipment

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Associated Items:** EU 131 Solventless Mag. Coating Equipment

What to do	Why to do it
A. LIMITS AND AUTHORIZATIONS	hdr
Fuel Limit. The Permittee shall burn only natural gas at the R&D facility covered by this permit.	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21
Firm Natural Gas Limit. Calculations shall be completed by the 20th of the month for the previous 12 month period as described below. The limits for the first 11 months are as described below. All firm natural gas combustion at the R&D facility is included in this group and this limit. Limit on Natural Gas Fuel Usage: less than or equal to 750.0 million cubic feet/year using 12-month Rolling Sum	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21
Firm Natural Gas Limits for First 11 Months after Permit Issuance. For the first 11 months after permit issuance, the natural gas fuel usage limit shall be as follows, calculated as a sum for the total months since issuance:  Month 1 - 62.5 million cubic feet Month 2 - 125 million cubic feet Month 3 - 187.5 million cubic feet Month 4 - 250 million cubic feet Month 5 - 312.5 million cubic feet Month 6 - 375 million cubic feet Month 7 - 437.5 million cubic feet Month 8 - 500 million cubic feet Month 9 - 562.5 million cubic feet Month 10 - 625 million cubic feet Month 11 - 687.5 million cubic feet	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21
Pre-authorized changes: The Permittee may replace emission units or stacks, change or move existing emission units or stacks, or add new emission units or stacks to GP003, provided the replaced, changed, or new emission units meet the requirements for GP003 and qualify as either EU005, EU006, EU007, CE001, CE002, or CE004. This includes equipment that might otherwise be classified as insignificant under Minn. R. 7007.1300 or changes made under Minn. R. 7007.1250.  If a proposed change triggers an applicable requirement that is not contained in this permit, the change must go through the appropriate procedure in Minn. R. ch. 7007.	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21
B. MONITORING REQUIREMENTS	hdr
Monitoring and Recordkeeping. By the 20th of each month the Permittee shall do the following: 1). Read the fuel meters or purchase records and calculate the amount of natural gas used at the R&D facility for the last month. 2). Calculate the fuel used for the previous 12 month period (or since permit issuance). This number must be less than the limit given above.	Minn. R. 7007.0800, subp 5
Monitoring Equipment. The Permittee shall install and maintain fuel meters to measure natural gas usage at the R&D facility. Meters may be owned and maintained by the natural gas supplier, but they must meet all permit requirements. All meters must be calibrated at least annually and a written record shall be kept of the results of the calibration.	Minn. R. 7007.0800, subp. 4

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item: GP 005 Solventless PST Coating Equipment (subject to 40 CFR pt. 60, subp. RR)**

- Associated Items:** EU 124 Coater 230000015  
 EU 125 Coater 230549184  
 EU 126 Coater 230635265  
 EU 127 Coater 230652536  
 EU 128 Coater 230652791  
 EU 129 Coater 270700602  
 EU 130 New Solventless PST Coating Equipment

What to do	Why to do it
A. LIMITS AND AUTHORIZATIONS	hdr
<p>The requirements of this group (GP005) apply to the units listed above and any new pressure sensitive tape or label coating equipment (EU130) that uses solventless coatings and that begins operation on or after May 14, 1998. These affected facilities shall use less VOC than the applicable thresholds listed in 40 CFR Section 60.440(b).</p>	40 CFR Section 60.440(b); Minn. R. 7011.2560
<p>Preauthorized Change: The Permittee may add new affected facilities that use solventless coatings or reconstruct or modify existing facilities such that they become affected facilities that use solventless coatings without getting a permit amendment as long as the proposed change complies with all permit conditions and meets the requirements of GP005 and EU130. If the proposed change could potentially cause an emissions increase of a regulated pollutant other than VOC, or if the proposed change would be subject to different or additional requirements than those given in this permit, the change must go through the appropriate procedure in Minn. R. ch. 7007.</p>	Minn. R. 7007.0750, subp. 6
B. RECORDKEEPING	hdr
<p>The Permittee shall keep records of VOC used at the affected facilities as described in the Total Facility section of Table A of this permit (per EPA letter dated May 26, 1998). This system will track VOC purchases at the pilot plant level instead of at the specific affected facility. The VOC tracking requirements can be found under the following headings:                      B. VOC Purchases Recordkeeping, and                      C. VOC Emissions Recordkeeping).</p> <p>In the event that the 12-month rolling sum of VOC purchases in a pilot plant where one of these affected facilities is located exceeds the NSPS thresholds listed in 40 CFR Section 60.440(b), the Permittee shall review the pilot plant records to confirm that the VOCs were not used by one of the affected facilities in amounts exceeding the relevant threshold.</p>	40 CFR Section 60.13(i) to comply with 40 CFR Section 60.445(a) and 40 CFR Section 50.445(d)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 001 Miscellaneous Pilot Plant VOC Equipment (not subject to 40 CFR pt. 60)

**Associated Items:** GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were in operation before July 9, 1969).	Minn. R. 7011.0710, subp. 1(A)
Opacity: less than or equal to 20 percent opacity , except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60 minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60 minute period (for units which were in operation before July 9, 1969).	Minn. R. 7011.0710, subp. 1(B)
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were not in operation before July 9, 1969).	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity (for units which were not in operation before July 9, 1969).	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 002 PST Coating Equipment that uses solvent (subject to 40 CFR pt. 60, subp. RR)

**Associated Items:** GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. LIMITS AND AUTHORIZATIONS	hdr
<p>The requirements of EU002 apply to affected facilities that use coatings containing solvents (affected facilities that use solventless coatings are listed in GP005). These affected facilities use less VOC than the applicable thresholds listed in 40 CFR Section 60.440(b) (45 Mg or approx. 50 tons). If the amount of VOC inputs exceed this level in any 12 month period, the coating line is then subject to additional requirements in 40 CFR pt. 60, subp. RR. The Permittee must get the appropriate permit amendment to add these requirements to this permit.</p>	40 CFR Section 60.440(b); Minn. R. 7011.2560
<p>Preauthorized Change: The Permittee may add new affected facilities or reconstruct or modify existing facilities such that they become affected facilities without getting a permit amendment as long as the proposed change complies with all permit conditions and meets the requirements of EU002. Note: If these affected facilities use solventless coatings, they are described by GP005, not EU002. If the proposed change could potentially cause an emissions increase of a regulated pollutant other than VOC, or if the proposed change would be subject to different or additional requirements than those given in this permit, the change must go through the appropriate procedure in Minn. R. ch. 7007.</p>	Minn. R. 7007.0750, subp. 6
B. RECORDKEEPING	hdr
<p>Monthly Recordkeeping: The Permittee shall maintain a calendar month record of all coatings used and the results of the reference test methods specified in 40 CFR Section 60.446(a) or the manufacturer's formulation data used for determining the VOC content of those coatings, for each coater subject to this standard.</p>	40 CFR Section 60.445(a); Minn. R. 7011.2560
<p>12 Month Recordkeeping: the Permittee shall maintain a 12 month record of the amount of solvent applied in the coating at each coater subject to this standard.</p>	40 CFR Section 60.445(d); Minn. R. 7011.2560
<p>Notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless it is specifically exempted under 40 CFR Section 60.14(e): due postmarked 60 days or as soon as practicable before commencing the change. The notification shall include the information required in 40 CFR Section 60.7(a)(4).</p>	40 CFR Section 60.7(a)(4); Minn. R. 7019.0100, subp. 1

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 003 Mag. Coating Equipment that uses solvent (subject to 40 CFR pt. 60, subp. SSS)

**Associated Items:** GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. LIMITS AND AUTHORIZATIONS	hdr
The requirements of EU003 apply to affected facilities that use coatings containing solvents (affected facilities that use solventless coatings are described by EU131). These affected facilities use less solvent than the applicable thresholds listed in 40 CFR Section 60.710(b). If the amount of solvent utilized at any coating operation exceeds these amounts in any calendar year, the coating operation is then subject to additional requirements in 40 CFR pt. 60, subp. SSS. The Permittee must get the appropriate permit amendment to add these requirements to this permit.	40 CFR Section 60.710(b); Minn. R. 7011.3450
Preauthorized Change: The Permittee may add new affected facilities or reconstruct or modify existing facilities such that they become affected facilities without getting a permit amendment as long as the proposed change complies with all permit conditions and meets the requirements of EU003. (Note: affected facilities that use solventless coatings are described by EU131) If the proposed change could potentially cause an emissions increase of a regulated pollutant other than VOC, or if the proposed change would be subject to different or additional requirements than those given in this permit, the change must go through the appropriate procedure in Minn. R. ch. 7007.	Minn. R. 7007.0750, subp. 6
B. RECORDKEEPING	hdr
Semiannual Recordkeeping: The Permittee shall make semiannual estimates of the projected annual solvent to be utilized for the manufacture of magnetic tape at each affected facility in that calendar year and maintain records of these estimates.	40 CFR Section 60.714(a)(1); Minn. R. 7011.3450
Solvent Usage Recordkeeping: The Permittee shall maintain records of the actual annual use at each affected facility.	40 CFR Section 60.714(a)(2); Minn. R. 7011.3450
C. REPORTING	hdr
For each affected coating operation initially utilizing less than the applicable volume in 40 CFR Section 60.710(b) per calendar year shall: 1). report the first calendar year in which actual annual solvent use exceeds the applicable volume; and 2). report the first semiannual estimate in which annual solvent use would exceed the applicable volume. This permit condition does not satisfy the requirements of Minn. R. 7007.1150 pertaining to permit amendments.	40 CFR Section 60.717(c); Minn. R. 7011.3450
Notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless it is specifically exempted under 40 CFR Section 60.14(e): due postmarked 60 days or as soon as practicable before commencing the change. The notification shall include the information required in 40 CFR Section 60.7(a)(4).	40 CFR Section 60.7(a)(4); Minn. R. 7019.0100, subp. 1

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item: EU 004 Ozone Generating Units**

**Associated Items:** GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were in operation before July 9, 1969).	Minn. R. 7011.0710, subp. 1(A)
Opacity: less than or equal to 20 percent opacity , except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60 minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60 minute period (for units which were in operation before July 9, 1969).	Minn. R. 7011.0710, subp. 1(B)
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were not in operation before July 9, 1969).	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity (for units which were not in operation before July 9, 1969).	Minn. R. 7011.0715, subp. 2



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R &amp; D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item: EU 005 Direct Heating Equipment (e.g., ovens, furnaces)****Associated Items: GP 003 Facility Wide Firm Natural Gas Cap**

<b>What to do</b>	<b>Why to do it</b>
Fuel Usage: natural gas only.	Minn. R. 7007.0800, subp. 2
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0610, subp. 1(A)(1)
Opacity: less than or equal to 20 percent opacity , except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60 minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60 minute period.	Minn. R. 7011.0610, subp. 1(A)(2)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R &amp; D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item: EU 006 Indirect Heating Equipment (e.g., boilers; not subject to 40 CFR pt. 60)****Associated Items: GP 003 Facility Wide Firm Natural Gas Cap**

What to do	Why to do it
Fuel Usage: natural gas only.	Minn. R. 7007.0800, subp. 2
Each individual unit shall have a heat input capacity less than 10 MMBtu/hr.	Minn. R. 7007.0800, subp. 2
Total Particulate Matter: less than or equal to 0.4 lbs/million BTU heat input for units on which construction, modification or reconstruction was commenced prior to February 1, 1977. (potential to emit is limited by burning of natural gas only to 0.011 lb/MMBtu)	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity , except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60 minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60 minute period (units which construction, modification or reconstruction was commenced prior to February 1, 1977).	Minn. R. 7011.0510, subp. 2
Total Particulate Matter: less than or equal to 0.4 lbs/million BTU heat input for units which construction, modification or reconstruction was commenced after January 31, 1977. (potential to emit is limited by burning of natural gas only to 0.011 lb/MMBtu)	Minn. R. 7011.0515, subp. 1
Opacity: less than or equal to 20 percent opacity , except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60 minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60 minute period (for units on which construction, modification or reconstruction was commenced after January 31, 1977).	Minn. R. 7011.0515, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 007 Indirect Heating Equipment (subject to 40 CFR pt. 60, subp. Dc)

