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

1.1. Product identifier

Product Code/Catalogue Number:	981890, 981891
SDS Number:	D15206_SDS_Phosphorus, reagent A, reagent B _EN
Product Name	**Phosphorus**

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

Recommended Use	In vitro diagnostic.
Uses advised against	No Information available

1.3. Details of the supplier of the safety data sheet

Company	**Thermo Fisher Scientific Oy** Ratastie 2, FI-01620 Vantaa, Finland
Telephone number	+358 10 329200
E-mail address	system.support.fi@thermofisher.com

1.4. Emergency telephone number

CHEMTREC INTERNATIONAL +1 703-741-5970

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Substances/mixtures corrosive to metal	Category 1 (H290)
Skin Corrosion/Irritation	Category 1 A (H314)
Serious Eye Damage/Eye Irritation	Category 1 (H318)
Chronic aquatic toxicity	Category 3 (H412)

2.2. Label elements

Signal Word **Danger**

Hazard Statements
H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H412 - Harmful to aquatic life with long lasting effects
Precautionary Statements
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P273 - Avoid release to the environment
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

2.3. Other hazards

Contains a known or suspected endocrine disruptor
Included in the list established in accordance with Article 59(1) for having endocrine disrupting properties

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Component	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Sulfuric acid (CAS #: 7664-93-9)	5 - < 10	Skin Corr. 1A (H314)
Poly(oxy-1.2-ethanediyl), alpha[4-(1,1,3,3-tetramethylbutyl)phenyl]-omega-hydroxy (Triton X-100) (CAS #: 9002-93-1)	1 - < 3	Eye Dam. 1 (H318) Acute Tox. 4 (H302) Aquatic Chronic 2 (H411)

Component	Reach Registration Number	
Sulfuric acid	01-2119458838-20-XXXX	
Poly(oxy-1.2-ethanediyl), alpha[4-(1,1,3,3-tetramethylbutyl)phenyl]-omega-hydroxy (Triton X-100)	NA	REACH regulation (EC 1907/2006) article 56 - Candidate List of Substance of Very High Concern (SVHC)

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice
For further assistance, contact your local Poison Control Center.

Inhalation
Get medical attention if symptoms occur.

Skin Contact
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.

Eye Contact
In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention immediately if irritation persists.

Ingestion
Do NOT induce vomiting. Call a physician or poison control center immediately. Clean mouth with water and drink afterwards plenty of water.

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

No information available.

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

Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Powder. Do not use water or foam.

Extinguishing media which must not be used for safety reasons
Do not use water or foam.

5.2. Special hazards arising from the substance or mixture
Thermal decomposition can lead to release of irritating gases and vapors.
Hazardous Combustion Products
Carbon monoxide (CO), Carbon dioxide (CO_2), Sulfur oxides.

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
Use personal protective equipment as required. Ensure adequate ventilation.

6.2. Environmental precautions
Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. 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
Ensure adequate ventilation. Wear personal protective equipment/face protection. Avoid contact with skin, eyes or clothing.

7.2. Conditions for safe storage, including any incompatibilities
Keep container closed when not in use. Keep away from heat, sparks and flame. Keep at temperatures between 15° and 25 °C.

7.3. Specific end use(s)
Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters
Component Exposure Limits

Component	Finland	European Union	The United Kingdom	Germany
Sulfuric acid	TWA: 0.05 mg/m³ 8 tunteina STEL: 0.1 mg/m³ 15 minuutteina	TWA: 0.05 mg/m³ (8h)	STEL: 0.15 mg/m³ 15 min TWA: 0.05 mg/m³ 8 hr	TWA: 0.1 mg/m³ (8 Stunden). AGW - exposure factor 1 TWA: 0.1 mg/m³ (8 Stunden). MAK Höhepunkt: 0.1 mg/m³

Component	Sweden	Norway	Denmark	France
Sulfuric acid	Indicative STEL: 0.2 mg/m³ 15 minuter TLV: 0.1 mg/m³ 8 timmar.	TWA: 0.1 mg/m³ 8 timer STEL: 0.3 mg/m³ 15 minutter. value calculated	TWA: 0.05 mg/m³ 8 timer	TWA / VME: 0.05 mg/m³ (8 heures).

	NGV	thoracic fraction		

8.2. Exposure controls

Engineering Measures
Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye Protection Wear safety glasses with side shields (or goggles) (European standard - EN 166)

Hand Protection Protective gloves

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

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.

Skin and body protection
Long sleeved clothing

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

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.
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.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Colorless	
Physical State	Liquid	
Odor	Odorless	
Odor Threshold	No data available	
pH	1	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	Not applicable	
Flash Point	Not applicable	**Method -** No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	

Vapor Pressure	No data available	
Vapor Density	No data available	(Air = 1.0)
Specific Gravity / Density	No data available	
Bulk Density	No data available	
Water Solubility	Soluble in water	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Viscosity	No data available	
Explosive Properties	No information available	
Oxidizing Properties	No information available	

9.2. Other information

No data available

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

No information available.

