

# Safety data sheet

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BASF Safety data sheet

Date / Revised: 22.08.2023

Product: **tert-Butyl Methacrylate (TBMA)**

Version: 4.0

(30042007/SDS\_GEN\_VN/EN)

Date of print: 20.10.2025

## 1. Substance/preparation and manufacturer/supplier identification

### Product name:

**tert-Butyl Methacrylate (TBMA)**

Use: Monomer.

#### Manufacturer/supplier:

BASF Vietnam Co. Ltd.

Level 23, Deutsches Haus, 33 Le Duan,

Sai Gon Ward, Ho Chi Minh City, Vietnam

Telephone: +84 28 3824 3833

Telefax number: +84 28 3824 3832

E-mail address: minh-triet.thieu@basf.com

#### Emergency information:

18001703 (Vietnam)

Telefax number: +84 28 3824 3832

International emergency number:

Telephone: +49 180 2273-112

## 2. Hazard identification

Classification of the substance and mixture:

Flammable liquids: Cat.3

Skin corrosion/irritation: Cat.2

Serious eye damage/eye irritation: Cat.2B

Specific target organ toxicity — single exposure: Cat.3 (irritating to respiratory system)

Hazardous to the aquatic environment - acute: Cat.3

Label elements and precautionary statement:

Pictogram:

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Signal Word:

Warning

Hazard Statement:

H226	Flammable liquid and vapour.
H320	Causes eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H402	Harmful to aquatic life.

Precautionary Statements (Prevention):

P280	Wear protective gloves and eye protection or face protection.
P271	Use only outdoors or in a well-ventilated area.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing mist or vapour or spray.
P243	Take action to prevent static discharges.
P273	Avoid release to the environment.
P241	Use explosion-proof electrical, ventilating and lighting equipment.
P264	Wash contaminated body parts thoroughly after handling.
P240	Ground and bond container and receiving equipment.
P242	Use non-sparking tools.

Precautionary Statements (Response):

P312	Call a POISON CENTER or physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P332 + P313	If skin irritation occurs: Get medical attention.
P337 + P313	If eye irritation persists: Get medical attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P370 + P378	In case of fire: Use water spray, dry powder, foam or carbon dioxide for extinction.

Precautionary Statements (Storage):

P233	Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents and container to hazardous or special waste collection point.
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Other hazards which do not result in classification:

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.

### 3. Composition/information on ingredients

#### Chemical nature

Substance nature: Substance

tert-butyl methacrylate

CAS Number: 585-07-9

#### Hazardous ingredients

| tert-butyl methacrylate

| Content (W/W):  $\geq 99\%$  -  $\leq 100\%$

| CAS Number: 585-07-9

Flam. Liq.: Cat. 3

Skin Corr./Irrit.: Cat. 2

Eye Dam./Irrit.: Cat. 2B

STOT SE: Cat. 3 (irr. to respiratory syst.)

Aquatic Acute: Cat. 3

| methacrylic acid

| Content (W/W):  $\geq 0\%$  -  $\leq 0.1\%$

| CAS Number: 79-41-4

Flam. Liq.: Cat. 4

Acute Tox.: Cat. 4 (oral)

Acute Tox.: Cat. 4 (Inhalation - mist)

Acute Tox.: Cat. 3 (dermal)

Skin Corr./Irrit.: Cat. 1A

Eye Dam./Irrit.: Cat. 1

STOT SE: Cat. 3 (irr. to respiratory syst.)

Aquatic Acute: Cat. 3

### 4. 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.

On skin contact:

| Wash thoroughly with soap and water

On contact with eyes:

| Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:

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

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Note to physician:

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

Hazards: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11. (Further) symptoms and / or effects are not known so far

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

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## 5. Fire-Fighting Measures

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.

Specific hazards:

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.

Special protective equipment:

Wear a self-contained breathing apparatus. 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.

Further information:

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.

Further information:

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

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## 6. Accidental Release Measures

Personal precautions:

Handle in accordance with good industrial hygiene and safety practice.

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

Environmental precautions:

Do not discharge into drains/surface waters/groundwater. Contain contaminated water/firefighting water.

