GSA Data Repository Item 2017368
St-Onge, M.R., and Davis, W.J., 2017, Wopmay orogen revisited: Phase equilibria modeling, detrital zircon geochronology, and U-Pb monazite dating of a regional Buchan-type metamorphic sequence: GSA Bulletin, https://doi.org/10.1130/B31809.1.

SUPPLEMENTARY DATA SD1

U-Pb ANALYTICAL METHODS

Zircon

Samples were crushed by mechanical disaggregation, and heavy minerals separated using a Wilfley table followed by heavy liquid separation at the Geochronology facility, GSC, Ottawa. Zircon grains were sorted using a Frantz isodynamic separator to a non-magnetic fraction at 1.8 A and 10 degree side-slope. Zircons were cast in 2.5 cm diameter epoxy mounts (along with fragments of the GSC laboratory standard zircon; z6266, with 206Pb/238U age = 559 Ma (Stern and Amelin, 2003)). The mid-sections of the zircons were exposed using 9, 6, and 1 μm diamond compound, and the internal features of the zircons (such as zoning, structures, alteration, etc.) were characterized in back-scattered electron mode (BSE) utilizing a Zeiss Evo 50 scanning electron microscope. The count rates at eleven masses (YbO, Zr, HfO, ^{204}Pb, background, ^{206}Pb, ^{207}Pb, ^{208}Pb, ^{238}U, ^{248}ThO, ^{254}UO) were sequentially measured with a single electron multiplier corrected for a deadtime of 20 ns. Analytical procedures are modified from those described by Stern (1997) with data processing using SQUID2 (version 2.22; Ludwig 2009). The 1σ external errors of ^{206}Pb/^{238}U ratios reported in the data table incorporate the error in calibrating the standard. Common Pb correction utilized the Pb composition of the surface blank (Stern 1997). Yb and Hf concentration data were calculated using sensitivity factors derived from standard 6222 with values of 229 and 8200 ppm respectively. A secondary internal reference zircon (1242) was analyzed to monitor accuracy of the measured ^{207}Pb/^{206}Pb ratios and correct for any instrumental mass bias. Thirty-one of thirty-tree analyses yield a weighted mean age of (2677.9 ± 2.3 Ma (MSWD = 1.7) within error of its measured TIMS age of 2679 Ma (unpublished U-Pb ID-TIMS data). No mass bias was applied to the data. Isoplot v. 3.00 (Ludwig 2003) was used to generate concordia plots and calculate regression ages and weighted means. The error ellipses on the concordia diagrams and the weighted mean errors are reported at 95% confidence intervals. Probability plots constructed using methods of Sircombe (2004).

Monazite

Monazite targets were identified in polished thin section using a scanning electron microscope in back scatter mode. Individual target areas were drilled out of the thin sections and mounted together with pre-polished plug of reference monazites (GSC# 8153; 3345; 2908 Stern in a standard 2.5 cm diameter epoxy mount. No additional polishing was done. The count rates at eleven masses (Y, Ce, HfO, ^{204}Pb, background, ^{206}Pb, ^{207}Pb, ^{208}Pb, ^{238}U, ^{248}ThO, ^{254}UO) were sequentially measured with a single electron multiplier corrected for a deadtime of 20 ns. Energy filtering at the exit slit of the electrostatic analyzer was employed to minimize possible isobaric interference on ^{204}Pb. Common Pb corrections are based on the measured 204Pb counts using the Stacey and Kramers (1975) model. An instrumental mass fractionation correction of 1.0037 ±

0.27% (95% confidence) was applied to $^{207}Pb/^{206}Pb$ ratios based on replicate analyses of the 3345 monazite relative to its ID-TIMS age 1821 Ma. The uncertainty in the IMF correction was added in quadrature to calculate uncertainties in the weighted mean ages reported in the text.

