

**1. INFORMATION OF THE SUBSTANCE/PREPARATION AND COMPANY****1.1 Product name**

Extraction Kit for 1,25(OH)<sub>2</sub> Vitamin D assay  
Catalog # RIS024R  
Kit components: Ethyl acetate  
Cyclohexane  
Dichloromethane  
Diisopropylether  
Ethanol

**1.2 Intended Use**

In vitro diagnostic use

**1.3 Company**

BioVendor – Laboratorní medicína a.s.  
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Tel. Nr. +420 549 124 185  
e-mail: [info@biovendor.com](mailto:info@biovendor.com)

**1.4 In emergencies**

Call your local emergency centre

**2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture:****2.1.1 Classification according to Regulation (EC) no 1272/2008 (CLP)****Ethanol**

Flammable liquid cat. 2

**Cyclohexane**

Flammable liquid Cat. 2

Skin irritation Cat. 2

Specific target organ toxicity - single exposure Cat. 3 (Central nervous system)

Aspiration hazard Cat. 1

Aquatic Acute toxicity Cat. 1 – Aquatic chronic toxicity Cat. 1

**Dichloromethane**

Carcinogenic Category 2

**Diisopropyl ether**

Flammable liquids Cat. 2

Specific target organ toxicity - single exposure Cat. 3

**Ethyl acetate**

Flammable liquid Cat. 2

Eye irritation Cat. 2

Specific target organ toxicity - single exposure Cat. 3 (Central nervous system)

**2.1.2 Classification according to Directive 1999/45/EC**

**Ethanol**

Flammable liquid

**Cyclohexane**

Highly flammable

Harmful

Irritant

Dangerous for the environment

**Dichloromethane**

Harmful

**Diisopropyl ether**

Highly flammable

May form explosive peroxides

**Ethyl acetate**

Highly flammable

Irritant

**2.1.3 Additional Information**

none

**2.2 Label elements:**

Labeling according to Regulation (EC) no 1272/2008 (CLP)

**Ethanol**



H225  
P210

Danger

**Cyclohexane**



H225- H304-H315-H336-H410  
P210-P261-P273-P301+310-P331-P501

Danger

**Dichloromethane**



H351  
P281-P308+313

Warning

**Diisopropyl ether**



H225-H336  
P210-P261

Danger

**Ethyl acetate**



H225-H319-H336  
P210-P233-P240-P305+351+338-P403+235

Danger

**2.3 Other hazards:**

none

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	Classification	Concentration
<b>Ethanol containing:</b>		
<b>Ethanol</b>		
CAS-No.	64-17-5	Flammable liquid cat. 2, H225
EC-No.	200-578-6	
Index-No.	603-002-00-5	
<b>Cyclohexane containing:</b>		
<b>Cyclohexane</b>		
CAS-No.	110-82-7	Flam. Liq. 2; Skin Irrit. 2; STOT SE 3; Asp. Tox. 1; Aquatic Acute 1; Aquatic Chronic 1; H225, H304, H315, H336, H410
EC-No.	203-806-2	
Index-No.	601-017-00-1	

<b>Dichloromethane containing:</b>			
<b>Dichloromethane</b>			
CAS-No.	75-09-2	Carcinogenic Category 2, H351	100%
EC-No.	200-838-9		
Index-No.	602-004-00-3		
<b>Diisopropyl ether containing:</b>			
<b>Diisopropyl ether</b>			
CAS-No.	108-20-3	Flammable liquids Cat. 2, H225;	100%
EC-No.	203-560-6	STOT Cat. 3, H336	
Index-No.	603-045-00-X		
<b>Ethyl acetate containing:</b>			
<b>Ethyl acetate</b>			
CAS-No.	141-78-6	Flammable liquids Cat. 2, H225;	100%
EC-No.	205-500-4	Eye irritation Cat. 2, H319; STOT	
Index-No.	607-022-00-5	Cat.3, H336	

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### **Ethanol:**

After inhalation: fresh air.

After skin contact: wash off with plenty of water. Remove contaminated clothing.

After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist if necessary.

After swallowing: immediately make victim drinkwater (two glasses at the most). Consult doctor in the event of any complaints.

#### **Cyclohexane:**

After inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

After skin contact: Wash off with soap and plenty of water. Consult a physician.

After eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

After swallowing: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

#### **Dichloromethane:**

After inhalation: fresh air. Consult a physician.

After skin contact: wash off with plenty of water. Remove contaminated clothing. Consult a physician.

After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist if necessary.

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Call a physician immediately. Subsequently administer: activated charcoal (20 - 40 g in 10% slurry).

**Diisopropyl Ether:**

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

If skin contact: Wash off with soap and plenty of water. Consult a physician.

