Version: 2.1

Revision date: 28.05.2024

Safety Data Sheet

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

SECTION 1: Identification

Product identifier

Trade name/designation:	Orthophosphoric Acid 85-87 % BAKER ANALYZED® A.C.S. Reagent
Product No.:	0260
Synonyms:	none

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

Recommended use	For Laboratory, Research or Manufacturing Use.
Uses advised against	Not determined.

Details of the supplier of the safety data sheet

Supplier

Avantor Performance Materials, LLC.

Street	100 Matsonford Rd, Suite 200
Postal code/City	Radnor, PA 19087, United States
Telephone	+1-855-282-6867
Telefax	+1-610-573-2610

Emergency phone number

Telephone	+1-800-424-9300 (Chemtrec, 24 hrs/day, 7 days/week, USA and Canada)

Preparation Information
Product Information Compliance

E-mail	SDS@avantorsciences.com

SECTION 2: Hazard identification

Classification of the substance or mixture

Label elements

Physical hazards

Substance or mixture corrosive to metals, category 1

Health hazards

Acute toxicity, category 4, oral
Skin corrosion, category 1B
Serious eye damage, category 1

Hazard pictograms

Signal word: Danger

Hazard statements

H290 - May be corrosive to metals.
H302 - Harmful if swallowed.
H314 - Causes severe skin burns and eye damage.

Precautionary statements
Prevention:
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P234 - Keep only in original container.

Response:
P301+P312 - IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
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/shower.
P363 - Wash contaminated clothing before reuse.
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.
P310 - Immediately call a POISON CENTER/doctor.
P390 - Absorb spillage to prevent material damage.

Storage:
P405 - Store locked up.
P406 - Store in a corrosion-resistant container with a resistant inner liner.

Disposal:
P501 - Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC)
none

SECTION 3: Composition/information on ingredients

Substances

not applicable

Mixtures

Substance name	Identifier	Concentration
Orthophosphoric acid	CAS No.: 7664-38-2	80 - 90%

SECTION 4: First aid measures

General information

Do not leave affected person unattended. If unconscious but breathing normally, place in recovery position and seek medical advice. Take off contaminated clothing. Never give anything by mouth to an unconscious person or a person with cramps. When in doubt or if symptoms are observed, get medical advice.

In case of inhalation
Remove casualty to fresh air and keep warm and at rest. In case of respiratory tract irritation, consult a physician. When in doubt or if symptoms are observed, get medical advice.

In case of skin contact
Remove contaminated, saturated clothing immediately. Wash off any skin contamination immediately. In case of skin irritation, consult a physician.

After eye contact:
Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an ophthalmologist.

In case of ingestion
Seek medical advice immediately (poison centre). Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting.

Most important symptoms/effects, acute and delayed
After inhalation: Cough. Shortness of breath. After skin contact: Causes severe burns. Causes poorly healing wounds. After eye contact: Risk of serious damage to eyes. Risk of blindness. Following ingestion: Corrosion Gastric perforation

Indication of any immediate medical attention and special treatment needed
No special information on medical attention and special treatment available.

SECTION 5: Fire fighting measures

Extinguishing media

Suitable extinguishing media
The product itself does not burn.
Co-ordinate fire-fighting measures to the fire surroundings.

Extinguishing media which must not be used for safety reasons
Water.

Specific hazards arising from the chemical
In case of fire may be liberated:
Phosphorus oxides

Advice for firefighters
DO NOT fight fire when fire reaches explosives.
Protective equipment and precautions for firefighters:
Wear a self-contained breathing apparatus and chemical protective clothing.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures
For non-emergency personnel: Wear personal protection equipment (refer to section 8). Avoid contact with eyes and skin. Do not breathe gas/fume/vapor/spray. Remove victim out of the danger area. Stop leak if safe to do so.

Environmental precautions
Do not allow to enter into surface water or drains.

Methods and material for containment and cleaning up
Large spills: Dike or dam to contain for later disposal. Take up mechanically, placing in appropriate containers for disposal. Small spills: Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Dispose according to legislation.

Additional information

Personal protection equipment (PPE): see section 8 Disposal information: see section 13 Decomposition products in case of fire: see section 5.

SECTION 7: Handling and storage

Precautions for safe handling

Advices on safe handling
Use extractor hood (laboratory).
Use only in well-ventilated areas.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Avoid contact with eyes and skin.
Use personal protective equipment as required.
Protect from moisture.
Measures to prevent fire, aerosol and dust generation
Usual measures for fire prevention.
Use only in well-ventilated areas.
Measures required to protect the environment
Do not empty into drains.
Collect spillage.

