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### 1. Identification

Product identifier used on the label

# tert-Butyl Methacrylate (TBMA)

### Recommended use of the chemical and restriction on use

Recommended use\*: Monomer. Recommended use\*: Monomer.; for industrial use only Unsuitable for use: Not intended for sale to or use by the general public.

\* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

### Details of the supplier of the safety data sheet

<u>Company:</u> BASF CORPORATION 100 Park Avenue Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

### **Emergency telephone number**

24 Hour Emergency Response Information CHEMTREC: 1-800-424-9300 BASF HOTLINE: 1-800-832-HELP (4357)

### Other means of identification

Chemical family: acrylic monomers

### 2. Hazards Identification

### According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

### **Classification of the product**

Flam. Liq.	3	Flammable liquids
Skin Corr./Irrit.	2	Skin corrosion/irritation
Eye Dam./Irrit.	2B	Serious eye damage/eye irritation
STOT SE	3 (irritating to	Specific target organ toxicity — single exposure

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Aquatic Acute	respiratory system) 3	Hazardous to the aquatic environment - acute
Label elements		
Pictogram:		
Signal Word: Warning		
Hazard Statement:		
H226	Flammable liquid and vap	our.
H320	Causes eye irritation.	
H315	Causes skin irritation.	
H335	May cause respiratory irrit	ation.
H402	Harmful to aquatic life.	
Precautionary Stateme		
P280		d eye protection or face protection.
P271	Use only outdoors or in a	
P210	Keep away from heat, hot ignition sources. No smok	surfaces, sparks, open flames and other ing.
P261	Ăvoid breathing mist or va	
P243	Take action to prevent sta	
P273	Avoid release to the enviro	•
P241	Use explosion-proof electr	ical, ventilating and lighting equipment.
P264	Wash contaminated body	parts thoroughly after handling.
P242	Use non-sparking tools.	
P240	Ground and bond contained	er and receiving equipment.
Precautionary Stateme		
P312		or physician if you feel unwell.
P305 + P351 + P338		sly with water for several minutes. Remove
		and easy to do. Continue rinsing.
P303 + P361 + P353	, , , , , , , , , , , , , , , , , , ,	e off immediately all contaminated clothing.
P304 + P340		son to fresh air and keep comfortable for
	breathing.	
P332 + P313	If skin irritation occurs: Ge	
P337 + P313	If eye irritation persists: Ge	
P362 + P364		thing and wash it before reuse.
P370 + P378	extinction.	spray, dry powder, foam or carbon dioxide for
Precautionary Stateme	onte (Storage):	
P403 + P235	Store in a well-ventilated p	lace Keen cool
P233	Keep container tightly clos	
P405	Store locked up.	
Precautionary Stateme	ents (Disposal):	
P501	Dispose of contents/conta	iner in accordance with local regulations.

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### Hazards not otherwise classified

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture. See section 12 - Results of PBT and vPvB assessment.

Labeling of special preparations (GHS): Risk of hazardous polymerization under certain conditions (e.g. elevated temperatures, low inhibitor and oxygen concentration).

### 3. Composition / Information on Ingredients

### According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

tert-butyl methacrylate

CAS Number: 585-07-9 Content (W/W): >= 99.0 - <= 100.0% Synonym: tert-Butyl methacrylate

methacrylic acid

CAS Number: 79-41-4 Content (W/W): >= 0.0 - <= 0.1% Synonym: 2-Methyl-2-propenoic acid; Methacrylic acid

### 4. First-Aid Measures

### **Description of first aid measures**

### General advice:

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

### If inhaled:

Keep patient calm, remove to fresh air, seek medical attention.

### If on skin:

Immediately wash thoroughly with soap and water, seek medical attention.

### If in eyes:

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

#### If swallowed:

Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

### Most important symptoms and effects, both acute and delayed

Symptoms: Overexposure may cause:, Eye irritation, skin irritation, erythema, nausea, headache, vomiting, dizziness, diarrhea, abdominal cramps, Inhalation may provoke the following symptoms:, irritation of respiratory tract, coughing

### Indication of any immediate medical attention and special treatment needed

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Note to physician Treatment:

Treat according to symptoms (decontamination, vital functions), no known specific antidote.

### 5. Fire-Fighting Measures

### Extinguishing media

Suitable extinguishing media: dry powder, water spray, carbon dioxide, foam

Unsuitable extinguishing media for safety reasons: water jet

Additional information: Use extinguishing measures to suit surroundings.

