

CFR 1 Safety Data Sheet According to SS 586 Part 3 (2022) Issue date: 13.02.2025

Revision date: 13.02.2025

Supersedes: 18.11.2024

Version: 23.0

SECTION 1: Identification

1.1. Product identifier

Name Product code CFR 1 BU Fire Protection



1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

No additional information available

1.4. Supplier's details

Supplier Hilti Far East Private Ltd. 80 Pasir Panjang Road, #16-83/84 Mapletree Business City Singapore Singapur 117372 T +65 6777 7887 - F +65 6777 3057 sg-customerservice@hilti.com Department issuing data specification sheet Hilti AG Feldkircherstraße 100 Schaan Liechtenstein 9494 T +423 234 2111 product.compliance-fire.protection@hilti.com

1.5. Emergency phone number

Emergency number

GBK GmbH Global Regulatory Compliance +49 (0)6132-84463

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Physical hazards Health hazards Aerosols, Category 1 Serious eye damage/eye irritation, Category 2 Specific target organ toxicity – Single exposure, Category 3, Narcosis

2.2. GHS label elements, including precautionary statements

Hazard pictograms (GHS SG)



Signal word (GHS SG)

Hazard statements (GHS SG)

H222 : Extremely flammable aerosol H229 : Pressurised container: May burst if heated

1229 : Flessuised container. May b

H319 : Causes serious eye irritation

H336 : May cause drowsiness or dizziness

Precautionary statements

Prevention

P210 : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P211 : Do not spray on an open flame or other ignition source.



According to SS 586 Part 3 (2022)

P251 : Do not pierce or burn, even after use.

P261 : Avoid breathing dust/fume/gas/mist/vapours/spray.

Response

P305+P351+P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

P410+P412 : Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

2.3. Other hazards which do not result in classification

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Concentration (%)	Formula	Product identifier
aceton	40 - 60	СЗН6О	CAS-No.: 67-64-1 EC-No.: 200-662-2 EC Index-No.: 606- 001-00-8
ethyl acetate	10 – 25	C4H8O2	CAS-No.: 141-78-6 EC-No.: 205-500-4 EC Index-No.: 607- 022-00-5
isobutane	< 25	C4H10	CAS-No.: 75-28-5 EC-No.: 200-857-2 EC Index-No.: 601- 004-00-0
propane	< 10	СЗН8	CAS-No.: 74-98-6 EC-No.: 200-827-9 EC Index-No.: 601- 003-00-5

SECTION 4: First-aid measures

4.1. Description of necessary first aid	t measures
First-aid measures general	Call a poison center or a doctor if you feel unwell. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
Inhalation	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
Skin contact	If skin irritation occurs: Get medical advice/attention. Wash skin with plenty of water. Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Call a poison center or a doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting.
4.2. Most important symptoms/effect	s, acute and delayed
Symptoms/effects after inhalation	May cause droweiness or dizziness

Symptoms/effects after inhalation	May cause drowsiness or dizziness.
Symptoms/effects after eye contact	Eye irritation. Causes serious eye irritation.



CFR 1 Safety Data Sheet According to SS 586 Part 3 (2022)

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment

Treat symptomatically.

SECTION 5: Fire-fighting measures	
5.1. Suitable extinguishing media	
Suitable extinguishing media	Water spray. Dry powder. Carbon dioxide. Sand. Alcohol resistant foam.
Unsuitable extinguishing media	Do not use a heavy water stream.
5.2. Specific hazards arising from the chemi	cal
Fire hazard	Extremely flammable aerosol.
Explosion hazard	Pressurised container: May burst if heated.
Hazardous decomposition products in case of fire	Carbon dioxide. Carbon monoxide. Vapours may form explosive mixture with air.
5.3. Special protective actions for fire fighter	rs
Firefighting instructions	Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
Protection during firefighting	Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

No additional information available	e equipment and emergency procedures
6.1.1. For non-emergency personnel	
Emergency procedures	Ventilate spillage area. No open flames, no sparks, and no smoking. Avoid breathing spray Avoid contact with skin and eyes. 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". Equip cleanup crew with proper protection. Avoid breathing dust/fume/gas/mist/vapours/spray.
Emergency procedures	Ventilate area.