Wash hands before breaks and after work. Avoid contact with eyes and skin. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

Conditions for safe storage, including any incompatibilities

Recommended storage temperature: 15-25 °C
Keep container tightly closed and in a well-ventilated place. Keep/Store away from combustible materials.
Protect from sunlight. Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.
Suitable container/equipment material: Glass High density polyethylene (HDPE) Stainless steel Unsuitable container/equipment material: Metal. PP (Polypropylene)

SECTION 8: Exposure controls/personal protection

Control parameters

Ingredient (Designation)	Source	Country	parameter	Limit value
Orthophosphoric acid	NIOSH	US	LTV	1 mg/m³
Orthophosphoric acid	NIOSH	US	STV	3 mg/m³ (1)
Orthophosphoric acid	OSHA	US	LTV	1 mg/m³

Engineering controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment. If handled uncovered, arrangements with local exhaust ventilation have to be used.

Personal protection equipment (PPE)
Wear suitable protective clothing. When handling with chemical substances, protective clothing must be worn.

Eye/face protection
Eye glasses with side protection

Skin protection
Wear suitable gloves. When handling with chemical substances, protective gloves must be worn. In the case of wanting to use the gloves again, clean them before taking off and air them well. Check leak tightness/impermeability prior to use.

By short-term hand contact	
Suitable material:	NBR (Nitrile rubber)
Thickness of the glove material:	0,12 mm
Breakthrough time	> 480 min

By long-term hand contact	
Suitable material:	NBR (Nitrile rubber)
Thickness of the glove material:	0,38 mm
Breakthrough time	> 480 min

Respiratory protection
Respiratory protection necessary at: aerosol or mist formation If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

Additional information
Wash hands before breaks and after work. Avoid contact with eyes and skin. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

Environmental exposure controls
no data available

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

(a) Appearance	
Physical state:	liquid
Color:	colorless
(b) Odor:	no data available
(c) Odor threshold:	no data available

Safety relevant basic data

(d) pH:	no data available
(e) Melting point/freezing point:	no data available
(f) Initial boiling point and boiling range:	no data available
(g) Flash point:	no data available
(h) Evaporation rate:	no data available
(i) Flammability (solid, gas):	Not applicable
(j) Flammability or explosive limits	
Lower explosion limit:	no data available
Upper explosion limit:	no data available
(k) Vapor pressure:	no data available
(l) Vapor density:	no data available
(m) Density:	no data available
(n) Solubility(ies)	
Water solubility:	no data available
Soluble (g/L) in Ethanol:	no data available
(o) Partition coefficient: n-octanol/water:	no data available
(p) Auto-ignition temperature:	no data available
(q) Decomposition temperature:	Not applicable
(r) Viscosity	
Kinematic viscosity:	no data available
Dynamic viscosity:	no data available
(s) Explosive properties:	Not applicable
(t) Oxidising properties:	Not applicable

Other information

Bulk density:	no data available
Refraction index:	no data available
Dissociation constant:	no data available
Surface tension:	no data available
Henry's Law Constant:	no data available

SECTION 10: Stability and reactivity

Reactivity

Corrosive to metals

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

Possibility of hazardous reactions

Explosive reaction with:
Alkali metals
Alkaline earth metal
Alkali (lye)
Violent reaction with:
Water.
light metals
Powdered metals
Exothermic reaction with:
Water.
Substance, organic

Conditions to avoid

Humidity
Keep away from heat.

Incompatible materials:

Metal.
Water.
Nitrates
Amines
metals
strong base
Chlorates

Hazardous decomposition products

Phosphorous oxides formation at high temperature
Contact with metals liberates hydrogen gas.
Thermal decomposition
not applicable

SECTION 11: Toxicological information

Information on toxicological effects

Acute effects

Acute oral toxicity:
Orthophosphoric acid - LD50: 300 - 2000 mg/kg - Rat - (OECD 423)

Acute dermal toxicity:
no data available

Acute inhalation toxicity:
no data available

Irritant and corrosive effects:
Primary irritation to the skin:
Causes severe skin burns and eye damage.

Irritation to eyes:
Causes serious eye damage.

