

**Safety Data Sheet**

according to 29 CFR 1910.1200(g)

**Cartridge**

Revision date: 26.11.2019

Product code:10048, 10084, 10090

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**1. Identification****Product identifier**

Cartridge

**Further trade names**

This SDS covers the following products in all container sizes:

- Unyvero LRT Cartridge #10048
- Unyvero IJI Cartridge # 10084
- Unyvero LRT BAL Cartridge # 10090

**Recommended use of the chemical and restrictions on use****Use of the substance/mixture**

Use as laboratory reagent.

**Uses advised against**

Not known

**Details of the supplier of the safety data sheet**

Company name:	Curetis GmbH	
Street:	Max-Eyth-Str. 42	
Place:	D 71088 Holzgerlingen	
Telephone:	+49-(0)7031 – 4919-55	Telefax: +49-(0)7031 - 4919519
Responsible Department:	Dr. Gans-Eichler Chemieberatung GmbH Raesfeldstr. 22 48149 Muenster	e-mail: info@tge-consult.de Tel.: +49(0)251/394868-69

**Emergency phone number:** Poison Information Center Mainz, Germany, Tel: +49(0)6131/19240**2. Hazard(s) identification****Classification of the chemical****29 CFR Part 1910.1200**

- Flammable liquids: Flam. Liq. 2
- Acute toxicity: Acute Tox. 4 (oral)
- Skin corrosion/irritation: Skin Irrit. 2
- Serious eye damage/eye irritation: Eye Irrit. 2A

**Label elements****29 CFR Part 1910.1200****Signal word:** Danger**Pictograms:****Hazard statements**

- Highly flammable liquid and vapor
- Harmful if swallowed
- Causes skin irritation
- Causes serious eye irritation

**Precautionary statements**

- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Do not eat, drink or smoke when using this product.
- Wear protective gloves/protective clothing/eye protection/face protection.
- If swallowed: Call a poison center/doctor if you feel unwell.

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If on skin: Wash with plenty of Water and soap.  
 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 If skin irritation occurs: Get medical advice/attention.  
 Take off contaminated clothing and wash it before reuse.  
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
 Continue rinsing.  
 If eye irritation persists: Get medical advice/attention.  
 Store in a well-ventilated place. Keep cool.  
 Dispose of contents/container to local/regional/national/international regulations.

#### Hazards not otherwise classified

The components in this formulation do not meet the criteria for classification as PBT or vPvB.

### 3. Composition/information on ingredients

#### Mixtures

#### Hazardous components

CAS No	Components	Quantity
64-17-5	ethanol	>60 %
50-01-1	guanidine hydrochloride, guanidinium chloride	50 %

### 4. First-aid measures

#### Description of first aid measures

##### General information

Remove affected person from the danger area and lay down. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

##### After inhalation

In case of accident by inhalation: remove casualty to fresh air and keep at rest. If unconscious place in recovery position and seek medical advice. In case of allergic symptoms, especially in the breathing area, seek medical advice immediately.

##### After contact with skin

After contact with skin, wash immediately with plenty of water and soap. In case of skin irritation, seek medical treatment.

##### After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

##### After ingestion

Rinse mouth thoroughly with water. Let water be drunk in little sips (dilution effect). Seek medical advice.

#### Most important symptoms and effects, both acute and delayed

No information available.

#### Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

### 5. Fire-fighting measures

#### Extinguishing media

##### Suitable extinguishing media

Carbon dioxide (CO<sub>2</sub>) Dry extinguishing powder. alcohol resistant foam. Atomized water.

##### Unsuitable extinguishing media

High power water jet.

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#### **Specific hazards arising from the chemical**

Can be released in case of fire: Carbon monoxide Carbon dioxide (CO<sub>2</sub>). Nitrogen oxides (NO<sub>x</sub>). Hydrogen chloride (HCl).

#### **Special protective equipment and precautions for fire-fighters**

In case of fire: Wear self-contained breathing apparatus. In case of fire and/or explosion do not breathe fumes.

#### **Additional information**

Use water spray jet to protect personnel and to cool endangered containers. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

## 6. Accidental release measures

#### **Personal precautions, protective equipment and emergency procedures**

Remove all sources of ignition. Ventilate affected area.  
Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes.  
Special danger of slipping by leaking/spilling product.  
Wear personal protection equipment. (refer to chapter 8)

#### **Environmental precautions**

Do not allow to enter into surface water or drains. Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches. Prevent spread over a wide area (e.g. by containment or oil barriers). In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

#### **Methods and material for containment and cleaning up**

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Ventilate affected area.  
Treat the recovered material as prescribed in the section on waste disposal.  
Clear contaminated areas thoroughly.

#### **Reference to other sections**

See protective measures under point 7 and 8.

