

Safety Data Sheet acc. to OSHA HCS

Printing date 10/17/2019

V 2

Reviewed on 10/17/2019

1 Identification

- **Product identifier**
- **Trade name:** **Octyl Phosphonic Acid 80%**
- **Application of the substance / the mixture** chemical for synthesis
- **Uses advised against**
 - Do not use for spraying
 - Do not use on products intended for direct skin contact.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Connect Chemicals USA LLC
11200 Atlantis Park, Unit B
Alpharetta,
Georgia 30022
- **Information department:**
See supplier/manufacturer
MSDS@connectchemicals.com
- **Emergency telephone number:**
For Hazardous Materials [or Dangerous Goods] Incidents
Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night
Within USA and Canada: 1-800-424-9300
Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

2 Hazard(s) identification

- **Classification of the substance or mixture**
This product is classified according to HCS 2012.



GHS08 Health hazard

STOT RE 2 H373 May cause damage to the kidneys through prolonged or repeated exposure. Route of exposure: Oral.



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- **Label elements**

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms** GHS05, GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**

octylphosphonic acid

- **Hazard statements**

Causes severe skin burns and eye damage.

May cause damage to the kidneys through prolonged or repeated exposure. Route of exposure: Oral.

- **Precautionary statements**

Do not breathe dust/fume/gas/mist/vapors/spray.

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Wash hands thoroughly after handling.
 Wear protective gloves/protective clothing/eye protection/face protection.
 If swallowed: Rinse mouth. Do NOT induce vomiting.
 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 Immediately call a poison center/doctor.
 Store locked up.
 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 3
 Fire = 2
 Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = *3
 Fire = 2
 Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture: consisting of the following components.

· **Dangerous components:**

4724-48-5	octylphosphonic acid	79-81%
64-17-5	Ethanol	9-11%

4 First-aid measures

· **Description of first aid measures**

· **General information:**

Personal protection for the First Aider.

In case of accident or if you feel unwell, seek medical advice immediately (if possible, show this SDS).

Immediately remove any clothing soiled by the product.

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. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably in side position for transportation.

If breathing stops, provide artificial respiration.

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· After skin contact:

Immediately wash with water and soap and rinse thoroughly.
Take off immediately all contaminated clothing
Cover wound with a sterile dressing.
Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.

· After eye contact:

Rinse opened eye for several minutes under running water.
Protect unharmed eye.
Remove contact lenses.
Call a doctor immediately.

· After swallowing:

Rinse out mouth.
Give nothing to eat or drink. Do not induce vomiting.
A person vomiting while lying on their back should be turned onto their side.
Immediately call a doctor.

· Information for doctor: No specific therapy is known.

· Most important symptoms and effects, both acute and delayed

Necrosis
Risk of blindness

· Indication of any immediate medical attention and special treatment needed
Symptomatic treatment (decontamination, vital functions).

5 Fire-fighting measures

· Extinguishing media

· Suitable extinguishing agents:

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Use fire fighting measures that suit the environment.

· For safety reasons unsuitable extinguishing agents: Water with full jet

· Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Phosphorus oxides (e.g. P₂O₅)

· Advice for firefighters

· Protective equipment:

Do not inhale explosion gases or combustion gases.

Wear fully protective suit.

Wear self-contained respiratory protective device.

· Additional information

Cool endangered receptacles with water spray.

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation

Avoid contact with any product

Wear protective equipment. Keep unprotected persons away.

Keep away from ignition sources

Use respiratory protective device against the effects of fumes/dust/aerosol.

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Environmental precautions:

Keep contaminated washing water and dispose of appropriately.
 Do not allow product to reach sewage system or any water course.
 Inform respective authorities in case of seepage into water course or sewage system.
 Do not allow to penetrate the ground/soil.
 In case of seepage into the ground inform responsible authorities.

Methods and material for containment and cleaning up:

Ensure adequate ventilation.
 Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
 Clean the affected area carefully; suitable cleaners are:
 Weak alkaline solution
 Send for recovery or disposal in suitable receptacles.

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.

Protective Action Criteria for Chemicals

PAC-1:

64-17-5	Ethanol	1,800 ppm
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PAC-2:

64-17-5	Ethanol	3300* ppm
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PAC-3:

64-17-5	Ethanol	15000* ppm
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7 Handling and storage

Handling:

Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.
 Keep receptacles tightly sealed.
 Wear suitable respiratory protective device when aerosols are formed.
 Prevent formation of aerosols.

