

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 1 of 16

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

1.1. Product identifier

Decalcifying solution (formic acid, alcoholic)

UFI: CAKN-G196-H000-1K9V

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

Use of the substance/mixture

Use as laboratory reagent. The product is intended for research, analysis and scientific education.

Uses advised against

Any non-intended use.

1.3. Details of the supplier of the safety data sheet

Company name:	MORPHISTO GmbH	
Street:	Schumannstr. 142/144	
Place:	D-63069 Offenbach	
Telephone:	+49 (0) 69 / 400 3019-60	Telefax: +49 (0) 69 / 400 3019-64
E-mail:	info@morphisto.de	
Contact person:	Morphisto GmbH	
E-mail:	gefahrstoffmanagement@morphisto.de	
Internet:	http://www.morphisto.de	

1.4. Emergency telephone number:

Poison Information Center Mainz, Germany, Tel: +49(0)6131/19240

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GB CLP Regulation

Flam. Liq. 2; H225
Acute Tox. 4; H332
Skin Corr. 1B; H314
Eye Dam. 1; H318

Full text of hazard statements: see SECTION 16.

2.2. Label elements

GB CLP Regulation

Hazard components for labelling

formic acid %
hydrochloric acid %

Signal word: Danger

Pictograms:



Hazard statements

H225	Highly flammable liquid and vapour.
H314	Causes severe skin burns and eye damage.
H332	Harmful if inhaled.

Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
------	--

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 2 of 16

P260	Do not breathe mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.

Labelling of packages where the contents do not exceed 125 ml
Signal word: Danger

Pictograms:

Hazard statements

H314

Precautionary statements

P260-P280-P303+P361+P353-P305+P351+P338-P310

2.3. Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB) at levels of 0.1% or higher. Ecological information: The substance/mixture does not contain any components that are considered to be hazardous according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Delegated Regulation (EU) 2018/605 in amounts of 0.1 % or more have endocrine disrupting properties. Toxicological information: The substance/mixture does not contain any components that are to be classified according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Delegated Regulation (EU) 2018/605 in quantities of 0.1 % or more have endocrine disrupting properties.

SECTION 3: Composition/information on ingredients
3.2. Mixtures
Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (GB CLP Regulation)			
64-17-5	Ethanol			75 - < 80 %
	200-578-6	603-002-00-5	01-2119457610-43	
	Flam. Liq. 2, Eye Irrit. 2; H225 H319			
64-18-6	formic acid %			10 - < 15 %
	200-579-1	607-001-00-0	01-2119491174-37	
	Flam. Liq. 3, Acute Tox. 3, Acute Tox. 4, Skin Corr. 1A, Eye Dam. 1; H226 H331 H302 H314 H318			
7647-01-0	hydrochloric acid %			1 - < 5 %
	231-595-7	017-002-01-X	01-2119484862-27	
	Met. Corr. 1, Skin Corr. 1B, Eye Dam. 1, STOT SE 3; H290 H314 H318 H335			
78-93-3	butanone			< 1 %
	201-159-0	606-002-00-3	01-2119457290-43	
	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336 EUH066			

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

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 3 of 16

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
64-17-5	200-578-6	Ethanol	75 - < 80 %
		inhalation: LC50 = 124,7 mg/l (vapours); dermal: LD50 = >2000 mg/kg; oral: LD50 = >5000 mg/kg Eye Irrit. 2; H319: >= 50 - 100	
64-18-6	200-579-1	formic acid %	10 - < 15 %
		inhalation: LC50 = 7,85 mg/l (vapours); inhalation: ATE = 0,5 mg/l (dusts or mists); oral: LD50 = 730 mg/kg Skin Corr. 1A; H314: >= 90 - 100 Skin Corr. 1B; H314: >= 10 - < 90 Skin Irrit. 2; H315: >= 2 - < 10 Eye Irrit. 2; H319: >= 2 - < 10	
7647-01-0	231-595-7	hydrochloric acid %	1 - < 5 %
		Skin Corr. 1B; H314: >= 25 - 100 Skin Irrit. 2; H315: >= 10 - < 25 Eye Irrit. 2; H319: >= 10 - < 25 STOT SE 3; H335: >= 10 - 100	
78-93-3	201-159-0	butanone	< 1 %
		dermal: LD50 = >2000 mg/kg; oral: LD50 = 2054 mg/kg	

Further Information

This product contains no substances of very high concern (SVHC) (>0,1%) which are included in the Candidate List according to Article 59 of REACH.

