

# Safety data sheet

## according to 1907/2006/EC, Article 31

Printing date 23.06.2023

Version number 5

Revision: 23.06.2023

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

- **1.1 Product identifier**
- **Trade name:** Chloroform: Isoamyl alcohol 24:1
- **Article number:** 39554
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**  
No further relevant information available.
- **Application of the substance / the mixture:** Laboratory chemicals
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
SERVA Electrophoresis GmbH  
Carl-Benz-Str. 7  
D-69115 Heidelberg  
Tel.: +49 6221 13840-0  
FAX: +49 6221 13840-10  
msds.info@serva.de
- **Information department:** Product Safety department Tel.: +49 6221 13840-35
- **1.4 Emergency telephone number:**  
Medical Emergency Information in case of poisoning:  
Poison Information Center Mainz - Phone: +49 (0) 6131 19240  
(advisory service in German or English language)



### SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008:**



GHS06

Acute Tox. 3 H331 Toxic if inhaled.



GHS08

Carc. 2 H351 Suspected of causing cancer.

Repr. 2 H361d Suspected of damaging the unborn child.

STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008:**  
The product is classified and labelled according to the GB CLP regulation.
- **Hazard pictograms:** GHS06, GHS08
- **Signal word:** Danger
- **Hazard-determining components of labelling:**  
trichloromethane  
3-methylbutan-1-ol

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**· Hazard statements:**

- H302 Harmful if swallowed.  
 H331 Toxic if inhaled.  
 H315 Causes skin irritation.  
 H319 Causes serious eye irritation.  
 H351 Suspected of causing cancer.  
 H361d Suspected of damaging the unborn child.  
 H372 Causes damage to organs through prolonged or repeated exposure.

**· Precautionary statements**

- P264 Wash thoroughly after handling.  
 P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.  
 P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.  
 P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
 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.

**· Labelling of packages where the contents do not exceed 125 ml****· Hazard pictograms** GHS06, GHS08**· Signal word** Danger**· Hazard-determining components of labelling:**

trichloromethane  
 3-methylbutan-1-ol

**· Hazard statements**

- H331 Toxic if inhaled.  
 H351 Suspected of causing cancer.  
 H361d Suspected of damaging the unborn child.  
 H372 Causes damage to organs through prolonged or repeated exposure.

**· Precautionary statements**

- P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.  
 P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.




**· 2.3 Other hazards****· Results of PBT and vPvB assessment:****· PBT:** PBT - assessment not available.**· vPvB:** vPvB - assessment not available.**· Determination of endocrine-disrupting properties** No further relevant information available.

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**SECTION 3: Composition/information on ingredients****· 3.2 Mixtures****· Description:****· Empirical formula:**

67-66-3	trichloromethane	$\text{C H Cl}_3$
123-51-3	3-methylbutan-1-ol	$\text{C}_5 \text{H}_{12} \text{O}$
64-17-5	ethanol	$\text{C}_2 \text{H}_6 \text{O}$

**· Dangerous components:**

CAS: 67-66-3	trichloromethane	70-100%
EINECS: 200-663-8	 Acute Tox. 3, H331;  Carc. 2, H351; Repr. 2, H361d; STOT RE 1, H372;  Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319	
Reg.nr.: 01-2119486657-20		

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CAS: 123-51-3 EINECS: 204-633-5	3-methylbutan-1-ol ⚠ Flam. Liq. 3, H226; ⚠ Acute Tox. 4, H332; STOT SE 3, H335	2.5-7%
CAS: 64-17-5 EINECS: 200-578-6 Reg.nr.: 01-2119457610-43	ethanol ⚠ Flam. Liq. 2, H225; ⚠ Eye Irrit. 2, H319	1-3%

· **Additional information** For the wording of the listed hazard phrases refer to section 16.

### SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information:**  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:** Supply fresh air and to be sure call for a doctor.
- **After skin contact:**  
Immediately wash with water and soap and rinse thoroughly. Consult doctor if you feel unwell.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.
- **After swallowing:** Wash out mouth. Call a doctor immediately.
- **4.2 Most important symptoms and effects, both acute and delayed**  
No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2 Special hazards arising from the substance or mixture:**  
Formation of toxic gases is possible during heating or in case of fire.  
In case of fire, the following can be formed, but not limited to:  
Hydrogen chloride (HCl)  
Phosgene gas
- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.  
Ensure adequate ventilation  
Avoid contact with the eyes and skin.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up**  
Dispose contaminated material as waste according to item 13.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **6.4 Reference to other sections**  
See Section 7 for information on safe handling  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

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### SECTION 7: Handling and storage