Information about protection against explosions and fires:

Normal measures for preventive fire protection.



Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles:

Store only in the original receptacle.
 Provide acid-resistant floor.
 Provide floor trough without outlet.
 Unsuitable material for receptacle: aluminium.
 Store in cool, dry conditions in well sealed receptacles.
Information about storage in one common storage facility:
 Store away from feed and foodstuffs.

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Store away from oxidizing agents.

· **Further information about storage conditions:**

Keep receptacle tightly sealed.

Protect from heat and direct sunlight.

· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

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

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

64-17-5 Ethanol

PEL	Long-term value: 1900 mg/m ³ , 1000 ppm
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REL	Long-term value: 1900 mg/m ³ , 1000 ppm
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TLV	Short-term value: 1880 mg/m ³ , 1000 ppm
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· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Ensure that washing facilities are available at the work place.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Provide eye bath.

If larger quantities are handled provide emergency showers.

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

· **Breathing equipment:**

If vapours or aerosols occur wear suitable respiratory device.

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.



Short term filter device:

Filter A

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

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· Protection of hands:



chemicals resistant gloves (EN 374)

Softening of the callus when wearing air-impermeable gloves is possible.

Check protective gloves prior to each use for their proper condition.

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. 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.

· Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Face protection



Tightly sealed goggles

as described by OSHA's eye and face protection regulations in 29 CFR 1910.133

· Body protection:



Boots



Apron



Use protective suit.

Protective work clothing

Selection of protective clothing is subject to the specific kind of work and the corresponding risk potential.

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9 Physical and chemical properties

· Information on basic physical and chemical properties
· General Information
· Appearance:
Form: Fluid
Color: Clear
· Odor: Characteristic
· Odor threshold: Not determined.
· pH-value at 20 °C (68 °F): 2-3
· Change in condition
Melting point/Melting range: 0 °C (32 °F)
Boiling point/Boiling range: Undetermined.
· Flash point: 40.56 °C (105 °F) (c.c.; L.2 test negative)
· Flammability (solid, gaseous): Not applicable.
· Ignition temperature: Undetermined.
· Decomposition temperature: Not determined.
· Auto igniting: Product is not selfigniting.
· Danger of explosion: Product does not present an explosion hazard.
· Explosion limits:
Lower: Not determined.
Upper: Not determined.
· Oxidizing properties No
· Vapor pressure: Not determined.
· Density: Not determined.
· Relative density Not determined.
· Vapor density Not determined.
· Evaporation rate Not determined.
· Solubility in / Miscibility with Water: Partly miscible.
· Partition coefficient (n-octanol/water): 2.7 log POW (CAS 4724-48-5)
· Viscosity:
Dynamic: Not determined.
Kinematic: Not determined.
· Other information No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions** Reacts with metals forming hydrogen.
- **Conditions to avoid** Keep away from heat, sparks and flame.

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· Incompatible materials:

Alkalies.
oxidizing agents
Metals.

· Hazardous decomposition products: If stored and handled properly: none known

· Additional information: No risk of polymerization.

11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

ATE (Acute Toxicity Estimate)

Oral	LD50	2,363 mg/kg (rat (femininus))
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4724-48-5 octylphosphonic acid

Oral	LD50	1,890 mg/kg (rat (femininus)) (eq. OECD 401)
Dermal	LD50	>2,000 mg/kg (rat) (OECD 402 Acute Dermal Toxicity)

64-17-5 Ethanol

Oral	LD50	10,470 mg/kg (rat) (OECD 401 Acute Oral Toxicity)
Inhalative	LC50/4 h	124.7 mg/l (rat) (OECD 403) vapour

· Primary irritant effect:

· on the skin: Caustic effect on skin and mucous membranes.

· on the eye: Strong caustic effect.

· Sensitization: no data available.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

Corrosive

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

64-17-5	Ethanol	1
(Ethanol in alcoholic beverages)		

· NTP (National Toxicology Program)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

· Carcinogenicity no data available

· Reproductive toxicity Based on available data, the classification criteria are not met.

