

SAFETY DATA SHEET

Product: Carbide Tipped Jig Saw Blade / Carbide Tipped Reciprocating Saw Blade / Carbide
Tipped Band Saw Blade / Carbide Tipped Hole Saw Blade

Revision: 01

Date: 03/02/2026

Pages: 1/10

SECTION 1: IDENTIFICATION

GHS product identifier: Carbide Tipped Jig Saw Blade / Carbide Tipped Reciprocating Saw Blade / Carbide Tipped Band Saw Blade / Carbide Tipped Hole Saw Blade

Recommended use of the chemical and restrictions on use: Cutting hard and abrasive materials.

Supplier's details: STARRETT INDUSTRIA E COMERCIO LTDA.
Address: AV LAROY S. STARRETT, 1880, PINHEIRINHO. CEP: 13306-900 - Itu - SP - Brasil.
Phone number: (11) 2118-8536 / (11) 2118-8581 / (11) 94970-0560
E-mail: mrcezar@starrett.com.br

Emergency phone number: 0800 722 6001

SECTION 2: HAZARD IDENTIFICATION

Classification of the substance or mixture: Due to the appearance of the product, it is not classified as dangerous by the classification system used. Hazard information about the ingredients can be found throughout this document.

Classification system adopted: Globally Harmonized System of Classification and Labeling of Chemicals (GHS), United Nations.

GHS label elements, including precautionary statements

Precautionary statement(s): Wash your hands after handling the product.
During handling of the product do not drink, eat or smoke.
It is recommended the use of appropriate PPE when handling the product.
Get product information before handling.
Store product in a suitable place.
In case of emergency, proceed as indicated in this document.

Other hazards which do not result in classification: The massive product has no other hazards. Exposure to high temperatures or certain mechanical action can lead to the release of metallic constituents.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**MIXTURE**

Components contributing to the hazard:

Product identifier	CAS/EC	Concentration range (%)
Tungsten carbide	12070-12-1 235-123-0	94
Cobalt	7440-48-4 231-158-0	12
Nickel	7440-02-0 231-111-4	2
Manganese	7439-96-5 231-105-1	1

SAFETY DATA SHEET

Product: Carbide Tipped Jig Saw Blade / Carbide Tipped Reciprocating Saw Blade / Carbide
Tipped Band Saw Blade / Carbide Tipped Hole Saw Blade

Revision: 01

Date: 03/02/2026

Pages: 2/10

SECTION 4: FIRST-AID MEASURES

Description of necessary first-aid measures

No adverse health effects are expected after exposure to the product, however, in case of exposure to the constituents, proceed as follows:

Inhalation: Remove victim to fresh air and keep in a position that does not obstruct breathing. Inhalation effects may not be immediate. Monitor respiratory function. If breathing with difficulty the victim. If necessary, apply artificial respiration. Immediately contact the TOXICOLOGICAL INFORMATION CENTER or doctor. Bring this document.

Skin: Immediately remove all contaminated clothing. Rinse skin with plenty of water or take a shower. Effects from skin contact may not be immediate. Immediately contact the TOXICOLOGICAL INFORMATION CENTER or doctor. Bring this document.

Eye: Immediately flush eyes with sufficient amount of water, keeping eyelids open, for several minutes. If wearing contact lenses, remove them if it is easy and rinse again. Consult a doctor. Bring this document.

Ingestion: Wash the victim's mouth with plenty of water. Never give anything by mouth to an unconscious person. Oral effects may not be immediate. Immediately contact the TOXICOLOGICAL INFORMATION CENTER or doctor. Bring this document.

Most important symptoms/effects, acute and delayed: May cause an allergic skin reaction with pruritus and dermatitis. Causes eye irritation with redness and tearing. May cause allergy or asthma symptoms or breathing difficulties if inhaled with shortness of breath and tiredness. Fatal if inhaled. May cause damage to the lungs through prolonged or repeated exposure.

