PROCOATINGLAB

SURFACE ENGINEERING

THERMAL SPRAY

POWDER MATERIALS

PRODUCT CATALOG

GUANGZHOU THERMALSPRAY TRADING LTD

2026

ABOUT THE COMPANY

Development, implementation and manufacturing of thermal spray powder materials

PROCOATINGLAB is focused on the development, industrial introduction and production of powder materials for thermal spray applications. We supply both standard and custom-engineered powders for functional surface engineering, wear protection, corrosion resistance, oxidation resistance and high-temperature service.

Our work covers powder design, selection of chemical composition and particle-size distribution, adaptation to customer equipment and process parameters, as well as technical support for coating implementation in production and repair operations.

CORE ACTIVITIES

- Powder material development
- Process implementation support
- Serial and custom production

APPLICATION METHODS

- HVOF / HVAF
- APS / Plasma Spray
- Flame Spray and repair applications

MATERIAL FAMILIES

- Bond coats and abradables
- Carbides, cermets and oxide ceramics
- Functional and composite powders

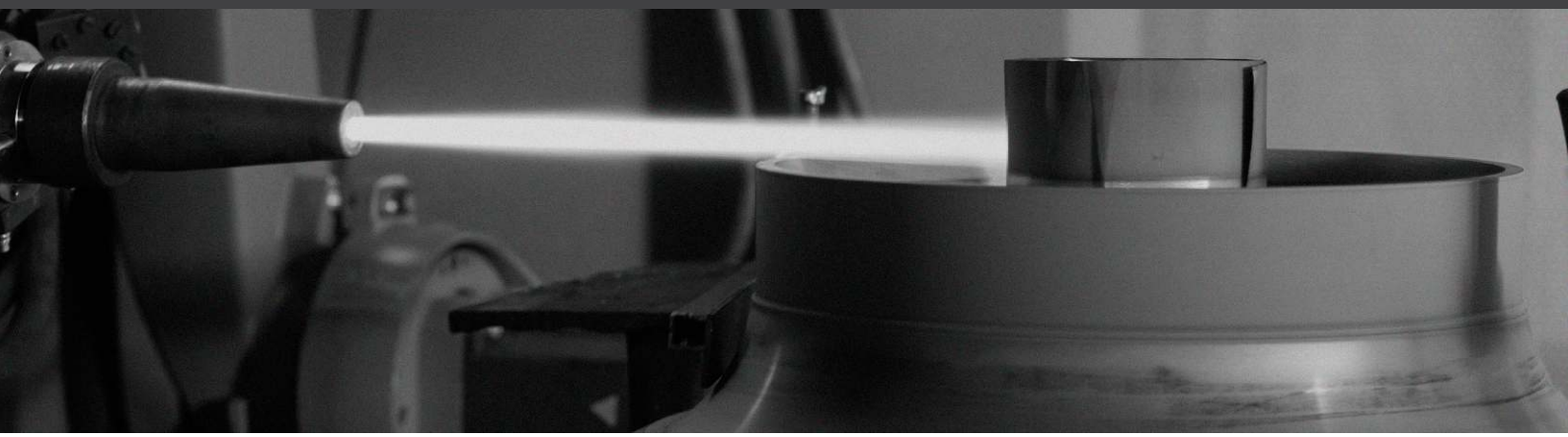
ENGINEERING SUPPORT

- Powder selection for target components
- Customization of PSD and chemistry
- Technical support for coating systems

WHAT WE DELIVER

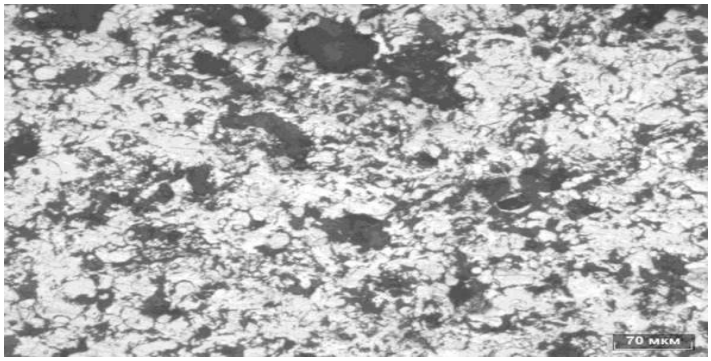
- Powder materials for wear-resistant, corrosion-resistant, high-temperature and functional coatings
- Standard product lines and customer-specific compositions
- Technical support for industrial introduction and ongoing supply

