

Creation Date 31-Jan-2011

Revision Date 09-Feb-2024

Revision Number 9

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

Product Description: Folin & Ciocalteu's phenol reagent  
Cat No. : J/4100/08

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

Recommended Use Laboratory chemicals.  
Uses advised against No Information available

### 1.3. Details of the supplier of the safety data sheet

#### Company

**UK entity/business name**  
Fisher Scientific UK  
Bishop Meadow Road, Loughborough,  
Leicestershire LE11 5RG, United Kingdom

**EU entity/business name**  
Thermo Fisher Scientific  
Janssen Pharmaceuticaaan 3a  
2440 Geel, Belgium

E-mail address begel.sdsdesk@thermofisher.com

### 1.4. Emergency telephone number

Tel: 01509 231166  
Chemtrec US: (800) 424-9300  
Chemtrec EU: 001-703-527-3887

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

#### CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

##### Physical hazards

Substances/mixtures corrosive to metal

Category 1 (H290)

##### Health hazards

Acute oral toxicity

Category 4 (H302)

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Skin Corrosion/Irritation  
Serious Eye Damage/Eye Irritation

Category 2 (H315)  
Category 2 (H319)

## Environmental hazards

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

## 2.2. Label elements



Signal Word

Warning

## Hazard Statements

H290 - May be corrosive to metals  
H302 - Harmful if swallowed  
H315 - Causes skin irritation  
H319 - Causes serious eye irritation

## Precautionary Statements

P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
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  
P312 - Call a POISON CENTER or doctor if you feel unwell

## 2.3. Other hazards

This product does not contain any known or suspected endocrine disruptors

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.2. Mixtures

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Water	7732-18-5	231-791-2	60 - 70	-
Lithium sulfate	10377-48-7	EEC No. 233-820-4	10 - 15	Acute Tox. 4 (H302) Eye Irrit. 2 (H319)
Hydrochloric acid	7647-01-0	231-595-7	5 - 10	Met. Corr. 1 (H290) Skin Corr. 1B (H314) Eye Dam. 1 (H318) STOT SE 3 (H335)
Sodium tungstate	13472-45-2	EEC No. 236-743-4	5 - 10	Acute Tox. 4 (H302)
Orthophosphoric acid	7664-38-2	EEC No. 231-633-2	5 - 10	Met. Corr. 1 (H290) Acute Tox. 4 (H302) Skin Corr. 1B (H314) Eye Dam. 1 (H318)
Sodium molybdate	7631-95-0	EEC No. 231-551-7	1 - 2.5	-

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Bromine	7726-95-6	EEC No. 231-778-1	<0.1	Acute Tox. 1 (H330) Skin Corr. 1A (H314) Eye Dam. 1 (H318) Aquatic acute 1 (H400)
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Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Hydrochloric acid	Skin Corr. 1B :: C>=25% Skin Irrit. 2 :: 10%<=C<25% Eye Irrit. 2 :: 10%<=C<25% STOT SE 3 :: C>=10% Met. Corr. 1 :: C>=0.1%	-	-
Orthophosphoric acid	Skin Corr. 1B :: C>=25% Eye Irrit. 2 :: 10%<=C<25% Skin Irrit. 2 :: 10%<=C<25%	-	-
Bromine	-	100	-

Components	Reach Registration Number
Hydrochloric acid	01-2119484862-27
Orthophosphoric acid	01-2119485924-24
Bromine	01-2119461714-37
Sodium molybdate	01-2119489495-21

Full text of Hazard Statements: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

<b>General Advice</b>	If symptoms persist, call a physician.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water.
<b>Inhalation</b>	If not breathing, give artificial respiration. Remove to fresh air. Get medical attention if symptoms occur.
<b>Self-Protection of the First Aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

None reasonably foreseeable.

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

<b>Notes to Physician</b>	Treat symptomatically.
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## SECTION 5: FIREFIGHTING MEASURES

### 5.1. 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.

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## **5.2. 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**

Oxides of phosphorus, Sodium oxides, Hydrogen, Hydrogen chloride gas.