Indication of immediate medical attention and special treatment needed, if necessary: Avoid contact with the product when helping the victim. If necessary, symptomatic treatment should include, above all, supportive measures such as correction of hydro electrolytic and metabolic disorders and respiratory assistance. In case of skin contact, do not rub the affected area.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media: Suitable: carbon dioxide (CO₂), foam, water mist and powder.
Unsuitable: water jet directly.

Specific hazards arising from the chemical: Combustion of the material or its packaging can form irritating and toxic gases such as carbon monoxide and dioxide.
In the event of a meltdown, vapors can be denser than air and tend to accumulate in low-lying or confined areas, such as storm drains and basements. Containers may explode if heated.

Special protective actions for fire-fighters: Use self-contained respiratory protection equipment (SCBA) with positive pressure and complete protective clothing. Containers and tanks involved in the fire must be cooled with water mist.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Isolate the leakage from sources of ignition. Keep unauthorized persons away from the area. Stop the leakage if it can be done without risk. Do not smoke. Do not touch damaged containers or spilled product without proper clothing. Avoid exposure to the product. Stay in a safe place, with the wind at your back. Use personal protective equipment as described in section 8.

For emergency responders: Wear complete PPE with safety glasses, safety gloves, suitable protective clothing and closed shoes. In case of leakage, where exposure is high, it is recommended to use a suitable respiratory protection mask.

Environmental precautions: Avoid that the spilled product reaches waterways or sewage system.

SAFETY DATA SHEET

Product: Carbide Tipped Jig Saw Blade / Carbide Tipped Reciprocating Saw Blade / Carbide
Tipped Band Saw Blade / Carbide Tipped Hole Saw Blade

Revision: 01

Date: 03/02/2026

Pages: 3/10

Methods and materials for containment and cleaning up: Collect the product with a clean shovel or another instrument that does not disperse the product. Place the adsorbed product in proper containers and remove it to a safe place. For final disposal, proceed according to Section 13 of this document.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Precautions for safe handling: Handle in a well ventilated area or with general system of ventilation/local exhaust. Avoid dust formation. Avoid exposure to the product, since the effects may not be felt immediately. Use personal protective equipment as described in section 8. Avoid contact with incompatible materials.

General hygiene: Wash hands and face thoroughly after handling and before eating, drinking, smoking, or using the toilet. Contaminated clothing should be changed and washed before reuse. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities

Technical measures for prevention of fire and explosion: It is not expected that the product presents a fire or explosion hazard.

Conditions for safe storage, including any incompatibilities: Store in a dry, well-ventilated place away from sunlight. Keep the container closed. It is not necessary addition of stabilizers and antioxidants to ensure the durability. Keep away from incompatible materials.

Packaging compatibilities: Similar to the original packaging.

Inadequate packaging materials: There are not known unsuitable material.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Occupational exposure limit: The values below apply to workplaces.

- Tungsten carbide:
OSHA - PEL - TWA: 0.1 mg Co/m³;
NIOSH - REL - TWA: 0.05 mg Co/m³;
ACGIH - TLV - TWA: 0.005 mg/m³ (T);
- Cobalt:
OSHA - PEL - TWA: 0.1 mg/m³ (29 CFR 1910.1000 Table Z-1) (CFR);
NIOSH - REL - TWA: 0.05 mg/m³;
ACGIH - TLV - TWA: 0.02 mg/m³ (I);
- Nickel:
OSHA - PEL - TWA: 1 mg/m³ (29 CFR 1910.1000 Table Z-1) (CFR);
NIOSH - REL - TWA: 0.015 mg/m³ (AA) (Ca);
ACGIH - TLV - TWA: 1.5 mg/m³ (I);
- Chromium:
OSHA - PEL - TWA: 1 mg/m³ (29 CFR 1910.1000 Table Z-1) (CFR);
NIOSH - REL - TWA: 0.5 mg/m³ (AC);
ACGIH - TLV - TWA: 0.5 mg/m³ (I);
- Molybdenum:
OSHA - PEL - TWA: 15 mg/m³ (TD) (29 CFR 1910.1000 Table Z-1) (CFR);
NIOSH - REL - TWA: (AD);

