



# BIMAX® TFEMA

## Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878  
Issue date: 30.12.2022 Revision date: 20.10.2023 Version: 2.0

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product form	: Substance
Substance name	: BIMAX® TFEMA
Chemical name	: 2,2,2-Trifluoroethyl 2-methyl-2-propenoate
IUPAC name	: 2,2,2-trifluoroethyl methacrylate
EC-No.	: 206-525-3
CAS-No.	: 352-87-4
Product code	: 9048
Type of product	: Intermediate chemical
Formula	: C <sub>6</sub> H <sub>7</sub> F <sub>3</sub> O <sub>2</sub>
Synonyms	: 2,2,2-trifluoroethyl methacrylate
Product group	: Trade product

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

##### 1.2.1. Relevant identified uses

Use of the substance/mixture : Chemical intermediate

##### 1.2.2. Uses advised against

No additional information available

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

##### GELEST, INC.

158 Industrial Road  
Glen Rock, PA 17327  
USA

T 717-227-1774 - F 717-227-1775 - (M-F): 8:00 AM - 5:30 PM EST

[info@gelest.com](mailto:info@gelest.com) - [www.gelest.com](http://www.gelest.com)

##### GELEST INC.

Fritz-Klatte-Strasse 8  
65933 Frankfurt

##### Germany

T +49 (0) 69 3535106-500 - F +49 (0) 69 3535106-501 - (M-F): 8:00 AM - 4:00 PM

[info@gelestde.com](mailto:info@gelestde.com) - [www.gelest.com](http://www.gelest.com)

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable liquids, Category 3	H226
Acute toxicity (oral), Category 4	H302
Full text of H- and EUH-statements: see section 16	

##### Adverse physicochemical, human health and environmental effects

No additional information available

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### 2.2. Label elements

#### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS02

GHS07

Signal word (CLP)

: Warning

Hazard statements (CLP)

: H226 - Flammable liquid and vapour.  
H302 - Harmful if swallowed.

Precautionary statements (CLP)

: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.  
No smoking.  
P233 - Keep container tightly closed.  
P240 - Ground and bond container and receiving equipment.  
P241 - Use explosion-proof electrical/ventilating/lighting equipment.  
P264 - Wash hands, forearms and face thoroughly after handling.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

### 2.3. Other hazards

Contains no PBT and/or vPvB substances  $\geq 0.1\%$  assessed in accordance with REACH Annex XIII

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Substance type

: Mono-constituent

Name

: BIMAX® TFEMA

CAS-No.

: 352-87-4

EC-No.

: 206-525-3

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
2,2,2-trifluoroethyl methacrylate	CAS-No.: 352-87-4 EC-No.: 206-525-3	> 99,7	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302

Full text of H- and EUH-statements: see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general

: IF exposed or concerned: Get medical advice/attention.

First-aid measures after inhalation

: Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact

: Remove/take off immediately all contaminated clothing. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact

: Rinse cautiously with water for several minutes.

First-aid measures after ingestion

: Call a POISON CENTER/doctor if you feel unwell.

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

No additional information available

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

Treat symptomatically.

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### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.  
Unsuitable extinguishing media : Avoid the use of streaming water, as this may spread the fire.

#### 5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Carbon dioxide. Carbon monoxide.

#### 5.3. Advice for firefighters

Precautionary measures fire : Eliminate all ignition sources if safe to do so.  
Protection during firefighting : Self-contained breathing apparatus. Wear recommended personal protective equipment.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.

##### 6.1.2. For emergency responders

Protective equipment : Use personal protective equipment as required.

#### 6.2. Environmental precautions

Prevent liquid from entering sewers, watercourses, underground or low areas.

#### 6.3. Methods and material for containment and cleaning up

For containment : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible.  
Methods for cleaning up : Absorb spillage to prevent material damage.

#### 6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection".

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ensure good ventilation of the work station. Wear personal protective equipment.

#### 7.2. Conditions for safe storage, including any incompatibilities

Incompatible materials : Oxidizers. Free radical initiators.

#### 7.3. Specific end use(s)

No additional information available

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

##### 8.1.1 National occupational exposure and biological limit values

No additional information available

##### 8.1.2. Recommended monitoring procedures

No additional information available

##### 8.1.3. Air contaminants formed

No additional information available

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### 8.1.4. DNEL and PNEC

No additional information available

### 8.1.5. Control banding

No additional information available

## 8.2. Exposure controls

### 8.2.1. Appropriate engineering controls

#### Appropriate engineering controls:

Ensure adequate ventilation.