SECTION 4: First aid measures
4.1. Description of first aid measures
General information

First aider: Pay attention to self-protection! Take off immediately all contaminated clothing and wash it before reuse. Remove affected person from the danger area and lay down. To supervise the blood circulation. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

After inhalation

Provide fresh air. When in doubt or if symptoms are observed, get medical advice. Formic acid is effectively absorbed through the respiratory tract. Remove casualty to fresh air and keep warm and at rest. Call a physician in any case! If unconscious but breathing normally, place in recovery position and seek medical advice. In case of allergic symptoms, especially in the breathing area, seek medical advice immediately.

After contact with skin

After contact with skin, wash immediately with plenty of water and soap. Take off immediately all contaminated clothing and wash it before reuse. After wetting large areas, use a (surge) shower immediately if possible. If skin irritation occurs: Get medical advice/attention.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

After ingestion

Do NOT induce vomiting. Adverse human health effects and symptoms: Gastric perforation. Call a physician immediately. Do not allow a neutralisation agent to be drunk. Observe risk of aspiration if vomiting occurs. Rinse mouth thoroughly with water. Let water be drunk in little sips (dilution effect). Seek medical advice.

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

Mucous membrane irritation after eye contact or inhalation. Risk of blindness. Risk of serious damage to eyes. After inhalation: cough, pain, shortness of breath and general respiratory problems, irritant effects, After ingestion: Gastrointestinal discomfort, vomiting, corrosivity, gastric perforation, After skin contact: Causes severe burns, Causes poorly healing wounds, After eye contact: Risk of serious eye damage, Risk of blindness.

Danger of severe chemical burns that lead to perforation of oesophagus and stomach.

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 4 of 16

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

Treat symptomatically.

SECTION 5: Firefighting measures**5.1. Extinguishing media****Suitable extinguishing media**Water spray jet, Carbon dioxide (CO₂), Foam, Extinguishing powder**Unsuitable extinguishing media**

High power water jet.

5.2. Special hazards arising from the substance or mixture

Highly flammable. Vapours can form explosive mixtures with air. Vapours are heavier than air and will spread at floor level.

In case of fire may be liberated: Carbon monoxide Carbon dioxide (CO₂).Hydrogen chloride (HCl). Methane. Chlorine.**5.3. Advice for firefighters**

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit. In case of fire and/or explosion do not breathe fumes.

Additional information

Use water spray jet to protect personnel and to cool endangered containers. Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures****General advice**

Remove all sources of ignition. Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment. Ventilate affected area. Special danger of slipping by leaking/spilling product.

For non-emergency personnel

Ventilate affected area. Clear danger zone. Follow emergency plan. Consult an expert.

For emergency responders

Move undamaged containers from immediate hazard area if it can be done safely. Stop and contain spill/release if it can be done safely. If this cannot be done, allow fire to burn under control.

6.2. Environmental precautions

Do not allow uncontrolled discharge of product into the environment. Explosion risk. Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches. In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

6.3. Methods and material for containment and cleaning up**For containment**

Prevent spread over a wide area (e.g. by containment or oil barriers). Seal off the sewer. Do not empty into drains.

For cleaning up

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal. Clear contaminated areas thoroughly.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 5 of 16

7.1. Precautions for safe handling

Advice on safe handling

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray. Ensure cleanliness and dryness in the workplace. Process within closed systems. Use extractor hood (laboratory). Avoid contact with skin, eyes and clothes. Wear personal protection equipment. (See section 8.). Always close containers tightly after the removal of product.

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Vapours can form explosive mixtures with air. Combustible liquid. Flammable vapours can accumulate in head space of closed systems. Heating causes rise in pressure with risk of bursting. Fire extinguishing equipment shall be provided.

Advice on general occupational hygiene

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat, drink, smoke, sniff. Used working clothes should not be worn outside the work area. Street clothing should be stored separately from work clothing. Protect skin by using skin protective cream. Always close containers tightly after the removal of product.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Keep locked up. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaustion at critical locations. Keep in a cool, well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Make sure spills can be contained, e.g. in sump pallets or kerbed areas. Store small packages in a suitable, robust cabinet.