If eye contact: Flush eyes with water as a precaution.

If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**Ethyl acetate:**

If inhalation: fresh air. Consult doctor if feeling unwell.

If skin contact: wash off with plenty of water. Remove contaminated clothing.

If eye contact: rinse out with plenty of water. Call in ophthalmologist.

If swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately. Subsequently administer: activated charcoal (20 - 40 g in 10% slurry). Laxative: Sodium sulfate (1 tablespoon/1/4 l water).

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

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

No data available.

**5. FIRE FIGHTING MEASURES****Ethanol:*****Suitable extinguishing media***

Carbon dioxide (CO<sub>2</sub>), Foam, Dry powder

***Specific hazards during fire fighting***

Combustible material

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air at ambient temperatures.

Development of hazardous combustion gases or vapours possible in the event of fire.

Pay attention to flashback.

***Special protective equipment for fire-fighters***

Do not stay in dangerous zone without self-contained breathing apparatus.

***Further information***

Cool closed containers exposed to fire with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system.

**Cyclohexane:*****Suitable extinguishing media***

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

***Special hazards arising from the substance***

Carbon oxides

***Advice for firefighters***

Wear self contained breathing apparatus for fire fighting if necessary.

***Further information***

Use water spray to cool unopened containers

**Dichloromethane:*****Suitable extinguishing media***

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

***Unsuitable extinguishing media***

For this substance/mixture no limitations of extinguishing agents are given.

***Special hazards arising from the substance***

Not combustible. Vapours are heavier than air and may spread along floors.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of: Hydrogen chloride gas, Phosgene

***Advice for firefighters***

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

***Further information***

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

**Diisopropyl ether:*****Suitable extinguishing media***

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

***Special hazards arising from the substance***

Carbon oxides

***Advice for firefighters***

Wear self contained breathing apparatus for fire fighting if necessary.

***Further information***

Use water spray to cool unopened containers.

**Ethyl acetate:*****Suitable extinguishing media***

Carbon dioxide (CO<sub>2</sub>), Dry powder, Foam

***Special hazards arising from the substance***

Combustible.

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air at ambient temperatures.

Pay attention to flashback.

Development of hazardous combustion gases or vapours possible in the event of fire.

***Advice for firefighters***

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

**6. ACCIDENTAL RELEASE MEASURES****Ethanol:*****Personal precautions***

Avoid substance contact. Do not breathe vapours, aerosols. Ensure supply of fresh air in enclosed rooms.

***Environmental precautions***

Do not empty into drains. Explosive properties

***Methods for cleaning up***

Take up with liquid-absorbent material (e.g. Chemizorb®). Forward for disposal. Clean up affected area.

**Cyclohexane:*****Personal precautions***

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

***Environmental precautions***

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

***Methods for containment and cleaning up***

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and Reference to other sections. For disposal see section 13.

**Dichloromethane:*****Personal precautions***

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: Protective equipment see section 8.

***Environmental precautions***

Do not empty into drains.

***Methods for containment and cleaning up***

Cover drains. Collect, bind, and pump off spills.  
Observe possible material restrictions (see sections 7 and 10)  
Take up with liquid-absorbent material (e.g. Chemisorb®).  
Dispose of properly. Clean up affected area.  
Indications about waste treatment see section 13

**Diisopropyl ether:*****Personal precautions***

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

***Environmental precautions***

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

***Methods for containment and cleaning up***

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

**Ethyl acetate:*****Personal precautions***

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. Protective equipment see section 8.

***Environmental precautions***

Do not empty into drains. Risk of explosion.

***Methods for containment and cleaning up***

Cover drains. Collect, bind, and pump off spills.  
Observe possible material restrictions (see sections 7 and 10).



Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

<b>7. HANDLING AND STORAGE</b>
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**Ethanol:****Handling**

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

**Storage**

Further information on storage conditions. Tightly closed in a well-ventilated place, away from sources of ignition and heat. Without limitations.

**Cyclohexane:****Handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

**Storage**

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store under inert gas.

**Dichloromethane:****Handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

**Hygiene measures:**

Immediately change contaminated clothing. Apply preventive skinprotection. Wash hands and face after working with substance.

**Storage**

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons. Protected from light.

**Diisopropyl ether:****Handling**

Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

**Storage**

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

**Ethyl acetate:****Handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols. Keep away from open flames, hot surfaces and sources of ignition.

Take precautionary measures against static discharge.

**Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.



**Storage**

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control parameters**

Components with workplace control parameters

Component	Country	Source	Type	Value
Ethanol CAS 64-17-5	Poland		NDS	1900 mg/m <sup>3</sup>
	Poland		NDSch	-
	Poland		NDSP	-
	Denmark	OEL	TWA	1900 mg/m <sup>3</sup>
	Germany	TRGS 900	OEL	1900 mg/m <sup>3</sup>
				11000 ppm
	Norway		OEL	950 mg/m <sup>3</sup>
				550 ppm
	Sweden		LLV	1000 mg/m <sup>3</sup>
				500 ppm
	Switzerland	OEL	OEL	960 mg/m <sup>3</sup>
				500 ppm
United Kingdom	OEL	OEL	1920 mg/m <sup>3</sup>	
			1000 ppm	

**Dichloromethane:**

Derived No Effect Level (DNEL)

Worker DNEL, acute Systemic effects inhalation 706 mg/m<sup>3</sup>  
 Worker DNEL, longterm Systemic effects inhalation 353 mg/m<sup>3</sup>  
 Worker DNEL, longterm Systemic effects dermal 4750 mg/kg Body weight  
 Consumer DNEL, longterm Systemic effects oral 0,06 mg/kg Body weight  
 Consumer DNEL, longterm Systemic effects dermal 2395 mg/kg Body weight  
 Consumer DNEL, longterm Systemic effects inhalation 88,3 mg/m<sup>3</sup>  
 Consumer DNEL, acute Systemic effects inhalation 353 mg/m<sup>3</sup>

Predicted No Effect Concentration (PNEC)

PNEC Fresh water 0,54 mg/l  
 PNEC Fresh water sediment 4,47 mg/kg  
 PNEC Marine water 0,194 mg/l  
 PNEC Marine sediment 1,61 mg/kg  
 PNEC Aquatic intermittent release 0,27 mg/l  
 PNEC Sewage treatment plant 26 mg/l  
 PNEC Soil 0,583 mg/kg

**Ethyl acetate:**

Derived No Effect Level (DNEL)

Worker DNEL, acute Systemic effects inhalation 1468 mg/m<sup>3</sup>  
 Worker DNEL, acute Local effects inhalation 1468 mg/m<sup>3</sup>

Worker DNEL, longterm Systemic effects dermal 63 mg/kg Body weight  
 Worker DNEL, longterm Systemic effects inhalation 734 mg/m<sup>3</sup>  
 Worker DNEL, longterm Local effects inhalation 734 mg/m<sup>3</sup>  
 Consumer DNEL, acute Systemic effects inhalation 734 mg/m<sup>3</sup>  
 Consumer DNEL, acute Local effects inhalation 734 mg/m<sup>3</sup>  
 Consumer DNEL, longterm Systemic effects dermal 37 mg/kg Body weight  
 Consumer DNEL, longterm Systemic effects inhalation 367 mg/m<sup>3</sup>  
 Consumer DNEL, longterm Systemic effects oral 4,5 mg/kg Body weight  
 Consumer DNEL, longterm Local effects inhalation 367 mg/m<sup>3</sup>

Predicted No Effect Concentration (PNEC)

PNEC Fresh water 0,26 mg/l  
 PNEC Marine water 0,026 mg/l  
 PNEC Fresh water sediment 1,25 mg/kg  
 PNEC Marine sediment 0,125 mg/kg  
 PNEC Soil 0,24 mg/kg

**8.2 Exposure Controls**

**8.2.1 Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**8.2.2 Personal protection equipment**

**All Kit Components**

- |                               |   |
|-------------------------------|---|
| <i>Respiratory Protection</i> | - Insufficient ventilation: wear respiratory protection<br>- Required when vapours/aerosols are generated |
| <i>Hand Protection</i>        | - Gloves, nitrile rubber, layer thickness: 0.40 mm, breakthrough time: > 120 min                          |
| <i>Eye Protection</i>         | - Safety goggles required<br>- Face shields   |
| <i>Skin Protection</i>        | - Protective Clothing   |

<b>9. PHYSICAL AND CHEMICAL PROPERTIES</b>
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**9.1 Information on basic physical and chemical properties**

**Ethanol:**

Form	liquid
Colour	colourless
Odour	alcohol-like
pH	7,0 at 10 g/l 20 °C
Viscosity, dynamic	1,2 mPa.s at 20 °C
Melting point	-114,5 °C
Boiling point/boiling range	78,3 °C
Ignition temperature	425 °C (DIN 51794)
Flash point	12 °C c.c.
Oxidizing properties	no data available
Flammability	no data available
Lower explosion limit	3,5 %(V)
Upper explosion limit	15 %(V)
Vapour pressure	59 hPa at 20 °C

Relative vapour density	1,6
Density	0,790 - 0,793 g/cm <sup>3</sup> at 20 °C
Solubility/qualitative	no data available
Water solubility at 20 °C	soluble
Partition coefficient:	noctanol/water: log Pow: -0,31 (experimental), (Lit.), No bioaccumulation is to be expected (log Pow <1).
Evaporation rate	no data available

