

SAFETY DATA SHEET

Residual Solvent Revised Method 467 Class 1

Section 1. Identification

GHS product identifier : Residual Solvent Revised Method 467 Class 1
Part no. : 5190-0490

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

Identified uses : Reagents and Standards for Analytical Chemistry Laboratory Use
 1 x 1 ml

Carbon tetrachloride
 56-23-5

After June 16, 2025, this chemical substance (as defined in TSCA section 3(2)) may not be distributed in commerce or processed in greater than trace quantities for the following purposes: Incorporation into formulation, mixture or reaction products in petrochemical-derived manufacturing except in the manufacture of vinyl chloride; Industrial and commercial use as an industrial processing aid in the manufacture of petrochemicals-derived products except in the manufacture of vinyl chloride; Industrial and commercial use in the manufacture of other basic chemicals (including manufacturing of chlorinated compounds used in solvents, adhesives, asphalt, and paints and coatings), except for use in the elimination of nitrogen trichloride in the production of chlorine and caustic soda and the recovery of chlorine in tail gas from the production of chlorine; Industrial and commercial use in metal recovery; Industrial and commercial use as an additive; and beginning December 18, 2025, industrial and commercial specialty uses by the U.S. Department of Defense.

Supplier/Manufacturer : Agilent Technologies, Inc.
 5301 Stevens Creek Blvd
 Santa Clara, CA 95051, USA
 800-227-9770

Emergency telephone number (with hours of operation) : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

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

Classification of the substance or mixture

H332 ACUTE TOXICITY (inhalation) - Category 4
 H340 GERM CELL MUTAGENICITY - Category 1
 H350 CARCINOGENICITY - Category 1A
 H372 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
 H420 HAZARDOUS TO THE OZONE LAYER - Category 1

Ingredients of unknown toxicity : Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 1 - 10%

GHS label elements

Hazard pictograms :



Signal word : Danger

Section 2. Hazards identification

Hazard statements	: H332 - Harmful if inhaled. H340 - May cause genetic defects. H350 - May cause cancer. H372 - Causes damage to organs through prolonged or repeated exposure. (kidneys, liver, nose/sinuses) H420 - Harms public health and the environment by destroying ozone in the upper atmosphere.
Precautionary statements	
Prevention	: P201 - Obtain special instructions before use. P280 - Wear protective gloves, protective clothing and eye or face protection. P260 - Do not breathe vapor. P270 - Do not eat, drink or smoke when using this product.
Response	: P308 + P313 - IF exposed or concerned: Get medical advice or attention. P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
Storage	: Not applicable.
Disposal	: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. P502 - Refer to manufacturer or supplier for information on recovery or recycling.
Supplemental label elements	: Avoid contact with skin and clothing. Wash thoroughly after handling.
Other hazards	
Hazards not otherwise classified	: Prolonged or repeated contact may dry skin and cause irritation.
Hazards identified when used	: No known significant effects or critical hazards.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	Synonyms	%	Identifiers
1,1,1-Trichloroethane	1,1,1-Trichloroethane	≥1 - ≤5	CAS: 71-55-6
1,1-Dichloroethylene	1,1-Dichloroethene	≥1 - ≤5	CAS: 75-35-4
1,2-Dichloroethane	1,2-Dichloroethane	≥1 - ≤5	CAS: 107-06-2
Carbon tetrachloride	Tetrachloromethane	≥1 - ≤5	CAS: 56-23-5
benzene	Benzene	≥0.1 - ≤1	CAS: 71-43-2

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

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

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
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Section 4. First aid measures

- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. 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.
- Skin contact** : Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : Harmful if inhaled.
- Skin contact** : Defatting to the skin. May cause skin dryness and irritation.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:
irritation
dryness
cracking
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : 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.
- Specific treatments** : No specific treatment.
- 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. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
sulfur oxides
halogenated compounds
carbonyl halides

Special protective actions 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.

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.

Remark : May be combustible at high temperature.

Section 6. Accidental release measures

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. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor. Put on appropriate personal protective equipment. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate.

For emergency responders : If specialized 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".

Environmental precautions : Avoid dispersal of spilled 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). May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

Methods for cleaning up : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Refer to special instructions/safety data sheet. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty

Section 7. Handling and storage

Advice on general occupational hygiene

containers retain product residue and can be hazardous. Do not reuse container.

: 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.

