Material Safety Data Sheet

Material Name: Glass Code 9658, MACOR Machinable Glass-Ceramic

ID: C-046

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

Glass Code: 9658
Product Use: Used in the manufacture of glass articles
Synonyms: GC 9658, MACOR MGC
Manufacturer Information
Corning Incorporated
HP-ME-02-48
Corning, NY 14831
Phone: (607) 974-7945
Emergency # CHEMTREC: (800) 424-9300

*** Section 2 - Composition / Information on Ingredients ***

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Component</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>66402-68-4</td>
<td>Ceramic materials and wares, chemicals</td>
<td>100</td>
</tr>
<tr>
<td>Not Available</td>
<td>Fluorides (** See NOTE below)</td>
<td>&lt;8</td>
</tr>
</tbody>
</table>

Component Related Regulatory Information
This product may be regulated, have exposure limits or other information identified as the following: Nuisance particulates, Fluorides and Hydrogen fluoride.

Component Information/Information on Non-Hazardous Components
Glass-ceramic is a solid material produced by combining various raw materials (e.g. oxides, carbonates, etc.), melting these components together, and cooling to a solid having its own unique properties.

Processing of this article may produce dusts or fumes which are considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

**NOTE:** This component is not a separate component; it is included in the glass product. This fluoride component is bound with calcium, potassium, magnesium or aluminum.

*** Section 3 - Hazards Identification ***

Emergency Overview
This is a non-combustible, non-reactive solid material. It is supplied in the form of a glass-ceramic bar, rod or sheet. Exposure to glass powder or dusts may be irritating to eyes, nose, and throat. At very high exposure levels the dust may have an effect on the lungs. The metallic elements contained in the glass may be biologically available if ingested or inhaled. At very high exposure levels the dust may have an effect on the lungs.

Hazard Statements
Dust or powder may be irritating to the eyes, skin, respiratory system and gastrointestinal tract.

Potential Health Effects: Eyes
Dust or powder may irritate eye tissue. Rubbing may cause abrasion of cornea. Symptoms can include irritation, redness, scratching of the cornea, and tearing.

Potential Health Effects: Skin
Dust or powder may irritate the skin. Mechanical rubbing may increase skin irritation. 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 from 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 Reactivity: 0 Pers. Prot.: Gloves/glasses
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe  * = Chronic hazard
Material Safety Data Sheet

Material Name: Glass Code 9658, MACOR Machinable Glass-Ceramic

ID: C-046

*** Section 4 - First Aid Measures ***

First Aid: Eyes
Eye injuries from glass/ceramic 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
Seek medical attention if material is ingested.

First Aid: Inhalation
Move person to non-contaminated air. Call a physician if symptoms persist.

First Aid: Notes to Physician
None.

*** Section 5 - Fire Fighting Measures ***

Flash Point: Not applicable
Upper Flammable Limit (UFL): Not applicable
Auto Ignition: Not applicable
Rate of Burning: Not applicable

General Fire Hazards
This material will not burn.

Hazardous Combustion Products
Material will begin softening at about 800°C, will proceed to a liquid and will form irritating and toxic gaseous metallic oxides at extremely 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
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
Wear appropriate protective equipment and clothing during clean-up. Collect spill using a vacuum cleaner with a HEPA filter. 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
Avoid inhalation of dusts. Avoid contact with skin and eyes. Wash thoroughly after handling.

Storage Procedures
Keep container closed when not in use. Store in a dry area.

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

Exposure Guidelines
A: General Product Information
The OSHA (Vacated) 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.
Material Safety Data Sheet

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B: Component Exposure Limits

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

ACGIH: 10 mg/m³ TWA (inhalable fraction, particulate matter containing no asbestos and <1% crystalline silica); 3 mg/m³ TWA (respirable fraction, particulate matter containing no asbestos and <1% crystalline silica) (related to Particulates not otherwise specified (PNOS))

OSHA (Final): 15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction) (related to Particulates not otherwise regulated)

OSHA (Vacated): 15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction) (related to Particulates not otherwise regulated)

Fluorides (Not Available)

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

OSHA (Final): 2.5 mg/m³ TWA (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 leather or other appropriate work gloves, if necessary for type of operation. The use of coveralls is recommended.