### Cyclohexane:

Appearance Form	liquid
Colour	colourless
Odour	no data available
Odour Threshold	no data available
pH	no data available
Melting point/freezing point	Melting point/range: 4 - 7 °C - lit.
Initial boiling point and boiling range	80,7 °C - lit.
Flash point	-18,0 °C - closed cup
Evaporation rate	no data available
Flammability (solid, gas)	no data available
Upper/lower flammability or explosive limits	Upper explosion limit: 9 %(V) Lower explosion limit: 1 %(V)
Vapour pressure	225,0 hPa at 37,7 °C; 102,7 hPa at 20,0 °C
Vapour density	no data available
Relative density	0,779 g/cm <sup>3</sup> at 25 °C
Water solubility	no data available
Partition coefficient	noctanol/water: log Pow: 3,44
Auto-ignition temperature	260,0 °C
Decomposition temperature	no data available
Viscosity	no data available
Explosive properties	no data available
Oxidizing properties	no data available

### Dichloromethane:

Form	liquid
Colour	colourless
Odour	sweet
Odour Threshold	24,9 - 611,7 ppm
pH	neutral at 20 °C
Melting point	-95 °C
Boiling point/boiling range	40 °C at 1.013 hPa
Flash point	does not flash
Evaporation rate	1,9
Flammability (solid, gas)	not applicable
Lower explosion limit	13 %(V)
Upper explosion limit	22 %(V)
Vapour pressure	475 hPa at 20 °C
Relative vapour density	2,93
Density	1,33 g/cm <sup>3</sup> at 20 °C
Relative density	No information available.

Water solubility	20 g/l at 20 °C
Partition coefficient	noctanol/water: log Pow: 1,25 (experimental) (Lit.) Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	> 120 °C
Viscosity, dynamic	0,43 mPa.s at 20 °C
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	605 °C (DIN 51794)

**Diisopropyl ether:**

Form	clear, liquid
Colour	colourless
Odour	no data available
Odour Threshold	no data available
pH	no data available
Melting point/freezing point	Melting point/range: -85 °C - lit.
Initial boiling point and boiling range	68 - 69 °C - lit.
Flash point	-29 °C - closed cup
Evaporation rate	no data available
Flammability (solid, gas)	no data available
Upper explosion limit	21 %(V)
Lower explosion limit	1 %(V)
Vapour pressure	227 hPa at 25 °C; 160 hPa at 20 °C
Vapour density	3,53 - (Air = 1.0)
Relative density	0,725 g/mL at 25 °C
Water solubility	ca.10,2 g/l
Partition coefficient	no data available
Autoignition temperature	no data available
Decomposition temperature	no data available
Viscosity	no data available
Explosive properties	no data available
Oxidizing properties	no data available

**Ethyl acetate:**

Form	liquid
Colour	colourless
Odour	like fruit
Odour Threshold	0,1 - 181,5 ppm
pH	No information available.
Melting point	-83 °C
Boiling point/boiling range	77 °C at 1.013 hPa
Flash point	-4 °C (Method: c.c. )
Evaporation rate	No information available.
Flammability (solid, gas)	not applicable
Lower explosion limit	2,1 %(V)
Upper explosion limit	11,5 %(V)
Vapour pressure	97 hPa at 20 °C
Relative vapour density	3,04
Density	0,90 g/cm <sup>3</sup> at 20 °C

Relative density	No information available.
Water solubility	85,3 g/l at 20 °C
Partition coefficient:	noctanol/water: log Pow: 0,73 (experimental) (Lit.) Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	Distillable in an undecomposed state at normal pressure.
Viscosity, dynamic	0,44 mPa.s at 20 °C
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	460 °C (Method: DIN 51794)
Minimum ignition energy	1,42 mJ

## 9.2 Other Information

No data available

## 10. STABILITY AND REACTIVITY

### Ethanol:

#### **Conditions to avoid**

Warming. A range from approx. 15 Kelvin below the flash point is to be rated as critical.

#### **Materials to avoid**

Risk of explosion with:

Risk of ignition or formation of inflammable gases or vapors with:

Alkali metals, Alkaline earth metals, alkali oxides, Strong oxidizing agents, halogen-halogen compounds, CrO<sub>3</sub>, chromyl chloride, Ethylene oxide, Fluorine, perchlorates, potassium permanganate, sulphuric acid, perchloric acid, permanganic acid, Oxides of phosphorus, Nitric acid, nitrogen dioxide, uranium hexafluoride, hydrogen peroxide.

