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

1.1. Product identifier

Product form : Mixture
Product name : Custom VOA Blend_
Product code : AL0-130066
Product group : Trade product

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

1.2.1. Relevant identified uses

Main use category : Laboratory Use
Industrial/Professional use spec : Industrial
For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Phenova
6390 Joyce Dr. Suite 100
80403 Golden, CO - 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: Hazards identification

2.1. Classification of the substance or mixture

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

Flam. Liq. 2	H225
Acute Tox. 4 (Dermal)	H312
Acute Tox. 4 (Inhalation)	H332
Skin Irrit. 2	H315
Eye Irrit. 2	H319
Muta. 1B	H340
Carc. 1A	H350
Repr. 2	H361
STOT SE 3	H336
STOT RE 1	H372
Aquatic Chronic 3	H412

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Carc.Cat.1; R45
Muta.Cat.2; R46
Repr.Cat.3; R62
Repr.Cat.3; R63
F; R11
T; R48/23
Xn; R20/21
Xn; R48/20
Xi; R36/38
R52/53

Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS02 GHS07 GHS08

Signal word (CLP) : Danger

Hazardous ingredients : benzene; o-xylene; m-xylene; toluene; trichloroethylene; 2-Butanone; carbon disulfide

Hazard statements (CLP) : H225 - Highly flammable liquid and vapor
H312+H332 - Harmful in contact with skin or if inhaled
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H340 - May cause genetic defects
H350 - May cause cancer
H361 - Suspected of damaging fertility or the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure
H412 - Harmful to aquatic life with long lasting effects

Precautionary statements (CLP) : 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
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
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
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308+P313 - IF exposed or concerned: Get medical advice/attention
P362+P364 - Take off contaminated clothing and wash it before reuse
P403+P235 - Store in a well-ventilated place. Keep cool

No labeling applicable

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
carbon disulfide (Component)	(CAS No) 75-15-0 (EC no) 200-843-6 (EC index no) 006-003-00-3	13.3197	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Repr. 2, H361fd STOT RE 1, H372
toluene (Component)	(CAS No) 108-88-3 (EC no) 203-625-9 (EC index no) 601-021-00-3	13.0422	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361d STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304
tetrachloroethylene (Component)	(CAS No) 127-18-4 (EC no) 204-825-9 (EC index no) 602-028-00-4	12.2139	Carc. 2, H351 Aquatic Chronic 2, H411
2-pentanone (Component)	(CAS No) 107-87-9 (EC no) 203-528-1	9.747	Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation), H332 Asp. Tox. 1, H304 Eye Irrit. 2, H319
2-Butanone (Component)	(CAS No) 78-93-3 (EC no) 201-159-0 (EC index no) 606-002-00-3	9.7108	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
trichloroethylene (Component) substance listed as REACH Candidate substance listed in REACH Annex XIV	(CAS No) 79-01-6 (EC no) 201-167-4 (EC index no) 602-027-00-9	8.7776	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Muta. 2, H341 Carc. 1B, H350 STOT SE 3, H336 Aquatic Chronic 3, H412
o-xylene (Component)	(CAS No) 95-47-6 (EC no) 202-422-2 (EC index no) 601-022-00-9	7.9189	Flam. Liq. 3, H226 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315
ethylbenzene (Component)	(CAS No) 100-41-4 (EC no) 202-849-4 (EC index no) 601-023-00-4	7.8343	Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation), H332 STOT RE 2, H373 Asp. Tox. 1, H304
m-xylene (Component)	(CAS No) 108-38-3 (EC no) 203-576-3 (EC index no) 601-022-00-9	7.8198	Flam. Liq. 3, H226 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315
4-Methyl-2-Pentanone (Component)	(CAS No) 108-10-1 (EC no) 203-550-1 (EC index no) 606-004-00-4	7.238	Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation), H332 Eye Irrit. 2, H319 STOT SE 3, H335
benzene (Component)	(CAS No) 71-43-2 (EC no) 200-753-7 (EC index no) 601-020-00-8	0.5265	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Muta. 1B, H340 Carc. 1A, H350 STOT RE 1, H372 Asp. Tox. 1, H304

Name	Product identifier	Specific concentration limits
carbon disulfide (Component)	(CAS No) 75-15-0 (EC no) 200-843-6 (EC index no) 006-003-00-3	(0.2 =<C < 1) STOT RE 2, H373 (C >= 1) STOT RE 1, H372 (C >= 1) Repr. 2, H361fd

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 : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

First-aid measures after skin contact : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Immediately call a poison center or doctor/physician. Wash with plenty of soap and water. Wash contaminated clothing before reuse. Get medical advice/attention.