Personal Protective Equipment: Respiratory

Not normally needed. If permissible levels are exceeded, use 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 ***

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance:</td>
<td>White</td>
</tr>
<tr>
<td>Physical State:</td>
<td>Solid glass-ceramic</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility (H₂O):</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Freezing Point:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Softening Point:</td>
<td>&gt;800 deg C</td>
</tr>
<tr>
<td>Viscosity:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Percent Volatile:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Odor:</td>
<td>Odorless</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor Density:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting Point:</td>
<td>Not available</td>
</tr>
<tr>
<td>Specific Gravity:</td>
<td>2.25 gm/cm³ (density)</td>
</tr>
<tr>
<td>Particle Size:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation Rate:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Bulk Density:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Molecular Weight:</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Physical Properties: Additional Information

No information available.

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

Chemical Stability

Stable

Chemical Stability: Conditions to Avoid

None known.

Incompatibility

None known.

Hazardous Decomposition

None identified.

Hazardous Polymerization

Will not occur.
Material Safety Data Sheet

Material Name: Glass Code 9658, MACOR Machinable Glass-Ceramic  
ID: C-046

** Section 11 - Toxicological Information **

Acute Toxicity
A: General Product Information
Dusts may cause mechanical irritation to eyes and skin. Ingestion may cause transient irritation of throat, stomach and gastrointestinal tract. Inhalation may cause coughing, nose and throat irritation, and sneezing. Higher exposures may cause difficulty breathing, congestion, and chest tightness. Silicon dust seems to have little adverse effect on lungs and does not appear to produce significant organic disease or toxic effects when exposures are kept under reasonable control. 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.

B: Component Analysis - LD50/LC50
No LD50/LC50's are available for this product's components.

Carcinogenicity
A: General Product Information
No information available for product.

B: Component Carcinogenicity
None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Epidemiology
No information available for product.

Neurotoxicity
No information available for product.

Mutagenicity
No information available for product.

Teratogenicity
No information available for product.

Other Toxicological Information
Under normal conditions of use for this product, the likelihood of inhaling or ingesting amounts necessary for adverse effects to occur is very small.

** Section 12 - Ecological Information **

Ecotoxicity
A: General Product Information
No information available.

B: 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
A: General Product Information
You must test your waste using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

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

Disposal Instructions
Waste must be handled in accordance with all applicable regulations. Glass products may be recycled.

** Section 14 - Transportation Information **

US DOT Information
Shipping Name: Not regulated as a hazardous material.
Hazard Class: Not applicable
UN/NA #: Not applicable
Packing Group: Not applicable
Required Label(s): None
Additional Info.: None
Material Safety Data Sheet

Material Name: Glass Code 9658, MACOR Machinable Glass-Ceramic

ID: C-046

International Transportation Regulations
This product is not regulated as a hazardous material by the United States (DOT) or Canadian (TDG) transportation regulations.

*** Section 15 - Regulatory Information ***

US Federal Regulations
A: General Product Information
This product may contain 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.

B: 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).

State Regulations
A: General Product Information
Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State
None of this product's components are listed on the state lists from CA, FL, MA, MN, NJ, or PA.

Other Regulations
A: General Product Information
All components are on the U.S. EPA TSCA Inventory List.

B: Component Analysis - Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>TSCA</th>
<th>DSL</th>
<th>EINECS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceramic materials and wares, chemicals</td>
<td>66402-68-4</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

C: Component Analysis - WHMIS IDL
No components are listed in the WHMIS IDL.

*** 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.

Revision Information: 3 year regulatory update/Reformulation/Revision 3: 7/31/2002
Previous issue: 12/93

Key/Legend

This is the end of MSDS # C-046