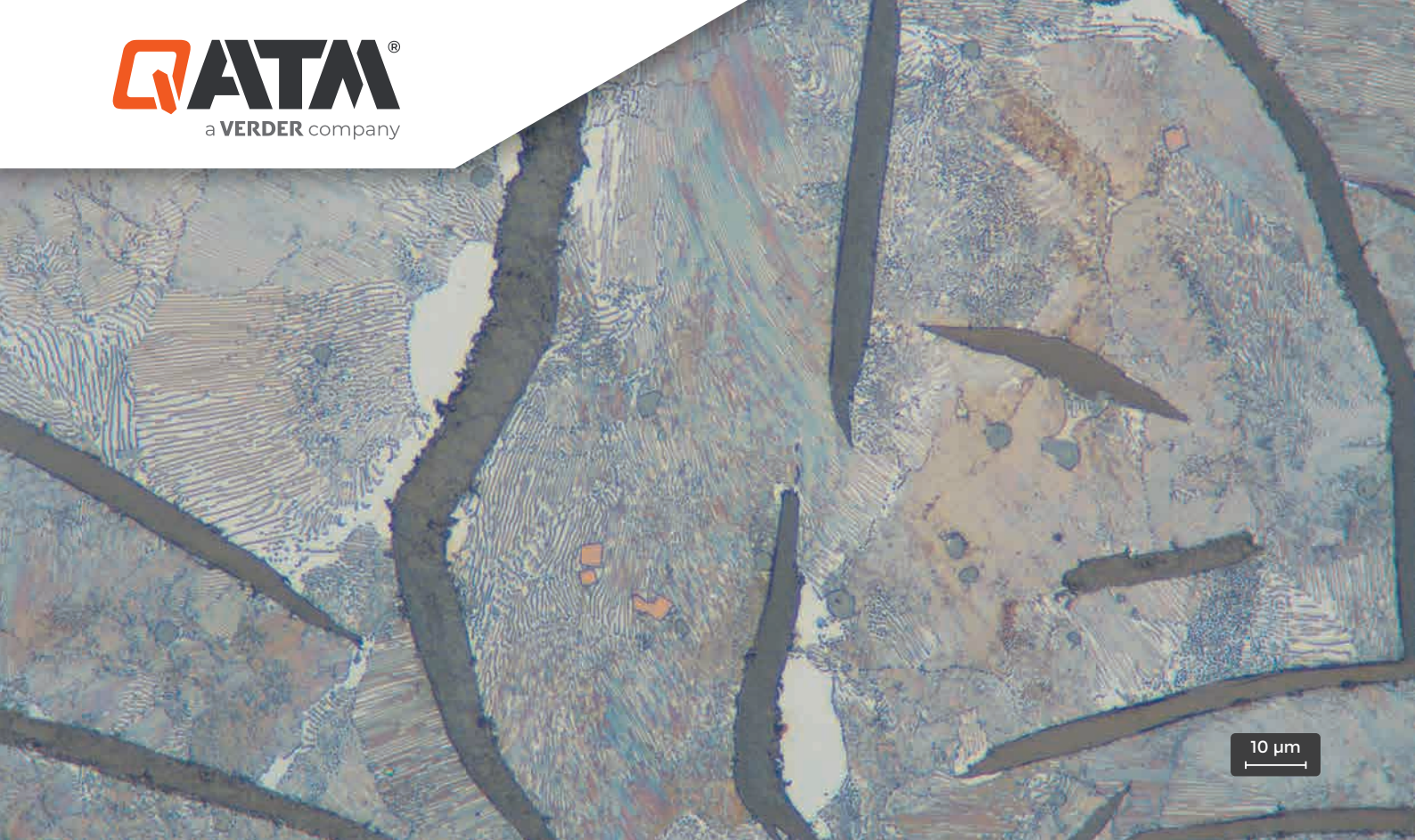




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MICROSTRUCTURE OF CAST IRON CONTAINING LAMELLAR GRAPHITE (GJL)

Objective:

The objective of the preparation was to make the microstructure of the sample shown below visible without damaging it. The sample was sectioned (Qcut 250 A), hot mounted (Qpress 40), ground, and polished (Qpol 300 A1 Eco+). Detailed parameters and images can be found in the following application laboratory report.

The sample as-received.



CUTTING



Cut-off machine Qcut 250 A

Setup of the sample
in the cutting chamber.

