

## GERMANIUM CORPORATION OF AMERICA® SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** GERMANIUM DIOXIDE (GERMANIUM OXIDE)  
**SDS Number:** SDS- 4304 **Revised Date:** 19 APRIL 2018

**Use:** Industrial Use - GeO<sub>2</sub>

Germanium dioxide is a white powder which is manufactured in crystalline as well as amorphous form. Germanium dioxide's refractive index (1.7) and its optical dispersion properties make it useful for making wide- angle lenses and optical microscope objective lenses. It is transparent in infrared. Germanium dioxide is also used as a catalyst in production of polyethylene terephthalate resin, and for production of other germanium compounds. It also finds use in production of some phosphors and semiconductor materials.

**MANUFACTURER:**

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### 2. HAZARDS IDENTIFICATION

**PRIMARY ROUTES OF ENTRY:**

Eye ✓ Inhalation ✓ Skin ✓ Ingestion ✓

**Carcinogen listed in**

NTP IARC OSHA Not Listed ✓



Signal word – Warning

Hazard statement

H302 – Harmful if swallowed

Precautionary statement(s)

P233	Keep container tightly closed
P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P270	Do not eat, drink or smoke when using this product
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing/eye protection/face protection

P362	Take off contaminated clothing and wash before reuse
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P302 + P352	IF ON SKIN: Wash with plenty of soap and water
P304 + P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351	IF IN EYES: Rinse continuously with water for several minutes (15 mins)

Classification:

Acute toxicity, oral- Category 4

#### POTENTIAL HEALTH EFFECTS:

**Eye Contact:** Dust may cause slight irritation to eyes.

**Ingestion:** May cause irritation. Harmful if swallowed.

**Inhalation:** May cause irritation and acute germanium toxicity. May be harmful.

**Skin Contact:** Contact may cause irritation to the skin.

**Chronic Effects:** May cause chronic germanium toxicity. Kidney/liver injury may occur.

Germanium compounds are considered to be of low toxicity.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Components	Wt. %	CAS Registry #/EINECS#	PEL mg/m <sup>3</sup>	TLV-TWA mg/m <sup>3</sup>	TLV-STEL mg/m <sup>3</sup>
GERMANIUM DIOXIDE		1310-53-8/215-180-8	-	15 mg/m <sup>3</sup> Nuisance dust	-
(Germanic acid, germania, germanium (VI) oxide)					

### 4. FIRST AID MEASURES

**Eye Contact:** Hold eyelids apart and flush eyes with plenty of tepid water for at least 15 minutes or more until no evidence of chemical remains. Seek medical attention immediately.

**Ingestion:** If patient is conscious, ONLY induce vomiting as directed by trained personnel. NEVER give anything by mouth to an unconscious person. Seek medical attention immediately.

**Inhalation:** When safe to enter area, remove to fresh air. If not breathing, give artificial respiration or oxygen by trained personnel. Seek immediate medical attention.

**Skin Contact:** Remove contaminated clothing. Wash affected area with soap and large amounts of water until no evidence of chemical remains. Wash clothing before reuse. Destroy contaminated shoes. Get medical attention immediately.

### 5. FIRE FIGHTING MEASURES

**Flash Point:** Not established.

**Method:** Not established.

**Auto-ignition Temperature:** Not established.

**Flammable Limits:** Limits not established.

<b>Extinguishing Media:</b>	Regular dry chemical, carbon dioxide and regular foam.
<b>Special Fire Fighting Procedures:</b>	Firefighters must wear NIOSH approved self-contained breathing apparatus and full protective clothing.
<b>Explosion Sensitivity:</b>	Mechanical Impact: Not available
	<b>Static Discharge:</b> Not available

Avoid dust generation

## 6. ACCIDENTAL RELEASE MEASURES

**Spill or Leak Procedures:** Wear the appropriate personal protective equipment (such as chemical resistant gloves, and eye and face protection. Small spills or leaks: Clean up solids by not generating a dust. Vacuum using a HEPA style air filter. Do not allow spillage to enter any drains, waterways or ground. Do not sweep dry solids. All waste must be disposed of in accordance with applicable state, federal and local regulations. Recycle if possible.

