

# Development and Characterization of Tool Materials

## Hard Metals - Cermets – Compound Materials – Coatings

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### MATERIALS DEVELOPMENT & MANUFACTURING

#### Hardmetals and Cermets

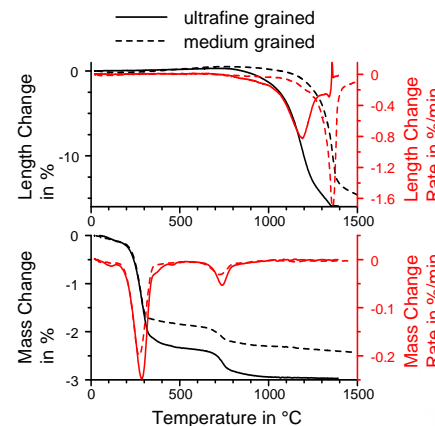
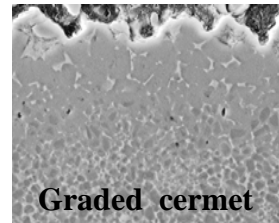
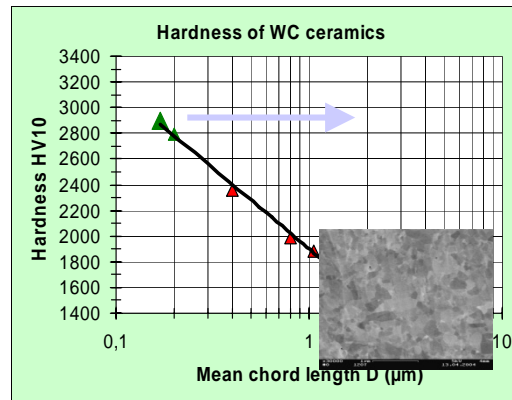
- Nano structured hardmetals
- Functionally graded materials
- Cermets as tools & HT materials
- Compound Materials

#### Characterisation

- Thermal behaviour
- Microstructure
- Mech Properties

#### Tool Optimisation

- Forming & Forging
- Punching
- Friction



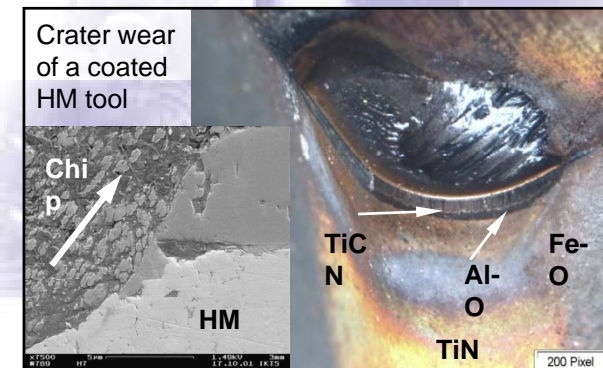
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### COATINGS

- Wear resistant coatings
- Friction reducing coatings
- Surface hardening by gas boriding

### WEAR MECHANISMS

- Cutting forces
- Cutting temperatures
- Chemical reactions



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