**Associated Items:** GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. LIMITS AND AUTHORIZATIONS	hdr
Fuel Usage: natural gas only.	Minn. R. 7007.0800, subp. 2
Burner Type: All boilers subject to 40 CFR pt. 60, subp. Dc shall have low NOx burners.	Minn. R. 7007.0800, subp. 2
Each individual unit shall have a heat input capacity less than 100 MMBtu/hr (and greater than 10 MMBtu/hr).	Minn. R. 7007.0800, subp. 2
Preauthorized Change: The Permittee may add new affected facilities or reconstruct or modify existing facilities such that they become affected facilities without getting a permit amendment as long as the proposed change complies with all permit conditions and is included in GP003. If the proposed change would be subject to different or additional requirements than those given in this permit, the change must go through the appropriate permit amendment per Minn. R. ch. 7007.	Minn. R. 7007.0750, subp. 6
B. RECORDKEEPING AND REPORTING	hdr
The Permittee shall keep records of the amount of natural gas combusted at each of these units on a monthly basis by the 20th of the month for the previous calendar month. These records can consist of purchase records, receipts, or fuel meter readings.	40 CFR Section 60.13(i) to comply with 40 CFR Section 60.48c(g)
If the Permittee wishes to pursue an alternative method of complying with 40 CFR Section 60.48c(g), the Permittee shall submit an alternative compliance plan to the MPCA: upon approval by U.S. EPA, the Permittee shall then follow that plan in place of the above permit conditions. The plan shall become a fully enforceable part of this permit.	40 CFR Section 60.13(i) to comply with 40 CFR Section 60.48c(g)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 008 Miscellaneous Laboratory Sources

**Associated Items:** GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
<p>Laboratory-scale coating equipment used for pressure sensitive tapes or labels or magnetic media tape coating is not subject to the Pressure Sensitive Tape and Label NSPS (40 CFR pt. 60, subp. RR) or the Magnetic Tape NSPS (40 CFR pt 60, subp. SSS), and this equipment is protected by the permit shield provision of Minn. R. 7007.1800 from any expectation to comply with these requirements.</p> <p>Accordingly, the Permittee is not required to make notifications under the NSPS general provisions or keep records or make reports under these rules related to this laboratory-scale coating equipment. This permit shield does not apply to any coating equipment located in a pilot plant at the facility.</p>	<p>Minn. R. 7007.1800, subp. (A)(2)</p>
<p>Particulate Matter: The research and development laboratory and maintenance processes currently consist of many small processes that generate very small amounts of particulate matter emissions. Any VOC emissions from these units are covered by the BACT limits. The particulate generating processes include, but are not limited to grinding, curing, drying, flagging, crushing, sieving, material handling, etching, welding, pouring, classifying, cutting, drilling, sanding, jointing, planing, lathing, sawing, and milling. This is mainly equipment that can be classified as insignificant under Minn. R. 7007.1300 or changes made under Minn. R. 7007.1250.</p>	<p>Minn. R. 7007.0800, subp. 2</p>
<p>Prior to permit reissuance, the Permittee shall survey a representative sample of the laboratory processes to determine if the assumptions used in the original permit application are still valid and accurate. This information shall be included in the application for reissuance.</p>	<p>Minn. R. 7007.0800, subp. 4</p>
<p>Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0710, subp. 1(A)</p>
<p>Opacity: less than or equal to 20 percent opacity, except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60 minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60 minute period (for units which were in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0710, subp. 1(B)</p>
<p>Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were not in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0715, subp. 1</p>
<p>Opacity: less than or equal to 20 percent opacity (for units which were not in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0715, subp. 2</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 009 Machine Shops

**Associated Items:** GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
<p>Particulate Matter: The Permittee currently has 9 machine shops at the stationary source. A machine shop, in general, is an area where metal is processed and handled. Any VOC emissions from these units are covered by the BACT limits. Processes include, but are not limited to grinding, milling, lathing, sawing, welding, crushing, etching, pouring, screening, and sieving. This is mainly equipment that can be classified as insignificant under Minn. R. 7007.1300 or changes made under Minn. R. 7007.1250.</p>	<p>Minn. R. 7007.0800, subp. 2</p>
<p>The Permittee shall maintain a site diagram of the facility which shows the locations of the machine shops. The Permittee shall update the diagram any time a machine shop is added or moved so that the map is current and available upon request.</p>	<p>Minn. R. 7007.0800, subp. 5</p>
<p>Prior to permit reissuance, the Permittee shall survey a representative sample of the machine shops to determine if the assumptions used in the original permit application are still valid and accurate. This information shall be included in the application for reissuance.</p>	<p>Minn. R. 7007.0800, subp. 4</p>
<p>Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0710, subp. 1(A)</p>
<p>Opacity: less than or equal to 20 percent opacity, except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60 minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60 minute period (for units which were in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0710, subp. 1(B)</p>
<p>Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were not in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0715, subp. 1</p>
<p>Opacity: less than or equal to 20 percent opacity (for units which were not in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0715, subp. 2</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 010 Carpentry Shops

- Associated Items:** CE 006 Centrifugal Collector - Medium Efficiency  
 CE 007 Fabric Filter - Low Temperature, i.e., T<180 Degrees F  
 GP 001 All Pilot Plant VOC  
 GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
Particulate Matter: The Permittee currently has 4 carpentry shops at the stationary source. A carpentry shop, in general, is an area where wood is processed and handled. Any VOC emissions from these units are covered by the BACT limits. Processes include, but are not limited to cutting, drilling, sanding, jointing, planing, lathing, sawing, and milling. This is mainly equipment that can be classified as insignificant under Minn. R. 7007.1300 or changes made under Minn. R. 7007.1250.	Minn. R. 7007.0800, subp. 2
The Permittee shall maintain a site diagram of the facility which shows the locations of the carpentry shops. The Permittee shall update the diagram any time a carpentry shop is added or moved so that the map is current and available upon request.	Minn. R. 7007.0800, subp. 5
Control Equipment: All carpentry shop room air shall be vented to control equipment described by CE007. The Permittee shall properly operate the control equipment according to the manufacturer's specifications at all times the carpentry shops are in use.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020(F) & Minn. R. 7019.3050
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were in operation before July 9, 1969).	Minn. R. 7011.0710, subp. 1(A)
Opacity: less than or equal to 20 percent opacity , except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60 minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60 minute period (for units which were in operation before July 9, 1969).	Minn. R. 7011.0710, subp. 1(B)
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were not in operation before July 9, 1969).	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity (for units which were not in operation before July 9, 1969).	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 011 Dry Cleaning Equipment -Bldg 260-B444

**Associated Items:** GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
The Permittee shall close the door of each dry cleaning machine immediately after transferring articles to or from the machine, and shall keep the door closed at all other times.	40 CFR Section 63.322(c)
The Permittee shall operate and maintain each dry cleaning system according to the manufacturer's specifications and recommendations.	40 CFR Section 63.322(d)
The Permittee shall drain all cartridge filters in their housing, or other sealed container, for a minimum of 24 hours, or shall treat such filters in an equivalent manner, before removal from the dry cleaning facility.	40 CFR Section 63.322(i)
The Permittee shall store all perchloroethylene and wastes that contain perchloroethylene in solvent tanks or solvent containers with no perceptible leaks.	40 CFR Section 63.322(j)
<p>The Permittee shall inspect the following components weekly for perceptible leaks while the dry cleaning system is operating:</p> <ul style="list-style-type: none"> <li>(1) Hose and pipe connections, fittings, couplings, and valves.</li> <li>(2) Door gaskets and seatings.</li> <li>(3) Filter gaskets and seatings.</li> <li>(4) Pumps.</li> <li>(5) Solvent tanks and containers.</li> <li>(6) Water separators.</li> <li>(7) Muck cookers</li> <li>(8) Stills.</li> <li>(9) Exhaust dampers</li> <li>(10) Diverter valves.</li> <li>(11) Cartridge filter housings.</li> </ul> <p>If the total facility consumption is below the applicable consumption levels of 40 CFR Section 63.320(d) or (e) [less than 140 gallons perchloroethylene per year], the Permittee shall inspect the components listed above biweekly for perceptible leaks while the dry cleaning system is operating.</p>	40 CFR Section 63.322(k), (l)
The Permittee shall repair all perceptible leaks detected under 40 CFR Section 63.322(k) within 24 hours. If repair parts must be ordered, either a written or verbal order for those parts shall be initiated within two working days of detecting such a leak. Such repair parts shall be installed within five working days after receipt.	40 CFR Section 63.322(m)
<p>When calculating yearly perchloroethylene consumption for the purpose of demonstrating applicability according to 40 CFR Section 63.320, the Permittee shall perform the following calculation on the first day of every month:</p> <ul style="list-style-type: none"> <li>(1) Sum the volume of all perchloroethylene purchases made in each of the previous 12 months, as recorded in the log described in 40 CFR Section 63.324(d)(1).</li> <li>(2) If no perchloroethylene purchases were made in a given month, then the perchloroethylene consumption for that month is zero gallons.</li> <li>(3) The total sum calculated in paragraph (d) of this section is the yearly perchloroethylene consumption of the facility.</li> </ul>	40 CFR Section 63.323(d)
<p>The Permittee shall keep receipts of perchloroethylene purchases in a log with the following information, shall maintain such information on site, and show it upon request for a period of five years:</p> <ul style="list-style-type: none"> <li>(1) The volume of perchloroethylene purchased each month by the dry cleaning facility as recorded from perchloroethylene purchases; if no perchloroethylene is purchased during a given month, then the Permittee would enter zero gallons into the log.</li> <li>(2) The calculation and result of the yearly perchloroethylene consumption determined on the first day of each month as specified in 40 CFR Section 63.323(d)</li> <li>(3) The dates when the dry cleaning system components are inspected for perceptible leaks, as specified in 40 CFR Section 63.322(k) or (l), and the name or location of dry cleaning system components where perceptible leaks are detected.</li> <li>(4) The dates of repair and records of written or verbal orders for repair parts to demonstrate compliance with 40 CFR Section 63.322(m) and (n).</li> </ul>	40 CFR Section 63.324(d)(1-4)
The Permittee shall retain onsite a copy of the design specifications and the operating manuals for each dry cleaning system and each emission control device located at the dry cleaning facility.	40 CFR Section 63.324(e)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 012 Pilot Plant Particulate Sources (non-combustion)

**Associated Items:** GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
<p>PM Calculations: By the 20th of the month, the Permittee shall do the following:</p> <p>a) Spreadsheet 1: For all equipment located in the Pilot Plants at the time of permit issuance, the Permittee shall calculate the actual emissions or worst case actual emissions of PM for the previous 12 months. The Permittee can use a mass balance approach or emission factors (as defined in Minn. R. 7005.0100).</p> <p>b) Spreadsheet 2: For equipment added or modified after permit issuance, the Permittee shall calculate the actual emissions of PM for the previous 12 months. The Permittee can use a mass balance approach or emission factors (as defined in Minn. R. 7005.0100). For the purpose of this permit condition only, modified means that the existing emission unit had an increase in actual emissions of PM compared to the previous 12 month period.</p>	<p>Minn. R. 7007.0800, subp. 5</p>
<p>On an annual basis, by April 1, the Permittee shall update Spreadsheet 1, referenced above, to reflect all equipment as it exists in each Pilot Plant as of January 1 of that year. A new Spreadsheet 2 will be developed each year which will show the changes made that calendar year.</p> <p>As part of this update, the Permittee will evaluate the emission calculation methods to determine if new better data or emission factors are available.</p>	<p>Minn. R. 7007.0800, subp. 5</p>
<p>The Permittee shall maintain the necessary records in order to do the emission calculations listed above.</p>	<p>Minn. R. 7007.0800, subp. 5</p>
<p>Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0710, subp. 1(A)</p>
<p>Opacity: less than or equal to 20 percent opacity, except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60 minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60 minute period (for units which were in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0710, subp. 1(B)</p>
<p>Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were not in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0715, subp. 1</p>
<p>Opacity: less than or equal to 20 percent opacity (for units which were not in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0715, subp. 2</p>



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item: EU 013 Booths Without Spray Application Equipment**

