

SAFETY DATA SHEET

Date of issue/Date of revision : 26 October 2013



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

1.1 Product identifier

Product name : TRI119 - Trichloroethylene Fluorocarbon
Product code : 01552
Index number : 602-027-00-9
EC number : 201-167-4
CAS number : 79-01-6
Product description : Solvent
Other means of identification : Trichloroethene; Trichlorethylene; Trichlor; C₂HCl₃

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

Identified uses	
Solvent. Metal degreaser.	
Uses advised against	Reason
None identified.	

Product use : Industrial applications.

1.3 Details of the supplier of the safety data sheet

Axiall, LLC
115 Perimeter Center Place
Suite 460
Atlanta, GA 30346
USA

Intertek France
12 Rue Alfred Kastler
71530 Fragnes
France
Phone: 33 (0) 385 99 1274
Fax : 33 385 99 1288
Attn : Christian Gimenez
Email : christian.gimenez@intertek.com

e-mail address of person responsible for this SDS : msdsinfo@axiall.com

1.4 Emergency telephone number

Supplier

Telephone number :
+1 304-455-6882

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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mono-constituent substance

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Skin Irrit. 2, H315

Eye Irrit. 2, H319

Muta. 2, H341

Carc. 1B, H350

STOT SE 3, H336 (Narcotic effects)

Aquatic Chronic 3, H412

Classification according to Directive 67/548/EEC [DSD]

Carc. Cat. 2; R45

Muta. Cat. 3; R68

Xi; R36/38

R67

R52/53

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : Causes serious eye irritation.
Causes skin irritation.
May cause cancer.
Suspected of causing genetic defects.
May cause drowsiness or dizziness.
Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention : Wear protective gloves. Wear eye or face protection. Avoid breathing vapour.

Response : IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes.

Storage : Store locked up.

Disposal : Not applicable.

Supplemental label elements : Not applicable.

Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII : Not available.

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SECTION 2: Hazards identification

- Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : Not available.
- Other hazards which do not result in classification : Aspiration hazard if swallowed. Can enter lungs and cause damage.
 Prolonged or repeated contact may dry skin and cause irritation.
 Do not ship lightly stabilized grades in aluminum trailers.

SECTION 3: Composition/information on ingredients

Substance/mixture : Mono-constituent substance

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
trichloroethylene	EC: 201-167-4 CAS: 79-01-6 Index: 602-027-00-9	> 99	Carc. Cat. 2; R45 Muta. Cat. 3; R68 Xi; R36/38 R67 R52/53 See Section 16 for the full text of the R-phrases declared above.	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Muta. 2, H341 Carc. 1B, H350 STOT SE 3, H336 (Narcotic effects) Aquatic Chronic 3, H412 See Section 16 for the full text of the H statements declared above.	[A]

(stabilised)

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

- [A] Constituent
- [B] Impurity
- [C] Stabilising additive

Occupational exposure limits, if available, are listed in Section 8.

SUB codes represent substances without registered CAS Numbers.

SECTION 4: First aid measures

4.1 Description of first aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.
- Inhalation** : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Seek medical attention.
- Skin contact** : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Seek medical attention if irritation persists.

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SECTION 4: First aid measures

- Ingestion** : If swallowed, seek medical advice immediately and show the container or label. Keep person warm and at rest. Do NOT induce vomiting.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : May be harmful if inhaled. Irritating to respiratory system. Can irritate eyes, nose, mouth and throat. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Causes skin irritation. Defatting to the skin.
- Ingestion** : May be harmful if swallowed. Can cause central nervous system (CNS) depression. Aspiration hazard if swallowed. Can enter lungs and cause damage. Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
irritation
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
death
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
dryness
cracking
- Ingestion** : Adverse symptoms may include the following:
irritation
nausea or vomiting
headache
dizziness/vertigo
unconsciousness
Aspiration hazard if swallowed.
pulmonary oedema
chemical pneumonitis

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : Only administer adrenaline after careful consideration following overexposure. Increased sensitivity of the heart to adrenaline may be caused by overexposure to this product. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

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SECTION 4: First aid measures

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : Emits toxic fumes under fire conditions. Vapours are heavier than air and may spread along floors. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Vapor concentration in a confined or poorly ventilated area can be ignited upon contact with a high energy spark, flame, or high intensity source of heat. This can occur at concentrations ranging between the upper and lower explosion limits (by volume). In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products : Depending on conditions, decomposition products may include the following materials:
carbon dioxide
carbon monoxide
carbonyl halides

When this product is involved in fires, it can decompose to hydrogen chloride and possible traces of phosgene.

