GPS Safety Summary

Dimethylaminopropyl methacrylamide (DMAPMA)

The Product Safety Summary is intended to provide a general overview of the chemical substance in the context of ICCA Global Product Strategy. The information on the summary is basic information and is not intended to provide emergency response, medical or treatment information.

Substance name

Dimethylaminopropyl methacrylamide (DMAPMA)
CAS-No. 5205-93-6

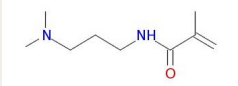
General statement

DMAPMA is produced for the use as a monomer to make a wide range of polymer based products. Consumer risk and exposure is very unlikely as this substance is manufactured and handled in industrial settings.

The environmental effects, ecotoxicology and toxicology information available for this chemical is provided based on studies and/or a reliable evaluation of its hazardous properties.

This chemical should not enter surface water, groundwater and soil. General and substance specific operational conditions and risk management measures are in place to prevent exposure to workers and release to the environment.

Chemical identity

Name	Dimethylaminopropyl methacrylamide
Brand names	VISIOMER® DMAPMA
Chemical name (IUPAC)	2-Propenamide, N-(3-(dimethylamino)propyl)-2-methyl
CAS number	5205-93-6
Molecular formula	$C_9H_{18}N_2O$
Structure	
Synonyms	N-[3-(dimethylamino)propyl]-2-methacrylamide

Uses and application

DMAPMA is used as a monomer for the production of polymers. It is manufactured in industrial settings in closed systems and used by industry for manufacture of polymers in closed and semi-closed systems. Downstream use is almost exclusively in the form of polymer.

DMAPMA containing polymers are mostly used as an internal and external intermediate in the chemical industry. It is mostly used for the conversion in methacrylic quaternary ammonium salt and polymerized for flocculant use in water treatment. Furthermore, it is found as co-monomer in different kinds of polymers. Applications of polymers containing DMAPMA are products used for paper agents, coatings, adhesives, lubricants, reactive resins and others.

Downstream use of DMAPMA is almost exclusively in the form of polymer, although some products used by professionals and hobbyists may contain small quantities of the liquid monomer.

Physical/chemical properties

Property	Value
Physical state	liquid
Color	pale yellow
Odor	amine-like
Melting / Boiling point	-88 °C /263 °C
Density	0.94 g/cm³ (20°C)
Molecular weight	170 g/mol
Water solubility	Miscible in water
Vapor pressure	0.004 Pa (20 °C)
Ignition temperature	240 °C (1006 hPa)
Flashpoint	129 °C (1013 hPa)
Octanol-water partition coefficient	log Pow: 0.50 (24 °C)
Viscosity	27.4 mPa s (20 °C)

Health effects

Effect Assessment	Result
Acute toxicity (oral, dermal and inhalation)	Low toxicity. Due to its low vapour pressure, it is unlikely that inhalation exposure will occur.
Eye / Skin irritation	Risk of serious eye damage. / Irritating to skin.
Sensitization	Skin sensitizing
Genotoxicity / Mutagenicity	Not mutagenic / genotoxic
Carcinogenicity	Not expected to be carcinogenic.
Toxicity for reproduction	No evidence of reproductive or developmental toxicity.

Environmental effects

Effect Assessment	Result
Aquatic toxicity (acute/ short-term)	Not hazardous to aquatic organisms.
Aquatic toxicity (chronic / long-term)	No long lasting effects to aquatic organisms.

Fate and Behavior	Result
Biodegradation	Readily biodegradable
Bioaccumulation potential	Bioaccumulation is not expected.
PBT / vPvB conclusion	Neither considered to be PBT nor vPvB.

Exposure

Human health

DMAPMA is produced in essentially closed systems so significant worker exposure during manufacture is unlikely. Workers will handle DMAPMA during polymer production and professional use of products containing liquid monomer. Normal industrial practices assure limited workplace exposures. These practices include handling with good ventilation and skin and eye protection. When containers and tanks are cleaned, residues are captured and treated. All workers are trained in the properties and safe practices of using chemicals including using personal protective clothing. Consumer exposure to liquid monomer is unlikely unless they use one of the few professional/DIY or hobbyist products that contain low levels of liquid monomer.

Environment

The manufacture is a closed and automated process and no exposure to the environment is intended. Any exposures will generally be lower than concern levels. Any waste containing residual DMAPMA has to be disposed in accordance with local, state and federal laws.

Risk management recommendations

Industry use, production and formulation

Workers will handle DMAPMA during polymer production and professional use of products containing liquid monomer. Workers should follow the recommended safety measures as provided by the manufacturer in the Safety Data Sheet. Considering the irritating properties this typically will include avoiding skin and eye contact or the wearing of suitable protective gloves and goggles and avoiding inhalation of vapor by use of one or more of the following: engineering controls, good general ventilation or personal protective (respiratory) equipment, depending upon the particular use conditions. Releases to air and water during manufacturing processes and use would rapidly disappear by degradation processes in the environment. Waste containing hazardous levels of the substance must be disposed of in

accordance with the regulations after consultation of the competent local authorities and the disposal company in a suitable and licensed facility.

Consumer use

Consumer use of products containing DMAPMA-based polymers does not require any risk management measures relating to the small amounts of DMAPMA residues in those polymers. Use of professional/Do-it-yourself and hobbyist products that contain small amounts of liquid monomer will require the user to follow the guidance provided by the product manufacturer on the packaging or product label. This will depend upon the product composition, but may include recommendations to avoid skin and eye contact and to provide good general ventilation when handling formulations containing the uncured (unpolymerized) product. Uncured (unpolymerized) product should not be poured down the drains or disposed of in domestic waste.

State agency review

- UN-GHS Ver. 4 (2011)

Regulatory information/classification and labelling

GHS-Classification

Statutory basis UN-GHS Ver. 4 (2011)	Dimethylaminopropyl methacrylamide
Acute toxicity (oral)	Hazard category 5*
Skin irritation	Hazard category 2
Eye irritation	Hazard category 1
Skin sensitizer	Hazard category 1B*

GHS-Labelling

Statutory basis UN-GHS Ver. 4 (2011)	Dimethylaminopropyl methacrylamide
Symbol(s)	
Signal word	Danger
Hazard statement	H303 – May be harmful if swallowed. H317 – May cause allergic skin reaction. H315– Causes skin irritation. H318 – Causes serious eye irritation.
Precautionary statements:	Precautionary statements and more information about DMAPMA can be found on the Safety Data Sheet.
Prevention	Keep away from flames and hot

* No worldwide use of this category. Not used in the European Union.

	surfaces. - No smoking. Wear protective gloves and eye/face protection. Avoid breathing dust/fume/gas/mist/vapors/spray. Contaminated work clothing must not be allowed out of the workplace.
Response	In case of fire: Use foam, water spray, dry chemical, carbon dioxide to extinguish. If on skin: wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
Storage	Store in a well-ventilated place. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local regulation.

Glossary

Acute toxicity	harmful effects after a single exposure
Biodegradable	breakdown of materials by a physiological environment
Bioaccumulation	accumulation of substances in the environment
Carcinogenicity	effects causing cancer
Chronic toxicity	harmful effects after repeated exposures
GHS	Global Harmonized System on Classification and Labeling
Mutagenicity	effects that change genes
PBT	Persistent Bioaccumulative Toxic
Reprotoxicity	teratogenicity, embryotoxicity and harmful effects on fertility
Sensitizing	allergenic
Teratogenic	effects on foetal morphology
vPvB	very Persistent very Bioaccumulative

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For more product safety summaries, please visit:
Methacrylates Producers Association

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