#### **Hazardous decomposition products**

no information available

#### **Further information**

unsuitable working materials: rubber, various plastics. Vapours may form explosive mixture with air.

### Cyclohexane:

#### **Reactivity**

no data available

#### **Chemical stability**

Stable under recommended storage conditions.

#### **Possibility of hazardous reactions**

no data available

#### **Conditions to avoid**

Heat, flames and sparks. Extremes of temperature and direct sunlight. Incompatible materials: Strong oxidizing agents

### Dichloromethane:

#### **Reactivity**

Risk of explosion with: Alkali metals, nitrogen oxides, nitrogen dioxide, Potassium, sodium azide, perchloric acid, Nitric acid, aluminium chloride, Amines, Oxygen, (as liquefied gas), powdered aluminium, sodium aromatic hydrocarbons, with powdered aluminium

Exothermic reaction with: Alkaline earth metals, Powdered metals, amides, alcoholates, nonmetallic oxides, potassium tertbutanolate, sodium amide

**Chemical stability**

Sensitivity to light

**Conditions to avoid**

no information available

Incompatible materials: rubber, various plastics, Light metals, Metals, Mild steel

**Diisopropyl ether:**

**Reactivity**

no data available

**Chemical stability**

no data available. Contains the following stabiliser(s):BHT (0,001 %)

**Possibility of hazardous reactions**

no data available

**Conditions to avoid**

Heat, flames and sparks. Extremes of temperature and direct sunlight.

Incompatible materials: Strong oxidizing agents

**Hazardous decomposition products**

Other decomposition products - no data available

**Ethyl acetate:**

**Reactivity**

Vapours may form explosive mixture with air.

**Chemical stability**

Sensitivity to light, Sensitive to air.

**Possibility of hazardous reactions**

Exothermic reaction with: Fluorine, chlorosulfonic acid, Strong oxidizing agents, fuming sulfuric acid. Risk of explosion with: lithium aluminium hydride, Alkali metals, hydrides.

**Conditions to avoid**

Incompatible materials: various plastics

**Hazardous decomposition products**

no information available

<b>11. TOXICOLOGICAL INFORMATION</b>
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**11.1 Information on toxicological effects**

**Ethanol:**

*Acute oral toxicity*

LD50 rat: 6.200 mg/kg (IUCLID)

*Symptoms:*

Nausea, Vomiting

*Acute inhalation toxicity*

LC50 rat: 95,6 mg/l; 4 h (RTECS)

*Absorption symptoms:*

slight mucosal irritations

*Acute dermal toxicity*

This information is not available.

*Skin irritation*

rabbit

Result: No irritation

OECD Test Guideline 404

Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

*Eye irritation*

This information is not available.

*Sensitisation*

Sensitisation test (Magnusson and Kligman):

Result: negative (IUCLID)

*Germ cell mutagenicity*

Genotoxicity in vitro

Ames test



	Salmonella typhimurium
	Result: negative (National Toxicology Program)
<i>Carcinogenicity</i>	This information is not available.
<i>Reproductive toxicity</i>	This information is not available.
<i>Teratogenicity</i>	This information is not available.
<i>Specific target organ toxicity - single exposure</i>	This information is not available.
<i>Specific target organ toxicity - repeated exposure</i>	This information is not available.
<i>Aspiration hazard</i>	This information is not available
<b>Cyclohexane:</b>	
<i>Acute toxicity</i>	LD50 Oral - rat - 12.705 mg/kg LC50 Inhalation - rat - 4 h - 34.000 mg/l (OECD Test Guideline 403)
<i>Skin corrosion/irritation</i>	LD50 Dermal - rabbit - > 2.000 mg/kg Skin - rabbit Result: No skin irritation Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
<i>Serious eye damage/eye irritation</i>	Eyes - rabbit Result: Mild eye irritation
<i>Respiratory or skin sensitization</i>	no data available
<i>Germ cell mutagenicity</i>	no data available
<i>Carcinogenicity</i>	IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
<i>Reproductive toxicity</i>	no data available
<i>Specific target organ toxicity - single exposure</i>	May cause drowsiness or dizziness.
<i>Specific target organ toxicity - repeated exposure</i>	no data available
<i>Aspiration hazard</i>	May be fatal if swallowed and enters airways.
<i>Additional Information</i>	RTECS: GU6300000 Central nervous system depression, Drowsiness, Irritability, Dizziness, Gastrointestinal disturbance, Lung irritation, chest pain, pulmonary edema
<b>Dichloromethane:</b>	
<i>Acute oral toxicity</i>	LD50 rat: 1.600 mg/kg (RTECS) LDLO human: 357 mg/kg (RTECS) Symptoms: Nausea, Vomiting, Risk of aspiration upon vomiting., Aspiration may cause pulmonary oedema and pneumonitis.
<i>Acute inhalation toxicity</i>	LC50 rat: 88 mg/l; 30 min (IUCLID) Symptoms: mucosal irritations
<i>Acute dermal toxicity</i>	LD50 rat: > 2.000 mg/kg OECD Test Guideline 402
<i>Skin irritation</i>	rabbit Result: Irritations (IUCLID)



