

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
 Product name : VOA SIM Mix  
 Product code : AL0-131121

#### 1.2. Recommended use and restrictions on use

No additional information available

#### 1.3. Supplier

Phenova  
 6390 Joyce Dr. Suite 100  
 Golden, CO 80403 - United States  
 T 1-866-942-2978 - F 1-866-283-0269  
[info@phenova.com](mailto:info@phenova.com) - [www.phenova.com](http://www.phenova.com)

#### 1.4. Emergency telephone number

Emergency number : ChemTel Assistance (US/Canada) 1-800-255-3924  
 ChemTel Assistance (International) +1 813-248-0585

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS US classification

Flammable liquids Category 2	H225	Highly flammable liquid and vapor
Acute toxicity (oral) Category 3	H301	Toxic if swallowed
Acute toxicity (dermal) Category 3	H311	Toxic in contact with skin
Germ cell mutagenicity Category 1B	H340	May cause genetic defects
Carcinogenicity Category 1A	H350	May cause cancer
Specific target organ toxicity (single exposure) Category 1	H370	Causes damage to organs
Hazardous to the ozone layer Category 1	H420	Harms public health and the environment by destroying ozone in the upper atmosphere

Full text of H statements : see section 16

#### 2.2. GHS Label elements, including precautionary statements

##### GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) :

Danger

Hazard statements (GHS US) :

H225 - Highly flammable liquid and vapor  
 H301+H311 - Toxic if swallowed or in contact with skin  
 H340 - May cause genetic defects  
 H350 - May cause cancer  
 H370 - Causes damage to organs  
 H420 - Harms public health and the environment by destroying ozone in the upper atmosphere

Precautionary statements (GHS US) :

P201 - Obtain special instructions before use.  
 P202 - Do not handle until all safety precautions have been read and understood.  
 P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P233 - Keep container tightly closed.  
 P260 - Do not breathe dust/fume/gas/mist/vapors/spray.  
 P264 - Wash hands, forearms and face thoroughly after handling.  
 P270 - Do not eat, drink or smoke when using this product.

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P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P310 - If swallowed: Immediately call a poison center or doctor.  
P302+P352 - If on skin: Wash with plenty of water.  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P307+P311 - If exposed: Call a poison center/doctor.  
P308+P313 - If exposed or concerned: Get medical advice/attention.  
P312 - Call a poison center or doctor if you feel unwell.  
P321 - Specific treatment (see supplemental first aid instruction on this label).  
P322 - Specific treatment (see supplemental first aid instruction on this label)  
P330 - Rinse mouth.  
P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.  
P370+P378 - In case of fire: Use media other than water to extinguish.  
P403+P235 - Store in a well-ventilated place. Keep cool.  
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.  
P502 - Refer to manufacturer/supplier for information on recovery/recycling

### 2.3. Other hazards which do not result in classification

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Product identifier	Conc.
methanol (Component)	(CAS-No.) 67-56-1	99
carbon tetrachloride (Component)	(CAS-No.) 56-23-5	0.2
1,2-dibromo-3-chloropropane (Component)	(CAS-No.) 96-12-8	0.2
1,2,3-trichloropropane (Component)	(CAS-No.) 96-18-4	0.2
vinyl chloride, inhibited (Component)	(CAS-No.) 75-01-4	0.2

Full text of hazard classes and H-statements : see section 16

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention.

First-aid measures after inhalation : Allow affected person to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

### 4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

### 4.3. Immediate medical attention and special treatment, if necessary

No additional information available

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media : Do not use a heavy water stream.

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### 5.2. Specific hazards arising from the chemical

No additional information available

### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up in absorbent material. Collect spillage.

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.

Hygiene measures : Gently wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container closed when not in use. Keep container tightly closed and in a well-ventilated place. Keep away from any flames or sparking source.