5.3 Advice for firefighters

Special precautions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Stay upwind/keep distance from source. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

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SECTION 6: Accidental release measures

6.2 Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. Toxic to aquatic life with long lasting effects. Dyke spill area and do not allow product to reach sewage system or surface or ground water. Notify any reportable spill to authorities. (See section 12 for environmental risks and 13 for disposal information.)

Avoid contamination of water supplies. Handling, storage and use procedures must be carefully monitored to avoid spills or leaks. Any spill or leak has the potential to cause underground water contamination which may, if sufficiently severe, render a drinking water source unfit for human consumption. Contamination that does occur cannot be easily corrected. If area of spill is porous, remove as much earth and gravel, etc. as necessary and place in closed containers for disposal.

6.3 Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Eliminate all ignition sources. Move containers from spill area. Absorb spill with inert material (e.g. dry sand or earth) and place in a chemical waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Eliminate all ignition sources. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Avoid exposure - obtain special instructions before use. Do not get in eyes or on skin or clothing. Do not swallow. Do not breathe vapour or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. Vapours are heavier than air and may spread along floors. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

This material or its vapors when in contact with flames, hot glowing surfaces or electric arcs can decompose to form hydrogen chloride gas and possible traces of

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SECTION 7: Handling and storage

phosgene. Do not use cutting or welding torches on drums that contained this product unless properly purged and cleaned. Do not ship lightly stabilized grades in aluminum trailers.

Advice on general occupational hygiene

: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

: Do not store above the following temperature: 35°C (95°F). Do not store or stack aluminum in contact with this product to prevent possible solvent decomposition (stacking corrosion). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Keep away from incompatible materials. Liquid oxygen or other strong oxidants may form explosive mixtures with this product. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations : Metal degreaser. Solvent. Chemical reagent. Catalyst.

Industrial sector specific solutions : Chemical synthesis. Manufacture of air and spacecraft and related machinery

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
trichloroethylene	EH40/2005 WELs (United Kingdom (UK), 12/2011). Absorbed through skin. STEL: 150 ppm 15 minutes. TWA: 100 ppm 8 hours. TWA: 550 mg/m ³ 8 hours. STEL: 820 mg/m ³ 15 minutes.

Product/ingredient name

Exposure limit values

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs

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SECTION 8: Exposure controls/personal protection

DNELs - Not available.

PNECs

PNECs - Not available.

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Chemical splash goggles.

Skin protection

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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Gloves : Impervious gloves. Viton®. Silver Shield® gloves. Polyvinyl alcohol (degrades in water).

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : 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. If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	: Liquid.
Colour	: Colourless.
Odour	: Ethereal.
Odour threshold	: Not available.
pH	: 6 to 7.4
Melting point/freezing point	: -86.4°C
Initial boiling point and boiling range	: 86.4 to 87.5°C
Flash point	: None (by DOT test method).
Evaporation rate	: 0.28 (ether (anhydrous) = 1)
Material supports combustion.	: Yes.
Flammability (solid, gas)	: Not available.
Upper/lower flammability or explosive limits	: Lower: 7.8% Upper: 52%
Vapour pressure	: 7.7 kPa (57.8 mm Hg) (at 20°C)
Vapour density	: Highest known value: 4.5 (Air = 1) (trichloroethylene).
Relative density	: 1.46 to 1.47 [at 20°C]
Solubility(ies)	: 0.11 % at 20°C
Water Solubility at room temperature	: 0.11 g/l
Partition coefficient: n-octanol/ water	: 2.42
Auto-ignition temperature	: 420°C
Decomposition temperature	: Not available.
Viscosity	: 0.55 cP @ 25°C
Explosive properties	: Not available.
Oxidising properties	: Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity : May react vigorously with sodium hydroxide. and strong alkalis. Shock sensitive compounds may be formed.

10.2 Chemical stability : Stable under recommended storage and handling conditions (see Section 7).

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.
Under normal conditions of storage and use, hazardous polymerisation will not occur.

