



TUNGSTEN KU-1000 POWDER ALLOY

KU-1000 Tungsten Powder Alloy

Tungsten-based alloyed materials are outstanding due to their high density and exceptional mechanical properties characterized by ductility and hardness and whose high density is equaled only by gold, platinum, and a few other rare and expensive metals.

Elmet Technologies' Alloy KU-1000 is a hard metal matrix composition suitable for hot pressing in combination with non-metallic abrasive grains, such as synthetic diamonds and/or cemented carbides, having extensive adaptations in the mining and oil-well industries, and is a new and improved matrix alloy for rotary type rock-drilling bits.

RANGE OF APPLICATIONS

Oil & Gas Exploration
Mining
Quarrying

CHEMICAL COMPOSITION

The material, consisting of tungsten-carbide, cobalt, nickel and other alloying ingredients, 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.

Chemical properties can be supplied on request when Purchase Order is placed.

PRODUCT BENEFITS

The use of KU-1000 eliminates many of the difficulties encountered in previous methods such as:

1. Voids caused by incomplete infiltration
2. Lack of uniformity of hardness and toughness
3. Difficulty in bonding the crown to the steel
4. Rapid wear of matrix caused by break away of carbide inserts
5. Cracking of matrix material
6. Break away of crown from shank caused by large differences in expansion coefficients

STANDARDS

Exceeds requirements of the following specifications: MIL-T-21014, ASTM B777 and AMS 7725
Mechanical Properties

Kulite® is the trademark used for the Tungsten KU-1000 Powder Alloy manufactured in the U.S.A.

¹ Information on testing methods on request.

PHYSICAL PROPERTIES

Characteristic		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		150-1200°C max

MECHANICAL PROPERTIES

Can be supplied on request when Purchase Order is placed.

Hazards identification in Advertising (REGULATION (EC) No 1272/2008 Article 48) None

Delivery Form

Tungsten KU-1000 alloy products can be delivered as powder for further processing by the customer. This lead-free product meets legal requirements and recommendations to protect the environment.

IDENTIFICATION

The material will be identified with appropriate specification number, lot number, and nominal size. Shipping containers will be marked with the name of the customer and the purchase order number.

REJECTION

Elmet Technologies must receive written notification of rejected material with the reason for rejection. The right is reserved to inspect rejected material at customer plant for claim validation. The material may be returned only after proper authorization.



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.