

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**
**Product Identifier**
**Perihalan Produk:** Phenol:Chloroform:Isoamyl Alcohol (25:24:1), Molecular Biology Grade, Ultrapure, Thermo Scientific

**Product Description:** Phenol:Chloroform:Isoamyl Alcohol (25:24:1), Molecular Biology Grade, Ultrapure, Thermo Scientific

**Cat No. :** J75831

**Relevant identified uses of the substance or mixture and uses advised against**
**Recommended Use** Laboratory chemicals.

**Uses advised against** No Information available

**Details of the supplier of the safety data sheet**
**Company** Fisher Scientific (M) Sdn Bhd No. 3, Jalan Sepadu 25/123, Taman Perindustrian Axis, Seksyen 25, 40400 Shah Alam, Selangor Darul Ehsan, Malaysia.

**Supplier**
**E-mail address** uktech@alfa.com  
 www.alfa.com  
 Product Safety Department

**Emergency Telephone Number**

Carechem 24: +60 3 6207 4347 (emergency number 24 h)

**SECTION 2: HAZARDS IDENTIFICATION**
**Classification of the substance or mixture**

Acute oral toxicity	Category 3 (H301)
Acute dermal toxicity	Category 3 (H311)
Acute Inhalation Toxicity - Vapors	Category 3 (H331)
Skin Corrosion/Irritation	Category 1 B (H314)
Serious Eye Damage/Eye Irritation	Category 1 (H318)
Germ Cell Mutagenicity	Category 2 (H341)
Carcinogenicity	Category 2 (H351)
Reproductive Toxicity	Category 2 (H361d)
Specific target organ toxicity - (repeated exposure)	Category 1 (H372)

**Label Elements**

**Signal Word**
**Danger**

# SAFETY DATA SHEET

Phenol:Chloroform:Isoamyl Alcohol (25:24:1), Molecular Biology Grade, Ultrapure,  
Thermo Scientific

Revision Date 29-Aug-2018

## Hazard Statements

H314 - Causes severe skin burns and eye damage  
H341 - Suspected of causing genetic defects  
H351 - Suspected of causing cancer  
H361d - Suspected of damaging the unborn child  
H372 - Causes damage to organs through prolonged or repeated exposure  
H301 + H311 + H331 - Toxic if swallowed, in contact with skin or if inhaled

## Precautionary Statements

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing  
P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting  
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER or doctor/physician

## Other Hazards

EUH066 - Repeated exposure may cause skin dryness or cracking

Toxicity to Soil Dwelling Organisms  
Toxic to terrestrial vertebrates

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
Phenol	108-95-2	50.0
Chloroform	67-66-3	48.0
Isoamyl alcohol	123-51-3	2.0

## SECTION 4: FIRST AID MEASURES

### Description of first aid measures

#### General Advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

#### Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

#### Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

#### Ingestion

Do NOT induce vomiting. Call a physician or poison control center immediately.

#### Inhalation

If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Remove to fresh air. Immediate medical attention is required.

#### Self-Protection of the First Aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

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

### **Notes to Physician**

Treat symptomatically. Symptoms may be delayed.

## SECTION 5: FIREFIGHTING MEASURES

### Extinguishing media

#### **Suitable Extinguishing Media**

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam.

#### **Extinguishing media which must not be used for safety reasons**

No information available.

### Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes.

### **Hazardous Combustion Products**

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Hydrogen chloride.

### Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment and Emergency Procedures

Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### Environmental precautions

Do not flush into surface water or sanitary sewer system.

### Methods and Material for Containment and Cleaning Up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

### Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### Precautions for Safe Handling

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Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

## Conditions for Safe Storage, Including any Incompatibilities

Corrosives area. Keep containers tightly closed in a dry, cool and well-ventilated place.

## Specific End Uses

Use in laboratories.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

Component	Malaysia	ACGIH TLV	OSHA PEL
Phenol		TWA: 5 ppm Skin	(Vacated) TWA: 5 ppm (Vacated) TWA: 19 mg/m <sup>3</sup> Skin TWA: 5 ppm TWA: 19 mg/m <sup>3</sup>
Chloroform		TWA: 10 ppm	(Vacated) TWA: 2 ppm (Vacated) TWA: 9.78 mg/m <sup>3</sup> Ceiling: 50 ppm Ceiling: 240 mg/m <sup>3</sup>
Isoamyl alcohol		TWA: 100 ppm STEL: 125 ppm	(Vacated) TWA: 100 ppm (Vacated) TWA: 360 mg/m <sup>3</sup> (Vacated) STEL: 125 ppm (Vacated) STEL: 450 mg/m <sup>3</sup> TWA: 100 ppm TWA: 360 mg/m <sup>3</sup>

