

SECTION 1: Identification

1.1. Identification

Product form : Mixture
 Product name : VOC Set-up Standard
 Product code : AL0-130805

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 - 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 vapour
Germ cell mutagenicity Category 1B	H340	May cause genetic defects
Carcinogenicity Category 1B	H350	May cause cancer
Specific target organ toxicity (repeated exposure) Category 1	H372	Causes damage to organs through prolonged or repeated exposure
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 vapour
 H340 - May cause genetic defects
 H350 - May cause cancer
 H372 - Causes damage to organs through prolonged or repeated exposure
 H420 - Harms public health and the environment by destroying ozone in the upper atmosphere

Precautionary statements (GHS US) :

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.
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.
 P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
 P308+P313 - If exposed or concerned: Get medical advice/attention.
 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

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accordance with local, regional, national and/or international regulation

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.
decane (Component)	(CAS-No.) 124-18-5	86
toluene (Component)	(CAS-No.) 108-88-3	10
hexadecane (Component)	(CAS-No.) 544-76-3	3
carbon tetrachloride (Component)	(CAS-No.) 56-23-5	1

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.

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.

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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

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
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

hexadecane (544-76-3)

Not applicable

toluene (108-88-3)

ACGIH	Local name	Toluene
ACGIH	ACGIH TWA (ppm)	20 ppm (Toluene; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
ACGIH	Remark (ACGIH)	Visual impair; female repro;
ACGIH	Regulatory reference	ACGIH 2018
OSHA	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift	500 ppm 10 mins.
OSHA	Remark (OSHA)	(2) See Table Z-2.
OSHA	Regulatory reference (US-OSHA)	OSHA

decane (124-18-5)

Not applicable

8.2. Appropriate engineering controls

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

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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

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
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

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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.

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

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

hexadecane (544-76-3)	
LD50 oral rat	> 5000 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	> 3160 mg/kg body weight (Equivalent or similar to OECD 402, 24 h, Rabbit, Male / female, Experimental value, Dermal, 14 day(s))
LC50 inhalation rat (mg/l)	> 5.266 mg/l air (Equivalent or similar to OECD 403, 4 h, Rat, Male / female, Read-across, Inhalation (aerosol), 14 day(s))

toluene (108-88-3)	
LD50 oral rat	> 2000 mg/kg (Rat; Equivalent or similar to OECD 401; Literature study; 5580 mg/kg bodyweight; Rat; Experimental value)
LD50 dermal rabbit	12223 mg/kg (Rabbit; Literature study; Other; >5000 mg/kg bodyweight; Rabbit; Experimental value)
LC50 inhalation rat (mg/l)	> 20 mg/l/4h (Rat; Literature study)
ATE US (dermal)	12223 mg/kg body weight

decane (124-18-5)	
LD50 oral rat	> 15000 mg/kg (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral)
LD50 dermal rabbit	> 5000 mg/kg (Equivalent or similar to OECD 402, 24 h, Rabbit, Male / female, Experimental value, Dermal)
LC50 inhalation rat (mg/l)	> 9.3 mg/l air (Equivalent or similar to OECD 403, 4 h, Rat, Male / female, Experimental value, Inhalation (vapours))

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

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Carcinogenicity : May cause cancer.

carbon tetrachloride (56-23-5)

National Toxicology Program (NTP) Status : Reasonably anticipated to be Human Carcinogen

toluene (108-88-3)

IARC group : 3 - Not classifiable

Reproductive toxicity : Not classified
Based on available data, the classification criteria are not met

STOT-single exposure : Not classified

STOT-repeated exposure : Causes damage to organs through prolonged or repeated exposure.

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

carbon tetrachloride (56-23-5)

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)

12.2. Persistence and degradability

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Persistence and degradability : Not established.

carbon tetrachloride (56-23-5)

Persistence and degradability	Readily biodegradable in water. Readily biodegradable in water in anaerobic conditions.
Biochemical oxygen demand (BOD)	0 g O ₂ /g substance
Chemical oxygen demand (COD)	0.001 g O ₂ /g substance
ThOD	0.21 g O ₂ /g substance
BOD (% of ThOD)	0

hexadecane (544-76-3)

Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.
ThOD	3.46 g O ₂ /g substance

toluene (108-88-3)

Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Low potential for adsorption in soil.
Biochemical oxygen demand (BOD)	2.15 g O ₂ /g substance
Chemical oxygen demand (COD)	2.52 g O ₂ /g substance
ThOD	3.13 g O ₂ /g substance
BOD (% of ThOD)	0.69

decane (124-18-5)

Persistence and degradability : Readily biodegradable in water.

12.3. Bioaccumulative potential

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Bioaccumulative potential : Not established.

