


Printing date 07/17/2021

Reviewed on 07/14/2021

1 Identification

- **Product name**
- **Trade name:** Iron oxide nanoparticles, 30nm, organic solvent-dispersible (in chloroform)
- **Item number:** 26-2732
- **CAS Number:**
1317-61-9
- **EC number:**
215-277-5
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Strem Chemicals, Inc.
7 Mulliken Way
NEWBURYPORT, MA 01950
USA
info@strem.com
- **Information department:** Technical Department
- **Emergency telephone number:**
EMERGENCY: CHEMTREC: + 1 (800) 424-9300
During normal opening times: +1 (978) 499-1600

2 Hazard(s) identification

- **Classification of the substance or mixture**
The substance is not classified according to the Globally Harmonized System (GHS).
- **Label elements**
- **GHS label elements** not applicable
- **Hazard pictograms** not applicable
- **Signal word** not applicable
- **Hazard statements** not applicable
- **Precautionary statements**
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P262 Do not get in eyes, on skin, or on clothing.
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.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**
 Health = 2
Fire = 0
Reactivity = 0
- **HMIS-ratings (scale 0 - 4)**

HEALTH	2
FIRE	0
REACTIVITY	0

 Health = 2
Fire = 0
Reactivity = 0
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.

(Contd. on page 2)

US

Safety Data Sheet
according to OSHA HCS

Printing date 07/17/2021

Reviewed on 07/14/2021

Trade name: Iron oxide nanoparticles, 30nm, organic solvent-dispersible (in chloroform)

· **vPvB:** Not applicable.

(Contd. of page 1)

3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**
1317-61-9 triiron tetraoxide
- **Identification number(s)**
- **EC number:** 215-277-5

4 First-aid measures

- **Description of first aid measures**
- **General information:** No special measures required.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately rinse with water.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Mount respiratory protective device.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
- **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:**

21 mg/m³

· **PAC-2:**

230 mg/m³

(Contd. on page 3)

Safety Data Sheet
according to OSHA HCS

Printing date 07/17/2021

Reviewed on 07/14/2021

Trade name: Iron oxide nanoparticles, 30nm, organic solvent-dispersible (in chloroform)

(Contd. of page 2)

· **PAC-3:**

1,400 mg/m³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
No special measures required.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **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:** Not required.
- **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.
- **Breathing equipment:** A NIOSH approved respirator in accordance with 29 CFR 1910.134.
- **Protection of hands:**



Protective gloves

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.

- **Penetration time of glove material**

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

- **Eye protection:** Goggles recommended during refilling.

US

(Contd. on page 4)

Safety Data Sheet according to OSHA HCS

Printing date 07/17/2021

Reviewed on 07/14/2021

Trade name: Iron oxide nanoparticles, 30nm, organic solvent-dispersible (in chloroform)

(Contd. of page 3)

9 Physical and chemical properties
· Information on basic physical and chemical properties
· General Information
· Appearance:

Form:	Liquid
Color:	Black
Odor:	Ether-like
Odor threshold:	Not determined.

pH-value:	Not determined.
------------------	-----------------

· Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.

Flash point:	82 °C (180 °F)
---------------------	----------------

Flammability (solid, gaseous):	Not determined.
---------------------------------------	-----------------

Ignition temperature:	228 °C (442 °F)
------------------------------	-----------------

Decomposition temperature:	Not determined.
-----------------------------------	-----------------

Auto igniting:	Not determined.
-----------------------	-----------------

Danger of explosion:	Product does not present an explosion hazard.
-----------------------------	---

· Explosion limits:

Lower:	0.7 Vol %
Upper:	5 Vol %

Vapor pressure:	Not determined.
------------------------	-----------------

Density:	Not determined.
-----------------	-----------------

Relative density	Not determined.
-------------------------	-----------------

Vapor density	Not determined.
----------------------	-----------------

Evaporation rate	Not determined.
-------------------------	-----------------

· Solubility in / Miscibility with

Water:	Not miscible or difficult to mix.
---------------	-----------------------------------

Partition coefficient (n-octanol/water):	Not determined.
---	-----------------

· Viscosity:

Dynamic:	Not determined.
Kinematic:	Not determined.

· Solvent content:

Organic solvents:	0.0 %
VOC content:	0.0 g/l / 0.00 lb/gl

Solids content:	100.0 %
------------------------	---------

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 according to specifications.
--	---

Possibility of hazardous reactions	No dangerous reactions known.
---	-------------------------------

(Contd. on page 5)

Safety Data Sheet
according to OSHA HCS

Printing date 07/17/2021

Reviewed on 07/14/2021

Trade name: Iron oxide nanoparticles, 30nm, organic solvent-dispersible (in chloroform)

(Contd. of page 4)

- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

1317-61-9 triiron tetraoxide

Oral	LD50	>5000 mg/kg (rat)
------	------	-------------------

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
The substance is not subject to classification.

- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Not known to be hazardous to water.
- **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:** Disposal must be made according to official regulations.

(Contd. on page 6)

Safety Data Sheet
according to OSHA HCS

Printing date 07/17/2021



Reviewed on 07/14/2021

Trade name: Iron oxide nanoparticles, 30nm, organic solvent-dispersible (in chloroform)

(Contd. of page 5)

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

14 Transport information

· UN-Number · DOT, IMDG, IATA	UN2810
· UN proper shipping name · DOT · IMDG, IATA	Toxic, liquids, organic, n.o.s. TOXIC LIQUID, ORGANIC, N.O.S.
· Transport hazard class(es) · DOT	
	
· Class · Label	6.1 Toxic substances 6.1
· IMDG, IATA	
	
· Class · Label	6.1 Toxic substances 6.1
· Packing group · DOT, IMDG, IATA	III
· Environmental hazards: · Marine pollutant:	No
· Special precautions for user · EMS Number: · Stowage Category · Stowage Code	Warning: Toxic substances F-A,S-A A SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 2810 TOXIC, LIQUIDS, ORGANIC, N.O.S., 6.1, III

US

(Contd. on page 7)

Safety Data Sheet
according to OSHA HCS

Printing date 07/17/2021

Reviewed on 07/14/2021

Trade name: Iron oxide nanoparticles, 30nm, organic solvent-dispersible (in chloroform)

(Contd. of page 6)

15 Regulatory information

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

· **Sara**

· **Section 355 (extremely hazardous substances):**

Substance is not listed.

· **Section 313 (Specific toxic chemical listings):**

Substance is not listed.

· **TSCA (Toxic Substances Control Act):**

Substance is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for females:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for males:**

Substance is not listed.

· **Chemicals known to cause developmental toxicity:**

Substance is not listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

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

Substance is not listed.

· **GHS label elements not applicable**

· **Hazard pictograms not applicable**

· **Signal word not applicable**

· **Hazard statements not applicable**

· **Precautionary statements**

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

P262 Do not get in eyes, on skin, or on clothing.

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.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

· **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.

· **Department issuing SDS:** Technical Department.

· **Contact:** Technical Director

· **Date of preparation / last revision** 07/17/2021 / -

(Contd. on page 8)

Safety Data Sheet
according to OSHA HCS

Printing date 07/17/2021

Reviewed on 07/14/2021

Trade name: Iron oxide nanoparticles, 30nm, organic solvent-dispersible (in chloroform)

(Contd. of page 7)

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

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

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

US