**Associated Items:** CE 003 Mat or Panel Filter

CE 005 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
<p>The Permittee currently has 6 spray booths that do not have spray application equipment (e.g., only use small aerosol spray cans). One of these booths is listed as individual EU in this permit with it's own requirements (EU034). The remaining 5 must meet the requirements of EU013.</p> <p>The Permittee may move these existing booths as long as all permit conditions are met and as long as the booths continue to have no spray application equipment. If any of the spray booths that do not have spray application equipment are changed such that application equipment is installed, this shall be treated as a modification and must go through the appropriate procedure per Minn. R. ch. 7007.</p> <p>This emission unit includes equipment that can be classified as insignificant under Minn. R. 7007.1300 or changes made under Minn. R. 7007.1250.</p>	<p>Minn. R. 7007.0800, subp. 2</p>
<p>The Permittee shall maintain a written document which shows the locations of the booths that do not have spray application equipment. The Permittee shall update the document anytime a booth is moved so that the document is current and available upon request. This can be the same record as required under the Total Facility requirements in this permit (Recordkeeping).</p>	<p>Minn. R. 7007.0800, subp. 5</p>
<p>Control Equipment: The Permittee shall vent emissions from all of these spray booths to control equipment meeting the requirements of CE003 or CE005 of this permit.</p>	<p>Minn. R. 7007.0800, subp. 2</p>
<p>Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0710, subp. 1(A)</p>
<p>Opacity: less than or equal to 20 percent opacity , except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60 minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60 minute period (for units which were in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0710, subp. 1(B)</p>
<p>Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were not in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0715, subp. 1</p>
<p>Opacity: less than or equal to 20 percent opacity (for units which were not in operation before July 9, 1969).</p>	<p>Minn. R. 7011.0715, subp. 2</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 014 Spray Booth 209- C163A - 1

**Associated Items:** CE 003 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
Process Throughput: less than or equal to 150.0 lbs/hour spray gun capacity for any given spray gun. The Permittee shall operate only one gun at a time in the spray booth. The Permittee shall maintain documentation of spray gun capacity in pounds per hour (e.g., manufacturers specifications).	Title I Condition: Limit used in analysis under 40 CFR Section 52.21(j); Minn. R. 7007.3000
The spray booth shall have only one compressor for use with spray guns. The Permittee shall limit the Compressor Operating Hours: less than or equal to 500 hours/year	Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE003 of this permit.	Minn. R. 7007.0800, subp. 2
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Compressor Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the compressor. The meter shall have an automatic lock-out device that disables the compressor when the hours limit is reached. Once the cumulative hours on the meter reaches 500 hours for the given calendar year, the compressor shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
Recordkeeping for Compressor Operating Hours: Once the compressor has reached the limit of 500 hours per calendar year, the Permittee shall notify personnel that the spray booth is no longer available for spraying for the remainder of the calendar year (memo or posting by the booth).  In addition, the Permittee shall maintain a written or computerized log stating that the booth has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0710, subp. 1(A)
Opacity: less than or equal to 20 percent opacity , except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60 minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60 minute period.	Minn. R. 7011.0710, subp. 1(B)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 015 Spray Booth 209-C163A-2

**Associated Items:** CE 003 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
Process Throughput: less than or equal to 150.0 lbs/hour spray gun capacity for any given spray gun. The Permittee shall operate only one gun at a time in the spray booth. The Permittee shall maintain documentation of spray gun capacity in pounds per hour (e.g., manufacturers specifications).	Title I Condition: Limit used in analysis under 40 CFR Section 52.21(j); Minn. R. 7007.3000
The spray booth shall have only one compressor for use with spray guns. The Permittee shall limit the Compressor Operating Hours: less than or equal to 500 hours/year	Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE003 of this permit.	Minn. R. 7007.0800, subp. 2
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Compressor Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the compressor. The meter shall have an automatic lock-out device that disables the compressor when the hours limit is reached. Once the cumulative hours on the meter reaches 500 hours for the given calendar year, the compressor shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
Recordkeeping for Compressor Operating Hours: Once the compressor has reached the limit of 500 hours per calendar year, the Permittee shall notify personnel that the spray booth is no longer available for spraying for the remainder of the calendar year (memo or posting by the booth).  In addition, the Permittee shall maintain a written or computerized log stating that the booth has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0710, subp. 1(A)
Opacity: less than or equal to 20 percent opacity , except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60 minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60 minute period.	Minn. R. 7011.0710, subp. 1(B)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 016 Spray Booth 209-N-132

**Associated Items:** CE 003 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
Process Throughput: less than or equal to 50.0 lbs/hour spray gun capacity for any given spray gun. The Permittee shall operate only one gun at a time in the spray booth. The Permittee shall maintain documentation of spray gun capacity in pounds per hour (e.g., manufacturers specifications).	Title I Condition: Limit used in analysis under 40 CFR Section 52.21(j); Minn. R. 7007.3000
The spray booth shall have only one compressor for use with spray guns. The Permittee shall limit the Compressor Operating Hours: less than or equal to 1000 hours/year	Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE003 of this permit.	Minn. R. 7007.0800, subp. 2
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Compressor Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the compressor. The meter shall have an automatic lock-out device that disables the compressor when the hours limit is reached. Once the cumulative hours on the meter reaches 1000 hours for the given calendar year, the compressor shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
Recordkeeping for Compressor Operating Hours: Once the compressor has reached the limit of 1000 hours per calendar year, the Permittee shall notify personnel that the spray booth is no longer available for spraying for the remainder of the calendar year (memo or posting by the booth).  In addition, the Permittee shall maintain a written or computerized log stating that the booth has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity .	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item: EU 017 Ethylene Oxide Sterilizers -- Bldg 201, Nurse; Bldg 270, NB352 and NB358**

**Associated Items: GP 003 Facility Wide Firm Natural Gas Cap**

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were in operation before July 9, 1969).	Minn. R. 7011.0710, subp. 1(A)
Opacity: less than or equal to 20 percent opacity , except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60 minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60 minute period (for units which were in operation before July 9, 1969).	Minn. R. 7011.0710, subp. 1(B)
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were not in operation before July 9, 1969).	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity (for units which were not in operation before July 9, 1969).	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 018 Spray Booth 216-2S

**Associated Items:** CE 003 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
Process Throughput: less than or equal to 100.0 lbs/hour spray gun capacity for any given spray gun. The Permittee shall operate only one gun at a time in the spray booth. The Permittee shall maintain documentation of spray gun capacity in pounds per hour (e.g., manufacturers specifications).	Title I Condition: Limit used in analysis under 40 CFR Section 52.21(j); Minn. R. 7007.3000
The spray booth shall have only one compressor for use with spray guns. The Permittee shall limit the Compressor Operating Hours: less than or equal to 1500 hours/year	Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE003 of this permit.	Minn. R. 7007.0800, subp. 2
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Compressor Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the compressor. The meter shall have an automatic lock-out device that disables the compressor when the hours limit is reached. Once the cumulative hours on the meter reaches 1500 hours for the given calendar year, the compressor shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
Recordkeeping for Compressor Operating Hours: Once the compressor has reached the limit of 1500 hours per calendar year, the Permittee shall notify personnel that the spray booth is no longer available for spraying for the remainder of the calendar year (memo or posting by the booth).  In addition, the Permittee shall maintain a written or computerized log stating that the booth has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 019 270-636448, 270-000112 Coater/Oven

**Associated Items:** GP 003 Facility Wide Firm Natural Gas Cap  
SV 024

What to do	Why to do it
<p>Volatile Organic Compounds: less than or equal to 5.0 tons/year using 12-month Rolling Sum (usage) calculated by the 20th of the month for the previous 12 months. For the first 11 months of operation after permit issuance, the limit shall be as follows calculated as a sum for the total months since issuance:                      Month 1 -- 2 tons                      Month 2 -- 4 tons                      Months 3 - 11 -- 5 tons                      VOC usage shall be tracked and calculated as explained below.</p>	<p>Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000</p>
<p>VOC Tracking: The Permittee shall keep complete and detailed records of all VOC usage at the coater and coating use parameters. These records shall include, but are not limited to, the weight of each coating used per batch, the weight percent VOC of each coating used for each batch, the total VOC coated per batch, and hours of operation for that batch. The VOC content of the coating shall be determined as specified under the Material Content condition listed at the Total Facility portion of this permit.</p> <p>Using the above data, the Permittee shall calculate the VOC used at the coater, in tons, for each calendar month by the 20 of the month, and add this to the previous 11 months usage.</p>	<p>Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000</p>
<p>This emission unit is an affected facility under 40 CFR pt. 60, subp. RR and must meet the permit requirements listed under EU002 of this permit.</p>	<p>40 CFR Section 60.440(b); Minn. R. 7011.2560</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 020 Spray Booth 230-G43B

**Associated Items:** CE 005 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
Process Throughput: less than or equal to 100.0 lbs/hour spray gun capacity for any given spray gun. The Permittee shall operate only one gun at a time in the spray booth. The Permittee shall maintain documentation of spray gun capacity in pounds per hour (e.g., manufacturers specifications).	Title I Condition: Limit used in analysis under 40 CFR Section 52.21(j); Minn. R. 7007.3000
The spray booth shall have only one compressor for use with spray guns. The Permittee shall limit the Compressor Operating Hours: less than or equal to 600 hours/year	Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE005 of this permit.	Minn. R. 7007.0800, subp. 2
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Compressor Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the compressor. The meter shall have an automatic lock-out device that disables the compressor when the hours limit is reached. Once the cumulative hours on the meter reaches 600 hours for the given calendar year, the compressor shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
Recordkeeping for Compressor Operating Hours: Once the compressor has reached the limit of 600 hours per calendar year, the Permittee shall notify personnel that the spray booth is no longer available for spraying for the remainder of the calendar year (memo or posting by the booth).  In addition, the Permittee shall maintain a written or computerized log stating that the booth has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity .	Minn. R. 7011.0715, subp. 2



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 022 Spray Booth 235-WN-116

**Associated Items:** CE 003 Mat or Panel Filter

CE 008 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
Process Throughput: less than or equal to 30.0 lbs/hour spray gun capacity for any given spray gun. The Permittee shall operate only one gun at a time in the spray booth. The Permittee shall maintain documentation of spray gun capacity in pounds per hour (e.g., manufacturers specifications).	Title I Condition: Limit used in analysis under 40 CFR Section 52.21(j); Minn. R. 7007.3000
The spray booth shall have only one compressor for use with spray guns. The Permittee shall limit the Compressor Operating Hours: less than or equal to 500 hours/year	Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE008 of this permit.	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21 (permit 23E-93-I/O-19)
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Compressor Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the compressor. The meter shall have an automatic lock-out device that disables the compressor when the hours limit is reached. Once the cumulative hours on the meter reaches 500 hours for the given calendar year, the compressor shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
Recordkeeping for Compressor Operating Hours: Once the compressor has reached the limit of 500 hours per calendar year, the Permittee shall notify personnel that the spray booth is no longer available for spraying for the remainder of the calendar year (memo or posting by the booth).  In addition, the Permittee shall maintain a written or computerized log stating that the booth has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 023 Spray Booth 235-A-353

**Associated Items:** CE 005 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
Process Throughput: less than or equal to 1200.0 lbs/hour spray gun capacity for any given spray gun. The Permittee shall operate only one gun at a time in the spray booth. The Permittee shall maintain documentation of spray gun capacity in pounds per hour (e.g., manufacturers specifications).	Title I Condition: Limit used in analysis under 40 CFR Section 52.21(j); Minn. R. 7007.3000
The spray booth shall have only one compressor or other product delivery device (e.g., pump) for use with airless spray gun equipment. The Permittee shall limit the Compressor (or other device) Operating Hours: less than or equal to 440 hours/year	Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE005 of this permit.	Minn. R. 7007.0800, subp. 2
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Compressor or Other Delivery Device Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the compressor or delivery device. The meter shall have an automatic lock-out device that disables the compressor or delivery device when the hours limit is reached. Once the cumulative hours on the meter reaches 440 hours for the given calendar year, the compressor or delivery device shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
Recordkeeping for Compressor or Delivery Device Operating Hours: Once the compressor or delivery device has reached the limit of 440 hours per calendar year, the Permittee shall notify personnel that the spray booth is no longer available for spraying for the remainder of the calendar year (memo or posting by the booth).  In addition, the Permittee shall maintain a written or computerized log stating that the booth has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 024 270-583991, 270-583990 Coater/Oven

