

Material Safety Data Sheet

300, 305, 310, 314, 315, 319

1. Product and company identification

Product name	: 300, 305, 310, 314, 315, 319
Material uses	: Refractory Ceramic Shape.
Code	: 300, 305, 310, 314, 315, 319
Supplier/Manufacturer	: EMHART Glass Manufacturing Inc. 405 East Peach Street PO Box 580 Owensville MO 65066 USA Tel: +1 573 437 2132 Fax: +1 573 437 3146
MSDS authored by	: KMK Regulatory Services Inc.
In case of emergency	: CHEMTREC, U.S. : 1-800-424-9300 International: +1-703-527-3877

2. Hazards identification

Emergency overview

Physical state	: Solid. [Stone.]
Color	: Off-white.
Odor	: Odorless.
Signal word	: WARNING!
Hazard statements	: CAUSES EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.
Precautionary measures	: Do not eat, drink or smoke when using this product. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.
Routes of entry	: Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation	: No known significant effects or critical hazards.
Ingestion	: No known significant effects or critical hazards.
Skin	: Irritating to skin.
Eyes	: Irritating to eyes.

Potential chronic health effects

Chronic effects	: Contains material that may cause target organ damage, based on animal data.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.
Target organs	: Contains material which may cause damage to the following organs: lungs, the nervous system, upper respiratory tract, skin, eyes.



2. Hazards identification

Over-exposure signs/symptoms

- Inhalation** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.
- Skin** : Adverse symptoms may include the following:
irritation
redness
- Eyes** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

3. Composition/information on ingredients

Name	CAS number	%
Aluminium oxide	1344-28-1	30 - 60
Zirconium dioxide	1314-23-4	10 - 30
Zircon	14940-68-2	10 - 30
Cristobalite	14464-46-1	0.1 - 1
Titanium Dioxide	13463-67-7	0.1 - 1

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 20 minutes while removing contaminated clothing and shoes. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.
- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.



5. Fire-fighting measures

Flammability of the product : Non-flammable.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : No specific fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
metal oxide/oxides

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Not available.

Special remarks on explosion hazards : Not available.

6. Accidental release measures

Personal precautions : Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Spill : Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

7. Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.



8. Exposure controls/personal protection

<u>Occupational exposure limits</u>		<u>TWA (8 hours)</u>			<u>STEL (15 mins)</u>			<u>Ceiling</u>			
<u>Ingredient</u>	<u>List name</u>	<u>ppm</u>	<u>mg/m³</u>	<u>Other</u>	<u>ppm</u>	<u>mg/m³</u>	<u>Other</u>	<u>ppm</u>	<u>mg/m³</u>	<u>Other</u>	<u>Notations</u>
Aluminium oxide	US ACGIH 3/2012	-	1	-	-	-	-	-	-	-	[a]
	AB 4/2009	-	10	-	-	-	-	-	-	-	
	BC 4/2012	-	1	-	-	-	-	-	-	-	[b]
	ON 7/2010	-	1	-	-	-	-	-	-	-	[a]
Aluminium oxide, as Al Zirconium dioxide, Zr	QC 9/2011	-	10	-	-	-	-	-	-	-	[c]
	US ACGIH 1/2011	-	5	-	-	10	-	-	-	-	
	AB 4/2009	-	5	-	-	10	-	-	-	-	
	BC 9/2011	-	5	-	-	10	-	-	-	-	
	ON 7/2010	-	5	-	-	10	-	-	-	-	
Zircon, as Zr	QC 9/2011	-	5	-	-	10	-	-	-	-	
	US ACGIH 3/2012	-	5	-	-	10	-	-	-	-	
	AB 4/2009	-	5	-	-	10	-	-	-	-	
	BC 4/2012	-	5	-	-	10	-	-	-	-	
	ON 7/2010	-	5	-	-	10	-	-	-	-	
Cristobalite	QC 9/2011	-	5	-	-	10	-	-	-	-	
	US ACGIH 3/2012	-	0.025	-	-	-	-	-	-	-	[a]
	AB 4/2009	-	0.025	-	-	-	-	-	-	-	[d]
	BC 4/2012	-	0.025	-	-	-	-	-	-	-	[b]
Titanium Dioxide	ON 7/2010	-	0.05	-	-	-	-	-	-	-	[a]
	QC 9/2011	-	0.05	-	-	-	-	-	-	-	[e]
	US ACGIH 3/2012	-	10	-	-	-	-	-	-	-	
	AB 4/2009	-	10	-	-	-	-	-	-	-	[3]
	BC 4/2012	-	3	-	-	-	-	-	-	-	[e]
	ON 7/2010	-	10	-	-	-	-	-	-	-	[c]
	QC 9/2011	-	10	-	-	-	-	-	-	-	[c]

