

***** Section 1 - Identification of the Substance/Preparation and of the Company/Undertaking*****

Glass Codes: RS25, RS32, RS42, RS52, RSG32, RSG52, RW25, RW36, RW42, RW52, RWG52

Chemical Name: Alkaline metal silicate glass

Product Use: Manufacture of glass articles

Manufacturer Information

Corning SAS

Phone: 33 (0) 164 454 395

Rue Saint Laurent

BP 90094 - Bagneaux sur Loing

Emergency # Chemtrec (International) (703) 527-3887

77792 Nemours CEDEX, France

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.

Use of the Substance/Preparation:

Protective walls

Substance Registration Number(s):

None identified.

***** Section 2 - Hazards Identification *****

Substance/Preparation Classification

This preparation has been classified as hazardous according EU Directives 67/548/EEC and 99/45/EC.

Human and Environmental Hazards

The glass product is considered non-hazardous as sold. The following classification is for the oxides that are present in the formulation of the glass product. Processing of this product may produce dusts or fumes which are considered hazardous.

Harmful by inhalation and if swallowed. Danger of cumulative effects. May cause cancer. May cause harm to the unborn child. Possible risk of impaired fertility. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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

| EC # | Component | Percent | Symbols | Risks |
|-----------|---|---------|----------------------------------|------------------------|
| 266-046-0 | Glass, oxide, chemicals 65997-17-3 | 100 | - | - |
| 215-267-0 | Lead oxide (** See NOTE below) 1317-36-8 | <75 | Repr.Cat.1 Repr.Cat.3 Xn N | R:61-62-20/22-33-50-53 |
| 215-127-9 | Barium oxide (** See NOTE below) 1304-28-5 | <2 | - | - |
| 215-481-4 | Arsenic(III) oxide (** See NOTE below) 1327-53-3 | <0.5 | Carc.Cat.1 T+ C N | R:45-28-34-50-53 |

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Nuisance particulates, Lead (7439-92-1), Lead compounds, Barium (7440-39-3), Arsenic, inorganic compounds, Arsenic (7440-38-2).

Component Information/Information on Non-Hazardous Components

Glass 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.

****NOTE:** This component is not a separate component; it is included in the glass product.

Substance Registration Number(s):

None identified.

***** 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

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 *******General Fire Hazards**

This material will not burn.

Suitable Extinguishing Media

Use methods for the surrounding fire.

Unsuitable Extinguishing Media

None identified.

Hazardous Combustion Products

Material will begin softening at about 1200 Deg C, will proceed to a liquid and will form irritating and toxic gaseous metallic oxides at extremely high temperatures.

Fire Fighting Equipment/Instructions

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

***** 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.

Personal Precautions

See Section 8 of this MSDS for appropriate personal protective equipment.

Environmental Precautions

None identified.

Special Measures

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

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

Handling Procedures

Do not inhale dusts. Avoid generation of airborne dusts. Avoid contact with skin and eyes. Wash thoroughly after handling.

Storage Procedures

Store in a dry area.

Specific Use

Protective walls

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

Exposure Guidelines**A: General Product Information:**

No information is available for the product.

B: Substance Exposure Limits**Glass, oxide, chemicals (266-046-0)**

- ACGIH: 10 mg/m³ TWA (inhalable particles, recommended); 3 mg/m³ TWA (respirable particles, recommended) (related to Particulates (insoluble or poorly soluble) not otherwise specified (PNOS))
- Belgium: 3 mg/m³ TWA (alveolar fraction); 10 mg/m³ TWA (inhalable fraction) (related to Nuisance particulates)
- Ireland: 10 mg/m³ TWA (total inhalable); 4 mg/m³ TWA (respirable) (related to Dusts, non-specific)
- Portugal: 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 Nuisance particulates)
- Spain: 10 mg/m³ VLA-ED (inhalable fraction, recommended limit, this value is for the particulated matter that is free from asbestos and contains less than 1% of crystalline silica); 3 mg/m³ VLA-ED (respirable fraction, recommended limit, this value is for the particulated matter that is free from asbestos and contains less than 1% of crystalline silica) (related to Nuisance particulates)