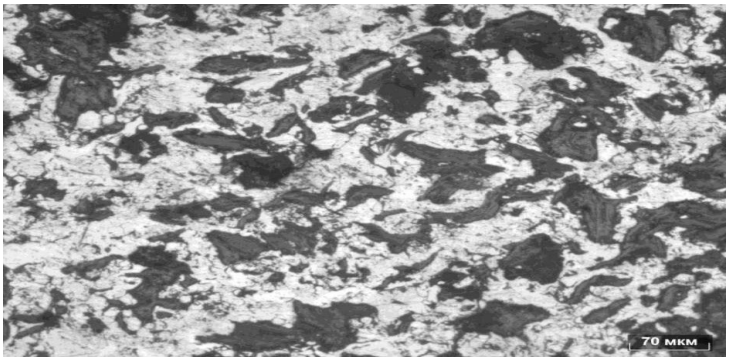
THERMAL SPRAY POWDER MATERIALS



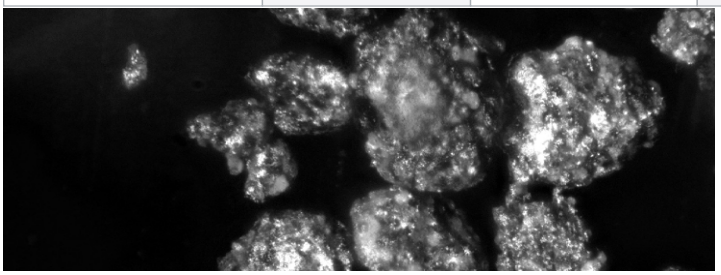
Materials for Abradable Coatings

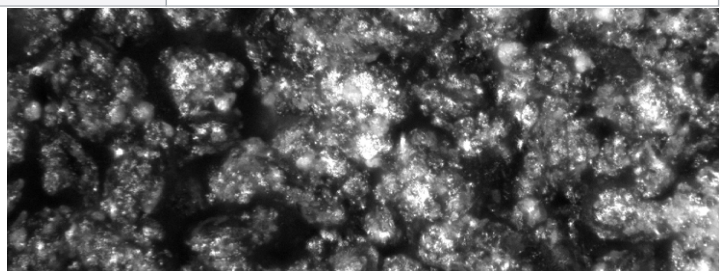
Chemical Composition	Particle Size	Product / Grade	Manufacturing	Application
Aluminum-Based				
Aluminum-Silicon-Boron Nitride				
Al 4-8Si 18-23BN	-315/+56 µm	ANB / RPM-201	Mechanical cladding	Abradable materials for turbine compressors. Excellent corrosion resistance. Good erosion resistance. Service temperature up to 450 °C.
Comparable materials: Metco 320NS, Metco 310NS, Metco 311NS, Metco 313NS				
Aluminum-Silicon-Boron Nitride-Graphite				
Al 8Si 20BN 15 Graphite	-315/+56 µm	ANB-U / RPM-202	Mechanical cladding	Abradable materials for turbine compressors. Excellent corrosion resistance. Good erosion resistance. Service temperature up to 450 °C.
Comparable materials: Metco 320NS, Metco 310NS, Metco 311NS, Metco 313NS				
Aluminum-Silicon-Graphite				
Al 7Si 18-23 Graphite	-315/+56 µm	AGK-30 / RPM-203	Mechanical cladding	Abradable materials for turbine compressors (middle and rear stages). Balanced abradability and erosion resistance.
Comparable materials: Metco 310NS				





Chemical Composition	Particle Size	Product / Grade	Manufacturing	Application
Nickel-Based				
Nickel-Graphite				
Ni 15 Graphite	-160/+45 µm	NPG-85 / RPM-204	Chemical cladding, carbonyl nickel plating	Abradable materials for turbine compressors, resistant to erosion and oxidation. For use on nickel-alloy and steel components. Also suitable for titanium components. Higher graphite content improves lubricating properties. Higher nickel content improves erosion resistance. Used for gas-turbine stator liners, sealing rings in pumps, turbine throttling devices, vane compressors and other moving pairs. Service temperature up to 550 °C.
Ni 20 Graphite	-160/+45 µm	NPG-80 / RPM-205		
Ni 25 Graphite	-160/+45 µm	NPG-75 / RPM-206		
Ni 40 Graphite	-160/+45 µm	NPG-60 / RPM-207		
Comparable materials: Metco 308 NS-3, Metco 309 NS-3, Metco 307 NS, Durabrade 2211ZB				
Nickel-Copper-Boron Nitride-Graphite-Silicon				
Ni 17-22Cu 18-20BN 8.5Si 8-10 Graphite	-315/+56 µm	20B / RPM-208	Mechanical cladding	Abradable materials for turbine compressors. Excellent corrosion resistance. Good erosion resistance. Service temperature up to 600 °C.





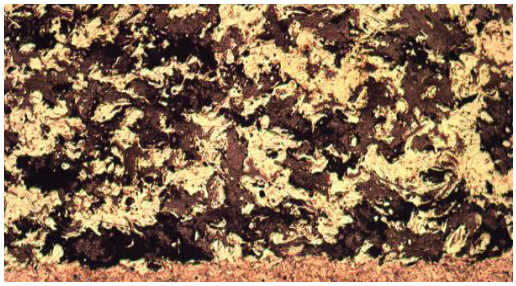
Nickel-Boron Nitride				
Ni 18-22BN	-160/+45 µm	NBPN-20/80 / RPM-209	Chemical cladding, carbonyl nickel plating	Abradable materials for compressors and turbines. For use on nickel alloys and steel parts. Higher boron nitride content improves lubricating properties. Higher nickel content improves erosion resistance. Service temperature up to 750 °C.
Ni BN Si proprietary	-315/+56 µm	NBPN-SNZH / RPM-210	Chemical cladding and agglomeration, carbonyl nickel plating	
Ni Al BN Si proprietary	-315/+56 µm	NBPN-A / RPM-211		

Our Technology (Chemical Nickel Plating)

The process produces composite powder materials used primarily for abradable (NBPN-20/80, NPG-75, NPG-80, etc.) and wear-resistant (PKHN-30, PKVN-25, PKHTN-30) coatings.