### Special hazards arising from the substance or mixture

Hazards during fire-fighting: Risk of violent self-polymerization if overheated in a container. Cool endangered containers with water-spray.

The product is combustible. See SDS section 7 - Handling and storage.

### Advice for fire-fighters

Protective equipment for fire-fighting: Firefighters should be equipped with self-contained breathing apparatus and turn-out gear. Special protective equipment for firefighters

### **Further information:**

Extend fire extinguishing measures to the surroundings. Fight fire from maximum distance. Vapours are heavier than air and may accumulate in low areas and travel a considerable distance up to the source of ignition.

In case of a fire in the vicinity a restabilization system should be used if the temperature in the bulk storage-tank reaches 45°C. Evacuate area of all unnecessary personnel. In case of a fire in the vicinity evacuate all personnel in a greater area if the temperature in the bulk storage-tank reaches 60°C.

Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

### Impact Sensitivity:

Remarks:

Based on the chemical structure there is no shock-sensitivity.

### 6. Accidental release measures

<u>Further accidental release measures:</u> High risk of slipping due to leakage/spillage of product.

Release of substance/product can cause fire or explosion. Shut off or stop source of leak. Shut off or stop released substance/product under safe conditions.

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Pack in tightly closed containers for disposal.

### Personal precautions, protective equipment and emergency procedures

Handle in accordance with good industrial hygiene and safety practice.

Avoid all sources of ignition: heat, sparks, open flame. Use antistatic tools.

### **Environmental precautions**

Substance/product is RCRA hazardous due to its properties.

### Methods and material for containment and cleaning up

For large amounts: Pump off product.

Spills should be contained, solidified, and placed in suitable containers for disposal. Dispose of absorbed material in accordance with regulations. Ensure adequate ventilation. Suppress gases/vapours/mists with water spray jet. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations. Cleaning operations should be carried out only while wearing breathing apparatus. Pick up with suitable appliance and dispose of.

### 7. Handling and Storage

### Precautions for safe handling

The substance/ product may be handled only by appropriately trained personnel. Facility parts must be checked for polymer residues and cleaned on regular basis in order to avoid hazardous reactions.

Ensure thorough ventilation of stores and work areas. Encapsulation or exhaust ventilation required. When filling, transferring, or emptying of containers, adequate local exhaust ventilation is necessary. Vent waste air to atmosphere only through suitable separators. Check the condition of seals and connector screw threads.

The temperatures which must be avoided are to be considered. Protect against heat. Protect from direct sunlight. Protect contents from the effects of light. Do not open warm or swollen product containers. Remove persons to safety and alert fire brigade.

Ensure adequate inhibitor and dissolved oxygen level.

Avoid inhalation of dusts/mists/vapours. Avoid aerosol formation. Avoid all direct contact with the substance/product.

### Protection against fire and explosion:

Avoid all sources of ignition: heat, sparks, open flame. Substance/product can form explosive mixture with air. Ground all transfer equipment properly to prevent electrostatic discharge. It is recommended that all conductive parts of the machinery are grounded. Explosion-proof equipment is not necessary when loading and processing of the product takes place at a minimum of 5 °C below the flash point.

Heated containers should be cooled to prevent polymerization. If exposed to fire, keep containers cool by spraying with water. Emergency cooling must be provided for the eventuality of a fire in the vicinity.

Vapours are heavier than air and may accumulate in low areas and travel a considerable distance up to the source of ignition.

Conditions for safe storage, including any incompatibilities

No applicable information available.

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Further information on storage conditions: Prior to storage ensure that the transfer equipment used and the intended storage containers do not contain other substances/products. Before transfer to stock the identity of the product must be proved to be without doubt. The entrance to storage rooms is to be granted only to appropriately trained personnel.

The stabilizer is only effective in the presence of oxygen. Maintain contact with atmosphere containing 5 - 21% oxygen. Never use tanks with inert-gas installation for storage.

Risk of polymerization. Protect against heat. Protect from direct sunlight. Avoid UV-light and other radiation with high energy. Protect against contamination.

In case of bulk storage, the storage-tanks should at least be equipped with two high temperature alert devices.

Even if the product is stored and handled as prescribed/indicated it should be used up within the indicated duration of storage.

Storage stability:

Storage temperature: < 35 °C

Storage duration: 12 Months

The stated storage temperature should be noted.