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

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

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause cancer by inhalation. May cause drowsiness or dizziness.

Symptoms/injuries after skin contact : Repeated exposure to this material can result in absorption through skin causing significant health hazard. Harmful in contact with skin. Causes skin irritation.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

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

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

5.2. Special hazards arising from the substance or mixture

Fire hazard : Highly flammable liquid and vapor.

Explosion hazard : May form flammable/explosive vapor-air mixture.

5.3. Advice for firefighters

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. Avoid breathing dust/fume/gas/mist/vapors/spray.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

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

Additional hazards when processed : Handle empty containers with care because residual vapors are flammable.

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. No open flames. No smoking. Use only non-sparking tools. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Eliminate all ignition sources if safe to do so. Use only outdoors or in a well-ventilated area.

Hygiene measures : Do not eat, drink or smoke when using this product. 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

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.

Storage conditions : Keep in fireproof place. Keep container tightly closed. Keep container tightly closed and in a well-ventilated place. Keep away from any flames or sparking source.

Incompatible materials : Direct sunlight. Heat sources.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

benzene (71-43-2)		
USA OSHA	OSHA PEL (TWA) (ppm)	10 ppm
USA OSHA	OSHA PEL (Ceiling) (ppm)	25 ppm

8.2. Exposure controls

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

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

Respiratory protection : Where exposure through inhalation may occur from use, respiratory protection equipment is recommended.

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

Color	:	Colorless.
Odor	:	characteristic.
pH	:	No data available
Melting point	:	No data available
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	Highly flammable liquid and vapor
Relative density	:	No data available
Solubility	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Explosion limits	:	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

Highly flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

May release flammable gases.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Dermal: Harmful in contact with skin. Inhalation: Harmful if inhaled.

Custom VOA Blend_	
ATE CLP (dermal)	1100.000 mg/kg body weight
ATE CLP (gases)	4500.000 ppmV/4h
ATE CLP (vapors)	11.000 mg/l/4h
ATE CLP (dust, mist)	1.500 mg/l/4h

benzene (71-43-2)	
LD50 oral rat	> 930 mg/kg (Rat; Equivalent or similar to OECD 401; Literature study; > 2000 mg/kg bodyweight; Rat; Experimental value)
LD50 dermal rabbit	> 8240 mg/kg (Rabbit; Experimental value; 21 CFR 191.10; > 9.4; Rabbit)
LC50 inhalation rat (mg/l)	43.767 mg/l/4h (Rat; Experimental value)
LC50 inhalation rat (ppm)	13700 ppm/4h (Rat; Experimental value)
ATE CLP (gases)	13700.000 ppmV/4h
ATE CLP (vapors)	43.767 mg/l/4h
ATE CLP (dust, mist)	43.767 mg/l/4h

ethylbenzene (100-41-4)	
LD50 oral rat	3500 mg/kg (Rat; Other; Experimental value)
LD50 dermal rabbit	15415 mg/kg (Rabbit; Literature study; Other; 15432 mg/kg; Rabbit; Experimental value)
LC50 inhalation rat (mg/l)	17.8 mg/l/4h (Rat; Literature study)
LC50 inhalation rat (ppm)	4000 ppm/4h (Rat; Literature study)
ATE CLP (oral)	3500.000 mg/kg body weight
ATE CLP (dermal)	15415.000 mg/kg body weight
ATE CLP (gases)	4000.000 ppmV/4h
ATE CLP (vapors)	17.800 mg/l/4h

ethylbenzene (100-41-4)	
ATE CLP (dust, mist)	1.500 mg/l/4h

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 CLP (dermal)	12223.000 mg/kg body weight

m-xylene (108-38-3)	
LD50 oral rat	5011 - 6630 mg/kg (Rat)
ATE CLP (oral)	5011.000 mg/kg body weight
ATE CLP (dermal)	1100.000 mg/kg body weight
ATE CLP (gases)	4500.000 ppmV/4h
ATE CLP (vapors)	11.000 mg/l/4h
ATE CLP (dust, mist)	1.500 mg/l/4h