Product example: NBPN-20/80



Applications and features:

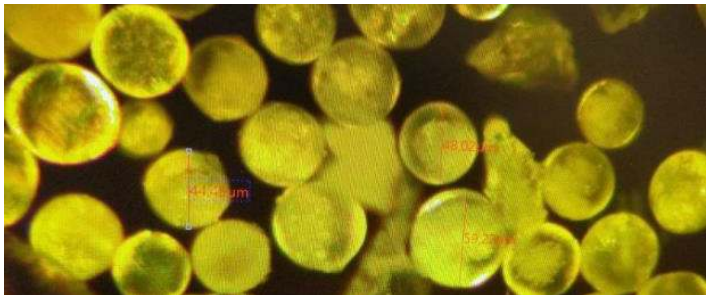
- Abradable materials for compressors and turbines.
- For application to nickel-alloy and steel parts.
- Higher boron nitride content improves lubricating properties.
- Higher nickel content improves erosion resistance.

Chemical Composition	Particle Size	Product / Grade	Manufacturing	Application

Abradable Ceramics

Zirconia Abradable Materials

ZrO2 7.5Y2O3 4 Polyester	-176/+11 µm	Metco 2460NS	Agglomeration	Abradable materials for the turbine hot section. Applied to unreinforced blades operating under special conditions. The polymer controls coating porosity and can be removed by heat treatment after spraying. Polymer-free RPM-109 provides a dense, high-performance coating with high erosion resistance. Service temperature up to 1150 °C.
ZrO2 10Dy2O3	-125/+10 µm	RPM-109	Agglomeration and sintering	
ZrO2 7.5Y2O3 4 Polyester	-180/+10 µm	RPM-110	Agglomeration	



Materials for Bond and Intermediate Layers

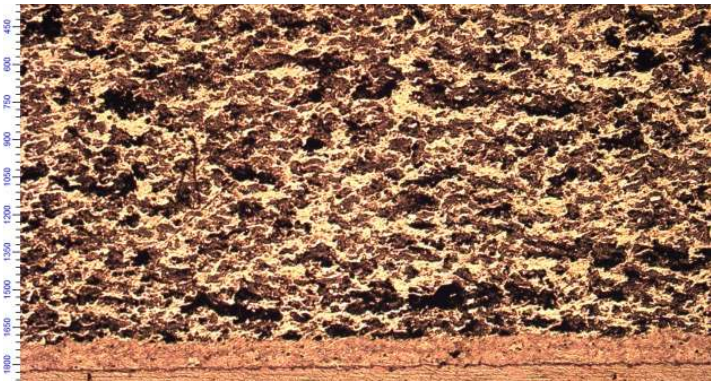
Nickel-Based

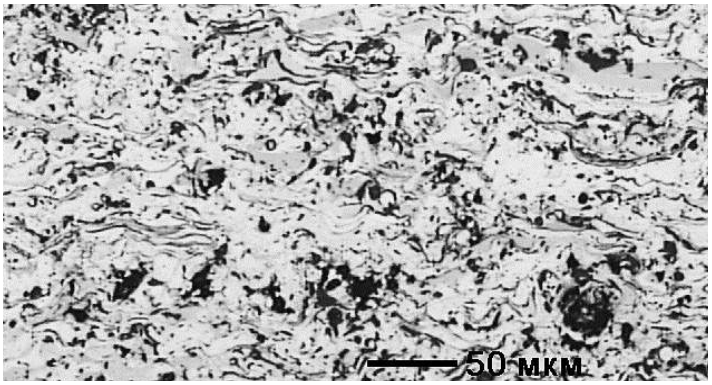
Nickel-5% Aluminum

Ni 5Al	-100/+45 µm	PAN-95-1 / RPM-212	Mechanical cladding, carbonyl nickel plating	Dense, machinable coatings resistant to oxidation and wear. Self-bonding. Clad materials generate an exothermic reaction during spraying. High adhesion. Used for restoration of heat-resistant alloy components and as a bond coat for ceramic and abradable materials. Service temperature up to 800 °C.
	-45/+10 µm	PAN-95-2 / RPM-213		

Nickel-20% Aluminum

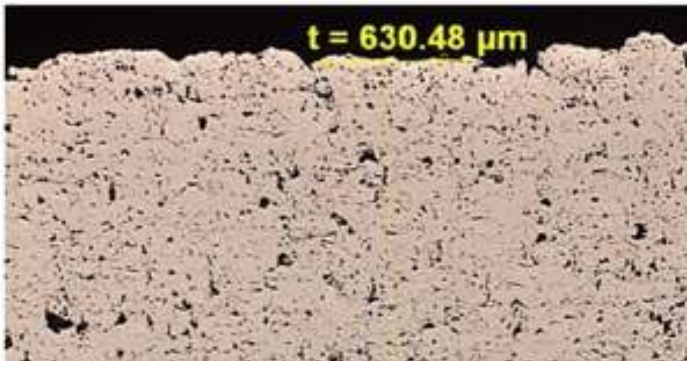
Ni 20Al	-100/+56 µm	PAN-80-1 / RPM-214	Chemical cladding, carbonyl nickel plating	Dense, machinable coatings resistant to oxidation and wear. Self-bonding during spraying. Exothermic reaction during spraying. High adhesion, exceeding Ni 5Al materials. Used for restoration of components made of heat-resistant alloys and as a bond coat for ceramic and abradable materials. Service temperature up to 650 °C.
	-125/+45 µm	PAN-80-2 / RPM-215		





