

## Vessel-Filler non-flammable Klostermann Chemie

Version number: GHS 1.2

Date of compilation: 25.11.2021

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

#### 1.1 Product identifier

Trade name	<b>Vessel-Filler non-flammable Klostermann Chemie</b>
Unique formula identifier (UFI)	0600-604U-D00J-52JG
Article number	4918

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

Relevant identified uses	Tools Industrial uses Professional uses
Uses advised against	Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household).

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

Klostermann Chemie GmbH & Co.KG  
 Von-dem-Bussche-Münch-Straße 4  
 32339 Espelkamp  
 Germany

Telephone: +49 (0) 5772 6711  
 e-mail: info@klostermann-chemie.de  
 Website: www.klostermann-chemie.de

e-mail (competent person) info@klostermann-chemie.de (Tim Schürstedt)

#### 1.4 Emergency telephone number

Poison centre		
Name	Postal code/city	Telephone
Beratungsstelle bei Vergiftungen Giftinformationszentrale der Länder Rheinland-Pfalz und Hessen	55131 Mainz	+49 (0) 6131-19240

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Section	Hazard class	Category	Hazard class and category	Hazard statement
2.3	aerosols	3	Aerosol 3	H229

For full text of abbreviations: see SECTION 16.

#### 2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

- Signal word            warning
- Pictograms            not required
- Hazard statements  
   H229                    Pressurised container: May burst if heated.

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**- Precautionary statements**

- |           |   |
|-----------|---|
| P210      | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.      |
| P251      | Do not pierce or burn, even after use.  |
| P271      | Use only outdoors or in a well-ventilated area.   |
| P410+P412 | Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.                        |
| P501      | Dispose of contents/container in accordance with local/regional/national/international regulations. |

**2.3 Other hazards**

of no significance




### SECTION 3: Composition/information on ingredients

**3.1 Substances**

Not relevant (mixture)

**3.2 Mixtures**

Description of the mixture

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms
(1E)-1,3,3,3-tetrafluoroprop-1-ene	CAS No 29118-24-9 1645-83-6  EC No 471-480-0  REACH Reg. No 01-0000019758-54- xxxx	50 - < 75	Press. Gas L / H280	
Norflurane	CAS No 811-97-2  EC No 212-377-0  REACH Reg. No 01-2119459374-33- xxxx	5 - < 10	Press. Gas L / H280	
Ethane-1,2-diol	CAS No 107-21-1  EC No 203-473-3  REACH Reg. No 01-2119456816-28- xxxx	1 - < 5	Acute Tox. 4 / H302 STOT RE 2 / H373	

Name of substance	Specific Conc. Limits	M-Factors	ATE	Exposure route
Ethane-1,2-diol	-	-	500 mg/kg	oral

For full text of abbreviations: see SECTION 16.

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### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

##### General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

##### Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Provide fresh air.

##### Following skin contact

Wash with plenty of soap and water.

##### Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

##### Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

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

Symptoms and effects are not known to date.

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

none

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

##### Suitable extinguishing media

Water spray, BC-powder

##### Unsuitable extinguishing media

Water jet

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

##### Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)

#### 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

### SECTION 6: Accidental release measures

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

##### For non-emergency personnel

Remove persons to safety.

##### For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

#### 6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

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

##### Advice on how to contain a spill

Covering of drains

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Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

### 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Recommendations

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Use only in well-ventilated areas.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

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

Managing of associated risks

- Flammability hazards

Do not spray on an open flame or other ignition source. Protect from sunlight.

- Packaging compatibilities

Keep only in original container.

### 7.3 Specific end use(s)

See section 16 for a general overview.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)											
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m <sup>3</sup> ]	STEL [ppm]	STEL [mg/m <sup>3</sup> ]	Ceiling-C [ppm]	Ceiling-C [mg/m <sup>3</sup> ]	Notation	Source
DE	ethanediol	107-21-1	AGW	10	26	20	52			va, H, Y	TRGS 900
DE	ethylene glycol	107-21-1	MAK	10	26	20	52			va	DFG
DE	trans-1,3,3,3-tetrafluoropropene	29118-24-9	MAK	1,000	4,700	2,000	9,400				DFG
DE	trans-1,3,3,3-tetrafluoropropene	29118-24-9	AGW	1,000	4,700	2,000	9,400			Y	TRGS 900
DE	1,1,1,2-tetrafluoroethane	811-97-2	MAK	1,000	4,200	8,000	33,600				DFG
DE	norflurane	811-97-2	AGW	1,000	4,200	8,000	33,600			Y	TRGS 900
EU	ethylene glycol	107-21-1	IOELV	20	52	40	104				2000/39/EC

Notation

Ceiling-C

H

STEL

TWA

ceiling value is a limit value above which exposure should not occur absorbed through the skin

short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

time-weighted average (long-term exposure limit); measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

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Notation

va as vapours and aerosols  
 Y a risk of developmental toxicity does not need to be expected if the occupational exposure limit value and the biological limit value (BGW) are adhered to

Relevant DNELs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
(1E)-1,3,3,3-tetrafluoroprop-1-ene	29118-24-9 1645-83-6	DNEL	3,902 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
Norflurane	811-97-2	DNEL	13,936 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
Ethane-1,2-diol	107-21-1	DNEL	35 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - local effects
Ethane-1,2-diol	107-21-1	DNEL	106 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Relevant PNECs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Organism	Environmental compartment	Exposure time
(1E)-1,3,3,3-tetrafluoroprop-1-ene	29118-24-9 1645-83-6	PNEC	0.1 mg/l	aquatic organisms	freshwater	short-term (single instance)
Norflurane	811-97-2	PNEC	0.1 mg/l	aquatic organisms	freshwater	short-term (single instance)
Norflurane	811-97-2	PNEC	0.01 mg/l	aquatic organisms	marine water	short-term (single instance)
Norflurane	811-97-2	PNEC	73 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Norflurane	811-97-2	PNEC	0.75 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Ethane-1,2-diol	107-21-1	PNEC	10 mg/l	aquatic organisms	freshwater	short-term (single instance)
Ethane-1,2-diol	107-21-1	PNEC	1 mg/l	aquatic organisms	marine water	short-term (single instance)
Ethane-1,2-diol	107-21-1	PNEC	199.5 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Ethane-1,2-diol	107-21-1	PNEC	37 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Ethane-1,2-diol	107-21-1	PNEC	3.7 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Ethane-1,2-diol	107-21-1	PNEC	1.53 mg/kg	terrestrial organisms	soil	short-term (single instance)

### 8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)



Eye/face protection

Use protective eyewear to guard against splash of liquids.

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**Skin protection**

**- Hand protection**

Wear protective gloves.

**- Other protection measures**

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

**Respiratory protection**

During spraying wear suitable respiratory equipment.

**Environmental exposure controls**

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

### SECTION 9: Physical and chemical properties

**9.1 Information on basic physical and chemical properties**

Physical state	liquid, gaseous (spray aerosol)
Colour	colourless - light yellow
Odour	characteristic
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	not applicable (aerosol)
Flammability	non-flammable aerosol in accordance with GHS criteria
Lower and upper explosion limit	not determined
Flash point	not applicable (aerosol)
Auto-ignition temperature	368 °C (auto-ignition temperature (liquids and gases))
Decomposition temperature	not relevant
pH (value)	not applicable (aerosol)
Kinematic viscosity	not relevant
Solubility(ies)	not determined

**Partition coefficient**

Partition coefficient n-octanol/water (log value)	this information is not available
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Vapour pressure	5.74 bar at 20 °C
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### Density and/or relative density

Density	1.214 g/ml
Relative vapour density	information on this property is not available

Particle characteristics	not relevant (aerosol)
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### 9.2 Other information

Information with regard to physical hazard classes

Aerosols

- Components (flammable)	0 %
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Other safety characteristics

Temperature class (EU, acc. to ATEX)	T2 (maximum permissible surface temperature on the equipment: 300°C)
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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials". The mixture contains reactive substance(s).