Incompatible materials : Direct sunlight.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

VOA SIM Mix		
ACGIH	Local name	Methanol
ACGIH	ACGIH TWA (ppm)	200 ppm
ACGIH	ACGIH STEL (ppm)	250 ppm
ACGIH	Remark (ACGIH)	Headache; eye dam; dizziness; nausea
ACGIH	Regulatory reference	ACGIH 2018
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	260 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (ppm)	200 ppm
OSHA	Regulatory reference (US-OSHA)	OSHA
carbon tetrachloride (56-23-5)		
ACGIH	Local name	Carbon tetrachloride
ACGIH	ACGIH TWA (ppm)	5 ppm
ACGIH	ACGIH STEL (ppm)	10 ppm
ACGIH	Remark (ACGIH)	Liver dam
ACGIH	Regulatory reference	ACGIH 2018

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<b>carbon tetrachloride (56-23-5)</b>		
OSHA	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift	200 ppm 5 min. in any 4 hrs.
OSHA	Remark (OSHA)	(2) See Table Z-2.
OSHA	Regulatory reference (US-OSHA)	OSHA
<b>1,2-dibromo-3-chloropropane (96-12-8)</b>		
Not applicable		
<b>1,2,3-trichloropropane (96-18-4)</b>		
ACGIH	Local name	1,2,3-Trichloropropane
ACGIH	ACGIH TWA (ppm)	0.005 ppm
ACGIH	Remark (ACGIH)	Cancer; eye & URT irr; liver dam; A2 (Suspected Human Carcinogen: Human data are accepted as adequate in quality but are conflicting or insufficient to classify the agent as a confirmed human carcinogen; OR, the agent is carcinogenic in experimental animals at dose(s), by route(s) of exposure, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. The A2 is used primarily when there is limited evidence or carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals with relevance to humans)
ACGIH	Regulatory reference	ACGIH 2018
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	300 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (ppm)	50 ppm
OSHA	Regulatory reference (US-OSHA)	OSHA
<b>vinyl chloride, inhibited (75-01-4)</b>		
ACGIH	Local name	Vinyl chloride
ACGIH	ACGIH TWA (ppm)	1 ppm (Vinyl chloride; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
ACGIH	Remark (ACGIH)	Lung cancer; liver dam
ACGIH	Regulatory reference	ACGIH 2018
<b>methanol (67-56-1)</b>		
ACGIH	Local name	Methanol
ACGIH	ACGIH TWA (ppm)	200 ppm (Methanol; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
ACGIH	ACGIH STEL (ppm)	250 ppm (Methanol; USA; Short time value; TLV - Adopted Value)
ACGIH	Remark (ACGIH)	Headache; eye dam; dizziness; nausea
ACGIH	Regulatory reference	ACGIH 2018
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	260 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (ppm)	200 ppm
OSHA	Regulatory reference (US-OSHA)	OSHA

### 8.2. Appropriate engineering controls

Appropriate engineering controls : Either local exhaust or general room ventilation is usually required.

### 8.3. Individual protection measures/Personal protective equipment

#### Personal protective equipment:

Avoid all unnecessary exposure. Gloves. Protective clothing. Protective goggles. Safety glasses.

#### Hand protection:

Wear chemically resistant protective gloves. Wear suitable gloves resistant to chemical penetration

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### Eye protection:

Chemical goggles or safety glasses. Safety glasses

### Skin and body protection:

Wear chemically protective gloves, lab coat or apron to prevent prolonged or repeated skin contact

### Respiratory protection:

Wear appropriate mask

### Personal protective equipment symbol(s):



### Other information:

Do not eat, drink or smoke during use.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
	: Colorless
	: characteristic
Odor threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Non flammable.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Not established.

### 10.3. Possibility of hazardous reactions

Not established.

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### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

No additional information available

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified

VOA SIM Mix	
ATE US (oral)	101.01 mg/kg body weight
ATE US (dermal)	303.03 mg/kg body weight

carbon tetrachloride (56-23-5)	
LD50 oral rat	2500 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Male, Experimental value, Oral, $\geq$ 14 day(s))
LD50 dermal rabbit	> 14900 mg/kg body weight (24 h, Rabbit, Male / female, Experimental value, Dermal)
LC50 inhalation rat (mg/l)	46.26 mg/l (Equivalent or similar to OECD 403, 6 h, Rat, Male, Experimental value, Inhalation (vapours))
ATE US (oral)	100 mg/kg body weight
ATE US (dermal)	300 mg/kg body weight
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	3 mg/l/4h
ATE US (dust, mist)	0.5 mg/l/4h

1,2-dibromo-3-chloropropane (96-12-8)	
LD50 oral rat	170 mg/kg (Rat, Literature study, Oral)
ATE US (oral)	170 mg/kg body weight