Avoid prolonged storage.

This product should be processed as soon as possible.

Ensure adequate inhibitor and dissolved oxygen level.

Do not store with less than 10 % headspace above liquid.

Storage stability is based upon ambient temperatures and conditions described.

It is recommended to keep a safe distance of +2 degrees above the crystallization range.

The product is stabilized, the shelf life should be noted.

Storage temperature: 45 °C

A restabilization system should be used if the temperature in the bulk storage-tank reaches the indicated value.

Storage temperature: 60 °C

All personnel in a greater area should be evacuated if the temperature in the bulk storage-tank reaches the indicated value.

### 8. Exposure Controls/Personal Protection

### Components with occupational exposure limits

methacrylic acid ACGIH, US: TWA value 20 ppm ;

### Advice on system design:

Provide local exhaust ventilation to maintain recommended P.E.L.

### Personal protective equipment

### **Respiratory protection:**

Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator as needed. At concentrations < 250 ppm, use a chemical cartridge respirator. At concentrations > 250 ppm, use an air-supplied or self-contained breathing apparatus.

### Hand protection:

Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1):, butyl rubber (butyl) - 0.7 mm coating thickness, Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-

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protective glove in practice may be much shorter than the permeation time determined through testing., Manufacturer's directions for use should be observed because of great diversity of types.

### Eye protection:

Tightly fitting safety goggles (chemical goggles).

### **Body protection:**

light protective clothing

### General safety and hygiene measures:

Avoid inhalation of vapour. Avoid contact with the skin, eyes and clothing. Wearing of closed work clothing is required additionally to the stated personal protection equipment.

### 9. Physical and Chemical Properties

Form: Odour:	liquid ester-like	
Odour threshold: Colour:	not determined colourless	
pH value:	The products resulting from	
	hydrolysis react strongly acidic.,	
	neutral, of low solubility	
Melting point:	-48 °C	(other)
	Literature data.	
Freezing point:	No data available.	
Boiling point:	136.51 °C	(other)
	(1,013.25 hPa)	
Boiling range:	No data available.	
Sublimation point: Flash point:	No applicable information available. 25.5 °C	(ISO 13736, closed
r lash point.	20.0 0	(130 13730, closed cup)
Flammability:	Flammable liquid and vapour.	(derived from flash - and boiling point)
Lower explosion limit:	0.4 %(V)	
	( 12.5 °C)	
	For liquids not relevant for	
	classification and labelling. The lower	
	explosion point may be 5 - 15 °C below the flash point.	
	For liquids not relevant for	
	classification and labelling. The lower	
	explosion point may be 5 - 15 °C	
	below the flash point.	
Upper explosion limit:	4.7 %(V)	
	(52.5°C)	
	For liquids not relevant for	
	classification and labelling.	
Autoignition:	410 °C	
	Literature data.	
SADT:	Not a substance/mixture liable to self-de to GHS.	
Vapour pressure:	7.13 hPa	(OECD Guideline
	( 25 °C)	104)

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Density:	0.875 g/cm3 ( 20 °C,  1,013 hPa)	(other)
	Literature data. 0.8466 g/cm3 ( 50 °C) 0.842 g/cm3 ( 55 °C)	(OECD Guideline 109) (calculated)
Relative density:	( 55 °C) 0.8776 ( 20 °C)	(OECD Guideline 109)
Vapour density:	4.9 ( 20 °C)	(calculated)
Partitioning coefficient n- octanol/water (log Pow): Self-ignition temperature:	Heavier than air. 2.54 ( 25 °C) Based on its structural properties the product is not classified as self-	(measured)
Thermal decomposition:	igniting. No decomposition if stored and handled a prescribed/indicated.	as
Viscosity, dynamic:	0.70 mPa.s ( 40 °C) The value was determined by calculation from the detected kinematic viscosity.	(OECD Guideline 114)
	0.97 mPa.s ( 20 °C) The value was determined by calculation from the detected kinematic viscosity.	(OECD Guideline 114)
Viscosity, kinematic:	0.82 mm2/s ( 40 °C) 1.10 mm2/s ( 20 °C)	(OECD Guideline 114) (OECD Guideline 114)
Particle size:	The substance / product is marketed or used in a non solid or granular form.	,
Solubility in water:	0.464 g/l ( 20 °C)	
Solubility (quantitative): Solubility (qualitative):	No applicable information available. soluble solvent(s): organic solvents,	
Molar mass: Evaporation rate:	142.20 g/mol Value can be approximated from Henry's Law Constant or vapor pressure.	

