

SAFETY DATA SHEET

Residual Solvent Revised Method 467 Class 1

Section 1. Identification

Product identifier	: Residual Solvent Revised Method 467 Class 1
Part no.	: 5190-0490
<u>Relevant identified uses of the substance or mixture and uses advised against</u>	
Identified uses	: Reagents and Standards for Analytical Chemistry Laboratory Use 1 x 1 ml
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. Hazard identification

Classification of the substance or mixture

H332	ACUTE TOXICITY (inhalation) - Category 4
H340	GERM CELL MUTAGENICITY - Category 1B
H350	CARCINOGENICITY - Category 1A
H372	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
	Health Hazards Not Otherwise Classified - Category 1
H420	HAZARDOUS TO THE OZONE LAYER - Category 1

GHS label elements

Hazard pictograms



Signal word

: Danger

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.
 Prolonged or repeated contact may dry skin and cause irritation.

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.

Section 2. Hazard identification

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

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	Synonyms	% (w/w)	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	-

Ranges if listed above for hazardous ingredient(s) are prescribed ranges. The actual concentration(s) or actual concentration range(s) are being withheld as a trade secret.

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.
- 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.

Section 4. First-aid measures

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

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.

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

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
 1,1,1-Trichloroethane	CA Saskatchewan Provincial (Canada, 4/2021) STEL 15 minutes: 450 ppm. TWA 8 hours: 350 ppm. CA British Columbia Provincial (Canada, 8/2025) Carc 2A. TWA 8 hours: 350 ppm. STEL 15 minutes: 450 ppm. CA Ontario Provincial (Canada, 6/2019) TWA 8 hours: 350 ppm. STEL 15 minutes: 450 ppm. CA Quebec Provincial (Canada, 2/2024) TWAEV 8 hours: 350 ppm. TWAEV 8 hours: 1910 mg/m³. STEV 15 minutes: 450 ppm. STEV 15 minutes: 2460 mg/m³. CA Alberta Provincial (Canada, 3/2023) OEL 15 minutes: 450 ppm. OEL 8 hours: 1910 mg/m³. OEL 15 minutes: 2460 mg/m³. OEL 8 hours: 350 ppm.
1,1-Dichloroethylene	CA Saskatchewan Provincial (Canada, 4/2021) STEL 15 minutes: 10 ppm. TWA 8 hours: 5 ppm. CA British Columbia Provincial (Canada, 8/2025) Carc 2B. TWA 8 hours: 1 ppm. CA Ontario Provincial (Canada, 6/2019) TWA 8 hours: 1 ppm. STEL 15 minutes: 80 mg/m³. TWA 8 hours: 4 mg/m³. STEL 15 minutes: 20 ppm. CA Quebec Provincial (Canada, 2/2024) TWAEV 8 hours: 1 ppm. TWAEV 8 hours: 4 mg/m³. CA Alberta Provincial (Canada, 3/2023) OEL 8 hours: 5 ppm. OEL 8 hours: 20 mg/m³.
1,2-Dichloroethane	CA Saskatchewan Provincial (Canada, 4/2021) STEL 15 minutes: 20 ppm. TWA 8 hours: 10 ppm. CA British Columbia Provincial (Canada, 8/2025) Carc 2B. TWA 8 hours: 1 ppm. STEL 15 minutes: 2 ppm. CA Ontario Provincial (Canada, 6/2019) TWA 8 hours: 10 ppm. CA Quebec Provincial (Canada, 2/2024) C2. TWAEV 8 hours: 1 ppm. TWAEV 8 hours: 4 mg/m³. STEV 15 minutes: 2 ppm. STEV 15 minutes: 8 mg/m³. CA Alberta Provincial (Canada, 3/2023)

Section 8. Exposure controls/personal protection

Carbon tetrachloride	OEL 8 hours: 40 mg/m³. OEL 8 hours: 10 ppm. CA British Columbia Provincial (Canada, 8/2025) Carc 2A, Carc 2B. Absorbed through skin. TWA 8 hours: 2 ppm. CA Ontario Provincial (Canada, 6/2019) Absorbed through skin. TWA 8 hours: 2 ppm. STEL 15 minutes: 3 ppm. CA Quebec Provincial (Canada, 2/2024) C2. Absorbed through skin. TWA_{EV} 8 hours: 5 ppm. TWA_{EV} 8 hours: 31 mg/m³. STEV 15 minutes: 10 ppm. STEV 15 minutes: 63 mg/m³. CA Alberta Provincial (Canada, 3/2023) A2. Absorbed through skin. OEL 8 hours: 31 mg/m³. OEL 15 minutes: 10 ppm. OEL 15 minutes: 63 mg/m³. OEL 8 hours: 5 ppm.
benzene	CA British Columbia Provincial (Canada, 8/2025) Carc 1A, Carc 1. Absorbed through skin. TWA 8 hours: 0.5 ppm. STEL 15 minutes: 2.5 ppm. CA Ontario Provincial (Canada, 6/2019) Absorbed through skin. TWA 8 hours: 0.5 ppm. STEL 15 minutes: 2.5 ppm. CA Quebec Provincial (Canada, 2/2024) C1. Absorbed through skin. TWA_{EV} 8 hours: 0.5 ppm. STEV 15 minutes: 2.5 ppm. CA Alberta Provincial (Canada, 3/2023) Absorbed through skin. OEL 8 hours: 1.6 mg/m³. OEL 15 minutes: 2.5 ppm. OEL 15 minutes: 8 mg/m³. OEL 8 hours: 0.5 ppm.