## 7. HANDLING AND STORAGE

**Handling and Storage Precautions:** Store product in cool dry area in tightly sealed containers.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Controls:** Work in a well - ventilated area. Exhaust ventilation is recommended when dust is generated.

### Personal protection:

**Eyes:** Chemical safety glasses/goggles and face-shield. Provide an emergency eyewash/ shower in the immediate work area. Avoid the use of contact lenses.

**Respirator:** Under regular use not required. However, when heating or conducting other activities that cause the material to become airborne, respiratory protection such as dust mask or in large dust situations half face air purifying respirator with particulate cartridge should be considered.

**Skin:** Compatible chemical resistant gloves.

**Other:** Lab coat or chemical resistant clothing, eyewash shower unit in work area. Avoid the use of contact lenses.

**Work/Hygienic Practices:** Maintain good housekeeping. Clean up spills immediately. Avoid eating, smoking or drinking in the work area. Wash hands thoroughly with soap and water immediately upon leaving the work area.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	White crystalline solid powder.	
<b>Odor:</b>	None to Slight odor	Refractive index: 1.99
<b>Relative Density:</b>	4.22 g/cm <sup>3</sup> @25C (77F)	Melting Point: 1086C
<b>Vapor Pressure:</b>	Negligible	Specific gravity/density: 1.3-1.4 g/ml bulk density
<b>Freezing Point:</b>	>400 C(>752F)	Solubility: Water- 4.47g/l @25C
<b>Odor Threshold:</b>	Not available	

**Molecular weight:** 104.64 g/mol

**Not flammable**

## 10. STABILITY AND REACTIVITY

**General:** Stable

**Conditions to Avoid:** None Known

**Incompatible Materials:** Strong oxidizing agents

**Hazardous Decomposition / Combustion:** None known

**Hazardous Polymerization:** Will not occur.

**Physical Hazards:** None known.

## 11. TOXICOLOGICAL INFORMATION

**Carcinogenicity:**

<b>NTP:</b>	No
<b>OSHA:</b>	No
<b>IARC:</b>	No

RTECS: LY5240000 for additional information

LD50 Oral 1250 mg/kg (rat) LC50 inhalation 1420 mg/m3 (rat) 4h

## 12. ECOLOGICAL INFORMATION

No information available.

## 13. DISPOSAL CONSIDERATION

**Waste Disposal Method:** Dispose of in accordance with all applicable regulations. Material is considered non-hazardous. Recycle material. Avoid release to environment.

## 14. TRANSPORT INFORMATION

Non hazardous under the international shipping regulations.

UN - none

## 15. REGULATORY INFORMATION

The information in this Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 ET. SEQ.),

SARA 313 Listing: No  
EPA TSCA Inventory: All ingredients are listed on the TSCA inventory

This product has been classified in accordance with the hazard criteria of the Canadian Products Regulation (CPR).  
This product has been classified in accordance with the Mexican regulations NOM-018-STPS-2015 and NOM-010-STPS-2014.  
This product has been classified in accordance with the hazard criteria of the Commission Directive 91/155/EEC and EH40.  
This product has been classified in accordance with the guidelines set by the Dept. of Industrial Health of the Republic of Singapore.

Malaysia:

This product has been classified in accordance with: Malaysian – OCCUPATIONAL SAFETY AND HEALTH (CLASSIFICATION, LABELING AND SAFETY DATA SHEET OF HAZARDOUS CHEMICALS) REGULATION OCTOBER 2013 – (CLASS). (GHS)

In China:

Decree No. 591: Regulations on the Control over Safety of Hazardous Chemicals  
GB 30000.2-29-2013, Rules for classification and labeling of chemicals. (GHS)  
GB/T 16483-2008, GB/T 17517-2013  
This product has been classified using the Chinese Occupational Limit for Hazardous Agents in the Workplace, GBZ2-2007

## 16. OTHER INFORMATION

<b>HMIS Hazard Rating:</b>	<b>Health:</b>	2
	<b>Fire:</b>	0
	<b>Reactivity:</b>	0

**Revised Date:** 19 APRIL 2018

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