Hints on joint storage

Do not store together with: Oxidizing agent. Pyrophoric or self-heating substances. Do not store together with: food and feed. pharmaceuticals. Infectious substances. Radioactive substances. Explosive substances. Oxidizing substances. Oxidizing liquids. Organic peroxides. Self-reactive substances and mixtures. Pyrophoric solids. Substances which in contact with water form flammable gases. Ammonium nitrate and preparations containing ammonium nitrate. Gas. Flammable solids. Pyrophoric liquids and solids. Substances or mixtures which, in contact with water, emit flammable gases.

Further information on storage conditions

Recommended storage temperature: 15-25 °C
 Protect against: UV-radiation/sunlight. heat. Cold.
 Suitable material for Container: polyethylene. Glass.
 Unsuitable materials for Container: Aluminium. Zinc.Iron. PVC (Polyvinyl chloride).

7.3. Specific end use(s)

See section 1.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
78-93-3	Butan-2-one (methyl ethyl ketone)	200	600		TWA (8 h)	WEL
		300	899		STEL (15 min)	WEL
64-17-5	Ethanol	1000	1920		TWA (8 h)	WEL
64-18-6	Formic acid	5	9.6		TWA (8 h)	WEL
7647-01-0	Hydrogen chloride (gas and aerosol mists)	1	2		TWA (8 h)	WEL
		5	8		STEL (15 min)	WEL

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 6 of 16

Biological Monitoring Guidance Values (EH40)

CAS No	Substance	Parameter	Value	Test material	Sampling time
78-93-3	Butan-2-one	butan-2-one	70 µmol/L	urine	Post shift

DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
64-17-5	Ethanol			
Worker DNEL, acute		inhalation	local	1900 mg/m ³
Worker DNEL, long-term		dermal	systemic	343 mg/kg bw/day
Worker DNEL, long-term		inhalation	systemic	950 mg/m ³
Consumer DNEL, acute		inhalation	local	950 mg/m ³
Consumer DNEL, long-term		dermal	systemic	206 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	114 mg/m ³
Consumer DNEL, long-term		oral	systemic	87 mg/kg bw/day
64-18-6	formic acid %			
Worker DNEL, acute		inhalation	systemic	19 mg/m ³
Worker DNEL, acute		inhalation	local	19 mg/m ³
Worker DNEL, long-term		inhalation	systemic	9,5 mg/m ³
Consumer DNEL, acute		inhalation	systemic	9,5 mg/m ³
Consumer DNEL, acute		inhalation	local	9,5 mg/m ³
Consumer DNEL, long-term		inhalation	systemic	3 mg/m ³
Consumer DNEL, long-term		inhalation	local	3 mg/m ³

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 7 of 16

PNEC values

CAS No	Substance	Value
Environmental compartment		
64-17-5	Ethanol	
Freshwater		0,96 mg/l
Freshwater (intermittent releases)		2,75 mg/l
Marine water		0,79 mg/l
Marine water (intermittent releases)		2,75 mg/l
Freshwater sediment		3,6 mg/kg
Marine sediment		2,9 mg/kg
Secondary poisoning		0,72 mg/kg
Micro-organisms in sewage treatment plants (STP)		580 mg/l
Soil		0,63 mg/kg
64-18-6	formic acid %	
Freshwater		2 mg/l
Freshwater (intermittent releases)		1 mg/l
Marine water		0,2 mg/l
Marine water (intermittent releases)		1 mg/l
Marine sediment		1,34 mg/kg
Micro-organisms in sewage treatment plants (STP)		7,2 mg/l
Soil		1,5 mg/kg

8.2. Exposure controls



Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray. Process within closed systems. Provide adequate ventilation. If local exhaust ventilation is not possible or not sufficient, the entire working area should be ventilated by technical means. Use extractor hood (laboratory). Provide washing facilities at the workplace, provide an eye shower or eyewash bottle and mark them. Fire extinguishing equipment shall be provided.

Individual protection measures, such as personal protective equipment

Eye/face protection

Suitable eye protection: goggles. Tightly sealed safety glasses. Face protection shield. EN 166.

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. Tested protective gloves are to be worn:

Suitable material:

Butyl rubber. (0,5 mm, Breakthrough time \geq 480 min)

FKM (fluoro rubber). (0,4 mm, Breakthrough time \geq 480 min)

Before using check leak tightness / impermeability.

Skin protection

Protective clothing. (fire retardant.). Wear anti-static footwear and clothing Chemical protection clothing.

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 8 of 16

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500 (D).

