

MATERIAL SAFETY DATA SHEET

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Section 1- Chemical Product Information and Company Identification.

Product Name: : Vitamin B12 certified reference material (CRM), Anstan[®].
Synonym: : Cyanocobalamin.
Product code: : BS10342.
CAS Number: : 68-19-9.
Company Name: : Briti Scientific.
Company Address: : Plot No:78/B/13, SY-79,Phase-VI, Jeedimetla,Hyderabad-500 055.
Telangana, India.

Section 2- Hazards Identification.

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Label Elements

None required

Hazards not otherwise classified (HNOC)

None identified

Section 3- Composition / Information on Ingredients.

| CAS No. | Chemical Name | Mol. Formula |
|----------|---------------|--|
| 68-19-9. | Vitamin B12 | C ₆₃ H ₈₈ CO _N ₁₄ O ₁₄ P. |

Section 4- First Aid Measures.

General Advice: If symptoms persist, call a physician.

Eye Contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact: If skin irritation persists, call a physician. Wash off immediately with plenty of water for at least 15 minutes.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion: Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a doctor.

Most important symptoms and effects: None reasonably foreseeable.

Notes to Physician: Treat symptomatically.

Section 5- Fire Fighting Measures.

Suitable Extinguishing Media: Water spray, carbon dioxide (CO₂), dry chemical, alcohol-resistant foam. Water mist maybe used to cool closed containers.

Unsuitable Extinguishing Media: Do not use a solid water stream as it may scatter and spread fire.

Flash Point: No information available.

Method: No information available.

Autoignition Temperature: Not applicable

Explosion Limits

Upper No data available.

Lower No data available.

Specific Hazards Arising from the Chemical: Flammable. Containers may explode when heated.

Sensitivity to Mechanical Impact: No information available.

Hazardous Combustion Products: Nitrogen oxides (NO_x). Carbon monoxide (CO). Carbon dioxide (CO₂). Oxides of phosphorus.

Protective Equipment and Precautions for Firefighters

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

NFPA

| Health | Flammability | Instability | Physical hazards |
|--------|--------------|-------------|------------------|
| 1 | 1 | 1 | N/A |

Section 6- Accidental Release Measures.

Personal Precautions: Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions: Should not be released into the environment.

Methods for Containment and Clean Up: Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal. Remove all sources of ignition.

Section 7- Handling and Storage.

Handling: Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid ingestion and inhalation. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Keep away from open flames, hot surfaces and sources of ignition

Storage: Keep away from heat, sparks and flame. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Strong oxidizing agents.

Section 8- Exposure Control/Personal Protection.

Exposure Guidelines

This product does not contain any hazardous materials with occupational exposure limits established by the region-specific regulatory bodies.

Engineering Measures: Ensure adequate ventilation, especially in confined areas. Ensure that eye wash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Hand protection: Wear appropriate protective gloves and clothing to prevent skin exposure.

Skin and body protection: Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory 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.

Recommended Filter type: Particulates filter conforming to EN 143.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

Section 9- Physical and Chemical Properties.

| | |
|--|--|
| Physical State: | powder to crystal. |
| Appearance: | Red to Dark red to Dark purple. |
| Odor: | No information available. |
| Odor Threshold: | No information available. |
| pH: | No information available. |
| Melting Point/Range: | >300 °C. |
| Boiling Point/Range: | >300 °C. |
| Flash Point: | No information available. |
| Evaporation Rate: | No data available. |
| Flammability (solid, gas): | Not applicable. |
| Flammability or explosive limits: | |
| Upper | No data available. |
| Lower | No data available. |
| Vapor Pressure: | No data available. |
| Vapor Density: | No data available. |
| Solubility: | Soluble in chloroform. |
| Partition coefficient; n-octanol/water: | No data available. |
| Autoignition Temperature: | No information available. |
| Decomposition Temperature: | No information available. |
| Viscosity: | No information available. |
| Molecular Formula: | C ₆₃ H ₈₈ CoN ₁₄ O ₁₄ P. |
| Molecular Weight: | 1,355.39 g/mol. |

Section 10- Stability and Reactivity.

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| Reactive Hazard: | None known, based on information available. |
| Stability: | Stable under normal conditions. Hygroscopic. Light sensitive. |
| Conditions to Avoid: | Incompatible products. Excess heat. Avoid dust formation. Keep away from open flames, hot surfaces and sources of ignition. |
| Incompatible Materials: | Acids, Strong acids. |
| Hazardous Decomposition Products: | Nitrogen oxides (NO _x), Carbon monoxide (CO), Carbon dioxide (CO ₂), Oxides of phosphorus. |

Hazardous Polymerization: Hazardous polymerization does not occur.
Hazardous Reactions: None under normal processing.

Section 11- Toxicological Information.

Acute Toxicity

Product Information: No information available.

Component Information

Toxicologically Synergistic Products: No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation: May cause skin, eye, and respiratory tract irritation.

Sensitization: No information available.

Carcinogenicity: No information available.

| IARC | NTP | ACGIH | OSHA | Mexico |
|------------|------------------------|------------|------------|------------|
| Not listed | Reasonably Anticipated | Not listed | Not listed | Not listed |

Mutagenic Effects: No information available.

Reproductive Effects: No information available.

Teratogenicity: No information available.

STOT - single exposure: None known

STOT - repeated exposure: None known

Aspiration hazard: No information available.

Symptoms / effects, both acute and delayed: No information available.

Other Adverse Effects: The toxicological properties have not been fully investigated.

Section 12- Ecological Information.

Ecotoxicity: Do not empty into drains. Do not flush into surface water or sanitary sewer system.

Persistence and Degradability: Soluble in water Persistence is unlikely.

Bioaccumulation/ Accumulation: No information available.

Mobility: Will likely mobile in the environment due its low water solubility.

Section 13- Disposal Considerations.

Waste Disposal Methods: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Section 14- Transport Information.

| | |
|----------|---------------|
| DOT | Not regulated |
| TDG | Not regulated |
| IATA | Not regulated |
| IMDG/IMO | Not regulated |

Section 15- Regulatory Information.

Legend:

TSCA - Toxic Substances Control Act, (40 CFR Part 710).

X - Listed

'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable.

U.S. Federal Regulations

SARA 313 Not applicable.

SARA 311/312 Hazard Categories See section 2 for more information.

CWA (Clean Water Act) Not applicable.

Clean Air Act Not applicable.

OSHA - Occupational Safety and Health Administration: Not applicable.

CERCLA: Not applicable.

California Proposition 65: This product does not contain any Proposition 65 chemicals.

Section 16- Other Information.

Briti Scientific provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.