<i>Eye irritation</i>	Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product. rabbit Result: slight irritation (IUCLID)
<i>Sensitisation</i>	Risk of corneal clouding. Patch test: Result: negative (IUCLID)
<i>Germ cell mutagenicity</i>	Genotoxicity in vitro Mutagenicity (mammal cell test): chromosome aberration. Result: negative (National Toxicology Program) Ames test Salmonella typhimurium Result: positive (Method: OECD Test Guideline 471)
<i>Carcinogenicity</i>	This information is not available.
<i>Reproductive toxicity</i>	This information is not available.
<i>Teratogenicity</i>	This information is not available.
<i>CMR effects</i>	Carcinogenicity: Suspected of causing cancer.
<i>Specific target organ toxicity - single exposure</i>	This information is not available.
<i>Specific target organ toxicity - repeated exposure</i>	This information is not available.
<i>Aspiration hazard</i>	This information is not available.
<b>Diisopropyl ether:</b>	
<i>Acute toxicity</i>	LD50 Oral - rat - 8.470 mg/kg LC50 Inhalation - rat - 162.000 mg/m <sup>3</sup> Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Change in motor activity (specific assay). Behavioral:Muscle contraction or spasticity. LD50 Dermal - rabbit - 14.480 mg/kg
<i>Skin corrosion/irritation</i>	Skin - rabbit - Mild skin irritation
<i>Serious eye damage/eye irritation</i>	no data available
<i>Respiratory or skin sensitization</i>	no data available
<i>Germ cell mutagenicity</i>	no data available
<i>Carcinogenicity</i>	IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
<i>Reproductive toxicity</i>	Reproductive toxicity - rat - Inhalation Maternal Effects: Other effects. Specific Developmental Abnormalities: Musculoskeletal system.
<i>Specific target organ toxicity - single exposure</i>	May cause drowsiness or dizziness.
<i>Specific target organ toxicity - repeated exposure</i>	no data available
<i>Aspiration hazard</i>	no data available
<i>Potential health effects</i>	Inhalation May be harmful if inhaled. May cause respiratory tract irritation. Vapours may cause drowsiness and dizziness. Ingestion May be harmful if swallowed.

<i>Signs and Symptoms of Exposure</i>	<p>Skin May be harmful if absorbed through skin. May cause skin irritation.</p> <p>Eyes May cause eye irritation.</p> <p>Nausea, Headache, Vomiting, narcosis</p> <p>RTECS: TZ5425000</p>
<i>Additional Information</i>	
<b>Ethyl acetate:</b>	
<i>Acute oral toxicity</i>	<p>LD50 rat: 5.620 mg/kg (RTECS)</p> <p>Symptoms: Risk of aspiration upon vomiting., Aspiration may cause pulmonary oedema and pneumonitis., Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.</p>
<i>Acute inhalation toxicity</i>	<p>LC50 rat: 5,86 mg/l; 8 h (Lit.)</p> <p>Symptoms: Possible damages:, mucosal irritations</p>
<i>Acute dermal toxicity</i>	<p>LD50 rabbit: &gt; 18.000 mg/kg (External MSDS)</p>
<i>Skin irritation</i>	<p>rabbit</p> <p>Result: No skin irritation (IUCLID)</p> <p>Repeated exposure may cause skin dryness or cracking.</p>
<i>Eye irritation</i>	<p>rabbit</p> <p>Result: slight irritation (OECD Test Guideline 405) (Regulation (EC) No 1272/2008, Annex VI)</p> <p>Causes serious eye irritation.</p>
<i>Sensitisation</i>	<p>Maximisation Test (GPMT) guinea pig</p> <p>Result: negative (Method: OECD Test Guideline 406)</p> <p>After long-term exposure to the chemical: Sensitisation possible in predisposed persons.</p>
<i>Genotoxicity in vitro</i>	<p>Ames test</p> <p>Salmonella typhimurium</p> <p>Result: negative (Method: OECD Test Guideline 471)</p> <p>Mutagenicity (mammal cell test): chromosome aberration.</p> <p>Result: negative</p> <p>(National Toxicology Program)</p>
<i>Carcinogenicity</i>	<p>This information is not available.</p>
<i>Reproductive toxicity</i>	<p>This information is not available.</p>
<i>Teratogenicity</i>	<p>This information is not available.</p>
<i>Specific target organ toxicity - single exposure</i>	<p>May cause drowsiness or dizziness.</p>
<i>Specific target organ toxicity - repeated exposure</i>	<p>This information is not available.</p>
<i>Aspiration hazard</i>	<p>This information is not available.</p>
<i>Systemic effects</i>	<p>lack of appetite, Headache. In high concentrations: Salivation, Nausea, Vomiting, narcosis, respiratory paralysis.</p>