### 10. Stability and Reactivity

### Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals: No corrosive effect on metal.

Oxidizing properties: Based on its structural properties the product is not classified as oxidizing.

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Formation of Remarks: flammable gases:

Forms no flammable gases in the presence of water.

### **Chemical stability**

The product is stable if stored and handled as prescribed/indicated.

### Possibility of hazardous reactions

Explosion and fire hazard exists under confined conditions. Ignitable air mixtures can form when the product is heated above the flash point and/or when sprayed or atomized. Formation of explosive gas/air mixtures.

Polymerization coupled with heat formation.

Risk of spontaneous polymerization by oxygen depletion of the liquid phase. Risk of spontaneous polymerization when heated or in the presence of UV radiation. Risk of spontaneous and violent self-polymerization if inhibitor is lost or product is exposed to excessive heat. Polymerization produces gases which may burst closed or confined containers. Reactions may cause ignition.

Risk of spontaneous polymerization in the presence of starters for radical chain reactions (e.g. peroxides). Reacts with nitric acid. Risk of spontaneous polymerization in the presence of oxidizing agents.

Hazardous reactions in presence of mentioned substances to avoid.

The product is stabilized against spontaneous polymerization prior to despatch. The product is stable if stored and handled as prescribed/indicated.

### **Conditions to avoid**

Avoid heat. Avoid oxygen content above the product of less than 5 %. Avoid UV-light and other radiation with high energy. Avoid direct sunlight. Avoid prolonged storage. Avoid inhibitor loss. Avoid excessive temperatures. Avoid all sources of ignition: heat, sparks, open flame. Avoid freezing. Avoid moisture.

Do not blanket with nitrogen.

### Incompatible materials

radical formers, free radical initiators, peroxides, mercaptans, nitro-compounds, perborates, azides, ether, ketones, aldehydes, amines, nitrates, nitrites, oxidizing agents, reducing agents, strong bases, alkaline reactive substances, acid anhydrides, acid chlorides, concentrated mineral acids, metal salts polyinylchloride

Inert gas

### Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition: No decomposition if stored and handled as prescribed/indicated.

### 11. Toxicological information

### Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

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### **Acute Toxicity/Effects**

Acute toxicity

Assessment of acute toxicity: Virtually nontoxic after a single ingestion. Virtually nontoxic by inhalation. Virtually nontoxic after a single skin contact.

<u>Oral</u>

Type of value: LD50 Species: rat (male/female) Value: > 2,000 mg/kg (Guideline 92/69/EEC, B.1) No mortality was observed.

Inhalation Type of value: LC50 Species: rat Value: > 10.17 mg/l (OECD Guideline 403) Exposure time: 4 h An aerosol was tested. No mortality was observed.

<u>Dermal</u>

Type of value: LD50 Species: rat Value: > 2,000 mg/kg (OECD Guideline 402) No mortality was observed.

### Assessment other acute effects

Assessment of STOT single:

Based on the available information there is no specific target organ toxicity to be expected after a single exposure. The European Union (EU) has classified the substance as "causing irritation of the respiratory tract"

Irritation / corrosion Assessment of irritating effects: Skin contact causes irritation. Eye contact causes irritation.

<u>Skin</u> Species: rabbit Result: Irritant. Method: OECD Guideline 404

<u>Eye</u> Species: rabbit Result: Irritant. Method: OECD Guideline 405

Sensitization

Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

Guinea pig maximization test Species: guinea pig Result: Non-sensitizing. Method: similar to OECD guideline 406 Literature data.

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Aspiration Hazard not applicable

### **Chronic Toxicity/Effects**

### Repeated dose toxicity

Assessment of repeated dose toxicity: After repeated exposure the prominent effect is local irritation. The product has not been fully tested. The statements have been derived in parts from products of a similar structure or composition.

### Genetic toxicity

Assessment of mutagenicity: The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture. The substance was not mutagenic in a test with mammals. The product has not been fully tested. The statements have been derived in parts from products of a similar structure or composition.

### **Carcinogenicity**

Assessment of carcinogenicity: No data available concerning carcinogenic effects.

