PREPARATION METHOD

QUALITY ASSURED

Ceramics

Recommended machines and additional consumables (not included)

CUTTING	**Equipment** ATM Brillant	**Consumables** Cut-off wheel: diamond, metal bond (bronze) Anti-corrosion coolant
MOUNTING	**Equipment** Vacuum	**Consumables** Cold mounting: KEM 90 (porous material) KEM 35 (high density, solid material)
GRINDING/ POLISHING	Sample size Ø 40 mm	

Pressure parameters and specimen size

Specimen diameter [mm]	25	30	40	50	60
Divergence in pressure used in the preparation methods	-(5 N...10 N)	-5 N	0	+5 N	+(5 N...10 N)

Notes:

STEP	MEDIUM		rpm		Single Pressure N	min
Planar grinding	GALAXY red	H_2O	250-300	►► Synchronous Rotation	30	Until plane
Grinding	GALAXY blue	H_2O	250-300	►► Synchronous Rotation	30	2:00
Pre-polishing	BETA	Dia-Complete Poly, 9 µm + diamond paste	120-150	◄► Counter Rotation	40	10:00
Final polishing	GAMMA	Dia-Complete Poly, 3 µm + diamond paste*	120-150	►► Synchronous Rotation	30	20:00

*Time and force might be divergent according to the sample size, disc size, material

BEGINNERS GUIDE

Notes:

CUTTING
- Use suitable cut-off wheels for ceramics (e.g. diamond; metal bond)
- Constant cutting speed max. 0.25 mm/s

MOUNTING
- Use mounting material with high edge retention
- Cold mounting

GRINDING
- Start grinding with GALAXY red
- Continue with GALAXY blue
- Thoroughly wash samples and holder under running water after each grinding step

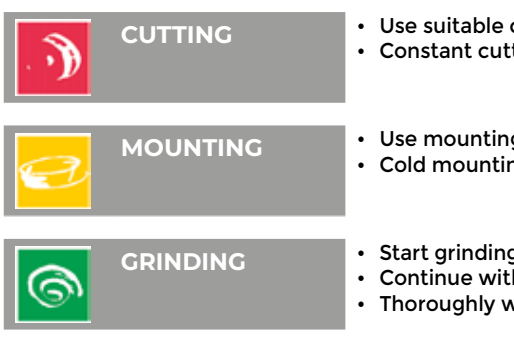
POLISHING
- Rinse the polishing discs with water and spin dry after use
- Do not stack discs with different diamond sizes
- Clean samples, holders and hands under running water before each polishing step
- Use ethanol and blow dryer to avoid water stains
- Check after each step under the microscope if polishing marks are of equal size and randomly oriented
- Rinse the OMEGA disc with water and spin dry after use
- Use the consumables only for ceramics and not for other materials

SAMPLE MICROGRAPHS

OK Sample polished

20x micrograph of ceramic after GAMMA polishing

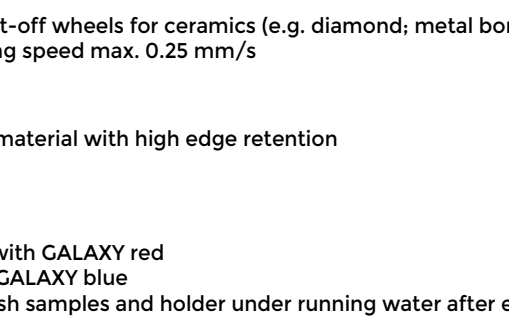
- No traces of scratches
- Clear structure/contour of the different phases



NOK Sample polished

20x micrograph of ceramic after GAMMA polishing

- Surface is not enough polished
  » Repeat GAMMA step as long as necessary



Notes: