SAFETY DATA SHEETS
According to the UN GHS revision 8

SECTION 1: Identification

1.1 GHS Product identifier

Product name: 2-PMPA

1.2 Other means of identification

Other names:

1.3 Recommended use of the chemical and restrictions on use

Identified uses: Industrial and scientific research uses.
Uses advised against: no data available

1.4 Supplier's details

Company: Target Molecule Corp.
Address: Suite 260, 36 Washington Street, Wellesley Hills, Massachusetts, USA
Tel/Fax: +1 (857) 239-0968

1.5 Emergency phone number

Emergency phone number: 400-821-2233
Service hours: Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

no data available

2.2 GHS label elements, including precautionary statements

Pictogram(s): no data available
Signal word: no data available
Hazard statement(s): no data available
Precautionary statement(s):
Prevention: no data available
Response: no data available
Storage: no data available
Disposal: no data available

2.3 Other hazards which do not result in classification

no data available
SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common names and synonyms</th>
<th>CAS number</th>
<th>EC number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-(Phosphonomethyl)pentanedioic acid</td>
<td>2-(Phosphonomethyl)pentanedioic acid</td>
<td>173039-10-6</td>
<td>-</td>
<td>100%</td>
</tr>
</tbody>
</table>

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled
Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact
Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Following eye contact
Rinse with pure water for at least 15 minutes. Consult a doctor.

Following ingestion
Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

4.2 Most important symptoms/effects, acute and delayed
no data available

4.3 Indication of immediate medical attention and special treatment needed, if necessary
no data available

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media
Use dry chemical, carbon dioxide or alcohol-resistant foam.

5.2 Specific hazards arising from the chemical
no data available

5.3 Special protective actions for fire-fighters
Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions
Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage
7.1 Precautions for safe handling
Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities
Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.
Recommended storage temperature: Store at -20°C

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Occupational Exposure limit values
no data available

Biological limit values
no data available

8.2 Appropriate engineering controls
Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)
Eye/face protection
Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection
Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection
If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards
no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state no data available
Colour no data available
Odour no data available
Melting point/freezing point no data available
Boiling point or initial boiling point 538.79°C at 760 mmHg and boiling range
Flammability no data available
Lower and upper explosion limit/flammability limit no data available
Flash point 279.65°C
Auto-ignition temperature no data available
Decomposition temperature no data available
pH no data available
Kinematic viscosity no data available
Solubility no data available
Partition coefficient n-octanol/water no data available
Vapour pressure 0mmHg at 25°C
Density and/or relative density 1.658g/cm³
Relative vapour density no data available
Particle characteristics no data available

SECTION 10: Stability and reactivity

10.1 Reactivity
no data available

10.2 Chemical stability
no data available

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
no data available

10.6 Hazardous decomposition products
no data available

SECTION 11: Toxicological information

Acute toxicity
- Oral: no data available
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation
no data available

Serious eye damage/irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity
no data available

Reproductive toxicity
no data available

STOT-single exposure
no data available

STOT-repeated exposure
no data available

Aspiration hazard
no data available
SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: no data available    IMDG: no data available    IATA: no data available

14.2 UN Proper Shipping Name

ADR/RID: no data available    IMDG: no data available    IATA: no data available

14.3 Transport hazard class(es)

ADR/RID: no data available    IMDG: no data available    IATA: no data available

14.4 Packing group, if applicable

ADR/RID: no data available    IMDG: no data available    IATA: no data available

14.5 Environmental hazards

ADR/RID: No    IMDG: No    IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question
SECTION 16: Other information

Information on revision

| Creation Date | July 15, 2019 |
| Revision Date | July 15, 2019 |

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.iolo.org/dyn/icsc/showcard.home
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

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