

# Material Safety Data Sheet



Date of issue 19 September 2017

Version 10.05

## 1. Product and company identification

Product name : LIQUID CRYSTAL GLACIER

Code : VM4104

Manufacturer / Supplier : PPG Industries, Inc.  
One PPG Place,  
Pittsburgh, PA 15272

Emergency telephone number : (412) 434-4515 (U.S.)  
(514) 645-1320 (Canada)  
01-800-00-21-400 (Mexico)

Technical Phone Number : 1-800-647-6050

## 2. Hazards identification

Emergency overview : DANGER!  
MAY FORM EXPLOSIVE DUST-AIR MIXTURES. MAY BE HARMFUL IF INHALED OR SWALLOWED.

Keep away from heat, sparks and flame. Prevent dust accumulation. Do not breathe dust. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

### Potential acute health effects

Inhalation : May be harmful if inhaled. Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

Ingestion : May be harmful if swallowed.

Skin : No known significant effects or critical hazards.

Eyes : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

### Over-exposure signs/symptoms

Inhalation : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing

Ingestion : No specific data.

Skin : No specific data.

Eyes : Adverse symptoms may include the following:  
irritation  
redness

Medical conditions aggravated by over-exposure : None known.

This Material Safety Data Sheet has been prepared in accordance with Canada's Workplace Hazardous Materials Information System (WHMIS). (1988 Version)

See toxicological information (Section 11)

### 3 . Composition/information on ingredients

| <u>Name</u>                                                                                                                                                                                                                      | <u>CAS number</u> | <u>% (w/w)</u> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------|
|  Glucitol, 1,4:3,6-dianhydro-, bis[4-[(1-oxo-2-propenyl)oxy]benzoate], polymer with 1,4-phenylene bis[4-[(1-oxo-2-propenyl)oxy]butoxy]benzoate] | 260544-92-1       | 60 - 100       |

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

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 Material Safety Data Sheet information available. Never give anything by mouth to an unconscious or convulsing person.

|                           |                                                                                                                                                                                                  |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye contact</b>        | : Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.                                        |
| <b>Skin contact</b>       | : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.                                             |
| <b>Inhalation</b>         | : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. |
| <b>Ingestion</b>          | : If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.                                                          |
| <b>Notes to physician</b> | : 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** : Fine dust clouds may form explosive mixtures with air. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

#### Extinguishing media

|                                                       |                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Suitable</b>                                       | : Use dry chemical powder.                                                                                                                                                                                                                                                                                           |
| <b>Not suitable</b>                                   | : Do not use water jet.                                                                                                                                                                                                                                                                                              |
| <b>Special exposure hazards</b>                       | : 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. |
| <b>Hazardous combustion products</b>                  | : Decomposition products may include the following materials:<br>carbon oxides                                                                                                                                                                                                                                       |
| <b>Special protective equipment for fire-fighters</b> | : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.                                                                                                                                                |

### 6 . Accidental release measures

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal precautions</b>      | : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8). |
| <b>Environmental precautions</b> | : 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).                                                                                                                                                                                                                                                               |

## 6 . Accidental release measures

- Large spill** : Move containers from spill area. Approach release from upwind. Use spark-proof tools and explosion-proof equipment. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.
- Small spill** : Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

## 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. Do not swallow. Avoid breathing dust. Avoid contact with eyes, skin and clothing. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Vapors are heavier than air and may spread along floors. Empty containers retain product residue and can be hazardous. Do not reuse container. If this material is part of a multiple component system, read the Material Safety Data Sheet(s) for the other component or components before blending as the resulting mixture may have the hazards of all of its parts.
- Storage** :  Do not store above the following temperature: 50°C (122°F). Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from oxidizing materials. 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

| Name                                                                                                                                                                                                                                   | Result | ACGIH                                                | Ontario         | Mexico          | PPG             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------------------------------------------|-----------------|-----------------|-----------------|
|  -Glucitol, 1,4:3,6-dianhydro-, bis[4-[(1-oxo-2-propenyl)oxy]benzoate], polymer with 1,4-phenylene bis[4-[4-[(1-oxo-2-propenyl)oxy]butoxy]benzoate] | TWA    | 10 mg/m <sup>3</sup><br><br>5 mg/m <sup>3</sup> R TD | Not established | Not established | Not established |

### Key to abbreviations

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

Consult local authorities for acceptable exposure limits.

