



MATERIAL SAFETY DATA SHEET (MSDS)

Section 1 - Identification of the substance

Product identifier

Product Name: CDS-200 Moderate temperature desulfurizer

Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Mainly used for the removal of hydrogen sulfide from natural gas, syngas, refinery tail gas, biogas, waste tail gas, CO₂, H₂, oilfield associated gas, coal bed gas and other materials.

Details of the manufacturer of the safety data sheet

Manufacturer: Beijing Sanju Environmental Protection & New Materials Co., Ltd

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Post Code: 100080

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Section 2 - Hazards Identification

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]

Eye irritation (category 2)

Skin irritation (category 2)

Specific target organ toxicity – single exposure (Category 3)

Classification according to EU Directories 67/548/EEC or 1999/45/EC

Xi, R36/37/38

Label elements

Labeling according to Regulation (EC) No 1272/2008 [CLP]

Pictogram



Signal word Warning

Hazard statement(s)

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

Precautionary statements



P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

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.

Supplemental Hazard Statements none

According to European Directive 67/548/EEC as amended.

Hazard symbol(s)



R-phrases(s)

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

S-phrases(s)

S22 Do not breathe dust.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S37/39 Wear suitable gloves and eye/face protection.

Other hazards No information available

Section 3. Composition/Information on Ingredients

Chemical composition

Component	CAS No.	Formula	EC No.	Classification	GHSCLAS
Iron oxide	1309-37-1 1332-37-2	Fe ₂ O ₃	215-168-2 215-570-8	Xi,R36/37/38	Skin Irrit. 2 Eye Irrit. 2 STOT SE 3 H315 H319 H335

For the full text of H-Statements and R-Phrases mentioned in this section, see Section 16.

Section 4. First Aid Measures

Description of first aid measures

Eye contact: Check for and remove any contact lenses. Immediately flush eyes with plenty of water for a least 15 minutes. Occasionally lifting the upper and lower eyelids. Get medical attention if irritation occurs.

Skin contact: Immediately wash skin with soap and copious amounts of water while removing contaminated clothing and shoes. If irritation develops and persists, seek medical attention.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Wash out mouth with water. Loosen tight clothing such as a collar, tie, belt or waistband. Get



medical attention if symptoms appear.

Inhalation: Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If irritation develops and persists, seek medical attention.

Notes to Physicians: Treat symptomatically.

Section 5. Fire Fighting Measures

Extinguishing media

Suitable Extinguishing Media:

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture:

Under fire conditions toxic fumes may be released. This material in sufficient quantity and reduced particle size is capable of creating a dust explosion.

Advice for firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

If package rupture. Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Spilled or released at long industrial condition: Remove ignition sources, keep away from heat and flame, evacuate area.

Avoid dust formation. Avoid breathing dust. Shut off source of the leak only if it is easy to do so.

Do not get water inside containers.

Environmental precautions

Keep spilled material out of sewers, ditches and bodies of water.

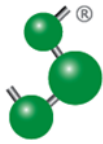
Methods and materials for containment and cleaning up

Sweep up and place in suitable containers for recycle or disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

Section 7. Handling and Storage

Precautions for safe handling

Dust generated in handling of this product can be explosive if sufficient quantities are mixed in air. In accordance with good industrial practice, handle with care and avoid unnecessary personal contact. Wash thoroughly after handling. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid breathing dust. Avoid physical damage to the container. Ground and bond containers when transferring material. Take necessary action to avoid static electricity discharge. Do not eat, drink or smoke while handling the product.



Keep away from heat. Keep away from sources of ignition. Keep away from incompatibles such as oxidizing agents, acids, alkalis. Do not allow water to get into the container.

Conditions for safe storage, including any incompatibilities

Keep away from heat and flame. Store in a cool, dry, well-ventilated away from incompatible substances. Store in a tightly closed container. Keep away from moisture and water. Keep out of the reach of children.

Specific end uses

No data available

Section 8. Exposure Controls/Personal Protection

Control parameters

Exposure limits:

CAS# 1309-37-1:

Belgium – TWA: 2ppm (fume, as Fe); 5mg/m³ (fume, as Fe)

France – VME: 5mg/m³ (fume, as Fe)

Germany – MAK: 1.5mg/m³ (respirable, as Fe)

Netherlands – MAC – TGG: 10mg/m³

Russia – TWA: 6mg/m³

United Kingdom – TWA: 4mg/m³ TWA (respirable); 10mg/m³ (inhalable); 5mg/m³(as Fe)

United Kingdom – STEL: 10 mg/m³ STEL (as Fe)

CAS# 9005-25-8:

ACGIH: United States – TWA: 10mg/m³

Belgium – TWA: 10mg/m³

Korea – TWA: 10mg/m³

New Zealand – TWA: 10mg/m³ (inspirable dust)

Russia – STEL: 10mg/m³

United Kingdom – TWA: 10mg/m³ (inhalable); TWA: 4mg/m³ (respirable)

Engineering Controls

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Personal Protective Equipment

Eyes Protection: If operating conditions create dust that is not adequately controlled, wear appropriate goggles.