SAFETY DATA SHEET

Product: Carbide Tipped Jig Saw Blade / Carbide Tipped Reciprocating Saw Blade / Carbide
Tipped Band Saw Blade / Carbide Tipped Hole Saw Blade

Revision: 01

Date: 03/02/2026

Pages: 4/10

ACGIH - TLV - TWA: 10 mg/m³ (I); 3 mg/m³ (R);
- Manganese:
OSHA - PEL - Ceiling: 5 mg/m³ (29 CFR 1910.1000 Table Z-1) (CFR);
NIOSH - REL - TWA: 1 mg/m³;
NIOSH - REL - STEL: 3 mg/m³;
ACGIH - TLV - TWA: 0.02 mg/m³ (R); 0.1 mg/m³ (I).

T: Thoracic particulate matter;
I: Inhalable particulate matter;
CFR: See mentioned item in OSHA CFR;
Ca: Potential occupational carcinogen.
AA: See NIOSH REL Appendix A;
AC: See NIOSH REL Appendix C;
TD: Total dust;
R: Respirable particulate matter;
AD: See NIOSH REL Appendix D.

Biological limit:

- Cobalt:
ACGIH - BEI: Determinant: Cobalt in urine. Sampling Time: End of shift at end of workweek. Index: 15 ug/L. Notation: Ns.

- Nickel:
ACGIH - BEI: Determinant: Nickel in urine after exposure to elemental nickel and poorly soluble compounds. Sampling time: Post-shift at the end of the workweek. Index: 5 ug/L. Notation: B.

- Chromium:
ACGIH - BEI: Determinant: Total chromium in urine. Sampling Time: End of shift at the end of the work week. Index: 0.7 ug/L Notation: Pop.

Ns: The determinant is nonspecific, since it is also observed after exposure to other chemicals;
B: The determinant may be present in biological specimens collected from subjects who have not been occupationally exposed, at a concentration which could affect the interpretation of the results. Such background concentrations are incorporated in the BEI value;
POP: "Pop" indices are assigned when there are insufficient data to establish a numerical BEI® but where there are sufficient data on background levels in the general population. "Pop" values can be based on the 95th percentile of large studies of the general population, like the NHANES surveys by the CDC, or they can be based on nonoccupationally exposed populations from the scientific literature. "Pop" values are not health-based and are intended to give the health professional guidance regarding exposures that are likely to be occupational and not from the general environment. A measurement at or above a "Pop" level will have a high probability of resulting from an occupational exposure.

Other limits and values:

- Cobalt:
IDLH (NIOSH): 20 mg Co/m³
- Chromium:
IDLH (NIOSH): 250 mg Cr/m³.
- Manganese:
IDLH (NIOSH): 500 mg Mn/m³.

Appropriate engineering controls:

A risk assessment is recommended to define the engineering control measures necessary to eliminate or minimize the risk. These measures help to reduce exposure to the product. Maintain atmospheric concentrations of the constituents of the material below occupational exposure limits indicated.

Individual protection measures, such as personal protective equipment (PPE)

SAFETY DATA SHEET

Product: Carbide Tipped Jig Saw Blade / Carbide Tipped Reciprocating Saw Blade / Carbide
Tipped Band Saw Blade / Carbide Tipped Hole Saw Blade

