SAFETY DATA SHEET

Date of issue/Date of revision 02 October 2017
Version 6

Section 1. Identification

Product name: Magnetic Sputter/Vacuum Deposition (MSVD) Coated Float Glass
Product code: 01050
Other means of identification: This (M)SDS covers all Vitro MSVD Low-E coated glass products including, but not limited to: Sungate® 400, Sungate® 400VT, Sungate® 460, Sungate® 460VT, Solarban® z50, Solarban® z50VT, Solarban® 60, Solarban® 60VTII, Solarban® 67, Solarban® 67VT, Solarban® 70XL, Solarban® 70XLVT, Solarban® 72VT, Solarban® R100VT, Solarban® z75, Solarban® z75VT, Solarban® 90, Solarban® 90VT, Solarphire™ HVM.
Product type: Article

Relevant identified uses of the substance or mixture and uses advised against

Product use: Glass.
Use of the substance/mixture: Construction materials (building materials) - Other construction materials
Uses advised against: None identified.

Manufacturer: Vitro Flat Glass LLC (Vitro)
400 Guys Run Road
Cheswick, PA 15024

Emergency telephone number: 1-866-290-7653
Technical Phone Number: 1-855-887-6457 (9:00 AM - 4:00PM EST)

Section 2. Hazards identification

OSHA/HCS status: This product is considered an article. The end use is dependent upon the manufactured shape and design, and this article will not pose an exposure hazard under normal conditions. Sanding and grinding this article can generate nuisance dust particles. Sanding and grinding dusts may be irritating to eyes and respiratory system.
Classification of the substance or mixture: Not classified.

GHS label elements
Signal word: No signal word.
Hazard statements: No known significant effects or critical hazards.
Precautionary statements
Prevention: Not applicable.
Response: Not applicable.
Section 2. Hazards identification

Storage: Not applicable.
Disposal: Not applicable.
Supplemental label elements: None known.
Hazards not otherwise classified: None known.

Section 3. Composition/information on ingredients

Substance/mixture: Article
Product name: Magnetic Sputter/Vacuum Deposition (MSVD) Coated Float Glass
Other means of identification: This (M)SDS covers all PPG MSVD Low-E coated glass products including, but not limited to: Sungate® 400, Sungate® 400VT, Sungate® 460, Sungate® 460VT, Solarban® z50, Solarban® z50VT, Solarban® 60, Solarban® 60VTII, Solarban® 67, Solarban® 67VT, Solarban® 70XL, Solarban® 70XLVT, Solarban® 72VT, Solarban® R100VT, Solarban® z75, Solarban® z75VT, Solarban® 90, Solarban® 90VT, Solarphire™ HVM.

CAS number/other identifiers

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>glass, oxide, chemicals</td>
<td>60 - 100</td>
<td>65997-17-3</td>
</tr>
</tbody>
</table>

Composition consisting primarily of oxides of silicon with lesser quantities of other selected oxides common to soda-lime glasses, fused into an amorphous vitreous state.

Note: Glass sheets are typically stacked for shipment and may be separated with less than 1 weight percent of powdered interleaving material consisting of polymeric beads. Exposure to these polymeric beads is not expected to be a concern. MSVD glass may contain TPO (Temporary Protective Overcoat) made of polyvinyl alcohol. TPO is applied only to VT product versions. Exposure to polyvinyl alcohol is not expected to be a concern.

These coated glass products contain less than 0.1% of the following intentionally added metals (specific metals depend on product): silver, tin, zinc, nickel, chromium, aluminum, titanium and/or iron. Activities that generate dust from these coated glass products should be evaluated to determine if any regulatory exposure limits are exceeded. If exposure limits are exceeded for dust/metal, appropriate engineering controls (e.g., ventilation/HEPA filters) and/or personal protective equipment (e.g., respirators) should be provided.

SUB codes represent substances without registered CAS Numbers.

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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.

Occupational exposure limits, if available, are listed in Section 8.
Section 4. First aid measures

If ingestion, irritation, any type of overexposure or symptoms of overexposure occur during or persists after use of this product, contact a POISON CONTROL CENTER, EMERGENCY ROOM OR PHYSICIAN immediately; have Safety Data Sheet information available. Never give anything by mouth to an unconscious or convulsing person.

**Description of necessary first aid measures**

**Eye contact**
(Sanding and grinding dusts) In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Check for and remove any contact lenses.

**Inhalation**
None known.

**Skin contact**
None known.

**Ingestion**
Not a likely route of exposure.

**Most important symptoms/effects, acute and delayed**

**Potential acute health effects**

**Eye contact**
(Sanding and grinding dusts) No significant irritation expected other than possible mechanical irritation.

**Inhalation**
(Sanding and grinding dusts) May cause slight transient irritation.

**Skin contact**
(Sanding and grinding dusts) No significant irritation expected other than possible mechanical irritation.