**Associated Items:** GP 003 Facility Wide Firm Natural Gas Cap

SV 024

SV 025

What to do	Why to do it
A. OPERATING LIMITS	hdr
<p>Volatile Organic Compounds: less than or equal to 18.0 tons/year using 12-month Rolling Sum (usage) calculated by the 20th of the month for the previous 12 months. For the first 11 months of operation after permit issuance, the limit shall be as follows calculated as a sum for the total months since issuance:                      Month 1 -- 9 tons                      Month 2 -- 12 tons                      Month 3 -- 15 tons                      Months 4-11 -- 18 tons                      VOC usage shall be tracked and calculated as explained below.</p>	<p>Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000</p>
<p>VOC Tracking: The Permittee shall keep complete and detailed records of all VOC usage at the coater and coating use parameters. These records shall include, but are not limited to, the weight of each coating used per batch, the weight percent VOC of each coating used for each batch, the total VOC coated per batch, and hours of operation for that batch. The VOC content of the coating shall be determined as specified under the Material Content condition listed at the Total Facility portion of this permit.</p> <p>Using the above data, the Permittee shall calculate the VOC used at the coater, in tons, for each calendar month by the 20 of the month, and add this to the previous 11 months usage.</p>	<p>Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000</p>
B. MINNESOTA RULE EMISSION LIMITS	hdr
<p>Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.</p>	<p>Minn. R. 7011.0715, subp. 1</p>
<p>Opacity: less than or equal to 20 percent opacity</p>	<p>Minn. R. 7011.0715, subp. 2</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 025 Spray Booth 240-SE Wall

**Associated Items:** CE 003 Mat or Panel Filter

CE 008 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
Process Throughput: less than or equal to 100.0 lbs/hour spray gun capacity for any given spray gun. The Permittee shall operate only one gun at a time in the spray booth. The Permittee shall maintain documentation of spray gun capacity in pounds per hour (e.g., manufacturers specifications).	Title I Condition: Limit used in analysis under 40 CFR Section 52.21(j); Minn. R. 7007.3000
The spray booth shall have only one compressor for use with spray guns. The Permittee shall limit the Compressor Operating Hours: less than or equal to 100 hours/year	Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE008 of this permit.	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21 (permit 23E-92-I/O-15)
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Compressor Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the compressor. The meter shall have an automatic lock-out device that disables the compressor when the hours limit is reached. Once the cumulative hours on the meter reaches 100 hours for the given calendar year, the compressor shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
Recordkeeping for Compressor Operating Hours: Once the compressor has reached the limit of 100 hours per calendar year, the Permittee shall notify personnel that the spray booth is no longer available for spraying for the remainder of the calendar year (memo or posting by the booth).  In addition, the Permittee shall maintain a written or computerized log stating that the booth has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 026 Spray Booth 250-E-126A

**Associated Items:** CE 003 Mat or Panel Filter

CE 008 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
Process Throughput: less than or equal to 3.70 lbs/hour spray gun capacity for any given spray gun. The Permittee shall operate only one gun at a time in the spray booth. The Permittee shall maintain documentation of spray gun capacity in pounds per hour (e.g., manufacturers specifications).	Title I Condition: Limit used in analysis under 40 CFR Section 52.21(j); Minn. R. 7007.3000
The spray booth shall have only one compressor for use with spray guns. The Permittee shall limit the Compressor Operating Hours: less than or equal to 200 hours/year	Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE008 of this permit.	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21 (permit 23E-91-I/O-8)
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Compressor Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the compressor. The meter shall have an automatic lock-out device that disables the compressor when the hours limit is reached. Once the cumulative hours on the meter reaches 200 hours for the given calendar year, the compressor shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
Recordkeeping for Compressor Operating Hours: Once the compressor has reached the limit of 200 hours per calendar year, the Permittee shall notify personnel that the spray booth is no longer available for spraying for the remainder of the calendar year (memo or posting by the booth).  In addition, the Permittee shall maintain a written or computerized log stating that the booth has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 027 Spray Booth 250-E-127

**Associated Items:** CE 005 Mat or Panel Filter

CE 009 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
Process Throughput: less than or equal to 150.0 lbs/hour spray gun capacity for any given spray gun. The Permittee shall operate only one gun at a time in the spray booth. The Permittee shall maintain documentation of spray gun capacity in pounds per hour (e.g., manufacturers specifications).	Title I Condition: Limit used in analysis under 40 CFR Section 52.21(j); Minn. R. 7007.3000
The spray booth shall have only one compressor for use with spray guns. The Permittee shall limit the Compressor Operating Hours: less than or equal to 300 hours/year	Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE009 of this permit.	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21 (permit 23E-91-I/O-8)
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Compressor Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the compressor. The meter shall have an automatic lock-out device that disables the compressor when the hours limit is reached. Once the cumulative hours on the meter reaches 300 hours for the given calendar year, the compressor shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
Recordkeeping for Compressor Operating Hours: Once the compressor has reached the limit of 300 hours per calendar year, the Permittee shall notify personnel that the spray booth is no longer available for spraying for the remainder of the calendar year (memo or posting by the booth).  In addition, the Permittee shall maintain a written or computerized log stating that the booth has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 028 Spray Booth 250-E-118

**Associated Items:** CE 003 Mat or Panel Filter

CE 008 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
Process Throughput: less than or equal to 150.0 lbs/hour spray gun capacity for any given spray gun. The Permittee shall operate only one gun at a time in the spray booth. The Permittee shall maintain documentation of spray gun capacity in pounds per hour (e.g., manufacturers specifications).	Title I Condition: Limit used in analysis under 40 CFR Section 52.21(j); Minn. R. 7007.3000
The spray booth shall have only one compressor for use with spray guns. The Permittee shall limit the Compressor Operating Hours: less than or equal to 300 hours/year	Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE008 of this permit.	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21 (permit 23E-91-I/O-8)
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Compressor Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the compressor. The meter shall have an automatic lock-out device that disables the compressor when the hours limit is reached. Once the cumulative hours on the meter reaches 300 hours for the given calendar year, the compressor shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
Recordkeeping for Compressor Operating Hours: Once the compressor has reached the limit of 300 hours per calendar year, the Permittee shall notify personnel that the spray booth is no longer available for spraying for the remainder of the calendar year (memo or posting by the booth).  In addition, the Permittee shall maintain a written or computerized log stating that the booth has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item: EU 029 Spray Booth 250-E-123A**

**Associated Items:** CE 005 Mat or Panel Filter

CE 009 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
Process Throughput: less than or equal to 150.0 lbs/hour spray gun capacity for any given spray gun. The Permittee shall operate only one gun at a time in the spray booth. The Permittee shall maintain documentation of spray gun capacity in pounds per hour (e.g., manufacturers specifications).	Title I Condition: Limit used in analysis under 40 CFR Section 52.21(j); Minn. R. 7007.3000
The spray booth shall have only one compressor for use with spray guns. The Permittee shall limit the Compressor Operating Hours: less than or equal to 300 hours/year	Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE009 of this permit.	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21 (permit 23E-91-I/O-8)
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Compressor Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the compressor. The meter shall have an automatic lock-out device that disables the compressor when the hours limit is reached. Once the cumulative hours on the meter reaches 300 hours for the given calendar year, the compressor shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
Recordkeeping for Compressor Operating Hours: Once the compressor has reached the limit of 300 hours per calendar year, the Permittee shall notify personnel that the spray booth is no longer available for spraying for the remainder of the calendar year (memo or posting by the booth).  In addition, the Permittee shall maintain a written or computerized log stating that the booth has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 2



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 030 LPB Pilot Plant

**Associated Items:** GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
This emission unit includes the LPB coater and all its supporting equipment in the pilot plant.	Minn. R. 7007.0800, subp. 2
A. MONITORING AND RECORDKEEPING	hdr
<p>VOC Monitoring and Recordkeeping: The Permittee shall monitor and record in a log book to be maintained on-site, usage parameters for each instance the pilot plant coater is operated and coating solution is applied. These parameters shall include at a minimum, a list of all solutions applied, percent solids, percent VOC, date of operation, start and finish times, and quantity of solution coated.</p> <p>By the 20th day of each month, the Permittee shall calculate the actual emissions from the coater operation for the previous calendar month. The Permittee shall also calculate the cumulative 12 month rolling sum of actual emissions from the coater operation and compare it relative to the pilot plant coater and supporting equipment Potential to Emit of 16.2 tpy of VOC.</p>	Minn. R. 7007.0800, subp. 4 and 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 031 Spray Booth 251-B-230

**Associated Items:** CE 003 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
Process Throughput: less than or equal to 70.0 lbs/hour spray gun capacity for any given spray gun. The Permittee shall operate only one gun at a time in the spray booth. The Permittee shall maintain documentation of spray gun capacity in pounds per hour (e.g., manufacturers specifications).	Title I Condition: Limit used in analysis under 40 CFR Section 52.21(j); Minn. R. 7007.3000
The spray booth shall have only one compressor for use with spray guns. The Permittee shall limit the Compressor Operating Hours: less than or equal to 500 hours/year	Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE003 of this permit.	Minn. R. 7007.0800, subp. 2
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Compressor Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the compressor. The meter shall have an automatic lock-out device that disables the compressor when the hours limit is reached. Once the cumulative hours on the meter reaches 500 hours for the given calendar year, the compressor shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
Recordkeeping for Compressor Operating Hours: Once the compressor has reached the limit of 500 hours per calendar year, the Permittee shall notify personnel that the spray booth is no longer available for spraying for the remainder of the calendar year (memo or posting by the booth).  In addition, the Permittee shall maintain a written or computerized log stating that the booth has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 032 Spray Booth 251-B-242

**Associated Items:** CE 003 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
Process Throughput: less than or equal to 70.0 lbs/hour spray gun capacity for any given spray gun. The Permittee shall operate only one gun at a time in the spray booth. The Permittee shall maintain documentation of spray gun capacity in pounds per hour (e.g., manufacturers specifications).	Title I Condition: Limit used in analysis under 40 CFR Section 52.21(j); Minn. R. 7007.3000
The spray booth shall have only one compressor for use with spray guns. The Permittee shall limit the Compressor Operating Hours: less than or equal to 500 hours/year	Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE003 of this permit.	Minn. R. 7007.0800, subp. 2
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Compressor Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the compressor. The meter shall have an automatic lock-out device that disables the compressor when the hours limit is reached. Once the cumulative hours on the meter reaches 500 hours for the given calendar year, the compressor shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
Recordkeeping for Compressor Operating Hours: Once the compressor has reached the limit of 500 hours per calendar year, the Permittee shall notify personnel that the spray booth is no longer available for spraying for the remainder of the calendar year (memo or posting by the booth).  In addition, the Permittee shall maintain a written or computerized log stating that the booth has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 033 Spray Booth 251-B-330

**Associated Items:** CE 003 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
Process Throughput: less than or equal to 225.0 lbs/hour spray gun capacity for any given spray gun. The Permittee shall operate only one gun at a time in the spray booth. The Permittee shall maintain documentation of spray gun capacity in pounds per hour (e.g., manufacturers specifications).	Title I Condition: Limit used in analysis under 40 CFR Section 52.21(j); Minn. R. 7007.3000
The spray booth shall have only one compressor for use with spray guns. The Permittee shall limit the Compressor Operating Hours: less than or equal to 100 hours/year	Title I Condition: 40 CFR Section 52.21(j) (BACT Limit); Minn. R. 7007.3000
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE003 of this permit.	Minn. R. 7007.0800, subp. 2
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Compressor Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the compressor. The meter shall have an automatic lock-out device that disables the compressor when the hours limit is reached. Once the cumulative hours on the meter reaches 100 hours for the given calendar year, the compressor shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Monitoring for BACT limit under 40 CFR Section 52.21(j); Minn. R. 7007.3000
Recordkeeping for Compressor Operating Hours: Once the compressor has reached the limit of 100 hours per calendar year, the Permittee shall notify personnel that the spray booth is no longer available for spraying for the remainder of the calendar year (memo or posting by the booth).  In addition, the Permittee shall maintain a written or computerized log stating that the booth has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 034 Can Spray Booth 250-23E-91-I/O-8, # 11; 250-E-313

