

Application lab report

Preparation of copper weld seam



QATM-Preparation method

Objective:

We have received one sample with 3 solder joints. All cuts were made with the Qcut 250 A. Further preparation was carried out with KEM 20 and 30 and Qpol 250 A1 ECO. Detailed parameters and pictures can be found in the following report.



Figure 1: Overview of the sample.

QATM-Preparation method

Cutting

 Cutting			
Device	Cut-off disc	Anti-corrosion coolant	Clamping tool
Qcut 250 A	FS-C 250A (95012527)	QATM – Standard (95014282)	-Qtool 60 (Z2235200) -Easy-clamping base S (Z2236030)
Cutting method			
Horizontal cut (X-axis)			
Parameters			
Feed speed	Pulse parameter	Cut-off disc rotational speed	
0,1 mm/s	Without pulse	3050 RPM	
Notes			

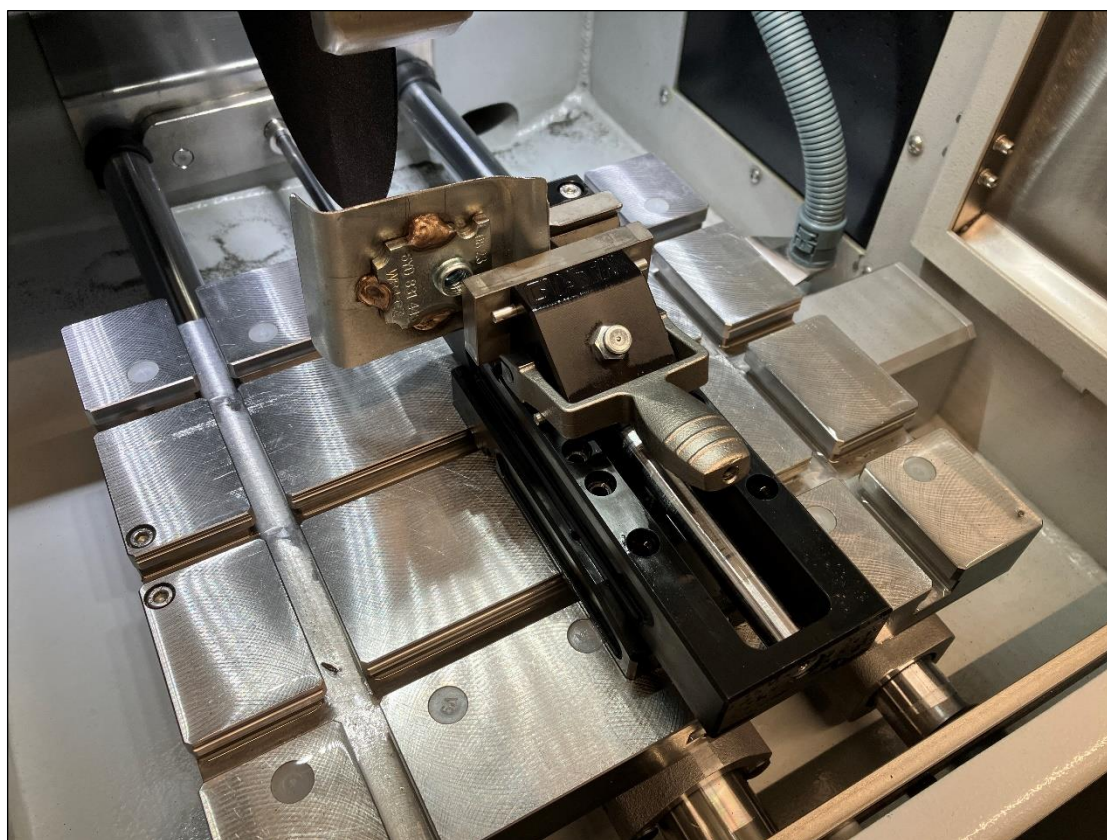


Figure 2: Qcut 250 A – cut 1 and 2.