### 8.2.2. Personal protection equipment

#### 8.2.2.1. Eye and face protection

##### Eye protection:

Chemical goggles or safety glasses

#### 8.2.2.2. Skin protection

##### Skin and body protection:

Wear suitable protective clothing

#### 8.2.2.3. Respiratory protection

##### Respiratory protection:

In case of inadequate ventilation wear respiratory protection.

#### 8.2.2.4. Thermal hazards

No additional information available

### 8.2.3. Environmental exposure controls

#### Environmental exposure controls:

Avoid release to the environment.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Not available
Appearance	: Clear, colorless Liquid.
Molecular mass	: 168,11 g/mol Source: Uakron
Odour	: Not available
Odour threshold	: Not available
Melting point	: Not available
Freezing point	: Not available
Boiling point	: 59 °C at 100 mmHg
Flammability	: Not available
Explosive limits	: Not available
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: 25 °C (closed cup)
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: Not available
Viscosity, kinematic	: Not available
Solubility	: Water: 906 mg/l at 20 °C Source: ECHA
Partition coefficient n-octanol/water (Log Kow)	: Not available
Partition coefficient n-octanol/water (Log Pow)	: 2,32 Source: ECHA
Vapour pressure	: 2200 Pa at 20 °C Source: ECHA
Vapour pressure at 50°C	: Not available
Density	: Not available
Relative density	: 1,1769 Source: ECHA
Relative vapour density at 20°C	: 5,8 Source: Uakron
Particle characteristics	: Not applicable

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### 9.2. Other information

#### 9.2.1. Information with regard to physical hazard classes

No additional information available

#### 9.2.2. Other safety characteristics

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No dangerous reactions known under normal conditions of use.

### 10.2. Chemical stability

Stable under normal temperatures and pressures.

### 10.3. Possibility of hazardous reactions

Hazardous polymerization is not expected to occur under normal temperatures and pressures.

### 10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

### 10.5. Incompatible materials

Oxidizers. Free radical initiators.

### 10.6. Hazardous decomposition products

In the event of fire: see section 5.

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral) : Harmful if swallowed.  
Acute toxicity (dermal) : Not classified  
Acute toxicity (inhalation) : Not classified

BIMAX® TFEMA (352-87-4)	
LD50 oral rat	200 – 2000 mg/kg Source: ECHA
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: EU Method B.3 (Acute Toxicity (Dermal)), Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
LC50 Inhalation - Rat (Vapours)	2,77 mg/l Source: ECHA

2,2,2-trifluoroethyl methacrylate (352-87-4)	
LD50 oral rat	200 – 2000 mg/kg Source: ECHA
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: EU Method B.3 (Acute Toxicity (Dermal)), Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
LC50 Inhalation - Rat (Vapours)	2,77 mg/l Source: ECHA

Skin corrosion/irritation : Not classified  
Serious eye damage/irritation : Not classified  
Respiratory or skin sensitisation : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified  
Reproductive toxicity : Not classified  
STOT-single exposure : Not classified  
STOT-repeated exposure : Not classified

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Aspiration hazard : Not classified

### 11.2. Information on other hazards

No additional information available

## SECTION 12: Ecological information

### 12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

#### BIMAX® TFEMA (352-87-4)

LC50 - Fish [1]	16,554 mg/l Source: Ecological Structure Activity Relationships
EC50 - Crustacea [1]	19 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	39,5 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
EC50 72h - Algae [2]	29,9 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)

#### 2,2,2-trifluoroethyl methacrylate (352-87-4)

LC50 - Fish [1]	16,554 mg/l Source: Ecological Structure Activity Relationships
EC50 - Crustacea [1]	19 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	39,5 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
EC50 72h - Algae [2]	29,9 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

#### BIMAX® TFEMA (352-87-4)

Partition coefficient n-octanol/water (Log Pow)	2,32 Source: ECHA
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#### 2,2,2-trifluoroethyl methacrylate (352-87-4)

Partition coefficient n-octanol/water (Log Pow)	2,32 Source: ECHA
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### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Endocrine disrupting properties

No additional information available

### 12.7. Other adverse effects

No additional information available

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### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Sewage disposal recommendations : Do not dispose of waste into sewer.  
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

### SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
<b>14.1. UN number or ID number</b>				
UN 3272	UN 3272	UN 3272	UN 3272	UN 3272
<b>14.2. UN proper shipping name</b>				
ESTERS, N.O.S.	ESTERS, N.O.S.	Esters, n.o.s.	ESTERS, N.O.S.	ESTERS, N.O.S.
<b>Transport document description</b>				
UN 3272 ESTERS, N.O.S. (2,2,2-trifluoroethyl methacrylate), 3, III, (D/E)	UN 3272 ESTERS, N.O.S. (2,2,2-trifluoroethyl methacrylate), 3, III	UN 3272 Esters, n.o.s. (2,2,2-trifluoroethyl methacrylate), 3, III	UN 3272 ESTERS, N.O.S. (2,2,2-trifluoroethyl methacrylate), 3, III	UN 3272 ESTERS, N.O.S. (2,2,2-trifluoroethyl methacrylate), 3, III
<b>14.3. Transport hazard class(es)</b>				
3	3	3	3	3
				