Respiratory protection

In case of inadequate ventilation wear respiratory protection. Respiratory protection necessary at: exceeding exposure limit values

Suitable respiratory protective equipment: gas filtering equipment (EN 141). Type: A/ E. Identification color: brown/yellow.

Thermal hazards

Flame-retardant protective clothing. Wear anti-static footwear and clothing .

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid	
Colour:	colourless	
Odour:	Ethanol., stinging	
Melting point/freezing point:		not determined
Boiling point or initial boiling point and boiling range:		78 °C
Flammability:		not determined
Lower explosion limits:		Ethanol:3,5 vol. %
Upper explosion limits:		Ethanol:45,5 vol. %
Flash point:		Ethanol:12 °C
Auto-ignition temperature:		Ethanol:400 °C
Decomposition temperature:		not determined
pH-Value:		not determined
Viscosity / kinematic:		not determined
Water solubility: (at 20 °C)		miscible
Solubility in other solvents		not determined
Partition coefficient n-octanol/water:		not determined
Vapour pressure: (at 20 °C)		58 hPa
Vapour pressure: (at 50 °C)		293 hPa
Density (at 20 °C):		0,85 g/cm ³
Relative vapour density:		not determined
Particle characteristics:		not applicable

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

The product is not: Explosive. In case of insufficient ventilation and/or through use, explosive/highly flammable mixtures may develop. Vapours can travel considerable distances to a source of ignition where they can ignite, flash back, or explode.

Sustaining combustion: Sustaining combustion

Self-ignition temperature

Gas: not determined

Oxidizing properties

none

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 9 of 16

Other safety characteristics

Evaporation rate:	not determined
Solvent separation test:	not determined
Solvent content:	not determined
Solid content:	not determined
Sublimation point:	not determined
Softening point:	not determined
Pour point:	not determined
Viscosity / dynamic:	not determined
Flow time:	not determined

SECTION 10: Stability and reactivity**10.1. Reactivity**

Highly flammable. Vapours may form explosive mixtures with air.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Explosion risk in contact with: Oxidizing agents, strong. nitric acid. Hydrogenium peroxide. Chlorine (Cl₂). potassium.Sodium. Chlorine, potassium, sodium, strong oxidising agents, nitric acid, calcium hypochlorite, halogen oxides, di-sulphur difluoride, acetic anhydride + salts + acids, isocyanates, potassium dioxide, perchlorates, potassium permanganate/sulphuric acid, sodium hypochlorite, sodium peroxide, nitrosyl perchlorate, peracids, perchloronitrile, mercury nitrate, oxygen (liquid), sulphuric acid + hydrogen peroxide, silver/nitric acid, silver nitrate, silver nitrate/ammonia, silver oxide/ammonia, nitrogen dioxide,hydrogen peroxide, conc. Alkali/alkaline earth metals, fluorine, reducing agents, acids, acetyl bromide, acetyl chloride, barium perchlorate, bromine trifluoride, cesium oxide, chromium trioxide, chromyl chloride, ethylene oxide, iodine heptafluoride, potassium tert-butoxide, potassium tert-butoxide. butoxide, lithium hydride, phosphorus trioxide, platinum black, nitric acid/potassium permanganate, acid anhydrides, uranium hexafluoride, zirconium (IV) chloride, zirconium (IV) iodide.

10.4. Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Vapours can form explosive mixtures with air. Keep away from heat. Protect from direct sunlight. Protect from moisture. In use may form flammable/explosive vapour-air mixture.

Heating causes rise in pressure with risk of bursting.

10.5. Incompatible materials

Information is given in subsection 10.3.

10.6. Hazardous decomposition products

Resulting from the use of the product: Chlorine.

In case of fire may be liberated: Carbon monoxide Carbon dioxide (CO₂).Hydrogen chloride (HCl). Methane. Chlorine.

SECTION 11: Toxicological information**11.1. Information on hazard classes as defined in GB CLP Regulation****Acute toxicity**

Harmful if inhaled.

ATEmix calculated

ATE (oral) 6160 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) 66,24 mg/l; ATE (inhalation dust/mist) 4,219 mg/l

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 10 of 16

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
64-17-5	Ethanol				
	oral	LD50 mg/kg	>5000	Rat	ECHA Dossier
	dermal	LD50 mg/kg	>2000	Rabbit	ECHA Dossier
	inhalation (4 h) vapour	LC50 mg/l	124,7	Rat	ECHA Dossier
64-18-6	formic acid %				
	oral	LD50 mg/kg	730	Rat	suppliers SDS.
	inhalation (4 h) vapour	LC50	7,85 mg/l	Rat, male and female	suppliers SDS.
	inhalation dust/mist	ATE	0,5 mg/l		
78-93-3	butanone				
	oral	LD50 mg/kg	2054	Ratte	SDB Lieferant
	dermal	LD50 mg/kg	>2000	Rabbit	ECHA Dossier

Irritation and corrosivity

Causes severe skin burns and eye damage.