QATM-Preparation method

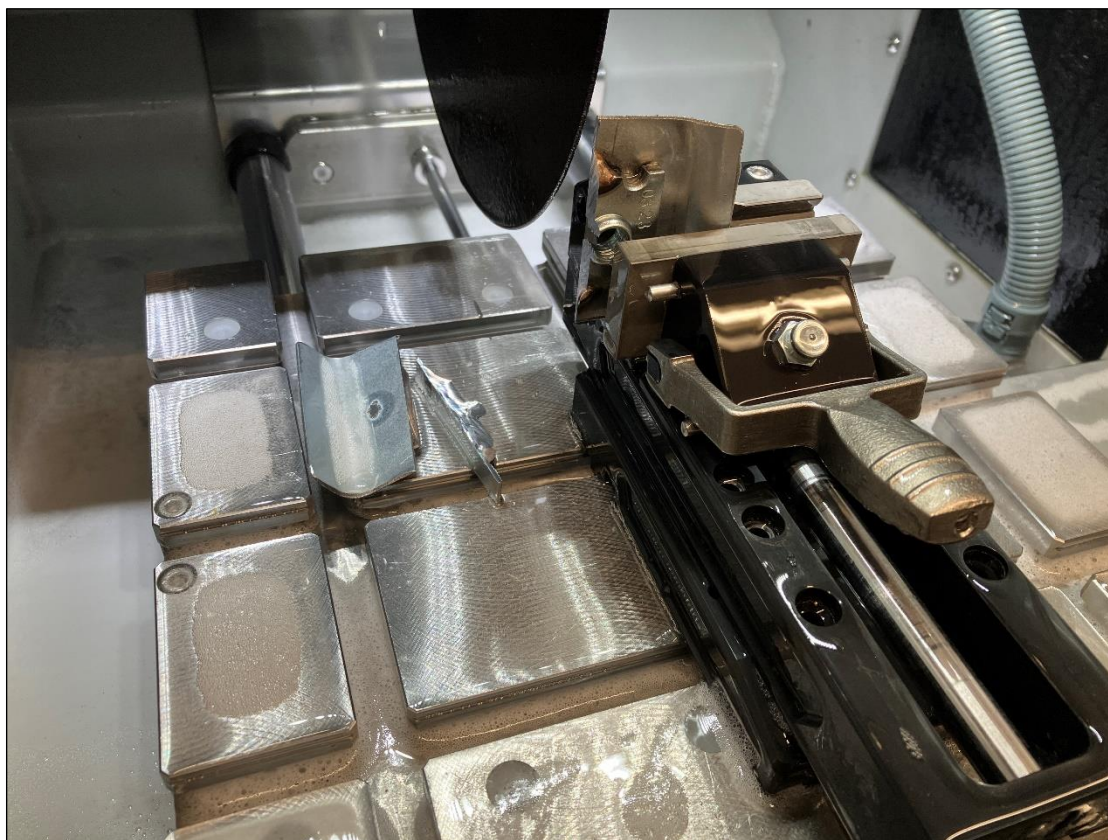


Figure 3: Qcut 250 A – cut 1 and 2.

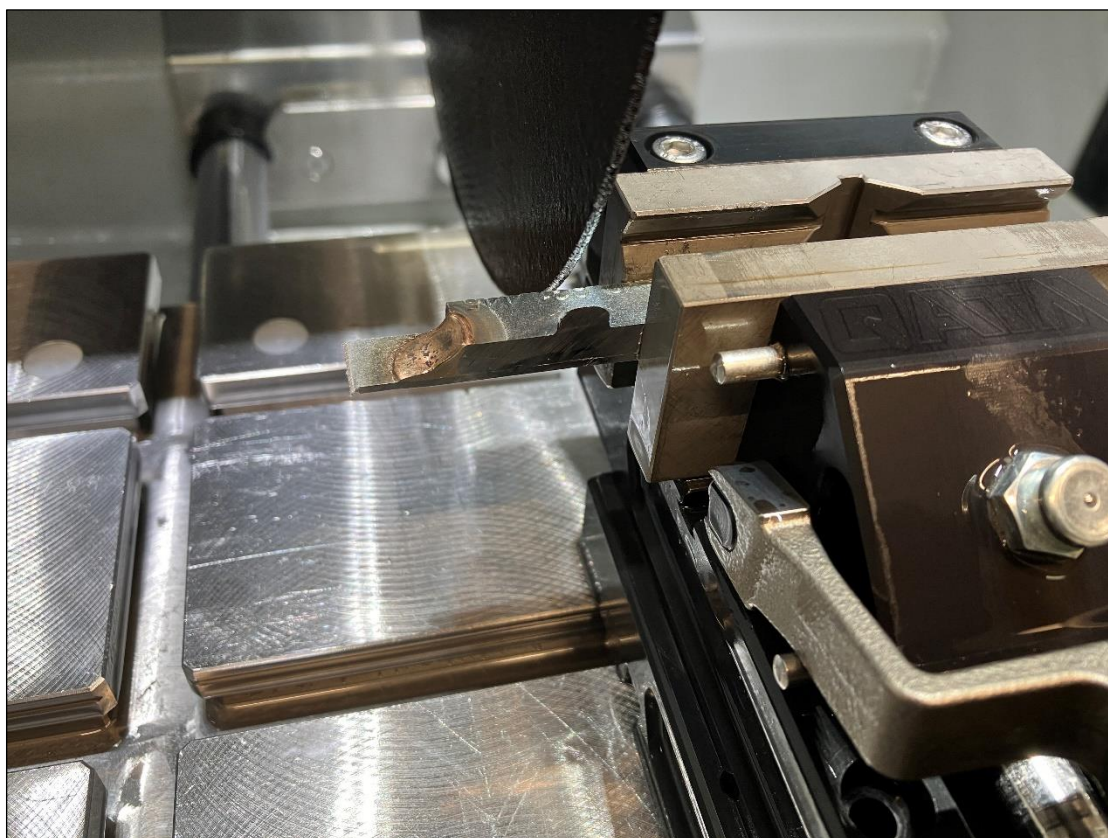


Figure 4: Qcut 250 A – cut 3 and 4.

QATM-Preparation method

Cold mounting

 Mounting					
Consumable	Mixing ratio		Curing time	Mold	Additional equip.
1: KEM 20 2: KEM 30	Volume / Weight		1: 15 min 2: 5 min	PP - Ø 40 mm	-Silicon mixing cup -Mixing sticks -Dosing spoon
	2:1				
Notes					

