

SAFETY DATA SHEET

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SECTION 1. IDENTIFICATION

Product Name: Cerium Hydride

CAS #: 13864-02-3

Relevant identified uses of the substance: Scientific research and development

Supplier details:

Stanford Advanced Materials

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SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

GHS02 flame

Pyr. Sol. 1

H250 Catches fire spontaneously if exposed to air.

Water-react. 1 H260 In contact with water releases flammable gases which may ignite spontaneously.

GHS07

Skin Irrit. 2

H315 Causes skin irritation.

Eye Irrit. 2

H319 Causes serious eye irritation.

STOT SE 3

H335 May cause respiratory irritation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

Xi; Irritant

R36/37/38: Irritating to eyes, respiratory system and skin.

F; Highly flammable

R17: Spontaneously flammable in air.

Information concerning particular hazards for human and environment:

Not applicable Other hazards that do not result in classification

No information known.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labelled according to the CLP regulation.

Hazard pictograms

Signal word

Danger

Hazard statements

H250 Catches fire spontaneously if exposed to air.

H260 In contact with water releases flammable gases which may ignite spontaneously.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

Precautionary statements

P210

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P222

Do not allow contact with air.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405

Store locked up.

P422

Store contents under inert gas.

P501

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

2.3 Other hazards

Results of PBT and vPvB assessment

PBT:

Not applicable.

vPvB:

Not applicable.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

CAS# Designation:

13864-02-3 Cerium hydride

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

After inhalation

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

Seek immediate medical advice. After skin contact

Instantly 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 doctor.

After swallowing

Seek medical treatment.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing agents

Special powder for metal fires. Do not use water.

For safety reasons unsuitable extinguishing agents

Water.

5.2 Special hazards arising from the substance or mixture

Spontaneously flammable in air.

Contact with water releases hydrogen (explosive).

If this product is involved in a fire, the following can be released:

5.3 Advice for firefighters

Protective equipment:

Wear self-contained breathing apparatus.

Wear full protective suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

6.2 Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

6.3 Methods and material for containment and cleaning up:

Keep away from ignition sources.

Ensure adequate ventilation.

Prevention of secondary hazards:

Keep away from ignition sources.

6.4 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 information on disposal.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Keep containers tightly sealed. Store in cool, dry place in tightly closed containers.

Ensure good ventilation/exhaustion at the workplace.

Information about protection against explosions and fires:

Protect against electrostatic charges.

Substance/product is auto-flammable.

7.2 Conditions for safe storage, including any incompatibilities

Storage

Requirements to be met by storerooms and containers:

No special requirements.

Information about storage in one common storage facility:

No information known.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

7.3 Specific end use(s)

No further relevant information available.

SECTION 8. EXPOSURE CONTROLS/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.

8.1 Control parameters

Components with critical values that require monitoring at the workplace:

Yttrium and compounds, as Y

mg/m³

ACGIH TLV 1

Austria MAK 1

Belgium TWA 1

Denmark TWA 1

Finland TWA 1

France VME 1

Germany TWA 5

Korea TLV 1

Netherlands MAC-TGG 1

Norway TWA 1

Poland TWA 1

Switzerland MAK-W 1

United Kingdom TWA 1; 3-STEL

OSHA PEL 1

Additional information:

No data

8.2 Exposure controls

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures should be adhered to in handling the chemicals.

Keep away from foodstuffs, beverages and food.

Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

Breathing equipment:

Use breathing protection with high concentrations. Protection of hands:

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

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.

Material of gloves

Impervious gloves

Eye protection:

Safety glasses

Full face protection

Body protection:

Protective work clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form: Powder

Smell: Odourless

Odour threshold: Not determined.

pH-value: Not applicable.

Change in condition

Melting point/Melting range: Not determined

Boiling point/Boiling range: Not determined

Sublimation temperature / start: Not determined

Flash point: Not applicable

Inflammability (solid, gaseous)

Not determined.

Ignition temperature: Not determined

Decomposition temperature: Not determined

Self-inflammability: Spontaneously flammable in air.

