



# **COMMONWEALTH of VIRGINIA**

*DEPARTMENT OF ENVIRONMENTAL QUALITY*  
TIDEWATER REGIONAL OFFICE

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David K. Paylor  
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## **STATEMENT OF LEGAL AND FACTUAL BASIS**

Mica Company of Canada, Incorporated  
Newport News, Virginia  
Permit Number: TRO-60208

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Mica Company of Canada, Inc. has applied for a Title V Operating Permit for its Newport News Mica Sheet Laying Facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact:

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## **I. FACILITY INFORMATION**

### Permittee

Mica Company of Canada, Incorporated  
900 Jefferson Avenue  
Newport News, Virginia 23607

### Facility

Newport News Mica Sheet Laying Facility  
Mica Company of Canada, Incorporated  
900 Jefferson Avenue  
Newport News, Virginia 23607

County-Plant Identification Number: 51-700-00019

### **A. SOURCE DESCRIPTION**

NAICS Code: 327999 - Production of mica for use in various applications including insulation for appliances and in transformers.

Layout of Operations - There are two coating lines (CL1 and CL2) and four pressing lines (P1 - P4) that combine to form the finished products.

Laying of Mica Splittings and Binder Application - Mica splittings, including raw mica, is combined with a binder resin of various formulations and laid out on the belts of the continuous lay machines (CLs). The binder contains VOCs that are emitted from the binder/mica mixture during the initial laying-out of the mixtures and then also in the curing ovens.

Pressing of Mica Sheets and Final Processing - Following the CL process, the mica sheets are heat pressed by the hydraulic laminating presses. The mica sheet product may be further processed by additional curing in ovens, or milled and sanded to a precise thickness and could even be painted to specifications in some instances. Emissions from the process include particulates from mica handling operations and VOCs/HAPs from the solvents used in the binders. Particulate emissions are controlled by cyclones since most of the particulate is 100 microns or larger. Currently there are no VOC controls at this facility.

The facility is a Title V major source of VOCs and HAPs. The facility is not subject to any New Source Performance Standards (NSPS), but has been issued a New Source Review permit as a major source on August 24, 1998.

## **II. COMPLIANCE STATUS**

A full compliance evaluation of this facility, including a site visit, has been conducted. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

### III. EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

Emission Unit ID No.	Stack ID No.	Emission Unit Description	Size/Rated Capacity	Pollutant Controlled	Applicable Permit Date
<b>Fuel Burning Equipment</b>					
B1	S1	Iron Fireman boiler, Model 301-H-250, 1967	9.8 MMBtu/hr	N/A	Unpermitted, existing unit
<b>Process Equipment</b>					
C1	S2	Mica cleaning machine, 1982	173 lbs/hr	PM	8/24/1998
CL1	1A, 1B, 1C, 1D	Adhesive coating station and curing oven, 1982	215 lbs/hr, total VOC, CL1 + CL2	PM	8/24/1998
CL2	None	Adhesive coating station and curing oven, 1981	215 lbs/hr, total VOC, CL1 + CL2	N/A	8/24/1998
P1 - P4	None	Laminating presses, 1981	215 lbs/hr, total	N/A	8/24/1998
M1	S3	Milling machines, 1974 & 1981	1755 lbs/hr, total	PM	8/24/1998
ST1	None	Solvent storage (pre-1972)	5,000 gals/hr	N/A	8/24/1998

### IV. EMISSIONS INVENTORY

A copy of the 2009 annual emission update is attached. Emissions are summarized in the following table.

#### 2009 Actual Emissions

2009 Criteria Pollutant Emissions in Tons/Year					
Criteria Pollutants	VOC	CO	SO <sub>2</sub>	PM <sub>10</sub>	NO <sub>x</sub>
Facility wide Totals	31.442	0.176	0.001	0.016	0.210
2009 Hazardous Air Pollutant (HAP) Emissions in Tons/Year					
HAP	MEK (non-HAP)	Methanol	Toluene		
Facility wide Totals	0.090	13.810	16.390		

### V. EMISSION UNIT APPLICABLE REQUIREMENTS

#### Fuel Burning Equipment Requirements (Boiler B1)

##### A. Limitations

The process boiler, Emission Unit B1, was not included in the NSR permit issued August 24, 1998, and is considered exempt from NSR permitting due to its maximum Btu/hr heat input capacity. However, the following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-40-900 Existing Source Standard for Particulate Emissions; provides an emission limit based on the heat input at maximum capacity of the combustion device.

