

INTRODUCTION

CARBIDE – A COMPOSITE MATERIAL

Carbide – a composite material with valuable properties

Carbides are composite materials consisting of a hard material and a comparatively soft binder metal, like cobalt (Co). The performance characteristics of carbide are determined by hardness, transverse rupture strength and fracture toughness. With regard to their application, important parameters for the optimisation of these characteristics are the cobalt content and the grain size of the metal binder phase. The tungsten carbide grains have an average size of less than 0.2 μm up to several micrometres (μm). The cobalt fills the gaps between the carbide grains. When extremely high toughness is required, the

cobalt content can amount up to 30%, whereas, for maximum wear resistance, the cobalt content is reduced and the grain size decreased to the nano-crystalline range of $< 0.2 \mu\text{m}$.

CERATIZIT produces far more than 100 different carbide grades, thus offering a customised solution for every application.

