



XI'AN FUNCTION MATERIAL GROUP CO., LTD
Material Safety Data Sheet

Cobalt
Silicon Boron

1. Product and Company Identification

Trade Name: Cobalt silicon boron
Chemical Formula: CoSiB
Recommended Use: Scientific research and development

Manufacturer/Supplier: XI'AN FUNCTION MATERIAL GROUP CO., LTD
Street: No. 69, Gazelle Valley, High-Tech Zone
City: XI'AN
State: Shannxi
Zip Code: 710077
Country: China
Tel #: +86-29-88993870/+86-13519132051

2. Hazards Identification

Signal Word:

Danger



Hazard Statements:

H228: Flammable solid
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled
H317: May cause an allergic skin reaction
H302+H332: Harmful if swallowed or if inhaled

Precautionary Statements:

P261 Avoid breathing dust/fume/vapor
P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking.
P280+P284: Wear protective gloves/protective clothing/eye protection/face protection and respiratory protection
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
P363: Wash contaminated clothing before reuse
P264: Wash thoroughly after handling
P270: Do not eat, drink or smoke when using this product
P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P370+P378: In case of fire: Use CO₂, sand, extinguishing powder for extinction

HMIS Health Ratings (0-4):

| | Powder | Bulk |
|---------------|--------|------|
| Health: | 2 | 1 |
| Flammability: | 2 | 0 |
| Physical: | 1 | 0 |

3. Composition

| | |
|-------------------|-----------|
| Chemical Family: | Alloy |
| Additional Names: | None |
| Cobalt (Co): | |
| Percentage: | 0-100 wt% |
| CAS #: | 7440-48-4 |
| EC #: | 231-158-0 |
| Silicon (Si): | |
| Percentage: | 0-100 wt% |
| CAS #: | 7440-21-3 |
| EC #: | 231-130-8 |
| Boron (B): | |
| Percentage: | 0-100 wt% |
| CAS #: | 7440-42-8 |
| EC #: | 231-151-2 |

4. First Aid Procedures

| | |
|---------------------|--|
| General Treatment: | Seek medical attention if symptoms persist. |
| Special Treatment: | None |
| Important Symptoms: | None |
| Inhalation: | Remove victim to fresh air. Supply oxygen if breathing is difficult. |
| Ingestion: | Seek medical attention |
| Skin: | Wash affected area with mild soap and water. Remove any contaminated clothing. |
| Eyes: | Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing |

5. Firefighting Measures

| | |
|--------------------------------|---|
| Flammability: | Flammable as powder only |
| Extinguishing Media: | Do not use water for metal fires – use CO ₂ , sand, extinguishing powder. |
| Spec. Fire Fighting Procedure: | Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products. |

6. Accidental Release Measures

| | |
|----------------------------------|--|
| If Material Is Released/Spilled: | Wear appropriate respiratory and protective equipment specified in special protection information. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for disposal. Take care not to raise dust. |
| Environmental Precautions: | Isolate runoff to prevent environmental pollution. |

7. Handling and Storage

| | |
|----------------------------|--|
| Handling Conditions: | Wash thoroughly after handling. |
| Storage Conditions: | Store in a cool dry place in a tightly sealed container. Store apart from materials and conditions listed in section 10. |
| Work/Hygienic Maintenance: | Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air. |
| Ventilation: | Provide sufficient ventilation to maintain concentration at or below threshold limit. |

8. Exposure Controls and Personal Protection

| | |
|------------------------------|---|
| Permissible Exposure Limits: | 0.1 mg/m ³ as Co, Metal dust and fume, long-term value |
| Threshold Limit Value: | 0.02 mg/m ³ as Co, long-term value |
| Special Equipment: | None |
| Respiratory Protection: | Use a respirator with type N95 (USA) or PE (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards. |
| Protective Gloves: | Butyl rubber, BR |
| Eye Protection: | Safety glasses or goggles |
| Body Protection: | Protective work clothing. Wear close-toed shoes and long sleeves/pants. |

9. Physical and Chemical Characteristics

| | |
|---------------------------|-------------------|
| Color | Metallic Grey |
| Form: | Sputtering target |
| Odor: | N/A |
| Water Solubility: | Insoluble |
| Boiling Point: | N/A |
| Melting Point: | 422-2075 °C |
| Flash Point: | N/A |
| Autoignition Temperature: | N/A |
| Density: | N/A |
| Molecular weight: | N/A |

10. Reactivity

| | |
|-----------------------------------|--|
| Stability: | Stable under recommended storage conditions |
| Reacts With: | Halogens, Oxidizing agents, Interhalogens, Acids, Ammonia, |
| Incompatible Conditions: | Protect against electrostatic charges |
| Hazardous Decomposition Products: | Metal oxide fume, Boron oxide |

11. Toxicological Information

Potential Health Effects:

| | |
|-------------|--------------------------|
| Eyes: | Causes irritating effect |
| Skin: | May cause irritation |
| Ingestion: | May cause irritation |
| Inhalation: | May cause irritation |
| Chronic: | N/A |

Signs & Symptoms:

N/A

Aggravated Medical Conditions:

N/A

Median Lethal Dose:

650 mg/kg for rat by mouth

Carcinogen:

IARC-2B: Possibly carcinogenic to humans: limited evidence in human in the absence of sufficient evidence in experimental animals.
ACGIH A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by routes of administration, at sites, of histologic types, or by mechanisms not considered relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or level of exposure.
EPA-I: Data are inadequate for an assessment of human carcinogenic potential.

12. Ecological Information

Aquatic Toxicity:

Low

Persistent Bioaccumulation Toxicity:

No

Very Persistent, Very Bioaccumulative:

No

Notes:

N/A

13. Disposal Considerations

Dispose of in accordance with local, state, national, and international regulations.

14. Transportation Data

Hazardous:

Hazardous as powder only.



Hazard Class:

4.1 Flammable solids, self-reactive substances and solid desensitized explosives

Packing Group:

III

UN Number:

UN3089

Proper Shipping Name:

Metal powders, flammable, n.o.s. (Cobalt silicon boron)

15. Regulatory Information

Sec 302 Extremely Hazardous:

No

Sec 304 Reportable Quantities:

N/A

Sec 313 Toxic Chemicals:

Yes

16. Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

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