

RECOVERING TUNGSTEN FROM RECYCLED CEMENTED CARBIDE TOOLS

Sorting mixed carbide scrap by composition is costly with conventional methods. KOERZIMAT HCJ/MS enables fast, magnetic material classification.



THE CHALLENGE

Cemented carbide tools contain up to 90% tungsten, a critical raw material with limited global availability. After use, these tools enter the scrap stream, where different carbide grades and foreign materials are mixed. Efficient recycling requires reliable separation by composition and grain size, yet conventional methods such as density measurement or chemical analysis are either insufficient or too costly.

THE SOLUTION

Magnetic material characterization provides a fast and economical alternative. The KOERZIMAT HCJ measures coercivity to assess tungsten carbide grain size, while the KOERZIMAT MS determines saturation polarization to evaluate the ratio of tungsten carbide to cobalt or nickel binder. Both systems enable rapid, geometry-independent testing and can be integrated into automated sorting processes.



THE RESULT

Carbide scrap can be classified precisely according to microstructure and composition before recycling. This ensures optimal preparation for zinc treatment and energy-efficient tungsten recovery. The magnetic method reduces analysis time and cost while supporting sustainable resource management and stable raw material supply.

THE PRODUCTS

KOERZIMAT 1.097 HCJ/J-H

System for measuring coercive field strength HCJ, J(H) hysteresis and relative permeability $\mu_r(H)$



KOERZIMAT 1.097 MS

Systems for measuring the saturation polarization σ_s and J_s



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