Conditions for safe storage, including any incompatibilities

: 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
1,1,1-Trichloroethane	<p>NIOSH REL (United States, 10/2020) CEIL 15 minutes: 350 ppm. CEIL 15 minutes: 1900 mg/m³.</p> <p>CAL OSHA PEL (United States, 1/2025) STEL 15 minutes: 2450 mg/m³. STEL 15 minutes: 450 ppm. C: 800 ppm. TWA 8 hours: 1900 mg/m³. TWA 8 hours: 350 ppm.</p> <p>OSHA PEL (United States, 5/2018) TWA 8 hours: 350 ppm. TWA 8 hours: 1900 mg/m³.</p> <p>OSHA PEL 1989 (United States, 3/1989) TWA 8 hours: 350 ppm. TWA 8 hours: 1900 mg/m³. STEL 15 minutes: 450 ppm. STEL 15 minutes: 2450 mg/m³.</p> <p>ACGIH TLV (United States, 1/2025) A4. TWA 8 hours: 350 ppm. TWA 8 hours: 1910 mg/m³. STEL 15 minutes: 450 ppm. STEL 15 minutes: 2460 mg/m³.</p>
1,1-Dichloroethylene	<p>NIOSH REL (United States, 10/2020) NIA.</p> <p>CAL OSHA PEL (United States, 1/2025) TWA 8 hours: 4 mg/m³. TWA 8 hours: 1 ppm.</p> <p>OSHA PEL 1989 (United States, 3/1989) TWA 8 hours: 1 ppm. TWA 8 hours: 4 mg/m³.</p> <p>ACGIH TLV (United States, 1/2025) A4. TWA 8 hours: 5 ppm.</p>
1,2-Dichloroethane	<p>NIOSH REL (United States, 10/2020) NIA. TWA 10 hours: 1 ppm. TWA 10 hours: 4 mg/m³. STEL 15 minutes: 2 ppm. STEL 15 minutes: 8 mg/m³.</p>

Section 8. Exposure controls/personal protection

Carbon tetrachloride

OSHA PEL Z2 (United States, 2/2013)

TWA 8 hours: 50 ppm.

CEIL: 100 ppm.

AMP 5 minutes: 200 ppm.

CAL OSHA PEL (United States, 1/2025)STEL 15 minutes: 8 mg/m³.

STEL 15 minutes: 2 ppm.

C: 200 ppm.

TWA 8 hours: 4 mg/m³.

TWA 8 hours: 1 ppm.

OSHA PEL 1989 (United States, 3/1989)

TWA 8 hours: 1 ppm.

TWA 8 hours: 4 mg/m³.

STEL 15 minutes: 2 ppm.

STEL 15 minutes: 8 mg/m³.**ACGIH TLV (United States, 1/2025) A4.**

TWA 8 hours: 10 ppm.

TWA 8 hours: 40 mg/m³.**NIOSH REL (United States, 10/2020) NIA.**

STEL 60 minutes: 2 ppm.

STEL 60 minutes: 12.6 mg/m³.**OSHA PEL Z2 (United States, 2/2013)**

TWA 8 hours: 10 ppm.

CEIL: 25 ppm.

AMP 5 minutes: 200 ppm.

CAL OSHA PEL (United States, 1/2025)

Absorbed through skin.

STEL 15 minutes: 63 mg/m³.

STEL 15 minutes: 10 ppm.

C: 200 ppm.

TWA 8 hours: 12.6 mg/m³.

TWA 8 hours: 2 ppm.

OSHA PEL 1989 (United States, 3/1989)

TWA 8 hours: 2 ppm.

TWA 8 hours: 12.6 mg/m³.**ACGIH TLV (United States, 1/2025) A2.**

Absorbed through skin.

TWA 8 hours: 5 ppm.

TWA 8 hours: 31 mg/m³.

STEL 15 minutes: 10 ppm.

STEL 15 minutes: 63 mg/m³.

benzene

NIOSH REL (United States, 10/2020) NIA.

TWA 10 hours: 0.1 ppm.

STEL 15 minutes: 1 ppm.

OSHA PEL Z2 (United States, 2/2013)

TWA 8 hours: 10 ppm.

CEIL: 25 ppm.

AMP 10 minutes: 50 ppm.

CAL OSHA PEL (United States, 1/2025)

Absorbed through skin.

STEL 15 minutes: 5 ppm.

TWA 8 hours: 1 ppm.

OSHA PEL (United States, 5/2018)

TWA 8 hours: 1 ppm.

STEL 15 minutes: 5 ppm.

