

Material Name: MACOR

ID: C-587

*** Section 1 - Chemical Product and Company Identification ***

Glass Codes: 9657

Chemical Name: Glass ceramic

Product Use: Used in the manufacture of glass articles

Manufacturer Information

Corning SAS

Rue Saint Laurent

BP 90094 - Bagneaux sur Loing

77792 Nemours CEDEX, France

Phone: 33 (0) 164 454 395

Emergency # 24 Hr. Chemtrec (International) (703) 527-3887

24 Hr. U.S. CHEMTREC: (800) 424-9300

General Comments

NOTE: CHEMTREC telephone number is to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals.

*** Section 2 - Hazards Identification ***

Emergency Overview

This is a non-combustible, non-reactive solid material. It is supplied in the form of solid glass. Dust or powder may irritate eye, skin tissue or respiratory tract. Rubbing may cause abrasion of cornea or skin. At very high exposure levels the dust may have an effect on the lungs.

Potential Health Effects: Eyes

Dust or powder may irritate eye tissue. Rubbing may cause abrasion of cornea.

Potential Health Effects: Skin

Dust or powder may irritate the skin. Rubbing may cause abrasion of skin. No components in this product are known to be absorbed through the skin.

Potential Health Effects: Ingestion

May cause temporary irritation of the throat, stomach, and gastrointestinal tract.

Potential Health Effects: Inhalation

Dusts of this product may cause irritation of the nose, throat, and respiratory tract. When inhaled in very large amounts, damage to the lung can occur.

HMIS Ratings: Health: 1 **Fire:** 0 **Physical Hazard:** 0 **Pers. Prot.:** Gloves/glasses

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 3 - Composition / Information on Ingredients ***

CAS#	Component	Percent
66402-68-4	Ceramic materials and wares, chemicals	100
Not Available	Aluminum Oxides (**See NOTE Below)	<20
Not Available	Fluorides (**See NOTE Below)	<7

Component Related Regulatory Information

This product may be regulated and have exposure limits as identified in Section 8.

Component Information/Information on Non-Hazardous Components

This glass ceramic is a solid material produced by combining various raw materials (e.g. oxides, etc.), melting these components together, and cooling to a non-crystalline solid having its own unique properties.

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Processing of this article may produce dusts or fumes which are considered hazardous under U.S. 29 CFR 1910.1200 (Hazard Communication) and the Canadian Controlled Product Regulations.

****NOTE:** This component is not a separate component and does not exist in the form of a free oxide, but is included in the glass product. The fluoride component is bound with calcium, potassium, magnesium or aluminum.

***** Section 4 - First Aid Measures *******First Aid: Eyes**

Eye injuries from glass particles should be treated by a physician immediately.

First Aid: Skin

Cuts or abrasions should be treated promptly with thorough cleansing of the affected area.

First Aid: Ingestion

The material is a glass article, and ingestion is unlikely.

First Aid: Inhalation

If dust is causing irritation, move person to non-contaminated air. Call a physician if symptoms persist.

***** Section 5 - Fire Fighting Measures *******General Fire Hazards**

See Section 9 for Flammability Properties.

This material will not burn.

Hazardous Combustion Products

Material may form irritating and toxic gaseous oxides at high temperatures.

Extinguishing Media

Use methods for the surrounding fire.

Fire Fighting Equipment/Instructions

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 0 Other: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

***** Section 6 - Accidental Release Measures *******Containment Procedures**

Avoid creating dusts.

Clean-Up Procedures

If glass is crushed and airborne dust can be generated then use a dust suppressant or HEPA vacuum. Place in a closed container.

Evacuation Procedures

None necessary.

Special Procedures

Regulations vary. Consult local authorities before disposal. Glass products may be recycled.

***** Section 7 - Handling and Storage *******Handling Procedures**

Obtain special instructions for handling glass before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Do not breathe dust. Avoid contact of dust with skin and eyes. Wash hands after handling.

Storage Procedures

Keep container closed when not in use. Store in a dry area. Store locked up.

*** Section 8 - Exposure Controls / Personal Protection ***

Exposure Guidelines

The OSHA air contaminants exposure limits (PELs) are those provided in the 1989 update to 29 CFR 1910.1000. These limits were vacated by OSHA and may not be enforceable.