**Associated Items:** CE 003 Mat or Panel Filter

CE 005 Mat or Panel Filter

CE 008 Mat or Panel Filter

GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
Control Equipment: The Permittee shall vent emissions from this spray booth to control equipment meeting the requirements of CE008 of this permit.	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21 (permit 23E-91-I/O-8)
<p>This spray booth does not have spray application equipment (e.g., only uses small aerosol spray cans). The Permittee may move this existing booth as long as all permit conditions are met and as long as the booth continues to have no spray application equipment. Installation of spray application equipment would be treated as a modification and must go through the appropriate procedure per Minn. R. ch. 7007.</p> <p>This emission unit includes equipment that could otherwise be classified as insignificant under Minn. R. 7007.1300.</p>	Minn. R. 7007.0800, subp. 2
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735 (for units which were not in operation before July 9, 1969).	Minn. R. 7011.0715, subp. 1
Opacity: less than or equal to 20 percent opacity (for units which were not in operation before July 9, 1969).	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 040 250 Automotive Room Vacuum System

**Associated Items:** CE 010 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

What to do	Why to do it
A. OPERATING LIMITS	hdr
Particulate Matter < 10 micron: less than or equal to 0.02 grains/dry standard cubic foot	Title I Condition: Limit to avoid major modification classification under 40 CFR Section 52.21(permit 23E-91-I/O-8)
Total Particulate Matter: less than or equal to 0.02 grains/dry standard cubic foot . This is more restrictive than Minn. R. 7011.0715, subp. 1 (0.3 grains/dscf of exhaust gas unless required to further reduce emissions in order to comply with the limit in Minn. R. 7011.0730 or Minn. R. 7011.0735.).	Title I Condition: Limit to avoid major modification classification under 40 CFR Section 52.21(permit 23E-91-I/O-8)
The automotive room shall have only one vacuum system. The Permittee shall limit the Vacuum System Motor Operating Hours: less than or equal to 3640 hours/year	Title I Condition: Limit to avoid major modification classification under 40 CFR Section 52.21(permit 23E-91-I/O-8)
Control Equipment: The Permittee shall vent emissions from this emission unit to CE010 of this permit.	Title I Condition: Limit to avoid major modification classification under 40 CFR Section 52.21(permit 23E-91-I/O-8)
B. MONITORING AND RECORDKEEPING	hdr
Monitoring for Vacuum System Motor Operating Hours: The Permittee shall install, operate, and maintain a cumulative hour meter on the motor. The meter shall have an automatic lock-out device that disables the motor when the hours limit is reached. Once the cumulative hours on the meter reaches 3640 hours for the given calendar year, the motor shall be removed, locked-out, or rendered inoperable until the next calendar year (January 1).	Title I Condition: Limit to avoid major modification classification under 40 CFR Section 52.21(permit 23E-91-I/O-8)
Recordkeeping for Vacuum System Motor Operating Hours: Once the motor has reached the limit of 3640 hours per calendar year, the Permittee shall notify personnel that the vacuum system is no longer available for the remainder of the calendar year (memo or posting).  In addition, the Permittee shall maintain a written or computerized log stating that vacuum system has reached the limit on which date. The hour meter shall be reset each January and the cumulative hours for the past calendar year shall be recorded.	Minn. R. 7007.0800, subp. 5
C. MINNESOTA RULE EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent opacity .	Minn. R. 7011.0715, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R &amp; D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** EU 130 New Solventless PST Coating Equipment**Associated Items:** GP 003 Facility Wide Firm Natural Gas Cap

GP 005 Solventless PST Coating Equipment (subject to 40 CFR pt. 60, subp. RR)

<b>What to do</b>	<b>Why to do it</b>
Notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless it is specifically exempted under 40 CFR Section 60.14(e): due postmarked 60 days or as soon as practicable before commencing the change. The notification shall include the information required in 40 CFR Section 60.7(a)(4).	40 CFR Section 60.7(a)(4); Minn. R. 7019.0100, subp. 1

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item: EU 131 Solventless Mag. Coating Equipment**

**Associated Items: GP 003 Facility Wide Firm Natural Gas Cap**

What to do	Why to do it
A. LIMITS AND AUTHORIZATIONS	hdr
Affected facilities that are solventless are subject to the requirements of this EU and not those of EU003. These affected facilities (EU131) shall use less solvent than the applicable thresholds listed in 40 CFR Section 60.710(b).	40 CFR Section 60.710(b); Minn. R. 7011.3450
Preauthorized Change: The Permittee may add new affected facilities or reconstruct or modify existing facilities such that they become affected facilities without getting a permit amendment as long as the proposed change complies with all permits conditions and meets the requirements of EU131. If the proposed change could potentially cause an emissions increase of a regulated pollutant other than VOC, or if the proposed change would be subject to different or additional requirements than those given in this permit, the change must go through the appropriate procedure in Minn. R. ch. 7007.	Minn. R. 7007.0750, subp. 6
B. RECORDKEEPING	hdr
The Permittee shall keep records of solvent used at the affected facilities as described in the Total Facility section of Table A of this permit (per EPA letter dated May 26, 1998). This system will track VOC purchases at the pilot plant level instead of at the specific affected facility. The VOC tracking requirements can be found under the following headings: B. VOC Purchases Recordkeeping, and C. VOC Emissions Recordkeeping). In the event that the 12-month rolling sum of VOC purchases in a pilot plant where one of these affected facilities is located exceeds the NSPS thresholds listed in 40 CFR Section 60.710(b), the Permittee shall review the pilot plant records to confirm that the VOCs were not used by one of the affected facilities in amounts exceeding the relevant threshold.	40 CFR Section 60.13(i) to comply with 40 CFR Section 60.714(a)(1) and (a)(2); Minn. R. 7011.3450
C. REPORTING	hdr
Projected Solvent Use Notification: for the first calendar year of operation of any affected coating operation, the Permittee shall submit, with the notification of projected startup, a material flow chart indicating projected solvent use. This projection can be based on the VOC tracking system detailed in the Total Facility section of Table A of this permit.	40 CFR Section 60.717(b); Minn. R. 7011.3450
Actual Solvent Use Report: for the first calendar year of operation, at the end of the initial calendar year, the Permittee shall submit a report of VOC purchases for each pilot plant where affected facilities are located. This can be included with the Annual Report listed in Table B of this permit.	40 CFR 60.13(i) to comply with 40 CFR Section 60.717(b); Minn. R. 7011.3450
Notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless it is specifically exempted under 40 CFR Section 60.14(e): due postmarked 60 days or as soon as practicable before commencing the change. The notification shall include the information required in 40 CFR Section 60.7(a)(4).	40 CFR Section 60.7(a)(4); Minn. R. 7019.0100, subp. 1



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** CE 001 Catalytic Afterburner

**Associated Items:** GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. EMISSIONS AND OPERATING LIMITS	hdr
The operation of this piece of control equipment is not necessary in order for the process to meet applicable emissions limits. However, the Permittee wishes to take credit for its operation for the purposes of reporting actual emissions for emission inventory. Therefore, in order for the VOC to be considered controlled for the purposes of emissions inventory, the catalytic afterburner must comply with the requirements of this permit during the time credit for control is taken. The VOC used during that time shall be considered controlled, and the control efficiency used is the limit given in this table.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)
Volatile Organic Compounds: greater than or equal to 95 percent control efficiency or greater than or equal to 57 percent control efficiency, whichever is applicable based on if the device has a total enclosure or a hood capture system.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)
Temperature: greater than or equal to 800 degrees F (absolute minimum) at the inlet, or as specified by the manufacturer, until a new minimum is set pursuant to Minn. R. 7017.2025, subp. 3, based on the average temperature recorded during the most recent performance test where compliance for VOC emissions was demonstrated. If the temperature at any time drops below the minimum temperature, the VOC shall be considered uncontrolled until the minimum temperature is once again achieved.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)
B. MONITORING AND RECORDKEEPING	hdr
Recordkeeping: The Permittee shall keep a log that shows when the control equipment was operated and at what emissions unit. The log shall also show the VOC input to the control device during the time that the control equipment was operating.	Minn. R. 7007.0800, subp. 5
Hood Certification and Recordkeeping. If the control device does not have a total enclosure as defined in Minn. R. 7011.0060, subp. 5, the Permittee can use the hood control efficiency listed in Minn. R. 7011.0070, subp. 1 (and given above as 57%) if the hood conforms to the rule requirements listed in Minn. R. 7011.0070, subp. 1 and certifies this as required in Minn. R. 7011.0070, subp. 3. The Permittee shall maintain a copy of this on site, as well as a monthly record of the fan rotation speed, fan power draw, or face velocity of each hood, or other comparable air flow indication method.	Minn. R. 7007.0800, subp. 5
The Permittee shall maintain either a continuous hard copy readout of the inlet and outlet temperatures, or maintain a hard copy of manual readings taken at least every 15 minutes when in operation.	Minn. R. 7007.0800, subp. 5
The Permittee shall install the necessary monitoring equipment for measuring and recording the temperature as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the process is in operation in order for the VOC emissions from the process to be considered controlled.	Minn. R. 7007.0800, subp. 4
The Permittee shall determine the catalyst bed reactivity per the manufacturer's specifications and maintain documentation of the results.	Minn. R. 7007.0800, subp. 4
The Permittee shall maintain each piece of control equipment according to the manufacturer's specifications, shall conduct inspections, and shall maintain documentation of those actions.	Minn. R. 7007.0800, subp. 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** CE 002 Direct Flame Afterburner

**Associated Items:** GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. EMISSIONS AND OPERATING LIMITS	hdr
The operation of this piece of control equipment is not necessary in order for the process to meet applicable emissions limits. However, the Permittee wishes to take credit for its operation for the purposes of reporting actual emissions for emission inventory. Therefore, in order for the VOC to be considered controlled for the purposes of emissions inventory, the afterburner (thermal oxidizer) must comply with the requirements of this permit during the time credit for control is taken. The VOC used during that time shall be considered controlled, and the control efficiency used is the limit given in this table.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)
Volatile Organic Compounds: greater than or equal to 95 percent control efficiency or greater than or equal to 57 percent control efficiency, whichever is applicable based on if the device has a total enclosure or a hood capture system.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)
Temperature: greater than or equal to 1400 degrees F (absolute minimum) at the Combustion Chamber, or as specified by the manufacturer, until a new minimum is set pursuant to Minn. R. 7017.2025, subp. 3, based on the average temperature recorded during the most recent performance test where compliance for VOC emissions was demonstrated. If the temperature at any time drops below the minimum temperature, the VOC shall be considered uncontrolled until the minimum temperature is once again achieved.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)
B. MONITORING AND RECORDKEEPING	hdr
Recordkeeping: The Permittee shall keep a log that shows when the control equipment was operated and at what emissions unit. The log shall also show the VOC input to the control device during the time that the control equipment was operating.	Minn. R. 7007.0800, subp. 5
Hood Certification and Recordkeeping. If the control device does not have a total enclosure as defined in Minn. R. 7011.0060, subp. 5, the Permittee can use the hood control efficiency listed in Minn. R. 7011.0070, subp. 1 (and given above as 57%) if the hood conforms to the rule requirements listed in Minn. R. 7011.0070, subp. 1 and certifies this as required in Minn. R. 7011.0070, subp. 3. The Permittee shall maintain a copy of this on site, as well as a monthly record of the fan rotation speed, fan power draw, or face velocity of each hood, or other comparable air flow indication method.	Minn. R. 7007.0800, subp. 5
The Permittee shall maintain either a continuous hard copy readout of the temperature in the combustion chamber, or maintain a hard copy of manual readings taken at least every 15 minutes when in operation.	Minn. R. 7007.0800, subp. 5
The Permittee shall install the necessary monitoring equipment for measuring and recording the temperature as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the process is in operation in order for the VOC emissions from the process to be considered controlled.	Minn. R. 7007.0800, subp. 4
The Permittee shall maintain each piece of control equipment according to the manufacturer's specifications, shall conduct inspections, and shall maintain documentation of those actions.	Minn. R. 7007.0800, subp. 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item: CE 003 Mat or Panel Filter**