### Reproductive toxicity

Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

### **Teratogenicity**

Assessment of teratogenicity: In animal studies the substance did not cause malformations. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

### **12. Ecological Information**

### Toxicity

Aquatic toxicity Assessment of aquatic toxicity: Acutely harmful for aquatic organisms.

### Toxicity to fish

LC50 (96 h) 63 mg/l, Oncorhynchus mykiss (OECD 203; ISO 7346; 84/449/EWG, C.1, semistatic)

### Aquatic invertebrates

EC50 (48 h) 39 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

### Aquatic plants

EC50 (72 h) 26 mg/l (growth rate), Scenedesmus subspicatus (OECD Guideline 201, static)

No observed effect concentration (72 h) 6 mg/l (growth rate), Desmodesmus subspicatus (OECD Guideline 201, static)

### Chronic toxicity to fish

No observed effect concentration (35 d) 9.4 mg/l, Brachydanio rerio (OECD Guideline 210) The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

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### Chronic toxicity to aquatic invertebrates

No observed effect concentration (21 d) 1.1 mg/l, Daphnia magna (OECD Guideline 211, semistatic) The statement of the toxic effect relates to the analytically determined concentration. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Assessment of terrestrial toxicity No data available.

### Microorganisms/Effect on activated sludge

<u>Toxicity to microorganisms</u> OECD Guideline 209 aerobic activated sludge, domestic/EC20 (30 min): approx. 1,000 mg/l

### Persistence and degradability

Assessment biodegradation and elimination (H2O) Biodegradable.

### Elimination information

68 % TIC of the ThIC (60 d) (OECD Guideline 310) (aerobic, activated sludge, domestic)

< 10 % BOD of the ThOD (29 d) (OECD Guideline 301 F) (aerobic, activated sludge, domestic)

<u>Assessment of stability in water</u> In contact with water the substance will hydrolyse slowly.

Information on Stability in Water (Hydrolysis)  $t_{1/2}$  135 d (pH value 7), (OECD Guideline 111, pH 7) In contact with water the substance will hydrolyse slowly.

### **Bioaccumulative potential**

<u>Bioaccumulation potential</u> Bioconcentration factor: 16.52, Fish (calculated)

### Mobility in soil

<u>Assessment transport between environmental compartments</u> The substance will not evaporate into the atmosphere from the water surface. Adsorption to solid soil phase is not expected.

### **Additional information**

Other ecotoxicological advice: Do not release untreated into natural waters. Do not discharge product into the environment without control.

### 13. Disposal considerations

### Waste disposal of substance:

Incinerate or dispose of in a RCRA-licensed facility. Do not discharge into drains/surface waters/groundwater.

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### Container disposal:

Empty containers with less than 1 inch of residue may be landfilled at a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers. If containers are not empty, they must be disposed of in a RCRA-licensed facility.

RCRA: D001

### **14. Transport Information**

Land transport USDOT Hazard class: Packing group: ID number: Hazard label: Proper shipping name:	3 III UN 3272 3 ESTERS, N.O.S. (contains METHACRYLIC ACID-TERT- BUTYLESTER, STABILIZED)
Sea transport IMDG Hazard class: Packing group: ID number: Hazard label: Marine pollutant: Proper shipping name:	3 III UN 3272 3 NO ESTERS, N.O.S. (contains METHACRYLIC ACID-TERT- BUTYLESTER, STABILIZED)
Air transport IATA/ICAO Hazard class: Packing group: ID number: Hazard label: Proper shipping name:	3 III UN 3272 3 ESTERS, N.O.S. (contains METHACRYLIC ACID-TERT- BUTYLESTER, STABILIZED)

### **15. Regulatory Information**

### **Federal Regulations**

Registration status:ChemicalTSCA, USreleased / listed

**EPCRA 311/312 (Hazard categories):** Refer to SDS section 2 for GHS hazard classes applicable for this product.

CERCLA RQ	CAS Number	Chemical name
5000 LBS	540-88-5	tert-butyl acetate
100 LBS	115-11-7; 75-65-0;	2-methylpropene; 2-methylpropan-2-ol; Pentene, 2,4,4-
	25167-70-8	trimethyl-

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**NFPA Hazard codes:** 

Health: 2 Fire: 3 Reactivity: 2 Special:

HMIS III rating Health: 2

alth: 2 Flammability: 3

Physical hazard: 1

### **16. Other Information**

### SDS Prepared by:

BASF NA Product Regulations SDS Prepared on: 2023/10/06

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

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