10.4. Conditions to avoid

Excess heat. Incompatible products.

10.5. Incompatible materials

Bases. Strong reducing agents. Metals. Finely powdered metals. Organic materials.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO_2). Sulfur oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

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

Product Information

No acute toxicity information is available for this product

(a) acute toxicity;

Oral	Based on available data, the classification criteria are not met ATE = > 2000 mg/kg
Dermal	Not classified
Inhalation	Not classified

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sulfuric acid	LD50 = 2140 mg/kg (Rat)		LC50 = 0.375 mg/L (Rat) 4 h
Poly(oxy-1.2-ethanediyl), alpha[4-(1,1,3,3-tetramethylbutyl)phenyl]-omega-hydroxy (Triton X-100)	LD50 = 1800 mg/kg (Rat)		

(b) skin corrosion/irritation;

Causes burns.

(c) serious eye damage/irritation;
. Liquid splashed in the eyes may cause irritation and reversible damage.

(d) respiratory or skin sensitization;
Respiratory
Not classified.
Skin
Not classified.

(e) germ cell mutagenicity;
Not classified

(f) carcinogenicity;
Not classified

There are no known carcinogenic chemicals in this product

Component	EU	UK	Germany	IARC
Sulfuric acid				Group 1

(g) reproductive toxicity;
Not classified.

(h) STOT-single exposure;
No data available.

(i) STOT-repeated exposure;
Not classified.

Target Organs
No information available.

(j) aspiration hazard;
Not classified.

Symptoms / effects,both acute and delayed
No information available

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity
Ecotoxicity effects
This product contains the following substance(s) which are hazardous for the environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Sulfuric acid	LC50: > 500 mg/L, 96h static (Brachydanio rerio)	EC50: 29 mg/L/24h	-	-
Poly(oxy-1.2-ethanediyl), alpha[4-(1,1,3,3-tetramethylbutyl)phenyl]-omega-hydroxy (Triton X-100)	LC50 = 8.9 mg/L 96H	EC50 = 26 mg/L 48h	-	-

12.2. Persistence and degradability
No information available
Degradation in sewage Contains substances known to be hazardous to the environment or not degradable in waste

treatment plant water treatment plants.

12.3. Bioaccumulative potential
No information available

12.4. Mobility in soil
The product is water soluble, and may spread in water systems Highly mobile in soils

12.5. Results of PBT and vPvB assessment
No data available for assessment.

12.6. Endocrine disrupting properties
Contains a known or suspected endocrine disruptor

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products
Should not be released into the environment. Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging
Dispose of in accordance with local regulations.

Other Information
Do not flush to sewer. Do not empty into drains. Do not let this chemical enter the environment.

SECTION 14: TRANSPORT INFORMATION

	IMDG/IMO	ADR	IATA
14.1. UN number	UN2796	UN2796	UN2796
14.2. UN proper shipping name	SULPHURIC ACID (with 51% or less acid)	SULPHURIC ACID (with 51% or less acid)	SULPHURIC ACID (with 51% or less acid)
14.3. Transport hazard class(es)	8	8	8
14.4. Packing group	II	II	II

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

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

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

International Inventories X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Sulfuric acid	231-639-5	-		X	X	-	X	X	X	X	KE-32570
Poly(oxy-1.2-ethanediyl), alpha[4-(1,1,3,3-tetramethylbutyl)phenyl]-omega-hydroxy (Triton X-100)	-	-		X	X	-	X	-	X	X	KE-33568

Component	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)
Poly(oxy-1.2-ethanediyl), alpha[4-(1,1,3,3-tetramethylbutyl) phenyl]-omega-hydroxy (Triton X-100)	Endocrine disrupting properties (Article 57(f) - environment) Application date: July 4, 2019 Sunset date: January 4, 2021 Exemption - None		SVHC Candidate list - 618-344-0 - Endocrine disrupting properties, Article 57f - environment

National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Sulfuric acid	WGK1	
Poly(oxy-1.2-ethanediyl), alpha[4-(1,1,3,3-tetramethylbutyl) phenyl]-omega-hydroxy (Triton X-100)	WGK2	

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

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

H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H411 - Toxic to aquatic life with long lasting effects
H412 - Harmful to aquatic life with long lasting effects
H290 - May be corrosive to metals

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/NDSL - 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

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

Health Hazards Calculation method

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

Version	4
Revision Date	24-Nov-2020
Reason for revision	SDS section(s) updated, 2, 6, 8, 11, 12, 13, 16.

Disclaimer

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