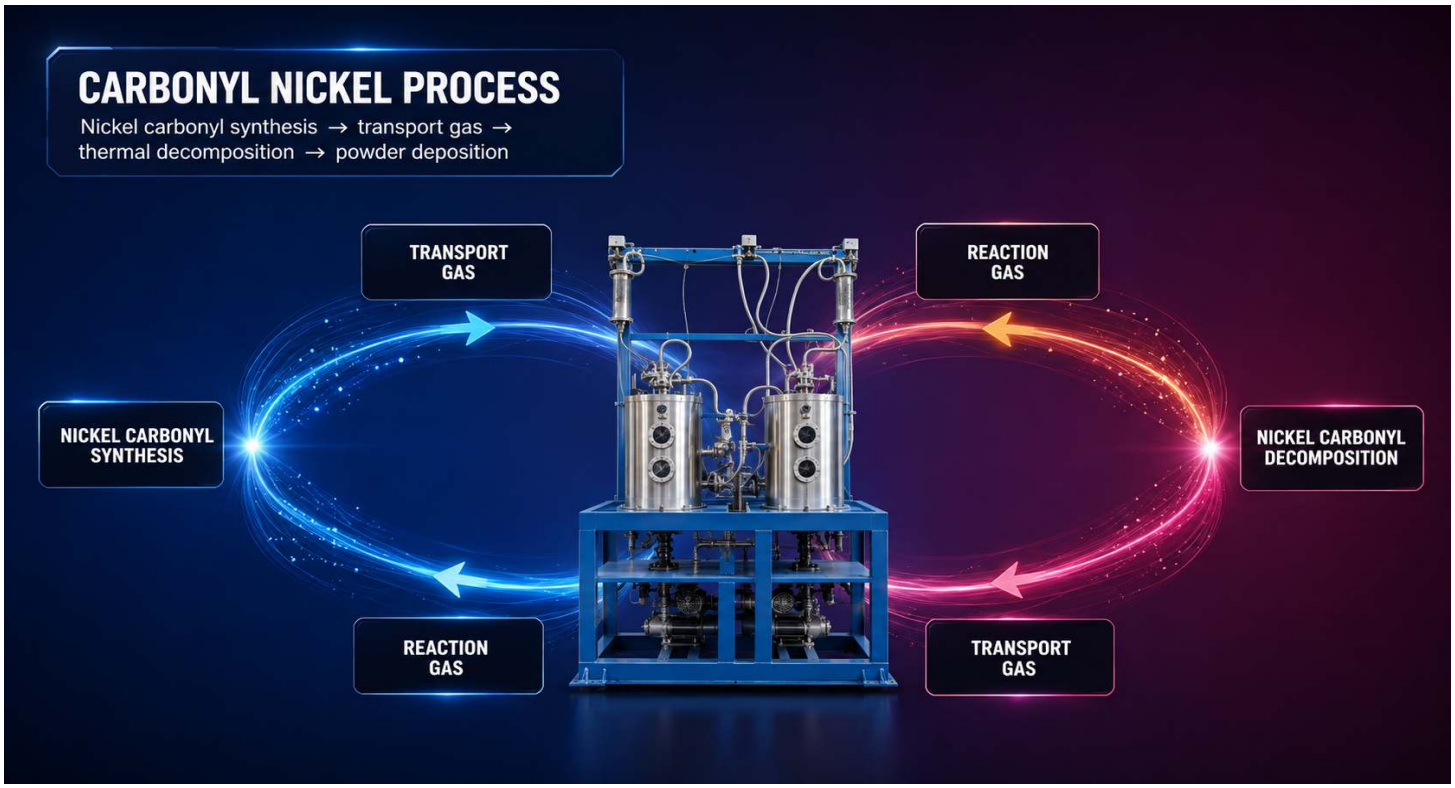
Materials for Wear-Resistant Coatings

Chemical Composition	Particle Size	Product / Grade	Manufacturing	Application
Chromium Carbide				
Chromium Carbide-Nickel Chromium Mixtures				
Cr3C2 7(Ni 20Cr)	-45/+5 µm	RPM-112	Blending	Higher carbon content provides greater hardness and resistance to fretting corrosion. For turbine parts: air seals, deflectors, nozzle supports, valve seats and supports; also for hot-crushing rolls, forming dies and forging equipment. Service temperature up to 900 °C.
Cr3C2 10(Ni 20Cr)	-45/+5 µm	RPM-113		
Cr3C2 25(Ni 20Cr)	-100/+10 µm -45/+5 µm	RPM-114 RPM-115		

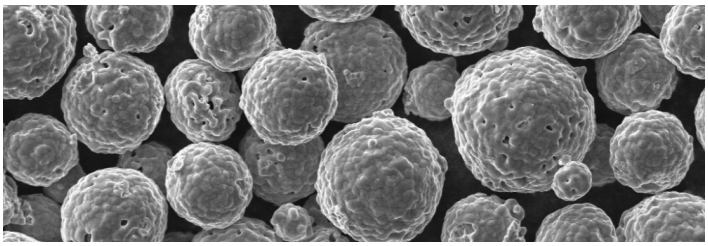


Our Manufacturing (Carbonyl Nickel Plating)

The process produces composite powder materials used mainly for abradable (NBPN-20/80, NPG-75, NPG-80, etc.)
and wear-resistant (PKHN-30, PKVN-25, PKHTN-30) coatings.