## **5.3. Advice for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

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

Ensure adequate ventilation. Use personal protective equipment as required.

### **6.2. Environmental precautions**

Should not be released into the environment.

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

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

### **6.4. Reference to other sections**

Refer to protective measures listed in Sections 8 and 13.

## **SECTION 7: HANDLING AND STORAGE**

### **7.1. Precautions for safe handling**

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. Avoid ingestion and inhalation.

### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

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

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

**Technical Rules for Hazardous Substances (TRGS) 510**  
**Storage Class (LGK) (Germany)**

Class 12

### **7.3. Specific end use(s)**

Use in laboratories

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

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## 8.1. Control parameters

### Exposure limits

List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **IRE** - 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

Component	The United Kingdom	European Union	Ireland
Hydrochloric acid	STEL: 5 ppm 15 min STEL: 8 mg/m <sup>3</sup> 15 min TWA: 1 ppm 8 hr TWA: 2 mg/m <sup>3</sup> 8 hr	TWA: 5 ppm 8 hr TWA: 8 mg/m <sup>3</sup> 8 hr STEL: 10 ppm 15 min STEL: 15 mg/m <sup>3</sup> 15 min	TWA: 8 mg/m <sup>3</sup> 8 hr. F TWA: 5 ppm 8 hr. STEL: 10 ppm 15 min STEL: 15 mg/m <sup>3</sup> 15 min
Sodium tungstate	STEL: 3 mg/m <sup>3</sup> 15 min TWA: 1 mg/m <sup>3</sup> 8 hr		
Orthophosphoric acid	STEL: 2 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup> (8h) STEL: 2 mg/m <sup>3</sup> (15min)	TWA: 1 mg/m <sup>3</sup> 8 hr. STEL: 2 mg/m <sup>3</sup> 15 min
Sodium molybdate	STEL: 10 mg/m <sup>3</sup> 15 min TWA: 5 mg/m <sup>3</sup> 8 hr		
Bromine	STEL: 0.2 ppm 15 min STEL: 1.3 mg/m <sup>3</sup> 15 min TWA: 0.1 ppm 8 hr TWA: 0.66 mg/m <sup>3</sup> 8 hr	TWA: 0.1 ppm (8hr) TWA: 0.7 mg/m <sup>3</sup> (8hr)	TWA: 0.1 ppm 8 hr. TWA: 0.7 mg/m <sup>3</sup> 8 hr. STEL: 0.3 ppm 15 min STEL: 2 mg/m <sup>3</sup> 15 min

### Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

### Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
Lithium sulfate 10377-48-7 ( 10 - 15 )				DNEL = 95mg/kg bw/day
Orthophosphoric acid 7664-38-2 ( 5 - 10 )		DNEL = 134.5mg/kg bw/day		DNEL = 3.8mg/kg bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Lithium sulfate 10377-48-7 ( 10 - 15 )				DNEL = 10mg/m <sup>3</sup>
Hydrochloric acid 7647-01-0 ( 5 - 10 )	DNEL = 15mg/m <sup>3</sup>		DNEL = 8mg/m <sup>3</sup>	
Orthophosphoric acid 7664-38-2 ( 5 - 10 )	DNEL = 1mg/m <sup>3</sup>	DNEL = 948.6mg/m <sup>3</sup>	DNEL = 1mg/m <sup>3</sup>	DNEL = 13.2mg/m <sup>3</sup>
Sodium molybdate 7631-95-0 ( 1 - 2.5 )				DNEL = 23.97mg/m <sup>3</sup>
Bromine 7726-95-6 ( <0.1 )	DNEL = 0.7mg/m <sup>3</sup>	DNEL = 0.7mg/m <sup>3</sup>	DNEL = 0.7mg/m <sup>3</sup>	DNEL = 0.7mg/m <sup>3</sup>

### Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water sediment	Water Intermittent	Microorganisms in sewage treatment	Soil (Agriculture)
Lithium sulfate 10377-48-7 ( 10 - 15 )	PNEC = 13.5mg/L	PNEC = 350.1mg/kg sediment dw	PNEC = 13.5mg/L	PNEC = 182mg/L	PNEC = 64.77mg/kg soil dw
Orthophosphoric acid 7664-38-2 ( 5 - 10 )	PNEC = 100µg/L	PNEC = 392µg/kg sediment dw	PNEC = 1000µg/L	PNEC = 100mg/L	PNEC = 19.7µg/kg soil dw
Sodium molybdate	PNEC = 25.5mg/L	PNEC =		PNEC = 46.57mg/L	PNEC =

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7631-95-0 ( 1 - 2.5 )		45300mg/kg sediment dw			20.39mg/kg soil dw
Bromine 7726-95-6 ( <0.1 )	PNEC = 1µg/L				

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Lithium sulfate 10377-48-7 ( 10 - 15 )	PNEC = 1.35mg/L	PNEC = 35.01mg/kg sediment dw			
Orthophosphoric acid 7664-38-2 ( 5 - 10 )	PNEC = 10µg/L	PNEC = 39.2µg/kg sediment dw		PNEC = 4mg/kg food	
Sodium molybdate 7631-95-0 ( 1 - 2.5 )	PNEC = 4.89mg/L	PNEC = 5080mg/kg sediment dw			
Bromine 7726-95-6 ( <0.1 )	PNEC = 1µg/L				

## 8.2. Exposure controls

### Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

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 (European standard - EN 166)

#### Hand Protection

Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Butyl rubber	See manufacturers recommendations	-	EN 374	(minimum requirement)

#### Skin and body protection

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 compatibility, 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.

#### Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

#### Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Recommended Filter type:** Particulates filter conforming to EN 143 or Acid gases filter Type E Yellow conforming to EN14387

#### Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Recommended half mask:-** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

When RPE is used a face piece Fit Test should be conducted

#### Environmental exposure controls

Prevent product from entering drains. Do not allow material to contaminate ground water system.

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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

Physical State	Liquid	
Appearance	Yellow	
Odor	No information available	
Odor Threshold	No data available	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	No information available	
Flammability (liquid)	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Flash Point	Not applicable	Method - No information available
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
pH	1	
Viscosity	No data available	
Water Solubility	Miscible	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
Bromine	1.03	
Vapor Pressure	No data available	
Density / Specific Gravity	No data available	
Bulk Density	Not applicable	Liquid
Vapor Density	No data available	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	

### 9.2. Other information

## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

None known, based on information available

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

### 10.4. Conditions to avoid

Incompatible products. Excess heat.

### 10.5. Incompatible materials

No information available.

### 10.6. Hazardous decomposition products

Oxides of phosphorus. Sodium oxides. Hydrogen. Hydrogen chloride gas.

## SECTION 11: TOXICOLOGICAL INFORMATION

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## 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

### Product Information

#### (a) acute toxicity;

Oral

Category 4

ATE = 1488 mg/kg

Dermal

Based on available data, the classification criteria are not met

Inhalation

Based on available data, the classification criteria are not met

### Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	-	-
Lithium sulfate	LD50 = 613 mg/kg ( Rat )	-	-
Hydrochloric acid	238 - 277 mg/kg ( Rat )	> 5010 mg/kg ( Rabbit )	1.68 mg/L ( Rat ) 1 h
Sodium tungstate	LD50 = 1190 mg/kg ( Rat )	LD50 > 2000 mg/kg ( Rat )	LC50 > 5.01 mg/L ( Rat ) 4 h
Orthophosphoric acid	LD50 = 1530 mg/kg ( Rat )	LD50 = 2740 mg/kg ( Rabbit )	850 mg/m <sup>3</sup> ( Rat ) 1 h
Sodium molybdate	LD50 = 4000 mg/kg ( Rat )	LD50 > 2000 mg/kg ( Rat )	LC50 > 5.84 mg/L ( Rat ) 4 h
Bromine	LD50 = 2600 mg/kg ( Rat )	-	LC50 = 2.7 mg/L (Rat, 4hrs)