Device	Qcut 250 A	
Cut-off wheel	FS-C Al ₂ O ₃ -cut off wheel	
Coolant and anti-corrosion agent	ATM standard	
Clamping tool	Qtool 80 Vario	
Cutting method	Horizontal cut (X-axis)	
Parameter	- Feeding speed	0.2 mm/s
	- Pulse setting	Without pulse
	- Rotational speed of cut-off wheel	3015 rpm

Notes

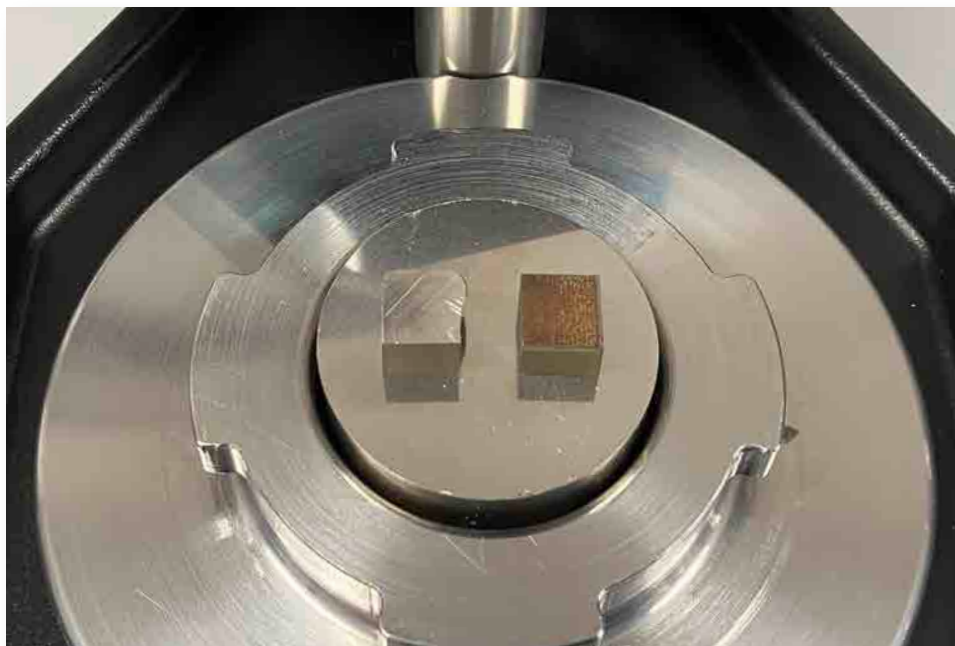


HOT MOUNTING



Hot mounting press Qpress 40

Device	Qpress 40
Mounting material	EPO BLACK
Heating time	4:00 min
Temperature	180 °C
Pressure	200 bar
Cooling time	3:30 min
Accessories	-
Heat set up	100%
Pressure mode	One-step mode
Cooling set up	100%
Mould assembly	Ø 40 mm



The sectioned samples in the hot mounting press.



Automatic grinding and polishing machine Qpol 300 AI Eco+

GRINDING/POLISHING

Device	Qpol 300 AI Eco+	
Sample holder	6 x Ø 40 mm	Item no.: Z5446025
Pressure	Single pressure	

STEP	MEDIUM		 rpm	 rpm	 Single pressure N	 min
 Grinding	SiC Paper P1200 (self-adhesive) + X-Tap	H ₂ O	200	150 ►► Synchronous Rotation	25	0:45
 Grinding	SiC Paper P2500 (self-adhesive) + X-Tap	H ₂ O	200	150 ►► Synchronous Rotation	25	1:00
 Polishing	GAMMA	Dia-COMPLETE Poly, 3 µm	150	100 ►► Synchronous Rotation	25	12:00
 Polishing	ZETA	Dia-COMPLETE Poly, 1 µm	150	100 ►► Synchronous Rotation	22	3:00
 Etching (chem.)	Alcoholic nitric acid, 3% Nital					0:02

Notes

- Pre-dosing for 3 µm and 1 µm: 3 s
- Dosing interval and dosing duration for diamond suspension 3µm, 1µm: Every 30 s for 1,3 s
- During etching, have a container of ethanol ready so that you can immediately immerse the sample in it after etching to stop the reaction.

The microstructure of GJL after the 1 μm step
under the microscope (100:1)



The microstructure of GJL after etching
under the microscope (100:1)



The microstructure of GJL after etching
under the microscope (200:1)



The microstructure of GJL after etching
under the microscope (500:1)

