



MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 08/21/2013

Version 1.2

SECTION 1. Identification

Product identifier

Product number	100965
Product name	Tetrachloroethylene for spectroscopy Uvasol®
Synonyms	PCE

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

Identified uses	Reagent for analysis
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Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation 290 Concord Road, Billerica, MA 01821, United States of America SDS Phone Support: +1-978-715-1335 General Inquiries: +1-978-715-4321 Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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SECTION 2. Hazards identification

GHS Classification

Carcinogenicity, Category 2, H351

Chronic aquatic toxicity, Category 2, H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms



Signal Word

Warning

Hazard Statements

H351 Suspected of causing cancer.

H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements

P281 Use personal protective equipment as required.

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P273 Avoid release to the environment.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	Cl ₂ CCCl ₂	C ₂ Cl ₄ (Hill)
CAS-No.	127-18-4	
Synonyms	PCE	
Molar mass	165.83 g/mol	

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

Tetrachlorethylene (>= 90 % - <= 100 %)

127-18-4

SECTION 4. First aid measures

Description of first-aid measures

Inhalation

After inhalation: fresh air. Call in physician. Keep respiratory tract clear.

Skin contact

After skin contact: wash off with plenty of water. Remove contaminated clothing. Consult a physician.

Eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

Ingestion

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Call a physician immediately. Subsequently administer: activated charcoal (20 - 40 g in 10% slurry).

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

irritant effects, Dermatitis, Drowsiness, Dizziness, Unconsciousness, narcosis, Nausea, Vomiting, Headache, CNS disorders

Risk of corneal clouding.

Drying-out effect resulting in rough and chapped skin.

Indication of any immediate medical attention and special treatment needed

Laxative: Sodium sulfate (1 tablespoon/1/4 l water).

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SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Not combustible.

Vapors are heavier than air and may spread along floors.

Ambient fire may liberate hazardous vapors.

Fire may cause evolution of:

Hydrogen chloride gas, Phosgene

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

SECTION 7. Handling and storage

Precautions for safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

Observe label precautions.

Conditions for safe storage, including any incompatibilities

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Tightly closed. Protected from light. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at +15°C to +25°C (+59°F to +77°F).

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
<i>Tetrachlorethylene 127-18-4</i>			
ACGIH	Time Weighted Average (TWA):	25 ppm	
	Short Term Exposure Limit (STEL):	100 ppm	
Z1A	Time Weighted Average (TWA):	25 ppm 170 mg/m ³	
	OSHA/Z2	Time Weighted Average (TWA):	100 ppm
	Ceiling Limit Value:	200 ppm	
	Maximum concentration:	300 ppm	Ceiling Limit Value 5 minutes in any 3 hours

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Safety glasses

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

protective clothing

Respiratory protection

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	ether-like
Odor Threshold	No information available.
pH	not applicable
Melting point	-22 °C
Boiling point/boiling range	250 °F (121 °C) at 1,013 hPa
Flash point	does not flash
Evaporation rate	No information available.
Flammability (solid, gas)	not applicable
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Vapor pressure	19 hPa at 68 °F (20 °C)
Relative vapor density	5.73
Relative density	1.62 g/cm ³ at 68 °F (20 °C)
Water solubility	0.16 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	log Pow: 3.40 (experimental) (Lit.) Bioaccumulation is not expected (log Pow <1).
Autoignition temperature	No information available.
Decomposition temperature	> 302 °F (> 150 °C)
Viscosity, dynamic	ca. 0.9 mPa.s at 68 °F (20 °C)
Explosive properties	Not classified as explosive.

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Ignition temperature not combustible

SECTION 10. Stability and reactivity

Reactivity

See below

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions

Risk of explosion with:

Exothermic reaction with:

Alkali metals, Alkaline earth metals, Metals, alkali hydroxides, Oxygen, nitrogen oxides

Conditions to avoid

Heating.

Incompatible materials

various plastics

Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Inhalation, Eye contact, Skin contact

Target Organs

Eyes

Skin

Respiratory system

Liver

Kidneys

Central nervous system

Acute oral toxicity

LD50 rat: 2,629 mg/kg (IUCLID)

Symptoms: Risk of aspiration upon vomiting., Aspiration may cause pulmonary edema and pneumonitis.

Acute inhalation toxicity

LC50 rat: 27.58 mg/l; 4 h

OECD Test Guideline 403

Symptoms: mucosal irritations, Lung edema

Skin irritation

Possible damages: slight irritation

Eye irritation

Possible damages: slight irritation

Risk of corneal clouding.

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Sensitization

Sensitization test: guinea pig
Result: negative
(IUCLID)

CMR effects

Carcinogenicity:
Suspected of causing cancer.

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	Group 2A: Probably carcinogenic to humans Tetrachlorethylene 127-18-4
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	Anticipated carcinogen. Tetrachlorethylene 127-18-4
ACGIH	Confirmed animal carcinogen with unknown relevance to humans. Tetrachlorethylene 127-18-4

Further information

Systemic effects:

After inhalation of vapors:

Dizziness, Drowsiness, Unconsciousness

After long-term exposure to the chemical:

Possible symptoms:

Dermatitis, Dermal absorption possible, Drying-out effect resulting in rough and chapped skin.

After absorption:

Headache, Nausea, Vomiting, CNS disorders, narcosis

Absorption may result in damage of the following:

Liver, Kidney

Further data:

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish

LC50 *Oncorhynchus mykiss* (rainbow trout): 4.99 mg/l; 96 h

OECD Test Guideline 203

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Toxicity to daphnia and other aquatic invertebrates

EC50 Daphnia magna (Water flea): 22 mg/l; 48 h
OECD Test Guideline 202

Toxicity to bacteria

EC10 Pseudomonas putida: > 45 mg/l; 18 h (Lit.)

Persistence and degradability

Biodegradability

11 %; 28 d
OECD Test Guideline 301C
Not readily biodegradable.

Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: 3.40
(experimental)
(Lit.) Bioaccumulation is not expected (log Pow <1).

Mobility in soil

Distribution among environmental compartments

Adsorption/Soil
log Koc: 2.42
(experimental)
Moderately mobile in soils

Other adverse effects

Henry constant

1793 Pa*m³/mol
Method: (experimental)
(Lit.) Distribution preferentially in air.

Additional ecological information

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 1897
Proper shipping name	TETRACHLOROETHYLENE
Class	6.1
Packing group	III
Environmentally hazardous	--

Air transport (IATA)

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UN number UN 1897
Proper shipping name TETRACHLOROETHYLENE
Class 6.1
Packing group III
Environmentally hazardous --
Special precautions for user no

Sea transport (IMDG)

UN number UN 1897
Proper shipping name TETRACHLOROETHYLENE
Class 6.1
Packing group III
Environmentally hazardous --
Special precautions for user yes
EmS F-A S-A

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Carcinogen
Target organ effects

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Chronic Health Hazard

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

Ingredients

Tetrachlorethylene 127-18-4

SARA 302

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Ingredients

Tetrachlorethylene

Pennsylvania Right To Know

Ingredients

Tetrachlorethylene

New Jersey Right To Know

Ingredients

Tetrachlorethylene

California Prop 65 Components

WARNING! This product contains a chemical known in the State of California to cause cancer.

Ingredients

Tetrachlorethylene

Notification status

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H351 Suspected of causing cancer.
H411 Toxic to aquatic life with long lasting effects.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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