**Preparation method**

**Titanium alloy**

**Recommended machines and additional consumables (not included)**

**Equipment**
- **CUTTING**
  - ATM Brilliant
- **MOUNTING**
  - ATM Opal
- **GRINDING/POLISHING**
  - Sample size: Ø 40 mm

**Consumables**

- **Cut-off wheel**: corundum, resin bond
- **Anti-corrosion coolant**: H₂O
- **Hot mounting**: EPO black, EPO-Max
- **Cold mounting**: KEM 20, KEM 15 plus
- **Hot or cold mounting**

**Pressure parameters and specimen size**

<table>
<thead>
<tr>
<th>Specimen diameter [mm]</th>
<th>25</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
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<td>Divergence in pressure used in the preparation methods</td>
<td>-5 N...10 N</td>
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**Notes:**
- ATM Item No. 92004492
- Eposil F has to be mixed with hydrogen peroxide (35%) in a ratio of 5:1 (safety advice: use personal protective equipment)
- Depends on the alloy

**BEGINNERS GUIDE**

**CUTTING**
- Use suitable cut-off wheels for titanium (e.g., ATM Ti-AS wheels)
- Cutting speed max. 0.25 mm/s

**MOUNTING**
- Use mounting material for almost gap-free mounting
- Cold or hot mounting possible

**GRINDING**
- Start grinding with SiC paper/foil P320 (280)
- Continue with P600
- Thoroughly wash samples and holder under running water after each grinding step

**POLISHING**
- Rinse the polishing discs with water and spin dry after use
- Do not stack discs with different diamond sizes
- Clean samples, holders and hands under running water before each polishing step
- Use ethanol and blow dryer to avoid water stains
- Check after each step under the microscope if polishing marks are of equal size and randomly oriented
- Use the consumables only for titanium-based alloys and not for other materials
- Rinse the cap of the Eposil F bottle after use, put cap back on

**Notes:**
- Use suitable cut-off wheels for titanium (e.g., ATM Ti-AS wheels)
- Cutting speed max. 0.25 mm/s

**SAMPLE MICROGRAPHS**

- OK Sample polished
  - 10x micrograph of titanium alloy after OMEGA polishing
  - No traces of scratches
  - Clear structure/contour of the different phases

- NOK Sample polished
  - 10x micrograph of titanium alloy after OMEGA polishing
  - Pollution marks after final polishing with OMEGA
  - Use cosmetic tissues to clean the sample
  - Clean polishing disc OMEGA with clean brush under running water
  - Clean sample and sample holder
  - Repeat OMEGA step

**Notes:**
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