Skin Protection: For prolonged or repeated contact use protective gloves.

Body Protection: Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respirators Protection: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Other Protection: Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. To maintain good health habits.



Section 9. Physical and Chemical Properties

Item	Specifications
Appearance	Form: Extrudate; Colour: Dark Brown
Odour	Odorless
Odour Threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Initial boiling point and boiling range	No data available
Flash point	No applicable
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Vapour density	No data available
Relative density	0.90~1.10g/cm ³
Water solubility	Insoluble
Partition coefficient: n-octanol/water	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available

Section 10. Stability and Reactivity

Reactivity	No data available
Chemical stability	Stable under normal conditions
Possibility of hazardous reactions	
Hazardous Polymerization	Will not occur
Hazardous reactions	None under normal processing
Conditions to avoid	Incompatible material. Avoid dust formation, ignition sources, exposure to moist air or water
Incompatible materials	Chloroformates, peroxides, strong acids.
Hazardous decomposition products	Under fire conditions toxic fumes may be released.

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity:

CAS# 1309-37-1:

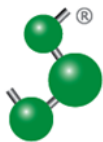
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Subcutaneous, dog: LDLo = 30 mg/kg;

CAS# 9005-25-8:

Intraperitoneal, mouse: LD50 = 6600 mg/kg;

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

Iron oxide – This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification. IARC: Group 3 – Not classifiable as to carcinogenicity to humans.

Starch – IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available

Specific target organ toxicity – single exposure

Inhalation – May cause respiratory irritation

Specific target organ toxicity – repeated exposure

No data available

Aspiration hazard

No data available

Potential Health Effects

Eye: Dust may cause mechanical irritation

Skin: Dust cause skin irritation. May be harmful if absorbed through skin.

Ingestion: Ingestion is an unlikely route of exposure; no hazard in normal industrial use. If ingested in sufficient quantity may cause injury such as gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting, abdominal pain, and diarrhea.

Inhalation: Inhalation of airborne dust may cause irritation to the mucous membrane and upper airways. Symptoms of exposure can include coughing, sneezing and breathing difficulties.

Signs and Symptoms of Exposure

Long term inhalation exposure to iron (oxide fume or dust) can cause siderosis. Siderosis is considered to be a benign pneumoconiosis and does not normally cause significant physiologic impairment. Siderosis can be observed on x-rays with the lungs having a mottled appearance. To be best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information

RTECS#: CAS# 1309-37-1: NO7400000/ CAS# 9005-25-8: GM5090000



Section 12. Ecological Information

Toxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

No data available

Other adverse effects

Do not empty into drains

Section 13. Disposal Considerations

Waste treatment methods

Waste from Residues / Unused Products: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

Contaminated packaging: Contaminated packaging material should be treated equivalent to residual chemical, Clean packaging material should be subjected to waste management schemes (recovery recycling, reuse) according to local legislation.

Section 14. Transport Information

	IATA	IMDG	RID / ADR
Proper shipping name	Not regulated	Not regulated	Not regulated
Hazard class	/	/	/
UN number	/	/	/
Packing group	/	/	/

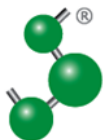
Section 15. Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

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

No data available

Canada



Components of this product are listed on Canada's DSL List.

US Federal

Toxic Substance Control Act (TSCA)

Components of this product are listed on the TSCA Inventory.

Section 16. Other Information

MSDS Creation Date: October 24, 2018

The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Text of H-code (s) and R-phrases (s) mentioned in Section 3

Skin Irrit. 2: Skin irritation (Category 2)

Eye Irrit. 2: Eye irritation (Category 2)

STOT SE 3: Specific target organ toxicity – single exposure (Category 3)

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

R 36/37/38 Irritating to eyes, respiratory system and skin.

Other Information:

ACGIH: (American Conference of Governmental Industrial Hygienists); CAS: (Chemical Abstracts Service); DSL: (the Domestic Substances List of Canada); EC: (European Commission); IARC: (International Agency for Research on Cancer); IATA: (International Air Transport Association); IMDG: (International Maritime Dangerous Goods); ADR: (European Agreement Concerning the International Carriage of Dangerous Goods by Road); RID: (Regulations Concerning the International Carriage of Dangerous Goods by Rail); LD50: (Lethal dose, 50 percent kill); NDSL: (the Non-domestic Substances List of Canada); NIOSH: (US National Institute for Occupational Safety and Health); NTP: (US National Toxicology Program); OSHA: (US Occupational Safety and Health); PEL: (Permissible Exposure Level); REL: (Recommended Exposure Limit); RTECS: (Registry of Toxic Effects of Chemical Substances); STEL: (Short Term Exposure Limit); TDG: (Recommendations on the TRANSPORT OF DANGEROUS GOODS Model Regulations); TSCA: (Toxic Substances Control Act of USA); TWA: (Time Weighted Average); TLV: (Threshold Limit Value)