SAFETY DATA SHEET

Revision date 2015-10-01 Revision number 1.01

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

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

1.2 Relevant identified uses of the substance or mixture and uses advised against

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

1.3 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)
Responsibility Statement	For further information, please contact safety-data-sheet-fp@geosc.com

1.4 Emergency telephone number

Emergency telephone	24 Hour Emergency Phone Number GEO Specialty Chemicals UK Ltd +44 (0)23 80891806

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

2.2 Label elements

Signal word	WARNING
Hazard statements	H319 - Causes serious eye irritation H335 - May cause respiratory irritation
Precautionary statements	
Prevention	Avoid breathing dust/fume/gas/mist/vapors/spray Wear protective gloves and eye/face protection
Response	IF INHALED: Remove person to fresh air and keep comfortable for breathing IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing Call a POISON CENTER or doctor/physician if you feel unwell If eye irritation persists: Get medical advice/attention
Hazard components for labeling	Dimethylolpropionic Acid

2.3 Other hazards which do not result in classification

None known

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

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

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

4. FIRST AID MEASURES

4.1 Description of 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	If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Most important symptoms and effects	No information available.
Aggravated Medical Conditions	Eye and lung conditions.

4.3 Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media	Water mist Carbon dioxide (CO2) Foam Dry chemical
Extinguishing media which must not be used for safety reasons	No information available.

5.2 Special hazards arising from the substance or mixture

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

5.3 Advice for firefighters

Special protective equipment for firefighters	Electrical grounding of equipment is required when handling powder to prevent possible dust explosion. Full protective clothing and approved self-contained breathing apparatus required for firefighting personnel.
Firefighting measures	Cool exposed containers with water spray after extinguishing fire.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	Wear suitable protective clothing and gloves.

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	Stop leaks. Clear spills immediately. Contain large spill and remove using an appropriately lined vacuum truck. Soak up small spills with inert absorbent material and place in a labeled waste container for disposal. Spills of solution are extremely slippery so all residue must be removed promptly. Remove all sources of ignition. Non-sparking tools should be used. Ventilate the area. Shovel into labeled waste container for reuse or disposal. 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.

6.4 Reference to other sections

See Section 12 for additional Ecological Information

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling

Avoid generation of dust
Avoid breathing dust.
Use only in well-ventilated areas
Use respiratory protection where dust may be generated.
Wash thoroughly after handling
Conveying and processing equipment should be spark proof, electrically bonded and grounded.
Do not take internally
Keep away from open flames, hot surfaces and sources of ignition.
Comply with Directive 94/9/EC concerning equipment and protective systems intended for use in potentially explosive atmospheres and, Directive 1999/92/EC regarding minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres.
Avoid contact with eyes, skin and clothing
Keep container closed when not in use
FOR INDUSTRIAL USE ONLY.

7.2 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational exposure limit value

Component	Ministry of Labor (Republic of Korea, 3/2012)	ACGIH TLV
Dimethylolpropionic Acid 4767-03-7	NAV	NAV

Legend NAV - Not available

8.2 Appropriate engineering controls

Environmental exposure controls No information available

8.3 Personal Protective Equipment

Eye/face Protection Wear chemical splash goggles and face shield (when eye and face contact is possible due to splashing or spraying of material).

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

Respiratory protection Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure above the listed occupational exposure limits.

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

Appearance	
Physical state	dry, free flowing granules
Color	off-white
Odor	odorless
Odor threshold	No information available
pH	2.6 - 50 g/L @ 20 °C
Melting / freezing point	166 °C / 330.8 °F
Boiling point / boiling range	182 °C / 359.6 °F
Flash point	No information available
Evaporation rate	< 1
Flammability (solid, gas)	No information available
Flammability Limit in Air	
Upper flammability limit	No information available
Lower flammability limit	No information available
Vapor pressure	< 1 mm Hg
Vapor density	> 1
Specific gravity	No information available
Solubility(ies)	
Solubility (water)	101 g/l
Solubility in other solvents	soluble in alcohols
Partition coefficient: n-octanol/water	-1.1 log Kow
Autoignition temperature	> 400 °C / 752 °F
Decomposition temperature	No information available
Viscosity	
Kinematic viscosity	No information available
Dynamic viscosity	No information available
Molecular weight	134.13 g/mol
Density	No information available

10. STABILITY AND REACTIVITY

10.1 Reactivity

Reactivity	No information available.

10.2 Chemical stability

Chemical stability	Stable under normal conditions.

10.3 Possibility of hazardous reactions

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

10.4 Conditions to avoid

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

10.5 Incompatible materials

Materials to avoid — Oxidizing agents.