OSHA PEL 1989 (United States, 3/1989)

TWA 8 hours: 1 ppm.

STEL 15 minutes: 5 ppm.

Section 8. Exposure controls/personal protection

ACGIH TLV (United States, 1/2025) A1.
Absorbed through skin.
TWA 8 hours: 0.02 ppm.

Biological exposure indices

Ingredient name	Exposure indices
1,1,1-Trichloroethane	<p>ACGIH BEI (United States, 1/2025) BEI: 20 ppm, methyl chloroform [in end-exhaled air]. Sampling time: prior to shift at end of workweek. BEI: 700 µg/l, methyl chloroform [in urine]. Sampling time: end of shift.</p>
benzene	<p>ACGIH BEI (United States, 1/2025) BEI: 25 µg/g creatinine, S-phenylmercapturic acid [in urine]. Sampling time: end of shift. BEI: 500 µg/g creatinine, t,t-muconic acid [in urine]. Sampling time: end of shift.</p>

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.

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.

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 : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

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.

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 : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state	: Liquid.				
Color	: Colorless.				
Odor	: Not available.				
Odor threshold	: Not available.				
pH	: Not available.				
Melting point/freezing point	: 18.4°C (65.1°F)				
Boiling point or initial boiling point and boiling range	: 189°C (372.2°F)				
Flash point	: Closed cup: 95°C (203°F)				
Evaporation rate	: Not available.				
Flammability	: Not applicable.				
Lower and upper explosion limit/flammability limit	: Lower: 2.6% Upper: 28.5%				
Vapor pressure	: 0.049 kPa (0.37 mm Hg)				
Relative vapor density	: Not available.				
Relative density	: 1.101				
Density	: 1.101 g/cm ³				
Solubility(ies)	: <table border="1"> <thead> <tr> <th>Media</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>water</td> <td>Soluble</td> </tr> </tbody> </table>	Media	Result	water	Soluble
Media	Result				
water	Soluble				

Miscible with water	: Yes.
Partition coefficient: n-octanol/water	: Not applicable.
Auto-ignition temperature	: 215°C (419°F)
Decomposition temperature	: Not available.
Viscosity	: Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C (104°F)): Not available.

Particle characteristics

Median particle size	: Not applicable.
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Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: No specific data.
Incompatible materials	: May react or be incompatible with oxidizing materials.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name

Result

1,1,1-Trichloroethane	Rat - Oral - LD50	9600 mg/kg
	Rat - Inhalation - LC50 Vapor	17000 ppm [4 hours]
1,1-Dichloroethylene	Rat - Inhalation - LC50 Gas.	6350 ppm [4 hours]
1,2-Dichloroethane	Rat - Oral - LD50	500 mg/kg
	Rabbit - Dermal - LD50	2800 mg/kg
Carbon tetrachloride	Rat - Dermal - LD50	5070 mg/kg
	Rabbit - Dermal - LD50	>20 g/kg
benzene	Rat - Inhalation - LC50 Vapor	8000 ppm [4 hours]
	Rat - Oral - LD50	6400 mg/kg

Conclusion/Summary [Product] : Not available.

Skin corrosion/irritation

Product/ingredient name

Result

1,1,1-Trichloroethane	Rabbit - Skin - Mild irritant	Duration of treatment/ exposure: 288 hours
	Rabbit - Skin - Moderate irritant	Duration of treatment/ exposure: 24 hours
1,2-Dichloroethane	Rabbit - Skin - Mild irritant	Duration of treatment/ exposure: 24 hours
Carbon tetrachloride	Rabbit - Skin - Mild irritant	-
	Rabbit - Skin - Mild irritant	Duration of treatment/ exposure: 24 hours
benzene	Rabbit - Skin - Mild irritant	-
	Rat - Skin - Mild irritant	Duration of treatment/ exposure: 8 hours
	Rabbit - Skin - Mild irritant	Duration of treatment/ exposure: 24 hours
	Rabbit - Skin - Moderate irritant	Duration of treatment/ exposure: 24 hours

Conclusion/Summary [Product] : Repeated exposure may cause skin dryness or cracking.

Ingredient name

Conclusion/Summary

1,1-Dichloroethylene	Repeated exposure may cause skin dryness or cracking.
Carbon tetrachloride	May cause skin irritation.

