1 Identification of substance:

Product details:
Product name: n-Propyltriethoxysilane
Stock number:
B20997
L02919

Manufacturer/Supplier:
Alfa Aesar, A Johnson Matthey Company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Emergency Phone: (978) 521-6300
CHEMTREC: (800) 424-9300
Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department
Emergency information:
During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:

Chemical characterization:
Description: (CAS#)
n-Propyltriethoxysilane (CAS# 2550-02-9): 100%
Identification number(s):
EINECS Number: 219-842-7

3 Hazards identification

Hazard description:

Xi Irritant

Information pertaining to particular dangers for man and environment
R 36/37/38 Irritating to eyes, respiratory system and skin.
Classification system
HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)

<table>
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<tr>
<th>HEALTH</th>
<th>FIRE</th>
<th>REACTIVITY</th>
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Health (acute effects) = 1
Flammability = 2
Reactivity = 1

GHS label elements

Warning

2.6/3 - Flammable liquid and vapour.

Warning

3.2/2 - Causes skin irritation.
3.3/2A - Causes serious eye irritation.
3.8/3 - May cause respiratory irritation.

Prevention:
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/ equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

(Contd. on page 2)
4 First aid measures

General information  Immediately remove any clothing soiled by the product.

After inhalation
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice.

After skin contact
Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice.

After eye contact
Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek immediate medical advice.

5 Fire fighting measures

Suitable extinguishing agents
Use carbon dioxide, extinguishing powder or foam. Water may be ineffective but may be used for cooling exposed containers.

Special hazards caused by the material, its products of combustion or resulting gases:
In case of fire, the following can be released:
Carbon monoxide and carbon dioxide
Silicon oxide

Protective equipment:
Wear self-contained respirator.
Wear fully protective impervious suit.

6 Accidental release measures

Person-related safety precautions:
Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation Keep away from ignition sources

Measures for environmental protection:
Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Use neutralizing agent. Dispose contaminated material as waste according to item 13. Ensure adequate ventilation. Keep away from ignition sources.

Additional information:
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

Handling
Information for safe handling:
Handle under dry protective gas.
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.

Information about protection against explosions and fires:
Keep ignition sources away.
Protect against electrostatic charges.
Fumes can combine with air to form an explosive mixture.

Storage
Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility:
Store away from water/moisture.
Store away from oxidizing agents.

Further information about storage conditions:
Store under dry inert gas.
This product is moisture sensitive.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Protect from humidity and water.

8 Exposure controls and personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace: Not required.
Additional information: No data

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.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Breathing equipment: Use suitable respirator when high concentrations are present.

Protection of hands:
Check protective gloves prior to each use for their proper condition.
Impervious gloves

Material of gloves
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

Eye protection:
Safety glasses
Tightly sealed goggles
Full face protection

Body protection: Protective work clothing.

9 Physical and chemical properties:

General Information
Form: Liquid
Odor: Not determined

Change in condition
Melting point/Melting range: Not determined
Boiling point/Boiling range: 180°C (356°F)
Sublimation temperature / start: Not determined

Flash point: 57°C (135°F)
Ignition temperature: Not determined
Decomposition temperature: Not determined

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

Explosion limits:
Lower: Not determined
Upper: Not determined
Vapor pressure: Not determined
10 Stability and reactivity

Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.

Materials to be avoided:
Water/moisture
Oxidizing agents

Dangerous reactions No dangerous reactions known

Dangerous products of decomposition:
Carbon monoxide and carbon dioxide
Silicon oxide

11 Toxicological information

Acute toxicity:
Primary irritant effect:
on the skin: Irritant to skin and mucous membranes.
on the eye: Irritating effect.
Sensitization: No sensitizing effects known.

Subacute to chronic toxicity:
Organic silicon compounds are generally of low toxicity. Those exhibiting moisture sensitivity may be strongly irritating or corrosive on contact.

Additional toxicological information:
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information:

General notes:
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Do not allow material to be released to the environment without proper governmental permits.

13 Disposal considerations

Product:
Recommendation Consult state, local or national regulations to ensure proper disposal.

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

14 Transport information

DOT regulations:

Hazard class: 3
Identification number: UN1993
Packing group: III
Proper shipping name (technical name): FLAMMABLE LIQUID, N.O.S. (n-Propyltriethoxysilane)
Label 3

Land transport ADR/RID (cross-border)

ADR/RID class: 3 (F1) Flammable liquids
Danger code (Kemler): 30
UN-Number: 1993
Product name: n-Propyltriethoxysilane

Packaging group: III
Description of goods: 1993 FLAMMABLE LIQUID, N.O.S. (n-Propyltriethoxysilane)

Maritime transport IMDG:

IMDG Class: 3
UN Number: 1993
Label: 3
Packaging group: III
Proper shipping name: FLAMMABLE LIQUID, N.O.S. (n-Propyltriethoxysilane)

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 3
UN/ID Number: 1993
Label: 3
Packaging group: III
Proper shipping name: FLAMMABLE LIQUID, N.O.S. (n-Propyltriethoxysilane)

UN "Model Regulation": UN1993, FLAMMABLE LIQUID, N.O.S., 3, III

15 Regulations

Product related hazard informations:

Hazard symbols:
Xi Irritant

Risk phrases:
36/37/38 Irritating to eyes, respiratory system and skin.

Safety phrases:
23 Do not breathe gas/fumes/vapour/spray.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
37 Wear suitable gloves.

National regulations
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.
All components of this product are listed on the Canadian Non-Domestic Substances List (NDSL).

Information about limitation of use: For use only by technically qualified individuals.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.
Contact: Zachariah Holt

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)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)