**Ingestion**
Not a likely route of exposure.

**Over-exposure signs/symptoms**

**Eye contact**
No specific data.

**Inhalation**
No specific data.

**Skin contact**
No specific data.

**Ingestion**
No specific data.

**Indication of immediate medical attention and special treatment needed, if necessary**

**Notes to physician**
Treat symptomatically.

**Specific treatments**
No specific treatment.

**Protection of first-aiders**
No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

**Extinguishing media**

**Suitable extinguishing media**
Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media**
None known.

**Specific hazards arising from the chemical**
No specific fire or explosion hazard.

**Hazardous thermal decomposition products**
No specific data.
Section 5. Fire-fighting measures

**Special protective actions for fire-fighters**: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters**: No special protection is required.

Section 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

- **For non-emergency personnel**: No special protection is required.
- **For emergency responders**: No special protection is required.

**Environmental precautions**: No specific hazard.

**Methods and materials for containment and cleaning up**

- **Small spill**: Vacuum or sweep up material and place in a designated, labeled waste container.
- **Large spill**: Vacuum or sweep up material and place in a designated, labeled waste container.

**Reference to other sections**

- See Section 1 for emergency contact information.
- See Section 8 for information on appropriate personal protective equipment.
- See Section 13 for additional waste treatment information.

Section 7. Handling and storage

**Precautions for safe handling**

**Protective measures**: Put on appropriate personal protective equipment (see Section 8). Take care with items that are sharp or heavy. Any glass can have sharp edges, particularly at a cut or fractured edge. Normal strength glass, also known as annealed or float glass, is known to fracture into large sections with sharp edges. Chemically strengthened or chemically tempered glass and thermally heat-strengthened glass will tend to fracture much the same as normal strength annealed glass, and are not considered safety glazing products. Thermally tempered glass (commonly known as fully tempered glass or safety glazing) will fracture into many smaller pieces still capable of cutting skin, but typically not as severely as would larger fragments from normal strength annealed glass. These safety concerns should be addressed with proper personal protective equipment to protect oneself against any sharp edges, including those formed by accidental glass fracture during handling. Sanding (a.k.a. seaming or edging) any sharp glass edges to produce rounded edges also reduces the hazards with being cut by sharp edges.

**Advice on general occupational hygiene**: 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. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities:

- Store in a dry place away from excessive moisture and exhaust fumes from fork trucks or other such equipment. Support glass in cases on both sides when stored vertically.
- Glass packs and open cases should be stored at a 5° lean angle to prevent glass from falling forward.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanding and grinding dusts</td>
<td>OSHA PEL (United States).</td>
</tr>
<tr>
<td></td>
<td>TWA: 15 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA: 5 mg/m³ Form: Respirable</td>
</tr>
<tr>
<td></td>
<td>ACGIH TLV (United States).</td>
</tr>
<tr>
<td></td>
<td>TWA: 5 mg/m³ Form: Inhalable</td>
</tr>
<tr>
<td></td>
<td>TWA: 3 mg/m³ Form: Respirable</td>
</tr>
<tr>
<td></td>
<td>TWA: 10 mg/m³ Form: Total dust</td>
</tr>
</tbody>
</table>

Key to abbreviations

- A = Acceptable Maximum Peak
- ACGIH = American Conference of Governmental Industrial Hygienists.
- C = Ceiling Limit
- F = Fume
- IPEL = Internal Permissible Exposure Limit
- OSHA = Occupational Safety and Health Administration.
- R = Respirable
- S = Potential skin absorption
- SR = Respiratory sensitization
- SS = Skin sensitization
- STEL = Short term Exposure limit values
- TD = Total dust
- TLV = Threshold Limit Value
- TWA = Time Weighted Average

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures:

- Not applicable.

Appropriate engineering controls:

- Good general ventilation should be sufficient to control worker exposure to airborne contaminants. 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. When grinding for removal of the MSVD coating, inhalation of silver containing coating dust should be prevented by using a localized exhaust ventilation system to remove the silver particulate being removed. The ventilation system should be equipped with a HEPA (High Efficiency Particulate Air) filter with efficiency greater than 99.9%.

Environmental exposure controls:

- Not applicable.

Individual protection measures

Hygiene measures:

- Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection:

- Safety glasses with side shields.

Skin protection:

- 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.
Section 8. Exposure controls/personal protection

**Gloves** : Rubber dipped anti-lacerative gloves are recommended.

**Body protection** : 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.

**Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory protection** : (Sanding and grinding dusts) If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. 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.