- **7.1 Precautions for safe handling:**
  - Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).
- **Information about protection against explosions and fires:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- **Information about storage in one common storage facility:** Store away from oxidising agents.
- **Further information about storage conditions:**
  - Store under lock and key and with access restricted to technical experts or their assistants only.
  - Protect from exposure to the light.
  - Keep receptacle tightly sealed and store in dry conditions.
- **7.3 Specific end use(s):** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

#### · 8.1 Control parameters

##### · Components with limit values that require monitoring at the workplace:

##### 67-66-3 trichloromethane (80-100%)

WEL	Long-term value: 9.9 mg/m <sup>3</sup> , 2 ppm
Sk	

##### 123-51-3 3-methylbutan-1-ol (2.5-7%)

WEL	Short-term value: 458 mg/m <sup>3</sup> , 125 ppm
	Long-term value: 366 mg/m <sup>3</sup> , 100 ppm

##### 64-17-5 ethanol (1-3%)

WEL	Long-term value: 1920 mg/m <sup>3</sup> , 1000 ppm
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- **Additional information:** The lists that were valid during the creation were used as basis.

#### · 8.2 Exposure controls

- **Appropriate engineering controls:** No further data; see item 7.
- **Individual protection measures, such as personal protective equipment:**
- **General protective and hygienic measures:**
  - Keep away from foodstuffs, beverages and feed.
  - Store protective clothing separately.
  - Immediately remove all soiled and contaminated clothing
  - Avoid contact with the eyes and skin.
  - Wash hands before breaks and at the end of work.
- **Breathing equipment:**
  - Short term filter device:
  - Filter ABEK
- **Hand protection:**
  - The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  - Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
  - Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves:**
  - The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
  - The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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- **Penetration time of glove material:**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**  
Fluorocarbon rubber (Viton)
- **As protection from splashes gloves made of the following materials are suitable:** Butyl rubber, BR
- **Eye/face protection:** Tightly sealed goggles.
- **Body protection:** Protective work clothing.

### SECTION 9: Physical and chemical properties

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

- **General Information:**
- **Physical state:** Fluid
- **Colour:** Colourless
- **Odour:** Characteristic
- **Odour threshold:** Not determined.
- **Melting point/freezing point:** no information available
- **Boiling point or initial boiling point and boiling range:** no information available
- **Flammability:** Based on available data, the classification criteria of flammable liquids are not met.
- **Lower and upper explosion limit:**
- **Lower:** no information available
- **Upper:** no information available
- **Flash point:** no information available
- **Ignition temperature:** no information available
- **Decomposition temperature:** no information available
- **pH:** Mixture is non-polar/aprotic.
- **Viscosity:**
- **Kinematic viscosity:** no information available
- **Dynamic viscosity:** no information available
- **Solubility:**
- **Water:** no information available
- **Partition coefficient n-octanol/water (log value):** no information available
- **Vapour pressure:** no information available
- **Density and/or relative density:**
- **Density:** no information available
- **Relative density:** no information available

#### 9.2 Other information

- **Appearance:** There are no more data available.
- **Form:** Liquid
- **Important information on protection of health and environment, and on safety:**
- **Explosive properties:** Product does not present an explosion hazard.
- **Solvent content:**
- **Organic solvents:** 4.0 %
- **VOC %:** 4.00 %

### SECTION 10: Stability and reactivity

- **10.1 Reactivity:** No further relevant information available.
- **10.2 Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

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- **10.3 Possibility of hazardous reactions:** No further relevant informations available.
- **10.4 Conditions to avoid:**  
avoid contact with:  
light  
moisture
- **10.5 Incompatible materials:**  
Avoid contact with:  
Strong oxidizers  
alkalis
- **10.6 Hazardous decomposition products:** In case of fire: See Section 5

**SECTION 11: Toxicological information**

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008:**
- **Acute toxicity:**  
Harmful if swallowed.  
Toxic if inhaled.

· **LD/LC50 values that are relevant for classification:**

**67-66-3 trichloromethane**

Oral	LD50	300 mg/kg (rat)
Dermal	LD50	>20,000 mg/kg (rabbit)
		75 mg/kg (rat)
Inhalative	LC50/4h	47.7 mg/l (rat)
	LC50/96h	18 mg/l (trout)

- **Skin corrosion/irritation:** Causes skin irritation.
- **Serious eye damage/irritation:** Causes serious eye irritation.
- **Respiratory or skin sensitisation:** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
- **Carcinogenicity:** Suspected of causing cancer.
- **Reproductive toxicity:** Suspected of damaging the unborn child.
- **STOT-single exposure:** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure:** Causes damage to organs through prolonged or repeated exposure.
- **Aspiration hazard:** Based on available data, the classification criteria are not met.
- **11.2 Information on other hazards:**
- **Endocrine disrupting properties:** no relevant information available