<b>14.4. Packing group</b>				
III	III	III	III	III
<b>14.5. Environmental hazards</b>				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available				

#### 14.6. Special precautions for user

##### Overland transport

Classification code (ADR) : F1  
Special provisions (ADR) : 274, 601  
Limited quantities (ADR) : 5I  
Excepted quantities (ADR) : E1  
Packing instructions (ADR) : P001, IBC03, LP01, R001  
Mixed packing provisions (ADR) : MP19  
Portable tank and bulk container instructions (ADR) : T4  
Portable tank and bulk container special provisions (ADR) : TP1, TP29  
Tank code (ADR) : LGBF  
Vehicle for tank carriage : FL  
Transport category (ADR) : 3  
Special provisions for carriage - Packages (ADR) : V12  
Special provisions for carriage - Operation (ADR) : S2  
Hazard identification number (Kemler No.) : 30

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Orange plates	:	<div><div>30</div><div>3272</div></div>
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Tunnel restriction code (ADR) : D/E

### Transport by sea

Special provisions (IMDG)	:	223, 274
Limited quantities (IMDG)	:	5 L
Excepted quantities (IMDG)	:	E1
Packing instructions (IMDG)	:	P001, LP01
IBC packing instructions (IMDG)	:	IBC03
Tank instructions (IMDG)	:	T4
Tank special provisions (IMDG)	:	TP1, TP29
EmS-No. (Fire)	:	F-E
EmS-No. (Spillage)	:	S-D
Stowage category (IMDG)	:	A

### Air transport

PCA Excepted quantities (IATA)	:	E1
PCA Limited quantities (IATA)	:	Y344
PCA limited quantity max net quantity (IATA)	:	10L
PCA packing instructions (IATA)	:	355
PCA max net quantity (IATA)	:	60L
CAO packing instructions (IATA)	:	366
CAO max net quantity (IATA)	:	220L
Special provisions (IATA)	:	A3
ERG code (IATA)	:	3L

### Inland waterway transport

Classification code (ADN)	:	F1
Special provisions (ADN)	:	274, 601
Limited quantities (ADN)	:	5 L
Excepted quantities (ADN)	:	E1
Carriage permitted (ADN)	:	T
Equipment required (ADN)	:	PP, EX, A
Ventilation (ADN)	:	VE01
Number of blue cones/lights (ADN)	:	0

### Rail transport

Classification code (RID)	:	F1
Special provisions (RID)	:	274, 601
Limited quantities (RID)	:	5L
Excepted quantities (RID)	:	E1
Packing instructions (RID)	:	P001, IBC03, LP01, R001
Mixed packing provisions (RID)	:	MP19
Portable tank and bulk container instructions (RID)	:	T4
Portable tank and bulk container special provisions (RID)	:	TP1, TP29
Tank codes for RID tanks (RID)	:	LGBF
Transport category (RID)	:	3
Special provisions for carriage – Packages (RID)	:	W12
Colis express (express parcels) (RID)	:	CE4
Hazard identification number (RID)	:	30

## 14.7. Maritime transport in bulk according to IMO instruments

Not applicable



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### SECTION 15: Regulatory information

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

##### 15.1.1. EU-Regulations

###### REACH Annex XVII (Restriction List)

###### EU restriction list (REACH Annex XVII)

Reference code	Applicable on	Entry title or description
3(a)	BIMAX® TFEMA ; 2,2,2-trifluoroethyl methacrylate	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F
3(b)	BIMAX® TFEMA ; 2,2,2-trifluoroethyl methacrylate	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10
40.	BIMAX® TFEMA ; 2,2,2-trifluoroethyl methacrylate	Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.

###### REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

###### REACH Candidate List (SVHC)

Not listed on the REACH Candidate List

###### PIC Regulation (Prior Informed Consent)

Not listed on the PIC list (Regulation EU 649/2012)

###### POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

###### Ozone Regulation (1005/2009)

Not listed on the Ozone Depletion list (Regulation EU 1005/2009)

###### Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

###### Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

##### 15.1.2. National regulations

No additional information available

#### 15.2. Chemical safety assessment

No additional information available

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### SECTION 16: Other information

#### Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor

#### Full text of H- and EUH-statements:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Flam. Liq. 3	Flammable liquids, Category 3
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.

SDS EU (REACH Annex II) - Custom v22

The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.

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