· STOT-single exposure Based on available data, the classification criteria are not met.

· STOT-repeated exposure

May cause damage to the kidneys through prolonged or repeated exposure. Route of exposure: Oral.

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· **Aspiration hazard** Based on available data, the classification criteria are not met.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity:**

4724-48-5 octylphosphonic acid

LC50/96h	>40 mg/l (Onchorhynchus mykiss) (OECD 203 Acute fish toxicity) semi-static
LC50/48h (static)	>32 mg/l (Daphnia magna) (OECD 202 Daphnia - Acute Immobilisation Test)
EC50/72h (static)	40 mg/l (Pseudokirchneriella subcapitata) (OECD 201 Algae - Growth Inhibition Test) growth rate
EC50/48h (static)	>32 mg/l (Daphnia magna) (OECD 202)

64-17-5 Ethanol

LC50/96h	14,200 mg/l (Pimephales promelas) (US EPA method E03-05)
LC50/48h	5,012 mg/l (Ceriodaphnia dubia) (ASTM E729-80)
EC50/96h	12,900 mg/l (Pimephales promelas) (US EPA method E03-05)
ErC50/72h	275 mg/l (Chlorella vulgaris) (OECD 201 Algae - Growth Inhibition Test)

· **Persistence and degradability** Easily biodegradable

· **Other information:**

75.6 % / 29 d (OECD 301 B)
(CAS 4724-48-5)

· **Behavior in environmental systems:**

· **Bioaccumulative potential**

Due to the distribution coefficient n-octanol/water an accumulation in organisms is not expected.
(CAS 4724-48-5)

· **Mobility in soil** No further relevant information available.

· **Ecotoxicological effects:**

· **Remark:** Harmful effect by pH-value shift.

· **Additional ecological information:**

· **General notes:**

Do not allow product to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Danger to drinking water if even small quantities leak into the ground.

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**

· **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Disposal must be made according to official regulations.

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- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· UN-Number	UN3265
· DOT, ADR, IMDG, IATA	
· UN proper shipping name	Corrosive liquid, acidic, organic, n.o.s. (octylphosphonic acid)
· DOT	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
· ADR, IMDG, IATA	(octylphosphonic acid)
· Transport hazard class(es)	
· DOT	
	
· Class	8 Corrosive substances
· Label	8
· ADR	
	
· Class	8 (C3) Corrosive substances
· Label	8
· IMDG, IATA	
	
· Class	8 Corrosive substances
· Label	8
· Packing group	
· DOT, ADR, IMDG, IATA	II
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Warning: Corrosive substances
· Danger code (Kemler):	80
· EMS Number:	F-E,S-B
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.

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· Transport/Additional information:	
· DOT	Limited quantities: Rail:1L, (Cargo): 30L
· Remarks:	
· ADR	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 3265 CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (OCTYLPHOSPHONIC ACID), 8, II

*

15 Regulatory information

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

· Section 355 (extremely hazardous substances):

None of the ingredient is listed.

· Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

All components have the value ACTIVE.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

· Hazardous Air Pollutants

None of the ingredients is listed.

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

64-17-5 | Ethanol

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· Cancerogenity categories

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

64-17-5 | Ethanol

A3

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms GHS05, GHS08

· Signal word Danger

· Hazard-determining components of labeling:

octylphosphonic acid

· Hazard statements

Causes severe skin burns and eye damage.

May cause damage to the kidneys through prolonged or repeated exposure. Route of exposure: Oral.

· Precautionary statements

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash hands thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a poison center/doctor.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· National regulations:

· Information about limitation of use:

Employment restrictions concerning pregnant and lactating women must be observed.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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.

· Training hints Provide adequate information, instruction and training for operators.

· Department issuing SDS:

KFT Chemieservice GmbH

Im Leuschnerpark. 3 64347 Griesheim

Postfach 1451 64345 Griesheim

Tel.: 0800 4045300 oder +49 6155 8981-400

Fax: +49 6155 8981-500

Sicherheitsdatenblatt Service: +49 6155 8981-522

· Contact: Angela Ersöz

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· **Date of preparation / last revision** 10/17/2019 / 1

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

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)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

· **Sources**

ECHA - European Chemicals Agency

Information provided by the manufacturer

· * **Data compared to the previous version altered.**

US