Safety Data Sheet
PERCHLOROETHYLENE

Version 1.6 Revision Date: 05/24/2022

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : PERCHLOROETHYLENE
CAS Name : 127-18-4

Recommended use of the chemical and restrictions on use

Recommended use : Refrigerant
Metal cleaner

Manufacturer or supplier's details

Company : Univar Solutions USA, Inc.
Address 3075 Highland Pkwy Suite 200
Downers Grove, IL 60515
United States of America (USA)

Emergency telephone number:
Transport North America: CHEMTREC (1-800-424-9300)
CHEMTREC INTERNATIONAL Tel # 703-527-3887

Additional Information: : Responsible Party: Product Compliance Department
E-mail: SDSNA@univarsolutions.com
SDS Requests: 1-855-429-2661
Website: www.univarsolutions.com

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Inhalation)	:	Category 4
Skin irritation	:	Category 2
Eye irritation	:	Category 2B
Carcinogenicity	:	Category 1B
Specific target organ toxicity - single exposure	:	Category 1 (Central nervous system, Liver, Respiratory system)
Specific target organ toxicity - single exposure	:	Category 3 (Central nervous system)
Specific target organ toxicity - repeated exposure	:	Category 2 (Liver, Kidney, Central nervous system, Respiratory system)

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H315 + H320 Causes skin and eye irritation.
H332 Harmful if inhaled.
H336 May cause drowsiness or dizziness.
H350 May cause cancer.
H370 Causes damage to organs.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307 + P311 IF exposed: Call a POISON CENTER or doctor/ physician.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
Storage:
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

CAS-No.	Chemical name	Weight percent
127-18-4	Tetrachloroethylene	90 - 100
56-23-5	Carbon tetrachloride	0.1 - 1

Actual concentration is withheld as a trade secret

Any Concentration shown as a range is due to batch variation.

Molecular formula	:	C2-Cl4
Synonyms	:	Ethylene tetrachloride, Perchloroethylene, Tetrachlorethylene, 1,1,2,2-Tetrachloroethylene**,**

SECTION 4. FIRST AID MEASURES

General advice	:	Move out of dangerous area. Show this safety data sheet to the doctor in attendance. Do not leave the victim unattended.
If inhaled	:	Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.
In case of skin contact	:	If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.
In case of eye contact	:	Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Do not induce vomiting without medical advice. Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use an extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire-fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Carbon oxides Chlorine compounds
Specific extinguishing methods	:	Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Further information	:	Collect contaminated fire extinguishing water separately. This

must not be discharged into drains.

Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling	:	Avoid formation of aerosol. Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

CAS-No.	Components	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
127-18-4	Tetrachloroethylene	TWA	25 ppm	ACGIH
		STEL	100 ppm	ACGIH
		TWA	100 ppm	OSHA Z-2
		CEIL	200 ppm	OSHA Z-2
		Peak	300 ppm	OSHA Z-2
		TWA	25 ppm 170 mg/m3	OSHA P0
56-23-5	Carbon tetrachloride	TWA	5 ppm	ACGIH
		STEL	10 ppm	ACGIH
		ST	2 ppm 12.6 mg/m3	NIOSH REL
		TWA	10 ppm	OSHA Z-2
		CEIL	25 ppm	OSHA Z-2
		Peak	200 ppm	OSHA Z-2
		TWA	2 ppm 12.6 mg/m3	OSHA P0

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.
In the case of vapour formation use a respirator with an approved filter.

Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Colour	:	Clear, Colorless
Odour	:	mild, sweet
Odour Threshold	:	50 ppm
pH	:	No data available
Freezing Point (Freezing Point)	:	-19 °C (-2 °F)
Boiling Point (Boiling point/boiling range)	:	121 °C (250 °F)
Flash point	:	not determined
Evaporation rate	:	0.1
Flammability (solid, gas)	:	No data available
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	13 mmHg @ 20 °C (68 °F)
Relative vapour density	:	5.8 @ 20 - 25 °C (68 - 77 °F) (Air = 1.0)
Relative density	:	1.62 @ 25 °C (77 °F) Reference substance: (water = 1)
Density	:	No data available
Solubility(ies) Water solubility	:	insoluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	log Pow: 2.88
Auto-ignition temperature	:	No data available
Thermal decomposition	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.