9 VAC 5-40-930 Existing Source Standard for Sulfur Dioxide Emissions; provides an emission limit based on the heat input at maximum capacity of the combustion device.

9 VAC 5-40-940.B Existing Source Standard for Visible Emission: “Units may not emit greater than 20% opacity except for one six-minute period in any one hour of not more than 60% opacity (reference 40 CFR 60, Appendix A, Method 9).

9 VAC 5-40-20.E Facility and Control Equipment Maintenance or Malfunction. “At all times, facility, including associated air pollution equipment, must be maintained and operated in a manner consistent with air pollution control practices for minimizing emissions.

## **B. Monitoring**

The original permit of August 24, 1998 does not list any emissions limits for the process boiler, Emission Unit B1. However, standards for particulate, sulfur dioxide plus monitoring for opacity have been applied to the boiler in Conditions III.A.1, III.A.2 and III.B.1 of the Title V permit. Without any fuel throughput limits or corresponding calculated emission limits for criteria pollutants, what is left includes particulate, visible emissions and sulfur dioxide standards for fuel burning equipment which is applicable to this emissions unit.

Demonstration of Expected Emissions from Emission Unit B1:

- AP-42 lists the No. 2 fuel emission factor as 2 lbs PM per thousand gallons of oil.
- Maximum heat input = 9.8 MMBtu/hr x 1/0.138 MMBtu/gal = 71 gallons/hr fuel flow.
- Maximum PM emissions = 2 lbs/10<sup>3</sup> gals x 0.071 thou. gals/hr = 0.142 lbs-PM/hr
- 0.142 lbs is less than the standard of 5.9 lbs/hr-PM in condition III.A.1.
- AP-42 lists the No. 2 distillate fuel oil emission factor as 142(S) lbs-SO<sub>2</sub> per thou-gals of oil.
- Maximum SO<sub>2</sub> emissions = 142(0.5) x 0.071 thou-gals/hr = 5.04 lbs-SO<sub>2</sub>/hr
- 5.04 lbs/hr is less than the standard of 25.9 lbs/hr in condition III.A.2.

Any existing fuel burning equipment unit shall not discharge any visible emissions which exhibit greater than 20% opacity, except for one six-minute period in any one hour of not more than 60% opacity. Failure to meet the requirements of this section because of the presence of water vapor shall not be a violation of this section. (9 VAC 5-40-940)

## **C. Recordkeeping**

The permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include a logbook for recording any abnormal opacity observations, any Method 9 VEE required and corrective action taken to restore normal operations. Additional records are required to establish the fuel types to be burned in the process boiler, Emission Unit B1. The listing of the DEQ-approved pollutant-specific emission factors for the criteria pollutants emitted from the boiler along with calculations of these emissions.

## **D. Testing**

The permit does not require source tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

## **E. Reporting**

The permit does not require any reporting, other than the ‘Annual Compliance Certification’ that the source must submit by March 1<sup>st</sup> for each calendar year per Condition VII.D.

## **F. Streamlined Requirements**

The Title V permit does not contain any streamlining.

## Emission Unit Requirements (C1, CL1, CL2, M1, and P1 - P4)

### A. Limitations

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5-50-80 New Source Standard for Visible Emissions; “units may not emit greater than 20% opacity except for one six-minute period in any one hour of not more than 30% opacity (reference 40 CFR 60, Appendix A, Method 9)”.

9 VAC 5-50-380 Facility and Control Equipment Maintenance or Malfunction; “at all times, facility, including associated air pollution control equipment, must be maintained and operated in a manner consistent with air pollution control practices for minimizing emissions.

9 VAC 5-50-260 Standard for Stationary Sources; requires Best Available Control Technology (BACT).

9 VAC 5-40-3430A Standard for Volatile Organic Compounds; the filling standard requires a 60% or greater reduction in VOC emissions during tank filling operations.