Component Exposure Limits

Ceramic materials and wares, chemicals (66402-68-4)

ACGIH:	10 mg/m3 TWA (inhalable particles, recommended); 3 mg/m3 TWA (respirable particles, recommended, related to Nuisance particulates)
OSHA (Final):	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction, related to Nuisance particulates)
OSHA (Vacated):	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction, related to Nuisance particulates)
Alberta:	10 mg/m3 TWA (total); 3 mg/m3 TWA (respirable, related to Nuisance particulates)
British Columbia:	10 mg/m3 TWA (total dust); 3 mg/m3 TWA (respirable fraction, related to Nuisance particulates)
Manitoba:	10 mg/m3 TWA (inhalable particles, recommended); 3 mg/m3 TWA (respirable particles, recommended, related to Nuisance particulates)
New Brunswick:	3 mg/m3 TWA (particulate matter containing no Asbestos and <1% Crystalline silica, respirable fraction); 10 mg/m3 TWA (particulate matter containing no Asbestos and <1% Crystalline silica, inhalable fraction, related to Nuisance particulates)
NW Territories:	5 mg/m3 TWA (respirable mass); 10 mg/m3 TWA (total mass, related to Nuisance particulates)
Nova Scotia:	10 mg/m3 TWA (inhalable particles, recommended); 3 mg/m3 TWA (respirable particles, recommended, related to Nuisance particulates)
Nunavut:	5 mg/m3 TWA (respirable mass); 10 mg/m3 TWA (total mass, related to Nuisance particulates)
Ontario:	10 mg/m3 TWA (inhalable particulate); 3 mg/m3 TWA (respirable particulate, related to Nuisance particulates)
Quebec:	10 mg/m3 TWAEV (including dust, inert or nuisance particulates, total dust, containing no Asbestos and <1% Crystalline silica, related to Nuisance particulates)
Saskatchewan:	10 mg/m3 TWA (insoluble or poorly soluble, inhalable fraction); 3 mg/m3 TWA (insoluble or poorly soluble, respirable fraction, related to Nuisance particulates) 20 mg/m3 STEL (insoluble or poorly insoluble, inhalable fraction); 6 mg/m3 STEL (insoluble or poorly insoluble, respirable fraction, related to Nuisance particulates)

Aluminum oxides (may apply to either metal, oxide, or insoluble compounds)

Note that the aluminum in this product is part of the glass product matrix.

ACGIH:	1 mg/m3 TWA (respirable fraction, related to Aluminum)
OSHA (Final):	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
OSHA (Vacated):	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
NIOSH:	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust, related to Aluminum)
Alberta:	10 mg/m3 TWA
British Columbia:	1.0 mg/m3 TWA (respirable, related to Aluminum)
Manitoba:	1 mg/m3 TWA (respirable fraction, related to Aluminum)
New Brunswick:	10 mg/m3 TWA (particulate matter containing no Asbestos and <1% Crystalline silica)

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NW Territories: 10 mg/m3 TWA; 5 mg/m3 TWA (respirable mass); 10 mg/m3 TWA (total mass)
20 mg/m3 STEL

Nova Scotia: 1 mg/m3 TWA (respirable fraction, related to Aluminum)

Nunavut: 10 mg/m3 TWA; 5 mg/m3 TWA (respirable mass); 10 mg/m3 TWA (total mass)
20 mg/m3 STEL

Ontario: 1 mg/m3 TWA (respirable, related to Aluminum)

Quebec: 10 mg/m3 TWAEV (as Al, total dust, containing no Asbestos and <1% Crystalline silica)

Saskatchewan: 10 mg/m3 TWA
20 mg/m3 STEL

Yukon: 30 mppcf TWA (Al₂O₃); 10 mg/m3 TWA (Al₂O₃)
20 mg/m3 STEL (Al₂O₃)

Fluorides

ACGIH: 2.5 mg/m3 TWA (as F, related to Fluorides)

OSHA (Final): 2.5 mg/m3 TWA (as F, related to Fluorides)

OSHA (Vacated): 2.5 mg/m3 TWA (related to Fluorides)

Alberta: 2.5 mg/m3 TWA (as F, related to Fluorides)

British Columbia: 2.5 mg/m3 TWA (as F, related to Fluorides)

Manitoba: 2.5 mg/m3 TWA (as F, related to Fluorides)

New Brunswick: 2.5 mg/m3 TWA (as F, related to Fluorides)

Nova Scotia: 2.5 mg/m3 TWA (as F, related to Fluorides)

Ontario: 2.5 mg/m3 TWA (as F, related to Fluorides)

Quebec: 2.5 mg/m3 TWAEV (as F, related to Fluorides)

Engineering Controls

If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear safety glasses with side shields.

Personal Protective Equipment: Skin

Wear cut resistant gloves when handling glass and appropriate clothing to keep dust from skin.

Personal Protective Equipment: Respiratory

Not normally needed. If permissible levels are exceeded, use appropriate NIOSH approved dust respirator.