## 7. Handling and storage

#### **Precautions for safe handling**

##### **Advice on safe handling**

Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes.  
Wear personal protection equipment. (See section 8.)

##### **Advice on protection against fire and explosion**

Keep away from sources of ignition. - No smoking. Take precautionary measures against static discharges.  
Flammable vapours can accumulate in head space of closed systems. In use, may form flammable/explosive vapour-air mixture. Heating causes rise in pressure with risk of bursting.

##### **Further information on handling**

General protection and hygiene measures: refer to chapter 8

#### **Conditions for safe storage, including any incompatibilities**

##### **Requirements for storage rooms and vessels**

Keep/Store only in original container. Keep container tightly closed in a cool, well-ventilated place. Protect against direct sunlight.  
Ensure adequate ventilation of the storage area. Concentrated vapors are heavier than air.  
Suitable material for Container: Stainless steel. (1.4301 (V2), 1.4401 (V4)); iron. solvent resistant plastics.  
Unsuitable materials for Container: Aluminium. Rubber. various plastics.

##### **Hints on joint storage**

Do not store together with: Gas. Explosives. Flammable solids. Pyrophoric liquids and solids. Self-heating substances and mixtures. Substances and mixtures which, in contact with water, emit flammable gases. Oxidizing liquids. Oxidizing solids. ammonium nitrate. Self-reactive substances and mixtures. Organic peroxides.  
Non-combustible toxic substances. Radioactive substances. Infectious substances.

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#### Further information on storage conditions

Protect against: UV-radiation/sunlight. Heat and cold.  
 Store small packages in a suitable, robust cabinet.  
 Storage temperature: 15-25°C, keep dry

### 8. Exposure controls/personal protection

#### Control parameters

#### Exposure limits

CAS No.	Substance	ppm	mg/m <sup>3</sup>	f/cc	Category	Origin
64-17-5	Ethyl alcohol (Ethanol)	1000	1900		TWA (8 h)	PEL
64-17-5	Ethyl alcohol	1000	1900		TWA (8 h)	REL

#### Exposure controls



#### Appropriate engineering controls

Use extractor hood (laboratory).

#### Protective and hygiene measures

Keep away from food, drink and animal feedingstuffs. Remove contaminated, saturated clothing immediately. Wash hands before breaks and after work. Avoid contact with eyes and skin.

#### Eye/face protection

Recommended eye protection brand: Tightly sealed safety glasses. Standards: EN 166 or 29 CFR 1910.133

#### Hand protection

In case of prolonged or frequently repeated skin contact:

Wear suitable gloves.

Suitable material:

Breakthrough time > 8 h

Butyl rubber.

FKM (fluororubber).

Breakthrough time >= 2 h):

CR (polychloroprenes, Chloroprene rubber).

Standards: EN 374

Before using check leak tightness / impermeability. In the case of wanting to use the gloves again, clean them before taking off and air them well.

#### Skin protection

Suitable protective clothing: Lab apron.

#### Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required.

Respiratory protection necessary at:

exceeding exposure limit values

insufficient ventilation.

Generation/formation of mist

Suitable respiratory protective equipment: gas filtering equipment (EN 141 or 29 CFR 1910.134 standard)

The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used.

#### Environmental exposure controls

This material and its container must be disposed of in a safe way.

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## 9. Physical and chemical properties

### Information on basic physical and chemical properties

Physical state: liquid (Ethanol.)  
 Color: colorless (Ethanol.)  
 Odor: Ethanol.  
 pH-Value: not determined

### **Changes in the physical state**

Melting point/freezing point: -144 (Ethanol.) °C  
 Initial boiling point and boiling range: 78-80 (Ethanol.) °C  
 Sublimation point: not determined  
 Softening point: not determined  
 Pour point: not determined  
 Flash point: >14°C (Ethanol.) °C  
 Sustaining combustion: No data available

### **Explosive properties**

not determined

Lower explosion limits: 3.3 (Ethanol.) vol. %  
 Upper explosion limits: 19 (Ethanol.) vol. %  
 Ignition temperature: 400 (Ethanol.) °C

### **Auto-ignition temperature**

Gas: 363 °C (Ethanol.)

Decomposition temperature: not determined

### **Oxidizing properties**

not determined

Vapor pressure: (Ethanol.) 59.5 hPa  
 (at 20 °C)

Vapor pressure: (Ethanol.) 280 hPa  
 (at 50 °C)

Density (at 20/25 °C): 0.79 (Ethanol) /1,18 (guanidine hydrochloride)  
 g/cm<sup>3</sup>

Water solubility: 573 (guanidine hydrochloride) g/L  
 (at 20 °C)

### **Solubility in other solvents**

not determined

Viscosity / dynamic: not determined

Viscosity / kinematic: not determined

Flow time: not determined

Vapor density: not determined

Evaporation rate: not determined

Solvent separation test: not determined

Solvent content: not determined

### Other information

Solid content: not determined

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## 10. Stability and reactivity

### Reactivity

No information available.