The following limitations are derived from the NSR permit issued August 24, 1998:

Particulate emissions controlled by cyclones; Units C1 and CL1; Condition 3 of August 24, 1998 NSR permit;

The Facility is limited to the throughput of 179 tons of VOCs per year; Condition 4 of the August 24, 1998 NSR permit;

The annual throughput of raw mica is limited to 1,095 tons; Condition 5 of the August 24, 1998 NSR permit;

Visible emissions from the cyclones are limited to 20% and 30% as a new/modified source standard; Condition 7 of the August 24, 1998 NSR permit; and

Facility emissions are limited by permit condition to the following:

VOC	215.0 lbs/hour	179.0 tons/year	9 VAC 5-50-260
Methanol	167.5 lbs/hour	179.0 tons/year	
MEK	215.0 lbs/hour	179.0 tons/year	
Toluene	215.0 lbs/hour	179.0 tons/year	

Condition 6 of the August 24, 1998 NSR permit.

A correction was made regarding the pollution control device (PCD) cited in the previous May 2, 2006 Title V permit as being used to control particulate emissions from the continuous lay machine #2 (CL2). The Emission Units Table on page 4 and the Process Equipment Requirements (Section IV. A. 2) on page 7 of the previous Title V permit incorrectly indicated the continuous lay machine #2 (CL2) as having particulate emissions controlled by a cyclone. This particular continuous lay machine has no particulate emissions associated with its operation due to the fact that mica sheets are placed directly onto pre-coated adhesive sheets of paper, which generate no particulates from the mica. Since its installation in 1981, there have never been any PCDs associated with this continuous lay machine (CL2). It is important to note that this correction to the Title V permit does not result in any emission changes to the permit.

**B. Monitoring**

The monitoring and recordkeeping requirements in Conditions 7 and 8 of the August 24, 1998 NSR permit have been modified to meet Part 70 requirements. The source will monitor for opacity emissions from the cyclone and fabric filter on a weekly basis and take appropriate action if necessary. Since it has been established, in the past, that the mica dust emissions have a gradation that is primarily above the PM10 range, the bulk of the particulate emissions should be considered to be non-PM10 emissions. Also, the VOC emissions from this source are uncontrolled and based solely on the use of the raw materials in the mica laying process. Therefore, all VOCs used in this facility are emitted without control and no monitoring of these emissions is necessary.

Demonstration of Expected Emissions from Units C1, CL1, CL2 and P1-P4:

DEQ approved emission factors for VOC = 1 lb emitted for 1 lb of throughput.

VOC	215.0 lbs/hr throughput x 1 lb per lb = 215.0 lbs/hr emitted
Methanol	167.5 lbs/hr throughput x 1 lb per lb = 167.5 lbs/hr emitted
MEK	215.0 lbs/hr throughput x 1 lb per lb = 215.0 lbs/hr emitted
Toluene	215.0 lbs/hr throughput x 1 lb per lb = 215.0 lbs/hr emitted

DEQ approved emission factors for VOC = 1 ton emitted for 1 ton of throughput.

VOC	179.0 tons/yr throughput x 1 ton per ton = 179.0 tons/yr emitted
Methanol	179.0 tons/yr throughput x 1 ton per ton = 179.0 tons/yr emitted
MEK	179.0 tons/yr throughput x 1 ton per ton = 179.0 tons/yr emitted
Toluene	179.0 tons/yr throughput x 1 ton per ton = 179.0 tons/yr emitted

Demonstration of Expected Emissions from the milling machine, Emission Unit M1:

Process weight rate = 0.8775 tons/hr  $E = 4.10 \times P^{0.67} = 4.10 \times (0.88)^{0.67} = 3.76 \text{ lbs/hr.}$

Therefore, Maximum PM emissions = 0.8775 tons x 2000 lbs/ton x 0.04% (uncollected dust)  
 Equals 1,755 lbs/hr x 0.0004 = 0.70 lbs/hr, which is less than 3.76 lbs/hr allowable.

In Mica's operation, various combinations of the solvents are used together in specific binder formulas, as necessary, to produce a product with exacting specifications of flexibility, hardness and heat resistance. Any of the various solvents and HAPs used in the process will always be less than the VOC limit of 179.0 tons per year and also conform to the hourly limits in the permit. Since the output of VOCs can never exceed the input, the emissions are tied to a one to one ratio with the permit throughput limits. Therefore, the Source can show compliance with the permit limits by demonstrating adherence to the permitted throughput limits. This relationship has been illustrated above.