Causes serious eye damage.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

Other information

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP]. Depending on the ingested quantity the following symptoms can be induced: a reduction of inhibitions, euphoria but also dysphoria, aggressiveness, impaired motoric skills, impaired responsiveness, blurred vision and fatigue.

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met.

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 11 of 16

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
64-17-5	Ethanol					
	Acute fish toxicity	LC50 mg/l	14200	96 h	Pimephales promelas (fathead minnow)	ECHA Dossier
	Acute algae toxicity	ErC50	275 mg/l	72 h	Chlorella vulgaris	ECHA Dossier
	Acute crustacea toxicity	EC50 mg/l	5012	48 h	Ceriodaphnia dubia (water flea)	ECHA Dossier
	Crustacea toxicity	NOEC	9,6 mg/l	9 d	Daphnia magna	ECHA Dossier
64-18-6	formic acid %					
	Acute fish toxicity	LC50	68 mg/l	96 h	Leuciscus idus (golden orfe)	IUCLID
	Acute algae toxicity	ErC50 mg/l	62,64	72 h	Selenastrum capricornutum	suppliers SDS.
	Acute crustacea toxicity	EC50 mg/l	32,19	48 h	Daphnia magna	IUCLID
	Crustacea toxicity	NOEC mg/l	>102	21 d	Daphnia magna (Big water flea)	suppliers SDS.
	Acute bacteria toxicity	(EC50 mg/l)	>1000	0,5 h	Activated sludge	
7647-01-0	hydrochloric acid %					
	Acute fish toxicity	LC50	862 mg/l	96 h	Leuciscus idus	
78-93-3	butanone					
	Acute fish toxicity	LC50 mg/l	2993	96 h	Pimephales promelas	ECHA Dossier OECD 203
	Acute algae toxicity	ErC50 mg/l	1972	72 h	Pseudokirchnerella subcapitata	ECHA Dossier OECD 201
	Acute crustacea toxicity	EC50	308 mg/l	48 h	Daphnia magna	ECHA Dossier OECD 202

12.2. Persistence and degradability

The product has not been tested.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
64-17-5	Ethanol			
	other guideline	84%	20	ECHA Dossier
	Biodegradable.			
64-18-6	formic acid %			
	Biodegradability	100 %	9	
	Readily biodegradable (according to OECD criteria).			
78-93-3	butanone			
		98%	28	ECHA Dossier
	Readily biodegradable (according to OECD criteria).			

12.3. Bioaccumulative potential

The product has not been tested.

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 12 of 16

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
64-17-5	Ethanol	-0,31
64-18-6	formic acid %	-1,9
78-93-3	butanone	0,3

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

No information available.

Further information

Avoid release to the environment. Do not allow to enter into surface water or drains.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Disposal recommendations**

Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation. Hazardous waste according to Directive 2008/98/EC (waste framework directive). Do not allow uncontrolled discharge of product into the environment. Consult the local waste disposal expert about waste disposal. According to (EWC) European Waste Catalogue, allocation of waste identity numbers/waste descriptions must be carried out in a specific way for every industry and process.

List of Wastes Code - residues/unused products

070104 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals; other organic solvents, washing liquids and mother liquors; hazardous waste

List of Wastes Code - used product

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - contaminated packaging

150110 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); packaging containing residues of or contaminated by hazardous substances; hazardous waste

Contaminated packaging

Wash with plenty of water. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself. Non-contaminated packages may be recycled.