Possibility of hazardous reactions	:	No hazards to be specially mentioned.
Conditions to avoid	:	Keep away from heat, flame, sparks and other ignition sources.
Incompatible materials	:	Acids Aluminium Bases Oxygen Peroxides
Hazardous decomposition products	:	hydrogen chloride Chlorine Phosgene Carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity	:	Acute toxicity estimate: 3,271 mg/kg
Acute inhalation toxicity	:	Assessment: The component/mixture is moderately toxic after short term inhalation.
Acute dermal toxicity	:	Acute toxicity estimate: > 5,000 mg/kg

Components:

56-23-5:

Acute oral toxicity	:	LD50 (Rat): 50 mg/kg Assessment: The component/mixture is toxic after single ingestion.
Acute inhalation toxicity	:	(Rat): 8 mg/l Assessment: The component/mixture is toxic after short term inhalation.
Acute dermal toxicity	:	Assessment: The component/mixture is toxic after single contact with skin.

Skin corrosion/irritation

Components:

127-18-4:
Species: Rabbit
Exposure time: 4 h
Result: Irritating to skin.

56-23-5:
Species: Rabbit
Result: Irritating to skin.

Serious eye damage/eye irritation

Components:

127-18-4:
Species: Rabbit
Result: Irritating to eyes.

56-23-5:
Species: Rabbit
Result: Irritating to eyes.

Respiratory or skin sensitisation

Components:

127-18-4:
Test Type: lymph node assay
Species: Mouse
Result: The product is a skin sensitiser, sub-category 1B.

Germ cell mutagenicity

Components:

56-23-5:

Genotoxicity in vitro	:	Test Type: Ames test Species: Salmonella typhimurium Result: negative
Genotoxicity in vivo	:	Test Type: In vivo micronucleus test Species: Mouse Result: negative
Germ cell mutagenicity - Assessment	:	Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity

Components:

127-18-4:
Species: Mouse, (male and female)
Application Route: inhalation (vapour)
Exposure time: 103 wks
Dose: 0, 100, 200 ppm
Frequency of Treatment: 6 h/d, 5 d/wk
LOAEL: 100 ppm

Result: evidence of carcinogenic activity
Symptoms: increase incidence of hepatocellular carcinomas

Carcinogenicity - Assessment	:	Suspected human carcinogens

56-23-5:
Species: Mouse
NOAEL: 9.9 mg/kg bw/day

Carcinogenicity - Assessment	:	Suspected human carcinogens

IARC	Group 2A: Probably carcinogenic to humans	
	127-18-4	Tetrachloroethylene
	Group 2B: Possibly carcinogenic to humans	
	56-23-5	Carbon tetrachloride
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.	
NTP	Reasonably anticipated to be a human carcinogen	
	127-18-4	Tetrachloroethylene
	56-23-5	Carbon tetrachloride

Reproductive toxicity

Components:
56-23-5:

Effects on foetal development	:	Species: Rat Embryo-foetal toxicity: Lowest observed adverse effect level: 112.5 mg/kg body weight

Teratogenicity - Assessment	:	teratogenicity classification is not possible

STOT - single exposure

Product:
Target Organs: Central nervous system, Liver, Respiratory system
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.

Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

Components:
127-18-4:
Target Organs: Central nervous system

Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

56-23-5:
Exposure routes: Inhalation
Target Organs: Central nervous system
Assessment: May cause drowsiness or dizziness., The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

STOT - repeated exposure

Product:

Target Organs: Liver, Kidney, Central nervous system, Respiratory system
Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

Components:

56-23-5:
Exposure routes: Inhalation
Target Organs: Kidney, Liver
Assessment: Causes damage to organs through prolonged or repeated exposure., The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

Further information

Product:

Remarks: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Concentrations substantially above the TLV value may cause narcotic effects.
Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

127-18-4:

Toxicity to fish	:	LC50 (Limanda limanda (Marlin)): 5 mg/l Exposure time: 96 h Test Type: flow-through test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 8.5 mg/l Exposure time: 48 h Test Type: static test
Toxicity to algae	:	EC50 (Chlamydomonas reinhardtii): 3.64 mg/l End point: Growth rate Exposure time: 72 h Test Type: Closed system

Acute aquatic toxicity- Assessment	:	Toxic to aquatic life.
Chronic aquatic toxicity- Assessment	:	Toxic to aquatic life with long lasting effects.

