

N, N-dimethylacrylamide



PERFORMANCES

N, N dimethylacrylamide (DMAA) C_5H_9NO is a liquid chemical product used as synthesis intermediate and monomer for the synthesis of specific polymers.

PROPERTIES of polymers and copolymers containing DMAA:

- **Polymerization**
DMAA can be copolymerized with other monomers.
DMAA is quickly polymerized by radical chain reaction initiators.
- **Adhesive properties**
Polymers containing DMAA have strong adhesive properties on glass and tin.
- **Antistaticity**
Copolymers of DMAA have a better antistaticity than most polymers.
- **Hardness**
The polymer DMAA becomes very soft when absorbing moisture, but very stiff when completely dry.

These properties are mostly valued in the following applications:

- **CONTACT LENSES**
DMAA is an efficient polymer component in the manufacture of contact lenses.
- **ADHESIVE AND COATING AGENTS**
DMAA generates or improves the adhesiveness of polyamide resins.
Changes in polyolefin resins by polymerization of DMAA improve the adherence of very polar epoxydes.
- **FIBER AMELIORATION**
DMAA is used to improve the dyeing, hygroscopic and antistatic properties of synthetic and semi-synthetic fibers (acrylic, polyolefin, polyvinyl chloride, polyester, polyamide and acetate).
- **PLASTIC AMELIORATION**
Copolymerization of DMAA with different polyolefins improves tensile strength, impact strength, printing, dyeing and antistatic of resins.
- **FIBERS AND PAPERS TREATMENT**
DMAA modifies polyvinyl alcohol for fibers and papers treatment.
- **PHOTOGRAPHS AND PRINTING MATERIAL**
DMAA is used to improve the photosensible gelatin properties or as a substitute for gelatin, to avoid static electricity, as dyeing agent on color films, and as component of developing agents.
- **COSMETICS/ PHARMACEUTICALS**
The polymer of DMAA is used as a skin protecting agent from UV rays and as coating agent for medicines.
- **OTHER APPLICATIONS**
Chromatographic carrier, proteins adsorbant.
Supporter for polypeptide and oligonucleotide synthesis.
Flocculant.
Reactive thinner for UV cured resins.
Cross-linking agent.

SPECIFICATIONS

Standard characteristics	Limit values
Appearance	colorless or slightly yellow, clear
Purity	≥ 98 % weight
Additives	450 - 550 ppm weight
Moisture content	≤ 0,5 % max

CHARACTERISTICS

		Units	Values
Chemical Formula			$\text{CH}_2=\text{CHCON}(\text{CH}_3)_2$
Molecular weight		g/mol	99.13
Boiling point	at 1,013 bar	°C	171 à 172
Viscosity	20°C	10^{-3} Pa.s	2.7
Flash point		°C	77
Freezing temperature		°C	-20
Relative density	1,013 bar, 20°C	g.cm^{-3}	0.964
Surface tension		mN/m	37.12
Vapor pressure	25°C	Pa	93.3
Hygroscopicity	Very hygroscopic when left in open air		
Solubility	Soluble in water, alcohol, acetone, benzene, toluene and other standard organic solvents. Insoluble in n Hexane.		

PACKAGING

Please contact us.

STORAGE AND SHELF LIFE

Precautions for handling and storage:

N, N dimethylacrylamide includes a polymerization inhibitor. It may be stored or transported in barrels with polyester resin coating or in stainless steel containers. High density polyethylene kegs can do too.

French plants are controlled by the regulation of listed Establishments and have to comply with it (or with the local legislation).

- All packaging will be stored in a dry, well-ventilated, easily accessible place, sheltered from sunlight and bad weather, away from any ignition source.
- It is recommended to store all packaging either in a specific place or isolated and sheltered by a fence.
- All packaging and piping will be grounded to discharge static electricity.
- Leak detectors, put at ground level, will be connected to an audible alarm, which will trigger in the event of leaks.
- The whole equipment will be tested with an appropriate leak detector before use.
- Material and electrical equipment in an explosive atmosphere will comply with the regulations (*grounding, equipotential bonding, ATEX material*).

INVENTEC can study the set up and assembling of your storage tanks, piping, and pumps, according to the prevailing regulations.

CONDITIONS OF USE

Please refer to the Material Safety Data Sheet (MSDS) before using the product.
Workers handling the product should be trained about risks and preventive measures.

N, N dimethylacrylamide is compatible with:

- Polyethylene
- Steel

N, N dimethylacrylamide is not compatible with :

- Acids
- Strong oxidizing agents
- Alkali metals
- Combustive agents

Whatever the material, we advise to carry out resistance tests before any use.

HEALTH SAFETY AND ENVIRONMENT (HSE)

Symbols and warnings:

TOXIC (T)

Risks	
R 21/22	Harmful in contact with skin and if swallowed.
R 23	Toxic by inhalation.
R 36/38	Irritating to eyes and skin.

Safety	
S 23	Do not breathe vapors.
S 24	Avoid contact with skin.
S 36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
S 45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Exposure Limit Value USA (TLV-TWA 8 hours)	not relevant
CAS number	2680-03-7 : n, n-dimethylacrylamide
EINECS number	220-237-5 : n, n-dimethylacrylamide

This data is based on information that the manufacturer believed to be reliable and offered in good faith. On no account, Inventec will be responsible for special, incidental and consequential damages. The user is responsible, to the Administrative Authorities (Regulation of the listed establishments for the protection of the environment), for the conformity of his installation.