Serious eye damage/eye irritation

Product/ingredient name

Result

1,1,1-Trichloroethane	Rabbit - Eyes - Mild irritant	-
	Rabbit - Eyes - Severe irritant	Duration of treatment/ exposure: 24 hours
1,2-Dichloroethane	Rabbit - Eyes - Mild irritant	Duration of treatment/ exposure: 24 hours
Carbon tetrachloride	Rabbit - Eyes - Severe irritant	-
	Rabbit - Eyes - Mild irritant	Duration of treatment/ exposure: 24 hours
	Rabbit - Eyes - Mild irritant	Duration of treatment/ exposure: 0.5 minutes
benzene	Rabbit - Eyes - Moderate irritant	-
	Rabbit - Eyes - Severe irritant	-

Section 11. Toxicological information

Conclusion/Summary [Product] : Not available.

Ingredient name

Carbon tetrachloride

Conclusion/Summary

May cause eye irritation.

Respiratory corrosion/irritation

Product/ingredient name

Conclusion/Summary [Product] : Not available.

Respiratory or skin sensitization

Skin

Conclusion/Summary [Product] : May cause sensitization by skin contact.

Respiratory

Conclusion/Summary [Product] : Not available.

Germ cell mutagenicity

Conclusion/Summary [Product] : Not available.

Carcinogenicity

Not available.

Conclusion/Summary [Product] : Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
<input checked="" type="checkbox"/> 1,1,1-Trichloroethane	-	2A	-
1,1-Dichloroethylene	-	2B	-
1,2-Dichloroethane	-	2B	Reasonably anticipated to be a human carcinogen.
Carbon tetrachloride	-	2B	Reasonably anticipated to be a human carcinogen.
benzene	+	1	Known to be a human carcinogen.

Reproductive toxicity

Conclusion/Summary [Product] : Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name

1,2-Dichloroethane

Result

SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

Specific target organ toxicity (repeated exposure)

Product/ingredient name

Result

Section 11. Toxicological information

1,1-Dichloroethylene	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (nose/sinuses) (inhalation) - Category 1
Carbon tetrachloride	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (liver) (oral) - Category 2
benzene	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (kidneys, liver) - Category 1
	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1

Aspiration hazard

Product/ingredient name	Result
benzene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact	: No known significant effects or critical hazards.
Inhalation	: Harmful if inhaled.
Skin contact	: Defatting to the skin. May cause skin dryness and irritation.
Ingestion	: No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: No specific data.
Inhalation	: No specific data.
Skin contact	: Adverse symptoms may include the following: irritation dryness cracking
Ingestion	: No specific data.

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

Short term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Long term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Potential chronic health effects

Conclusion/Summary [Product] : Not available.

General	: Causes damage to organs through prolonged or repeated exposure. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
Carcinogenicity	: May cause cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity	: May cause genetic defects.
Reproductive toxicity	: No known significant effects or critical hazards.

Section 11. Toxicological information

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Residual Solvent Revised Method 467 Class 1	3258.2	16522.0	198276.4	13.7	N/A
1,1,1-Trichloroethane	9600	15800	N/A	11	N/A
1,1-Dichloroethylene	300	N/A	6350	0.5	N/A
1,2-Dichloroethane	500	2800	N/A	N/A	N/A
Carbon tetrachloride	100	300	N/A	3	N/A
benzene	6400	N/A	N/A	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name

Result

1,1,1-Trichloroethane	Acute - EC50 - Fresh water	813 ppm [72 hours]
1,1-Dichloroethylene	Acute - LC50 - Fresh water	11.6 mg/l [48 hours]
	Acute - LC50 - Fresh water	108 mg/l [96 hours]
	Acute - NOEC - Fresh water	29.4 mg/l [48 hours]
	Chronic - EC10	3.94 mg/l [72 hours]
	Acute - EC50	9.12 mg/l [72 hours]
1,2-Dichloroethane	Acute - LC50 - Marine water	110 ppm [48 hours]
	Acute - LC50 - Marine water	113 ppm [96 hours]
	Acute - EC50 - Fresh water	166 ppm [96 hours]
	Chronic - NOEC - Fresh water	100 mg/l [21 days]
	Chronic - EC10 - Marine water	152 mg/l [96 hours]
Carbon tetrachloride	Acute - LC50 - Fresh water	35 mg/l [48 hours]
	Acute - LC50 - Fresh water	10.4 mg/l [96 hours]
	Acute - EC50 - Fresh water	21 ppm [72 hours]
	Acute - NOEC - Fresh water	3.1 mg/l [21 days]
	Acute - NOEC - Fresh water	2.2 mg/l [72 hours]
benzene	Acute - LC50 - Fresh water	5.28 µl/l [96 hours]
	Acute - EC50 - Fresh water	9.23 mg/l [48 hours]
	Chronic - NOEC - Marine water	1.5 to 5.4 µl/l [4 weeks]
	Chronic - NOEC - Fresh water	98 mg/l [21 days]
	Chronic - EC10 - Fresh water	>1360 mg/l [96 hours]
	Acute - EC50 - Fresh water	29 mg/l [72 hours]