56-23-5:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): 24.3 mg/l Exposure time: 4 d Test Type: flow-through test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 770 mg/l Exposure time: 24 h Test Type: static test
Toxicity to algae	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 20 mg/l Exposure time: 72 h Test Type: static test
Chronic aquatic toxicity- Assessment	:	Harmful to aquatic life with long lasting effects.

Persistence and degradability

Components:

56-23-5:

Biodegradability	:	anaerobic Result: Readily biodegradable. Remarks: Readily biodegradable

Bioaccumulative potential

Components:

56-23-5:

Partition coefficient: n-octanol/water	:	log Pow: 2.83 (25 °C) pH: 7

Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
Additional ecological information	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life with long lasting effects.

Components:

56-23-5:

Ozone-Depletion Potential	:	1.1 Regulation: UNEP - Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer (Update: 2009-10-01) Group: Annex B - Group II: Carbon tetrachloride 1.1 Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances (Update: 2007-07-01) Group: Group IV
Additional ecological information	:	Dangerous for the ozone layer.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Dispose of in accordance with all applicable local, state and federal regulations. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Univar Solutions ChemCare: 1-800-637-7922
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

DOT (Department of Transportation):
UN1897, TETRACHLOROETHYLENE, 6.1, III , Marine Pollutant (TETRACHLOROETHYLENE)

IATA (International Air Transport Association):
UN1897, TETRACHLOROETHYLENE, 6.1, III

IMDG (International Maritime Dangerous Goods):
UN1897, TETRACHLOROETHYLENE, 6.1, III, Marine Pollutant (TETRACHLOROETHYLENE)

SECTION 15. REGULATORY INFORMATION

WHMIS Classification	:	D2A: Very Toxic Material Causing Other Toxic Effects D2B: Toxic Material Causing Other Toxic Effects

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Tetrachloroethylene	127-18-4	100	100
Carbon tetrachloride	56-23-5	10	2222

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Carcinogenicity
Specific target organ toxicity (single or repeated exposure)

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

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

127-18-4 Tetrachloroethylene
56-23-5 Carbon tetrachloride

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

127-18-4 Tetrachloroethylene

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

127-18-4 Tetrachloroethylene

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

56-23-5 Carbon tetrachloride

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

56-23-5 Carbon tetrachloride

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

Massachusetts Right To Know

127-18-4 Tetrachloroethylene
56-23-5 Carbon tetrachloride

Pennsylvania Right To Know

127-18-4 Tetrachloroethylene
56-23-5 Carbon tetrachloride

California Prop 65

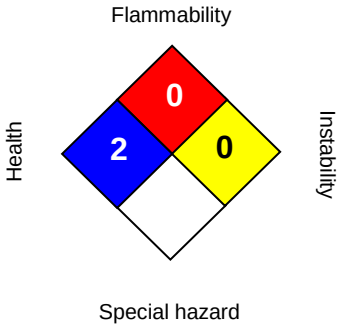
⚠ **WARNING**: This product can expose you to chemicals including Tetrachloroethylene, Carbon tetrachloride, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

TSCA	:	On TSCA Inventory
DSL	:	All components of this product are on the Canadian DSL

SECTION16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	2*
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 =Extreme, * = Chronic

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Univar Solutions Product Compliance Department (1-855-429-2661) SDSNA@univarsolutions.com.

Revision Date : 05/24/2022

Legacy SDS: : R0001042

Material number:
16144331, 16185668, 16175660, 16177884, 16175659, 16174970, 16174969, 16174619, 16176846, 16175873, 16175486, 16175385, 16175315, 16176347, 16168693, 16146630, 16162198, 16144477, 16159250, 16142203, 16143705, 16143706, 16145774, 16143704, 16144042, 16144043, 16148628, 16141544, 16141824, 16140256, 16141887, 16062193, 16056596, 16009752, 637625, 554102, 554349, 547485, 54914, 72995, 104807, 87675, 104196, 56039, 71265, 505397, 503744, 503743, 501951, 501344, 20233, 20232, 20231

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%

AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		