**12. ECOLOGICAL INFORMATION****12.1 Toxicity****Aquatic toxicity****Ethanol:****Toxicity to fish**LC50 *Leuciscus idus* (Golden orfe): 8.140 mg/l; 48 h (IUCLID)**Toxicity to daphnia and other aquatic invertebrates**EC5 *E.sulcatum*: 65 mg/l; 72 h (Lit.)EC50 *Daphnia magna* (Water flea): 9.268 - 14.221 mg/l; 48 h (IUCLID)**Toxicity to algae**IC5 *Scenedesmus quadricauda* (Green algae): 5.000 mg/l; 7 d (Lit.)**Toxicity to bacteria**EC5 *Pseudomonas putida*: 6.500 mg/l; 16 h (IUCLID)**Cyclohexane:****Toxicity to fish**LC50 - *Lepomis macrochirus* (Bluegill) - 34,7 mg/l - 96,0 hflow-through test LC50 - *Pimephales promelas* (fathead minnow) - 4,53 mg/l -96 h  
(OECD Test Guideline 203)**Toxicity to daphnia and other aquatic invertebrates**EC50 - *Daphnia magna* (Water flea) - 3,78 mg/l - 48 h (OECD Test Guideline 202)**Toxicity to algae**EC50 - *Pseudokirchneriella subcapitata* (green algae) - 3,4 mg/l - 72 h**Dichloromethane:****Toxicity to fish**LC50 *Pimephales promelas* (fathead minnow): 193 mg/l; 96 h (ECOTOX Database)**Toxicity to daphnia and other aquatic invertebrates**

EC0 Protozoa: &gt; 16.000 mg/l(Lit.)

EC50 *Daphnia magna* (Water flea): 1.682 mg/l; 48 h (DIN 38412)**Toxicity to algae**IC50 *Pseudokirchneriella subcapitata* (green algae): > 660 mg/l;96 h (IUCLID)**Toxicity to bacteria**EC50 *Photobacterium phosphoreum*: 2,88 mg/l; 15 min (IUCLID)**Diisopropyl ether:****Toxicity to fish**LC50 - *Pimephales promelas* (fathead minnow) - 91,7 mg/l - 96 h**Toxicity to daphnia and other aquatic invertebrates**EC50 - *Daphnia magna* (Water flea) - 190 mg/l - 48 h**Ethyl acetate:****Toxicity to fish**LC50 *Pimephales promelas* (fathead minnow): 230 mg/l; 96 h (IUCLID)**Toxicity to daphnia and other aquatic invertebrates**EC50 *Daphnia magna* (Water flea): 717 mg/l; 48 h (IUCLID)**Toxicity to algae**IC50 *Desmodesmus subspicatus* (green algae): 3.300 mg/l; 48 h (IUCLID)

Toxicity to bacteria

EC10 *Pseudomonas putida*: 2.900 mg/l; 16 h (IUCLID)

**12.2 Persistence and degradability****Ethanol:**

Biodegradability 94 %; OECD Test Guideline 301E. Readily biodegradable.  
Biochemical Oxygen Demand (BOD): 930 - 1.670 mg/g (5 d) (Lit.)  
Theoretical oxygen demand (ThOD): 2.100 mg/g (Lit.)  
Ratio COD/ThBOD: 90 % (Lit.)

**Cyclohexane:**

Readily biodegradable.

**Dichloromethane:**

Biodegradability: 5 - 26 %; 28 d (OECD Test Guideline 301C) After adaption biodegradable.  
Not readily biodegradable.

**Ethyl acetate:**

Biodegradability: 100 %; 28 d (OECD Test Guideline 301D)  
Readily biodegradable.  
Theoretical oxygen demand (ThOD): 1.820 mg/g (Lit.)

**12.3 Bioaccumulative potential****Ethanol:**

Partition coefficient: n-octanol/water: log Pow: -0,31 (experimental) (Lit.) Bioaccumulation is not expected.

**Dichloromethane:**

Partition coefficient: n-octanol/water: log Pow: 1,25 (experimental) (Lit.) Bioaccumulation is not expected.

**Ethyl acetate:**

Partition coefficient: n-octanol/water : log Pow: 0,73 (experimental)  
Bioaccumulation is not expected. (Lit.)

