Jiangsu Weixiang Tool Manufacturing Co.,Ltd.

SAFETY DATA SHEET

ALUMINUM TITANIUM NITRIDE NANOCOMPOSITE COATING - ALTIN NANO - ALTIN/Si_3N_4

SECTION I: IDENTIFICATION

Chemical Name: Aluminum Titanium Nitride Nanocomposite Coated Cemented Tungsten Carbide Product with Cobalt Binder; Brazed Tools
Trade Names and Synonyms: All WEIX Tool Cemented Carbide Grades and Brazed Tools with AlTiN Nano (Aluminum Titanium Nitride Nano, AlTiN/Si_3N_4) coating
Manufacturer Information: WEIXTool Company, Ltd
Guanghua Industrial Area, Dagang New District
Zhenjiang Cty, Jiangsu Province, China. Code: 212132
Phone: (+86)0511-83373758
Fax: (+86)0511-83772830
Email: info@weixtool.com
Recommended Use: Shaping metals, plastics, and composite materials with CNC machines.

SECTION II: HAZARDS IDENTIFICATION

Note: During routine handling, ALTiN Nano coated cemented carbide products do not present inhalation, ingestion, skin contact or other chemical hazards. However operations such as grinding, cutting, and brazing of cemented products may release dust or fumes which may present health hazards if the exposure limits described in section VIII are exceeded. The health hazards described below relate to these operations, as well as exposure to components of powder.

Hazard Classification

Physical Hazard:	Not Classified
Health Hazard:	National Fire Protection Association Hazard Rating: (0-4 Scale) Health = 0, Flammability = 0, Reactivity = 0

Article Exemption: This product meets the definition of an article under 29 CFR 1910.1200(c), which states: Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

Signal Word:	Not Applicable
Pictograms:	Not Applicable
Hazard Statements:	Not Applicable
Precautionary Statements:	Not Applicable

Description of Hazards Not Otherwise Classified:
Use proper ventilation when cutting or grinding. Wash hands thoroughly after handling, before eating or smoking. Wash exposed skin at the end of the work shift. Do not shake clothing, rags, or other items to remove dust. Dust should be removed by washing or vacuuming (with appropriate filters) the clothing, rags or other items. Periodic medical examinations are recommended for individuals regularly exposed to carbide dust or grinding mist.
Cutting tools may fragment in use. Always wear safety equipment and keep machine guards in place. If tool or product shows signs of damage, return tools to appropriate location for repair, replacement or recycling. DO NOT use or operate damaged tools or products.
Ingredients with Unknown Toxicity: Not Applicable

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SECTION III: COMPOSITION/INFORMATION ON INGREDIENTS

WEIX Tool Company, Ltd. products may contain some or all of the following toxic chemicals.

AlTiN Nano Coating
(Accounts for less than 1% of completed tool)

MATERIAL	CAS IDENTIFIER	% BY WEIGHT
Aluminum	7429-90-5	50-65%
Titanium Nitride	25583-20-4	35-50%
Silicon Nitride	12033-89-5	5-15%

Cemented Carbide with Cobalt Binder
(Accounts for 10-100% of completed tool)

MATERIAL	CAS IDENTIFIER	% BY WEIGHT
Cobalt	7440-48-4	3-30%
Vanadium Carbide	12070-10-9	0-0.05%
Nickel	7440-02-2	18.50%
Tungsten Carbide	12070-12-1	41-97%
Tantalum Carbide	12070-06-3	0-52%
Titanium Carbide	12012-08-5	0-15%
Chromium Carbide	12012-35-0	0-5.1%
Chromium (+3)	7440-47-3	0-4.5%

Brazed Filler Metals on Brazed Tools
(Accounts for 0-2% of completed tool)

MATERIAL	CAS IDENTIFIER	% BY WEIGHT
Silver	7440-22-4	50.00%
Cadmium Dust	7440-43-9	16.00%
Copper Dust	7440-50-8	15.50%
Zinc Dust	7440-66-6	15.50%
Nickel Dust	7440-02-0	3.00%