Section 9. Physical and chemical properties

**Appearance**

**Physical state** : Solid.

**Color** : Clear./Colorless. to tinted

**Odor** : Odorless.

**Odor threshold** : Not applicable.

**pH** : Not applicable.

**Melting point** : 704°C (1300°F) (softening point)

**Boiling point** : Not applicable.

**Flash point** : Closed cup: Not applicable. [Product does not sustain combustion.]

**Auto-ignition temperature** : Not applicable

**Decomposition temperature** : Not applicable.

**Flammability (solid, gas)** : Not applicable

**Lower and upper explosive (flammable) limits** : Not applicable.

**Evaporation rate** : Not applicable.

**Vapor pressure** : Not applicable.

**Vapor density** : Not applicable.

**Relative density** : 2.45

**Density ( lbs / gal )** : 20.45

**Solubility** : Not available.

**Partition coefficient: n-octanol/water** : Not applicable.

**Viscosity** : Not Applicable

**Volatility** : 0% (w/w)

**% Solid. (w/w)** : 100

**Aerosol product**
Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Not applicable.

Conditions to avoid : No specific data.
   Refer to protective measures listed in sections 7 and 8.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity
   Conclusion/Summary : No known significant effects or critical hazards.

Irritation/Corrosion
   Conclusion/Summary
   Skin : No known significant effects or critical hazards.
   Eyes : No known significant effects or critical hazards.
   Respiratory : No known significant effects or critical hazards.

Sensitization
   Conclusion/Summary
   Skin : No known significant effects or critical hazards.
   Respiratory : No known significant effects or critical hazards.

Mutagenicity
   Conclusion/Summary : No known significant effects or critical hazards.

Carcinogenicity
   Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity
   Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity
   Conclusion/Summary : No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)
Not available.

Specific target organ toxicity (repeated exposure)
Not available.
### Section 11. Toxicological information

<table>
<thead>
<tr>
<th>Target organs</th>
<th>(Sanding and grinding dusts) Contains material which may cause damage to the following organs: upper respiratory tract, skin, eyes.</th>
</tr>
</thead>
</table>

**Aspiration hazard**

Not available.

**Information on the likely routes of exposure**

**Potential acute health effects**

**Eye contact**

(Sanding and grinding dusts) No significant irritation expected other than possible mechanical irritation.

**Inhalation**

(Sanding and grinding dusts) May cause slight transient irritation.

**Skin contact**

(Sanding and grinding dusts) No significant irritation expected other than possible mechanical irritation.

**Ingestion**

Not a likely route of exposure.

**Over-exposure signs/symptoms**

**Eye contact**

No specific data.

**Inhalation**

No specific data.

**Skin contact**

No specific data.

**Ingestion**

No specific data.

**Delayed and immediate effects and also chronic effects from short and long term exposure**

**Conclusion/Summary**

Not applicable.

**Short term exposure**

**Potential immediate effects**

No known significant effects or critical hazards.

**Potential delayed effects**

No known significant effects or critical hazards.

**Long term exposure**

**Potential immediate effects**

No known significant effects or critical hazards.

**Potential delayed effects**

No known significant effects or critical hazards.

**Potential chronic health effects**

**General**

No known significant effects or critical hazards.

**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.

Not available.
Section 12. Ecological information

**Toxicity**
Not available.

**Persistence and degradability**
Not available.

**Bioaccumulative potential**
Not available.

**Mobility in soil**

| Soil/water partition coefficient (K<sub>oc</sub>) | Not available. |

Section 13. Disposal considerations

**Disposal methods**

- The generation of waste should be avoided or minimized wherever possible. Glass products with MSVD coatings and silver containing dusts generated during grinding removal of the MSVD coating may be recycled. The disposal requirements for waste dust should be based upon testing conducted in accordance with federal, provincial, state, and local requirements.

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. Section 6. Accidental release measures

### 14. Transport information

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Additional information

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<tr>
<th>DOT</th>
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<tr>
<td>None identified.</td>
<td>None identified.</td>
<td>None identified.</td>
</tr>
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</table>
Section 14. Transport information

Special precautions for user: -

Section 15. Regulatory information

**United States**

**United States inventory (TSCA 8b):** All components are listed or exempted.

**U.S. Federal regulations:**

- **SARA 302/304**
  - SARA 304 RQ: Not applicable.

  **Composition/information on ingredients**
  
  No products were found.

- **SARA 311/312**
  - Classification: Not applicable.

  **Composition/information on ingredients**
  
  No products were found.

Section 16. Other information

**Hazardous Material Information System (U.S.A.)**

- Health: 0
- Flammability: 0
- Physical hazards: 0

( * ) - Chronic effects

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

**National Fire Protection Association (U.S.A.)**

- Health: 0
- Flammability: 0
- Instability: 0

Other information:

- Solarphire is a trademark of PPG Industries Ohio, Inc.
  - Sungate, Solarban, and the PPG logo are registered trademarks of PPG Industries Ohio, Inc.

**Date of previous issue:** 11/23/2016

**Organization that prepared the MSDS:** EHS

**Key to abbreviations:**

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
Section 16. Other information

IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
UN = United Nations

✓ Indicates information that has changed from previously issued version.

Disclaimer

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by PPG, and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.