Irritation to respiratory tract:
Not applicable

Respiratory or skin sensitization
In case of skin contact: not sensitizing
In case of inhalation: not sensitizing

STOT-single exposure
Not applicable

STOT-repeated exposure
Not applicable

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
Carcinogenicity
No indication of human carcinogenicity.

Germ cell mutagenicity
No indications of human germ cell mutagenicity exist.

Reproductive toxicity
No indications of human reproductive toxicity exist.

Aspiration hazard
Not applicable

Other adverse effects
no data available

SECTION 12: Ecological information

Ecotoxicity

Fish toxicity:
no data available

Daphnia toxicity:
Orthophosphoric acid - EC50: 100 mg/l (48 h) - Daphnia Magna - OECD 202

Algae toxicity:
Orthophosphoric acid - EC10: 100 mg/l (72 h) - Desmodesmus subspicatus - OECD 201

Orthophosphoric acid - EC50: 100 mg/l (72 h) - Desmodesmus subspicatus - OECD 201

Bacteria toxicity:
Orthophosphoric acid - NOEC: 1000 mg/l (3 h) - OECD 209

Persistence and degradability
no data available

Bioaccumulative potential

Partition coefficient: n-octanol/water: no data available

Mobility in soil:

no data available

Other adverse effects

no data available

SECTION 13: Disposal considerations

Waste treatment methods

Appropriate disposal / Product

Dispose according to legislation. Consult the appropriate local waste disposal expert about waste disposal. Before discharge into sewage plants the product normally needs to be neutralised.

Appropriate disposal / Package

Dispose according to legislation. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (DOT)

UN-No.:	UN1805
Proper Shipping Name:	PHOSPHORIC ACID SOLUTION
Class(es):	8
Hazard label(s):	8
Packing group:	III
Environmental hazards**:**	No
Marine pollutant:	No
Special precautions for user**:**	

Sea transport (IMDG)

UN-No.:	1805
Proper Shipping Name:	PHOSPHORIC ACID SOLUTION
Class(es):	8
Hazard label(s):	8
Packing group:	III
Environmental hazards**:**	No
Marine pollutant:	No
Special precautions for user**:**	
Segregation group:	1
EmS-No.	F-A S-B

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
not relevant

Air transport (ICAO-TI / IATA-DGR)

UN-No.:	1805
Proper Shipping Name:	PHOSPHORIC ACID SOLUTION
Class(es):	8
Classification code:	
Hazard label(s):	8
Packing group:	III

Special precautions for user:

SECTION 15: Regulatory information

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

National regulations

Toxic Substances Control Act (TSCA)
- Orthophosphoric acid - CAS No.: 7664-38-2
- Water - CAS No.: 7732-18-5

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Does not contain listed substances.

SARA 313 Components

Does not contain listed substances.

US State Regulations
Massachusetts Right To Know Components
- Orthophosphoric acid - CAS No.: 7664-38-2

Pennsylvania Right To Know Components

- Orthophosphoric acid - CAS No.: 7664-38-2

New Jersey Right To Know Components

- Orthophosphoric acid - CAS No.: 7664-38-2

California Prop. 65 Components

Does not contain listed substances.

SECTION 16: Other information

Abbreviations and acronyms

ACGIH - American Conference of Governmental Industrial Hygiensts
DOT - Department of Transportation
IARC - International Agency for Research on Cancer
IATA-DGR - International Air Transport Association-Dangerous Goods Regulations
ICAO-TI - International Civil Aviation Organization-Technical Instructions
IMDG - International Maritime Code for Dangerous Goods
LTV - Long Term Value
NIOSH - National Institute for Occupational Safety and Health
NTP - National Toxicology Program
OSHA - Occupational Safety & Health Administration
PBT - Persistent, Bioaccumulative and Toxic
PEL - Permissible Exposure Limit
STV - Short Term Value
SVHC - Substances of Very High Concern
TDG - Transport of Dangerous Goods
TLV - Threshold Limit Value
vPvB - very Persistent, very Bioaccumulative

Key literature references and sources for data

This Safety Data Sheet has been prepared based on information available for public as TOXNET information, European Chemicals Agency (ECHA) substance dossier, papers from international cancer research institutes (IARC Monographs), U.S. National Toxicology Program data, U.S. Agency for Toxic Substances and Disease Control (ATSDR), PubChem websites and SDS from our raw material manufacturers.

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28.05.2024	2.1	2024-05-28

Additional information

Indication of changes:	general update If you need an explanation of the change, contact the supplier (SDS@avantorsciences.com).

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