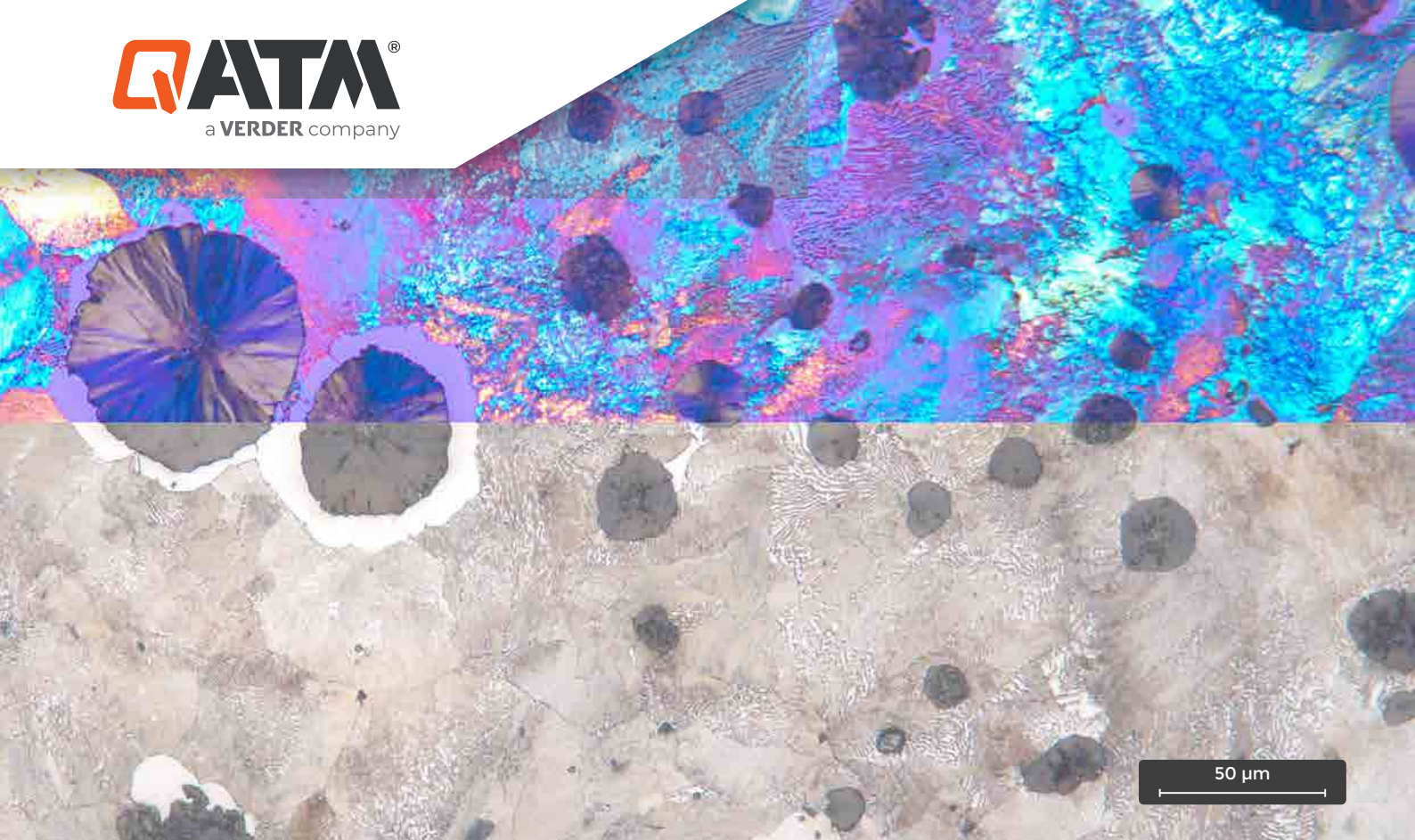




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METALLOGRAPHIC PREPARATION OF A CAST IRON WITH SPHEROIDAL GRAPHITE (GJS)

Objective:

The aim of the investigation is to determine a suitable preparation method for the samples obtained, material GJS. The Qpol 300 BOT grinding and polishing machine is to be used.



The received samples

CUTTING



Cut-off machine Qcut 250 A

Device	Qcut 250 A	
Cut-off wheel	Aluminum Oxide FS-B-250A	Item no.: 95012528
Coolant and anti-corrosion agent	QATM Anti corrosion coolant standard	Item no.: 95014281
Clamping tool	Qtool 80-100	Item no.: Z2231203
Cutting method	Automatic horizontal cut (with X-axis)	
Parameters	- Feed speed	0.3 mm/s
	- Pulse parameter	Without pulse
	- Cut-off wheel rotational speed	3015 U/min

Notes

Overview of clamping suggestion



HOT MOUNTING



Hot mounting press Qpress 40

Device	Qpress 40
Mounting material	BAKELIT BLACK
Heating time	3:15 min
Temperature	180 °C
Pressure	250 bar
Cooling time	3:00 min
Accessories	-
Heat set up	100%
Pressure mode	Pressure from beginning
Cooling set up	100%