Revision: 01

Date: 03/02/2026

Pages: 5/10

Eye/face protection:	Protective glasses.
Skin protection:	Closed shoes and appropriate protective clothing. Suitable protective gloves.
Respiratory protection:	A risk assessment should be performed for proper definition of respiratory protection, in view of the material use conditions.
Thermal hazards:	It does not present thermal hazards.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Solid.
Colour:	Gray.
Odour:	Odorless.
Melting point/freezing point:	≈ 1582 °C (2879.6 °F).
Boiling point or initial boiling point and boiling range:	> 2760 °C (5000 °F).
Flammability:	Not available.
Lower and upper explosion limit/flammability limit:	Not available.
Flash point:	Not available.
Auto-ignition temperature:	Not available.
Decomposition temperature:	Not available.
pH:	Not available.
Kinematic viscosity:	Not available.
Solubility:	Insoluble in water.
Partition coefficient n-octanol/water (log value):	Not available.
Vapour pressure:	Not available.
Density and/or relative density:	Absolute density: 7.6 to 7.8 g/cm³ at 20 °C (68 °F).
Relative vapour density:	Not available.
Particle characteristics:	Not available.
Other information:	Not applicable.

SAFETY DATA SHEET

Product: Carbide Tipped Jig Saw Blade / Carbide Tipped Reciprocating Saw Blade / Carbide
Tipped Band Saw Blade / Carbide Tipped Hole Saw Blade

Revision: 01

Date: 03/02/2026

Pages: 6/10

SECTION 10: STABILITY AND REACTIVITY

Reactivity:	Reactivity is not to be expected under normal conditions of temperature and pressure.
Chemical stability:	Stable under normal temperature and pressure conditions.
Possibility of hazardous reactions:	There are not known hazardous reactions with the product.
Conditions to avoid:	High temperatures. Contact with incompatible materials. Moisture.
Incompatible materials:	Acids, alkali, ammonia nitrate, bromine pentafluoride, chlorine, fluorine, halogen, metals, nitrates, oxides, oxidizing agents, peroxides, phosphorus, reducing agents, unsaturated oils and water.
Hazardous decomposition products:	No dangerous decomposition products are known.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity:	Product not classified as acute toxic by oral. Fatal if inhaled. ATEmix Oral: > 5000 mg/kg. ATEmix Dusts and mists (4h): 0.469 mg/L. Information regarding to: - <u>Cobalt:</u> LC ₅₀ Dusts and mists (rats, 4h): ≤ 0.05 mg/L.
Skin corrosion/irritation:	It is not expected to cause skin irritation.
Serious eye damage/irritation:	Causes eye irritation with redness and tearing.
Respiratory or skin sensitization:	May cause an allergic skin reaction with pruritus and dermatitis. May cause allergy or asthma symptoms or breathing difficulties if inhaled with shortness of breath and tiredness. The ingredients Cobalt and Nickel are classified as skin sensitizers and contribute to this product classification. The ingredient Cobalt is classified as a respiratory sensitizer and contributes to this product classification.
Germ cell mutagenicity:	Suspected of causing genetic defects.
Carcinogenicity:	May cause cancer. Information regarding to: - <u>Tungsten carbide:</u> Not classifiable as a human carcinogen (Category A4 – ACGIH). - <u>Cobalt:</u> Not classifiable as a human carcinogen (Category A4 – ACGIH). - <u>Nickel:</u> Not classifiable as a human carcinogen (Category A4 – ACGIH).
Reproductive toxicity:	May damage fertility or the unborn child.
STOT - Single exposure:	It is not expected to exhibit specific target organ toxicity by single exposure.

SAFETY DATA SHEET

Product: Carbide Tipped Jig Saw Blade / Carbide Tipped Reciprocating Saw Blade / Carbide
Tipped Band Saw Blade / Carbide Tipped Hole Saw Blade

Revision: 01

Date: 03/02/2026

Pages: 7/10

STOT - Repeated exposure: May cause damage to the lungs through prolonged or repeated exposure if inhaled.

Aspiration hazard: It is not expected to present an aspiration hazard.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Toxic to aquatic life with long lasting effects.