[3]Skin sensitization

Form: [a]Respirable fraction [b]Respirable [c]Total dust [d]Respirable particulate. [e]Respirable dust

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Engineering measures : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.



8. Exposure controls/personal protection

Skin	: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Environmental exposure controls	: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.
Other protection	: Not available.

9. Physical and chemical properties

Physical state	: Solid. [Stone.]
Flash point	: Not applicable.
Burning time	: Not applicable.
Burning rate	: Not applicable.
Auto-ignition temperature	: Not applicable.
Flammable limits	: Not applicable.
Color	: Off-white.
Odor	: Odorless.
Taste	: Not available.
Molecular weight	: Not applicable.
Molecular formula	: Not applicable.
pH	: Not available.
Boiling/condensation point	: >2000°C (>3632°F)
Melting/freezing point	: Not available.
Critical temperature	: Not available.
Relative density	: 2 to 3.1
Specific gravity	: 3.2 to 3.9 g/cm ³
Vapor pressure	: Not applicable.
Vapor density	: Not available.
Volatility	: Not available.
Odor threshold	: Not available.
Evaporation rate	: Not available.
Viscosity	: Not available.
Ionicity (in water)	: Not available.
Dispersibility properties	: Not available.
Solubility	: Not soluble.
Partition coefficient (LogKow)	: Not available.
Physical/chemical properties comments	: Not available.



10. Stability and reactivity

- Chemical stability** : The product is stable.
- Conditions to avoid** : No specific data.
- Incompatible materials** : Inert material.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

11. Toxicological information

Acute toxicity

There is no data available.

Chronic toxicity

There is no data available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Titanium Dioxide	Skin - Mild irritant	Human	-	72 hours 300 µg Intermittent	-

Sensitizer

Skin : There is no data available.

Respiratory : There is no data available.

Carcinogenicity

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Aluminium oxide	A4	-	-	-	-	-
Zirconium dioxide	A4	-	-	-	-	-
Zircon	A4	-	-	-	-	-
Cristobalite	A2	1	-	+	Known to be a human carcinogen.	-
Titanium Dioxide	A4	2B	-	+	-	-

Mutagenicity

There is no data available.

Teratogenicity

There is no data available.

Reproductive toxicity

There is no data available.

Synergistic products : Not available.

12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.

Aquatic ecotoxicity



12. Ecological information

Product/ingredient name	Result	Species	Exposure
Titanium Dioxide	Acute EC50 5.83 mg/L Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
	Acute LC50 3 mg/L Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 5.5 ppm Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute LC50 1000 mg/L Fresh water Chronic NOEC 0.984 mg/L Fresh water	Fish - Pimephales promelas Algae - Pseudokirchneriella subcapitata - Exponential growth phase	96 hours 72 hours

Persistence/degradability

There is no data available.

Partition coefficient: n-octanol/water : There is no data available.

Bioconcentration factor : There is no data available.

Mobility : There is no data available.

Toxicity of the products of biodegradation : Not available.

Other adverse effects : No known significant effects or critical hazards.

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Waste stream : Not available.

RCRA classification : Not available.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	Not regulated.	-	-	-		-
IMDG Class	Not regulated.	-	-	-		-
IATA-DGR Class	Not regulated.	-	-	-		-

PG* : Packing group

Exemption to the above classification may apply.

AERG : Not applicable.



15. Regulatory information

WHMIS (Canada) : Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

Canadian NPRI : The following components are listed: Aluminium oxide

CEPA Toxic substances : None of the components are listed.

Canada inventory : All components are listed or exempted.

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

16. Other information

Label requirements : CAUSES EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Canada

WHMIS (Canada) :



History

Date of issue : 04/15/2013

Version : 1

Revised Section(s) : Not applicable.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