1,2,3-trichloropropane (96-18-4)	
LD50 oral rat	442 mg/kg (Rat, Oral)
LD50 dermal rabbit	850 mg/kg (Rabbit, Dermal)
ATE US (oral)	442 mg/kg body weight
ATE US (dermal)	850 mg/kg body weight
ATE US (gases)	4500 ppmV/4h
ATE US (vapors)	11 mg/l/4h
ATE US (dust, mist)	1.5 mg/l/4h

methanol (67-56-1)	
LD50 oral rat	> 5000 mg/kg (Rat; BASF test; Literature study; 1187-2769 mg/kg bodyweight; Rat; Weight of evidence)
LD50 dermal rabbit	15800 mg/kg (Rabbit; Literature study)
LC50 inhalation rat (mg/l)	85 mg/l/4h (Rat; Literature study)
LC50 inhalation rat (ppm)	64000 ppm/4h (Rat; Literature study)
ATE US (oral)	100 mg/kg body weight
ATE US (dermal)	300 mg/kg body weight
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	3 mg/l/4h
ATE US (dust, mist)	0.5 mg/l/4h

Skin corrosion/irritation : Not classified  
 Serious eye damage/irritation : Not classified  
 Respiratory or skin sensitization : Not classified  
 Germ cell mutagenicity : May cause genetic defects.  
 Based on available data, the classification criteria are not met  
 Carcinogenicity : May cause cancer.

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<b>carbon tetrachloride (56-23-5)</b>	
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
<b>1,2-dibromo-3-chloropropane (96-12-8)</b>	
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
<b>1,2,3-trichloropropane (96-18-4)</b>	
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
<b>vinyl chloride, inhibited (75-01-4)</b>	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	Known Human Carcinogens
Reproductive toxicity	: Not classified Based on available data, the classification criteria are not met
STOT-single exposure	: Causes damage to organs.
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.
Symptoms/effects	: Not expected to present a significant hazard under anticipated conditions of normal use.

## SECTION 12: Ecological information

### 12.1. Toxicity

<b>carbon tetrachloride (56-23-5)</b>	
LC50 fish 1	24.3 mg/l (OECD 203: Fish, Acute Toxicity Test, 4 day(s), Danio rerio, Flow-through system, Fresh water, Experimental value)
EC50 other aquatic organisms 1	180 mg/l (Plankton, Literature)
ErC50 (algae)	20 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Nominal concentration)
<b>1,2-dibromo-3-chloropropane (96-12-8)</b>	
LC50 fish 1	20 mg/l (48 h, Lepomis macrochirus)
<b>1,2,3-trichloropropane (96-18-4)</b>	
LC50 fish 1	75 mg/l (96 h, Lepomis macrochirus, Static system)
EC50 Daphnia 1	35.4 mg/l (48 h, Daphnia magna, Static system)
<b>vinyl chloride, inhibited (75-01-4)</b>	
EC50 Daphnia 1	119 mg/l (LC50; ECOSAR; 48 h; Daphnia sp.; Fresh water)
LC50 fish 2	210 mg/l (LC50; OECD 203: Fish, Acute Toxicity Test; 96 h; Brachydanio rerio; Semi-static system; Fresh water; Experimental value)
Threshold limit algae 1	77 mg/l (EC50; ECOSAR; 96 h; Algae; Fresh water)
<b>methanol (67-56-1)</b>	
LC50 fish 1	15400 mg/l (LC50; EPA 660/3 - 75/009; 96 h; Lepomis macrochirus; Flow-through system; Fresh water; Experimental value)
EC50 Daphnia 1	> 10000 mg/l (EC50; DIN 38412-11; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)
LC50 fish 2	10800 mg/l (LC50; 96 h; Salmo gairdneri)

### 12.2. Persistence and degradability

<b>VOA SIM Mix</b>	
Persistence and degradability	Not established.
<b>carbon tetrachloride (56-23-5)</b>	
Persistence and degradability	Readily biodegradable in water. Readily biodegradable in water in anaerobic conditions.
Biochemical oxygen demand (BOD)	0 g O <sub>2</sub> /g substance
Chemical oxygen demand (COD)	0.001 g O <sub>2</sub> /g substance