Information regarding to:

- Cobalt:
NOEC (*Pseudokirchneriella subcapitata*, 72 h): 0.0322 mg/L;
NOEC (*Daphnia magna*, 21d): 0.0608 mg/L;
NOEC (*Oncorhynchus mykiss*, 60d): 0.101 mg/L;
ErC₅₀ (*Pseudokirchneriella subcapitata*, 72 h): 0.144 mg/L;
LC₅₀ (*Oncorhynchus mykiss*, 96 h): 1.512 mg/L;
EC₅₀ (*Daphnia magna*, 48 h): 5.89 mg/L.
- Manganese:
EC₅₀ (*Daphnia magna*, 48 h): > 1.6 mg/L;
LC₅₀ (*Oncorhynchus mykiss*, 96 h): >3.6 mg/L;
NOEC (*Oncorhynchus mykiss*, 28 d): 0.3 mg/L;
NOEC (*Desmodesmus subspicatus*, 72 h): 2.5 mg/L;
ErC₅₀ (*Desmodesmus subspicatus*, 72 h): 4.5 mg/L.

Persistence and degradability: It has no persistence and is considered rapidly degradable.

Bioaccumulative potential: Presents low bioaccumulative potencial in aquatic organisms.

Information regarding to:

- Manganese:
BCF: 13 to 61.

Mobility in soil: Not determined.

Other adverse effects: No other environmental effects known.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal methods

Must be disposed of as waste in compliance with local regulations. The treatment and disposal should be evaluated for each specific product.

Keep the product remains in its original and properly closed containers. Disposal should be performed as established for the product.

SECTION 14: TRANSPORT INFORMATION

Road: UN - United Nations: Model Regulations:
• Recommendations on the Transport of Dangerous Goods.

UN number: Not classified as hazardous for the road transportation.

Environmental hazards: Due to the appearance of the product, it is not considered dangerous to the environment for land transport.

SAFETY DATA SHEET

Product: Carbide Tipped Jig Saw Blade / Carbide Tipped Reciprocating Saw Blade / Carbide
Tipped Band Saw Blade / Carbide Tipped Hole Saw Blade

Revision: 01 Date: 03/02/2026 Pages: 8/10

Railway regulations:	COTIF - Convention concerning International Carriage by Rail: • Appendix C: RID - Regulations concerning the International Carriage of Dangerous Goods by Rail.
UN number:	Not classified as dangerous for rail transport.
Environmental hazards:	Due to the appearance of the product, it is not considered environmentally hazardous for rail transport.
Sea:	IMO - International Maritime Organization: • IMDG Code - International Maritime Dangerous Goods Code.
UN number:	Not classified as hazardous for water transportation.
Environmental hazards:	Due to the appearance of the product, it is not considered hazardous to the environment for sea transport.
Air:	IATA - International Air Transport Association: • DGR - Dangerous Goods Regulation.
UN number:	Not classified as dangerous for air transport.
Environmental hazards:	Due to the appearance of the product, it is not considered hazardous to the environment for air transport.
Special precautions for user:	Not applicable.
Transport in bulk according to IMO instruments:	Consult regulations: • International Maritime Organization: MARPOL: Articles, protocols, annexes, unified interpretations of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, consolidated edition. IMO, London, 2006; • International Maritime Organization: IBC code: International code for the construction and equipment of shipping carrying dangerous chemicals in bulk: With Standards and guidelines relevant to the code. IMO, London, 2007.

SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question

Convention concerning Safety in the use of Chemicals at Work (Convention 170) - International Labour Organization, 1990.

SECTION 16: OTHER INFORMATION

This document was prepared based on current knowledge about the proper product handling and under normal conditions of use, in accordance with the application specified on the packaging. Any other use of the product involving their combination with other products, and use various forms of those indicated, are the responsibility of the user. Warns that the handling of any chemical substance requires the prior knowledge of its hazards for the user. In the workplace it is for the user company's product promotes training of its collaborators about the possible risks arising from exposure to the chemical.

