

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/25/2021

Reviewed on 05/25/2021

1 Identification

- **Product identifier**
- **Trade name:** Alkaline cyanide reagent
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Energy Chemical Co. Semnan
No. 60, Golfam St, Africa Ave.
TEHRAN 1915673641
IRAN
- **Information department:** Product safety department.
- **Emergency telephone number:** During normal opening times: +98 21 2205 2178

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute Tox. 1 H310 Fatal in contact with skin.

Acute Tox. 3 H331 Toxic if inhaled.



GHS05 Corrosion

Skin Corr. 1A 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 GHS06

- **Signal word** *Danger*
- **Hazard-determining components of labeling:**
sodium cyanide
sodium hydroxide
- **Hazard statements**
Fatal in contact with skin.
Toxic if inhaled.
Causes severe skin burns and eye damage.
- **Precautionary statements**
Do not breathe dusts or mists.
Do not get in eyes, on skin, or on clothing.

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/25/2021

Reviewed on 05/25/2021

Trade name: Alkaline cyanide reagent

(Contd. of page 1)

*Wash thoroughly after handling.**Do not eat, drink or smoke when using this product.**Use only outdoors or in a well-ventilated area.**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.**Specific treatment (see on this label).**Take off immediately all contaminated clothing and wash it before reuse.**Store in a well-ventilated place. Keep container tightly closed.**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 = 0

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 3

Fire = 0

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 of the substances listed below with nonhazardous additions.· **Dangerous components:**

143-33-9	sodium cyanide	5–10%
1310-73-2	sodium hydroxide	1–10%

4 First-aid measures

· **Description of first aid measures**· **General information:***Immediately remove any clothing soiled by the product.**Remove breathing apparatus only after contaminated clothing have been completely removed.**In case of irregular breathing or respiratory arrest provide artificial respiration.*· **After inhalation:***Supply fresh air or oxygen; call for doctor.**In case of unconsciousness place patient stably in side position for transportation.*· **After skin contact:** *Immediately wash with water and soap and rinse thoroughly.*

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/25/2021

Reviewed on 05/25/2021

Trade name: Alkaline cyanide reagent

(Contd. of page 2)

- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Drink copious amounts of water and provide fresh air. Immediately call a 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.
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
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.
- **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:

143-33-9	sodium cyanide	4.0 mg/m ³
1310-73-2	sodium hydroxide	0.5 mg/m ³

· PAC-2:

143-33-9	sodium cyanide	14 mg/m ³
1310-73-2	sodium hydroxide	5 mg/m ³

· PAC-3:

143-33-9	sodium cyanide	30 mg/m ³
1310-73-2	sodium hydroxide	50 mg/m ³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/25/2021

Reviewed on 05/25/2021

Trade name: Alkaline cyanide reagent

(Contd. of page 3)

Open and handle receptacle with care.

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:** Keep receptacle tightly sealed.

· **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.

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.

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

At this time, the other constituents have no known exposure limits.

143-33-9 sodium cyanide

PEL Long-term value: 5 mg/m³
as CN; Skin

REL Ceiling limit value: 5* mg/m³, 4.7* ppm
as CN; *10-min

TLV Ceiling limit value: 5 mg/m³, 4.7 ppm
as CN; Skin

1310-73-2 sodium hydroxide

PEL Long-term value: 2 mg/m³

REL Ceiling limit value: 2 mg/m³

TLV Ceiling limit value: 2 mg/m³

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

· **Breathing equipment:**

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.

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/25/2021

Reviewed on 05/25/2021

Trade name: Alkaline cyanide reagent

(Contd. of page 4)

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

· Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Liquid
Color:	Colorless
Odor:	Odorless
Odor threshold:	Not determined.

· pH-value at 20 °C (68 °F): 12.3

· Change in condition

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

· Flash point: Not applicable.

· Flammability (solid, gaseous): Not applicable.

· 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.

· Vapor pressure at 800 °C (1,472 °F): 3.5 hPa (2.6 mm Hg)

· Density at 20 °C (68 °F): 1.11 g/cm³ (9.26295 lbs/gal)

· Relative density: Not determined.