## 8 . Exposure controls/personal protection

- 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** : Use only with adequate ventilation. 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. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- 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. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Eyes** : Safety glasses with side shields.
- 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Respiratory** : If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed 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.
- 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. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## 9 . Physical and chemical properties

- Physical state** : Solid.
- Flash point** : Closed cup: Not applicable.
- Material supports combustion.** : Yes.
- Color** : Silver.
- Odor** : Not available.
- pH** : Not available.
- Boiling/condensation point** : Not available.
- Melting/freezing point** : Not available.
- Specific gravity** : 1.3
- Density ( lbs / gal )** : 10.85
- Bulk Density (g/cm<sup>3</sup>)** : 1.3
- Vapor pressure** : 0 kPa (0 mm Hg) [room temperature]
- Vapor density** : Not available.

## 9 . Physical and chemical properties

|                                        |                                                     |
|----------------------------------------|-----------------------------------------------------|
| Volatility                             | : 0% (v/v), 0% (w/w)                                |
| Evaporation rate                       | : 0 (butyl acetate = 1)                             |
| Solubility                             | : Insoluble in the following materials: cold water. |
| Partition coefficient: n-octanol/water | : Not available.                                    |
| % Solid. (w/w)                         | : 100                                               |

## 10 . Stability and reactivity

|                                  |                                                                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Stability                        | : Stable under recommended storage and handling conditions (see Section 7).                                                        |
| Conditions to avoid              | : Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. |
| Materials to avoid               | : Reactive or incompatible with the following materials: oxidizing materials, strong acids, strong alkalis                         |
| Hazardous decomposition products | : Under normal conditions of storage and use, hazardous decomposition products should not be produced.                             |
| Hazardous polymerization         | : Under normal conditions of storage and use, hazardous polymerization will not occur.                                             |

## 11 . Toxicological information

### Acute toxicity

| Product/ingredient name                                                                                                                                                                                                              | Result    | Species | Dose    | Exposure |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------|---------|----------|
|  -Glucitol, 1,4:3,6-dianhydro-, bis[4-[(1-oxo-2-propenyl)oxy]benzoate], polymer with 1,4-phenylene bis[4-[4-[(1-oxo-2-propenyl)oxy]butoxy]benzoate] | LD50 Oral | Rat     | >2 g/kg | -        |

Conclusion/Summary : Not available.

### Chronic toxicity

Conclusion/Summary : Not available.

## 12 . Ecological information

Environmental 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 at all times 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 emptied 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.

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

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## 14. Transport information

|                             | TDG             | Mexico          | IMDG            |
|-----------------------------|-----------------|-----------------|-----------------|
| UN number                   | Not regulated.  | Not regulated.  | Not regulated.  |
| UN proper shipping name     | -               | -               | -               |
| Transport hazard class(es)  | -               | -               | -               |
| Packing group               | -               | -               | -               |
| Environmental hazards       | No.             | No.             | No.             |
| Marine pollutant substances | Not applicable. | Not applicable. | Not applicable. |

### Additional information

TDG : None identified.

Mexico : None identified.

IMDG : None identified.

**Special precautions for user :** **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

## 15. Regulatory information

Canada inventory ( DSL ) : All components are listed or exempted.

### Canada

WHMIS (Canada) : None identified.

### Mexico

#### Classification

Flammability : 0 Health : 1 Reactivity : 0

## 16. Other information

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

Health : 1 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. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

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

Health : 1 Flammability : 0 Instability : 0

Date of previous issue : 11/5/2016

## 16 . Other information

Organization that prepared : EHS  
the MSDS

✔ 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.*