#### (b) skin corrosion/irritation;

Category 2

#### (c) serious eye damage/irritation;

Category 2

#### (d) respiratory or skin sensitization;

Respiratory

No data available

Skin

No data available

#### (e) germ cell mutagenicity;

No data available

#### (f) carcinogenicity;

No data available

There are no known carcinogenic chemicals in this product

#### (g) reproductive toxicity;

No data available

#### (h) STOT-single exposure;

No data available

#### (i) STOT-repeated exposure;

No data available

Target Organs

None known.

#### (j) aspiration hazard;

No data available

Symptoms / effects, both acute and delayed No information available.

## 11.2. Information on other hazards

### Endocrine Disrupting Properties

Assess endocrine disrupting properties for human health. This product does not contain any



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known or suspected endocrine disruptors.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

#### Ecotoxicity effects

Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Lithium sulfate		EC50: 196.79 mg/L/24h	
Hydrochloric acid	282 mg/L LC50 96 h Gambusia affinis mg/L LC50 48 h Leuciscus idus	56mg/L EC50 72h Daphnia	-
Sodium tungstate	LC50: > 200 mg/L, 96h static (Danio rerio)		
Orthophosphoric acid	98 - 106 mg/L LC50 96 h	> 100 mg/L EC50 = 48 h	

Component	Microtox	M-Factor
Hydrochloric acid	-	
Bromine		100

### 12.2. Persistence and degradability

#### Persistence

Miscible with water, Persistence is unlikely, based on information available.

### 12.3. Bioaccumulative potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Bromine	1.03	No data available

### 12.4. Mobility in soil

The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

### 12.5. Results of PBT and vPvB assessment

No data available for assessment.

### 12.6. Endocrine disrupting properties

#### Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

### 12.7. Other adverse effects

#### Persistent Organic Pollutant Ozone Depletion Potential

This product does not contain any known or suspected substance  
This product does not contain any known or suspected substance

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. 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.

#### European Waste Catalogue (EWC)

According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

#### Other Information

Do not flush to sewer. Waste codes should be assigned by the user based on the

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application for which the product was used. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Solutions with low pH-value must be neutralized before discharge.

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

**14.1. UN number** UN3264  
**14.2. UN proper shipping name** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.  
**Technical Shipping Name** Contains hydrochloric acid, phosphoric acid  
**14.3. Transport hazard class(es)** 8  
**14.4. Packing group** III

### ADR

**14.1. UN number** UN3264  
**14.2. UN proper shipping name** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.  
**Technical Shipping Name** Contains hydrochloric acid, phosphoric acid  
**14.3. Transport hazard class(es)** 8  
**14.4. Packing group** III

### IATA

**14.1. UN number** UN3264  
**14.2. UN proper shipping name** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.  
**Technical Shipping Name** Contains hydrochloric acid, phosphoric acid  
**14.3. Transport hazard class(es)** 8  
**14.4. Packing group** III

**14.5. Environmental hazards** No hazards identified  
**14.6. Special precautions for user** No special precautions required.  
**14.7. Maritime transport in bulk according to IMO instruments** Not applicable, packaged goods

## SECTION 15: REGULATORY INFORMATION

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

#### International Inventories

China, X = listed, Australia, U.S.A. (TSCA), Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Australia (AICS), Korea (KECL), China (IECSC), Japan (ENCS), Philippines (PICCS), Taiwan (TCSI), Japan (ISHL), New Zealand (NZIoC), Japan (ISHL). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Water	7732-18-5	231-791-2	-	-	X	X	KE-35400	X	-
Lithium sulfate	10377-48-7	233-820-4	-	-	X	X	KE-22591	X	X
Hydrochloric acid	7647-01-0	231-595-7	-	-	X	X	KE-20189	X	X
Sodium tungstate	13472-45-2	236-743-4	-	-	X	X	KE-12409	X	X
Orthophosphoric acid	7664-38-2	231-633-2	-	-	X	X	KE-27427	X	X
Sodium molybdate	7631-95-0	231-551-7	-	-	X	X	KE-12357	X	X
Bromine	7726-95-6	231-778-1	-	-	X	X	KE-03605	X	-