Lead oxide (215-267-0)

- ACGIH: 0.05 mg/m³ TWA (related to Lead)
- Austria: 0.4 mg/m³ STEL (inhalable fraction, 4 X 15 min) (related to Lead)
0.1 mg/m³ MAK (inhalable fraction) (related to Lead)
- Denmark: 0.05 mg/m³ TWA (dust, fume and powder) (related to Lead)
- Finland: 0.1 mg/m³ TWA (all industries) (related to Lead)
- France: 0.1 mg/m³ VME (restrictive limit) (related to Lead)
- Germany: 400 µg/L, 300µg/L (women <45 years); Parameter = lead; Material = whole blood; Sampling time = no restriction (related to Lead)
- Greece: 0.15 mg/m³ TWA (related to Lead)
- Ireland: 0.15 mg/m³ TWA (related to Lead)
- Italy: 0.15 mg/m³ TWA (related to Lead)
- Portugal: 0.05 mg/m³ TWA (related to Lead)
- Spain: 0.15 mg/m³ VLA-ED (related to Lead)
- Sweden: 0.1 mg/m³ LLV (total dust); 0.05 mg/m³ LLV (respirable dust) (related to Lead)

Barium oxide (215-127-9)

| | |
|--------------|---|
| ACGIH: | 0.5 mg/m3 TWA (related to Barium) |
| Austria: | 2 mg/m3 STEL (inhalable fraction, 4 X 15 min) (related to Barium) 0.5 mg/m3 MAK (inhalable fraction) (related to Barium) |
| Belgium: | 0.5 mg/m3 TWA (related to Barium) |
| Denmark: | 0.5 mg/m3 TWA (related to Barium) |
| Finland: | 0.5 mg/m3 TWA (as Ba) |
| Netherlands: | 0.5 mg/m3 TWA (related to Barium) |
| Portugal: | 0.5 mg/m3 TWA (related to Barium) |
| Spain: | 0.5 mg/m3 VLA-ED (related to Barium) |

Arsenic(III) oxide (215-481-4)

| | |
|--------------|--|
| ACGIH: | 0.01 mg/m3 TWA (as As) (related to Arsenic inorganic compounds) |
| Belgium: | 0.1 mg/m3 TWA (as As) (related to Arsenic, inorganic compounds) |
| Denmark: | 0.01 mg/m3 TWA (as As) (related to Arsenic, inorganic compounds) |
| Finland: | 0.01 mg/m3 TWA (as As) |
| France: | 0.2 mg/m3 VME (as As) |
| Greece: | 0.1 mg/m3 TWA (related to Arsenic) |
| Ireland: | 0.1 mg/m3 TWA (related to Arsenic) Under review (HSE) (related to Arsenic) |
| Netherlands: | 0.05 mg/m3 STEL (as As) 0.025 mg/m3 TWA (as As) |
| Portugal: | 0.01 mg/m3 TWA (as As) (related to Arsenic, inorganic compounds) |
| Spain: | 0.01 mg/m3 VLA-ED (as As) |
| Sweden: | 0.01 mg/m3 LLV (total dust, as As, except Arsenic hydride) (related to Arsenic, inorganic compounds) |

Occupational Exposure 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: Hands

Use impervious gloves.

Personal Protective Equipment: Respiratory

Not normally needed. When respiratory protection is required, wear an approved self-contained breathing apparatus.

Personal Protective Equipment: General

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

Environmental Exposure Controls

None identified.