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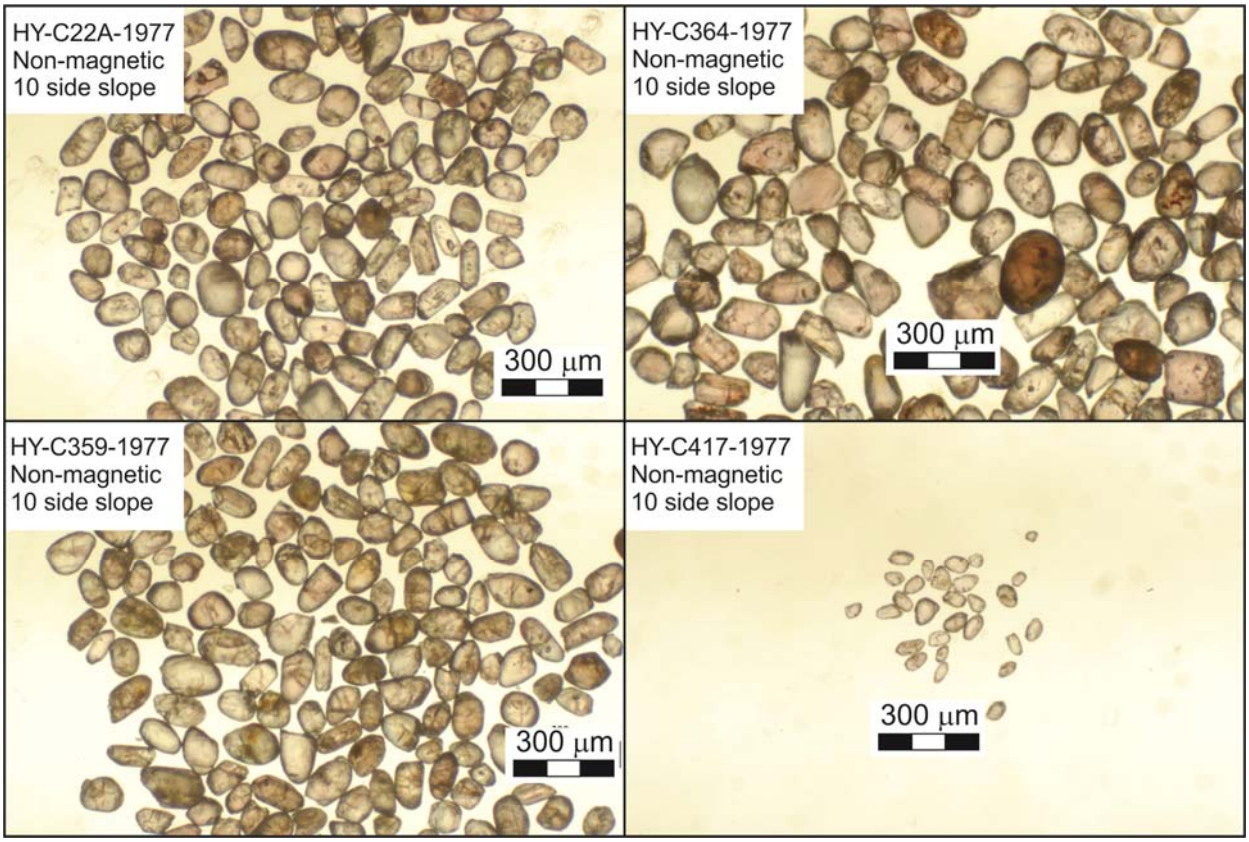


Figure DR1. Photomicrographs of representative detrital zircon grains.

