

SAFETY DATA SHEET

According to OSHA Hazard Communication Standard 29 CFR 1910.1200 (HAZCOM 2012 - GHS)
According to Canada Hazardous Products Regulation (WHMIS 2015)

Product name	FR-522	
Product id	8322	
Revision date	02/11/2017	Revision: 14
Supersedes	03/09/2017	

1. Identification of the substance & the company

Product identifier	FR-522
Synonym(s)	2,2-bis(bromomethyl)propane-1,3-diol. DBNPG, Dibromoneopentyl glycol, Dinol, Dibromopentaerythritol.
Chemical formula	C ₅ H ₁₀ Br ₂ O ₂
Chemical family	Halogenated diol
Molecular weight	261.94
Type of product and use	Flame retardant
Supplier	ICL-IP America Inc. 622 Emerson Road - Suite 500 St. Louis, Missouri 63141, USA Tel:(314)983-7884 Fax:(314)983-7607 e-mail:msdsinfo@icl-group.com
Emergency Telephone	CHEMTREC : (800) 424-9300 Medical: PROSAR 1-888-875-1685 (24HRS)

2. Hazards identification

GHS classification	Carc. Cat. 2, H351 Suspected of causing cancer Muta 2, H341 Suspected of causing genetic defects
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Labels and other form of warning .



Signal Word	WARNING
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Hazard statements	H351 - Suspected of causing cancer H341 - Suspected of causing genetic defects
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Precautionary statements

P202 - Do not handle until all safety precautions have been read and understood
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P405 - Store locked up
P501 - Dispose of contents/container in accordance with national and international regulations

Additional OSHA/ WHMIS 2015 hazards

Combustible dust
May form combustible dust concentrations in air

NFPA Ratings (Scale 0-4)

Health = 1, Fire = 1, Reactivity = 0

HMIS Ratings (Scale 0-4)

Health = 1*, Fire =1, Reactivity = 0.

3. Composition / information on ingredients

Components	CAS No.	Weight %
Dibromoneopentyl glycol	3296-90-0	98.5

4. First-aid measures

Eye contact

Holding the eyelids apart, flush eyes promptly with copious flowing water for at least 20 minutes. Get medical attention immediately.

Skin contact

Remove contaminated clothing. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Wash clothing before reuse. Get medical attention immediately.

Inhalation

In case of inhalation, remove person to fresh air. Keep him quiet and warm. Apply artificial respiration if necessary and get medical attention immediately.

Ingestion

If swallowed, wash mouth thoroughly with plenty of water. Get medical attention immediately.

NOTE: Never give an unconscious person anything to drink

Most important symptoms and effects, acute or delayed

- Ingestion

Swallowing of this material may cause nausea and vomiting. It may affect the central nervous system, heart and kidneys.

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Notes to the physician Treat symptomatically and supportively.
No specific antidote.

5. Fire - fighting measures

Suitable extinguishing media	Material is not combustible. Use extinguishing media appropriate to surrounding fire conditions.
Extinguishing media not to be used	Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture.
Unusual fire and explosion hazards	Dust may form a weak explosive mixture with air (class St1). FR-522 dust is not sensitive to ignition from static discharge. Will decompose from ca. 225°C releasing poisonous and corrosive fumes of HBr.
Fire fighting procedure	Cool containers with water spray. Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) in positive pressure mode.

6. Accidental release measures

Personal precautions	Evacuate area. Full protective clothing, including self-contained breathing apparatus, must be used.
Methods for cleaning up	Shovel into intact packaging and hold for waste disposal or possible re-use. Avoid raising dust. Avoid access to streams, lakes or ponds.

7. Handling and storage

Handling	Keep containers tightly closed. Avoid bodily contact.
Storage	Store in a dry, well-ventilated area

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8. Exposure controls / personal protection

Exposure Limits :

Components	ACGIH-TLV Data	Korea OEL	OSHA (PEL) Data
Dibromoneopentyl glycol 3296-90-0	Not determined	Not determined	Not determined

Manufacturer's TWA Recommendation 0.1 mg/m³

Other Exposure Limits : Occupational Alliance for Risk Science (OARS) recommends Workplace Environmental Exposure Level (WEEL): 8-hr Time-weighted Average (TWA) of 0.2 mg/m³ (Dibromoneopentyl Glycol)

Ventilation requirements Ventilation must be sufficient to maintain atmospheric concentration below recommended exposure limit.

Personal protective equipment:

- **Respiratory protection** Use a High Efficiency Particulate Air (HEPA) filter in US, or particulate filter P3 for Europe. The rest of the world should use a particulate filter equivalent to one of the above standards.
- **Hand protection** Protective gloves.
- **Eye protection** Chemical safety goggles
- **Skin and body protection** In operations involving direct contact, such as cleanup of spills, maintenance or cleaning filters, personnel must wear full protective equipment like chemical-proof suit with hood and breathing air supply.