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| *** Section 9 - Physical and Chemical Properties *** |
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| <p>Appearance: Transparent</p> <p>Colour: Yellow</p> <p>pH: Not applicable</p> <p>Flash Point: Not applicable</p> <p>Oxidising Properties: Not applicable</p> <p>Relative Density: 4.8 g/ml</p> <p>Partition Coefficient (n-octanol/water): Not applicable</p> <p>Vapor Density: Not applicable</p> <p>Melting Point: >1200°C (>2192°F)</p> | <p>Physical State: Solid (Glass block)</p> <p>Odour: Odourless</p> <p>Boiling Point: Not applicable</p> <p>Flash Point Method: Not applicable</p> <p>Vapour Pressure: Not applicable</p> <p>Water Solubility: Insoluble</p> <p>Viscosity: Not available</p> <p>Evaporation Rate: Not available</p> |
|--|--|

Physical Properties: General Information

No additional information.

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| *** Section 10 - Stability and Reactivity *** |
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Chemical Stability

Stable.

Conditions to Avoid

None known.

Materials to Avoid

None known.

Hazardous Decomposition Products

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

Hazardous Polymerization

Will not occur.

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| *** Section 11 - Toxicological Information *** |
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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. Symptoms of lead toxicity include behavioral disturbances including irritability, restlessness, insomnia, and other sleep disturbances, fatigue, vertigo, headache, poor memory, tremor, depression, and apathy. Soluble barium compounds are muscle poisons causing stimulation of muscle followed by paralysis. Inhalation of insoluble barium compounds may cause baritosis (a benign pneumoconiosis). Inorganic arsenic (includes the metallic form) has been shown to cause skin and lung cancer, lymphatic cancer and dermatitis in humans on long term occupational exposure.

B: Component Analysis - LD50/LC50**Lead oxide (215-267-0)**

Oral LD50 Rat: >10000 mg/kg

Arsenic(III) oxide (215-481-4)

Oral LD50 Rat: 14.6 mg/kg

Repeated Dose Toxicity

No information available for the product.

Skin Effects

Dust or powder may irritate the skin. Mechanical rubbing may increase skin irritation.

Eye Effects

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

Ingestion Effects

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

Inhalation Effects

Dusts of this product may cause irritation of the nose, throat, and respiratory tract. Overexposure to arsenic dusts may damage the respiratory system and may cause cancer.

Carcinogenicity**A: General Product Information:**

Although some lead salts have produced tumors in animals, the evidence is insufficient to determine the carcinogenicity of lead in humans. Inorganic arsenic (includes the metallic form) has been shown to cause skin and lung cancer, lymphatic cancer and dermatitis in humans on long term occupational exposure. Inorganic arsenic can produce lung, skin and lymphatic cancer with long term occupational exposure above the established limits.

B: Substance Carcinogenicity**Lead oxide (215-267-0)**

- IARC: Monograph 87 [2006], Supplement 7 [1987], Monograph 23 [1980] (Group 2A (probably carcinogenic to humans))
- France: Carcinogen categories 1,2,3 (related to Lead)
- Germany: Category 2 (considered to be carcinogenic for man) (related to Lead)

Arsenic(III) oxide (215-481-4)

- IARC: Supplement 7 [1987] (listed under arsenic and arsenic compounds) (Group 1 (carcinogenic to humans))
- Austria: Group A1 Carcinogen
- France: Carcinogen category 1
- Germany: Category 1 (causes cancer in man)
- Ireland: Category 1 Carcinogen (related to Arsenic)
- Luxembourg: Category 1
- Netherlands: Present
- Spain: Known human carcinogen

Mutagenicity

Exposure to lead has been reported to cause chromosome aberrations in humans.

Reproductive Effects

No information is available for the product.

Teratogenicity

Lead has a wide variety of reproductive effects in humans. It can affect both the male and female reproductive organs as well as egg and sperm production and development. Lead can also cause neurodevelopmental debilitations in children from both prenatal and postnatal exposures. Teratogenic effects of soluble arsenic compounds administered intravenously or intraperitoneally at high doses have been demonstrated in hamsters, rats and mice. One review of the reproductive effects of arsenic has concluded that inorganic arsenic should be regarded as a probable human reproductive hazard.