Methods for cleaning up or taking 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.

| Additional information: 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.

| Pack in tightly closed containers for disposal.

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## 7. Handling and Storage

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.

### Storage

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.

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## 8. Exposure controls and personal protection

### Components with occupational exposure limits

methacrylic acid, 79-41-4;

TWA value 20 ppm (ACGIHTLV)

STEL value 80 mg/m<sup>3</sup> (OEL (VN))

TWA value 50 mg/m<sup>3</sup> (OEL (VN))

### Engineering Controls

Advice on system design:

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

### Personal protective equipment

Respiratory protection:

Suitable respiratory protection for lower concentrations or short-term effect: Gas filter for gases/vapours of organic compounds (boiling point >65 °C, e. g. EN 14387 Type A)

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**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-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:**

Safety glasses with side-shields (frame goggles) (e.g. EN 166)

**Body protection:**

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

**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.

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## 9. Physical and Chemical Properties

Form:	liquid	
Colour:	colourless	
Odour:	ester-like	
Odour threshold:	not determined	
pH value:	The products resulting from hydrolysis react strongly acidic., neutral, of low solubility	
Melting point:	-48 °C Literature data.	(other)
Boiling point:	136.51 °C (1,013.25 hPa)	(other)
Flash point:	25.5 °C	(ISO 13736, closed cup)
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.	
Flammability (solid/gas):	Flammable liquid and vapour.	(derived from flash - and boiling point)
Lower explosion limit:	0.4 %(V) (12.5 °C)	

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	For liquids not relevant for classification and labelling., The lower explosion point may be 5 - 15 °C below the flash point.	
Upper explosion limit:	For liquids not relevant for classification and labelling., The lower explosion point may be 5 - 15 °C below the flash point. 4.7 %(V) (52.5 °C)	
Ignition temperature:	For liquids not relevant for classification and labelling. 410 °C Literature data.	
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	
Self ignition:	Based on its structural properties the product is not classified as self-igniting.	Test type: Spontaneous self-ignition at room-temperature.
Self heating ability:	not applicable, the product is a liquid	
SADT:	Not a substance/mixture liable to self-decomposition according to GHS.	
Explosion hazard:	Based on the chemical structure there is no indication of explosive properties.	
Fire promoting properties:	Based on its structural properties the product is not classified as oxidizing.	
Vapour pressure:	7.13 hPa (25 °C)	(OECD Guideline 104)
Density:	0.875 g/cm <sup>3</sup> (20 °C, 1,013 hPa) Literature data. 0.8466 g/cm <sup>3</sup> (50 °C) 0.842 g/cm <sup>3</sup> (55 °C)	(other)  (OECD Guideline 109) (calculated)
Relative density:	0.8776 (20 °C)	(OECD Guideline 109)
Relative vapour density (air):	4.9 (20 °C) Heavier than air.	(calculated)
Solubility in water:	0.464 g/l (20 °C)	



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Solubility (qualitative) solvent(s):	organic solvents	
	soluble	
Partitioning coefficient n-octanol/water (log Pow):	2.54	(measured)
	(25 °C)	
Adsorption/water - soil:	KOC: 36.19; log KOC: 1.56	(calculated)
Surface tension:	Based on chemical structure, surface activity is not to be expected.	
Viscosity, dynamic:	0.70 mPa.s	(OECD 114)
	(40 °C)	
	The value was determined by calculation from the detected kinematic viscosity.	
	0.97 mPa.s	(OECD 114)
	(20 °C)	
	The value was determined by calculation from the detected kinematic viscosity.	
Viscosity, kinematic:	0.82 mm <sup>2</sup> /s	(OECD 114)
	(40 °C)	
	1.10 mm <sup>2</sup> /s	(OECD 114)
	(20 °C)	
Molar mass:	142.20 g/mol	

## 10. Stability and Reactivity

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.

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

Substances to avoid:

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  
 Inert gas

Corrosion to metals: No corrosive effect on metal.

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.

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

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

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

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## 11. Toxicological Information

### Routes of exposure

#### Acute oral toxicity

Experimental/calculated data:  
LD50rat (oral): > 2,000 mg/kg (Guideline 92/69/EEC, B.1)  
No mortality was observed.