### Chemical stability

Stability: Stable

The product is stable under storage at normal ambient temperatures.

### Possibility of hazardous reactions

Hazardous reactions: Will not occur

Explosion risk in contact with: Oxidising agent, strong nitric acid. Hydrogenium peroxide.

Exothermic reactions with: Alkali metals. Alkaline earth metals. Reducing agents, strong.

### Conditions to avoid

Keep away from heat.

In case of warming: Ignition hazard.

### Incompatible materials

Materials to avoid: Substances and mixtures which, in contact with water, emit flammable gases Organic peroxides. Oxidizing substances. Alkali metals.

### Hazardous decomposition products

Can be released in case of fire: Carbon monoxide Carbon dioxide (CO<sub>2</sub>). Nitrogen oxides (NO<sub>x</sub>). Hydrogen chloride (HCl).

## 11. Toxicological information

### Information on toxicological effects

#### **Route(s) of Entry**

Ingestion: harmful. Inhalation: May be harmful. Skin contact: Causes skin irritation. Eye contact: Causes eye irritation.

#### **Toxicokinetics, metabolism and distribution**

No information available.

#### **Acute toxicity**

Harmful if swallowed

#### **ATEmix calculated**

ATE (oral) 950,0 mg/kg

CAS No	Components				
	Exposure route	Dose	Species	Source	Method
64-17-5	ethanol				
	oral	LD50 mg/kg >5000	Rat.	ECHA Dossier	
	dermal	LD50 mg/kg >2000	Rabbit.	MSDS extern.	
	inhalation (4 h) vapour	LC50 mg/l 51-124,7	Rat.	ECHA Dossier	
50-01-1	guanidine hydrochloride, guanidinium chloride				
	oral	LD50 475 mg/kg	Rat		
	inhalation (4 h) vapour	LC50 5,3 mg/l	Rat		

### **Irritation and corrosivity**

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Causes skin irritation  
Causes serious eye irritation  
Ethanol.:  
Irritant effect on the skin: Irritant.  
Irritant effect on the eye: mild irritant.  
guanidine hydrochloride (50-01-1):  
Irritant effect on the skin: Irritant.  
Irritant effect on the eye: Irritant.

#### Sensitizing effects

Based on available data, the classification criteria are not met.  
guanidine hydrochloride (50-01-1):  
No evidence for: Respiratory or skin sensitization (Buehler-Test)

#### Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.  
guanidine hydrochloride (50-01-1):  
No evidence for: Carcinogenicity  
No evidence for: In-vitro mutagenicity (Ames-Test)

Ethanol.:  
In-vitro mutagenicity: No experimental indications of mutagenicity in-vitro exist.  
Reproductive toxicity:  
Exposure time: 18 weeks  
Species: CD-1 Mouse.  
Method: OECD Guideline 416  
Result: NOAEL = 20700 mg/kg/day  
Developmental toxicity/teratogenicity:  
Exposure time: 19d  
Species: Sprague-Dawley Rat.  
Method: OECD Guideline 414  
Result: NOAEL = 16000 ppm (maternal toxicity)  
Result: NOAEL >= 20000 ppm (teratogenicity)  
Literature information: ECHA Dossier

#### Specific target organ toxicity (STOT) - single exposure

Based on available data, the classification criteria are not met.

#### Specific target organ toxicity (STOT) - repeated exposure

Based on available data, the classification criteria are not met.  
Ethanol.:  
Subchronic oral toxicity  
Exposure time: 90d  
Species: Sprague-Dawley Rat.  
Method: OECD Guideline 408  
Result: NOAEL = 1280 mg/kg  
Literature information: ECHA Dossier

Carcinogenicity (OSHA):	No ingredient of this mixture is listed.
Carcinogenicity (IARC):	Ethanol in alcoholic beverages (CAS 64-17-5) is listed in group 1.
Carcinogenicity (NTP):	No ingredient of this mixture is listed.

#### Aspiration hazard

Based on available data, the classification criteria are not met.

#### Specific effects in experiment on an animal

No data available

#### Practical experience

#### Other observations

Depending on the ingested quantity the following symptoms can be induced: a reduction of inhibitions, euphoria

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but also dysphoria, aggressiveness, impaired motoric skills, impaired responsiveness, blurred vision and fatigue.

## 12. Ecological information

### Mobility in soil

No information available.

### Other adverse effects

No information available.

### **Further information**

Do not allow uncontrolled discharge of product into the environment.

## 13. Disposal considerations

### Waste treatment methods

#### **Advice on disposal**

Observe in addition any national regulations! Consult the local waste disposal expert about waste disposal.  
Non-contaminated packages may be recycled.

