SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Creation Date 10-Dec-2009 **Revision Date** 18-Oct-2023 **Revision Number** 17

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description:	**Tetrachloroethylene**
Cat No. :	**T/0600/25, T/0600/MC15, T/0600/PB17, T/0600/21, T/**
Synonyms	Perchloroethylene
Index No	602-028-00-4
CAS No	127-18-4
EC No	204-825-9
Molecular Formula	C2 Cl4
REACH registration number	01-2119475329-28

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

Recommended Use	Laboratory chemicals.
Sector of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
Product category	PC21 - Laboratory chemicals
Process categories	PROC15 - Use as a laboratory reagent
Environmental release category	ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Uses advised against	No Information available

1.3. Details of the supplier of the safety data sheet

Company

EU entity/business name
Thermo Fisher Scientific
Janssen Pharmaceuticalaan 3a
2440 Geel, Belgium

UK entity/business name
Fisher Scientific UK
Bishop Meadow Road, Loughborough,
Leicestershire LE11 5RG, United Kingdom

Swiss distributor - Fisher Scientific AG
Neuhofstrasse 11, CH 4153 Reinach
Tel: +41 (0) 56 618 41 11
e-mail - infoch@thermofisher.com

E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

Tel: 01509 231166
Chemtrec US: (800) 424-9300
Chemtrec EU: 001-703-527-3887

For customers in Switzerland:
Tox Info Suisse Emergency Number: **145 (24hr)**
Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)
Chemtrec (24h) Toll-Free: 0800 564 402
Chemtrec Local: +41-43 508 20 11 (Zurich)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Based on available data, the classification criteria are not met

Health hazards

Skin Corrosion/Irritation	Category 2 (H315)
Serious Eye Damage/Eye Irritation	Category 2 (H319)
Skin Sensitization	Category 1 (H317)
Carcinogenicity	Category 2 (H351)
Specific target organ toxicity - (single exposure)	Category 3 (H336)

Environmental hazards

Chronic aquatic toxicity	Category 2 (H411)

Full text of Hazard Statements: see section 16

2.2. Label elements

Signal Word **Warning**

Hazard Statements

H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H351 - Suspected of causing cancer
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P312 - Call a POISON CENTER or doctor if you feel unwell
P280 - Wear protective gloves/protective clothing/eye protection/face protection

2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

Toxicity to Soil Dwelling Organisms
Toxic to terrestrial vertebrates
This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Tetrachloroethylene	127-18-4	EEC No. 204-825-9	<=100	Skin Irrit. 2 (H315) Skin Sens. 1 (H317) Eye Irrit. 2 (H319) STOT SE 3 (H336) Carc. 2 (H351) Aquatic Chronic 2 (H411)

REACH registration number	01-2119475329-28

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Self-Protection of the First Aider Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

None reasonably foreseeable. May cause allergic skin reaction. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

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

Notes to Physician Treat symptomatically. Symptoms may be delayed.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons
No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. Containers may explode when heated.

Hazardous Combustion Products
Chlorine, Phosgene, Hydrogen chloride gas.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Ensure adequate ventilation.

6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. Avoid ingestion and inhalation.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from sunlight.

Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK) (Germany) Storage Class/LGK 10

Switzerland - Storage of hazardous substances Storage class - SC 10/12
https://www.kvu.ch/de/themen/stoffe-und-produkte
https://www.kvu.ch/fr/themes/substances-et-produits
https://www.kvu.ch/it/temi/sostanze-e-prodotti

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits
List source(s): **UK** - EH40/2005 Work Exposure Limits, Forth edition. Published 2020. **IRE -** 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority. **CH** - The Government of Switzerland has set a directive on limit values for working materials (Grenzwerte am Arbeitsplatz) which is based on the Swiss Federal Regulation "Verordnung über die Verhütung von Unfällen und Berufskrankheiten". This directive is administered, periodically revised and enforced by SUVA (Swiss National Accident Insurance Fund). **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC

Component	European Union	The United Kingdom	France	Belgium	Spain
Tetrachloroethylene	TWA: 138 mg/m³ (15min) TWA: 20 ppm (15min) STEL: 275 mg/m³ (8h) STEL: 40 ppm (8h) Skin	STEL: 40 ppm 15 min STEL: 275 mg/m³ 15 min TWA: 20 ppm 8 hr TWA: 138 mg/m³ 8 hr Skin	TWA / VME: 20 ppm (8 heures). restrictive limit TWA / VME: 138 mg/m³ (8 heures). restrictive limit STEL / VLCT: 40 ppm. restrictive limit STEL / VLCT: 275 mg/m³. restrictive limit Peau	TWA: 20 ppm 8 uren TWA: 138 mg/m³ 8 uren STEL: 40 ppm 15 minuten STEL: 275 mg/m³ 15 minuten Huid	STEL / VLA-EC: 40 ppm (15 minutos). STEL / VLA-EC: 275 mg/m³ (15 minutos). TWA / VLA-ED: 20 ppm (8 horas) TWA / VLA-ED: 138 mg/m³ (8 horas) Piel