Biological exposure indices

No exposure indices known.

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

Section 8. Exposure controls/personal protection

- 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)
- Initial boiling point and boiling range** : 189°C (372.2°F)
- Flash point** : Closed cup: 95°C (203°F)
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not applicable.
- Upper/lower flammability or explosive limits** : Lower: 2.6%
Upper: 28.5%
- Vapor pressure** : 0.049 kPa (0.37 mm Hg)
- Vapor density** : Not available.
- Relative density** : 1.101
- Density** : 1.101 g/cm³

Section 9. Physical and chemical properties

Solubility	:	<table><tr><th>Media</th><th>Result</th></tr><tr><td>water</td><td>Soluble</td></tr></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.				
<u>Particle characteristics</u>						
Median particle size	:	Not applicable.				

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 Rat - Inhalation - LC50 Vapor 8000 ppm [4 hours]
benzene	Rat - Oral - LD50 6400 mg/kg
Conclusion/Summary [Product]	: Not available.

Skin corrosion/irritation

Product/ingredient name	Result
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Section 11. Toxicological information

1,1,1-Trichloroethane	Rabbit - Skin - Mild irritant	Duration of treatment/ exposure: 288 hours Amount/concentration applied: 5 gm l
	Rabbit - Skin - Moderate irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 20 mg
1,2-Dichloroethane	Rabbit - Skin - Mild irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 500 mg
	Rabbit - Skin - Mild irritant	Amount/concentration applied: 625 mg
Carbon tetrachloride	Rabbit - Skin - Mild irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 500 mg
	Rabbit - Skin - Mild irritant	Amount/concentration applied: 4 mg
benzene	Rat - Skin - Mild irritant	Duration of treatment/ exposure: 8 hours Amount/concentration applied: 60 uL
	Rabbit - Skin - Mild irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 15 mg
	Rabbit - Skin - Moderate irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 20 mg

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

Ingredient name

1,1-Dichloroethylene
Carbon tetrachloride

Conclusion/Summary

Repeated exposure may cause skin dryness or cracking.
May cause skin irritation.

Serious eye damage/eye irritation

Product/ingredient name

Result

1,1,1-Trichloroethane	Rabbit - Eyes - Mild irritant	Amount/concentration applied: 100 mg
	Rabbit - Eyes - Severe irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 2 mg
1,2-Dichloroethane	Rabbit - Eyes - Mild irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 500 mg
	Rabbit - Eyes - Severe irritant	Amount/concentration applied: 63 mg
Carbon tetrachloride	Rabbit - Eyes - Mild irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 500 mg
	Rabbit - Eyes - Mild irritant	Duration of treatment/ exposure: 0.5 minutes

Section 11. Toxicological information

benzene

Rabbit - Eyes - Moderate irritant

Rabbit - Eyes - Severe irritant

Amount/concentration
applied: 2200 ug
Amount/concentration
applied: 88 mg
Amount/concentration
applied: 0.1 MI

Conclusion/Summary : Not available.

[Product]

Ingredient name

Conclusion/Summary

Carbon tetrachloride

May cause eye irritation.

Respiratory corrosion/irritation

Conclusion/Summary : Not available.

[Product]

Respiratory corrosion/irritation

Not available.

Conclusion/Summary : Not available.

[Product]

Respiratory or skin sensitization

Skin

Conclusion/Summary : May cause sensitization by skin contact.

[Product]

Respiratory

Conclusion/Summary : Not available.

[Product]

Germ cell mutagenicity

Conclusion/Summary : Not available.

[Product]

Carcinogenicity

Conclusion/Summary : Not available.

[Product]

Classification

Product/ingredient name	IARC	NTP	ACGIH
1,1,1-Trichloroethane	2A	-	A4
1,1-Dichloroethylene	2B	-	A4
1,2-Dichloroethane	2B	Reasonably anticipated to be a human carcinogen.	A4
Carbon tetrachloride	2B	Reasonably anticipated to be a human carcinogen.	A2
benzene	1	Known to be a human carcinogen.	A1

Reproductive toxicity

Section 11. Toxicological information

Conclusion/Summary : Not available.
[Product]

Specific target organ toxicity (single exposure)

Product/ingredient name	Result
1,2-Dichloroethane	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

Specific target organ toxicity (repeated exposure)

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

Section 11. Toxicological information

Potential delayed effects : Not available.