Component	European Union	The United Kingdom	Germany
Phenol	TWA: 2 ppm (8h) TWA: 8 mg/m <sup>3</sup> (8h) STEL: 4 ppm (15min) STEL: 16 mg/m <sup>3</sup> (15min) Skin	STEL: 4 ppm 15 min STEL: 16 mg/m <sup>3</sup> 15 min TWA: 2 ppm 8 hr TWA: 7.8 mg/m <sup>3</sup> 8 hr Skin	TWA: 2 ppm (8 Stunden). AGW - exposure factor 2 TWA: 8 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 2 Haut
Chloroform	TWA: 2 ppm (8h) TWA: 10 mg/m <sup>3</sup> (8h) Skin	TWA: 2 ppm TWA: 9.9 mg/m <sup>3</sup> STEL: 6 ppm STEL: 29.7 mg/m <sup>3</sup>	0.5 ppm TWA MAK 2.5 mg/m <sup>3</sup> TWA MAK
Isoamyl alcohol		STEL: 125 ppm 15 min STEL: 458 mg/m <sup>3</sup> 15 min TWA: 100 ppm 8 hr TWA: 366 mg/m <sup>3</sup> 8 hr	TWA: 20 ppm (8 Stunden). AGW - exposure factor 2 TWA: 73 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 2 TWA: 20 ppm (8 Stunden). MAK TWA: 73 mg/m <sup>3</sup> (8 Stunden). MAK Höhepunkt: 40 ppm Höhepunkt: 146 mg/m <sup>3</sup>

### Exposure Controls

#### Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

Eye Protection

Goggles

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<b>Hand Protection</b>	Protective gloves
<b>Skin and body protection</b>	Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.  
(Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

<b>Respiratory Protection</b>	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators
<b>Recommended Filter type:</b>	low boiling organic solvent Type AX Brown conforming to EN371 To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly When RPE is used a face piece Fit Test should be conducted

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice

**Environmental exposure controls** Prevent product from entering drains Do not allow material to contaminate ground water system Local authorities should be advised if significant spillages cannot be contained

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

<b>Appearance</b>		
<b>Physical State</b>	Liquid	
<b>Odor</b>	No information available	
<b>Odor Threshold</b>	No data available	
<b>pH</b>	No information available	
<b>Melting Point/Range</b>	No data available	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	61 °C / 141.8 °F	
<b>Flash Point</b>	No information available	<b>Method -</b> No information available
<b>Evaporation Rate</b>	No data available	
<b>Flammability (solid,gas)</b>	Not applicable	Liquid
<b>Explosion Limits</b>	No data available <b>Lower</b> 1.3 Vol % <b>Upper</b> 9.5 Vol %	
<b>Vapor Pressure</b>	No data available	
<b>Vapor Density</b>	No data available	(Air = 1.0)
<b>Specific Gravity / Density</b>	No data available	
<b>Bulk Density</b>	Not applicable	Liquid
<b>Water Solubility</b>	Miscible	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Component</b>	<b>log Pow</b>	
Phenol	1.5	

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Chloroform 2  
Isoamyl alcohol 1.28

Autoignition Temperature 595 °C / 1103 °F  
Decomposition Temperature No data available  
Viscosity No data available  
Explosive Properties No information available  
Oxidizing Properties No information available

## SECTION 10: STABILITY AND REACTIVITY

### Reactivity

None known, based on information available.

### Chemical Stability

Stable under normal conditions.

### Possibility of Hazardous Reactions

Hazardous Polymerization No information available.  
Hazardous Reactions None under normal processing.

### Conditions to Avoid

Heat.

### Incompatible Materials

Acids. Oxidizing agent.

### Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Hydrogen chloride.

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects

#### Acute Toxicity

#### Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Phenol	LD50 = 340 mg/kg ( Rat )	LD50 = 630 mg/kg ( Rabbit )	
Chloroform	LD50 = 450 mg/kg ( Rat )	LD50 > 20 g/kg ( Rabbit )	47,702 mg/L ( Rat ) 4 h

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Isoamyl alcohol	LD50 = 5770 mg/kg ( Rat )	LD50 = 3250 mg/kg ( Rabbit )	LC50 > 2000 ppm ( Rat ) 8 h
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## Chronic Toxicity

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	IARC	UK
Chloroform	Group 2B	

## Sensitization

No information available

## Mutagenic Effects

No information available

## Reproductive Effects

No information available

## Developmental Effects

No information available

## Target Organs

Kidney, Liver, Skin, Central nervous system (CNS).