Chemical Composition	Particle Size	Product / Grade	Manufacturing	Application
Chromium Carbide-Nickel				
Cr3C2 20Ni	-80/+40 µm	PKHN-20 / RPM-216-1	Chemical cladding, carbonyl nickel plating	Wear and oxidation resistance. Minimal decarburization and oxidation during spraying. High coating density.
Cr3C2 30Ni		PKHN-20 / RPM-216-2		
Cr3C2 40Ni		PKHN-20 / RPM-216-3		
Comparable materials: Diamalloy 3007				



Boron Carbide-Nickel				
B4C15Ni	-160/+40 µm	PKBN-15 / RPM-217	Chemical cladding, carbonyl nickel plating	High wear resistance. Resistant to solid-particle erosion, abrasion, tribocorrosion and cavitation. Resistance to hot corrosion. Used for valve stems, turbine components and similar parts.
B4C20Ni		PKBN-20 / RPM-218		
B4C25Ni		PKBN-25 / RPM-219		
B4C30Ni		PKBN-30 / RPM-220		
Titanium Carbide-Nickel				
TiC 20Ni	-80/+40 µm	RPM-116-1	Chemical cladding, carbonyl nickel plating	High wear resistance and coating hardness. Suitable for high-temperature wear in oxidizing atmospheres. Applied to components of metallurgical and power-generation equipment and gas-turbine engines.
TiC 30Ni		RPM-116-2		
TiC 40Ni		RPM-116-3		

Tungsten Carbide

Tungsten Carbide-Nickel				
WC 10Ni	-40/+10 µm	PKVNM-10 / RPM-221	Chemical cladding, carbonyl nickel plating	Resistant to impact wear, fretting corrosion, abrasion and sliding wear. More corrosion-resistant and tougher than WC-Co, but with lower hardness. Increasing nickel content makes the coating tougher but less hard. For ball valves, gate valves and oilfield equipment. May be used in radioactive environments. Service temperature up to 500 °C.
WC 20Ni	-40/+10 µm	PKVNM-20 / RPM-222		
WC 30Ni	-40/+10 µm	PKVNM-30 / RPM-223		
WC 10Ni	-80/+40 µm	PKVNS-10 / RPM-224		
WC 20Ni	-80/+40 µm	PKVNS-20 / RPM-225		
WC 30Ni	-80/+40 µm	PKVNS-30 / RPM-226		
WC 40Ni	-80/+40 µm	PKVNS-40 / RPM-227		
WC 50Ni	-80/+40 µm	PKVNS-50 / RPM-228		

Chromium-Titanium Carbide-Nickel

Chemical Composition	Particle Size	Product / Grade	Manufacturing	Application
(Cr-Ti)C 20Ni	-56/+10 µm	PKHTNM-20 / RPM-229	Chemical cladding, carbonyl nickel plating	High wear resistance. High strength. Coatings can be used under high-temperature wear in oxidizing atmospheres. Applied to components of metallurgical and power-generation equipment and gas-turbine engines.
(Cr-Ti)C 30Ni	-56/+10 µm	PKHTNM-30 / RPM-230		
(Cr-Ti)C 40Ni	-56/+10 µm	PKHTNM-40 / RPM-231		
(Cr-Ti)C 20Ni	-80/+40 µm	PKHTNS-20 / RPM-232		
(Cr-Ti)C 30Ni	-80/+40 µm	PKHTNS-30 / RPM-233		
(Cr-Ti)C 40Ni	-80/+40 µm	PKHTNS-40 / RPM-234		

Cermets

Oxide Ceramics and Alloy Mixtures

Alumina-Nickel Aluminum Cermet

Al2O3 30 / Ni 20Al	-100/+10 µm	RPM-117	Blending	Resistant to abrasion, intermittent impact and temperature. Used for intermediate layers forming a transition zone at the substrate to reduce differential thermal expansion. Can also be used as an abrasive (cutting) coating.
Al2O3 30Ni	-100/+40 µm	POAN-30 / RPM-235	Chemical cladding, carbonyl nickel plating	Low coefficient of friction and high abradability. Increasing nickel content improves thermal conductivity, strength and heat resistance. Heat-resistant coating with high oxidation resistance.
Al2O3 50Ni		POAN-50 / RPM-236		
Al2O3 70Ni		POAN-70 / RPM-237		

Yttria-Stabilized Zirconia-Nickel

ZrO2 8Y2O3 30Ni	-100/+40 µm	OTSN-30 / RPM-238	Chemical cladding, carbonyl nickel plating	Used for refractory and thermal-protection coatings. Improved mechanical properties of the thermal barrier coating and improved ceramic adhesion to the metallic substrate. Heat-resistant coating with high oxidation resistance and resistance to aggressive media.
ZrO2 8Y2O3 35Ni		OTSN-35 / RPM-239		
ZrO2 8Y2O3 40Ni		OTSN-40 / RPM-240		



Chemical Composition	Particle Size	Product / Grade	Manufacturing	Application
Yttria-Stabilized Zirconia				
ZrO2 8Y2O3	-125/+11 µm	ISTS-204 / RPM-241	Agglomerated and spheroidized	Service temperature up to 1250 °C. Coating melting temperature 2800 °C.
Comparable materials: Metco 204 NS				
ZrO2 8Y2O3 7.2-8.2	15/45 µm	TSROI-7	Agglomeration and sintering	Plasma spraying of thermal-barrier coatings with enhanced thermal-cycling resistance. Provides effective resistance to cracking. Applied to combustion chambers, guide vanes and nozzle assemblies, turbine thermal-insulation layers and components operating under rapid temperature changes.
	22/63 µm			
	50/80 µm			

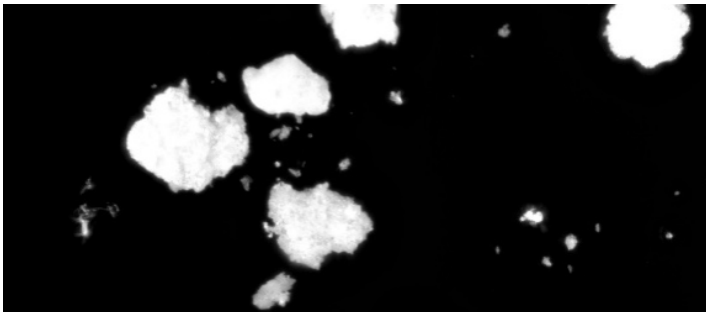


Boron Nitride

Hexagonal boron nitride (h-BN) is produced by thermal and gas-phase conversion of boron- and nitrogen-containing compounds in a controlled atmosphere. The raw materials include boric acid (H3BO3) and nitrogen-containing components such as urea, which provide nitridation of the boron source.