**C. Recordkeeping**

The permit includes requirements for maintaining records of all monitoring and testing necessary to show compliance with the Title V permit. Records of the DEQ-approved calculations used to show compliance with Condition IV.A.9 shall also be included. Records shall be kept for all emission data and operating parameters to demonstrate compliance with the permit. Records shall include throughputs of VOCs, HAPs and raw mica, visual evaluations and VEEs performed.

Condition 8 of the August 24, 1998 NSR permit.

**D. Testing**

The permit does not require source tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

## **E. Reporting**

Reporting of facility malfunctions and excess emissions shall be included.

Condition 11 of the August 24, 1998 NSR permit

The permit requires a report of upset conditions and any excess emissions of HAPs that occur as a result of the upset condition. The source is required to send a statement that explains the particulars of the incident within fourteen (14) calendar days.

## **F. Streamlined Requirements**

The Title V permit does not contain any streamlining.

## **G. GENERAL CONDITIONS**

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

### **1. Comments on General Conditions**

#### **a. Condition B. Permit Expiration**

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.2-604 and §10.1-1185 of the *Code of Virginia*, and the “Department of Environmental Quality Agency Policy Statement No. 3-2006”.

This general condition cite(s) the Article(s) that follow(s):

Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. Federal Operating Permits for Stationary Sources

This general condition cites the sections that follow:

9 VAC 5-80-80. Application

9 VAC 5-80-140. Permit Shield

9 VAC 5-80-150. Action on Permit Applications

#### **b. Condition F. Failure/Malfunction Reporting**

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four (4) hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two (2) days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four (4) daytime business hours of discovery of the malfunction.

c. Condition J. Permit Modification

This general condition cites the sections that follow:

9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources

9 VAC 5-80-190. Changes to Permits.

9 VAC 5-80-260. Enforcement.

9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources

9 VAC 5-80-1790. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas

9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

d. Condition U. Malfunction as an Affirmative Defense

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on general condition F.

e. Condition Y. Asbestos Requirements

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

## **VI. STATE ONLY APPLICABLE REQUIREMENTS**

The following Virginia Administrative Codes have specific requirements only enforceable by the State and have been identified as applicable by the applicant:

9 VAC 5, Chapter 50, Part II, Article 2: Standards of Performance for Odorous Emissions

9 VAC 5, Chapter 60, Part II, Article 5: Emission Standards for Toxic Pollutants

## **VII. FUTURE APPLICABLE REQUIREMENTS**

This facility is a major source of Hazardous Air Pollutants. The EPA has not proposed any MACT for this particular source category as of yet.

## **VIII. INAPPLICABLE REQUIREMENTS**

The startup, shut down, and malfunction opacity exclusion listed in 9 VAC 5-40-20 A 3 cannot be included in any Title V permit. This portion of the regulation is not part of the federally approved state implementation plan. The opacity standard applies to existing sources at all times including startup, shutdown, and malfunction. Opacity exceedances during malfunction can be affirmatively defended provided all requirements of the affirmative defense section of this permit are met. Opacity exceedances during startup and shut down will be reviewed with enforcement discretion using the requirements of 9 VAC 5-40-20 E, which state that "At all times, including periods of startup, shutdown, soot blowing and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air pollution control practices for minimizing emissions."

There are no applicable GHG requirements for the facility at this time, since it is not undergoing PSD for another pollutant.

## IX. COMPLIANCE PLAN

The source does not have the requirement of a compliance plan.

## X. INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation <sup>1</sup>	Pollutant Emitted (5-80-720 B.)	Rated Capacity (5-80-720 C.)
B2	Kewanee boiler	9 VAC 5-80-720 C.2.a	N/A	3.313 MMBtu/hr
MF1	Mica feed belt system	9 VAC 5-80-720 B	PM/PM10	N/A
PC1	Post-curing oven	9 VAC 5-80-720 B	VOC, PM/PM10	N/A
ST2	Toluene storage tank	9 VAC 5-80-720 C	N/A	3,000 gallons
OV1	Temper oven	9 VAC 5-80-720 B	VOC	N/A

<sup>1</sup>The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application

9 VAC 5-80-720 B - Insignificant due to emission levels

9 VAC 5-80-720 C - Insignificant due to size or production rate

## XI. CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for viewing by the public.

## XII. PUBLIC PARTICIPATION

The proposed permit will be placed on public notice in the Daily Press from Wednesday, February 23, 2011 to Friday, March 25, 2011.