SAFETY DATA SHEET

Revision date 2018-May-07 **Revision number** 1

1. IDENTIFICATION

Product identifier

Product name DMPA ®

Other means of identification

Product code 3105A
Synonyms DMPA®; 3-hydroxy-2-(hydroxymethyl)-2-methylpropionic acid; dihydroxypivalic acid; 2,2-bis(hydroxmethyl) propionic acid

Recommended use of the chemical and restrictions on use

Recommended use [RU] Manufacture of Substances (i.e. polymers, oligomers)
Professional Use in Laboratories
Process intermediate
Distribution and storage
Formulations
Uses advised against None known

Details of the supplier of the safety data sheet

Supplier GEO Specialty Chemicals, Inc.
2409 N. Cedar Crest Blvd.
Allentown, PA 18104-9733
+1-610-433-6330
Hours: Monday-Friday 9:00-5:00 EST (Eastern Standard Time)

Contact Point safety-data-sheet-fp@geosc.com

Emergency telephone number

24 Hour Emergency Phone Number CHEMTREC: (800) 424-9300
Outside USA - +1 (703) 527-3887 collect calls accepted

2. HAZARDS IDENTIFICATION

Classification

Canadian HPR Regulatory Status
This chemical is considered hazardous by the Hazardous Products Regulation (WHMIS 2015)

Serious eye damage/eye irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Physical state	Color	Appearance	Odor
solid	off-white	dry, free flowing granules	odorless

WARNING

Hazard statements
Causes serious eye irritation
May cause respiratory irritation

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear eye/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area

Precautionary Statements - Response
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant.

Other information
• Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous ingredients

Component	Common name	CAS-No	weight-%
Dimethylolpropionic Acid	Dimethylolpropionic Acid (DMPA)	4767-03-7	95 - 100%

4. FIRST AID MEASURES

First Aid Measures

Eye contact
Remove contact lenses, if worn. Immediately flush with plenty of water for at least 20 minutes, holding eyelids apart to ensure flushing of the entire surface. Washing within one minute is essential to achieve maximum effectiveness. Seek immediate medical attention.

Skin contact
Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.

Ingestion
Do NOT induce vomiting. If vomiting should occur spontaneously, keep airway clear. Never give anything by mouth to an unconscious person. Get medical attention.

Inhalation
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

Most important symptoms and effects, both acute and delayed

Acute effects
Irritating to eyes and respiratory system.

Chronic effects
None known.

Aggravated Medical Conditions
Eye and lung conditions.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media
Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons
No information available.

Special hazards arising from the substance or mixture

Special Hazard
Risk of dust explosion in fine crystalline powder form. Avoid creating explosive concentrations of dust.

Advice for firefighters

Firefighting measures
Cool exposed containers with water spray after extinguishing fire.

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for firefighting personnel. Electrical grounding of equipment is required when handling powder to prevent possible dust explosion.

Explosion data

Sensitivity to Mechanical Impact
None.

Sensitivity to Static Discharge
None.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Wear suitable protective clothing and gloves.

Environmental precautions

Environmental precautions
Do not allow to enter sewer or surface and subsurface waters.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Clear spills immediately. Small spill: Shovel into labeled waste container for reuse or disposal. Contain large spill and remove using an appropriately lined vacuum truck. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Wet the material with water to limit dust emission or explosion risk. Remove all sources of ignition. Non-sparking tools should be used. Ventilate the area. Spills of solution are extremely slippery so all residue must be removed promptly.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
Keep container closed when not in use
Keep away from open flames, hot surfaces and sources of ignition
Avoid generation of dust
Conveying and processing equipment should be spark proof, electrically bonded and grounded.
Avoid contact with eyes, skin and clothing. Wash thoroughly after handling
Avoid breathing dust. Use only in well-ventilated areas. Use respiratory protection where dust may be generated.
Do not take internally
FOR INDUSTRIAL USE ONLY.

Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions
Store at 15 - 25° C (59 - 77° F) in original closed containers.
Keep away from open flames, hot surfaces and sources of ignition
Conveying and processing equipment should be spark proof, electrically bonded and grounded.
Dust must be collected and disposed of carefully.

Incompatible products
Oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Ingredients with limit values that require monitoring at the workplace
Inhalable dust: 10 mg/m^3 8-hour TWA
Respirable dust: 4 mg/m^3 8-hour TWA.

Appropriate engineering controls

Engineering controls
Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details. If there are no applicable or established exposure limit requirements or guidelines, general ventilation should be sufficient.

Individual protection measures, such as personal protective equipment

Eye/face Protection
Dust protection eye glasses.

Hand Protection
Appropriate chemical resistant gloves should be worn: Polyvinylchloride; Nitrile rubber; Chloroprene, CR

Skin and body protection
Standard work clothing and work shoes.

Respiratory protection
If exposures exceed the PEL or TLV, use NIOSH/MSHA approved respirator in accordance with OSHA Respiratory Protection Requirements under 29 CFR 1910.134. If there are no applicable or established exposure limit requirements or guidelines, general ventilation should be sufficient.

Other personal protection data
Eyewash fountains and safety showers must be easily accessible.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	solid
Color	off-white
Appearance	dry, free flowing granules
Odor	odorless
Odor threshold	No information available

Property	Values	Remarks / Method
pH	2.6	50 g/L @ 20 °C
Melting / freezing point	166 °C / 330.8 °F	No information available
Boiling point / boiling range	182 °C / 359.6 °F	No information available
Flash point	No information available	No information available
Evaporation rate	< 1	No information available
Flammability (solid, gas)	No information available	No information available
Flammability Limit in Air		
Upper flammability limit	No information available	No information available
Lower flammability limit	No information available	No information available
Vapor pressure	< 1 mm Hg	No information available
Vapor density	> 1	No information available
Specific gravity	No information available	No information available
Solubility (water)	101 g/l	No information available
Solubility in other solvents	soluble in: alcohols	No information available
Partition coefficient: n-octanol/water	-1.1 log Kow @ 25 °C	No information available
Autoignition temperature	> 400 °C / > 752 °F	No information available

Decomposition temperature	No information available	No information available
Kinematic viscosity	No information available	No information available
Dynamic viscosity	No information available	No information available

Other information

Density	No information available
Bulk Density	52.4 lb/ft^3
Explosive properties	Not an explosive. May form explosive mixtures with air.
Oxidizing properties	The substance or mixture is not classified as oxidizing
Softening point	No information available
Molecular weight	134.13 g/mol
Volatile Organic Compound (VOC) content, wt.%	No information available
Percent Volatile, wt.%	No information available

10. STABILITY AND REACTIVITY

Reactivity

Reactivity
No data available.

Chemical stability

Chemical stability
Stable under normal conditions of handling, use and transportation.

Possibility of hazardous reactions

Possibility of hazardous reactions
None under normal processing.

Hazardous polymerization
Not anticipated under normal or recommended handling and storage conditions.

Conditions to avoid

Conditions to avoid
Risk for dust explosion. Avoid handling which can create static electrical discharges.

Incompatible materials

Materials to avoid
Oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products
Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye contact
Causes eye irritation.

Skin contact
This product is not considered to be a skin irritant.

Ingestion
Considered slightly toxic.

Inhalation
Dust irritating to respiratory tract.

Acute toxicity - Product Information

Oral LD50	>2000 mg/kg (rats) Method: OECD Test No. 423: Acute Oral toxicity - Acute Toxic Class Method
Dermal LD50	>2000 mg/kg (rats) Method: OECD Test No. 402: Acute Dermal Toxicity
Inhalation LC50	Not applicable

Information on toxicological effects

Symptoms
No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation
Not irritating
Method: OECD Test No. 404: Acute Dermal Irritation/Corrosion

Serious eye damage/eye irritation
Irritating to eyes
Method: OECD Test No. 405: Acute Eye Irritation/Corrosion

Sensitization
Dermal sensitization: non-sensitizing
Method: OECD Test No. 429: Skin Sensitization: Local Lymph Node Assay

Germ cell mutagenicity
Not mutagenic
Methods: OECD Test No. 471: Bacterial Reverse Mutation Test; OECD Test No. 473: In vitro Mammalian Chromosome Aberration Test; OECD Test No. 476: In vitro Mammalian Cell Gene Mutation Test Negative in the Ames Test.

