



SEM cross-section
photomicrograph of HA 8350
WC 10Co 4Cr, -53 + 15 μm

Typical Application/Components:

- Landing gears
- Mid-span stiffeners (shrouds)
- Pump seals
- Sucker rod couplings
- Extrusion dies
- Aircraft flap tracks
- Exhaust fans
- Steel Mill Rolls

Markets:

- Aerospace
- Automotive
- Turbomachinery
- Petrochemical
- Alternative to hard chrome plating

HAI provides variety of Tungsten Carbides that are made by Spray Dry/ Sintered, Agglomerated Sintered, Fused and Thermite processing.

Tungsten carbide (WC), also referred to as cemented carbide, is a composite material manufactured by a process called powder metallurgy. Tungsten carbide powder, generally ranging in proportion between 70%-97% of the total weight, is mixed with a binder metal, usually cobalt or nickel, compacted in a die and then sintered in a furnace. The term "cemented" refers to the tungsten carbide particles being captured in the metallic binder material and "cemented" together, forming a metallurgical

bond between the tungsten carbide particles and the binder (WC - Co), in the sintering process.

HAI Tungsten Carbides are the preferred material for Thermal Spraying parts that must withstand all forms of wear (including sliding abrasion, erosion, corrosion/ wear and metal-to-metal galling) and exhibit a high degree of toughness. They exhibit high compressive strength, resists deflection, and retains its hardness values at high temperatures, a physical property especially useful in metal-cutting applications.

Tungsten Carbide provides long life in applications where other materials would not last or would fail prematurely.

HA#	Material Composition	Size	Metco#	Praxair#
HA 8109	WC 9Co Fused, Crushed	-38 + 10 μm (-400 mesh + 10 μm)		
HA 8350-1	WC 10Co 4Cr Spray Dried, Sintered, Spherical	-38 + 10 μm (-400 mesh + 10 μm)	Amdry 5843 Woka 3650	1350VF
HA 8350	WC 10Co 4Cr Spray Dried, Sintered, Spherical	-45 + 15 μm (-325 mesh + 15 μm)	Amdry 5847 Woka 3652	1350VM
HA 8436	WC 10Co 4Cr Sintered, Irregular	-45 + 5 μm (-325 mesh + 5 μm)		WC113
HA 8436-1	WC 10Co 4Cr Sintered, Irregular	-45 + 15 μm (-325 mesh + 15 μm)	Amdry 5843	WC436-1

www.ha-inc.com • sales@ha-inc.com

Contact:

US Office/ Headquarters
1688 Sierra Madre Circle,
Placentia, CA 92870

Phone: 877-411-8971
Fax: 877-411-8778

European Office
Horackova 1212/19, 140 00
Praha 4, Czech Republic

Phone: +420-241 402 417
Fax: +420-241 402 417

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HA#	Material Composition	Size	Metco#	Praxair#
HA 8120	WC 10Co 4Cr Densified, Spherical	-45 + 5 μ m (-325 mesh + 5 μ m)		
HA 8320	WC 11Co 5C Spray Dried, Sintered, Spherical	-45 + 15 μ m (-325 mesh + 15 μ m)		1320Q
HA 8106	WC 12Co Cast, Crushed Irregular	-45 + 5 μ m (-325 mesh + 5 μ m)	SM 71VF-NS Diamalloy 2003	WC106
HA 8114-1	WC 12Co Sintered, Crushed Irregular	-45 + 10 μ m (-325 mesh + 10 μ m)	SM 72F-NS Diamalloy 5815	WC114
HA 8114-2	WC 12Co Cast, Crushed	-45 + 15 μ m (-325 mesh + 15 μ m)		WC489-1
HA 8104	WC 12Co Cast, Crushed	-75 + 45 μ m (-200 + 325 mesh)	SM 71-NS	WC104
HA 8342	WC 12Co Spray Dried, Sintered, Spherical	-45 + 15 μ m (-325 mesh + 15 μ m)	SM 5812	1342VM
HA 8342-2	WC 12Co Spray Dried, Sintered, Spherical	-38 + 10 μ m (-400 mesh + 10 μ m)	Diamalloy 2004 SM 5814	1342VF
HA 8342-3	WC 12Co Spherical, Densified	-53 + 11 μ m (-270 mesh + 11 μ m)	SM 5810	
HA 8343	WC 17Co Sintered, Irregular, Spherical	-45 + 15 μ m (-325 mesh + 15 μ m)	SM 73F, SM 5826 Diamalloy 2005-NS	1343VM
HA 8128	WC 17 Co Spray Dried, Sintered, Spherical	-45 + 15 μ m (-325 mesh + 15 μ m)	Amdry 9831	
HA 8343-2	WC 17 Co Spray Dried, Sintered, Spherical	-38 + 10 μ m (-400 mesh + 10 μ m)	SM 5824 Diamalloy 2006	1343VF
HA 8310	WC 10Ni Spray Dried, Sintered, Spherical	-45 + 15 μ m (-325 mesh + 15 μ m)	Woka 3302	1310VM
HA 8310-1	WC 10Ni Spray Dried, Sintered, Spherical	-38 + 10 μ m (-400 mesh + 10 μ m)	Woka 3301	1310VF
HA 8496	WC 20Cr 7Ni Fused, Crushed	-45 + 15 μ m (-325 mesh + 15 μ m)	Diamalloy 5846	
HA 8356	WC 20Cr 7Ni Spray Dried, Sintered, Spherical	-45 + 15 μ m (-325 mesh + 15 μ m)	SM 5845 Woka 3702	1356VM
HA 8334	WC 12Co + 50 Ni SF Blended	-53 + 15 μ m (-270 mesh + 15 μ m)	Diamalloy 2002	1334F

Don't see the material you need for your application. . .we offer many other materials and equipment for all your spraying needs.

Contact us for more information!

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