- Associated Items:** EU 013 Booths Without Spray Application Equipment  
 EU 014 Spray Booth 209- C163A - 1  
 EU 015 Spray Booth 209-C163A-2  
 EU 016 Spray Booth 209-N-132  
 EU 018 Spray Booth 216-2S  
 EU 022 Spray Booth 235-WN-116  
 EU 025 Spray Booth 240-SE Wall  
 EU 026 Spray Booth 250-E-126A  
 EU 028 Spray Booth 250-E-118  
 EU 031 Spray Booth 251-B-230  
 EU 032 Spray Booth 251-B-242  
 EU 033 Spray Booth 251-B-330  
 EU 034 Can Spray Booth 250-23E-91-I/O-8, # 11; 250-E-313  
 GP 001 All Pilot Plant VOC  
 GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. EMISSIONS AND OPERATING LIMITS	hdr
For Booths that are not total enclosures as defined in Minn. R. 7011.0060, subp.5: Operate and maintain control equipment to limit Particulate Matter < 10 micron: greater than or equal to 74 percent control efficiency	Minn. R. 7007.0800, subp. 2
For Booths that are not total enclosures as defined in Minn. R. 7011.0060, subp.5: Operate and maintain control equipment to limit Total Particulate Matter: greater than or equal to 74 percent control efficiency	Minn. R. 7007.0800, subp. 2
B. MONITORING AND RECORDKEEPING	hdr
Hood Certification and Recordkeeping. If the control device does not have a total enclosure as defined in Minn. R. 7011.0060, subp. 5, the Permittee can use the hood control efficiency listed in this permit (74%) if the hood conforms to the rule requirements listed in Minn. R. 7011.0070, subp. 1 and the Permittee certifies this as required in Minn. R. 7011.0070, subp. 3. The Permittee shall maintain a copy of this on site, as well as a monthly record of the fan rotation speed, fan power draw, or face velocity of each hood, or other comparable air flow indication method.	Minn. R. 7007.0800, subp. 2
With each use of the spray booth, the Permittee shall visually inspect the condition of the wall filters, including but not limited to, alignment, saturation, tears, and holes. If the filters are found to need repair or replacement, the researcher shall make the correction or notify plant maintenance immediately, and the booth shall not be used until the filters are repaired or replaced. The Permittee shall maintain a written record of any action resulting from the inspection.	Minn. R. 7007.0800, subp. 4
Monthly Filter Inspection. The Permittee shall inspect and record the filter condition every calendar month if the booth was operated that month. The Permittee shall visually inspect the condition of the wall filters, including but not limited to, alignment, saturation, tears, and holes. The Permittee shall maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 4
Periodic Inspections. The Permittee shall inspect the control equipment components as frequently as required by the manufacturing specification, or as specified in an Operation and Maintenance Plan that follows standard industry practices. The Permittee shall inspect components that are subject to wear or plugging, for example: bearings, belts, hoses, fans, nozzles, orifices, and ducts. The Permittee shall also inspect components that are not subject to wear including structural components, housings, ducts, and hoods. The Permittee shall maintain a written record of the inspection and any action resulting from the inspection. This can be in the form of computer records.	Minn. R. 7007.0800, subp. 14
The Permittee shall operate the control equipment monitoring equipment at all times the control equipment is required to operate.	Minn. R. 7007.0800, subp. 4

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** CE 004 Solvent Recovery Unit

**Associated Items:** GP 001 All Pilot Plant VOC

GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. OPERATING LIMITS	hdr
<p>The operation of this piece of control equipment is not necessary in order for the process to meet applicable emissions limits. However, the Permittee wishes to take credit for its operation for the purposes of reporting actual emissions for emission inventory. Therefore, in order for the VOC to be considered controlled for the purposes of emissions inventory, the solvent recovery device must comply with the requirements of this permit during the time credit for control is taken. The VOC used during that time shall be considered controlled, and a mass balance will be used to calculate emissions from the control device.</p>	<p>Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)</p>
B. MONITORING AND RECORDKEEPING	hdr
<p>Recordkeeping: The Permittee shall keep a log that shows when the control equipment was operated and at what emissions unit. The VOC emission reduction will be determined by mass balance over the solvent recovery device. The Permittee shall maintain monthly records of the weight of VOC used and the weight of VOC recovered per the Recovery requirement listed in the Total Facility part of this permit.</p>	<p>Minn. R. 7007.0800, subp. 5</p>
<p>Hood Certification and Recordkeeping. If the control device does not have a total enclosure as defined in Minn. R. 7011.0060, subp. 5, the Permittee can use a hood capture efficiency of 60% if the hood conforms to the rule requirements listed in Minn. R. 7011.0070, subp. 1 and certifies this as required in Minn. R. 7011.0070, subp. 3. The Permittee shall maintain a copy of this on site, as well as a monthly record of the fan rotation speed, fan power draw, or face velocity of each hood, or other comparable air flow indication method.</p>	<p>Minn. R. 7007.0800, subp. 5</p>
<p>Monitoring: The Permittee shall install the necessary monitoring equipment for measuring and recording the cumulative VOC recovered by the device over a calendar month period as required by this permit. If installation of monitoring equipment is not possible, the cumulative amount of VOC recovered shall be manually recorded on a monthly basis for months when the control equipment is in use. The monitoring equipment must be installed, in use, and properly maintained, or the recordkeeping system must be in use, when the process is in operation in order for the VOC emissions from the process to be considered controlled in the calculations in this permit.</p>	<p>Minn. R. 7007.0800, subp. 4</p>
<p>The Permittee shall maintain each piece of control equipment according to the manufacturer's specifications, shall conduct inspections, and shall maintain documentation of those actions.</p>	<p>Minn. R. 7007.0800, subp. 14</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** CE 005 Mat or Panel Filter

- Associated Items:** EU 013 Booths Without Spray Application Equipment  
 EU 020 Spray Booth 230-G43B  
 EU 023 Spray Booth 235-A-353  
 EU 027 Spray Booth 250-E-127  
 EU 029 Spray Booth 250-E-123A  
 EU 034 Can Spray Booth 250-23E-91-I/O-8, # 11; 250-E-313  
 GP 001 All Pilot Plant VOC  
 GP 003 Facility Wide Firm Natural Gas Cap

What to do	Why to do it
A. EMISSIONS AND OPERATING LIMITS	hdr
For Booths that are total enclosures as defined in Minn. R. 7011.0060, subp. 5: Operate and maintain control equipment to limit Particulate Matter < 10 micron: greater than or equal to 92 percent control efficiency	Minn. R. 7007.0800, subp. 2
For Booths that are total enclosures as defined in Minn. R. 7011.0060, subp. 5: Operate and maintain control equipment to limit Total Particulate Matter: greater than or equal to 92 percent control efficiency	Minn. R. 7007.0800, subp. 2
B. MONITORING AND RECORDKEEPING	hdr
With each use of the spray booth, the Permittee shall visually inspect the condition of the wall filters, including but not limited to, alignment, saturation, tears, and holes. If the filters are found to need repair or replacement, the researcher shall make the correction or notify plant maintenance immediately, and the booth shall not be used until the filters are repaired or replaced. The Permittee shall maintain a written record of any action resulting from the inspection.	Minn. R. 7007.0800, subp. 4
Monthly Filter Inspection. The Permittee shall inspect and record the filter condition every calendar month if the booth was operated that month. The Permittee shall visually inspect the condition of the wall filters, including but not limited to, alignment, saturation, tears, and holes. The Permittee shall maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 4
Periodic Inspections. The Permittee shall inspect the control equipment components as frequently as required by the manufacturing specification, or as specified in an Operation and Maintenance Plan that follows standard industry practices. The Permittee shall inspect components that are subject to wear or plugging, for example: bearings, belts, hoses, fans, nozzles, orifices, and ducts. The Permittee shall also inspect components that are not subject to wear including structural components, housings, ducts, and hoods. The Permittee shall maintain a written record of the inspection and any action resulting from the inspection. This can be in the form of computer records.	Minn. R. 7007.0800, subp. 14
The Permittee shall operate the control equipment monitoring equipment at all times the control equipment is required to operate.	Minn. R. 7007.0800, subp. 4

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R &amp; D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item: CE 006 Centrifugal Collector - Medium Efficiency****Associated Items: EU 010 Carpentry Shops**

<b>What to do</b>	<b>Why to do it</b>
The operation of this piece of control equipment is not necessary in order for the process to meet applicable emissions limits. However, the Permittee wishes to take credit for its operation, based on an MPCA approved performance test, for the purposes of reporting actual emissions for emission inventory. Therefore, in order for the carpentry shop to be considered controlled for the purposes of emissions inventory, the control device must comply with the requirements of this permit during the time credit for control is taken.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F) & Minn. R. 7019.3050
The Permittee shall maintain each piece of control equipment according to the manufacturer's specifications, shall conduct inspections, and shall maintain documentation of those actions.	Minn. R. 7007.0800, subp. 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R &amp; D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** CE 007 Fabric Filter - Low Temperature, i.e., T<180 Degrees F**Associated Items:** EU 010 Carpentry Shops

What to do	Why to do it
The operation of this piece of control equipment is not necessary in order for the process to meet applicable emissions limits. However, the Permittee wishes to take credit for its operation, based on an MPCA approved performance test, for the purposes of reporting actual emissions for emission inventory. Therefore, in order for the carpentry shop to be considered controlled for the purposes of emissions inventory, the control device must comply with the requirements of this permit during the time credit for control is taken.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F) & Minn. R. 7019.3050
The Permittee shall maintain each piece of control equipment according to the manufacturer's specifications, shall conduct inspections, and shall maintain documentation of those actions.	Minn. R. 7007.0800, subp. 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** CE 008 Mat or Panel Filter

**Associated Items:** EU 022 Spray Booth 235-WN-116

EU 025 Spray Booth 240-SE Wall

EU 026 Spray Booth 250-E-126A

EU 028 Spray Booth 250-E-118

EU 034 Can Spray Booth 250-23E-91-I/O-8, # 11; 250-E-313

What to do	Why to do it
A. EMISSIONS AND OPERATING LIMITS	hdr
For Booths that are not total enclosures as defined in Minn. R. 7011.0060, subp.5: Operate and maintain control equipment to limit Particulate Matter < 10 micron: greater than or equal to 74 percent control efficiency	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21
For Booths that are not total enclosures as defined in Minn. R. 7011.0060, subp.5: Operate and maintain control equipment to limit Total Particulate Matter: greater than or equal to 74 percent control efficiency	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21
B. MONITORING AND RECORDKEEPING	hdr
Hood Certification and Recordkeeping. If the control device does not have a total enclosure as defined in Minn. R. 7011.0060, subp. 5, the Permittee can use the hood control efficiency listed in this permit (74%) if the hood conforms to the rule requirements listed in Minn. R. 7011.0070, subp. 1 and the Permittee certifies this as required in Minn. R. 7011.0070, subp. 3. The Permittee shall maintain a copy of this on site, as well as a monthly record of the fan rotation speed, fan power draw, or face velocity of each hood, or other comparable air flow indication method.	Minn. R. 7007.0800, subp. 2
With each use of the spray booth, the Permittee shall visually inspect the condition of the wall filters, including but not limited to, alignment, saturation, tears, and holes. If the filters are found to need repair or replacement, the researcher shall make the correction or notify plant maintenance immediately, and the booth shall not be used until the filters are repaired or replaced. The Permittee shall maintain a written record of any action resulting from the inspection.	Minn. R. 7007.0800, subp. 4
Monthly Filter Inspection. The Permittee shall inspect and record the filter condition every calendar month if the booth was operated that month. The Permittee shall visually inspect the condition of the wall filters, including but not limited to, alignment, saturation, tears, and holes. The Permittee shall maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 4
Periodic Inspections. The Permittee shall inspect the control equipment components as frequently as required by the manufacturing specification, or as specified in an Operation and Maintenance Plan that follows standard industry practices. The Permittee shall inspect components that are subject to wear or plugging, for example: bearings, belts, hoses, fans, nozzles, orifices, and ducts. The Permittee shall also inspect components that are not subject to wear including structural components, housings, ducts, and hoods. The Permittee shall maintain a written record of the inspection and any action resulting from the inspection. This can be in the form of computer records.	Minn. R. 7007.0800, subp. 14
The Permittee shall operate the control equipment monitoring equipment at all times the control equipment is required to operate.	Minn. R. 7007.0800, subp. 4