CAS: Chemical Abstracts Service Number

SECTION IV: FIRST-AID MEASURES

Emergency & First Aide Procedures: Applicable for dust or mist.
Inhalation: If symptoms of pulmonary involvement develop (i.e. productive cough, wheezing, shortness of breath, chest tightness and weight loss) remove oneself from exposure and seek medical attention.
Skin Contact: If irritation or a rash occurs, thoroughly wash affected area with soap and water and isolate oneself from exposure. If irritation persists, seek medical attention.
Eye Contact: If irritation occurs, flush eyes with copious amounts of water. If irritations persists, seek medical attention.
Ingestion: If substantial quantities are swallowed dilute with a large amount of water, induce vomiting and seek medical attention.

SECTION V: FIRE-FIGHTING MEASURES

Flash Point: N/A
Flammable Limits: N/A
UEL: N/A
Test Method Used: N/A
LEL: N/A

ALTiN Nano coated cemented carbide product is not a fire hazard. Powder and dust generated in grinding operations is expected to be a fire and explosive hazard if allowed to accumulate and subjected to high temperatures or ignition sources.

Extinguishing Media: For powder fires use ABC type fire extinguisher, water, sodium chloride, soda ash, dry sand, or dry dolomite.

Special Fire Fighting Procedures: For a powder fire confined to a small area, use a respirator approved for toxic dusts and fumes. For a large fire, fire fighters should use a self-contained breathing apparatus. Avoid breathing fumes from burning materials.

Unusual Fire & Explosion Hazard: Powder and dust may present a fire or explosion hazard under rare favoring conditions of particle size, dispersion, and strong ignition source. However this is not expected to be a problem under normal conditions.

SECTION VI: ACIDENTAL RELEASE MEASURES

Personal Precautions: Ventilate the area of spill/dust. If airborne dust is generated, use an appropriate NIOSH approved respirator.

Emergency Procedures: Not applicable, use normal clean up procedures listed below.

Methods for Containment: Not Applicable.

Cleanup Procedures: Clean up using methods which avoid dust generation such as vacuum (with appropriate filter to prevent airborne dust levels which exceed the TLV or PEL), wet dust mop or wet clean up.

SECTION VII: HANDLING AND STORAGE

Precautions for Handling and Storage:
Maintain good housekeeping procedures to prevent dust accumulation during grinding. Avoid dust inhalation and direct skin contact with dust.

SECTION VIII: EXPOSURE CONTOLS/PERSONAL PROTECTION

Exposure Controls

AlTiN Nano Coating
(Accounts for less than 1% of completed tool)

MATERIAL	CAS	% BY WEIGHT	OSHA/PEL	ACGIH/TLV
Aluminum	7429-90-5	50-65%	15 mg/m^3	10 mg/m^3
Titanium Nitride	25583-20-4	35-50%	15 mg/m^3	10 mg/m^3
Silicon Nitride	12033-89-5	5-15%	6 mg/m^3	10 mg/m^3

Cemented Carbide with Cobalt Binder
(Accounts for 10-100% of completed tool)

MATERIAL	CAS	% BY WEIGHT	OSHA/PEL	ACGIH/TLV
Cobalt	7440-48-4	3-30%	0.1mg/m^3	0.05mg/m^3
Vanadium Carbide	12070-10-9	0-0.05%	0.05mg/m^3 **(a)**	0.05mg/m^3
Nickel	7440-02-2	18.50%	1mg/m^3	1mg/m^3
Tungsten Carbide	12070-12-1	41-97%	5mg/m^3	5mg/m^3
Tantalum Carbide	12070-06-3	0-52%	5mg/m^3	5mg/m^3
Titanium Carbide	12012-08-5	0-15%	10mg/m^3	10mg/m^3
Chromium Carbide	12012-35-0	0-5.1%	1mg/m^3	5mg/m^3
Chromium (+3)	7440-47-3	0-4.5%	1mg/m^3	0.5mg/m^3