SECTION 14: Transport information**Land transport (ADR/RID)**

14.1. UN number or ID number:	UN 2924
14.2. UN proper shipping name:	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Ethanol. Formic acid.)
14.3. Transport hazard class(es):	3
14.4. Packing group:	II
Hazard label:	3+8

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 13 of 16



Classification code: FC
 Special Provisions: 274
 Limited quantity: 1 L
 Excepted quantity: E2
 Transport category: 2
 Hazard No: 338
 Tunnel restriction code: D/E

Inland waterways transport (ADN)

14.1. UN number or ID number: UN 2924
14.2. UN proper shipping name: FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Ethanol. Formic acid.)
14.3. Transport hazard class(es): 3
14.4. Packing group: II
 Hazard label: 3+8



Classification code: FC
 Special Provisions: 274
 Limited quantity: 1 L
 Excepted quantity: E2

Marine transport (IMDG)

14.1. UN number or ID number: UN 2924
14.2. UN proper shipping name: FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Ethanol. Formic Acid.)
14.3. Transport hazard class(es): 3
14.4. Packing group: II
 Hazard label: 3+8



Marine pollutant: NO
 Special Provisions: 274
 Limited quantity: 1 L
 Excepted quantity: E2
 EmS: F-E, S-C

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: UN 2924
14.2. UN proper shipping name: FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Ethanol. Formic Acid.)
14.3. Transport hazard class(es): 3
14.4. Packing group: II
 Hazard label: 3+8



Special Provisions: A3
 Limited quantity Passenger: 0.5 L
 Passenger LQ: Y340
 Excepted quantity: E2
 IATA-packing instructions - Passenger: 352

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 14 of 16

IATA-max. quantity - Passenger:	1 L
IATA-packing instructions - Cargo:	363
IATA-max. quantity - Cargo:	5 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Warning: Combustible liquid. strongly corrosive. Refer to section 6-8

14.7. Maritime transport in bulk according to IMO instruments

not relevant

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 40, Entry 75

2010/75/EU (VOC): 90,07 % (765,595 g/l)

2004/42/EC (VOC): 90,07 % (765,595 g/l)

Information according to 2012/18/EU (SEVESO III): P5c FLAMMABLE LIQUIDS

Additional information

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:

Ethanol

formic acid %

hydrochloric acid %

butanone

SECTION 16: Other information**Changes**

This data sheet contains changes from the previous version in section(s): 2,3,4,5,6,7,8,9,11,12,13,15,16.

02.11.2021, Rev. 1.00, Initial release

Rev. 2,0; 01.08.2023; general adjustment(s)

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route

AwSV: Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen

AGW: Arbeitsplatzgrenzwert

AVV: Abfallverzeichnisverordnung

CAS Chemical Abstracts Service

CLP: Classification, Labelling and Packaging of substances and mixtures

DNEL: Derived No Effect Level

d: day(s)

EAKV: Europäisches Abfallverzeichnis gemäß Entwurf Abfallverzeichnisverordnung

EINECS: European Inventory of Existing Commercial chemical Substances

ELINCS: European List of Notified Chemical Substances

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 15 of 16

ECHA: European Chemicals Agency
EWC: European Waste Catalogue
IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
GefStoffV: Gefahrstoffverordnung (Ordinance on Hazardous Substances, Germany)
h: hour
LOAEL: Lowest observed adverse effect level
LOAEC: Lowest observed adverse effect concentration
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
NOAEL: No observed adverse effect level
NOAEC: No observed adverse effect level
NLP: No-Longer Polymers
N/A: not applicable
OECD: Organisation for Economic Co-operation and Development
PNEC: predicted no effect concentration
PBT: Persistent bioaccumulative toxic
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
REACH: Registration, Evaluation, Authorisation of Chemicals
SVHC: substance of very high concern
TRGS Technische Regeln fuer Gefahrstoffe
UN: United Nations
VOC: Volatile Organic Compounds
VwVwS: Verwaltungsvorschrift wassergefaehrdender Stoffe
WGK: Wassergefaehrungsklasse
CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
CAS: Chemical Abstracts Service
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)

Safety Data Sheet

according to UK REACH Regulation

Decalcifying solution (formic acid, alcoholic)

Revision date: 01.08.2023

Product code: 18628.xxxxx

Page 16 of 16

EmS: Emergency Schedules

MFAG: Medical First Aid Guide

MARPOL: International Convention for the Prevention of Marine Pollution from Ships

IBC: Intermediate Bulk Container

 For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>

For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).

Classification for mixtures and used evaluation method according to GB CLP Regulation

Classification	Classification procedure
Flam. Liq. 2; H225	On basis of test data
Acute Tox. 4; H332	Calculation method
Skin Corr. 1B; H314	Calculation method
Eye Dam. 1; H318	Calculation method

Relevant H and EUH statements (number and full text)

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
EUH066	Repeated exposure may cause skin dryness or cracking.

Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations. The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)