Neurotoxicity

Inorganic lead has been found to have toxic effects on both the central and peripheral nervous systems. Symptoms of lead toxicity include behavioral disturbances such as irritability, restlessness, insomnia, and other sleep disturbances, fatigue, vertigo, headache, poor memory, tremor, depression, and apathy. With more severe exposure, symptoms can progress to drowsiness, stupor, hallucinations, delirium, convulsions, and coma.

Epidemiology

There is extensive literature on human exposure to lead, both by the oral route (the common exposure for the general population) and the inhalation route (the common exposure for the workplace). An excellent review is provided in the "Toxicological Profile for Lead" written by the Agency for Toxic Substances and Disease Registry (ATSDR) and available from the National Technical Information Services (NTIS). Based on epidemiological evidence the chief manifestation of toxic exposure to arsenic is dermatitis and perforation of the nasal septum.

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**A: General Product Information:**

No information available.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity**Lead oxide (215-267-0)****Test & Species**

96 Hr LC50 Gambusia affinis

>56000 mg/L

48 Hr EC50 water flea

600 µg/L

Conditions

Static

related to Lead

Arsenic(III) oxide (215-481-4)**Test & Species**

96 Hr LC50 Pimephales promelas

135 mg/L

24 Hr EC50 water flea

0.038 mg/L

96 Hr EC50 Daphnia magna

0.96 mg/L

Conditions**Mobility**

No information is available for the product.

Persistence & Degradation

No information is available for the product.

Bioaccumulative Potential

No information is available for the product.

Other Adverse Effects

No information is available for the product.

Environmental Fate

Glass is inert in the environment.

***** Section 13 - Disposal Considerations *****

Waste Disposal Instructions

Waste must be handled in accordance with all applicable regulations. Purchaser is advised to review regulations referenced for applicability as determined by purchaser's use of the product. Glass products may be recycled.

Disposal of Contaminated Packaging

Recycling of this product is encouraged.

***** Section 14 - Transportation Information *******IATA Information**

Shipping Name: Not regulated as a Dangerous Good.

ICAO Information

Shipping Name: Not regulated as a Dangerous Good.

IMDG Information

Shipping Name: Not regulated as a Dangerous Good.

ADR Information

Shipping Name: Not regulated as a Dangerous Good.

RID Information

Shipping Name: Not regulated as a Dangerous Good.

***** Section 15 - Regulatory Information *******EU MARKING AND LABELLING:****Symbol(s):**

The glass product is considered non-hazardous as sold. The following classification is for the oxides that are present in the formulation of the glass product. Processing of this product may produce dusts or fumes which are considered hazardous.

T,N

Risk Phrases

R61 May cause harm to the unborn child.

R33 Danger of cumulative effects.

R20/22 Harmful by inhalation and if swallowed.

R62 Possible risk of impaired fertility.

R45 May cause cancer.

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases

S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S53 Avoid exposure - obtain special instructions before use.

S60 This material and its container must be disposed of as hazardous waste.

S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

Chemical Safety Assessment Information

No information is available for the product.

Other Information**A: General Product Information:**

The substances in this preparation have been checked against the following inventory lists.

B: Component Analysis - Inventory

| Component/CAS | EC # | EEC | CAN | TSCA |
|------------------------------------|-----------|--------|-----|------|
| Glass, oxide, chemicals 65997-17-3 | 266-046-0 | EINECS | DSL | Yes |
| Lead oxide 1317-36-8 | 215-267-0 | EINECS | DSL | Yes |
| Barium oxide 1304-28-5 | 215-127-9 | EINECS | DSL | Yes |
| Arsenic(III) oxide 1327-53-3 | 215-481-4 | EINECS | DSL | Yes |

*** Section 16 - Other Information ***

Full text of all Risk Phrases in Sections 2 & 3

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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:

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Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; CAS = Chemical Abstracts Service; DSL = Domestic Substances List; EINECS = European Inventory of Existing Commercial Chemical Substances; 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; TSCA = Toxic Substances Control Act.

Revision History

Revision 1.0000, 12-SEP-2008: New SDS.

End of Sheet C-466