**SECTION 12: Ecological information**

· **12.1 Toxicity:**

· **Aquatic toxicity:**

**67-66-3 trichloromethane**

EC50/48h	29 mg/l (Daphnia magna)
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- **12.2 Persistence and degradability:** No further relevant information available.
- **12.3 Bioaccumulative potential:** No further relevant information available.
- **12.4 Mobility in soil:** No further relevant information available.
- **12.5 Results of PBT and vPvB assessment:**
- **PBT:** PBT - assessment not available.
- **vPvB:** vPvB - assessment not available.
- **12.6 Endocrine disrupting properties:** For information on endocrine disrupting properties see section 11.
- **12.7 Other adverse effects:**
- **Additional ecological information:**
- **General notes:**  
Do not allow product to reach ground water, water course or sewage system, even in small quantities.

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Water danger class 3 (German Regulation) (Self-assessment): extremely hazardous for water.

### SECTION 13: Disposal considerations

#### · 13.1 Waste treatment methods

##### · Recommendation

Disposal must be made according to official regulations.

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

##### · Uncleaned packagings:

##### · Recommendation:

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

### SECTION 14: Transport information

#### · 14.1 UN number or ID number

##### · ADR, IMDG, IATA

UN1888

#### · 14.2 UN proper shipping name

##### · ADR

1888 CHLOROFORM solution

##### · IMDG, IATA

CHLOROFORM solution

#### · 14.3 Transport hazard class(es)

##### · ADR, IMDG, IATA



##### · Class:

6.1 Toxic substances.

##### · Label:

6.1

#### · 14.4 Packing group

##### · ADR, IMDG, IATA

III

#### · 14.5 Environmental hazards

##### · Marine pollutant:

No

#### · 14.6 Special precautions for user

Warning: Toxic substances.

##### · Hazard identification number (Kemler code):

60

##### · EMS Number:

F-A,S-A

##### · Segregation groups

(SGG10) Liquid halogenated hydrocarbons

##### · Stowage Category

A

##### · Stowage Code

SW2 Clear of living quarters.

#### · 14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

#### · Transport/Additional information:

##### · ADR

##### · Limited quantities (LQ)

5L

##### · Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

##### · Transport category

2

##### · Tunnel restriction code

E

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- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>· <b>IMDG</b></li> <li>· <b>Limited quantities (LQ)</b></li> <li>· <b>Excepted quantities (EQ)</b></li> </ul> | <p>5L</p> <p>Code: E1</p> <p>Maximum net quantity per inner packaging: 30 ml</p> <p>Maximum net quantity per outer packaging: 1000 ml</p> |
| <ul style="list-style-type: none"> <li>· <b>UN "Model Regulation":</b></li> </ul>  | <p>UN 1888 CHLOROFORM SOLUTION, 6.1, III</p>  |

### SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **Seveso category H2 ACUTE TOXIC**
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 50 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 32

- **Regulation (EU) No 649/2012**

67-66-3 trichloromethane

Annex I Part I

- **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.

- **REGULATION (EU) 2019/1148**

- **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

None of the ingredients is listed.

- **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**

None of the ingredients is listed.

- **Regulation (EC) No 273/2004 on drug precursors**

None of the ingredients is listed.

- **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

None of the ingredients is listed.

- **National regulations:**

- **Technical instructions (air):**

Class	Share in %
I	80-100
NK	2.5-7

- **Water hazard class:** Water danger class 3 (Self-assessment): extremely hazardous for water.

- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**

H225 Highly flammable liquid and vapour.

H226 Flammable liquid and vapour.

H302 Harmful if swallowed.

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H315 Causes skin irritation.  
 H319 Causes serious eye irritation.  
 H331 Toxic if inhaled.  
 H332 Harmful if inhaled.  
 H335 May cause respiratory irritation.  
 H351 Suspected of causing cancer.  
 H361d Suspected of damaging the unborn child.  
 H372 Causes damage to organs through prolonged or repeated exposure.

· **Department issuing SDS:** Product safety department

· **Contact:** +49 6221 13840-35

· **Date of previous version:** 12.05.2020

· **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

PBT: persistent, bioaccumulative, toxic substance (UK REACH)

vPvB: very persistent, very bioaccumulative substance (UK REACH)

UK REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

GB CLP: Regulation on classification, labelling and packaging of substances and mixtures

bw: body weight

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Flammable liquids – Category 2

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Acute Tox. 3: Acute toxicity – Category 3

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

Carc. 2: Carcinogenicity – Category 2

Repr. 2: Reproductive toxicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1