o-xylene (95-47-6)	
LD50 oral rat	3608 mg/kg (Rat)
ATE CLP (oral)	3608.000 mg/kg body weight
ATE CLP (dermal)	1100.000 mg/kg body weight
ATE CLP (gases)	4500.000 ppmV/4h
ATE CLP (vapors)	11.000 mg/l/4h
ATE CLP (dust, mist)	1.500 mg/l/4h

tetrachloroethylene (127-18-4)	
LD50 oral rat	> 2000 mg/kg (Rat; Equivalent or similar to OECD 401; Literature study; 3835 mg/kg bodyweight; Rat; Equivalent or similar to OECD 401; Experimental value; 3005 mg/kg bodyweight; Rat; Experimental value)
LD50 dermal rabbit	> 3000 mg/kg (Rabbit; Literature study; >10000 mg/kg bodyweight; Rabbit; Experimental value)
LC50 inhalation rat (mg/l)	27.58 mg/l/4h (Rat; Literature study)
LC50 inhalation rat (ppm)	3786 ppm/4h (Rat; Experimental value)
ATE CLP (gases)	3786.000 ppmV/4h
ATE CLP (vapors)	27.580 mg/l/4h
ATE CLP (dust, mist)	27.580 mg/l/4h

trichloroethylene (79-01-6)	
LD50 oral rat	4920 mg/kg (Rat)
LD50 dermal rabbit	> 20000 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	66 mg/l/4h (Rat)
LC50 inhalation rat (ppm)	12000 ppm/4h (Rat)
ATE CLP (oral)	4920.000 mg/kg body weight
ATE CLP (gases)	12000.000 ppmV/4h
ATE CLP (vapors)	66.000 mg/l/4h
ATE CLP (dust, mist)	66.000 mg/l/4h

carbon disulfide (75-15-0)	
LD50 oral rat	3188 mg/kg (Rat)
ATE CLP (oral)	3188.000 mg/kg body weight

2-pentanone (107-87-9)	
LD50 oral rat	1600 - 3017 mg/kg (Rat)
LD50 dermal rabbit	6500 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	7 - 14 mg/l/4h (Rat)
LC50 inhalation rat (ppm)	2000 - 4000 ppm/4h (Rat)

4-Methyl-2-Pentanone (108-10-1)	
LD50 oral rat	2080 mg/kg (Rat; Equivalent or similar to OECD 401; Experimental value)
LD50 dermal rat	>= 2000 mg/kg body weight (Rat; Experimental value; OECD 402: Acute Dermal Toxicity)
LD50 dermal rabbit	> 16000 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	8.2- 16.4,Rat; Experimental value
LC50 inhalation rat (ppm)	2000 - 4000 ppm/4h (Rat; Experimental value)
ATE CLP (oral)	2080.000 mg/kg body weight
ATE CLP (gases)	2000.000 ppmV/4h
ATE CLP (vapors)	11.000 mg/l/4h

4-Methyl-2-Pentanone (108-10-1)	
ATE CLP (dust, mist)	1.500 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Causes serious eye irritation.
Based on available data, the classification criteria are not met

Respiratory or skin sensitization : Not classified
Based on available data, the classification criteria are not met

Germ cell mutagenicity : May cause genetic defects.

Carcinogenicity : May cause cancer.
May cause cancer

Reproductive toxicity : Suspected of damaging fertility or the unborn child.

Specific target organ toxicity (single exposure) : May cause drowsiness or dizziness.

Specific target organ toxicity (repeated exposure) : Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified
Based on available data, the classification criteria are not met

Potential Adverse human health effects and symptoms : Harmful in contact with skin.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Harmful to aquatic life with long lasting effects.

benzene (71-43-2)	
LC50 fish 1	5.3 mg/l (LC50; 96 h; Salmo gairdneri)
EC50 Daphnia 2	10 mg/l (EC50; OECD 202: Daphnia sp. Acute Immobilisation Test; 48 h; Daphnia magna)
Threshold limit algae 1	100 mg/l (ErC50; OECD 201: Alga, Growth Inhibition Test; 72 h; Pseudokirchneriella subcapitata; Static system; Fresh water; Experimental value)

ethylbenzene (100-41-4)	
LC50 fish 2	4.2 mg/l (LC50; OECD 203: Fish, Acute Toxicity Test; 96 h; Salmo gairdneri; Semi-static system; Fresh water; Experimental value)