## Symptoms

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

## SECTION 12: ECOLOGICAL INFORMATION

### Ecotoxicity effects

Contains a substance which is:. The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Phenol	4-7 mg/L LC50 96 h 32 mg/L LC50 96 h	EC50: 10.2 - 15.5 mg/L, 48h (Daphnia magna) EC50: 4.24 - 10.7 mg/L, 48h Static (Daphnia magna)	EC50: 187 - 279 mg/L, 72h static (Desmodesmus subspicatus) EC50: 0.0188 - 0.1044 mg/L, 96h static (Pseudokirchneriella subcapitata) EC50: = 46.42 mg/L, 96h (Pseudokirchneriella subcapitata)	EC50 21 - 36 mg/L 30 min EC50 = 23.28 mg/L 5 min EC50 = 25.61 mg/L 15 min EC50 = 28.8 mg/L 5 min EC50 = 31.6 mg/L 15 min
Chloroform	LC50: = 18 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 300 mg/L, 96h static (Poecilia reticulata) LC50: = 18 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 71 mg/L, 96h flow-through (Pimephales promelas)	EC50 = 28.9 mg/L/48h	EC50 = 560 mg/L/48h	Photobacterium phosphoreum: EC50 = 520 mg/L/5 min Photobacterium phosphoreum: EC50 = 670 mg/L/15 min Photobacterium phosphoreum: EC50 = 670 mg/L/30min
Isoamyl alcohol	LC50 96 h 700 mg/L (rainbow trout)	EC50: = 260 mg/L, 48h (Daphnia magna)	EC50: = 181 mg/L, 96h (Desmodesmus subspicatus) EC50: = 493 mg/L, 72h (Desmodesmus)	EC50 = 2500 mg/L 17 h

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			subspicatus)	
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## Persistence and degradability

### **Persistence**

Persistence is unlikely, based on information available.

### **Degradation in sewage treatment plant**

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

## Bioaccumulative potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Phenol	1.5	No data available
Chloroform	2	1.4 - 13
Isoamyl alcohol	1.28	No data available

## Mobility in soil

The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility. Disperses rapidly in air.

## Other adverse effects

No information available

## SECTION 13: DISPOSAL CONSIDERATIONS

### Waste treatment methods

#### **Waste from Residues/Unused Products**

Waste is classified as hazardous Dispose of in accordance with the European Directives on waste and hazardous waste Dispose of in accordance with local regulations

#### **Contaminated Packaging**

Dispose of this container to hazardous or special waste collection point.

#### **Other Information**

Do not flush to sewer Waste codes should be assigned by the user based on the application for which the product was used Do not empty into drains Large amounts will affect pH and harm aquatic organisms

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

UN-No UN2922  
Hazard Class 8  
Subsidiary Hazard Class 6.1  
Packing Group II  
Proper Shipping Name Corrosive liquid, toxic, n.o.s. (PHENOL, CHLOROFORM)

### Road and Rail Transport

UN-No UN2922  
Hazard Class 8  
Subsidiary Hazard Class 6.1  
Packing Group II  
Proper Shipping Name Corrosive liquid, toxic, n.o.s. (PHENOL, CHLOROFORM)

### IATA

UN-No UN2922  
Hazard Class 8  
Subsidiary Hazard Class 6.1  
Packing Group II



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**Proper Shipping Name** Corrosive liquid, toxic, n.o.s. (PHENOL, CHLOROFORM)

**Special Precautions for User** No special precautions required

## SECTION 15: REGULATORY INFORMATION

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

**International Inventories** X = listed

Component	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	IECSC	AICS	KECL
Phenol	203-632-7	X	X	X	X	X	X	X	KE-28209
Chloroform	200-663-8	X	X	X	X	X	X	X	KE-34076
Isoamyl alcohol	204-633-5	X	X	X	X	X	X	X	KE-23575

Component	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Phenol				Annex I - Y39
Chloroform				Annex I - Y45

### National Regulations

**Persistent Organic Pollutant** This product does not contain any known or suspected substance  
**Ozone Depletion Potential** This product does not contain any known or suspected substance

## SECTION 16: OTHER INFORMATION

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**POW** - Partition coefficient Octanol:Water

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** (volatile organic compound)

**Key literature references and sources for data**

ALFAAJ75831

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Thermo Scientific

Revision Date 29-Aug-2018

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<https://echa.europa.eu/information-on-chemicals>  
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Prepared By	Health, Safety and Environmental Department
Revision Date	29-Aug-2018
Revision Summary	Initial Release.

**In accordance with local and national regulations: Occupational Safety and Health  
(Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013**

## Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text

**End of Safety Data Sheet**