Carcinogenicity
This product does not contain any components in concentrations greater than or equal to 0.1% that are listed as known or suspected carcinogens by NTP, IARC, ACGIH, or OSHA.

Reproductive toxicity
No evidence of an effect on the reproductive organs was seen in a 28-day study at dose levels of up to and including 1000 mg/kg bw/d

Specific target organ toxicity - Single exposure
Irritating to respiratory system.

Specific target organ toxicity - Repeated exposure
Not classified
Oral (NOEL/28d) 200-1000 mg/kg/d (rat) - CAS# 4767-03-7 2,2-bis(hydroxymethyl)propionic acid

Aspiration hazard
No information available.

Other information

Conclusions are drawn from sources other than direct testing.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Acute aquatic toxicity - Product Information

Fish	LC50: > 1,000 mg/L, 96 hours (*Danio rerio*) Method: OECD Test No. 203: Fish, Acute Toxicity Test
Crustacea	EC50: >100 mg/L, 48 hours (*Daphnia magna*) Method: Acute daphnia toxicity according to test method OECD 202.
Bacteria toxicity	EC50: >1000 mg/L, 30 minutes (bacteria) Method: OECD Test No. 209: Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation)
Algae/aquatic plants	EC50: 750 mg/L, 72 hours (*Pseudokirchnerella subcapitata*) Method: OECD Test No. 201: Freshwater Alga and Cyanobacteria, Growth Inhibition Test

Persistence and degradability

Persistence and degradability
Readily biodegradable

Biodegradation
28-day biodegradation = 90 - 100%.
Method: OECD Test No. 301A: Ready Biodegradability: DOC Die-Away Test (TG 301 A)

Bioaccumulative potential

Bioaccumulative potential
Due to the distribution coefficient n-octanol/water an accumulation in organisms is not expected.
BCF: 3.2 (calculated)
log Pow -1.1 (OECD 117)

Mobility

Mobility
The substance is not expected to adsorb to a high degree to suspended solids and sediment based upon the log Pow.

Results of PBT and vPvB assessment

PBT and vPvB assessment
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT)
This substance is not considered to be very persistent nor very bioaccumulating (vPvB)

Other adverse effects

Other information
No other ecological studies have been carried out on this product.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes
Disposal should be in accordance with applicable regional, national and local laws and regulations

Contaminated packaging
Since empty containers retain product residue, follow label warnings even after container is emptied.

14. TRANSPORT INFORMATION

TDG Not regulated

DOT Not regulated

ICAO/IATA Not regulated

IMDG Not regulated

15. REGULATORY INFORMATION

National Regulations

Canada (DSL)
All ingredients are on the inventory or exempt from listing

Canada (NDSL)
None of the ingredients are on the inventory.

International Inventories

Australia (AICS)
All ingredients are on the inventory or exempt from listing

China (IECSC)
All ingredients are on the inventory or exempt from listing

European Union (EINECS)
All ingredients are on the inventory or exempt from listing

European Union (ELINCS)
None of the ingredients are on the inventory.

Japan (ENCS)
All ingredients are on the inventory or exempt from listing

South Korea (KECL)
All ingredients are on the inventory or exempt from listing

Philippines (PICCS)
All ingredients are on the inventory or exempt from listing

United States (TSCA)
All ingredients are on the inventory or exempt from listing

Legend

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
AICS - Australian Inventory of Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

16. OTHER INFORMATION

Product code	3105A
Revision date	2018-May-07
Revision number	1

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet