

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

1.1. Product identifier

Product form : Substance
 Substance name : F45
 Chemical name :

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 : Organic solvent

1.2.2. Uses advised against

Restrictions on use : For professional users only

1.3. Details of the supplier of the safety data sheet

RUDOLF FLUME Technik GmbH
 Hachestr. 66 · 45127 Essen
 +49 (0) 201-1899-0
 info@flume.de

1.4. Emergency telephone number

Emergency number : Giftnotruf Charite Berlin 0 30-19 24 0

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
 Specific target organ toxicity – Single exposure, Category 3, H336
 Narcosis
 Aspiration hazard, Category 1 H304
 Hazardous to the aquatic environment – Chronic Hazard, H412
 Category 3
 Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

Flammable liquid and vapour. May cause drowsiness or dizziness. May be fatal if swallowed and enters airways. Harmful to aquatic life with long lasting effects.

2.2. Label elements

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

Hazard pictograms (CLP) :



Signal word (CLP) : Danger

Hazard statements (CLP) : H226 - Flammable liquid and vapour.
 H304 - May be fatal if swallowed and enters airways.
 H336 - May cause drowsiness or dizziness.
 H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements (CLP) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
 No smoking.

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- P243 - Take action to prevent static discharges.
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor.
P331 - Do NOT induce vomiting.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
- EUH-statements : EUH066 - Repeated exposure may cause skin dryness or cracking.
Extra phrases : Restricted to professional users.

2.3. Other hazards

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

SECTION 3: Composition/information on ingredients

3.1. Substances

Name : F45

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Mixture of n-, i- and cyclo-aliphatics, predominantly C8-C10	CAS-No.: 64742-49-0 EC-No.: 265-151-9	100	Flam. Liq. 3, H226 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 3, H412 EUH066

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 : Take off immediately all contaminated clothing. In the event of persistent symptoms receive medical treatment. Take affected person away from danger area.
- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If symptoms persist, call a physician. In case of loss of consciousness, place the victim in the recovery position.
- First-aid measures after skin contact : Wash off immediately with soap and plenty of water. Treat subsequently with skin cream. Get medical advice if skin irritation persists.
- First-aid measures after eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Consult an ophthalmologist if irritation persists.
- First-aid measures after ingestion : Do not induce vomiting. Attention. Beware, danger of aspiration. Take medical advice immediately.

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

- Symptoms/effects after inhalation : High concentration of vapours may induce: headache, dizziness, drowsiness, nausea and vomiting.
- Symptoms/effects after skin contact : Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.
- Symptoms/effects after eye contact : May cause eye irritation.
- Symptoms/effects after ingestion : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

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 : Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media : high volume water jet.

5.2. Special hazards arising from the substance or mixture

Explosion hazard : May form flammable/explosive vapour-air mixture.
Hazardous decomposition products in case of fire : Carbon monoxide.

5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus.
Other information : Vapours are heavier than air and may spread along floors. The vapour/air mixture is explosive, even in empty, uncleaned receptacles. Cool containers at risk with water spray jet.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : No flames, no sparks. Eliminate all sources of ignition. Avoid contact with eyes, skin or mucous membrane. Evacuate the danger area.

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. In case of vapour formation use adequate respirator. Wear personal protective equipment. No flames, no sparks. Eliminate all sources of ignition. Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Do not discharge into the drains/surface waters/groundwater. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Avoid contact with eyes, skin or mucous membrane.
Precautions for safe handling : Handle and open container with care. Avoid formation of aerosols. Use only outdoors or in a well-ventilated area. Explosion free apparatus have to be used. Take precautionary measures against static discharge. Vapours are heavier than air and may spread along floors.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Do not inhale vapour. Treat subsequently with skin cream. Avoid contact with skin, eyes and clothing. Take off immediately all contaminated clothing.

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7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	: Pay attention to explosion protection guidelines. Keep container tightly closed in a dry, cool and well-ventilated place.
Incompatible products	: Oxidizing agent.
Heat and ignition sources	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Information on mixed storage	: Keep away from food, drink and animal feeding stuffs.
Storage area	: Keep out of frost.
Packaging materials	: Stainless steel. Steel.

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Storage class (LK) : LK 3 - Flammable liquids

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

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 good ventilation of the work station. Pay attention to explosion protection guidelines.

8.2.2. Personal protection equipment

8.2.2.1. Eye and face protection

Eye protection:

Tightly fitting goggles (EN 166)

8.2.2.2. Skin protection

Skin and body protection:

Solvent-resistant protective clothing

Hand protection:

Chemically resistant protective gloves. ISO 374-1. Requirements can vary as a function of the use. Therefore it is necessary to adhere additionally to the recommendations given by the manufacturer of protective gloves

Hand protection					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
protective gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	0,35		EN ISO 374

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8.2.2.3. Respiratory protection

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Respiratory protection			
Device	Filter type	Condition	Standard
Breathing apparatus with filter		Short term exposure	
Self contained breathing apparatus		Long term exposure	

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	: Colourless. Clear.
Odour	: Petrol.
Odour threshold	: Not available
Melting point	: < -20 °C
Freezing point	: Not available
Boiling point	: 140 – 165 °C
Flammability	: Not applicable
Explosive properties	: Product is not explosive. May form flammable/explosive vapour-air mixture.
Lower explosive limit (LEL)	: 0.8 vol %
Upper explosive limit (UEL)	: 6 vol %
Flash point	: 28 °C
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: Not available
Viscosity, kinematic	: 0.91 mm ² /s (25°C)
Solubility	: Water: < 0.02 g/l (20°C)
Partition coefficient n-octanol/water (Log Kow)	: 4 – 5.7 Based on the n-octanol/water partition coefficient accumulation in organisms is possible
Log Pow	: > 3
Vapour pressure	: 0.5 hPa (20°C)
Vapour pressure at 50°C	: Not available
Density	: 0.749 g/cm ³ (20°C)
Relative density	: Not available
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

VOC content	: 100 %
Additional information	: Ignition temperature 287°C

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SECTION 10: Stability and reactivity

10.1. Reactivity

No data available.

10.2. Chemical stability

To avoid thermal decomposition, do not overheat.

10.3. Possibility of hazardous reactions

Reactions with oxidizing agents.

10.4. Conditions to avoid

To avoid thermal decomposition, do not overheat. Vapour/air-mixtures are explosive at intense warming. Heating can release vapours which can be ignited.

10.5. Incompatible materials

Oxidizing agent.

10.6. Hazardous decomposition products

No decomposition if stored normally. Carbon oxides (CO, CO₂).

SECTION 11: Toxicological information

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

Acute toxicity (oral) : Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal) : Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation) : Not classified (Based on available data, the classification criteria are not met)

PF 80	
LD50 oral rat	> 2000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg

Skin corrosion/irritation : Not classified (Based on available data, the classification criteria are not met)
Serious eye damage/irritation : Not classified (Based on available data, the classification criteria are not met)
Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity : Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met)
STOT-single exposure : May cause drowsiness or dizziness.
STOT-repeated exposure : Not classified (Based on available data, the classification criteria are not met)
Additional information : Repeated exposure may cause skin dryness or cracking.
Aspiration hazard : May be fatal if swallowed and enters airways.

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Harmful to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short-term (acute) : Not classified (Based on available data, the classification criteria are not met)
Hazardous to the aquatic environment, long-term (chronic) : Harmful to aquatic life with long lasting effects.

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12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

PF 80

Log Pow	> 3
Partition coefficient n-octanol/water (Log Kow)	4 – 5.7 Based on the n-octanol/water partition coefficient accumulation in organisms is possible

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

Additional information : Do not flush into surface water or sewer system

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions. Disposal must be done according to official regulations.

Sewage disposal recommendations : Do not discharge into drains.

Product/Packaging disposal recommendations : Must not be disposed together with household garbage. Empty containers should be taken for local recycling, recovery or waste disposal. Packaging that cannot be cleaned should be disposed of like the product.

Additional information : Flammable vapours may accumulate in the container.

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Waste code (VeVA) : 16 05 08 - [S] Discarded organic chemicals consisting of or containing dangerous substances

SECTION 14: Transport information






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

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 3295	UN 3295	UN 3295	UN 3295	UN 3295
14.2. UN proper shipping name				
HYDROCARBONS, LIQUID, N.O.S.	HYDROCARBONS, LIQUID, N.O.S.	Hydrocarbons, liquid, n.o.s.	HYDROCARBONS, LIQUID, N.O.S.	HYDROCARBONS, LIQUID, N.O.S.
Transport document description				
UN 3295 HYDROCARBONS, LIQUID, N.O.S., 3, III, (D/E)	UN 3295 HYDROCARBONS, LIQUID, N.O.S., 3, III	UN 3295 Hydrocarbons, liquid, n.o.s., 3, III	UN 3295 HYDROCARBONS, LIQUID, N.O.S., 3, III	UN 3295 HYDROCARBONS, LIQUID, N.O.S., 3, III

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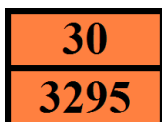
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ADR	IMDG	IATA	ADN	RID
14.3. Transport hazard class(es)				
3	3	3	3	3
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous 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
Limited quantities (ADR) : 5I
Excepted quantities (ADR) : E1
Packing instructions (ADR) : P001, IBC03, LP01, R001
Mixed packing provisions (ADR) : MP19
Transport category (ADR) : 3
Hazard identification number (Kemler No.) : 30
Orange plates :



Tunnel restriction code (ADR) : D/E

Transport by sea

Special provisions (IMDG) : 223
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, A224
ERG code (IATA) : 3L

Inland waterway transport

Classification code (ADN) : F1

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Limited quantities (ADN) : 5 L
Excepted quantities (ADN) : E1
Equipment required (ADN) : PP, EX, A
Ventilation (ADN) : VE01
Number of blue cones/lights (ADN) : 0

Rail transport

Classification code (RID) : F1
Limited quantities (RID) : 5L
Excepted quantities (RID) : E1
Packing instructions (RID) : P001, IBC03, LP01, R001
Transport category (RID) : 3
Hazard identification number (RID) : 30

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

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
28.		Substances which are classified as carcinogen category 1A or 1B in Part 3 of Annex VI to Regulation (EC) No 1272/2008 and are listed in Appendix 1 or Appendix 2, respectively.

REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

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)

VOC Directive (2004/42)

VOC content : 100 %

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)

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Seveso Directive (Disaster Risk Reduction)

Seveso III Part I (Categories of dangerous substances)	Qualifying quantity (tonnes)	
	Lower-tier	Upper-tier
P5c FLAMMABLE LIQUIDS Flammable liquids, Categories 2 or 3 not covered by P5a and P5b	5000	50000

15.1.2. National regulations

Switzerland

Swiss National Regulations

: Article 13 Order on the protection of maternity (RS 822.111.52):

Pregnant women and breastfeeding mothers cannot come into contact with this product (this substance/this preparation) when working except where it has been established, on the basis of a risk analysis performed in accordance with Art. 63 OLT 1 (RS 822.111), that there is no concrete threat to the health of the mother or baby or that said threat can be excluded thanks to the suitable protection measures taken.

Article 4, subparagraph 4 Order on the protection of young workers (OLT 5, RS 822.115) and Article 1, letter f Order of the DEFR on dangerous works for young workers (822.115.2): Young workers undergoing initial professional training cannot work with this product (this substance/this preparation) except where envisaged in the order of professional training to achieve the training purposes and if the training plan conditions and applicable age limits are respected. Young workers who do not undergo initial professional training cannot work with this product (this substance/this preparation). Workers of either sex aged under 18 years old are considered as young.

Water Protection Ordinance (GSchV, SR 814.201)

: Class A

Clean Air Ordinance (LRV, SR 814.318.142.1)

: Annex 1, number 7, Class 3

Emission concentration must not exceed the following value: 150 mg/m³

Accident Ordinance (StFV, SR 814.012)

: Threshold quantity: 20000 kg

VOC Ordinance (VOCV, SR 814.018)

: 100 %

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BLV	Biological limit value
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration
EC-No.	European Community number
EN	European Standard
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration

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Abbreviations and acronyms:	
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
vPvB	Very Persistent and Very Bioaccumulative
WGK	Water Hazard Class

Full text of H- and EUH-statements:	
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
Asp. Tox. 1	Aspiration hazard, Category 1
EUH066	Repeated exposure may cause skin dryness or cracking.
Flam. Liq. 3	Flammable liquids, Category 3
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H336	May cause drowsiness or dizziness.
H412	Harmful to aquatic life with long lasting effects.
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Narcosis

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should therefore not be construed as guaranteeing any specific property of the product.