m-xylene (108-38-3)	
EC50 Daphnia 1	4.7 mg/l (EC50; 48 h)
LC50 fish 2	8.4 mg/l (LC50; 96 h)

o-xylene (95-47-6)	
EC50 other aquatic organisms 1	4.7 mg/l (72 h; Selenastrum capricornutum; Growth)
LC50 fish 2	8.05 mg/l (LC50; 96 h)
EC50 Daphnia 2	3.2 mg/l (EC50; 48 h)

tetrachloroethylene (127-18-4)	
EC50 Daphnia 1	8.5 mg/l (EC50; ASTM; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)
Threshold limit algae 2	3.64 mg/l (EC50; Other; 72 h; Chlamydomonas angulosa; Fresh water)

trichloroethylene (79-01-6)	
LC50 fish 1	40.7 mg/l (LC50; 96 h; Pimephales promelas)
EC50 Daphnia 2	20.8 mg/l (EC50; 48 h)

carbon disulfide (75-15-0)	
LC50 fish 2	4.0 mg/l (LC50; OECD 203: Fish, Acute Toxicity Test; 96 h; Poecilia reticulata)
EC50 Daphnia 2	2.1 mg/l (EC50; OECD 202: Daphnia sp. Acute Immobilisation Test; 48 h; Daphnia magna)
Threshold limit algae 1	21 mg/l (EC50; OECD 201: Alga, Growth Inhibition Test; 96 h; Chlorella sp.)

2-pentanone (107-87-9)	
LC50 fish 1	1240 mg/l (LC50; 96 h; Pimephales promelas; Flow-through system)

2-Butanone (78-93-3)	
EC50 Daphnia 1	308 mg/l (EC50; OECD 202: Daphnia sp. Acute Immobilisation Test; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)
LC50 fish 2	2993 mg/l (LC50; OECD 203: Fish, Acute Toxicity Test; 96 h; Pimephales promelas; Static system; Fresh water; Experimental value)

12.2. Persistence and degradability

Custom VOA Blend_	
Persistence and degradability	May cause long-term adverse effects in the environment.

benzene (71-43-2)	
Persistence and degradability	Readily biodegradable in water. Ozonation in water. Forming sediments in water. Biodegradable in the soil. Low potential for adsorption in soil. Photolysis in the air.
Biochemical oxygen demand (BOD)	2.18 g O□ /g substance
Chemical oxygen demand (COD)	2.15 g O□ /g substance
ThOD	3.10 g O□ /g substance
BOD (% of ThOD)	0.70

ethylbenzene (100-41-4)	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Low potential for adsorption in soil.
Biochemical oxygen demand (BOD)	1.44 g O□ /g substance (20d.)
Chemical oxygen demand (COD)	2.1 g O□ /g substance
ThOD	3.17 g O□ /g substance
BOD (% of ThOD)	45.4 (20 days)

toluene (108-88-3)	
Persistence and degradability	Readily biodegradable in water. easily degradable in the soil.
Biochemical oxygen demand (BOD)	2.15 g O□ /g substance
Chemical oxygen demand (COD)	2.52 g O□ /g substance
ThOD	3.13 g O□ /g substance
BOD (% of ThOD)	0.69

m-xylene (108-38-3)	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Photolysis in the air. Photooxidation in the air.
Biochemical oxygen demand (BOD)	2.53 g O□ /g substance
Chemical oxygen demand (COD)	2.63 g O□ /g substance
ThOD	3.1 g O□ /g substance

o-xylene (95-47-6)	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Photodegradation in the air.
Biochemical oxygen demand (BOD)	1.64 g O□ /g substance
Chemical oxygen demand (COD)	2.91 g O□ /g substance
ThOD	3.125 g O□ /g substance

tetrachloroethylene (127-18-4)	
Persistence and degradability	Not readily biodegradable in water. Low potential for adsorption in soil.
Biochemical oxygen demand (BOD)	0.06 g O□ /g substance
ThOD	0.39 g O□ /g substance
BOD (% of ThOD)	0.15

trichloroethylene (79-01-6)	
Persistence and degradability	Not readily biodegradable in water. Non degradable in the soil. Biodegradable in the soil under anaerobic conditions.

carbon disulfide (75-15-0)	
Persistence and degradability	Readily biodegradable in water. Biodegradability in soil: no data available.