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<b>carbon tetrachloride (56-23-5)</b>	
ThOD	0.21 g O <sub>2</sub> /g substance
BOD (% of ThOD)	0
<b>1,2-dibromo-3-chloropropane (96-12-8)</b>	
Persistence and degradability	Non degradable in the soil. Not readily biodegradable in water.
<b>1,2,3-trichloropropane (96-18-4)</b>	
Persistence and degradability	Non degradable in the soil. Not readily biodegradable in water.
<b>vinyl chloride, inhibited (75-01-4)</b>	
Persistence and degradability	Not readily biodegradable in water. Biodegradable in water. Biodegradable in the soil. Low potential for adsorption in soil.
Biochemical oxygen demand (BOD)	0 g O <sub>2</sub> /g substance
BOD (% of ThOD)	0
<b>methanol (67-56-1)</b>	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Highly mobile in soil.
Biochemical oxygen demand (BOD)	0.6 – 1.12 g O <sub>2</sub> /g substance
Chemical oxygen demand (COD)	1.42 g O <sub>2</sub> /g substance
ThOD	1.5 g O <sub>2</sub> /g substance
BOD (% of ThOD)	0.8 (Literature study)

### 12.3. Bioaccumulative potential

<b>VOA SIM Mix</b>	
Bioaccumulative potential	Not established.
<b>carbon tetrachloride (56-23-5)</b>	
BCF fish 1	30 (Equivalent or similar to OECD 305, 21 day(s), Lepomis macrochirus, Flow-through system, Fresh water, Experimental value, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	2.75 – 2.83 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
<b>1,2-dibromo-3-chloropropane (96-12-8)</b>	
BCF fish 1	3.6 – 19 (Cyprinus carpio, Test duration: 6 weeks)
Partition coefficient n-octanol/water (Log Pow)	2.43 – 2.96
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
<b>1,2,3-trichloropropane (96-18-4)</b>	
BCF fish 1	5.3 – 13 (Cyprinus carpio, Chronic)
Partition coefficient n-octanol/water (Log Pow)	2.27 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
<b>vinyl chloride, inhibited (75-01-4)</b>	
BCF fish 1	< 10 (BCF; 72 h)
BCF fish 2	3.55 l/kg (BCF; BCFWIN)
BCF other aquatic organisms 1	1100 (BCF; 120 h; Bacteria)
BCF other aquatic organisms 2	40 (BCF; 24 h)
Partition coefficient n-octanol/water (Log Pow)	1.58 (Test data; OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method; 22 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
<b>methanol (67-56-1)</b>	
BCF fish 1	< 10 (BCF; 72 h; Leuciscus idus)
Partition coefficient n-octanol/water (Log Pow)	-0.77 (Experimental value; Other)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

### 12.4. Mobility in soil

<b>carbon tetrachloride (56-23-5)</b>	
Surface tension	0.027 N/m (20 °C)
Partition coefficient n-octanol/water (Log Koc)	1.69 (log Koc, EPA OTS 796.2750: Sediment and Soil Adsorption Isotherm, Experimental value)



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<b>carbon tetrachloride (56-23-5)</b>	
Ecology - soil	Highly mobile in soil. May be harmful to plant growth, blooming and fruit formation. Soil contaminant.
<b>1,2-dibromo-3-chloropropane (96-12-8)</b>	
Ecology - soil	No (test)data on mobility of the substance available.
<b>1,2,3-trichloropropane (96-18-4)</b>	
Surface tension	0.038 N/m (20 °C)
<b>vinyl chloride, inhibited (75-01-4)</b>	
Partition coefficient n-octanol/water (Log Koc)	log Koc, SRC PCKOCWIN v1.66; 1.4; QSAR
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.
<b>methanol (67-56-1)</b>	
Surface tension	0.023 N/m (20 °C)
Partition coefficient n-octanol/water (Log Koc)	Koc, PCKOCWIN v1.66; 1; Calculated value

### 12.5. Other adverse effects

<b>VOA SIM Mix</b>	
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<b>1,2-dibromo-3-chloropropane (96-12-8)</b>	
<b>1,2,3-trichloropropane (96-18-4)</b>	
<b>vinyl chloride, inhibited (75-01-4)</b>	
<b>methanol (67-56-1)</b>	

Other information : Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.  
 Ecology - waste materials : Avoid release to the environment.