Change control:

Version	Manufacture date	Changes
01	03/02/2026	Elaboration

Abbreviations:

SAFETY DATA SHEET

Product: Carbide Tipped Jig Saw Blade / Carbide Tipped Reciprocating Saw Blade / Carbide
Tipped Band Saw Blade / Carbide Tipped Hole Saw Blade

Revision: 01

Date: 03/02/2026

Pages: 9/10

ACGIH - American Conference of Governmental Industrial Hygienists;
ATEmix - Acute Toxicity Estimate of the mixture;
BCF - Bioconcentration factor;
BEI - Biological Exposure Index;
CAS - Chemical Abstracts Service;
Ceiling - The concentration that should not be exceeded during any part of the working exposure;
EC - European Community;
EEC - European Economic Community;
EPA - United States Environmental Protection Agency;
ErC₅₀ - Effective concentration that results in a 50% reduction in the growth rate;
IARC - International Agency for Research on Cancer;
IDLH - Immediately Dangerous to Life or Health;
LC₅₀ - Lethal Concentration 50%;
NIOSH - National Institute for Occupational Safety and Health;
NOEC - No Observed Effect Concentration;
OSHA - Occupational Safety & Health Administration;
PBT - Persistent, bioaccumulative and toxic;
PEL - Permissible Exposure Limit;
REL - Recommended Exposure Limit;
STEL - Short Term Exposure Limit;
TLV - Threshold Limit Value;
TWA - Time Weighted Average;
UN - United Nations;
vPvB - Very Persistent and very Bioaccumulative.

Bibliographic references:

ACGIH - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIALS HYGIENISTS. TLVs® and BEIs®: Based on the Documentation of the Threshold Limit Values (TLVs®) for Chemical Substances and Physical Agents & Biological Exposure Indices (BEIs®). Cincinnati-USA, 2025.

CONCAWE - HAZARD CLASSIFICATION AND LABELLING OF PETROLEUM SUBSTANCES IN THE EUROPEAN ECONOMIC AREA. Available in: <<https://www.concawe.eu/>>. Access at: Feb. 2026.

ECHA - EUROPEAN CHEMICAL AGENCY. Available in: <<http://echa.europa.eu/web/guest>>. Access at: Feb. 2026.

EPA - UNITED STATES ENVIRONMENTAL PROTECTION AGENCY. Available in: <<https://www.epa.gov/>>. Access at: Feb. 2026.

GESTIS - SUBSTANCE DATABASE. Available in: <<https://gestis-database.dguv.de/>>. Access at: Feb. 2026.

GHS - GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS. 10th rev. ed. New York and Geneva: United Nations, 2023.

HSDB - HAZARDOUS SUBSTANCES DATA BANK. Available in: <<http://pubchem.ncbi.nlm.nih.gov/>>. Access at: Feb. 2026.

IARC - INTERNATIONAL AGENCY FOR RESEARCH ON CANCER. Available in: <<http://monographs.iarc.fr/ENG/Classification/index.php>>. Access at: Feb. 2026.

NIOSH - NATIONAL INSTITUTE OF OCCUPATIONAL AND SAFETY. International Chemical Safety Cards. Available in: <<http://www.cdc.gov/niosh/>>. Access at: Feb. 2026.

OSHA - OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION. UNITED STATES DEPARTMENT OF LABOUR. <



SDS

In accordance with Globally Harmonized System of
Classification and Labelling of Chemicals (GHS)- Chapter 1.5
and Annex 4

SAFETY DATA SHEET

Product: Carbide Tipped Jig Saw Blade / Carbide Tipped Reciprocating Saw Blade / Carbide
Tipped Band Saw Blade / Carbide Tipped Hole Saw Blade

Revision: 01

Date: 03/02/2026

Pages: 10/10

<https://www.osha.gov/chemicaldata/search> >. Access at: Feb. 2026.

REACH - REGISTRATION, EVALUATION, AUTHORIZATION AND RESTRICTION OF CHEMICALS. Commission Regulation (EC) No 1272/2008 of December 2008 amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals. Available in: <<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:353:0001:1355:en:PDF>>. Access at: Feb. 2026.