SAFETY DATA SHEET

Date Accessed: 03/28/2024
Date Revised: 01/15/2022

SECTION 1. IDENTIFICATION

Product Name: Di-n-butylgermanium Dichloride

Product Number: All applicable American Elements product codes, e.g. GE-OMX-01-4593

CAS #: 4593-81-1

Relevant identified uses of the substance: Scientific research and development

Supplier details:
American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
Fax: +1 310-208-0351

Emergency telephone number:
+1 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)
Acute oral toxicity Category 3
Acute dermal toxicity Category 3
Acute Inhalation Toxicity - Dusts and Mists Category 3
Skin Corrosion/irritation Category 1 B
Serious Eye Damage/Eye Irritation Category 1
Label Elements
Signal Word
Danger
Hazard Statements
Toxic if swallowed
Toxic in contact with skin
Causes severe skin burns and eye damage
Toxic if inhaled



Precautionary Statements

Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray
Response
Immediately call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
Wash contaminated clothing before reuse
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion
Rinse mouth
Do NOT induce vomiting
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Contact with water liberates toxic gas

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component Germane, dibutyldichloro-
CAS-No 4593-81-1
Weight % 98

SECTION 4. FIRST AID MEASURES

Eye Contact Immediate medical attention is required. Rinse immediately with plenty of water, also under
the eyelids, for at least 15 minutes.
Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.
Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Immediate medical attention is required.
Ingestion Do not induce vomiting. Call a physician immediately. Clean mouth with water.
Most important symptoms/effects Causes burns by all exposure routes. Product is a corrosive material. Use of gastric
lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should
be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue
and danger of perforation
Notes to Physician Treat symptomatically

SECTION 5. FIREFIGHTING MEASURES

Suitable Extinguishing Media Carbon dioxide (CO 2). Dry chemical. chemical foam.
Unsuitable Extinguishing Media No data available
Flash Point No data available
Method - No data available
Autoignition Temperature No data available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No data available
Sensitivity to Static Discharge No data available
Specific Hazards Arising from the Chemical
Contact with water liberates toxic gas. Water reactive. Produce flammable gases on contact with water.
Hazardous Combustion Products
Hydrogen chloride gas Carbon monoxide (CO) Carbon dioxide (CO2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full
NFPA
Health
3
Flammability
0
Instability
0
Physical Hazards
W

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information.
Methods for Containment and Clean
Up
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Handling Do not breathe dust. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Use only in area provided with appropriate exhaust ventilation.
Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Store contents under argon. Corrosives area.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits
established by the region specific regulatory bodies.
Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations
and safety showers are close to the workstation location.
Personal Protective Equipment
Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by
OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard
Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State Liquid
Appearance Clear
Odor No data available
Odor Threshold No data available
pH No data available
Melting Point/Range No data available
Boiling Point/Range 242 °C / 467.6 °F @ 760 mmHg
Flash Point No data available
Evaporation Rate No data available
Flammability (solid,gas) No data available
Flammability or explosive limits
Upper No data available
Lower No data available
Vapor Pressure No data available
Vapor Density No data available
Relative Density 1.208
Solubility No data available
Partition coefficient; n-octanol/water No data available
Autoignition Temperature No data available
Decomposition Temperature No data available
Viscosity No data available
Molecular Formula C8 H18 Cl2 Ge
Molecular Weight 257.73

SECTION 10. STABILITY AND REACTIVITY

Reactive Hazard Yes
Stability Stable under normal conditions. Moisture sensitive.
Conditions to Avoid Incompatible products. Exposure to moist air or water.
Incompatible Materials Strong oxidizing agents, Powdered metals
Hazardous Decomposition Products Hydrogen chloride gas, Carbon monoxide (CO), Carbon dioxide (CO2)
Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute Toxicity
Product Information No acute toxicity information is available for this product
Component Information
Component LD50 Oral LD50 Dermal LC50 Inhalation
Germane, dibutyldichloro- 100 mg/kg (Rat) Not listed Not listed
Toxicologically Synergistic
Products
No data available
Delayed and immediate effects as well as chronic effects from short and long-term exposure
Irritation No data available
Sensitization No data available
Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.
Component CAS-No IARC NTP ACGIH OSHA Mexico
Germane,
dibutyldichloro-
4593-81-1 Not listed Not listed Not listed Not listed Not listed
Mutagenic Effects No data available
Reproductive Effects No data available.
Developmental Effects No data available.
Teratogenicity No data available.
STOT - single exposure None known
STOT - repeated exposure None known
Aspiration hazard No data available
Symptoms / effects,both acute and
delayed
Product is a corrosive material. Use of gastric lavage or emesis is contraindicated.
Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation
Endocrine Disruptor Information No data available
Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for
complete information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity
Do not empty into drains.
Persistence and Degradability No data available
Bioaccumulation/ Accumulation No data available.
Mobility No data available.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a

hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

SECTION 14. TRANSPORT INFORMATION

DOT
UN-No UN2922
Hazard Class 8
Subsidiary Hazard Class 6.1
Packing Group III
TDG
UN-No UN2922
Hazard Class 8
Subsidiary Hazard Class 6.1
Packing Group III
IATA
UN-No
2922
Proper Shipping Name CORROSIVE LIQUID, TOXIC, N.O.S.*
Hazard Class 8
Subsidiary Hazard Class 6.1
Packing Group III
IMDG/IMO
UN-No 2922
Proper Shipping Name CORROSIVE LIQUID, TOXIC, N.O.S.
Hazard Class 8
Subsidiary Hazard Class 6.1
Packing Group III

SECTION 15. REGULATORY INFORMATION

International Inventories
Component TSCA DSL NDSL EINECS ELINCS NLP PICCS ENCS AICS IECSC KECL
Germane, dibutyldichloro- X - X 224-986-9 - - - - - -
Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated
polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base
Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants

that comprises one of the eligibility criteria for the exemption rule.
U.S. Federal Regulations
TSCA 12(b) N/A
SARA 313 N/A
SARA 311/312 Hazardous Categorization
Acute Health Hazard Yes
Chronic Health Hazard No
Fire Hazard No
Sudden Release of Pressure Hazard No
Reactive Hazard Yes
Clean Water Act N/A
Clean Air Act N/A
OSHA Occupational Safety and Health Administration
N/A
CERCLA
N/A
California Proposition 65 This product does not contain any Proposition 65 chemicals
State Right-to-Know N/A
U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N
U.S. Department of Homeland Security
This product does not contain any DHS chemicals.
Other International Regulations
Mexico - Grade No data available
Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and
the MSDS contains all the information required by the CPR
WHMIS Hazard Class D1A Very toxic materials
E Corrosive material
F Dangerously reactive material

SECTION 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.