

## A Study of the Sintering Behavior on the TZM Alloy

Anti-Armor Materials Team, Department of Materials Science,  
Agency for Defense Development, Daejeon, 305-600, South Korea

Seong Lee\*, Eun Pyo Kim, Sung Ho Lee, Youngmoo Kim, Moon-Hee Hong and  
Joon-Woong Noh

The sintering and forging processes of TZM alloy, which is currently used as high temperature materials, have been studied in this work. The alloy composition was Mo-0.5Ti-0.09Zr-0.025C(wt.%). The sintering behavior of TZM alloy was investigated by dilatometry. The CIPed compacts have been sintered in hydrogen and vacuum atmosphere at the temperature of 1900 to 2400°C. The optimum sintering condition turned out to be 2200°C for 2hr in hydrogen atmosphere. Also, it was expected to be good to sinter by two step process, that is, to sinter at 2400°C and next at 2100°C. Forging of TZM alloy, canned in stainless steel, was carried out on a 3 ton hammer. The specimens were heated at 1350°C and forged with dies which were heated at 350°C. The TZM alloy manufactured in this study showed good sintered density of more than 90% T.D. and formability of 60% in height reduction.

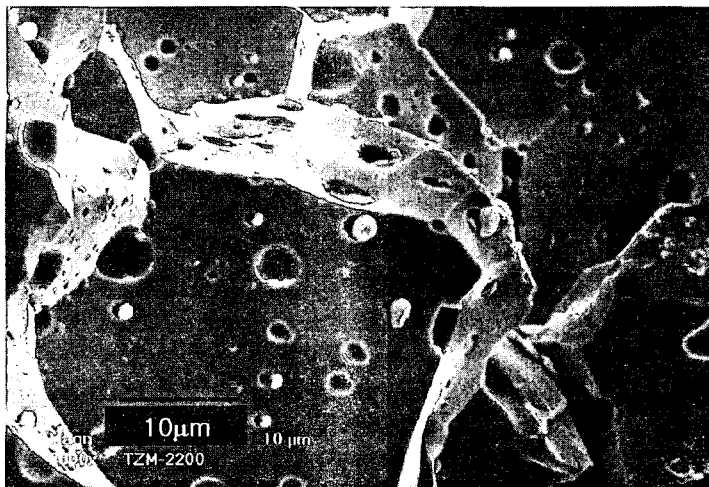


Figure. SEM micrographs of the fractured TZM alloy sintered at 2200°C for 2hr.