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning upTake up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or
diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.Other informationDispose of materials or solid residues at an authorized site.

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. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use. Use only outdoors or in a well-ventilated area. Avoid breathing spray. Avoid contact with skin and eyes. Wear personal protective equipment. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour.	
Hygiene measures	Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Wash hands, forearms and face thoroughly after handling.	



7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	Pro
	up
Incompatible products	Str
Incompatible materials	So
Storage temperature	5 -

Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F. Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool. Strong bases. Strong acids. Sources of ignition. Direct sunlight. 5 - 25 °C

SECTION 8: Exposure controls/personal protection

8.1. Control parameters/Occupational exposure limits

aceton (67-64-1)	
Singapore - Occupational Exposure Limits	
Local name	Acetone
PEL (OEL TWA)	1780 mg/m ³
	750 ppm
OEL STEL	2380 mg/m ³
	1000 ppm
Regulatory reference	WSH Regulations 2014

8.2. Appropriate engineering control measures

Appropriate engineering controls

Ensure good ventilation of the work station.

8.3. Personal protection - individual protection measures, such as personal protective equipment (PPE)

Hand protection

Wear suitable gloves tested to EN374. Suitable for short-term work or as a splash guard: Nitrile rubber gloves (> 0.2 mm). In case of permanent product contact:

Туре	Material	Permeation	Thickness (mm)	Penetration	Standard
Protective gloves	Butyl rubber	6 (> 480 minutes)	0,5mm		EN ISO 374
Eye protection	•				

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Туре	Field of application	Characteristics	Standard
Safety glasses			EN 166, EN 171
Skin and body protection	Wear suitable protective clothin	g	
Respiratory protection	Ensure good ventilation of the w Wear appropriate mask. (e.g. ga	•	•

Personal protective equipment symbol(s)



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 Appearance Colour Odour Odour threshold Liquid Aerosol. Colourless characteristic No data available



CFR 1 Safety Data Sheet According to SS 586 Part 3 (2022)

На	No data available
•	No data available
Relative evaporation rate (butylacetate=1)	
Evaporation rate	No data available
Melting point	Not applicable
Freezing point	No data available
Boiling point	No data available
Flash point	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability	Extremely flammable aerosol.
Vapour pressure	2500 – 2900 hPa at 20 °C
Relative vapour density at 20°C	No data available
Relative density	No data available
Density	0.74 – 0.76 g/cm ³
Solubility	Soluble in water.
Partition coefficient n-octanol/water (Log Pow)	No data available
Partition coefficient n-octanol/water (Log Kow)	No data available
Viscosity, dynamic	No data available
Explosive properties	Pressurised container: May burst if heated.
Oxidising properties	No data available
Explosive limits	No data available
Particle size	No data available
Particle size distribution	No data available
Particle shape	No data available
Particle aspect ratio	No data available
Particle specific surface area	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Extremely flammable aerosol. Pressurised container: May burst if heated.

10.2. Chemical stability

Stable under normal conditions. Not established.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition. Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Acute toxicity

Acute toxicity (oral) Acute toxicity (dermal) Acute toxicity (inhalation) Not classified Not classified Not classified