Conclusion/Summary : Not available.
[Product]

Persistence and degradability

Conclusion/Summary : Not available.
[Product]

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
1,1,1-Trichloroethane	-	-	Inherent
1,2-Dichloroethane	-	-	Inherent
Carbon tetrachloride	-	-	Inherent
benzene	-	-	Readily

Bioaccumulative potential

Section 12. Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
1,1,1-Trichloroethane	2.49	9 [Flow through system]	Low
1,1-Dichloroethylene	2.13	12.88	Low
1,2-Dichloroethane	1.45	2	Low
Carbon tetrachloride	2.83	49.9 to 75.1 [OECD 305]	Low
benzene	2.13	11	Low

Mobility in soil

Soil/Water partition coefficient : Not available.

Other adverse effects : This product has the potential to cause adverse global warming effects.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized 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. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. 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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Methyl chloroform	71-55-6	Listed	U226
1,1-Dichloroethylene	75-35-4	Listed	U078
Ethylene dichloride	107-06-2	Listed	U077
Carbon tetrachloride	56-23-5	Listed	U211

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

Additional information

Section 14. Transport information

DOT Classification : **Reportable quantity** 624.49 lbs / 283.52 kg [68.027 gal / 257.51 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

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

U.S. Federal regulations : **TSCA 6 final risk management:** Carbon tetrachloride
 Carbon tetrachloride 56-23-5
 After June 16, 2025, this chemical substance (as defined in TSCA section 3(2)) may not be distributed in commerce or processed in greater than trace quantities for the following purposes: Incorporation into formulation, mixture or reaction products in petrochemical-derived manufacturing except in the manufacture of vinyl chloride; Industrial and commercial use as an industrial processing aid in the manufacture of petrochemicals-derived products except in the manufacture of vinyl chloride; Industrial and commercial use in the manufacture of other basic chemicals (including manufacturing of chlorinated compounds used in solvents, adhesives, asphalt, and paints and coatings), except for use in the elimination of nitrogen trichloride in the production of chlorine and caustic soda and the recovery of chlorine in tail gas from the production of chlorine; Industrial and commercial use in metal recovery; Industrial and commercial use as an additive; and beginning December 18, 2025, industrial and commercial specialty uses by the U.S. Department of Defense.

TSCA 8(d) H and S data reporting: benzene
Clean Water Act (CWA) 307: 1,1,1-Trichloroethane; 1,1-Dichloroethylene; 1,2-Dichloroethane; Carbon tetrachloride; benzene
Clean Water Act (CWA) 311: 1,1-Dichloroethylene; 1,2-Dichloroethane; Carbon tetrachloride; benzene
Clean Air Act (CAA) 112 regulated flammable substances: 1,1-Dichloroethylene

TSCA 12(b) - Chemical export notification

Name	One time notification		Annual notification		
	4	5	5(f)	6	7
ethylene dichloride	Listed	Not listed	Not listed	Not listed	Not listed
carbon tetrachloride	Not listed	Not listed	Not listed	Listed	Not listed

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

Section 15. Regulatory information

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : ACUTE TOXICITY (inhalation) - Category 4
GERM CELL MUTAGENICITY - Category 1
CARCINOGENICITY - Category 1A
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
HNOC - Defatting irritant

Composition/information on ingredients

Name	%	Classification
Dimethyl sulfoxide	≥80	FLAMMABLE LIQUIDS - Category 4
1,1,1-Trichloroethane	≥1 - ≤5	ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A CARCINOGENICITY - Category 1B FLAMMABLE LIQUIDS - Category 1
1,1-Dichloroethylene	≥1 - ≤5	ACUTE TOXICITY (oral) - Category 3 ACUTE TOXICITY (inhalation) - Category 1 EYE IRRITATION - Category 2A GERM CELL MUTAGENICITY - Category 2 CARCINOGENICITY - Category 1 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 HNOC - Defatting irritant
1,2-Dichloroethane	≥1 - ≤5	FLAMMABLE LIQUIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A CARCINOGENICITY - Category 1B SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 HNOC - Defatting irritant
Carbon tetrachloride	≥1 - ≤5	ACUTE TOXICITY (oral) - Category 3 ACUTE TOXICITY (dermal) - Category 3 ACUTE TOXICITY (inhalation) - Category 3 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
benzene	≥0.1 - ≤1	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A GERM CELL MUTAGENICITY - Category 1B CARCINOGENICITY - Category 1A SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1 ASPIRATION HAZARD - Category 1 HNOC - Defatting irritant