10.6 Hazardous decomposition products

Hazardous decomposition products — Carbon oxides.

11. TOXICOLOGICAL INFORMATION

11.1 Information on likely routes of exposure

Acute health hazard

Inhalation — Dust irritating to respiratory tract.

Eye contact — Causes eye irritation.

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

Ingestion — Considered slightly toxic.

11.2 Health hazards

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 — No information available

Component	Oral LD50	Dermal LD50	Inhalation LC50
Dimethylolpropionic Acid 4767-03-7	> 2000 mg/kg (rat)	> 2000 mg/kg (rat)	--

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

Serious eye damage/eye irritation — Causes serious eye irritation
Method: OECD Test No. 405: Acute Eye Irritation/Corrosion

Sensitization — Dermal sensitization: non-sensitizing
Method: OECD Test No. 429

Germ cell mutagenicity — Not mutagenic
Method: 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

Carcinogenicity — No information available

Repeated dose toxicity	Oral (NOEL/28d) 200-1000 mg/kg/d (rat) - CAS# 4767-03-7 2,2-bis(hydroxymethyl)propionic acid
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	No information available
Aspiration hazard	No information available

12. ECOLOGICAL INFORMATION

12.1 Toxicity

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

12.2 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)

12.3 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)

12.4 Mobility in soil

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

12.5 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)

12.6 Other adverse effects

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

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Disposal of wastes	Dispose of product in an approved chemical waste landfill or incinerate in accordance with applicable Federal, state and local regulations. Do not put solutions containing this product into sewer systems.
Contaminated packaging	Since empty containers retain product residue, follow label warnings even after container is emptied

14. TRANSPORT INFORMATION

DOT (US) Not regulated
14.1 UN number
14.2 Proper shipping name
14.3 Hazard class
14.4 Packing group
14.5 Environmental hazard

Land transport (ADR/RID) Not regulated
14.1 UN number
14.2 Proper shipping name
14.3 Hazard class
14.4 Packing group
14.5 Environmental hazard

Inland waterway transport (ADN) Not regulated
14.1 UN number
14.2 Proper shipping name
14.3 Hazard class
14.4 Packing group
14.5 Environmental hazard

Air transport (ICAO-TI / IATA-DGR) Not regulated
14.1 UN number
14.2 Proper shipping name
14.3 Hazard class
14.4 Packing group
14.5 Environmental hazard

Sea transport (IMDG) Not regulated
14.1 UN number
14.2 Proper shipping name
14.3 Hazard class
14.4 Packing group
14.5 Environmental hazard

14.6 Special precautions for user
No information available

Harmonized Tariff Number	2918.19

15. REGULATORY INFORMATION

15.1 Industrial Safety and Health Law

ISHA Article 37 None of the components are listed.

ISHA Article 38 None of the components are listed.

Component	ISHA - Substances to be controlled - Acids and bases	ISHA - Substances to be controlled - Metals	ISHA - Substances to be controlled - Organic Substances
Dimethylolpropionic Acid	Not applicable	Not applicable	Not applicable

Component	ISHA - Harmful factors subject to special health check-up - Acids and bases	ISHA - Harmful factors subject to special health check-up - Metals	ISHA - Harmful factors subject to special health check-up - Organic Substances
Dimethylolpropionic Acid	Not applicable	Not applicable	Not applicable

Component	ISHA - Harmful agents subject to Work Environment Measuring - Acids and bases	ISHA - Harmful agents subject to Work Environment Measuring - Metals	ISHA - Harmful agents subject to Work Environment Measuring - Organic Substances
Dimethylolpropionic Acid	Not applicable	Not applicable	Not applicable

Occupational exposure limits See section 8 for more information

15.2 Toxic Chemicals Control Law

Component	TCCA - Toxic Chemicals	TCCA - Observational Chemicals	TCCA Article 32 (Banned)	TCCA Article 32 (Restricted)	Accident Precaution Chemicals
Dimethylolpropionic Acid	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

15.3 Dangerous Substances Safety Management Act

Not classified

15.4 Wastes Management

Dispose of contents/container in accordance with all local, regional, national, and international regulations.

15.5 Other information

International Inventories

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

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

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

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

EINECS (European Inventory of Existing Chemical Substances)
All ingredients are on the inventory or exempt from listing

ELINCS (European List of Notified Chemical Substances)
None of the ingredients are on the inventory.

ENCS (Japan)
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

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

Legend
AICS - Australian Inventory of Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
IECSC - China Inventory of Existing 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	2015-10-01

Key or legend to abbreviations and acronyms used in the safety data sheet
NAV - Not available

Additional information
None

Disclaimer
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