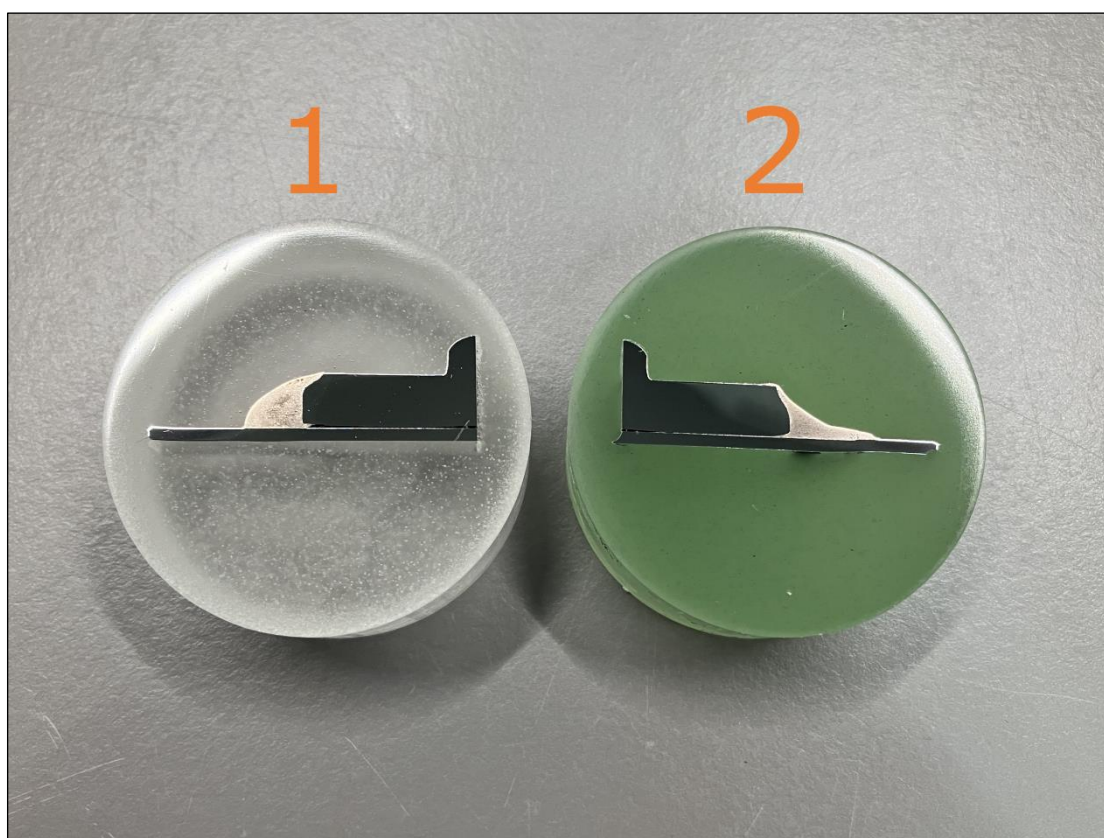


Figure 5: KEM 20 (1) and KEM 30 (2).

QATM-Preparation method

Grinding/Polishing

Device	Sample holder	Pressure mode				
Qpol 250 A1 ECO	Z5445025 6x 40 mm	Central				
Step	MEDIUM		 RPM		 N	 min
 Planar grinding	SiC-Paper/Foil P320	H ₂ O	200	120 ◀ ▶	25	Till flat Approx. 1:00
 Grinding	SiC-Paper/Foil P1200	H ₂ O	200	120 ◀ ▶	25	1:00
 Polishing	SIGMA	Diamondsus. Poly, 3µm Lubricant yellow	120	100 ▶ ▶	25	5:00
 Fine polishing	OMEGA	Eposil F	100	90 ◀ ▶	20	1:20 (H ₂ O the last 0:15)

Notes

Dosage:

- Dosing interval and dosing duration for Dia. Suspension 3µm:
Every 30 s for 1,3 s
- Dosing interval and dosing duration for lubricant:
Every 40 s for 1,3 s
- Dosing interval and Dosing duration for fine polishing suspension:
Every 20 s for 1,3 s

Microskop:

Leica DM8000

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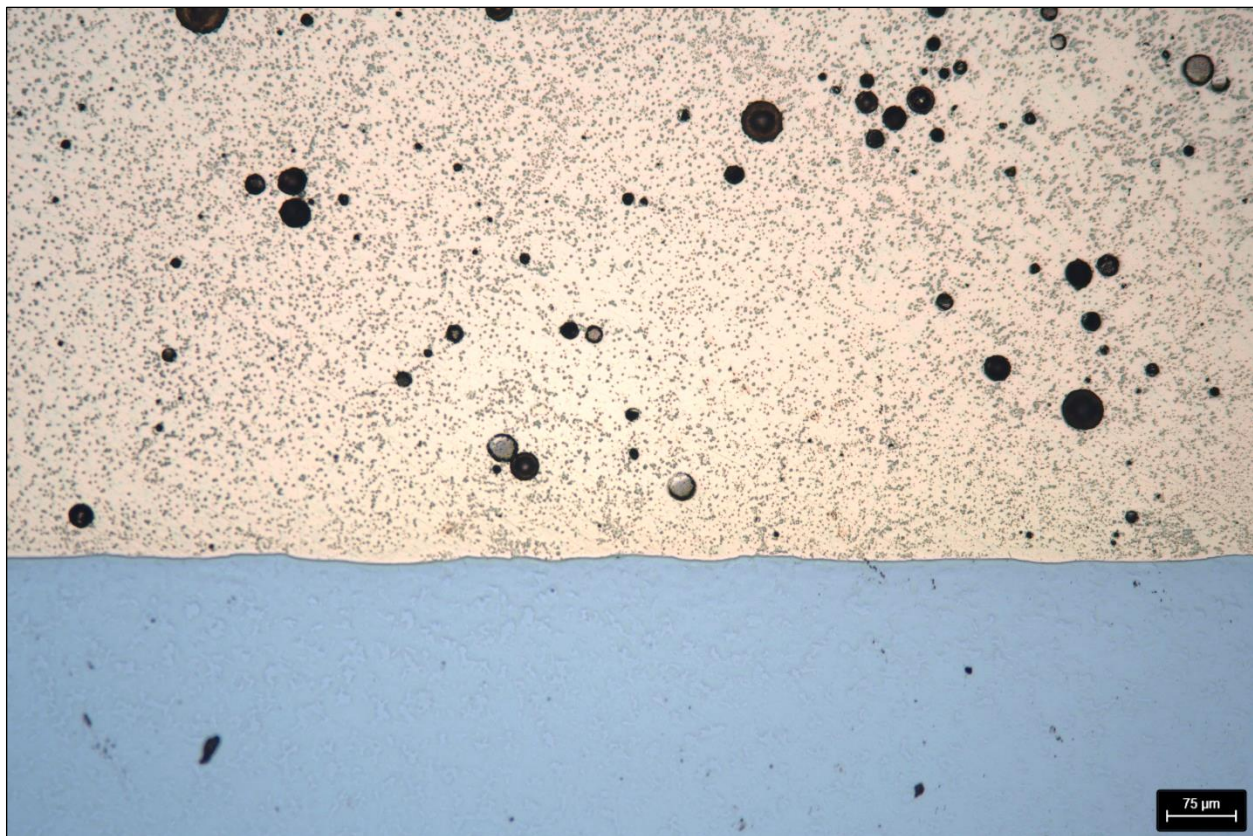