Component	Italy	Germany	Portugal	The Netherlands	Finland
Tetrachloroethylene	TWA: 138 mg/m³ 8 ore. Time Weighted Average TWA: 20 ppm 8 ore. Time Weighted Average Pelle	TWA: 10 ppm (8 Stunden). AGW - exposure factor 2 TWA: 69 mg/m³ (8 Stunden). AGW - exposure factor 2 TWA: 10 ppm (8 Stunden). MAK TWA: 69 mg/m³ (8 Stunden). MAK Höhepunkt: 20 ppm Höhepunkt: 138 mg/m³ Haut	STEL: 40 ppm 15 minutos STEL: 275 mg/m³ 15 minutos TWA: 20 ppm 8 horas TWA: 138 mg/m³ 8 horas Pele	huid STEL: 275 mg/m³ 15 minuten TWA: 138 mg/m³ 8 uren	TWA: 10 ppm 8 tunteina TWA: 70 mg/m³ 8 tunteina STEL: 20 ppm 15 minuutteina STEL: 140 mg/m³ 15 minuutteina Iho

Component	Austria	Denmark	Switzerland	Poland	Norway
Tetrachloroethylene	Haut MAK-KZGW: 40 ppm 15 Minuten MAK-KZGW: 275 mg/m³ 15 Minuten MAK-TMW: 20 ppm 8 Stunden	TWA: 10 ppm 8 timer TWA: 70 mg/m³ 8 timer STEL: 275 mg/m³ 15 minutter STEL: 40 ppm 15 minutter Hud	Haut/Peau STEL: 40 ppm 15 Minuten STEL: 275 mg/m³ 15 Minuten TWA: 20 ppm 8 Stunden	STEL: 170 mg/m³ 15 minutach TWA: 85 mg/m³ 8 godzinach	TWA: 6 ppm 8 timer TWA: 40 mg/m³ 8 timer STEL: 18 ppm 15 minutter. value from the regulation STEL: 120 mg/m³ 15 minutter. value from the

	MAK-TMW: 138 mg/m³ 8 Stunden		TWA: 138 mg/m³ 8 Stunden		regulation Hud

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Tetrachloroethylene	TWA: 138 mg/m³ TWA: 20 ppm STEL : 275 mg/m³ STEL : 40 ppm Skin notation	kože TWA-GVI: 20 ppm 8 satima. TWA-GVI: 138 mg/m³ 8 satima. STEL-KGVI: 40 ppm 15 minutama. STEL-KGVI: 275 mg/m³ 15 minutama.	TWA: 20 ppm 8 hr. TWA: 138 mg/m³ 8 hr. STEL: 40 ppm 15 min STEL: 275 mg/m³ 15 min Skin	Skin-potential for cutaneous absorption STEL: 275 mg/m³ STEL: 40 ppm TWA: 138 mg/m³ TWA: 20 ppm	TWA: 140 mg/m³ 8 hodinách. Potential for cutaneous absorption Ceiling: 280 mg/m³

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Tetrachloroethylene	Nahk TWA: 10 ppm 8 tundides. TWA: 70 mg/m³ 8 tundides. STEL: 25 ppm 15 minutites. STEL: 170 mg/m³ 15 minutites.	Skin notation TWA: 138 mg/m³ 8 hr TWA: 20 ppm 8 hr STEL: 275 mg/m³ 15 min STEL: 40 ppm 15 min	skin - potential for cutaneous absorption STEL: 40 ppm STEL: 275 mg/m³ TWA: 20 ppm TWA: 138 mg/m³	STEL: 275 mg/m³ 15 percekben. CK TWA: 138 mg/m³ 8 órában. AK lehetséges borön keresztüli felszívódás	TWA: 10 ppm 8 klukkustundum. TWA: 70 mg/m³ 8 klukkustundum. Skin notation Ceiling: 20 ppm Ceiling: 140 mg/m³