Hygiene measures Remove contaminated clothing after work is completed and wash skin thoroughly with soap and plenty of water. Do not eat, smoke or drink where material is handled, processed or stored. Safety shower and eye bath should be provided.

9. Physical and chemical properties

Appearance	Off white crystalline powder, odourless
Odor	None.
Odor threshold	Not available
Melting point/range	109°C
Boiling point/range	270 °C
Flash point	Not applicable.
Evaporation rate (ether=1)	Not applicable
Flammable/Explosion limits	Not available
Vapor pressure	2x10 ⁻³ Pa (25°C)
Vapor density	Not available

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Solubility:	
- Solubility in water	1.94 g/100ml at 20°C
- Solubility in other solvents	Methanol: 102 g/100g at 20°C Acetone: 83 g/100g at 25°C Isopropanol: 52 g/100g at 25°C
Partition coefficient (n-octanol/water)	Log Pow : 1.08
Auto-ignition temperature	Not applicable
Decomposition temperature	ca. 225°C
Bulk density	1.20 g/cm ³
Specific gravity	2.23
Oxidising properties	The structure indicates non oxidizing properties
Particle size	D10 253 µm, D50 590 µm, D90 1021 µm

10. Stability and reactivity

Reactivity	No reactive hazards known/expected.
Stability	Stable under normal conditions
Possibility of hazardous reactions	Not expected to occur
Conditions to avoid	Heating above decomposition temperature.
Materials to avoid	None known.
Hazardous decomposition products	HBr.

11. Toxicological information

Acute toxicity:	
- Rat oral LD50	>2,000 mg/kg
- Rat dermal LD50	>5000 mg/kg
Skin corrosion/irritation	Slightly irritating to skin but not sufficient for classification.
Serious eye damage/ irritation	Slightly irritant.
Respiratory or skin sensitisation	Not a skin sensitizer
Mutagenicity	Genotoxic in various in-vitro and in-vivo tests

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Carcinogenicity	NTP 14th report on carcinogens: A substance which may reasonably be anticipated to be a human carcinogen. IARC Group 2B (animal sufficient evidence, human limited evidence) Present in the OSHA list of Possible Select Carcinogens
Reproductive toxicity	In continuous breeding studies (published literature conducted on similar product, 2,2-bis(bromomethyl)-1,3-propanediol has been shown to impair fertility in female mice in the absence of an effect on reproductive organ weights or estrual cyclicity. The reproductive effects are not subject to classification as parents generation demonstrated toxic effects at the same doses.
Specific Target Organ Toxicity (STOT) - Single exposure	No effects on specific target organs have been identified
Specific Target Organ Toxicity (STOT) - Repeat exposure	Chemical related differences in renal clinical pathology were seen from 400 mg/kg/body weight Does not meet classification criteria.
Aspiration hazard	Not expected to occur

12. Ecological information

Aquatic toxicity :	
- LC50, Fish	>500 mg/l, 48 Hours (Killi fish)
- 96 Hour-LC50, Fish	>100 mg/kg (Rainbow trout)
- 48 hour-LC50, Daphnia magna	>100 mg/l
Biodegradation	Not readily biodegradable. Inherently biodegradable
Bioaccumulative potential	Not bioaccumulative
Note:	Not considered to be PBT or vPvB

13. Disposal considerations

Waste disposal	Treat the solid waste and packaging waste via an incinerator equipped with an adequate gas cleaning system or send to a controlled landfill. Observe all federal, state and local environmental regulations when disposing of this material
Disposal of Packaging	Dispose of in a safe manner in accordance with local/national regulations.

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14. Transportation information

DOT	Not regulated
IMDG	Not regulated
ICAO/IATA	Not regulated

15. Regulatory information

USA	Reported in the EPA TSCA Inventory.
- SARA 313	This substance/s is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372 Name: 2,2-BIS(BROMOMETHYL)-1,3-PROPANEDIOL 0.1%
- New Jersey Right-to-Know Hazardous Substances list	Listed
- California-Prop 65	WARNING! This product can expose you to 2,2-Bis(bromomethyl)-1,3-propanediol (CAS 3296-90-0), which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov .
- Workplace Classification	Present in the OSHA list of Possible Select Carcinogens
Canada	Listed in DSL
EU	Reported in EINECS
Australia	Listed in AICS
China	
- China inventory	Listed in IECSC
Japan	ENCS no. (2)-2405 ISHL no. (2)-2405
Korea	Listed in the Korea Existing Chemicals Inventory (KECI), number KE-09943
New Zealand Inventory	Listed in NZIoC
Taiwan	Listed (TCSI)

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Vietnam Listed

Thailand Listed

16. Other information

This data sheet contains changes from the previous version in section(s)
1, 15

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End of safety data sheet