Danger of explosion: Not determined.

Critical values for explosion:

Lower: Not determined

Upper: Not determined

Steam pressure: Not applicable.

Density Not determined

Relative density

Not determined.

Vapour density

Not applicable.

Evaporation rate

Not applicable.

Solubility in / Miscibility with Water: Insoluble

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

Viscosity:

dynamic: Not applicable.

kinematic: Not applicable.

9.2 Other information

No further relevant information available.

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity

Catches fire spontaneously if exposed to air.

10.2 Chemical stability

Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided:

No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions

Spontaneously flammable in air.

10.4 Conditions to avoid

No further relevant information available.

10.5 Incompatible materials:

Halogens

Air

No information known.

10.6 Hazardous decomposition products:

Metal oxide

Hydrogen

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

No effects known.

LD/LC50 values that are relevant for classification:

No data

Skin irritation or corrosion:

Causes skin irritation.

Eye irritation or corrosion:

Causes serious eye irritation.

Sensitization:

No sensitizing effect known.

Germ cell mutagenicity:

No effects known.

Carcinogenicity:

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

Reproductive toxicity:

No effects known.

Specific target organ system toxicity - repeated exposure:

No effects known.

Specific target organ system toxicity - single exposure:

May cause respiratory irritation.

Aspiration hazard:

No effects known.

Subacute to chronic toxicity:

No effects known.

Additional toxicological information:

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

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic toxicity:

No further relevant information available.

12.2 Persistence and degradability

No further relevant information available.

12.3 Bioaccumulative potential

No further relevant information available.

12.4 Mobility in soil

No further relevant information available.

Additional ecological information:

General notes:

Do not allow material to be released to the environment without proper governmental permits.

Generally not hazardous for water.

Avoid transfer into the environment.

12.5 Results of PBT and vPvB assessment

PBT:

Not applicable.

vPvB:

Not applicable.

12.6 Other adverse effects

No further relevant information available.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Recommendation

Hand over to disposers of hazardous waste.

Must be specially treated under adherence to official regulations.

Consult state, local or national regulations for proper disposal.

Uncleaned packagings:

Recommendation:

Disposal must be made according to official regulations.

SECTION 14. TRANSPORT INFORMATION

UN-Number

ADR, IMDG, IATA

UN1409

14.2 UN proper shipping name

ADR

1409 METAL HYDRIDES, WATER-REACTIVE, N.O.S. (Cerium hydride)

IMDG, IATA

METAL HYDRIDES, WATER-REACTIVE, N.O.S. (Cerium hydride)

14.3 Transport hazard class(es)

ADR

Class

4.3 (W2) Substances which, in contact with water, emit flammable gases.

Label

4.3

IMDG, IATA Class

4.3 Substances which, in contact with water, emit flammable gases.

Label

4.3

Packing group

ADR, IMDG, IATA

II

14.5 Environmental hazards:

Not applicable.

14.6 Special precautions for user

Warning: Substances which, in contact with water, emit flammable gases.

Kemler Number:-

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC

Code

Not applicable.

Transport/Additional information:

ADR

Excepted quantities (EQ):

E0

Limited quantities (LQ)

Transport category

1

Tunnel restriction code

E

UN "Model Regulation":

UN1409, METAL HYDRIDES, WATER-REACTIVE, N.O.S. (Cerium hydride), 4.3, II

SECTION 15. REGULATORY INFORMATION

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

Australian Inventory of Chemical Substances

Substance is not listed.

Standard for the Uniform Scheduling of Drugs and Poisons

Substance is not listed.

National regulations

Information about limitation of use:

Employment restrictions concerning young persons must be observed.

For use only by technically qualified individuals.

Water hazard class:

Generally not hazardous for water.

Other regulations, limitations and prohibitive regulations

ELINCS (European List of Notified Chemical Substances)

Substance is not listed.

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.

Substance is not listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use)

Substance is not listed.

15.2 Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

SECTION 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.