### 10.2 Chemical stability

See below "Conditions to avoid".

### 10.3 Possibility of hazardous reactions

No known hazardous reactions.

### 10.4 Conditions to avoid

Do not spray on an open flame or other ignition source. Keep away from heat.

Hints to prevent fire or explosion

Protect from sunlight.

### 10.5 Incompatible materials

Oxidisers

### 10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

## SECTION 11: Toxicological information

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

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

#### Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Shall not be classified as acutely toxic.

GHS of the United Nations, annex 4: May be harmful in contact with skin.

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Acute toxicity estimate (ATE) of components of the mixture			
Name of substance	CAS No	Exposure route	ATE
Ethane-1,2-diol	107-21-1	oral	500 mg/kg

**Skin corrosion/irritation**

Shall not be classified as corrosive/irritant to skin.

**Serious eye damage/eye irritation**

Shall not be classified as seriously damaging to the eye or eye irritant.

**Respiratory or skin sensitisation**

Shall not be classified as a respiratory or skin sensitizer.

**Germ cell mutagenicity**

Shall not be classified as germ cell mutagenic.

**Carcinogenicity**

Shall not be classified as carcinogenic.

**Reproductive toxicity**

Shall not be classified as a reproductive toxicant.

**Specific target organ toxicity - single exposure**

Shall not be classified as a specific target organ toxicant (single exposure).

**Specific target organ toxicity - repeated exposure**

Shall not be classified as a specific target organ toxicant (repeated exposure).

**Aspiration hazard**

Shall not be classified as presenting an aspiration hazard.

**11.2 Information on other hazards**

There is no additional information.

**SECTION 12: Ecological information**

**12.1 Toxicity**

Acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.  
 Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (Ordinance on facilities for handling substances hazardous to water) (AwSV): WGK 1, slightly hazardous to water (Germany)

**12.2 Persistence and degradability**

Data are not available.

**12.3 Bioaccumulative potential**

Data are not available.

**12.4 Mobility in soil**

Data are not available.

**12.5 Results of PBT and vPvB assessment**

Data are not available.

**12.6 Endocrine disrupting properties**

Information on this property is not available.

**12.7 Other adverse effects**

Data are not available.



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### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

#### Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

### SECTION 14: Transport information

#### 14.1 UN number or ID number

ADR/RID/ADN	UN 1950
IMDG-Code	UN 1950
ICAO-TI	UN 1950

#### 14.2 UN proper shipping name

ADR/RID/ADN	AEROSOLS
IMDG-Code	AEROSOLS
ICAO-TI	Aerosols, non-flammable

#### 14.3 Transport hazard class(es)

ADR/RID/ADN	2 (2.2)
IMDG-Code	2.2
ICAO-TI	2.2

#### 14.4 Packing group

not assigned

#### 14.5 Environmental hazards

non-environmentally hazardous acc. to the dangerous goods regulations

#### 14.6 Special precautions for user

There is no additional information.

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

The cargo is not intended to be carried in bulk.