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carbon tetrachloride (56-23-5)	
BCF fish 1	30 (Equivalent or similar to OECD 305, 21 day(s), Lepomis macrochirus, Flow-through system, Fresh water, Experimental value, Fresh weight)
Log Pow	2.75 - 2.83 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
hexadecane (544-76-3)	
Log Pow	8.2 (Experimental value, EU Method A.8: Partition Coefficient, 25 °C)
Bioaccumulative potential	High potential for bioaccumulation (Log Kow > 5).
toluene (108-88-3)	
BCF fish 2	90 (BCF; 72 h; Leuciscus idus; Static system; Fresh water)
Log Pow	2.73 (Experimental value; Other; 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
decane (124-18-5)	
BCF other aquatic organisms 1	144.3 (BCFBAF v3.00, QSAR)
Log Pow	5.86 (Calculated, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

carbon tetrachloride (56-23-5)	
Surface tension	0.027 N/m (20 °C)
Log Koc	1.69 (log Koc, EPA OTS 796.2750: Sediment and Soil Adsorption Isotherm, Experimental value)
Ecology - soil	Highly mobile in soil. May be harmful to plant growth, blooming and fruit formation. Soil contaminant.
hexadecane (544-76-3)	
Surface tension	27.47 mN/m (25 °C, 100 vol %, EU Method A.5: Surface tension)
Ecology - soil	Adsorbs into the soil.
toluene (108-88-3)	
Surface tension	0.03 N/m (20 °C)
decane (124-18-5)	
Surface tension	0.023 N/m (25 °C)
Log Koc	4.16 (log Koc, Other, QSAR)
Ecology - soil	Low potential for mobility in soil.

12.5. Other adverse effects

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carbon tetrachloride (56-23-5)	
hexadecane (544-76-3)	
toluene (108-88-3)	
decane (124-18-5)	

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.

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SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description	: UN1993 Flammable liquids, n.o.s. (toluene ; carbon tetrachloride), 3, II
UN-No.(DOT)	: UN1993
Proper Shipping Name (DOT)	: Flammable liquids, n.o.s. toluene ; carbon tetrachloride
Class (DOT)	: 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Packing group (DOT)	: II - Medium Danger
Hazard labels (DOT)	: 3 - Flammable liquid



DOT Packaging Non Bulk (49 CFR 173.xxx)	: 202
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
DOT Symbols	: G - Identifies PSN requiring a technical name
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) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling. TP8 - A portable tank having a minimum test pressure of 1.5 bar (150 kPa) may be used when the flash point of the hazardous material transported is greater than 0 C (32 F). TP28 - A portable tank having a minimum test pressure of 2.65 bar (265 kPa) may be used provided the calculated test pressure is 2.65 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
DOT Packaging Exceptions (49 CFR 173.xxx)	: 150
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 5 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.
Emergency Response Guide (ERG) Number	: 128
Other information	: No supplementary information available.

Transportation of Dangerous Goods

Not applicable

Transport by sea

Transport document description (IMDG)	: UN 1993 FLAMMABLE LIQUID, N.O.S. (toluene ; carbon tetrachloride), 3, II
UN-No. (IMDG)	: 1993
Proper Shipping Name (IMDG)	: FLAMMABLE LIQUID, N.O.S.
Class (IMDG)	: 3 - Flammable liquids
Packing group (IMDG)	: II - substances presenting medium danger
Limited quantities (IMDG)	: 1 L

Air transport

Transport document description (IATA)	: UN 1993 Flammable liquid, n.o.s. (toluene ; carbon tetrachloride), 3, II
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UN-No. (IATA)	: 1993
Proper Shipping Name (IATA)	: Flammable liquid, n.o.s.
Class (IATA)	: 3 - Flammable Liquids
Packing group (IATA)	: II - Medium Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

carbon tetrachloride (56-23-5)

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
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hexadecane (544-76-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

toluene (108-88-3)

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	1000 lb
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decane (124-18-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

carbon tetrachloride (56-23-5)

Listed on the Canadian DSL (Domestic Substances List)

hexadecane (544-76-3)

Listed on the Canadian DSL (Domestic Substances List)

toluene (108-88-3)

Listed on the Canadian DSL (Domestic Substances List)

decane (124-18-5)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

carbon tetrachloride (56-23-5)

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

toluene (108-88-3)

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	

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toluene (108-88-3)					
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		7000 µg/day

SECTION 16: Other information

Revision date : 03/06/2020

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.

Full text of H-phrases:

H225	Highly flammable liquid and vapour
H340	May cause genetic defects
H350	May cause cancer
H372	Causes damage to organs through prolonged or repeated exposure
H420	Harms public health and the environment by destroying ozone in the upper atmosphere

Phenova US SDS REV

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