

HIGH PERFORMANCE SOLUTIONS WITH TUNGSTEN KU-1000 POWDER ALLOY



FABRICATED HOT RUNNER NOZZLE PARTS FROM ELMET TECHNOLOGIES ALLOYS

Elmet Technologies' tungsten KU-1000 powder alloy is a hard metal matrix composition suitable for hot pressing in combination with non-metallic abrasive grains. It is a new and improved matrix alloy for rotary type rock-drilling bits.

- > Oil & Gas Exploration
- > Mining
- > Cemented carbides
- > Synthetic diamonds
- > Quarry

KU-1000 tungsten powder composed of tungsten-carbide, cobalt, nickel and other alloying powders provides a composition that is hard, tough, abrasion-resistant and easy to form. Its coefficient of thermal expansion is closely matched to that of steel, and it is easily bonded to itself or to any suitable shank material commonly used to attach the impregnated unit to a power-driven shaft.

- Elmet Technologies' tungsten KU-1000 alloy eliminates many of the difficulties encountered in previous coating methods:
- > voids caused by incomplete infiltration
 - > lack of uniformity of hardness and toughness
 - > difficulty in bonding the crown to the steel shank
 - > rapid wear of matrix caused by break away of carbide inserts
 - > cracking of matrix material
 - > break away of crown from shank caused by large differences in expansion coefficients

Physical Properties of Tungsten KU-1000 Powder

CHARACTERISTIC		PHYSICAL PROPERTIES
Density	Theoretical	12.0
Density	Actual	11.7-11.8 g/cc
Hardness RA		77-82
Thermal Coefficient of Expansion		9-10x10 ⁻⁶ /°C
Recommended Molding Pressure	Cold	750-1500 psi
Recommended Molding Pressure	Hot	2500-3000 psi
Recommended Molding Temperature		1150-1200 °C max.

Kulite® is the trademark used for the Tungsten KU-1000 Powder Alloy manufactured in the U.S.A.
Front page: Picture of drill bit courtesy of Halliburton.



ELMET TECHNOLOGIES
1560 Lisbon Street • Lewiston, Maine 04240
P +1.207.333.6100
sales@elmettech.com
www.elmettechnologies.com

The conditions of your use and application of Elmet Technologies products, technical assistance, and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, is your responsibility. Therefore, you are encouraged to test our products and review any technical assistance and/or information you may receive from Elmet Technologies with your own resources, and determine to your own satisfaction whether Elmet Technologies products are suitable for your intended uses and applications. This application-specific analysis should include at minimum testing to determine suitability for the intended use from a technical as well as health, safety, and environmental standpoint. Any technical assistance and/or information provided by Elmet Technologies is given without any express or implied warranty or guarantee. You agree and understand and hereby expressly release Elmet Technologies from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance and/or information, except as may be contained otherwise in a written agreement between you and Elmet Technologies. Any statement or recommendation not contained herein or in a written agreement between you and Elmet Technologies is unauthorized and shall not bind Elmet Technologies. Nothing herein shall be construed as a recommendation to use any Elmet Technologies products in a manner violative of the intellectual property rights of any third party. No license is implied or granted under or to Elmet Technologies intellectual property. All product deliveries are based on the then current product specification and Elmet Technologies' Conditions of Sale. IN NO EVENT WILL ELMET TECHNOLOGIES BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.