To increase conversion and form a stable crystalline structure, magnesium oxide (MgO) is introduced as a catalyst in controlled proportions. This approach enables production of h-BN with controlled properties.

Chemical Composition	Product / Grade	Particle Size	Boron Content, %	Application
Hexagonal Boron Nitride				
h-BN	H-BN-A	0-40 µm	≥97,4	Filler and release agent for casting and forming; powder pressing. Service temperature: stable in air up to 1000 °C and in nitrogen/argon up to 3000 °C.
	H-BN-B	0-40 µm	≥97,7	
	H-BN-C	0-40 µm	≥97,5	



PROCOATINGLAB
SURFACE ENGINEERING

CONTACT INFORMATION

International sales, technical support and powder material inquiries

Powder materials developed by GUANGZHOU THERMALSPRAY TRADING LTD for thermal spray applications are engineered with consideration of the complete technological cycle and the requirements of industrial operation.

The company provides technical support for the application of powder materials and assistance at the material selection and implementation stages. Where required, compositions are adapted to specific spraying conditions, equipment requirements and target coating performance.

Within project-based cooperation, we can develop specialized powder materials and expand the product range to meet customer-specific requirements. Our solutions are focused on improving coating reliability, process stability and reproducible performance in both serial production and repair applications.

This catalog reflects the company's priorities: material quality, control of technological parameters and practical applicability in industrial service. Cooperation with GUANGZHOU THERMALSPRAY TRADING LTD is based on a clear understanding of engineering tasks and responsibility for the implementation result.

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FOCUS AREAS

Thermal spray powder materials • Custom material development • Technical support

Surface engineering solutions for industrial coating applications

OIL & GAS INDUSTRY AND DRILLING

APPLICATIONS

Thermal spray coatings are applied to drilling tools, downhole motors, polished rods, plungers, valve trims, pumps and compressor parts exposed to severe abrasion, erosion and corrosive media.



TYPICAL POWDERS & COATINGS

- WC-CoCr and WC-10Co-4Cr - severe abrasive wear protection
- Cr3C2-NiCr - high-temperature wear and erosion resistance
- NiCrBSi self-fluxing alloys - rebuild and sealing surfaces
- NiAl bond coats - restoration systems and adhesion-promoting layers

REPRESENTATIVE DETAILS

DRILL BIT / CUTTING STRUCTURE



DOWNHOLE MOTOR ROTOR & STATOR



POLISHED ROD / ROD STRING



PLUNGER



SEAL RING / WEAR RING



PUMP OR COMPRESSOR SHAFT



CHEMICAL & PETROCHEMICAL INDUSTRY

APPLICATIONS

Thermal spray coatings protect pumps, valves, reactor internals, agitator shafts, sleeves and seal faces working in corrosive liquids, slurries and chemically aggressive process environments.



TYPICAL POWDERS & COATINGS

- Cr3C2-NiCr - corrosion and high-temperature wear resistance
- WC-CoCr - erosion protection in pumps and slurry service
- NiCrMo and Ni-based corrosion-resistant alloys - aggressive media
- NiCrBSi alloys - restoration of seats, sleeves and sealing surfaces

REPRESENTATIVE DETAILS

PROCESS PUMP IMPELLER



VALVE TRIM / SEAT



REACTOR AGITATOR SHAFT



MECHANICAL SEAL RING



CORROSION-RESISTANT SLEEVE



PUMP SHAFT



OIL & GAS PRODUCTION, TRANSPORTATION & STORAGE

APPLICATIONS

Compressor stations, pipelines, storage terminals and LNG or gas-processing systems use thermal spray coatings on shafts, valves, sealing surfaces and pump parts to extend service life in corrosive and erosive duty.



TYPICAL POWDERS & COATINGS

- WC-CoCr - wear protection for rotating and sealing parts
- Cr3C2-NiCr - hot-gas wear and corrosion resistance
- Ni-based alloys - restoration and corrosion-resistant overlays
- Stainless-steel and bond-coat systems - repair of critical components

REPRESENTATIVE DETAILS

COMPRESSOR SHAFT



PIPELINE VALVE BALL



VALVE SEAT / GATE



PUMP SLEEVE



LNG VALVE STEM



SEAL RING



METALLURGY

APPLICATIONS

Rolling mills, continuous casting and hot-process equipment rely on coatings for rolls, guide rollers, mandrels, shafts and wear parts to resist scale abrasion, sticking, oxidation and thermal cycling.