2-pentanone (107-87-9)	
Persistence and degradability	Biodegradable in water. Biodegradable in the soil. Low potential for adsorption in soil. Highly mobile in soil.
BOD (% of ThOD)	0.43

2-Butanone (78-93-3)	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Biodegradable in the soil under anaerobic conditions.
Biochemical oxygen demand (BOD)	2.03 g O□ /g substance
Chemical oxygen demand (COD)	2.31 g O□ /g substance
ThOD	2.44 g O□ /g substance
BOD (% of ThOD)	> 0.5 (5 days; Literature study)

4-Methyl-2-Pentanone (108-10-1)	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Biodegradable in the soil under anaerobic conditions. Low potential for adsorption in soil. Photolysis in the air.
Biochemical oxygen demand (BOD)	2.06 g O□ /g substance
Chemical oxygen demand (COD)	2.16 g O□ /g substance
ThOD	2.72 g O□ /g substance
BOD (% of ThOD)	0.76

12.3. Bioaccumulative potential

Custom VOA Blend_	
Bioaccumulative potential	Not established.

benzene (71-43-2)	
BCF fish 1	19 (BCF)
BCF fish 2	< 10 (BCF; OECD 305: Bioconcentration: Flow-Through Fish Test; 3 days; Leuciscus idus; Flow-through system; Fresh water; Experimental value)
BCF other aquatic organisms 1	30 (BCF; 24 h; Chlorella sp.)
Log Pow	2.13 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

ethylbenzene (100-41-4)	
BCF fish 1	1 (BCF; Other; 6 weeks; Oncorhynchus kisutch; Flow-through system; Salt water; Literature study)
BCF fish 2	15 - 79 (BCF)
BCF other aquatic organisms 1	4.68 (BCF)
Log Pow	3.15 (Experimental value; 3.6; Experimental value; EU Method A.8: Partition Coefficient; 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

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).

m-xylene (108-38-3)	
BCF fish 1	15 (BCF)
BCF fish 2	24 (BCF)
Log Pow	3.20 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

o-xylene (95-47-6)	
BCF fish 1	21.4 (BCF)
BCF fish 2	14.1 (BCF)
BCF other aquatic organisms 1	219 (BCF)
Log Pow	3.12 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

tetrachloroethylene (127-18-4)	
BCF fish 2	25.8 - 77.1 (BCF; 8 weeks)
Log Pow	3.40 (Experimental value; 2.53; Experimental value; Equivalent or similar to OECD 107; 23 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

trichloroethylene (79-01-6)	
BCF fish 1	17 (BCF; 336 h)
BCF fish 2	90 (BCF; 72 h; Leuciscus idus)
BCF other aquatic organisms 1	3440 (BCF; 120 h)
BCF other aquatic organisms 2	4270 (BCF; 120 h)
Log Pow	2.29 - 2.42 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

carbon disulfide (75-15-0)	
BCF fish 1	4.3 - 8 (BCF)
BCF fish 2	< 60 (BCF)
Log Pow	1.94 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

2-pentanone (107-87-9)	
BCF other aquatic organisms 1	3
Log Pow	0.91 (Test data)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

2-Butanone (78-93-3)	
Log Pow	0.3 (Experimental value; OECD 117: Partition Coefficient (n-octanol/water), HPLC method; 40 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

4-Methyl-2-Pentanone (108-10-1)	
BCF fish 1	2 - 5 (BCF)

4-Methyl-2-Pentanone (108-10-1)	
Log Pow	1.9 (Experimental value; OECD 117: Partition Coefficient (n-octanol/water), HPLC method)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

benzene (71-43-2)	
Surface tension	0.029 N/m (20 °C)
Log Koc	Koc,134.1; QSAR

ethylbenzene (100-41-4)	
Surface tension	0.029 N/m
Log Koc	log Koc,PCKOCWIN v1.66; 2.71; Calculated value; Koc; PCKOCWIN v1.66; 517.8; Calculated value

toluene (108-88-3)	
Surface tension	0.03 N/m (20 °C)

m-xylene (108-38-3)	
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

o-xylene (95-47-6)	
Surface tension	0.003 N/m (25 °C)
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

tetrachloroethylene (127-18-4)	
Surface tension	0.0313 N/m (20 °C)
Log Koc	Koc,141; Experimental value; log Koc; 2.15; Experimental value

trichloroethylene (79-01-6)	
Surface tension	0.03 N/m

carbon disulfide (75-15-0)	
Surface tension	0.032 N/m (20 °C)

2-pentanone (107-87-9)	
Log Koc	Koc,74; Estimated value; log Koc; 1.87; Estimated value

2-Butanone (78-93-3)	
Surface tension	0.024 N/m (20 °C)
Log Koc	Koc,34; Calculated value
Ecology - soil	Slightly harmful to plants.