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item:** CE 009 Mat or Panel Filter

**Associated Items:** EU 027 Spray Booth 250-E-127

EU 029 Spray Booth 250-E-123A

What to do	Why to do it
A. EMISSIONS AND OPERATING LIMITS	hdr
For Booths that are total enclosures as defined in Minn. R. 7011.0060, subp. 5: Operate and maintain control equipment to limit Particulate Matter < 10 micron: greater than or equal to 92 percent control efficiency	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21
For Booths that are total enclosures as defined in Minn. R. 7011.0060, subp. 5: Operate and maintain control equipment to limit Total Particulate Matter: greater than or equal to 92 percent control efficiency	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.2
B. MONITORING AND RECORDKEEPING	hdr
With each use of the spray booth, the Permittee shall visually inspect the condition of the wall filters, including but not limited to, alignment, saturation, tears, and holes. If the filters are found to need repair or replacement, the researcher shall make the correction or notify plant maintenance immediately, and the booth shall not be used until the filters are repaired or replaced. The Permittee shall maintain a written record of any action resulting from the inspection.	Minn. R. 7007.0800, subp. 4
Monthly Filter Inspection. The Permittee shall inspect and record the filter condition every calendar month if the booth was operated that month. The Permittee shall visually inspect the condition of the wall filters, including but not limited to, alignment, saturation, tears, and holes. The Permittee shall maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 4
Periodic Inspections. The Permittee shall inspect the control equipment components as frequently as required by the manufacturing specification, or as specified in an Operation and Maintenance Plan that follows standard industry practices. The Permittee shall inspect components that are subject to wear or plugging, for example: bearings, belts, hoses, fans, nozzles, orifices, and ducts. The Permittee shall also inspect components that are not subject to wear including structural components, housings, ducts, and hoods. The Permittee shall maintain a written record of the inspection and any action resulting from the inspection. This can be in the form of computer records.	Minn. R. 7007.0800, subp. 14
The Permittee shall operate the control equipment monitoring equipment at all times the control equipment is required to operate.	Minn. R. 7007.0800, subp. 4

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

**Subject Item: CE 010 Fabric Filter - Low Temperature, i.e., T<180 Degrees F**

**Associated Items: EU 040 250 Automotive Room Vacuum System**

What to do	Why to do it
A. EMISSIONS AND OPERATING LIMITS	hdr
Pressure Drop: greater than or equal to 0.45 inches of water column and less than or equal to 0.80 inches of water column , recorded once each operating day.	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21(permit 23E-91-I/O-8)
The Permittee shall operate the control equipment any time the emission unit (EU040) is operated.	Title I Condition: Limit taken to avoid major modification classification under 40 CFR Section 52.21(permit 23E-91-I/O-8)
Calibrate the pressure gauge annually, or as often as required by manufacturing specifications, and maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 2 & 14
The Permittee shall maintain each piece of control equipment according to the manufacturer's specifications, shall conduct inspections, and shall maintain documentation of those actions.	Minn. R. 7007.0800, subp. 14

**TABLE B: SUBMITTALS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood  
Permit Number: 12300015 - 003

Table B lists most of the submittals required by this permit. Please note that some submittal requirements may appear in Table A or, if applicable, within a compliance schedule located in Table C. Table B is divided into two sections in order to separately list one-time only and recurrent submittal requirements.

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by parts 7007.0100 to 7007.1850 must be certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Other submittals shall be certified as appropriate if certification is required by an applicable rule or permit condition.

Send any application for a permit or permit amendment to:

Permit Technical Advisor  
Permit Section  
Air Quality Division  
Minnesota Pollution Control Agency  
520 Lafayette Road North  
St. Paul, Minnesota 55155-4194

Also, where required by an applicable rule or permit condition, send to the Permit Technical Advisor notices of:

- accumulated insignificant activities,
- installation of control equipment,
- replacement of an emissions unit, and
- changes that contravene a permit term.

Unless another person is identified in the applicable Table, send all other submittals to:

Supervisor  
Compliance Determination Unit  
Air Quality Division  
Minnesota Pollution Control Agency  
520 Lafayette Road North  
St. Paul, Minnesota 55155-4194

Send submittals that are required to be submitted to the U.S. EPA regional office to:

Mr. George Czerniak  
Air and Radiation Branch  
EPA Region V  
77 West Jackson Boulevard  
Chicago, Illinois 60604

**TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS**

07/27/98

Facility Name: 3M - R & D Facility - Maplewood

Permit Number: 12300015 - 003

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit . The application shall describe the facility (in terms of emission units, stacks, etc.) as it exists at the time of the application. Updated stack information shall be provided for the pilot plant equipment.	Total Facility
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup . Submit the name and number of each unit and the actual date of initial startup of each unit. This applies to new or existing units that become affected facilities under 40 CFR Section 60.40c after permit issuance.	EU007
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup. Submit the name and number of each unit and the actual date of initial startup of each unit. This applies to new, reconstructed, or modified units under 40 CFR Section 60.440.	EU002, EU130
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup. Submit the name and number of each unit and the actual date of initial startup of each unit. This applies to new, reconstructed, or modified units under 40 CFR Section 60.710.	EU003, EU131
Notification of the Anticipated Date of Initial Startup	due 30 days before Anticipated Date of Initial Startup , but no more than 60 days before. Submit the name and number of each unit and the anticipated date of initial startup for each unit. This applies to new or existing units that become affected facilities under 40 CFR Section 60.40c after permit issuance.	EU007
Notification of the Anticipated Date of Initial Startup	due 30 days before Anticipated Date of Initial Startup, but no more than 60 days before. Submit the name and number of each unit and the anticipated date of initial startup for each unit. This applies to new or reconstructed affected facilities under 40 CFR Section 60.440.	EU002, EU130
Notification of the Anticipated Date of Initial Startup	due 30 days before Anticipated Date of Initial Startup, but no more than 60 days before. Submit the name and number of each unit and the anticipated date of initial startup for each unit. This applies to new or reconstructed affected facilities under 40 CFR Section 60.710.	EU003, EU131
Notification of the Date Construction Began	due 30 days after Start Of Construction Submit the name and number of each unit and the date construction of each unit began. This applies to new or existing units that become affected facilities under 40 CFR Section 60.40c after permit issuance.	EU007
Notification of the Date Construction Began	due 30 days after Start Of Construction. Submit the name and number of each unit and the date construction of each unit began. This applies to new or reconstructed affected facilities under 40 CFR Section 60.440.	EU002, EU130
Notification of the Date Construction Began	due 30 days after Start Of Construction. Submit the name and number of each unit and the date construction of each unit began. This applies to new or reconstructed affected facilities under 40 CFR Section 60.710.	EU003, EU131
When the permittee installs this piece of control equipment, they shall send to the MPCA a Notification	due 30 days after Equipment Installation	CE001, CE002
When the permittee installs this piece of control equipment, they shall send to the MPCA a Notification	due 30 days after Equipment Installation	CE004

**TABLE B: RECURRENT SUBMITTALS**

07/27/98

Facility Name: 3M - R &amp; D Facility - Maplewood

Permit Number: 12300015 - 003

<b>What to send</b>	<b>When to send</b>	<b>Portion of Facility Affected</b>
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance . The first report covers January 1 - June 30. The second report covers July 1 - December 31.	Total Facility
Annual Report	due 91 days after end of each calendar year following Permit Issuance (April 1). The Annual Report shall qualitatively describe the changes made at the R&D facility during the previous calendar year. The report shall document the background information and results of the VOC target evaluation, including the target VOCs and new scaling factor. The report shall also include the results of the R&D Evaluation described in Appendix III of this permit. This report may be submitted with the annual emissions inventory, but it shall be a separate document marked as the Annual Report.	Total Facility
Compliance Certification	due 30 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted on a form approved by the Commissioner. The report covers all deviations experienced during the calendar year.	Total Facility
Emissions Inventory Report	due 91 days after end of each calendar year following Permit Issuance (April 1). To be submitted on a form approved by the Commissioner.	Total Facility

## APPENDIX I

**Facility Name: 3M - Research Center - Maplewood**

**Permit Number: 12300015-003**

### Processes Included in BACT:

The purpose of the BACT analysis is to address all R&D equipment—in laboratories, pilot plants, machine shops, and carpentry shops—with regard to volatile organic compounds (VOC) emissions. If the equipment is similar in purpose, emission quantities, and exhaust stream concentrations to equipment explicitly included in the BACT analysis, then it will be considered to be part of this BACT analysis. This BACT analysis covers the following emission units (EU): EU001 through EU004, EU008 through EU020, EU022 through EU034, EU101 through EU122, and EU0124 through EU131.

The following emission units are **not** part of the BACT review:

- Boilers at Bldg. 210
- Emergency generators
- Cooling towers
- Outdoor storage tanks
- Gas station
- Firm natural gas boilers
- Firm natural gas combustion equipment

Equipment that has an existing air permit (other than those listed above) is included within the scope of the analysis.

### R&D VOC Process Description:

R&D describes operations using a wide variety of input materials with a wide variety of small, often modular, multipurpose pieces of equipment with the purpose of developing new, innovative products, processes, and/or technologies. The processes encompassed within R&D at 3M Center are many and varied. The 3M Center Emissions Study identified different types of processes that are used. Some emit VOC, PM/PM<sub>10</sub>, or both, some are non-emitting. A list of the VOC processes is presented below. These processes include: the 39 identified by the 3M Center Emission Study, all previously permitted equipment, all equipment identified in the pilot plants (updated 1997), and the generic equipment list included in the 3M Center R&D permit application.

Although the processes identified appear to be distinct, much of the equipment is used for multiple purposes and uses a wide variety of chemicals. R&D includes both bench-, off-the-bench, and pilot-plant-scale processes, as well as machine shop and carpentry shop activities that support them. Pilot-plant-scale processes have by far greater emissions than a similar bench- or off-the-bench scale process.

<b>R&amp;D VOC Processes Included in BACT</b>		
Absorbing/Adsorbing	Foaming	Photo Processing
Analytical Testing	Filtering	Plating
Aqueous Removal	Firing/Baking (Furnace)	Printing
Chilling	Flagging (Cutting)	Pumping
Cleaning	Grinding	Purifying
Coating/Drying	Hand Spreads	Reacting
Combustion	Heating	Sanding
Compressing	Homogenizing	Sawing
Condensing	Hot Melt Application	Screening
Crushing	Humidifying/Moisturizing	Separator
Curing	Imaging	Sieving
Cutting/Drilling	Lathing	Solvent Tempering
Development	Material Handling, Pouring	Specification Testing
Distilling	Milling	Sterilizers (ethylene oxide)
Drying	Miscellaneous Laboratory Activities	Spraying
Electrophotography	Mixing	Storing/Container/Tanks
Etching	Ozone Generating Units	Treating
Extracting	Packaging	Weighing
Extruding	Packaging Aerosols	Welding/Soldering
Fluidized Bath/Bed		Wet Grinding

## APPENDIX II

**Facility Name: 3M - Research Center - Maplewood**

**Permit Number: 12300015-003**

### **R&D Survey Information:**

3M's approach to safety, health, and environmental issues for R&D is contained in a general set of standard operating procedures called the 3M Guide to Laboratory Practices manual (3M Guide). The 3M Guide is updated annually, available electronically, and is used regularly by R&D employees. This set of good laboratory management practices is highlighted or updated periodically in a newsletter called "3M Laboratory Guidelines" and are typically published monthly in electronic and paper form. 3M's approach incorporates "Four Cardinal Rules" described below:

#### Four Cardinal Rules of Hazardous Waste Management at 3M Center See Section 16 of 3M Guide

1. Hazardous waste must be packaged and labeled as such immediately
2. Never sewer capturable amounts of hazardous materials
3. Never evaporate for the purpose of disposal -- keep containers closed
4. Always follow the compactor/dumpster policy

In addition to these rules, the 3M Guide contains the following key elements that relate to air emissions:

- Procedures for ordering chemicals through central locations. This allows purchases to be reviewed and tracked for the site.
- A chemical hygiene plan with procedures and control measures to protect employees from chemical exposures, per the OSHA Standard 29 CFR Section 1910.1450.
- Processes that prohibit using evaporation for the purpose of solvent disposal.
- Procedures for minimizing lab waste and chemical purchases.
- Procedures for control containment and cleanup of lab spills.
- Procedures for making routine surveys to verify that the lab practices are being followed.