TYPICAL POWDERS & COATINGS

- WC-CoCr - heavy wear protection for rolls and guides
- Cr3C2-NiCr - elevated-temperature wear resistance
- NiCrBSi alloys - rebuild and hard-surfacing of working parts
- Molybdenum and oxide systems - anti-galling and special surface functions

REPRESENTATIVE DETAILS

WORK ROLL



GUIDE ROLL



MANDREL



CONTINUOUS CASTING ROLLER



GUIDE / WEAR ELEMENT



MILL SHAFT / SPINDLE



POWER GENERATION

APPLICATIONS

Gas and steam turbines, seals and boiler hardware use thermal spray coatings for hot-section protection, oxidation resistance, erosion control and restoration of critical surfaces.



TYPICAL POWDERS & COATINGS

- MCrAlY bond coats - oxidation and hot-corrosion protection
- YSZ thermal barrier coatings - reduced substrate temperature
- Cr3C2-NiCr - erosion and high-temperature wear resistance
- Abradable seal systems - improved tip-clearance control

REPRESENTATIVE DETAILS

GAS TURBINE BLADE



STEAM TURBINE BLADE



SEAL RING



SHAFT JOURNAL



BOILER / HOT SECTION PART



COMPRESSOR OR TURBINE SHAFT



AEROSPACE & SPACE INDUSTRY

APPLICATIONS

Aircraft engines and aerospace propulsion systems rely on sprayed coatings for blades, combustors, shafts, landing-gear parts and sealing surfaces, combining heat resistance, wear protection and repair capability.



TYPICAL POWDERS & COATINGS

- MCrAlY bond coats - hot-section bond and oxidation protection
- YSZ thermal barrier coatings - turbine heat shielding
- Cr3C2-NiCr - wear resistance on shafts and sealing parts
- Abradable and anti-friction systems - improved sealing performance

REPRESENTATIVE DETAILS

TURBINE BLADE



COMBUSTION CHAMBER PART



COMPRESSOR / ENGINE SHAFT



LANDING GEAR ROD



SEAL / BEARING SURFACE



ABRADABLE SEAL SEGMENT



SHIPBUILDING & HYDRAULIC STRUCTURES

APPLICATIONS

Marine shafts, bushings, pumps, valves and hydraulic-turbine parts are coated to resist seawater corrosion, cavitation, erosion and sliding wear in demanding service conditions.



TYPICAL POWDERS & COATINGS

- WC-CoCr - wear and cavitation resistance
- Cr3C2-NiCr - corrosion and elevated-temperature wear resistance
- NiAl and stainless-steel systems - restoration and bond layers
- Special bronze and alloy systems - marine shafts, sleeves and bushings

REPRESENTATIVE DETAILS

PROPELLER SHAFT



PUMP SHAFT



VALVE COMPONENT



HYDRAULIC CYLINDER ROD



HYDROTURBINE PART



WEAR SLEEVE / BUSHING



MECHANICAL ENGINEERING

APPLICATIONS

Thermal spray is widely used to restore shafts, bushings, rods, sleeves, guideways and tooling, increasing service life while reducing scrap, downtime and replacement cost.



TYPICAL POWDERS & COATINGS

- WC-CoCr - hard wear-resistant coatings for shafts and tooling
- Cr3C2-NiCr - high-temperature and sliding-wear resistance
- NiCrBSi alloys - build-up and restoration of damaged areas
- Molybdenum, oxide and specialty systems - guides, slides and molds

REPRESENTATIVE DETAILS

HYDRAULIC ROD



BEARING SEAT



GUIDE RAIL / SLIDE



PRESS TOOL



MOLD INSERT



CYLINDER SLEEVE



INFRASTRUCTURE, BRIDGES, ROADS & UTILITIES

APPLICATIONS

Thermal spray coatings are used on bridge hardware, pumping equipment, hydraulic assemblies and municipal or utility components to improve corrosion resistance, wear life and reliability in outdoor service.



TYPICAL POWDERS & COATINGS

- Zn / Al and Zn-Al systems - long-term corrosion protection of steel structures
- WC-10Co-4Cr - shafts, sleeves, pumps and hydraulic wear surfaces
- Cr3C2-25NiCr - utility equipment and high-temperature service areas
- Al2O3-13TiO2 and NiAl systems - duplex protection and rebuild layers

REPRESENTATIVE DETAILS

BRIDGE STRUCTURAL MEMBER



PIPELINE VALVE BODY



PIPE SECTION / SPOOL



MUNICIPAL PUMP IMPELLER



HYDRAULIC CYLINDER ROD



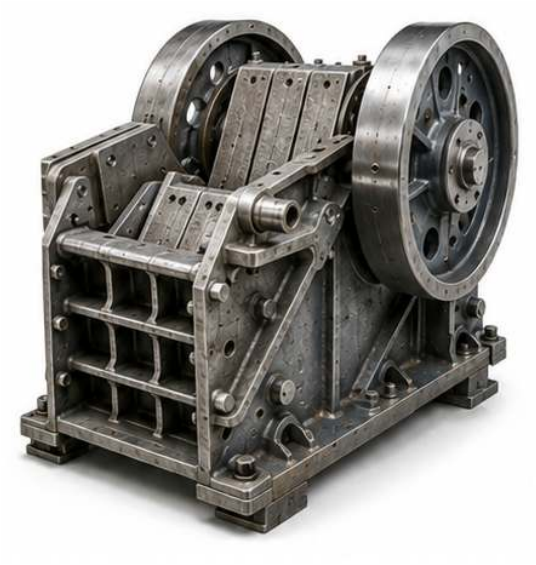
GATE / SLUICE COMPONENT



MINING & MINERAL PROCESSING

APPLICATIONS

Crushers, slurry pumps, hydrocyclones, augers and drilling equipment use sprayed coatings to resist severe abrasion, erosion, slurry wear and mixed corrosion-wear conditions.