Brazed Filler Metals on Brazed Tools
(Accounts for 0-2% of completed tool)

MATERIAL	CAS	% BY WEIGHT	OSHA/PEL	ACGIH/TLV
Silver	7440-22-4	50.00%	0.01mg/m^3	0.1mg/m^3
Cadmium Dust	7440-43-9	16.00%	0.2/mg^3	0.05mg/m^3
Copper Dust	7440-50-8	15.50%	1mg/m^3	1mg/m^3
Zinc Dust	7440-66-6	15.50%	5mg/m^3	5mg/m^3
Nickel Dust	7440-02-0	3.00%	1mg/m^3	1mg/m^3

(a) Ceiling Limit
(b) STEL (Short Term Exposure Limit) for tungsten 10mg/m^3
(c) Final rule time weighted average limit 0.05mg/m^3
(d) CAS: Chemical Abstracts Service Number
(e) OSHA/PEL: Occupational Safety & Health Administration: Permissible Exposure Level
(f) ACGIH/TLV: American Conference of Governmental Industrial Hygienists : Threshold Limit Value

Personal Protective Measures

Respiratory Protection: Use an appropriate NIOSH/MSHA approved respirator if airborne dust concentration levels exceed the appropriate PEL or TLV. All appropriate requirements set forth in 29 CFR 1910.134 should be met.

Ventilation: Use local exhaust ventilation which is adequate to limit personal exposure to airborne dust levels which do not exceed the PEL or TLV. If such equipment is not available use respirators.

Protective Gloves: Protective gloves or barrier cream are recommended when contact with powder, dust or grinder mist is likely. Prior to applying the barrier cream or use of protective gloves, wash thoroughly.

Eye Protection: Safety glasses with side shields or goggles are recommended.

SECTION IX: PHYSICAL AND CHEMICAL PROPERTIES

AlTiN Nano Coating: This material is a solid film deposited to a thickness of 1-4 microns.

Appearance: Violet/black colored coating
Upper/Lower flammability/Explosive limits: N/A
Odor: Odorless
Vapor Pressure: N/A
Odor threshold: N/A
Vapor Density (Air=1): N/A
Specific Gravity (H2O=1): N/A
PH: N/A
Melting Point: 2950°C (5342°F)
Solubility in Water: Insoluble

Boiling Point: N/A
Flash Point: N/A
Evaporation Rate: N/A
Flammability (Solid/Gas): N/A
Partition coefficient: n-octanol/water: N/A
Auto-ignition temperature: N/A
Decomposition temperature: N/A
Percent Volatile by Volume: 0%
How Best Monitored: Air Sample

Carbide Base Tool:

Appearance: Dark Grey Metal
Upper/Lower flammability/Explosive limits: N/A
Odor: Odorless
Vapor Pressure: N/A
Odor threshold: N/A
Vapor Density (Air=1): N/A
Specific Gravity (H_2O=1): 11.0-15.5
PH: N/A
Melting Point: N/A
Solubility in Water: Insoluble

Boiling Point: N/A
Flash Point: N/A
Evaporation Rate: N/A
Flammability (Solid/Gas): N/A
Partition coefficient: n-octanol/water: N/A
Auto-ignition temperature: N/A
Decomposition temperature: N/A
Percent Volatile by Volume: 0%
How Best Monitored: Air Sample

SECTION X: STABILITY AND REACTIVITY

Reactivity: Not Reactive
Chemical Stability: Stable
Incompatibility: Contact of dust with strong oxides may cause fire or explosion
Hazardous Decomposition Products: None
Hazardous Polymerizations Products: Will not occur
Conditions to Avoid: DO NOT use or operate damaged tools or products. Cutting tools may fragment in use. Always wear safety equipment and keep machine guards in place. If tool or product shows signs of damage, return tools to appropriate location for repair, replacement or recycling.

