1. Identification of the substance & the company

- **Chemical name**: Dibromoneopentyl glycol
- **Synonym(s)**: 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**: A reactive 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

- **Emergency Telephone**: Chemtrec (800)424-9300

2. Hazards identification

- **Emergency overview**: Off white crystalline powder, odourless
  
  Dust may form a weak explosive mixture with air
  
  May cause cancer based on animal data.

- **Potential Health Effects**:
  
  - **Eye Contact**: Mild irritant
  
  - **Skin contact**: Not irritant to intact skin. Slightly irritant on prolonged contact to abraded skin.
  
  - **Inhalation**: May cause irritation to mucous membranes and upper respiratory tract.
  
  - **Ingestion**: Swallowing of this material may cause nausea and vomiting. It may affect the central nervous system, heart and kidneys.

- **Chronic effects/Carcinogenicity**: NTP report on carcinogens: A substance which may reasonably be anticipated to be a carcinogen.
  
  Listed by IARC as a (2B) Suspected carcinogen; insufficient human but sufficient animal data.
3. Composition / information on ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibromoneopentyl glycol</td>
<td>3296-90-0</td>
<td>98.5</td>
</tr>
</tbody>
</table>

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 re-use. Get medical attention if irritation occurs.

Inhalation
In case of dust inhalation or breathing fumes released from heated material, 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 and give water to drink. Get medical attention immediately.

NOTE: Never give an unconscious person anything to drink.

Notes to the physician
Treat symptomatically and supportively.
In case of ingestion induce vomiting in alert patient.
No specific antidote.

5. Fire - fighting measures

Suitable extinguishing media
Material is not combustible. Use extinguishing media appropriate to surrounding fire conditions.

Fire fighting procedure
Cool containers with water spray. In closed stores, provide fire-fighters with self-contained breathing apparatus 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, cool, well-ventilated area

8. Exposure controls / personal protection

Exposure Limits :

<table>
<thead>
<tr>
<th>Components</th>
<th>ACGIH-TLV Data</th>
<th>OSHA (PEL) Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibromoneopentyl glycol</td>
<td>Not determined</td>
<td>Not determined</td>
</tr>
<tr>
<td>3296-90-0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Manufacturer's recommendation 0.1 mg/m³

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.
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- 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. Wash hands carefully before eating or smoking. Safety shower and eye bath should be provided.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Off white crystalline powder, odourless</td>
</tr>
<tr>
<td>Boiling point/range</td>
<td>270 °C</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>109°C</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammable/Explosion limits</td>
<td>Not available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>2x10(-3) Pa (25°C)</td>
</tr>
<tr>
<td>Evaporation rate (ether=1)</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility:</td>
<td></td>
</tr>
<tr>
<td>- Solubility in water</td>
<td>1.94 g/100ml at 20°C</td>
</tr>
<tr>
<td>- Solubility in other solvents</td>
<td>Methanol: 102 g/100g at 20°C</td>
</tr>
<tr>
<td></td>
<td>Acetone: 83 g/100g at 25°C</td>
</tr>
<tr>
<td></td>
<td>Isopropanol: 52 g/100g at 25°C</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>2.23</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>ca. 225°C</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>Log Pow = 1.08</td>
</tr>
<tr>
<td>(n-octanol/water)</td>
<td></td>
</tr>
</tbody>
</table>

10. Stability and reactivity

Stability: Stable under normal conditions.
Materials to avoid: None known
Conditions to avoid: Heating above decomposition temperature
Hazardous decomposition products: HBr
Hazardous polymerization: Will not occur

11. Toxicological information
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Revision: 9

11. Toxicological information

Acute toxicity:
- Rat oral LD50 >2,000 mg/kg
- Rat dermal LD50 >5000 mg/kg
- Eye irritation (rabbit) Slightly irritant

Dermal sensitization
No a sensitizer

Chronic toxicity
No information available

Mutagenicity
Negative results were obtained in an Ames Test in the absence of metabolic activation or with rat S9 based metabolic activation.
Mutagenic activity was observed in 2 strains (TA1535 and TA100) only with hamster S9 derived metabolic activation.

Carcinogenicity
NTP report on carcinogens: A substance which may reasonably be anticipated to be a 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.

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

Invertebrate toxicity
- NOEC 180 mg/kg (Earthworm, 14 days)

Biodegradation
Not readily biodegradable

Bioaccumulative potential
Not bioaccumulative
BCFn 0.8-1.1 (conc. 0.3 mg/l) (6 weeks)
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.

14. Transportation information

DOT
Not regulated

IMO
Not regulated

ICAO/IATA
Not regulated

15. Regulatory information

USA
Reported in the EPA TSCA Inventory

- SARA 313
Not listed

- California-Prop 65
California Proposition 65 Carcinogens and Reproductive Toxins: Listed name(s): 2,2-Bis(bromomethyl)-1,3-propanediol, May 1996. Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

- Workplace Classification
Present in the OSHA list of Possible Select Carcinogens

Canada
Listed in DSL

EU
Reported in EINECS

EC No.
221-967-7

Japanese METI
ENCS No.2-2405

Australia
Listed in AICS

New Zealand Inventory
Listed in NZIoC
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China inventory: Listed
Korea: Listed in ECL (KE- 09943)

16. Other information

This data sheet contains changes from the previous version in section(s)
11, 13

Health, Safety & Environment Policy
We will strive to ensure that our operations and products meet the needs of the present global community without compromising the ability of future generations to meet their needs
We accept that the success of our business is dependent on the supply of products and services that will benefit society whilst ensuring human safety and protection of the environment and natural resources
Within the framework of our commitment to the Responsible Care program, we will provide a healthy and safe work environment for employees and will responsibly manage our products at all stages of their life cycle in order to protect human health and the environment whilst maintaining high production standards of operation

TO MEET THIS COMMITMENT WE WILL:
Comply with or exceed applicable national and international regulatory requirements and other requirements to which we subscribe
Communicate openly and actively encourage dialogue with employees, customers and community concerning our products and operations
Implement documented management systems consistent with and for promotion of the Responsible Care ethics
Develop and supply products that can be manufactured, transported, used and disposed of safely whilst best meeting the needs of our customers
Regularly assess, continually improve and responsibly manage health, safety and environmental risks associated with products and processes throughout their life-cycles
Share knowledge and expertise with others and seek to learn from and incorporate improved practices into our own operations
Educate and train employees, contractors and customers to improve their HSE performance
Communicate up-to-date information to enable our workers, customers and other interested parties to handle our products in a safe and environmentally responsible manner
Endeavor to work with customers, suppliers, distributors and contractors to foster the safe use, transport and disposal of our chemicals
Support Product Stewardship programs in cooperation with customers, distributors and transporters
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In an event of discrepancy between the contents of this MSDS and the English version of it, the English version shall prevail.

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End of safety data sheet