Personal Protective Equipment: General

Use good hygiene practices when handling this material including changing and laundering work clothing after use.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	White solid	Odor:	None
Physical State:	Glass	pH:	Not applicable
Vapor Pressure:	Not applicable	Vapor Density:	Not applicable
Boiling Point:	Not applicable	Melting Point:	Not applicable
Solubility (H₂O):	Not applicable	Freezing Point:	Not applicable
Softening Point:	Not available	Molecular Weight:	Not applicable
Density:	2.52 g/cm ³	Auto Ignition:	Not applicable
Flash Point:	Not applicable	Flash Point Method:	Not applicable

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Lower Flammability Limit (LFL): Not applicable
OSHA Flammability Classification: Will not burn

Upper Flammability Limit (UFL): Not applicable

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Stable.

Chemical Stability: Conditions to Avoid

None known.

Incompatibility

None known.

Hazardous Decomposition

At very high temperatures irritating and toxic gaseous metallic oxides can be formed.

Possibility of Hazardous Reactions

Will not occur.

*** Section 11 - Toxicological Information ***

Acute Dose Effects

Overexposure to dusts of this product may produce eye irritation including redness, scratching of the cornea, and tearing. Mechanical irritation from inhalation of product dust may cause coughing, soreness of throat and nose, and sneezing. Very high exposures may cause difficulty in breathing, congestion, tightness of chest and hemorrhage. Fluoride ingestion may cause acute systemic poisoning. Fluoride has been reported to effect gastric, intestinal, circulatory, respiratory and nervous systems, as well as skin rashes and complaints related to bones, joints and muscles.

Component Analysis - LD50/LC50

No LD50/LC50's are available for this product's components.

Repeated Dose Effects

Repeated inhalation of dust of this product in very large amounts may cause damage to the lung.

Carcinogenicity

None identified.

Component Carcinogenicity

Fluorides

ACGIH: A4 - Not Classifiable as a Human Carcinogen (related to Fluorides)

Other Toxicological Information

Under normal conditions of use for glass products, the likelihood of inhaling or ingesting amounts necessary for these effects to occur is very small.

*** Section 12 - Ecological Information ***

Ecotoxicity

No information available.

Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data are available for this product's components.

Environmental Fate

No information available.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

You must test your waste using methods described in 40 CFR Part 261 to determine if it meets these or other applicable definitions of hazardous wastes.

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Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

You must test your waste using methods described in 40 CFR Part 261 to determine if it meets these or other applicable definitions of hazardous wastes. Waste must be handled in accordance with all applicable regulations. Glass products may be recycled.

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Not regulated as a hazardous material.

TDG Information

Shipping Name: Not regulated as a dangerous good.

*** Section 15 - Regulatory Information ***

US Federal Regulations

This product contains metal(s), which as dusts, fumes or particulates, is subject to the reporting requirements of Section 313 of SARA and its associated regulations. If the physical form and usage meets the definition of an article, no reporting is necessary.

Component Analysis

None of this product's components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Ceramic materials and wares, chemicals (related to Nuisance particulates)	66402-68-4	No	No	No	No	No

State Regulations

Other state regulations may apply. Check individual state requirements.

Canadian WHMIS Information

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all information required by CPR.

WHMIS Classification:

This product is exempt as an article.

Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

Additional Regulatory Information

No additional information.

Inventory

Component	CAS #	TSCA	DSL	EINECS
Ceramic materials and wares, chemicals	66402-68-4	Yes	Yes	Yes

***** Section 16 - Other Information *****

Other Information

Reasonable care has been taken in the preparation of this information, but Corning makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. Corning makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

MSDS History

Revision 1.0000, 24-OCT-2011: New MSDS.

Questions regarding information found in this document should be directed to the address and phone number shown in Section 1.

If additional information is needed contact:

Corning, Incorporated.

Safety Management Services

MP-HQ-01-E1H22A

Corning, NY 14831

Tel. No. (607)-974-6926 or (607)-974-8002

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; CAS = Chemical Abstracts Service; CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; CFR = Code of Federal Regulations; CPR = Controlled Products Regulations; DOT = Department of Transportation; DSL = Domestic Substances List; EINECS = European Inventory of Existing Commercial Chemical Substances; EPA = Environmental Protection Agency; IARC = International Agency for Research on Cancer; IATA = International Air Transport Association; mg/Kg = milligrams per Kilogram; mg/L = milligrams per Liter; mg/m³ = milligrams per Cubic Meter; MSHA = Mine Safety and Health Administration; NA = Not Applicable or Not Available; NIOSH = National Institute for Occupational Safety and Health; NJTSR = New Jersey Trade Secret Registry; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; SARA = Superfund Amendments and Reauthorization Act; TDG = Transport Dangerous Goods; TSCA = Toxic Substances Control Act; WHMIS = Workplace Hazardous Materials Information System.

End of Sheet C-587