4-Methyl-2-Pentanone (108-10-1)	
Surface tension	0.024 N/m (20 °C)
Log Koc	Koc,101.85; Weight of evidence; Calculated value; log Koc; 2.008; Weight of evidence; Calculated value

12.5. Results of PBT and vPvB assessment

Component	
trichloroethylene (79-01-6)	This substance/mixture does not meet the PBT criteria of REACH, annex XIII This substance/mixture does not meet the vPvB criteria of REACH, annex XIII

12.6. Other adverse effects

Additional information : Avoid release to the environment

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Additional information : Handle empty containers with care because residual vapors are flammable.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 1993

UN-No.(IATA) : 1993

UN-No. (IMDG) : 1993

UN-No.(ADN) : 1993

14.2. UN proper shipping name

Proper Shipping Name (ADR) : FLAMMABLE LIQUID, N.O.S.

Proper Shipping Name (IATA)	:	Flammable liquid, n.o.s.
Proper Shipping Name (IMDG)	:	FLAMMABLE LIQUID, N.O.S.
Proper Shipping Name (ADN)	:	FLAMMABLE LIQUID, N.O.S.
Transport document description (ADR)	:	UN 1993 FLAMMABLE LIQUID, N.O.S., 3, II, (D/E)

14.3. Packing group

Class (ADR)	:	3
Classification code (ADR)	:	F1
Class (IATA)	:	3
Class (IMDG)	:	3
Class (ADN)	:	3
Classification code (ADN)	:	F1
Hazard labels (ADR)	:	3

Hazard labels (IATA)	:	3

Hazard labels (IMDG)	:	3

Hazard labels (ADN)	:	3

14.4. Packing group

Packing group (ADR)	:	II
Packing group (IATA)	:	II
Packing group (IMDG)	:	II
Packing group (ADN)	:	II

14.5. Environmental hazards

Other information	:	No supplementary information available.

14.6. Special precautions for user

14.6.1. Overland transport

Hazard identification number (Kemler No.)	:	33
Classification code (ADR)	:	F1
Orange plates	:	33 1993
Special provision (ADR)	:	274, 601, 640D
Transport category (ADR)	:	2
Tunnel restriction code (ADR)	:	D/E
Limited quantities (ADR)	:	1l
Excepted quantities (ADR)	:	E2

14.6.2. Transport by sea

Special provision (IMDG)	:	274
Limited quantities (IMDG)	:	1 L
Excepted quantities (IMDG)	:	E2

Packing instructions (IMDG)	:	P001
IBC packing instructions (IMDG)	:	IBC02
Tank instructions (IMDG)	:	T7
Tank special provisions (IMDG)	:	TP1, TP8, TP28
EmS-No. (Fire)	:	F-E
EmS-No. (Spillage)	:	S-E
Stowage category (IMDG)	:	B

14.6.3. Air transport

CAO packing instructions (IATA)	:	364
CAO max net quantity (IATA)	:	60L
PCA packing instructions (IATA)	:	353
PCA Limited quantities (IATA)	:	Y341
PCA limited quantity max net quantity (IATA)	:	1L
PCA max net quantity (IATA)	:	5L
PCA Excepted quantities (IATA)	:	E2
Special provision (IATA)	:	A3
ERG code (IATA)	:	3H

14.6.4. Inland waterway transport

Special provision (ADN)	:	274, 601, 640D
Limited quantities (ADN)	:	1 L
Excepted quantities (ADN)	:	E2
Carriage permitted (ADN)	:	T
Equipment required (ADN)	:	PP, EX, A
Ventilation (ADN)	:	VE01
Number of blue cones/lights (ADN)	:	1
Carriage prohibited (ADN)	:	No

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no substances with Annex XVII restrictions

Contains substance on the candidate list in concentration ≥ 0.1% or with a lower specific limit: Trichloroethylene (EC 201-167-4, CAS 79-01-6)

Contains REACH Annex XIV substances:

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

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.

PHV SDS EU