#### Information for each of the UN Model Regulations

##### Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - Additional information

Classification code	5A
Danger label(s)	2.2





Special provisions (SP)	190, 327, 344, 625
Excepted quantities (EQ)	E0
Limited quantities (LQ)	1 L
Transport category (TC)	3

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Tunnel restriction code (TRC)	E
<b>International Maritime Dangerous Goods Code (IMDG) - Additional information</b>	
Marine pollutant	-
Danger label(s)	2.2
	
Special provisions (SP)	63, 190, 277, 327, 344, 381, 959
Excepted quantities (EQ)	E0
Limited quantities (LQ)	1 L
EmS	F-D, S-U
Stowage category	-
<b>International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information</b>	
Danger label(s)	2.2
	
Special provisions (SP)	A98, A145, A167
Excepted quantities (EQ)	E0
Limited quantities (LQ)	30 kg

**SECTION 15: Regulatory information**

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

**National regulations (Germany)**

**Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (Ordinance on facilities for handling substances hazardous to water) (AwSV)**

Wassergefährdungsklasse, WGK 1 slightly hazardous to water (water hazard class)

**Technical instructions on air quality control (Germany)**

Number	Group of substances	Class	Conc.	Mass flow	Mass concentration	Notation
5.2.5	organic substances		≥ 25 wt%	0.5 kg/h	50 mg/m <sup>3</sup>	3)

Notation

3) a total mass flow of 0.50 kg/h or a total mass concentration of 50 mg/m<sup>3</sup>, each of which to be indicated as total carbon, shall not be exceeded (except organic particulate matter)

**Storage of hazardous substances in non-stationary containers (TRGS 510) (Germany)**

Storage class (LGK) 2 B (aerosol dispensers and lighters)

**15.2 Chemical Safety Assessment**

Chemical safety assessments for substances in this mixture were not carried out.

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### SECTION 16: Other information

#### Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations.
2000/39/EC.	Commission Directive establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC.
Acute Tox.	Acute toxicity.
ADN.	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways).
ADR.	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road).
ADR/RID/ADN.	Agreements concerning the International Carriage of Dangerous Goods by Road/Rail/Inland Waterways (ADR/RID/ADN).
AGW.	Workplace exposure limit.
ATE.	Acute Toxicity Estimate.
CAS.	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances).
Ceiling-C.	Ceiling value.
CLP.	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.
DFG.	Deutsche Forschungsgemeinschaft MAK-und BAT-Werte-Liste, Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe, Wiley-VCH, Weinheim.
DGR.	Dangerous Goods Regulations (see IATA/DGR).
DNEL.	Derived No-Effect Level.
EC No.	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union).
EINECS.	European Inventory of Existing Commercial Chemical Substances.
ELINCS.	European List of Notified Chemical Substances.
EmS.	Emergency Schedule.
GHS.	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations.
IATA.	International Air Transport Association.
IATA/DGR.	Dangerous Goods Regulations (DGR) for the air transport (IATA).
ICAO.	International Civil Aviation Organization.
ICAO-TI.	Technical instructions for the safe transport of dangerous goods by air.
IMDG.	International Maritime Dangerous Goods Code.
IMDG-Code.	International Maritime Dangerous Goods Code.
Index No.	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008.
IOELV.	Indicative occupational exposure limit value.
LGK.	Lagerklasse (storage class according to TRGS 510, Germany).
NLP.	No-Longer Polymer.
PBT.	Persistent, Bioaccumulative and Toxic.
PNEC.	Predicted No-Effect Concentration.
Ppm.	Parts per million.
Press. Gas.	Gas under pressure.
REACH.	Registration, Evaluation, Authorisation and Restriction of Chemicals.
RID.	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail).
STEL.	Short-term exposure limit.
STOT RE.	Specific target organ toxicity - repeated exposure.
TRGS.	Technische Regeln für Gefahrstoffe (technical rules for hazardous substances, Germany).
TRGS 900.	Arbeitsplatzgrenzwerte (TRGS 900).
TWA.	Time-weighted average.
VPvB.	Very Persistent and very Bioaccumulative.

#### Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU.

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

#### Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

#### List of relevant phrases (code and full text as stated in section 2 and 3)

Code.	Text.
H229.	Pressurised container: May burst if heated.
H280.	Contains gas under pressure; may explode if heated.
H302.	Harmful if swallowed.
H373.	May cause damage to organs through prolonged or repeated exposure.

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### **Disclaimer**

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.