Figure 6: Solder joint – KEM 20 – 100x.

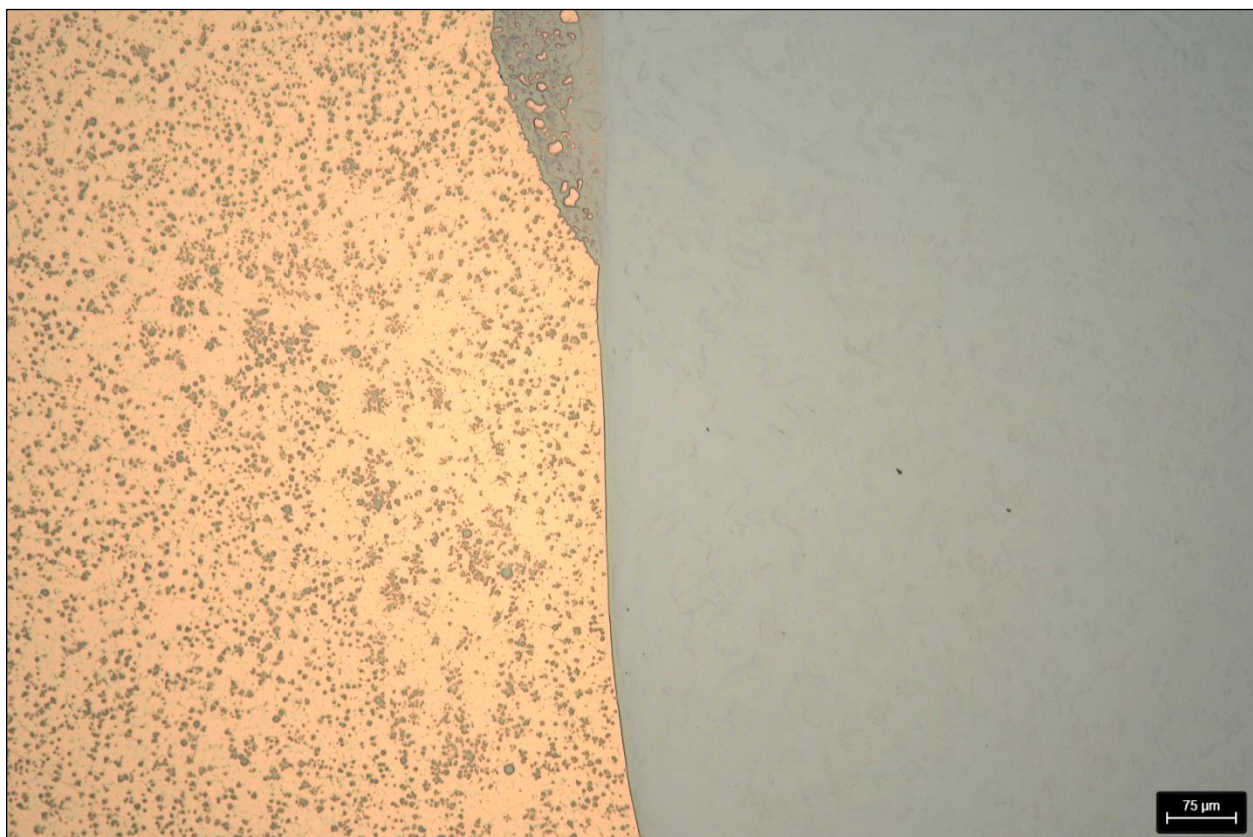


Figure 7: Solder joint – KEM 30 – 100x.

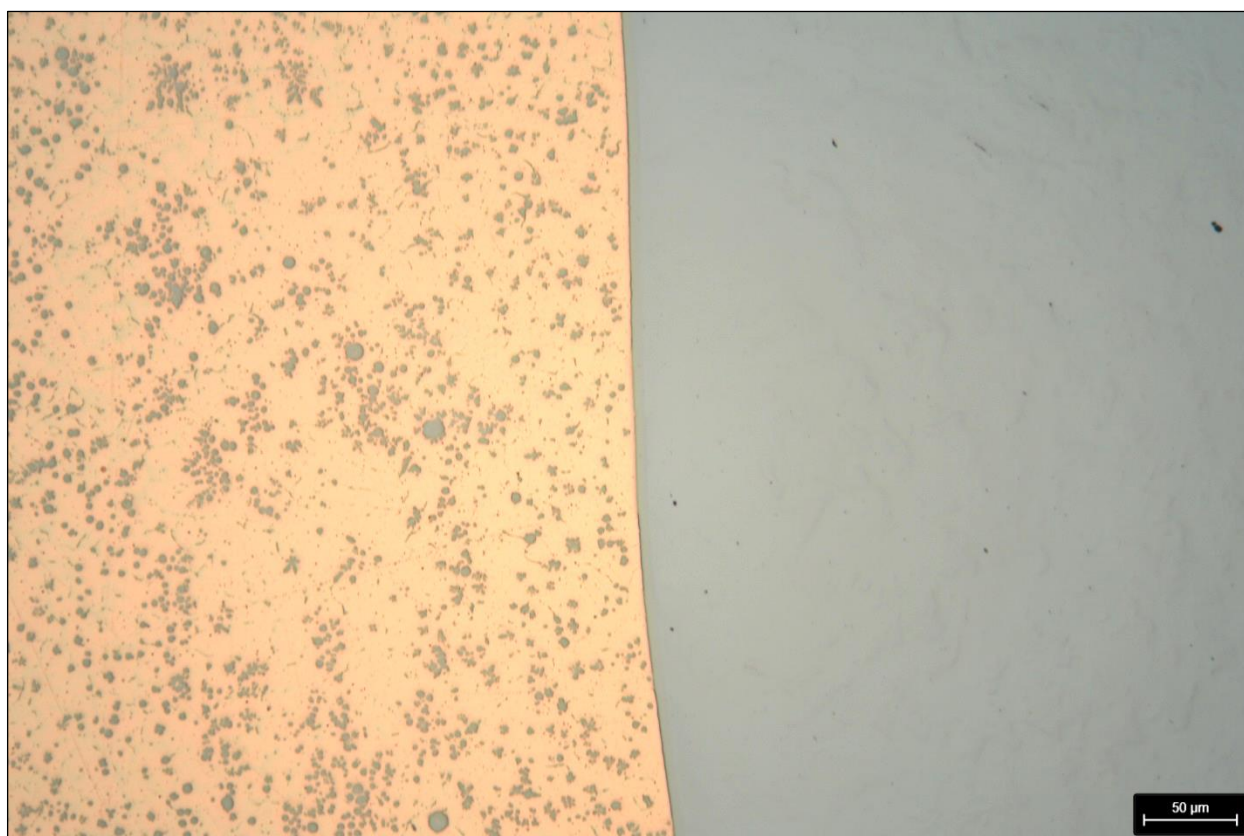


Figure 8: Solder joint – KEM 30 – 200x.