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Tetrachloroethylene	skin - potential for cutaneous exposure STEL: 140 mg/m³ STEL: 20 ppm TWA: 10 ppm TWA: 70 mg/m³	TWA: 70 mg/m³ IPRD TWA: 10 ppm IPRD Oda STEL: 170 mg/m³ STEL: 25 ppm	Possibility of significant uptake through the skin TWA: 20 ppm 8 Stunden TWA: 138 mg/m³ 8 Stunden STEL: 40 ppm 15 Minuten STEL: 275 mg/m³ 15 Minuten	possibility of significant uptake through the skin TWA: 20 ppm TWA: 138 mg/m³ STEL: 40 ppm 15 minuti STEL: 275 mg/m³ 15 minuti	Skin notation TWA: 7 ppm 8 ore TWA: 50 mg/m³ 8 ore STEL: 14 ppm 15 minute STEL: 100 mg/m³ 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Tetrachloroethylene	TWA: 10 mg/m³ 1979 MAC: 30 mg/m³	Ceiling: 690 mg/m³ Potential for cutaneous absorption TWA: 20 ppm TWA: 138 mg/m³	TWA: 20 ppm 8 urah TWA: 138 mg/m³ 8 urah Kože STEL: 40 ppm 15 minutah STEL: 275 mg/m³ 15 minutah	Binding STEL: 25 ppm 15 minuter Binding STEL: 170 mg/m³ 15 minuter TLV: 10 ppm 8 timmar. NGV TLV: 70 mg/m³ 8 timmar. NGV Hud	

Biological limit values

List source(s):

Component	European Union	United Kingdom	France	Spain	Germany
Tetrachloroethylene			Perchloroethylene: 1 mg/L blood prior to last shift of workweek Trichloroacetic acid: 7 mg/L urine end of workweek	Perchloroethylene: 3 ppm alveolar air start of last shift of workweek end-cut of exhaled air Perchloroethylene: 0.4 mg/L blood start of last shift of workweek	Tetrachloroethylene: 200 µg/L whole blood (16 hours after exposure)

Component	Italy	Finland	Denmark	Bulgaria	Romania
Tetrachloroethylene		Tetrachloroethylene: 1.2 µmol/L blood in the morning after a working day.			Trichloroacetic acid: 7 mg/L urine end of shift and end of work week Tetrachloroethylene: 0.435 mg/m³ expired air before the last shift of

					work week Tetrachloroethylene: 0.4 mg/L blood before the last shift of work week

Component	Gibraltar	Latvia	Slovak Republic	Luxembourg	Turkey
Tetrachloroethylene			Tetrachloroethylene: 0.5 mg/L blood before the next work shift Acetic acid: 3.5 mg/L urine end of exposure or work shift		

Monitoring methods
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
MDHS70 General methods for sampling airborne gases and vapours
MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)
Workers; See table for values

Predicted No Effect Concentration (PNEC)
See values below.

Component	Fresh water	Fresh water sediment	Water Intermittent	Microorganisms in sewage treatment	Soil (Agriculture)
Tetrachloroethylene 127-18-4 (<=100)	PNEC = 0.051mg/L	PNEC = 0.903mg/kg sediment dw	PNEC = 0.0364mg/L	PNEC = 11.2mg/L	PNEC = 0.01mg/kg soil dw

Component	Marine water	Marine water sediment	Marine water Intermittent	Food chain	Air
Tetrachloroethylene 127-18-4 (<=100)	PNEC = 0.0051mg/L	PNEC = 0.0903mg/kg sediment dw			PNEC = 8.2µg/m³

8.2. Exposure controls

Engineering Measures
Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Nitrile rubber	> 480 minutes	0.38 mm	Level 6	As tested under EN374-3 Determination of
Viton (R)	> 480 minutes	0.3 mm	EN 374	Resistance to Permeation by Chemicals

Skin and body protection Long sleeved clothing.

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141
When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water system.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Liquid	
Appearance	Colorless	
Odor	Characteristic, sweet	
Odor Threshold	No data available	
Melting Point/Range	-22 °C / -7.6 °F	
Softening Point	No data available	
Boiling Point/Range	120 - 122 °C / 248 - 251.6 °F	@ 760 mmHg
Flammability (liquid)	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Flash Point	No information available	**Method -** No information available
Autoignition Temperature	No data available	
Decomposition Temperature	> 150°C	
pH	No information available	
Viscosity	0.89 mPa s at 20 °C	
Water Solubility	0.15 g/L (20°C)	practically insoluble
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	**log Pow**	
Tetrachloroethylene	2.53	
Vapor Pressure	18 mbar @ 20 °C	
Density / Specific Gravity	1.625 1.619	
Bulk Density	Not applicable	Liquid
Vapor Density	No data available	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	

9.2. Other information

Molecular Formula	C2 Cl4
Molecular Weight	165.83
Evaporation Rate	6.0 (Ether = 1.0)

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

10.4. Conditions to avoid

Incompatible products. Excess heat. Exposure to moist air or water.

10.5. Incompatible materials

Strong acids. Strong oxidizing agents. Strong bases. Metals. Zinc. Amines. Aluminium.

10.6. Hazardous decomposition products

Chlorine. Phosgene. Hydrogen chloride gas.