TYPICAL POWDERS & COATINGS

- WC-CoCr systems - crushers, screws, rolls and drilling equipment
- Cr3C2-based systems - hot and corrosive wear zones
- Al2O3-13TiO2 - hydrocyclones, liners and sliding parts
- Ni-based bond coats - multilayer protection and rebuild systems

REPRESENTATIVE DETAILS

CRUSHER SURFACE



SLURRY PUMP CASING



HYDROCYCLONE UNIT



CRUSHER WHEEL / ROTOR



WEAR PLATE / CHAMBER PART



DISCHARGE / FEED COMPONENT



PULP, PAPER & PRINTING

APPLICATIONS

Thermal spray coatings improve the wear, corrosion resistance and release performance of process rolls, dryer cylinders, journals and printing components used in pulp, paper and converting lines.



TYPICAL POWDERS & COATINGS

- WC-10Co-4Cr - guide rolls, wear sleeves and roll journals
- Cr3C2-25NiCr - dryer cylinders, shafts and hot wear areas
- Cr2O3 / Al2O3-13TiO2 - sealing and abrasion-resistant surfaces
- NiAl bond coats - multilayer protection systems

REPRESENTATIVE DETAILS

PROCESS ROLLS



DRYER CYLINDER



PRINTING CYLINDERS



ROLL JOURNAL / SHAFT END



CALENDER / PROCESS ROLL



GUIDE ROLL / SUPPORT AREA



AUTOMOTIVE INDUSTRY

APPLICATIONS

Thermal spray technology is applied to cylinder bores, shafts, rods, synchronizer parts, brake components and e-mobility hardware for wear control, friction management and dimensional restoration.



TYPICAL POWDERS & COATINGS

- Fe-based cylinder-bore coatings - lightweight engine-block applications
- WC-10Co-4Cr - shafts, plungers and wear-critical surfaces
- Cr3C2-25NiCr - hot wear zones and seal-related parts
- Mo and anti-friction coatings - rings, synchronizers and sliding parts

REPRESENTATIVE DETAILS

CYLINDER BORES



SHAFTS & RODS



BRAKE / DRIVE COMPONENTS



GEAR / SYNCHRONIZER PART



ACTUATOR ROD / SHAFT



ENGINE-BLOCK SURFACE



RAILWAY ENGINEERING

APPLICATIONS

Wheelset shafts, brake components, compressors and hydraulic parts benefit from thermal spray coatings for wear resistance, corrosion protection and restoration of loaded seating surfaces.



TYPICAL POWDERS & COATINGS

- WC-10Co-4Cr - shafts, axles, rods and wear seats
- Cr3C2-25NiCr - compressors, sealing areas and hot wear zones
- Al2O3-13TiO2 - guides and abrasion-loaded surfaces
- NiAl bond coats - multilayer restoration systems

REPRESENTATIVE DETAILS

AXLE / WHEELSET



BRAKE COMPONENT



COMPRESSOR / HYDRAULIC PART



AXLE JOURNAL



SEALING / BEARING PART



RUNNING-GEAR COMPONENT



GLASS, CERAMICS & BUILDING MATERIALS

APPLICATIONS

Rollers, molds, guides and screws operating at elevated temperature and under abrasive load are coated to resist sticking, oxidation and wear in glass, ceramics and building-materials production.



TYPICAL POWDERS & COATINGS

- Cr3C2-25NiCr - hot-process rollers, shafts and sleeves
- WC-CoCr systems - screws, guides and abrasive wear zones
- Al2O3-13TiO2 - ceramic handling and insulating wear surfaces
- NiCr / NiAl - oxidation-resistant bond and protection layers

REPRESENTATIVE DETAILS

PROCESS ROLLERS



HOT-PROCESS ROLL



MOLDS & TOOLS



FORMING / GUIDE PART



SCREWS & GUIDES



FURNACE-ADJACENT COMPONENT



ELECTRICAL ENGINEERING & ELECTRONICS

APPLICATIONS

Sprayed ceramic and conductive coatings are used for electrical insulation, current-carrying surfaces, wear protection and thermal management of industrial electrical and electronic components.



TYPICAL POWDERS & COATINGS

- Al2O3 - insulating dielectric coatings
- Al2O3-13TiO2 - wear-resistant insulating surfaces
- Cu / Ni-based conductive coatings - electrical contacts and pathways
- Cr2O3 and functional ceramic systems - sealing and protective layers

REPRESENTATIVE DETAILS

INSULATING SURFACES



ELECTRICAL CONTACTS



POWER COMPONENTS



CERAMIC INSULATOR



BUSBAR / CONTACT PAD



SUBSTRATE / HEATSINK PART



MEDICAL INDUSTRY

APPLICATIONS

In medical applications, plasma spraying of titanium and hydroxyapatite is used on orthopedic and dental implants to improve biocompatibility, osseointegration and long-term surface functionality.



TYPICAL POWDERS & COATINGS

- Titanium - porous and roughened implant surfaces
- Hydroxyapatite - bioactive coatings for orthopedic and dental implants
- TiO2-based systems - functional biocompatible layers
- Bond and intermediate layers - implant coating systems

REPRESENTATIVE DETAILS

HIP STEM IMPLANT



ACETABULAR CUP



DENTAL IMPLANT



TIBIAL TRAY



SPINAL CAGE



BONE SCREW / TRAUMA PLATE