Notes

- The parameter recommendation is for a press mould diameter of 40 mm.
- Preheat: ON

The mounted samples



GRINDING/POLISHING

Device	Qpol 300 BOT	
Sample holder	6 x Ø 40 mm	Item no.: Z5803086
Pressure	Central pressure	



Fully automatic grinding and polishing machine Qpol 300 BOT

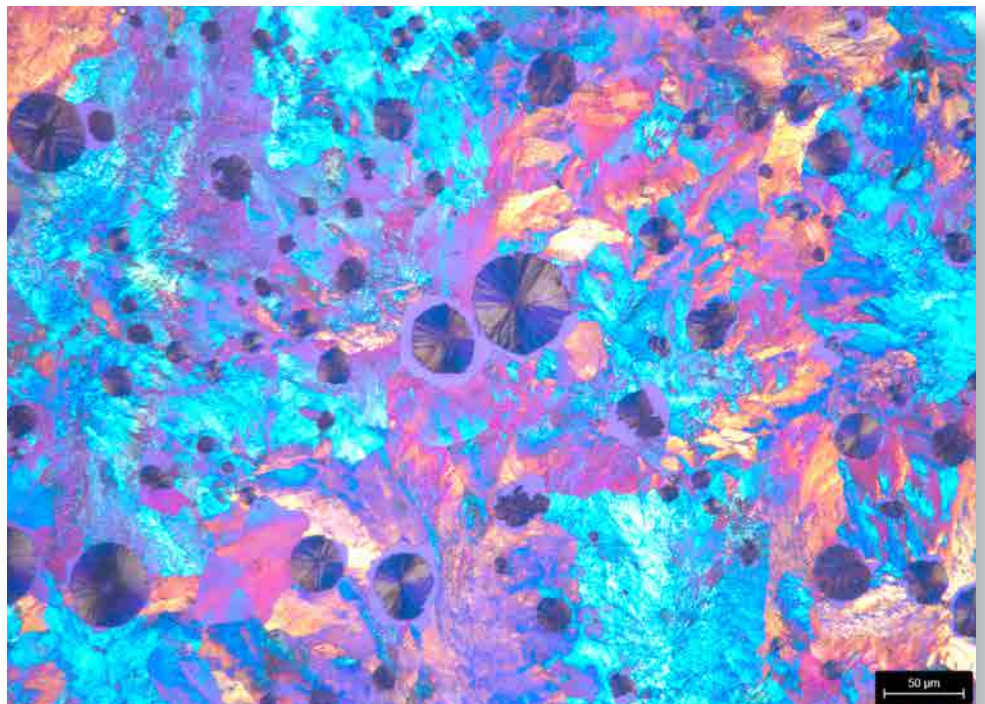
STEP	MEDIUM		 rpm	 rpm	 Central pressure N	 min
 Pre-grinding	Al ₂ O ₃ -Stone P100	H ₂ O +5% Anti-corrosion	1500	120 ▶▶	180	5:00 1:00 removal rate
Cleaning Ethanol: 20 s, Compressed air: 20 s, Rotational speed of the sample holder: 30 rpm						
 Fine grinding	CONTERO H	Dia. Suspension Poly, 9 µm + alc. Lubricant	150	120 ▶▶	180	7:00
Cleaning Ethanol: 15 s, Compressed air: 15 s, Rotational speed of the sample holder: 30 rpm						
Ultrasonic bath Duration: 1:00, Rotational speed of the sample holder: 30 rpm						
Cleaning Ethanol: 15 s, Compressed air: 15 s, Rotational speed of the sample holder: 30 rpm						
Dryer Duration: 0:20, Rotational speed of the sample holder: 100 rpm						
 Polishing	GAMMA	Dia. Suspension Poly, 3 µm + alc. Lubricant	150	120 ▶▶	180	6:00
Cleaning Ethanol: 15 s, Compressed air: 15 s, Rotational speed of the sample holder: 30 rpm						
 Polishing	ZETA	Dia. Suspension Poly, 1 µm + alc. Lubricant	150	120 ▶▶	160	4:00
Cleaning Ethanol: 15 s, Compressed air: 15 s, Rotational speed of the sample holder: 30 rpm						
 Etching (chem.)	Etchant 3% alc. nitric acid					0:15

- Notes
- Pre-dosing for 9 µm, 3 µm und 1 µm: 3 s
Dosing interval und dosing time for Dia. suspension 9 µm, 3 µm, 1 µm: Each 20 s for 1.3 s
 - Dosing interval and dosing duration for lubricant: Each 60 s for 1.3 s
 - Dosing interval and dosing duration for fine polishing suspension: Each 15 s for 1.3 s

The microstructure of the sample after etching with 3% alcoholic nitric acid - 100:1



The microstructure of the sample after etching with 3% alcoholic nitric acid and using Lambda-plate under the optical microscope - 100:1



A spheroidal graphite particle after
polishing and etching – 1000:1.



PRODUCT OF THE MONTH

Al₂O₃ stone P100 for Qpol 300 BOT
Item no.: 95000180