CFR 1

Safety Data Sheet

According to SS 586 Part 3 (2022)

isobutane (75-28-5)	
LC50 Inhalation - Rat [ppm]	> 800000 ppm (15 minutes, Rat, Male / female, Experimental value, Inhalation (gases))
propane (74-98-6)	
LC50 Inhalation - Rat [ppm]	> 800000 ppm (15 minutes, Rat, Male / female, Experimental value, Inhalation (gases))
aceton (67-64-1)	
LD50 oral rat	5800 mg/kg (Rat, Female, Experimental value, Oral, 14 day(s))
LD50 oral	6667 mg/kg
LD50 dermal rabbit	> 15800 mg/kg bodyweight (24 h, Rabbit, Male, Experimental value, Dermal, 14 day(s))
LD50 dermal	20000 mg/kg
LC50 Inhalation - Rat	132 mg/l (3 h, Rat, Male, Experimental value, Inhalation (vapours))
ethyl acetate (141-78-6)	
LD50 oral rat	10200 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Female, Experimenta value, Oral, 14 day(s))
LD50 oral	5600 mg/kg
LD50 dermal rabbit	> 20000 mg/kg bodyweight (24 hour cuff method, 24 h, Rabbit, Male, Experimental value Dermal, 14 day(s))
LD50 dermal	18000 mg/kg
LC50 Inhalation - Rat (Vapours)	52.75 mg/l/4h
Skin corrosion/irritation	Not classified
Serious eye damage/irritation	Causes serious eye irritation.
Respiratory or skin sensitisation	Not classified
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Not classified
STOT-single exposure	May cause drowsiness or dizziness.
aceton (67-64-1)	
STOT-single exposure	May cause drowsiness or dizziness.
ethyl acetate (141-78-6)	
STOT-single exposure	May cause drowsiness or dizziness.
STOT-repeated exposure	Not classified
Aspiration hazard	Not classified
CFR 1	
Vaporizer	Aerosol
Density	0.74 – 0.76 g/cm³
Potential adverse human health effects and	Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity	
Ecology - general	The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term	Not classified
(acute)	
Hazardous to the aquatic environment, long-term	Not classified
(chronic)	
13/02/2025 SG - en	6/12



According to SS 586 Part 3 (2022)

Other information	Avoid release to the environment.
isobutane (75-28-5)	
EC50 96h - Algae [1]	8.57 mg/l (ECOSAR v1.00, Algae, Fresh water, QSAR)
Partition coefficient n-octanol/water (Log Pow)	1.09 – 2.8 (Experimental value, 20 °C)
propane (74-98-6)	
EC50 96h - Algae [1]	12 mg/l (ECOSAR v1.00, Algae, Fresh water, QSAR)
Partition coefficient n-octanol/water (Log Pow)	1.1 – 2.8 (Experimental value, 20 °C)
aceton (67-64-1)	
LC50 - Fish [1]	6210 – 8120 mg/l (Equivalent or similar to OECD 203, 96 h, Pimephales promelas, Flow- through system, Fresh water, Experimental value, Measured concentration)
EC50 - Crustacea [1]	> 12700 mg/l
ErC50 algae	> 530 mg/l 96h, Pseudokirchneriella subcapitata
BCF - Fish [1]	0.69 (Pisces, Literature study)
Partition coefficient n-octanol/water (Log Pow)	-0.23 (Test data)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	0.374 – 0.988 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
ethyl acetate (141-78-6)	
LC50 - Fish [1]	230 mg/l (US EPA, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value, Lethal)
EC50 - Crustacea [1]	262 mg/l
NOEC chronic crustacea	2.4 mg/l
BCF - Fish [1]	30 (3 day(s), Leuciscus idus, Static renewal, Experimental value)
Partition coefficient n-octanol/water (Log Pow)	0.68 (Experimental value, EPA OPPTS 830.7560, 25 °C)
12.2. Persistence and degradability	
CFR 1	
Persistence and degradability	Not established.
isobutane (75-28-5)	
Not rapidly degradable	
Persistence and degradability	Readily biodegradable in water.
propane (74-98-6)	
Not rapidly degradable	
Persistence and degradability	Readily biodegradable in water.
aceton (67-64-1)	
Not rapidly degradable	
Persistence and degradability	Biodegradable in the soil. Biodegradable in the soil under anaerobic conditions. Readily biodegradable in water.
Biochemical oxygen demand (BOD)	1.43 g O ₂ /g substance
Chemical oxygen demand (COD)	1.92 g O ₂ /g substance
13/02/2025	7/12



According to SS 586 Part 3 (2022)

aceton (67-64-1)		
ThOD	2.2 g O ₂ /g substance	
ethyl acetate (141-78-6)		
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.	
Biochemical oxygen demand (BOD)	0.293 g O₂/g substance	
Chemical oxygen demand (COD)	1.69 g O_2/g substance	
ThOD	1.82 g O ₂ /g substance	
12.3. Bioaccumulative potential		
CFR 1		
Bioaccumulative potential	Not established.	
isobutane (75-28-5)		
Partition coefficient n-octanol/water (Log Pow)	1.09 – 2.8 (Experimental value, 20 °C)	
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).	
propane (74-98-6)		
Partition coefficient n-octanol/water (Log Pow)	1.1 – 2.8 (Experimental value, 20 °C)	
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).	
aceton (67-64-1)		
BCF - Fish [1]	0.69 (Pisces, Literature study)	
Partition coefficient n-octanol/water (Log Pow)	-0.23 (Test data)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	0.374 – 0.988 (log Koc, SRC PCKOCWIN v2.0, Calculated value)	
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).	
ethyl acetate (141-78-6)		
BCF - Fish [1]	30 (3 day(s), Leuciscus idus, Static renewal, Experimental value)	
Partition coefficient n-octanol/water (Log Pow)	0.68 (Experimental value, EPA OPPTS 830.7560, 25 °C)	
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).	
12.4. Mobility in soil		
CFR 1		
Mobility in soil	No additional information available	
isobutane (75-28-5)		
Surface tension	No data available in the literature	
Partition coefficient n-octanol/water (Log Pow)	1.09 – 2.8 (Experimental value, 20 °C)	
Ecology - soil	Not applicable (gas).	
propane (74-98-6)		
Surface tension	No data available in the literature	
Partition coefficient n-octanol/water (Log Pow)	1.1 – 2.8 (Experimental value, 20 °C)	
Ecology - soil	Not applicable (gas).	
aceton (67-64-1)		
Surface tension	23.3 mN/m (20 °C)	
Partition coefficient n-octanol/water (Log Pow)	-0.23 (Test data)	
13/02/2025 SG - en	8/1	



According to SS 586 Part 3 (2022)

aceton (67-64-1)			
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	0.374 – 0.988 (log Koc, SRC PCKOCWIN v2.0, Calculated value)		
Ecology - soil	Highly mobile in soil.		
ethyl acetate (141-78-6)			
Surface tension	No data available in the literature		
Partition coefficient n-octanol/water (Log Pow)	0.68 (Experimental value, EPA OPPTS 830.7560, 25 °C)		
Ecology - soil	Low potential for adsorption in soil.		

12.5. Other adverse effects

Ozone Other adverse effects Not classified No additional information available

SECTION 13: Disposal considerations

Waste treatment methods Product/Packaging disposal recommendations Dispose of contents/container in accordance with licensed collector's sorting instructions. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

SECTION 14: Transport information

ADR	IMDG	ΙΑΤΑ	RID
14.1. UN number or ID number	r		
UN 1950	UN 1950	UN 1950	UN 1950
14.2. UN proper shipping nam	e		
AEROSOLS	AEROSOLS	Aerosols, flammable	AEROSOLS
UN 1950 AEROSOLS, 2.1, (D)	UN 1950 AEROSOLS, 2.1	UN 1950 Aerosols, flammable, 2.1	UN 1950 AEROSOLS, 2.1
14.3. Transport hazard class(e	es)		
2.1	2.1	2.1	2.1
		2	
14.4. Packing group			
Not applicable	Not applicable	Not applicable	Not applicable
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
No supplementary information availa	able		
14.6. Special precautions for u	ser		
Overland transport			
Classification code (ADR)	5F		
Special provisions (ADR)	190, 327, 344, 62	5	



CFR 1 Safety Data Sheet According to SS 586 Part 3 (2022)

Limited quantities (ADR)	1I
Packing instructions (ADR)	P207, LP02
Mixed packing provisions (ADR)	MP9
Transport category (ADR)	2
Tunnel restriction code (ADR)	D
Transport by sea Special provisions (IMDG) Limited quantities (IMDG) Packing instructions (IMDG) EmS-No. (Fire) EmS-No. (Spillage) Stowage category (IMDG) MFAG-No	63, 190, 277, 327, 344, 959 SP277 P207, LP02 F-D S-U None 126
Air transport PCA packing instructions (IATA) PCA max net quantity (IATA) CAO packing instructions (IATA) Special provisions (IATA) Rail transport	203 75kg 203 A145, A167, A802
Special provisions (RID)	190, 327, 344, 625
Limited quantities (RID)	1L
Packing instructions (RID)	P207, LP02

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations specific for the product in question

Regulation		Component / Mixture
Arms and Explosives Act	Not applicable	
Chemical Weapons Prohibition Act		
Environmental Protection and Management (Air Impurities) Regulations		
Environmental Protection and Management Act (Hazardous Substances)		
Environmental Public Health (Quality of Piped Drinking Water) Regulations		
Fire Safety Act/Fire Safety (Petroleum and Flammable Materials) Regulations	Petroleum and Flammable Materials	Isobutane; Propane; Acetone; Ethyl acetate
Maritime and Port Authority of Singapore (Dangerous, Petroleum and Explosives) Regulations	Maritime and Port Authority-Dangerous Goods	Isobutane; Propane
Misuse of Drugs Act	Controlled Substances Useful for Manufacturing Controlled Drugs - Part II	Acetone
Poisons Act	Not applicable	
Poisons Rules		



CFR 1

Safety Data Sheet According to SS 586 Part 3 (2022)

Regulation	Component / Mixture
Hazardous waste (Control of export, import and transit) Act	
Strategic goods (Control) Act	
15.2. International regulations	-

No additional information available

15.3 Chemical inventory status

No additional information available

SECTION 16: Other information	
Issue date	13/02/2025
Revision date	13/02/2025
Data sources	REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and
Abbreviations and acronyms	amending Regulation (EC) No 1907/2006. CAS-No Chemical Abstract Service number 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 BCF - Bioconcentration factor BLV - Biological limit value BOD - Biochemical oxygen demand (BOD) CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008 DMEL - Derived Minimal Effect level
	DNEL - Derived-No Effect Level EC-No European Community number EC50 - Median effective concentration ED - Endocrine disrupting properties EN - European Standard IARC - International Agency for Research on Cancer IATA - International Air Transport Association IMDG - International Maritime Dangerous Goods IOELV - Indicative Occupational Exposure Limit Value LC50 - Median lethal concentration
	LD50 - Median lethal dose LOAEL - Lowest Observed Adverse Effect Level N.O.S Not Otherwise Specified NOAEC - No-Observed Adverse Effect Concentration NOAEL - No-Observed Adverse Effect Level NOEC - No-Observed Effect Concentration vPvB - Very Persistent and Very Bioaccumulative WGK - Water Hazard Class VOC - Volatile Organic Compounds SDS - Safety Data Sheet
	RID - Regulations concerning the International Carriage of Dangerous Goods by Rail REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006 PNEC - Predicted No-Effect Concentration PBT - Persistent Bioaccumulative Toxic OEL - Occupational Exposure Limit OECD - Organisation for Economic Co-operation and Development



COD - Chemical oxygen demand (COD) ThOD - Theoretical oxygen demand (ThOD) TRGS - Technical Rules for Hazardous Substances TLM - Median Tolerance Limit STP - Sewage treatment plant None.

Other information

Indication of changes			
Section Changed item Change Comments			Comments
			general update
	Regulations Singapore	Modified	

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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 not therefore be construed as guaranteeing any specific property of the product.