



DESCRIPTION

Fully carburized, dense, high-purity crystals of tungsten carbide produced by the Kennametal unique, proprietary, high-temperature alumino thermit reaction.

- Predominately free of detrimental uncombined carbon with absence of variable sub-structure -no under-carburized WC
- Macrocrystalline WC is a single crystal WC. Highly uniform and reproducible
- Prismatic shape due to HCP crystal structure. Therefore, grains are triangular or quadrilaterals in 2D
- Formed at 4500F (2480C) and slowly cooled:
 - Lower microdefects
 - Higher microhardness
- Comparatively low specific surface area
- More thermodynamically stable than cast carbide WC/W₂C
- Lower grain growth during sintering
- High degree of wettability making it ideal for infiltration processes
- High pack density offers the most carbide per unit volume
- Vickers microhardness VHN (25g) approximately 2200 kg/mm²
- Fine tungsten carbide produces a hard matrix while coarse grains are required for abrasion resistance

APPLICATIONS

- Superior properties in matrix powders for mining grades, wear parts, hardfacing rods, and infiltrated diamond tools.
- Ideal starting material for infiltrated, hot-pressed, or sintered diamond tools.
- Metal bonded diamond products use matrix powders to hold the diamonds in place. In mining, matrix powders are used for surface set and impregnated diamond coring bits, surface set oil well bits, and other well tools.
- Blends into homogenous mixtures with cobalt, bronze, iron, nickel, and other common diamond tool matrices. Much more resistant to eta phase formation than cast carbide.
- Oil bit matrices for extreme exploration conditions. Controlled ratio of fine to coarse macrocrystalline WC grains maximize bit life while maintaining cutting speed.
- With macrocrystalline WC, a toolmaker can match the grain size to his tool conditions: fine grain for fast cutting, coarse grain for long tool life, or a blend to optimize both.
- Construction tools for coring bits and saw blades.
- Tools utilized for concrete, asphalt, rock, and glass.
- Large tools are infiltrated, typically with copper alloys such as manganese bronze.
- Small tools are infiltrated or hot pressed. Hot press powders, which contain self-bonding copper alloys along with hard metals such as macrocrystalline WC.

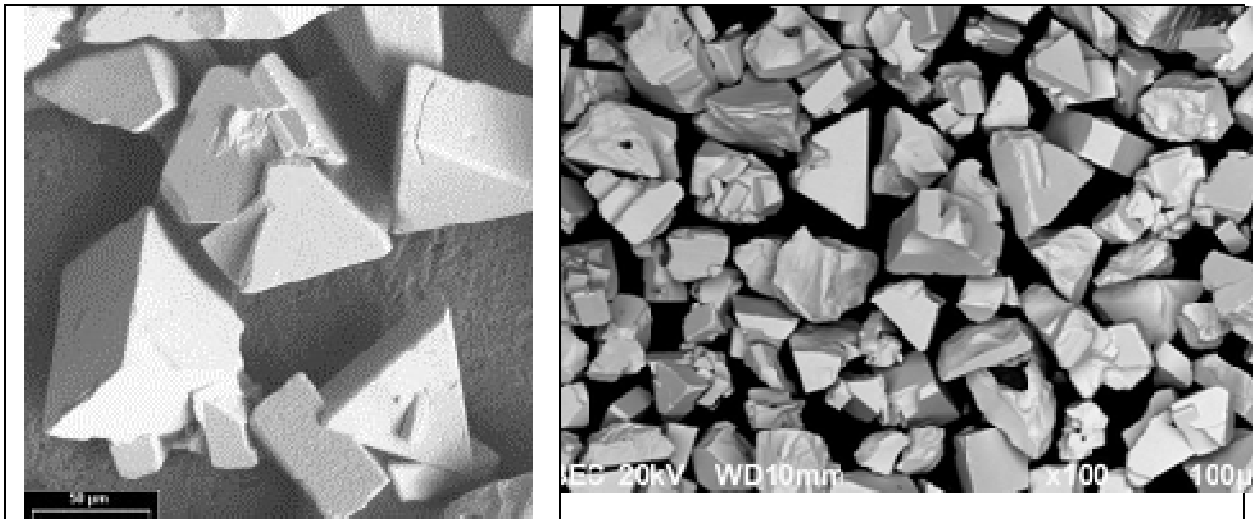
Standard Macrocrystalline Tungsten Carbide Powder



TYPICAL PROPERTIES

Product Name	Material Master#	FSSS um Mesh Size	Chemical Analysis	Weight %
SCNC131	1584655	1.2-1.7u	C _{total}	6.08-6.15
SCNC130	1584654	3-5u	C _{free}	<0.06
SCNC129	1584653	5-7u	Fe	<0.3
SCNC122	1584648	400 x 20u	Mo	<0.15
SCNC121	1584647	325 X down	Nb	<0.1
SCNC104	1584638	200 x 325	Ta	<0.1
SCNC095	1584635	140 X 325	Ti	<0.1
SCNC093	1586935	140 X 200	O	<0.15
SCNC080	1593361	100 x 325		
SCNC069	1307136	80 x 200		
SCNC047	1584619	60 x 80		
SCNC025	1584616	40 x 100		
SCNC024	1584615	40 X 80		

All Sizes available upon request 1.2u up to 40 mesh



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PACKAGING

25kg pails or per customer request

TERMS

All prices are in U.S. Dollars per Kilogram.
Prices are valid for 15 days and are subject to change without notice.
Shipping terms are Ex-Works Kennametal Facility, Nevada, U.S.A.

CONTACT

Please contact Kennametal's customer service group with inquiries or about larger or customized orders.

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