Potential chronic health effects

Conclusion/Summary : Not available.

[Product]

- 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.

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]	Algae - Green algae - <i>Desmodesmus subspicatus</i>
1,1-Dichloroethylene	Acute - LC50 - Fresh water	11.6 mg/l [48 hours]	Daphnia - Water flea - <i>Daphnia magna</i>
	Acute - LC50 - Fresh water	108 mg/l [96 hours]	Fish - Fathead minnow - <i>Pimephales promelas</i> - Adult
	Acute - NOEC - Fresh water	29.4 mg/l [48 hours]	Daphnia - Daphnia - <i>Daphnia magna</i>
	Chronic - EC10	3.94 mg/l [72 hours]	Algae - Green algae - <i>Chlamydomonas reinhardtii</i> - Exponential growth phase
1,2-Dichloroethane	Acute - EC50	9.12 mg/l [72 hours]	Algae - Green algae - <i>Chlamydomonas reinhardtii</i> - Exponential growth phase
	Acute - LC50 - Marine water	110 ppm [48 hours]	Crustaceans - Opossum shrimp - <i>Americamysis bahia</i>
	Acute - LC50 - Marine water	113 ppm [96 hours]	Fish - Sheepshead minnow - <i>Cyprinodon variegatus</i>
	Acute - EC50 - Fresh water	166 ppm [96 hours]	Algae - Green algae -

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	water		<i>Desmodesmus subspicatus</i>
	Chronic - NOEC - Fresh water	100 mg/l [21 days]	Daphnia - Water flea - <i>Daphnia magna</i>
	Chronic - EC10 - Marine water	152 mg/l [96 hours]	Algae - Green Flagellate - <i>Platymonas subcordiformis</i> - Exponential growth phase
Carbon tetrachloride	Acute - LC50 - Fresh water	35 mg/l [48 hours]	Daphnia - Water flea - <i>Daphnia magna</i>
	Acute - LC50 - Fresh water	10.4 mg/l [96 hours]	Fish - Fathead minnow - <i>Pimephales promelas</i>
	Acute - EC50 - Fresh water	21 ppm [72 hours]	Algae - Green algae - <i>Desmodesmus subspicatus</i>
	Acute - NOEC - Fresh water	3.1 mg/l [21 days]	Daphnia - Daphnia - <i>Daphnia magna</i>
	Acute - NOEC - Fresh water	2.2 mg/l [72 hours]	Algae - Algae - <i>Pseudokirchneriella subcapitata</i>
benzene	Acute - LC50 - Fresh water	5.28 µl/l [96 hours]	Fish - Pink salmon - <i>Oncorhynchus gorbuscha</i> - Fry
	Acute - EC50 - Fresh water	9.23 mg/l [48 hours]	Daphnia - Water flea - <i>Daphnia magna</i> - Neonate
	Chronic - NOEC - Marine water	1.5 to 5.4 µl/l [4 weeks]	Fish - Striped bass - <i>Morone saxatilis</i> - Juvenile (Fledgling, Hatchling, Weanling)
	Chronic - NOEC - Fresh water	98 mg/l [21 days]	Daphnia - Water flea - <i>Daphnia magna</i>
	Chronic - EC10 - Fresh water	>1360 mg/l [96 hours]	Algae - Green algae - <i>Desmodesmus subspicatus</i>
	Acute - EC50 - Fresh water	29 mg/l [72 hours]	Algae - Green algae - <i>Raphidocelis subcapitata</i>

Conclusion/Summary [Product] : Not available.

Persistence and degradability

Conclusion/Summary [Product] : Not available.

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.

Section 14. Transport information

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

Additional information

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.

Section 15. Regulatory information

Canadian lists

- Canadian NPRI** : The following components are listed: 1,2-dichloroethane; carbon tetrachloride
- CEPA Toxic substances** : The following components are listed: 1,1,1-trichloroethane; chlorinated alkanes; 1,2-dichloroethane; tetrachloromethane

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; Pesticide 1,2-Dichloroethane; sym-(metric)-Dichlorethane; ENT 1656	Listed

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

- Canada** : All components are listed or exempted.
- United States** : All components are active or exempted.

Section 16. Other information

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
 - HPR = Hazardous Products Regulations
 - 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

Procedure used to derive the classification

Section 16. Other information

Classification	Justification
 ACUTE TOXICITY (inhalation) - Category 4 GERM CELL MUTAGENICITY - Category 1B CARCINOGENICITY - Category 1A SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1 Health Hazards Not Otherwise Classified - Category 1 HAZARDOUS TO THE OZONE LAYER - Category 1	Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method

 Indicates information that has changed from previously issued version.

Notice to reader

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