

Creating Material Change



C-TUFF™ CT-12

Technical Data Sheet



Innovation underpins everything we do

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HaydaleGraphene



CT-12 Dry Press-ready Ceramic Blend

C-TUFF™ CT-12 is a press-ready engineered blend of C-TUFF™ silicon carbide whisker and alumina used to produce exceptionally tough ceramics. It is characterised by excellent fracture resistance, wear resistance, and thermal and dimensional stability. CT-12 is completely inert and can be used in the most demanding physical and chemical environments.

For the cutting tool sector, CT-12 is typically used to produce indexable inserts. Workpiece materials include Inconel 718 (finish machining), gray cast iron, ductile iron, and hardened tool steels. CT-12 is also used in high performance ceramic wear parts, including indexable inserts, dies, pipe liners, nozzles, and other critical process equipment.

Processing and Applications:

CT-12 is supplied with binder. It is dry-pressed, de-binded, and fired in inert gas into desired parts. Hot Isostatic Pressing (HIP) or sinter-HIP may be useful to ensure product uniformity and density. Refer to the CT-12 processing guidelines for firing details.

Typical Properties	
Density, g/cm ³	3.82
Flexural Strength, MPa	400-500
Modulus, GPa	300
Fracture Toughness, MPa·m ^{1/2}	5-7
Thermal Conductivity, W/m·K	35
Thermal Shock Resistance (ΔT)	600°C
Coefficient of Thermal Expansion, 10 ⁻⁶ /°C	6.8



SUPER TOUGH



HEAT TRANSFER



SUPER STRONG

Packaging and Product Handling:

C-TUFF™ CT-12 is produced commercially today and is available immediately for purchase.

- Powder - packaged as dry powder in 315lb (143kg) bags contained in drums
- Smaller quantities - available for purchase for development purposes

Dry CT-12 powder must be handled in a controlled environment. Please consult the SDS for additional safety and handling information. Other product forms may be available on request.

The content supplied in this technical data sheet ("Information") supersedes all previous versions supplied. Version 1, August 2020

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Contact us: info@haydale.com