#### **RCRA Hazardous wastes (Resource Conservation and Recovery Act)**

D001 Ignitability

#### **Contaminated packaging**

Handle contaminated packages in the same way as the substance itself.

## 14. Transport information

### **US DOT 49 CFR 172.101**

<b><u>UN/ID number:</u></b>	UN 1170
<b><u>Proper shipping name:</u></b>	Ethanol solutions
<b><u>Transport hazard class(es):</u></b>	3
<b><u>Packing group:</u></b>	II
Hazard label:	3

### **Marine transport (IMDG)**

<b><u>UN number:</u></b>	UN 1170
<b><u>UN proper shipping name:</u></b>	ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
<b><u>Transport hazard class(es):</u></b>	3
<b><u>Packing group:</u></b>	II
Hazard label:	3



Marine pollutant:	NO
Limited quantity:	1 L
Excepted quantity:	E2
EmS:	F-E, S-D

### **Air transport (ICAO-TI/IATA-DGR)**

<b><u>UN number:</u></b>	UN 1170
<b><u>UN proper shipping name:</u></b>	ETHYL ALCOHOL SOLUTION
<b><u>Transport hazard class(es):</u></b>	3
<b><u>Packing group:</u></b>	II
Hazard label:	3



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Limited quantity Passenger:	1 L	
Passenger LQ:	Y341	
Excepted quantity:	E2	
IATA-packing instructions - Passenger:		353
IATA-max. quantity - Passenger:		5 L
IATA-packing instructions - Cargo:		364
IATA-max. quantity - Cargo:		60 L

#### Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

#### Special precautions for user

refer to chapter 6-8

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

No information available.

### 15. Regulatory information

#### U.S. Regulations

##### National Inventory TSCA

ethanol; ethyl alcohol: listed in the TSCA inventory, not listed under TSCA 12(b)  
 guanidine hydrochloride: listed in the TSCA inventory. not listed under TSCA 12(b)

##### National regulatory information

SARA Section 311/312 Hazards:  
 ethanol (64-17-5): Fire hazard  
 guanidine hydrochloride, guanidinium chloride (50-01-1): Immediate (acute) health hazard

#### State Regulations

##### Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, State of California)

This product contains no chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

### 16. Other information

#### Hazardous Materials Information Label (HMIS)

Health:	2
Flammability:	3
Physical Hazard:	1
Personal Protection:	B

#### NFPA Hazard Ratings

Health:	1
Flammability:	3
Reactivity:	0
Unique Hazard:	-



#### Changes

Revision date:	26.06.2019
Revision No:	6.0
Rev. 1.0 Initial release:	24.03.2014
Rev. 2.0 Changes in chapter: 2, 3,7,8,9,10,11,12,13,15,16:	18.01.2016
Rev. 3.0 Changes in chapter: 1,15	

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- Rev. 4.0 Editorial changes
- Rev. 5.0 Changes in chapter: 1-12,14-16, 20.11.2018
- Rev. 6.0 Add Unyvero LRT BAL Cartridge # 10090, change name from LRT55 Cartridge to LRT Cartridge, change name MSDS to SDS
- Rev.7.0 Add Unyvero IJI Cartridge # 10084, change storage condition

**Abbreviations and acronyms**

ACGIH: American Conference of Governmental Industrial Hygienists  
ASTM: American Society for Testing and Materials.  
CAS Chemical Abstracts Service  
CFR: Code of Federal Regulations  
DNEL: Derived No Effect Level  
DOT: Department of Transportation  
EPA: Environmental Protection Agency  
HMIS: Hazardous Materials Identification System  
IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER  
IBC: Intermediate Bulk Container  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)  
ICAO: International Civil Aviation Organization  
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
LOAEL: Lowest observed adverse effect level  
LOAEC: Lowest observed adverse effect concentration  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
MARPOL: marine pollution  
NOAEL: No observed adverse effect level  
NOAEC: No observed adverse effect level  
NTP: National Toxicology Program  
N/A: not applicable  
NFPA: National Fire Protection Association  
UN: United Nations  
OSHA: Occupational Safety and Health Administration  
PNEC: predicted no effect concentration  
PBT: Persistent bioaccumulative toxic  
SARA: Superfund Amendments and Reauthorization Act  
SVHC: substance of very high concern  
STEL: short-term exposure limits  
TSCA: Toxic Substances Control Act  
TWA: time weighted average  
VOC: Volatile Organic Compounds

**Other data**

Copyright 2018 Curetis GmbH. License granted to make unlimited paper copies for internal use only. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Curetis GmbH, shall not be held liable for any damage resulting from handling or from contact with the above product.

Classification according 29 CFR Part 1910.1200: - Classification procedure:  
Health hazards: Calculation method.  
Environmental hazards: Calculation method.

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Physical hazards: On basis of test data, and / or calculated and / or estimated.

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal.

The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

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*(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)*