#### Acute inhalation toxicity

LC50 rat (by inhalation): > 10.17 mg/l 4 h (OECD Guideline 403)  
No mortality was observed. An aerosol was tested.

#### Acute dermal toxicity

LD50 rat (dermal): > 2,000 mg/kg (OECD Guideline 402)  
No mortality was observed.

#### Assessment of acute toxicity

Virtually nontoxic after a single ingestion. Virtually nontoxic by inhalation. Virtually nontoxic after a single skin contact.

#### Symptoms

Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

#### Irritation

Assessment of irritating effects:  
Skin contact causes irritation. Eye contact causes irritation.

Experimental/calculated data:  
Skin corrosion/irritation rabbit: Irritant. (OECD Guideline 404)

Serious eye damage/irritation rabbit: Irritant. (OECD Guideline 405)

## **Respiratory/Skin sensitization**

Assessment of sensitization:

| Skin sensitizing effects were not observed in animal studies.

Experimental/calculated data:

| Guinea pig maximization test guinea pig: Non-sensitizing. (similar to OECD guideline 406)

| Literature data.

## **Germ cell mutagenicity**

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.

## **Developmental toxicity**

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.

## **Specific target organ toxicity (single exposure)**

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"

## **Repeated dose toxicity and Specific target organ toxicity (repeated exposure)**

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.

## **Aspiration hazard**

not applicable

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## 12. Ecological Information

### Ecotoxicity

Toxicity to fish:

LC50 (96 h) 63 mg/l, *Oncorhynchus mykiss* (OECD 203; ISO 7346; 84/449/EEC, 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)

Microorganisms/Effect on activated sludge:

EC20 (30 min) approx. 1,000 mg/l, activated sludge, domestic (OECD Guideline 209, aerobic)

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.

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.

### Mobility

Assessment transport between environmental compartments:

The substance will not evaporate into the atmosphere from the water surface.

Adsorption to solid soil phase is not expected.

### Persistence and degradability

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)

Assessment of stability in water:

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.

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## Bioaccumulation potential

Bioaccumulation potential:  
Bioconcentration factor: 16.52, Fish (calculated)

## Additional information

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

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## 13. Disposal Considerations

Must be sent to a suitable incineration plant, observing local regulations.

Contaminated packaging:  
Uncleaned empties should be disposed of in the same manner as the contents.

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## 14. Transport Information

### Domestic transport:

UN number or ID number: UN 3272  
UN proper shipping name: ESTERS, N.O.S. (METHACRYLIC ACID-TERT-BUTYLESTER, STABILIZED)  
Transport hazard class(es): 3  
Packing group: III  
Environmental hazards: no  
  
Special precautions for user: None known

### Sea transport

#### IMDG

UN number or ID number: UN 3272  
UN proper shipping name: ESTERS, N.O.S. (METHACRYLIC ACID-TERT-BUTYLESTER, STABILIZED)  
Transport hazard class(es): 3  
Packing group: III  
Environmental hazards: no  
Marine pollutant: NO  
Special precautions for user: EmS: F-E; S-D

### Air transport

#### IATA/ICAO

UN number or ID number: UN 3272  
UN proper shipping name: ESTERS, N.O.S. (METHACRYLIC ACID-TERT-BUTYLESTER, STABILIZED)

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Transport hazard class(es): 3  
Packing group: III  
Environmental hazards: No Mark as dangerous for the environment is needed  
Special precautions for user: None known

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## 15. Regulatory Information

### Other regulations

The SDS is composed base on the Global Harmonization Globally Harmonized System of Classification and Labeling of Chemicals and applicable local chemical regulations as following :

- The Chemical Law.
- The decree No. 113/2017/ND-CP, Circulars and their replacement (if yes).
- The decree 42/2020/ND-CP guiding on dangerous goods (DG) list, transport and licensing of DG by road and inland waterway.
- Other applicable local regulations.

In case there is a replacement of the above decrees and their circulars, we will update all relevant data accordingly.

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

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## 16. Other Information

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Vertical lines in the left hand margin indicate an amendment from the previous version.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.