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SECTION 10: Stability and reactivity

- 10.4 Conditions to avoid** : Keep away from ignition sources such as heat/sparks/open flame. - No smoking. When exposed to high temperatures may produce hazardous decomposition products.
- When this product is involved in fires, it can decompose to hydrogen chloride and possible traces of phosgene.
- Refer to protective measures listed in sections 7 and 8.
- 10.5 Incompatible materials** : Keep away from the following materials to prevent strong exothermic reactions: oxidising agents, strong alkalis, strong acids. Avoid contamination with caustic soda, caustic potash or oxidizing materials. Shock sensitive compounds may be formed.
- 10.6 Hazardous decomposition products** : Depending on conditions, decomposition products may include the following materials: carbon monoxide, carbon dioxide, Hydrogen chloride (HCl). Phosgene gas.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
trichloroethylene	LC50 Inhalation Vapour	Rat	140700 mg/m ³	1 hours
	LD50 Dermal	Rabbit	>20 g/kg	-
	LD50 Oral	Rat	4920 mg/kg	-

Conclusion/Summary : May be harmful if swallowed or if inhaled. Aspiration hazard if swallowed. Can enter lungs and cause damage. Can cause central nervous system (CNS) depression.

Irritation/Corrosion

Conclusion/Summary

- Skin** : Causes skin irritation.
- Eyes** : Causes serious eye irritation.
- Respiratory** : Irritating to respiratory system.

Sensitiser

Conclusion/Summary

- Skin** : In a guinea pig maximization test, trichloroethylene was shown to produce skin sensitization. However, there is no evidence that trichloroethylene is a human skin sensitizer as sensitization has not been observed in workers in the occupational environment with many years of use.

Mutagenicity

Conclusion/Summary

- : When activated with microsomal enzymes, trichloroethylene has been shown to be weakly positive in certain microbial mutagen test systems.

Carcinogenicity

Conclusion/Summary

- : Chronic exposure to trichloroethylene primarily produced renal toxicity and tumors in rats and liver and lung tumors in mice, with some reports of tumors at other sites.

Extensive epidemiologic cohort studies of Trichloroethylene-exposed workers do not indicate significant increases in cancer incidence, but case-control studies suggest that prolonged exposure to high concentrations of Trichloroethylene can increase the incidence of renal cancer.

Reproductive toxicity

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SECTION 11: Toxicological information

Conclusion/Summary : Trichloroethylene has not been shown to produce female reproductive toxicity. Damage to the epididymis and sperm integrity has been observed in male mice exposed to high levels of trichloroethylene (≥ 1000 ppm); however, there is very limited evidence existing for any male reproductive effect in rats or humans.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
trichloroethylene	Category 3	Not applicable.	Narcotic effects

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Inhalation. Skin contact. Eye contact. Ingestion.

Potential acute health effects

Inhalation : May be harmful if inhaled. Irritating to respiratory system. Can irritate eyes, nose, mouth and throat. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion : May be harmful if swallowed. Can cause central nervous system (CNS) depression. Aspiration hazard if swallowed. Can enter lungs and cause damage. Irritating to mouth, throat and stomach.

Skin contact : Causes skin irritation. Defatting to the skin.

Eye contact : Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation : Adverse symptoms may include the following:
irritation
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
death

Ingestion : Adverse symptoms may include the following:
irritation
nausea or vomiting
headache
dizziness/vertigo
unconsciousness
Aspiration hazard if swallowed.
pulmonary oedema
chemical pneumonitis

Skin contact : Adverse symptoms may include the following:
irritation
redness
dryness
cracking

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SECTION 11: Toxicological information

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Inhalation: dizziness/vertigo; unconsciousness; respiratory tract irritation; and/or central nervous system depression.

Potential delayed effects : Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage.

Long term exposure

Potential immediate effects : Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Repeated or prolonged exposure to the substance can produce liver damage. Repeated or prolonged exposure to the substance can produce kidney damage.

Potential delayed effects : Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Repeated or prolonged exposure to the substance can produce liver damage. Repeated or prolonged exposure to the substance can produce kidney damage.

Potential chronic health effects

Not available.

Conclusion/Summary : Prolonged exposure may result in liver and kidney damage as well as immunological effects. One immunological effect that has been reported in several studies linked occupational trichloroethylene exposure to a rare but severe immunological skin disorder and accompanying hepatitis (such as Stevens-Johnson syndrome) especially in people of Asian descent. The clinical features associated with these disorders include generalized severe dermatitis and shedding of the skin, fever, abnormal liver function, jaundice, and sometimes death due to liver failure and infection. The science involved in the understanding of this association between exposure to trichloroethylene and these severe immunological skin disorders is ongoing. Loss of auditory function (hearing loss) has also been observed in laboratory animals at high trichloroethylene exposure concentrations (≥ 2000 ppm). Prudent handling practices should be followed to minimize human exposure.

General : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Carcinogenicity : Can cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : Suspected of causing genetic defects.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Other information : Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage.

Exposure to component solvent vapour concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness.

Solvents may cause some of the above effects by absorption through the skin. Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin.

If splashed in the eyes, the liquid may cause irritation and reversible damage.