## SECTION 14: Transport information

### Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN1992 Flammable liquids, toxic, n.o.s. (methanol ; carbon tetrachloride ; 1,2-dibromo-3-chloropropane ; vinyl chloride, inhibited), 3 (6.1), II  
 UN-No.(DOT) : UN1992  
 Proper Shipping Name (DOT) : Flammable liquids, toxic, n.o.s.  
 methanol ; carbon tetrachloride ; 1,2-dibromo-3-chloropropane ; vinyl chloride, inhibited  
 Class (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120  
 Packing group (DOT) : II - Medium Danger  
 Subsidiary risk (DOT) : 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132  
 Hazard labels (DOT) : 3 - Flammable liquid  
 6.1 - Poison



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DOT Packaging Non Bulk (49 CFR 173.xxx)	: 202
DOT Packaging Bulk (49 CFR 173.xxx)	: 243
DOT Special Provisions (49 CFR 172.102)	: IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3) TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively. TP13 - Self-contained breathing apparatus must be provided when this hazardous material is transported by sea.
DOT Packaging Exceptions (49 CFR 173.xxx)	: 150
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 60 L
DOT Vessel Stowage Location	: B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other	: 40 - Stow "clear of living quarters"
Emergency Response Guide (ERG) Number	: 131
Other information	: No supplementary information available.

### Transportation of Dangerous Goods

Not applicable

### Transport by sea

Transport document description (IMDG)	: UN 1992 FLAMMABLE LIQUID, TOXIC, N.O.S. (methanol ; carbon tetrachloride ; 1,2-dibromo-3-chloropropane ; vinyl chloride, inhibited), 3 (6.1), II
UN-No. (IMDG)	: 1992
Proper Shipping Name (IMDG)	: FLAMMABLE LIQUID, TOXIC, N.O.S.
Class (IMDG)	: 3 - Flammable liquids
Packing group (IMDG)	: II - substances presenting medium danger
Subsidiary risks (IMDG)	: 6.1 - Toxic substances
Limited quantities (IMDG)	: 1 L

### Air transport

Transport document description (IATA)	: UN 1992 Flammable liquid, toxic, n.o.s. (methanol ; carbon tetrachloride ; 1,2-dibromo-3-chloropropane ; vinyl chloride, inhibited), 3 (6.1), II
UN-No. (IATA)	: 1992
Proper Shipping Name (IATA)	: Flammable liquid, toxic, n.o.s.
Class (IATA)	: 3 - Flammable Liquids
Packing group (IATA)	: II - Medium Danger
Subsidiary hazards (IATA)	: 6.1 - Toxic substances

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

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<b>carbon tetrachloride (56-23-5)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	10 lb
<b>1,2-dibromo-3-chloropropane (96-12-8)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	1 lb
<b>1,2,3-trichloropropane (96-18-4)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
<b>vinyl chloride, inhibited (75-01-4)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	1 lb
<b>methanol (67-56-1)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	5000 lb

### 15.2. International regulations

#### CANADA

<b>carbon tetrachloride (56-23-5)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>1,2-dibromo-3-chloropropane (96-12-8)</b>	
Listed on the Canadian NDSL (Non-Domestic Substances List)	
<b>1,2,3-trichloropropane (96-18-4)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>vinyl chloride, inhibited (75-01-4)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>methanol (67-56-1)</b>	
Listed on the Canadian DSL (Domestic Substances List)	

#### EU-Regulations

No additional information available

#### National regulations

<b>carbon tetrachloride (56-23-5)</b>	
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program) Listed on EPA Hazardous Air Pollutant (HAPS)	
<b>1,2-dibromo-3-chloropropane (96-12-8)</b>	
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program) Listed on EPA Hazardous Air Pollutant (HAPS)	
<b>1,2,3-trichloropropane (96-18-4)</b>	
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program)	

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### vinyl chloride, inhibited (75-01-4)

Listed on IARC (International Agency for Research on Cancer)  
Listed as carcinogen on NTP (National Toxicology Program)  
Listed on EPA Hazardous Air Pollutant (HAPS)

### methanol (67-56-1)

Listed on EPA Hazardous Air Pollutant (HAPS)

## 15.3. US State regulations

### carbon tetrachloride (56-23-5)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	5 µg/day	

### 1,2-dibromo-3-chloropropane (96-12-8)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	Yes	0.1 µg/day	3.1 µg/day (oral); 4.3 µg/day (inhalation)

### 1,2,3-trichloropropane (96-18-4)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No		

### vinyl chloride, inhibited (75-01-4)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No	3 µg/day	

### methanol (67-56-1)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
No	Yes	No	No		47000 µg/day (inhalation); 23,000 µg/day (oral)

## SECTION 16: Other information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.

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Full text of H-phrases:

H225	Highly flammable liquid and vapor
H301	Toxic if swallowed
H311	Toxic in contact with skin
H340	May cause genetic defects
H350	May cause cancer
H370	Causes damage to organs
H420	Harms public health and the environment by destroying ozone in the upper atmosphere

Phenova US SDS REV

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