Grinding cemented carbide products with cobalt or nickel binder may produce potentially hazardous dust which can be inhaled, swallowed, or come in contact with the skin or eyes. Dust can cause irritation of the nose and throat. It also has the potential for causing transient or permanent respiratory disease including occupational.

SECTION XI: TOXICOLOGICAL INFORMATION

Note: *During routine handling, cemented carbide products do not present inhalation, ingestion, skin contact or other chemical hazards. However operations such as grinding, cutting, and brazing of cemented products may release dust or fumes which may present health hazards if the exposure limits described in section VIII are exceeded. The health hazards described below relate to these operations, as well as exposure to components of powder*.

Routes of Exposure: Grinding cemented carbide products with cobalt or nickel binder may produce potentially hazardous dust which can be inhaled, swallowed, or come in contact with the skin or eyes. Dust can cause irritation of the nose and throat. It also has the potential for causing transient or permanent respiratory disease.

Effects from Short and Long Term Exposure

Inhalation: Asthma in interstitial fibrosis, in a small percentage of exposed individuals. Interstitial fibrosis can lead to permanent disability or death. If pulmonary symptoms develop (i.e. productive cough, wheezing, shortness of breath, chest tightness and weight loss) seek medical attention.

Skin Contact: Can cause irritation of an allergic rash due to cobalt sensitization.

Eye Contact: Can cause mild pain or irritation.

Ingestion: Ingestion of large amounts of cobalt over a period of time has the potential for causing blood, heart and other organ problems. Current scientific information indicates no adverse effects are likely from ingestion of small amounts of nickel dust generated from these products.

Numerical Measurements of Toxicity: N/A

Carcinogenic Assessment (NTP Annual Report, IARC Monographs, Other): Nickel has been identified as a suspected carcinogen by NTP, IARC, and OSHA. None of the other components of this material have been identified as known or suspected carcinogens.

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SECTION XII: ECOLOGICAL INFORMATION

Aquatic Toxicity Tests Data:	Not Applicable
Persistence and Degradability:	Not Applicable
Bio Accumulative Potential:	Not Applicable
Mobility in Soil:	Not Applicable
Oher Adverse Environmental Effects	None Known

SECTION XIII: DISPOSAL CONSIDERATIONS

Container: Dispose of in containers in accordance with local state/provisional, federal, and national regulations.

Waste Disposal Method: Dispose of in accordance with appropriate government regulations. May be sold as scrap for reclamation.

SECTION XIV: TRANSPORT INFORMATION

UN Number:	N/A – Non-Regulated Material
UN Shipping Name:	N/A – Non-Regulated Material
Transport Hazard Class:	N/A – Non-Regulated Material
Environmental Hazard:	N/A – Non-Regulated Material

SECTION XV: REGULATORY INFORMATION

OSHA: This product, under normal conditions of use, is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, dust generated while grinding, cutting, burning or welding this product may be hazardous.

TSCA: Components of this product are listed on the TSCA inventory.

SARA: Chromium and cobalt are subject to the requirements of Section 313 of Title III of Superfund Amendment and Reauthorization Act of 1986.

State Regulatory Information: This product may contain cobalt and/or nickel, which is listed in California Proposition 65 as a known cancer-causing chemical.

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SECTION XVI: OTHER INFORMATION

Although WEIX Tool Company, Ltd has attempted to provide current and accurate information herein, WEIX Tool Company, Ltd makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage, or injury of any kind which may result from or arise out of the use of or reliance on the information by any person. This SDS is provided to users and suppliers of WEIX Tool Company, Ltd cemented carbide products, only to meet the informational requirements of section 1910.1200.

Company Name: WEIX Tool Company, Ltd
Phone: (+86)0511-83373758
Fax: (+86)0511-83772830
Email: info@weixtool.com