Ingestion may cause nausea, diarrhea and vomiting.

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SECTION 11: Toxicological information

This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
trichloroethylene	Acute EC50 36.5 mg/l Fresh water	Algae - Chlamydomonas reinhardtii - Exponential growth phase	72 hours
	Acute EC50 390000 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute LC50 30000 µg/l Fresh water	Crustaceans - Asellus aquaticus	48 hours
	Acute LC50 39000 µg/l Fresh water	Daphnia - Daphnia pulex	48 hours
	Acute LC50 3100 µg/l Fresh water	Fish - Jordanella floridae - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Chronic NOEC 2200 µg/l Fresh water	Daphnia - Daphnia magna	48 hours

Conclusion/Summary : Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

12.2 Persistence and degradability

Conclusion/Summary : According to EC criteria: Not expected to be readily biodegradable

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
trichloroethylene	-	50%; 7 day(s)	Not readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
trichloroethylene	2.42	The BCF for Trichloroethylene (79-01-6) ranged from 4.3, 17, 39 and up to 302, in carp, bluegill sunfish, rainbow trout, and green algae respectively.	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : 72 to 180

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not available.
 P: Not available. B: Not available. T: Yes.

vPvB : Not available.
 vP: Not available. vB: Not available.

12.6 Other adverse effects : Do not allow to enter drains or watercourses.

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SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.

Hazardous waste : Yes.

European waste catalogue (EWC)

Waste code	Waste designation
07 01 00	wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Type of packaging	European waste catalogue (EWC)
Container	15 01 04 15 01 10* metallic packaging packaging containing residues of or contaminated by dangerous substances

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Do not use cutting or welding torches on drums that contained this product unless properly purged and cleaned. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	1710	1710	1710	1710
14.2 UN proper shipping name	TRICHLOROETHYLENE	TRICHLOROETHYLENE	TRICHLOROETHYLENE	TRICHLOROETHYLENE
14.3 Transport hazard class(es)	6.1	6.1	6.1	6.1
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	No.	No.	No.	No.
14.6 Special precautions for user	Do not ship lightly stabilized grades in aluminum trailers.	Do not ship lightly stabilized grades in aluminum trailers.	Do not ship lightly stabilized grades in aluminum trailers.	Do not ship lightly stabilized grades in aluminum trailers.

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SECTION 14: Transport information

Additional information

ADR Viscosity Remarks : Not available.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

Ingredient name	Intrinsic property	Status	Reference number	Date of revision
Trichloroethylene	Carcinogen	Listed	2011674	4/20/2013

Substances of very high concern

Ingredient name	Intrinsic property	Status	Reference number	Date of revision
Trichloroethylene	Carcinogen	Candidate	ED/30/2010	6/18/2010

Annex XVII - Restrictions : Restricted to professional users.
 on the manufacture,
 placing on the market
 and use of certain
 dangerous substances,
 mixtures and articles

Other EU regulations

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
trichloroethylene	Carc. 1B, H350	Muta. 2, H341	-	-

Product/ingredient name	List name	Name on list	Classification	Notes
trichloroethylene	UK Occupational Exposure Limits EH40 - WEL	trichloroethylene; trichloroethene	Carc.	-

15.2 Chemical Safety Assessment : No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

☑ Indicates information that has changed from previously issued version.

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SECTION 16: Other information

- Abbreviations and acronyms** : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
- Full text of abbreviated H statements** : H315 Causes skin irritation.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness. (Narcotic effects)
(Narcotic effects)
H341 Suspected of causing genetic defects.
H350 May cause cancer.
H412 Harmful to aquatic life with long lasting effects.
- Full text of classifications [CLP/GHS]** : Aquatic Chronic 3, H412 LONG-TERM AQUATIC HAZARD - Category 3
Carc. 1B, H350 CARCINOGENICITY - Category 1B
Eye Irrit. 2, H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Muta. 2, H341 GERM CELL MUTAGENICITY - Category 2
Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2
STOT SE 3, H336 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
(Narcotic effects)
- Full text of abbreviated R phrases** : R45- May cause cancer.
R68- Possible risk of irreversible effects.
R36/38- Irritating to eyes and skin.
R67- Vapours may cause drowsiness and dizziness.
R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- Full text of classifications [DSD/DPD]** : Carc. Cat. 2 - Carcinogen category 2
Muta. Cat. 3 - Mutagen category 3
Xi - Irritant
- History**
- Date of issue/ Date of revision** : 26 October 2013
- Date of previous issue** : No previous validation.
- Prepared by** : EHS
- Version** : 1

Disclaimer

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