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
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Water	7732-18-5	X	ACTIVE	X	-	X	X	X
Lithium sulfate	10377-48-7	X	ACTIVE	X	-	X	X	X
Hydrochloric acid	7647-01-0	X	ACTIVE	X	-	X	X	X
Sodium tungstate	13472-45-2	X	ACTIVE	X	-	X	X	X
Orthophosphoric acid	7664-38-2	X	ACTIVE	X	-	X	X	X
Sodium molybdate	7631-95-0	X	ACTIVE	X	-	X	X	X
Bromine	7726-95-6	X	ACTIVE	X	-	X	X	X

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

## Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Water	7732-18-5	-	-	-
Lithium sulfate	10377-48-7	-	-	-
Hydrochloric acid	7647-01-0	-	Use restricted. See item 75. (see link for restriction details)	-
Sodium tungstate	13472-45-2	-	-	-
Orthophosphoric acid	7664-38-2	-	Use restricted. See item 75. (see link for restriction details)	-
Sodium molybdate	7631-95-0	-	-	-
Bromine	7726-95-6	-	Use restricted. See item 75. (see link for restriction details)	-

### REACH links

<https://echa.europa.eu/substances-restricted-under-reach>

## Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Water	7732-18-5	Not applicable	Not applicable
Lithium sulfate	10377-48-7	Not applicable	Not applicable
Hydrochloric acid	7647-01-0	25 tonne	250 tonne
Sodium tungstate	13472-45-2	Not applicable	Not applicable
Orthophosphoric acid	7664-38-2	Not applicable	Not applicable
Sodium molybdate	7631-95-0	Not applicable	Not applicable
Bromine	7726-95-6	20 tonne	100 tonne

## Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

## Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

## National Regulations

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UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

## WGK Classification

Water endangering class = 2 (self classification)

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Lithium sulfate	WGK1	
Hydrochloric acid	WGK1	
Sodium tungstate	WGK2	
Orthophosphoric acid	WGK1	
Sodium molybdate	WGK1	
Bromine	WGK2	

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Hydrochloric acid 7647-01-0 ( 5 - 10 )	Prohibited and Restricted Substances		
Orthophosphoric acid 7664-38-2 ( 5 - 10 )	Prohibited and Restricted Substances		
Bromine 7726-95-6 ( <0.1 )	Prohibited and Restricted Substances		

## 15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

## SECTION 16: OTHER INFORMATION

### Full text of H-Statements referred to under sections 2 and 3

H290 - May be corrosive to metals  
H302 - Harmful if swallowed  
H315 - Causes skin irritation  
H319 - Causes serious eye irritation  
H314 - Causes severe skin burns and eye damage  
H318 - Causes serious eye damage  
H330 - Fatal if inhaled  
H335 - May cause respiratory irritation  
H400 - Very toxic to aquatic life

### 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

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer Predicted No Effect Concentration (PNEC)

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

# SAFETY DATA SHEET

Folin & Ciocalteu's phenol reagent

Revision Date 09-Feb-2024

**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

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

## Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

**Physical hazards** On basis of test data

**Health Hazards** Calculation method

**Environmental hazards** Calculation method

## Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

**Creation Date** 31-Jan-2011

**Revision Date** 09-Feb-2024

**Revision Summary** SDS sections updated, 2, 3, 4, 8, 9, 11, 12, 14, 15.

**This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.**

## Disclaimer

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**End of Safety Data Sheet**