**12.4 Mobility in soil****Dichloromethane:**

Distribution among environmental compartments: Adsorption/Soil: log Koc: 1,00 (experimental)  
Mobile in soils (Lit.)

**12.5 Results of PBT and vPvB assessment**

No data available

**12.6 Other adverse effects****Ethanol:**

No interference with wastewater treatment plants are to be expected when used properly.  
Further information on ecology  
Discharge into the environment must be avoided.

**Cyclohexane:**

Toxic to aquatic life with long lasting effects.

**Dichloromethane:**

Discharge into the environment must be avoided.

**Diisopropyl ether:**

Harmful to aquatic life.

**Ethyl acetate:**

Discharge into the environment must be avoided.

**13. DISPOSAL CONSIDERATIONS****Ethanol:**

none

**Cyclohexane:****Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**

Dispose of as unused product.

**Dichloromethane:****Waste treatment methods**

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

**Diisopropyl ether:****Waste treatment methods:****Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**

Dispose of as unused product

**Ethyl acetate:****Waste treatment methods**

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

**14. TRANSPORT INFORMATION****Ethanol:**

ADR/RID UN 1170 ETHANOL, 3, II

IATA UN 1170 ETHANOL, 3, II

IMDG UN1170 ETHANOL, 3, II

EmS F-E S-D

Marine pollutant: no

**Cyclohexane:**

ADR/RID UN 1145 CYCLOHEXANE, 3, II

Environmental hazards: yes

IATA UN 1145 CYCLOHEXANE, 3, II

IMDG Environmental hazards: no  
UN 1145 CYCLOHEXANE, 3, II  
Marine pollutant: yes

**Dichloromethane:**

ADR/RID UN 1593 DICHLOROMETHANE, 6.1, III  
Tunnel restriction code: E  
IATA UN 1593 DICHLOROMETHANE, 6.1, III  
IMDG UN 1593 DICHLOROMETHANE, 6.1, III  
EmS: F-A S-A

**Diisopropyl ether:**

ADR/RID UN 1159 DIISOPROPYL ETHER, 3, II  
IATA UN 1159 DIISOPROPYL ETHER, 3, II  
IMDG UN 1159 DIISOPROPYL ETHER, 3, II  
Marine pollutant: no

**Ethyl acetate:**

ADR/RID UN 1173 ETHYL ACETATE, 3, II  
Tunnel restriction code : D/E  
IATA UN 1173 ETHYL ACETATE, 3, II  
IMDG UN 1173 ETHYL ACETATE, 3, II  
EmS F-E S-D

**15. REGULATORY INFORMATION**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

**15.1 Safety, health and environmental regulations/legislation specific for the mixture**

no data available

**15.2 Chemical Safety assessment**

no data available

**16. OTHER INFORMATION****16.1 Indication of changes**

v1:

SDS changes as required by current REACH regulation (as amended by 453/2010).  
Classification and labeling according to CLP added.

**16.2 Key literature references and sources for data**

SDS sheets provided by suppliers of raw materials.

**16.3 Classification and procedure used to derive the classification for mixtures according to regulation EC 1272/2008 – CLP**

Classification of mixtures is based on the calculation method.

**16.4 Relevant H-P statements**

H225 Highly flammable liquid and vapour

H304 May be fatal if swallowed and enters airways

H314 Causes severe skin burns and eye damage  
H315 Causes skin irritation  
H319 Causes serious eye irritation  
H336 May cause drowsiness or dizziness  
H351 Suspected of causing cancer

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray  
P273 Avoid release to the environment  
P281 Use personal protective equipment as required  
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician  
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  
P331 Do NOT induce vomiting  
P403 + P235 Store in a well-ventilated place. Keep cool  
P501 Dispose of contents/container to ...

### 16.7 Training advice

This product is designed for use by professionals.

### 16.8 Further information

NOTE: The safety analysis of the lyophilized components in this kit has been performed on the reconstituted components. Therefore, the information in this MSDS and product labeling relates to the components as they will be used, i.e. after reconstitution.

The human blood components included in this kit have been tested by European approved and/or FDA approved methods and found negative for HBsAg, anti-HCV and anti-HIV-1 and 2. No known method can offer complete assurance that human blood derivatives will not transmit hepatitis, AIDS or other infections. Therefore, handling of reagents, serum or plasma specimens should be in accordance with local safety procedures.

All animal products and derivatives have been collected from healthy animals. Bovine components originate from countries where BSE has not been reported.

This MSDS assumes that radioprotection principles and applicable regulations are known by the user.

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

It remains the user's own responsibility to make sure that the information is appropriate and complete for his specific use of this product. The user is also responsible for observing any laws and applicable guidelines.