## APPENDIX III

**Facility Name: 3M - Research Center - Maplewood**

**Permit Number: 12300015-003**

### **R&D Evaluation Procedure:**

By April 1 of each year, the Permittee shall verify that the pilot plant operations that are covered by the R&D BACT analysis meet the definition of R&D and are within the scope of the BACT analysis by following the procedure given below.

Activities will be considered to be R&D for the purposes of this permit and the BACT analysis if all of the following criteria are met:

1. They are operated under the close supervision of technically trained personnel, and they are conducted for the primary purpose of theoretical research and development into new or improved processes or products;
2. For any given pilot plant, the percentage of hours worked with an “Intent-to-distribute for sale in commerce”, or ITDFSC, in a calendar year are less than or equal to 15 percent of the total hours worked in the pilot plant in that calendar year; AND
3. For pilot plant emissions units not listed in Table A1 of the BACT, the actual emissions in a calendar year are less than 1 tpy of VOC, and for units listed in Table A1 of the BACT, the actual emissions are less than the Method 5<sup>1</sup> PTE number listed for that unit in Table A1 of BACT.

The Permittee shall include the results of this analysis in the Annual Report listed in Table B of this permit. This report will include the hours and percentage of ITDFSC activities in each pilot plant and information on any emission unit found to have emitted more than 1 tpy of VOC. If the emission unit actual emissions are greater than 1 tpy of VOC, but are less than Method 5<sup>1</sup> PTE in Table A1 of the BACT, this information shall also be provided.

If any pilot plant is found to have ITDFSC activities at greater than 15 percent, or if any emission unit had actual emissions of VOC greater than the Method 5<sup>1</sup> PTE number in Table A1 of the BACT analysis, or greater than 1 tpy of VOC for those units not included in Table A1 of the BACT, the Permittee shall do the following:

1. Meet with the MPCA within 30 days of the date of submitting the Annual Report. The Permittee shall come to the meeting prepared to explain the results of the analysis. This meeting will be used to discuss the reasons for the results and what possible action is necessary, if any.
2. If a permit is found to be necessary, the Permittee shall submit a schedule for applying for the appropriate permit within 14 days of the meeting.

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<sup>1</sup> The Method 4 PTE numbers listed in Table A1 shall be used instead of the Method 5 numbers for the two Building 270 coaters, since these units are limited to their Method 4 PTE.

**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**AIR EMISSION PERMIT NO. 12300015-003**  
**(Amendment to Permit 12300015-002)**

This technical support document is for all the interested parties of the permit and to meet the requirements that have been set forth by the federal regulations and Minnesota Rules (40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp. 1.). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the determination to issue the permit.

**1. General Information**

1.1. Applicant and Stationary Source Location:

Applicant/Address	Stationary Source/Address (SIC Code: 8731)
3M Company	3M Research and Development Center
900 Bush Avenue, Bldg. 42-2E-27	I-94 and McKnight Rd
P.O. Box 33331	Maplewood, Minnesota 55144-1000
St. Paul, Minnesota 55133-3331	

1.2. Description of the Amendment

This is an administrative amendment under Minn. R. 7007.1400, subp. 1(G) to the Part 70 operating permit for this facility that was issued May 14, 1998 (Air Emission Permit No. 12300015-002). This amendment clarifies what monitoring requirements apply to certain emissions units as described below. See the Total Facility Permit Technical Support Document (TSD) for information about the stationary source and the original permit conditions.

Background:

The total facility permit contains the requirements of 40 CFR pt. 60, subp. RR and SSS for units that are below certain usage thresholds (see permit requirements for EU002 and EU003). The installation of additional units, or the modification or reconstruction of existing units such that they become affected facilities, was pre-authorized by the original permit, as long as the change is within the scope of the BACT analysis, does not trigger requirements different than those in the permit (e.g., must be below usage thresholds of the applicable NSPS), and as long as the change does not cause an increase of a different regulated pollutant that, by itself, would need a permit amendment.

The permit gave the Permittee the option of proposing alternative monitoring under 40 CFR 60.13(i) for both subparts RR and SSS. If a plan is approved by EPA, the permit makes it enforceable in place of the requirements listed in the permit.

The Permittee submitted a proposal that was approved by EPA in a May 26, 1998, letter. This amendment clarifies which emissions units can follow the alternative plan versus the standard requirements already listed in the permit.

### 1.3 Facility Emissions:

There is no change in emissions associated with this amendment. See the TSD from the original Part 70 operating permit for more information on the facility emissions. The existing facility is major for all permitting programs.

### 1.4 Confidentiality of Information

Confidential treatment of information from facilities is allowed under Minnesota and federal law if certain conditions are met (Minn. Stat. § 13.37 and Minn. Stat. § 116.07, subd. 2.). Emissions data is required to be public information under the Clean Air Act (42 U.S.C. § 7414(c)); however, U.S. EPA has a very narrow definition of emissions data for research and development facilities (40 CFR § 2.301(a)(2)(ii)).

The MPCA agreed that some of the information submitted by 3M that was used in the development of the proposed permit amendment should be treated as confidential information. Specifically, emission unit information regarding manufacturer, model number, and location at the site is being treated as confidential information under Minn. Stat. § 116.075, subd. 2. Some data collected by the source that will be used in calculations required by the permit can be treated as confidential information under the provisions given for R&D information under 40 CFR § 2.301.

### 1.5 Delta Permit Issues

This permit amendment deviates from some of the standard AQD policy and guidance regarding drafting permits in the Delta system. The permit team decision to not follow all guidance is based on the uniqueness of this source.

#### Emission Units (EUs):

Traditionally, all individual emission units are entered into the computer system and are then listed in the permit with their appropriate requirements. As explained in the TSD for the original Part 70 permit, wherever possible, the individual pieces of equipment were not entered into the actual permit database. The majority of emission units defined in the permit are actually categories of units (e.g., Equipment subject to 40 CFR pt. 60, subp. SSS). All equipment at the source falls into one of the categories, and may fall into more than one. Equipment that has recordkeeping, monitoring, and reporting requirements must be labeled as belonging to one of the categories. This will enable an inspector to identify the units and determine what limits and requirements apply. The only units that are entered individually are the ones with unit specific limits or tracking requirements. In this amendment, the specific coating equipment that exists and is approved to follow the alternative monitoring plan is entered as EU124-129. EU130 (subp. RR) and EU131 (subp. SSS) represent any new units added after May 14, 1998 (the date of the original permit issuance).

### Ordering of Requirements:

The AQPS has guidance on the preferred ordering of requirements in Delta with suggested headers that can be used to divide the requirements. The order in this permit was chosen by the Permittee. See the TSD for the original Part 70 permit for more information.

## 2. Regulatory and/or Statutory Basis of Limits

### Regulatory Overview of Amendment

EU or GP	Applicable Regulations	Comments:
EU002	40 CFR pt 60, subp. RR	<p>New Source Performance Standard for Pressure Sensitive Tape and Label Surface Coating Operations</p> <p>This EU represents the affected facilities that use coatings that contain VOC, including existing, new, reconstructed, or modified facilities. The 6 affected facilities that were in operation before May 14, 1998, and that use solventless coatings (no VOC), and any new, modified, or reconstructed affected facilities that use solventless coatings are now listed elsewhere and can follow the alternative monitoring plan approved by EPA.</p> <p>All coating equipment covered by this EU use less than the VOC threshold given in 40 CFR § 60.440(b), so only recordkeeping applies. If VOC usage goes above the thresholds in 40 CFR § 60.440(b), the Permittee must obtain an amendment to add the additional requirements from the standard (e.g., emission or control limits).</p>
EU003	40 CFR pt. 60, subp. SSS	<p>New Source Performance Standard for Magnetic Tape Coating Facilities</p> <p>This EU represents all affected facilities that use coatings that contain VOC, including existing, new, reconstructed, or modified facilities. Any new, modified, or reconstructed affected facilities that use solventless coatings (not VOC) are now listed elsewhere and can follow the alternative monitoring plan approved by EPA (note: there are no existing affected facilities that use solventless coatings).</p> <p>All coating equipment covered by this EU use less than the VOC threshold given in 40 CFR § 60.710(b) so only recordkeeping and reporting applies. If usage goes above the thresholds, the Permittee must obtain an amendment</p>

EU or GP	Applicable Regulations	Comments:
		to add the additional requirements from the standard (e.g., emission or control limits).
GP005: EU124 - EU129, EU130	40 CFR pt 60, subp. RR	<p>New Source Performance Standard for Pressure Sensitive Tape and Label Surface Coating Operations</p> <p>This GP includes the 6 affected facilities that were in operation before May 14, 1998, and that use solventless coatings, AND any new, modified, or reconstructed affected facilities that use solventless coatings (EU130). These operations may have some incidental VOC usage (e.g., for cleanup), but the coatings are solventless (no VOC). These affected facilities must comply with the NSPS requirements (e.g., notifications and reporting), but can follow the alternative monitoring plan approved by EPA.</p> <p>All coating equipment covered by this GP must use less than the VOC threshold given in 40 CFR § 60.440(b), so only recordkeeping applies.</p>
EU131	40 CFR pt 60, subp. SSS	<p>New Source Performance Standard for Magnetic Tape Coating Facilities</p> <p>This EU represents any new, modified, or reconstructed affected facilities that use solventless coatings. These operations may have some incidental VOC usage (e.g., for cleanup), but the coatings are solventless (no VOC). These affected facilities must comply with the NSPS requirements (e.g., notifications and reporting), but can follow the alternative monitoring plan approved by EPA.</p> <p>All coating equipment covered by this EU must use less than the VOC threshold given in 40 CFR § 60.710(b), so only recordkeeping applies.</p>

**NSPS Notifications:**

MPCA staff reviewed the notifications required under 40 CFR § 60.7(a)(1) through (4) and have determined that the following notifications apply to the various types of changes:

<b>Notification</b>	<b>Type of change that requires the notice</b>	<b>Clarification</b>
Start of construction 40 CFR § 60.7(a)(1)	new or reconstructed affected facilities	It is clear from the rule language and the definition of construction in 40 CFR § 60.2 and reconstruction in 40 CFR § 60.15 that this notice is not required for modifications (the definitions do not include the term modification).
Anticipated date of startup 40 CFR § 60.7(a)(2)	new or reconstructed affected facilities	It seems clear that the intent was not to require this notice for modifications since there is a separate notification of the “expected completion date of the change” for modifications. This would be a redundant notice. See the last notification is this table.
Actual date of startup 40 CFR § 60.7(a)(3)	new or reconstructed, affected facilities or modified existing facilities (see definition below or 40 CFR § 60.14)	This notice is needed to determine the performance test deadlines in 40 CFR § 60.8, so it is necessary for all types of changes.
Expected Completion Date of the Change and various other information about the change* 40 CFR § 60.7(a)(4)	modified existing facilities (physical or operational changes that turn existing facilities into affected facilities)	no clarification necessary

\*Information describing the precise nature of the change, present and proposed emission control systems, and productive capacity of the facility before and after the change.

### 3. Conclusion

Based on the information provided by 3M Company, the MPCA has reasonable assurance that the proposed modification and operation of the emission facility, as described in the Air Emission Permit No. 12300015-003 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

<b>Attachments:</b> 1. Letter from EPA dated May 26, 1998 2. 3M Alternative Monitoring Proposal 3. Compliance Plan from the permit amendment application (Select pages of Form CD-01)	Need further information? <u>Permit Engineer:</u> Peggy Bartz Telephone No.: (612)297-8113 <u>MPCA Permit Team Members:</u> Cary Hernandez and Bob Berg
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**ATTACHMENT 1**  
**EPA LETTER DATED MAY 26, 1998**

**ATTACHMENT 2**  
**3M ALTERNATIVE MONITORING PROPOSAL**



**ATTACHMENT 3**  
**COMPLIANCE PLAN FORMS**