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	1,1,1-Trichloroethane	71-55-6	≥1 - ≤5
	1,1-Dichloroethylene	75-35-4	≥1 - ≤5
	1,2-Dichloroethane	107-06-2	≥1 - ≤5
	Carbon tetrachloride	56-23-5	≥1 - ≤5
	benzene	71-43-2	≥0.1 - ≤1
Supplier notification	1,1,1-Trichloroethane	71-55-6	≥1 - ≤5
	1,1-Dichloroethylene	75-35-4	≥1 - ≤5
	1,2-Dichloroethane	107-06-2	≥1 - ≤5
	Carbon tetrachloride	56-23-5	≥1 - ≤5
	benzene	71-43-2	≥0.1 - ≤1

Section 15. Regulatory information

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

- Massachusetts** : The following components are listed: 1,1,1-TRICHLOROETHANE; VINYLIDENE CHLORIDE; 1,2-DICHLOROETHANE; CARBON TETRACHLORIDE
- New York** : The following components are listed: Methyl chloroform; 1,1-Dichloroethylene; Ethylene dichloride; Carbon tetrachloride
- New Jersey** : The following components are listed: DIMETHYL SULFOXIDE; METHANE, SULFINYLBI-; METHYL CHLOROFORM; VINYLIDENE CHLORIDE; 1,2-DICHLOROETHANE; CARBON TETRACHLORIDE; BENZENE
- Pennsylvania** : The following components are listed: ETHANE, 1,1,1-TRICHLORO-; ETHENE, 1,1-DICHLORO-; ETHANE, 1,2-DICHLORO-; METHANE, TETRACHLORO-

California Prop. 65

⚠ WARNING: This product can expose you to chemicals including Benzene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. 1,1,1-trichloroethane, Vinylidene chloride, Ethylene dichloride and Carbon tetrachloride, which are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Ingredient name	No significant risk level	Maximum acceptable dosage level
1,1,1-trichloroethane	-	-
Vinylidene chloride	Yes	-
Ethylene dichloride	Yes	-
Carbon tetrachloride	Yes	-
Benzene	Yes	Yes

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Ingredient name	Status
1,1,1-trichloroethane	Annex B, Group III
carbon tetrachloride	Annex B, Group II

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Ingredient name	Status
Ethylene dichloride (ISO); Gaze Olefiant; 1,2-Dichloroethane; sym-(metric)-Dichlorethane; ENT 1656	Pesticide Listed

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

- Australia** : All components are listed or exempted.
- Canada** : All components are listed or exempted.
- China** : All components are listed or exempted.
- Japan** : **Japan inventory (CSCL):** All components are listed or exempted.
Japan inventory (ISHL): All components are listed or exempted.

Section 15. Regulatory information

New Zealand	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.
Thailand	: All components are listed or exempted.
Turkey	: Not determined.
United States	: All components are active or exempted.
Viet Nam	: All components are listed or exempted.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
GERM CELL MUTAGENICITY - Category 1	Calculation method
CARCINOGENICITY - Category 1A	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1	Calculation method
HAZARDOUS TO THE OZONE LAYER - Category 1	Calculation method

History

Date of issue/Date of revision	: 05/27/2026
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Version	: 11

Key to abbreviations

: ATE = Acute Toxicity Estimate
: BCF = Bioconcentration Factor
: DOT = Department of Transportation
: GHS = Globally Harmonized System of Classification and Labelling of Chemicals
: IATA = International Air Transport Association
: IBC = Intermediate Bulk Container
: IMDG = International Maritime Dangerous Goods
: IMO = International Maritime Organization
: LogPow = logarithm of the octanol/water partition coefficient
: MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
: N/A = Not available
: SGG = Segregation Group
: TDG = Transportation of Dangerous Goods
: UN = United Nations

Indicates information that has changed from previously issued version.

Notice to reader

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