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/25/2021

Reviewed on 05/25/2021

Trade name: Alkaline cyanide reagent

(Contd. of page 5)

- | | |
|--|--|
| · Vapor density | Not determined. |
| · Evaporation rate | Not determined. |
| · Solubility in / Miscibility with Water: | Fully miscible. |
| · Partition coefficient (n-octanol/water): | Not determined. |
| · Viscosity: | |
| Dynamic: | Not determined. |
| Kinematic: | Not determined. |
| · Solvent content: | |
| VOC content: | 0.00 %
0.0 g/l / 0.00 lb/gl |
| · 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.
- **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:**

ATE (Acute Toxicity Estimate)

Oral	LD50	20,000–200,000 mg/kg (rat)
Dermal	LD50	50–100 mg/kg
Inhalative	LC50/4 h	5–10 mg/l

143-33-9 sodium cyanide

Oral	LD50	6,440 mg/kg (rat)
------	------	-------------------

1310-73-2 sodium hydroxide

Oral	LD50	2,000 mg/kg (rat)
------	------	-------------------

- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Corrosive

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/25/2021

Reviewed on 05/25/2021

Trade name: Alkaline cyanide reagent

(Contd. of page 6)

*Irritant**Very toxic**Danger through skin absorption.**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)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

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

None of the ingredients is 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:**

Water hazard class 3 (Self-assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

Danger to drinking water if even extremely small quantities leak into the ground.

Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably reduced, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

· **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.

· **Uncleaned packagings:**· **Recommendation:** Disposal must be made according to official regulations.· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

US

(Contd. on page 8)

Safety Data Sheet

acc. to OSHA HCS









Printing date 05/25/2021

Reviewed on 05/25/2021

Trade name: Alkaline cyanide reagent

(Contd. of page 7)

14 Transport information

· UN-Number	UN2927
· DOT, IMDG, IATA	
· UN proper shipping name	Toxic liquids, corrosive, organic, n.o.s. (Sodium cyanide, Sodium hydroxide)
· DOT	
· IMDG	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (SODIUM CYANIDE, SODIUM HYDROXIDE), MARINE POLLUTANT
· IATA	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (SODIUM CYANIDE, SODIUM HYDROXIDE)
· Transport hazard class(es)	
· DOT	
	  
· Class	6.1 Toxic substances
· Label	6.1, 8
· IMDG	
	  
· Class	6.1 Toxic substances
· Label	6.1/8
· IATA	
	 
· Class	6.1 Toxic substances
· Label	6.1 (8)
· Packing group	
· DOT, IMDG, IATA	I
· Environmental hazards:	Product contains environmentally hazardous substances: sodium cyanide
· Marine pollutant:	Yes (DOT) Symbol (fish and tree)
· Special precautions for user	Warning: Toxic substances
· Poison inhalation hazard:	Possible
· Danger code (Kemler):	668
· EMS Number:	F-A,S-B
· Segregation groups	Cyanides, alkalis
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.

(Contd. on page 9)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/25/2021

Reviewed on 05/25/2021

Trade name: Alkaline cyanide reagent

(Contd. of page 8)

- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
- **Transport/Additional information:**
 - **DOT**
 - **Quantity limitations** On passenger aircraft/rail: 0.5 L
On cargo aircraft only: 2.5 L
 - **Remarks:** Special marking with the symbol (fish and tree).
- **IMDG**
- **Limited quantities (LQ)** 0
- **Excepted quantities (EQ)** Code: E5
Maximum net quantity per inner packaging: 1 ml
Maximum net quantity per outer packaging: 300 ml
- **UN "Model Regulation":** UN 2927 TOXIC LIQUIDS, CORROSIVE, ORGANIC, N.O.S. (SODIUM CYANIDE, SODIUM HYDROXIDE), 6.1 (8), I, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

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

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

143-33-9 sodium cyanide

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

143-33-9 sodium cyanide

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

All ingredients are 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:**

143-33-9 sodium cyanide

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

None of the ingredients is listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

143-33-9 sodium cyanide

II

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

None of the ingredients is listed.

- **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).

(Contd. on page 10)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/25/2021

Reviewed on 05/25/2021

Trade name: Alkaline cyanide reagent

(Contd. of page 9)

· **Hazard pictograms**

GHS05 GHS06

· **Signal word** *Danger*· **Hazard-determining components of labeling:***sodium cyanide**sodium hydroxide*· **Hazard statements***Fatal in contact with skin.**Toxic if inhaled.**Causes severe skin burns and eye damage.*· **Precautionary statements***Do not breathe dusts or mists.**Do not get in eyes, on skin, or on clothing.**Wash thoroughly after handling.**Do not eat, drink or smoke when using this product.**Use only outdoors or in a well-ventilated area.**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.**Specific treatment (see on this label).**Take off immediately all contaminated clothing and wash it before reuse.**Store in a well-ventilated place. Keep container tightly closed.**Store locked up.**Dispose of contents/container in accordance with local/regional/national/international regulations.*· **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:** Product safety department.· **Contact:**

-

WWW.ENERGYSEMNA.COM

· **Date of preparation / last revision** 05/25/2021 / -· **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)

(Contd. on page 11)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/25/2021

Reviewed on 05/25/2021

Trade name: Alkaline cyanide reagent

(Contd. of page 10)

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
Acute Tox. 1: Acute toxicity – Category 1
Acute Tox. 3: Acute toxicity – Category 3
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Eye Dam. 1: Serious eye damage/eye irritation – Category 1

US