SECTION 11: TOXICOLOGICAL INFORMATION

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

Product Information

(a) acute toxicity;

Oral	No data available
Dermal	No data available
Inhalation	No data available

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Tetrachloroethylene	LD50 = 2629 mg/kg (Rat)	LD50 > 10000 mg/kg (Rat)	LC50 = 27.8 mg/L (Rat) 4 h

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;

Respiratory	No data available
Skin	No data available

May cause sensitization by skin contact

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	EU	UK	Germany	IARC
Tetrachloroethylene			Cat. 2	Group 2A

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

Results / Target organs Central nervous system (CNS).

(i) STOT-repeated exposure; No data available

Target Organs None known.

(j) aspiration hazard; Based on available data, the classification criteria are not met

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Tetrachloroethylene	LC50: 12.4 - 14.4 mg/L, 96h flow-through (Pimephales promelas) LC50: 8.6 - 13.5 mg/L, 96h static (Pimephales promelas) LC50: 11.0 - 15.0 mg/L, 96h static (Lepomis macrochirus) LC50: 4.73 - 5.27 mg/L, 96h flow-through (Oncorhynchus mykiss)	EC50: 6.1 - 9.0 mg/L, 48h Static (Daphnia magna)	EC50: > 500 mg/L, 96h (Pseudokirchneriella subcapitata)

Component	Microtox	M-Factor
Tetrachloroethylene	EC50 = 100 mg/L 24 h EC50 = 112 mg/L 24 h EC50 = 120.0 mg/L 30 min	

12.2. Persistence and degradability

Persistence Insoluble in water, Persistence is unlikely, based on information available.

Degradation in sewage Contains substances known to be hazardous to the environment or not degradable in waste

treatment plant water treatment plants.

12.3. Bioaccumulative potential May have some potential to bioaccumulate

Component	log Pow	Bioconcentration factor (BCF)
Tetrachloroethylene	2.53	25.8 - 77.1 dimensionless

12.4. Mobility in soil Spillage unlikely to penetrate soil The product is insoluble and sinks in water The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces . Is not likely mobile in the environment due its low water solubility. Will likely be mobile in the environment due to its volatility.

12.5. Results of PBT and vPvB assessment Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).

12.6. Endocrine disrupting properties

Endocrine Disruptor Information

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances
Tetrachloroethylene	Group II Chemical	

12.7. Other adverse effects

Persistent Organic Pollutant This product does not contain any known or suspected substance

Ozone Depletion Potential This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point.

European Waste Catalogue (EWC) According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

Other Information Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

Switzerland - Waste Ordinance Disposal should be in accordance with applicable regional, national and local laws and regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance, ADWO) SR 814.600
https://www.fedlex.admin.ch/eli/cc/2015/891/en

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number UN1897
14.2. UN proper shipping name TETRACHLOROETHYLENE
14.3. Transport hazard class(es) 6.1
14.4. Packing group III

ADR

14.1. UN number UN1897
14.2. UN proper shipping name TETRACHLOROETHYLENE
14.3. Transport hazard class(es) 6.1
14.4. Packing group III

IATA

14.1. UN number UN1897
14.2. UN proper shipping name TETRACHLOROETHYLENE
14.3. Transport hazard class(es) 6.1
14.4. Packing group III

14.5. Environmental hazards Dangerous for the environment
Product is a marine pollutant according to the criteria set by IMDG/IMO

14.6. Special precautions for user No special precautions required.

14.7. Maritime transport in bulk according to IMO instruments Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories
Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Tetrachloroethylene	127-18-4	204-825-9	-	-	X	X	KE-33294	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Tetrachloroethylene	127-18-4	X	ACTIVE	X	-	X	X	X

Legend: X - Listed '-' - Not Listed **KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Tetrachloroethylene	127-18-4	-	Use restricted. See item 75. (see link for restriction details)	-

REACH links
https://echa.europa.eu/substances-restricted-under-reach

Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) -	Seveso III Directive (2012/18/EC) -

		Qualifying Quantities for Major Accident Notification	Qualifying Quantities for Safety Report Requirements
Tetrachloroethylene	127-18-4	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals
Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .
Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Tetrachloroethylene	WGK3	Class I : 20 mg/m³ (Massenkonzentration)

Component	France - INRS (Tables of occupational diseases)
Tetrachloroethylene	Tableaux des maladies professionnelles (TMP) - RG 3,RG 12

Swiss Regulations
Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).
Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Tetrachloroethylene 127-18-4 (<=100)	Prohibited and Restricted Substances	Group I	

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H351 - Suspected of causing cancer
H411 - Toxic to aquatic life with long lasting effects

Legend

CAS - Chemical Abstracts Service
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic
TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
Predicted No Effect Concentration (PNEC)
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor
ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
ATE - Acute Toxicity Estimate
VOC - (volatile organic compound)

Key literature references and sources for data
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.
Chemical incident response training.

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This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006. COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006 .

For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2, Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and Preparations).

Disclaimer

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End of Safety Data Sheet