TABLE DR1. U-Pb ANALYTICAL DATA FOR DETRITAL ZIRCON, ODJICK FORMATION

Spot name	U (ppm)	Th (ppm)	Th/U	Yb (ppm)	Hf (ppm)	Atomic ratios												Model age (Ma)		
						$^{204}Pb/^{206}Pb$	% err	$f(206)^{204}$	$^{208}Pb^*/^{206}Pb^*$	% err	$^{207}Pb^*/^{235}U$	% err	$^{206}Pb^*/^{238}U$	% err	Corr. coeff.	$^{207}Pb^*/^{206}Pb^*$	% err	$^{207}Pb/^{206}Pb$	$\pm^{207}Pb/^{206}Pb$	Disc. (%)
HY-C364-1977																				
10722-001.1	142	132	1.0	325	8174	6.8E-5	33	0.12	0.245	1.2	6.130	1.6	0.3567	1.6	0.971	0.1246	0.4	2023	7	+3
10722-002.1	300	343	1.2	226	10,262	2.7E-5	27	0.05	0.330	0.5	26.75	1.6	0.6795	1.5	0.997	0.2855	0.1	3393	2	+2
10722-003.1	152	93	0.6	187	8896	3.2E-5	44	0.06	0.182	1.2	11.54	1.6	0.4780	1.6	0.987	0.1751	0.3	2607	4	+4
10722-004.1	137	89	0.7	373	9067	3.8E-5	45	0.07	0.192	1.1	20.41	1.6	0.6061	1.6	0.990	0.2443	0.2	3148	4	+4
10722-005.1	66	41	0.7	143	9193	9.8E-5	27	0.17	0.178	1.6	21.38	1.6	0.6284	1.6	0.982	0.2468	0.3	3165	5	+1
10722-006.1	97	31	0.3	224	11,832	2.0E-5	184	0.03	0.094	2.1	12.42	1.6	0.4979	1.6	0.971	0.1809	0.4	2661	6	+3
10722-007.1	105	127	1.2	199	9541	4.8E-5	54	0.08	0.348	1.0	11.66	1.6	0.4867	1.6	0.978	0.1737	0.3	2593	6	+2
10722-008.1	76	74	1.0	122	8991	2.5E-4	17	0.44	0.283	1.5	11.58	1.6	0.4852	1.6	0.958	0.1731	0.5	2588	8	+2
10722-010.1	114	102	0.9	151	9504	3.4E-5	85	0.06	0.261	1.1	12.02	1.6	0.4969	1.6	0.978	0.1755	0.3	2611	5	+0
10722-011.1	74	57	0.8	115	8685	1.5E-4	22	0.25	0.232	1.6	11.61	1.6	0.4818	1.6	0.966	0.1747	0.4	2603	7	+3
10722-012.1	166	72	0.5	209	9888	4.0E-5	48	0.07	0.130	1.5	6.208	1.6	0.3607	1.6	0.976	0.1248	0.3	2026	6	+2
10722-013.1	87	76	0.9	135	10,243	2.4E-5	125	0.04	0.262	1.3	11.72	1.6	0.4858	1.6	0.972	0.1751	0.4	2607	6	+3
10722-014.1	92	30	0.3	224	8782	3.1E-5	173	0.05	0.096	1.7	22.71	1.6	0.6400	1.6	0.980	0.2573	0.3	3230	5	+2
10722-015.1	162	170	1.1	208	9458	5.4E-5	28	0.09	0.311	0.9	11.74	1.6	0.4895	1.6	0.988	0.1739	0.2	2596	4	+1
10722-016.1	120	58	0.5	121	8625	3.1E-5	45	0.05	0.144	1.5	11.62	1.6	0.4841	1.6	0.985	0.1740	0.3	2597	5	+2
10722-017.1	152	101	0.7	131	8999	5.4E-5	23	0.09	0.194	1.0	15.79	1.6	0.5504	1.6	0.991	0.2081	0.2	2891	3	+3
10722-018.1	106	82	0.8	117	9269	3.3E-5	670	0.06	0.236	1.3	12.66	2.2	0.4990	1.6	0.724	0.1840	1.5	2689	25	+4
10722-019.1	117	60	0.5	116	10,057	1.9E-5	130	0.03	0.151	1.3	22.86	1.6	0.6399	1.6	0.989	0.2591	0.2	3241	4	+2
10722-020.1	217	135	0.6	168	10,903	2.9E-5	40	0.05	0.188	1.0	11.59	1.6	0.4818	1.6	0.990	0.1744	0.2	2601	4	+3
10722-021.1	178	77	0.4	209	8940	5.5E-5	25	0.10	0.134	1.4	6.265	1.6	0.3654	1.6	0.982	0.1244	0.3	2020	5	+1
10722-022.1	68	57	0.9	128	9795	5.8E-5	54	0.10	0.258	1.4	11.70	1.6	0.4862	1.6	0.969	0.1745	0.4	2602	7	+2
10722-023.1	77	59	0.8	167	9345	7.0E-7	1594	0.00	0.232	1.5	11.70	1.6	0.4837	1.6	0.978	0.1754	0.3	2610	6	+3
10722-024.1	88	87	1.0	311	7664	1.9E-4	16	0.32	0.247	1.3	11.07	1.6	0.4653	1.6	0.974	0.1725	0.4	2583	6	+6
10722-025.1	60	27	0.5	128	7805	1.2E-4	39	0.21	0.139	2.6	6.219	1.7	0.3630	1.6	0.914	0.1242	0.7	2018	12	+1
10722-026.1	206	279	1.4	388	7595	2.7E-5	42	0.05	0.401	0.7	11.73	1.6	0.4849	1.6	0.991	0.1755	0.2	2611	4	+3
10722-027.1	156	94	0.6	298	8303	4.7E-5	30	0.08	0.175	1.1	12.45	1.6	0.4989	1.6	0.988	0.1809	0.2	2661	4	+2
10722-028.1	102	62	0.6	230	10,002	6.2E-5	33	0.11	0.184	1.4	11.61	1.6	0.4870	1.6	0.980	0.1729	0.3	2586	5	+1
10722-029.1	82	72	0.9	161	8790	3.5E-5	58	0.06	0.261	1.3	11.71	1.6	0.4855	1.6	0.979	0.1750	0.3	2606	5	+3
10722-030.1	213	159	0.8	364	7875	3.8E-5	36	0.07	0.220	0.9	12.17	1.6	0.4934	1.6	0.991	0.1789	0.2	2643	4	+3
10722-031.1	92	64	0.7	104	10,681	6.5E-5	36	0.11	0.204	1.4	11.56	1.6	0.4793	1.6	0.978	0.1749	0.3	2605	6	+4
10722-032.1	7	2	0.3	27	9096	8.0E-4	61	1.38	0.084	8.8	16.97	3.6	0.5746	2.1	0.569	0.2143	3.0	2938	48	+0
10722-033.1	36	23	0.7	167	7693	1.5E-4	37	0.26	0.199	2.3	12.96	1.7	0.5144	1.6	0.936	0.1828	0.6	2678	10	+0
10722-034.1	121	63	0.5	254	11,800	2.9E-5	70	0.05	0.152	1.6	12.83	1.6	0.5071	1.6	0.980	0.1835	0.3	2685	5	+2
10722-035.1	218	307	1.5	395	7858	3.7E-5	36	0.06	0.422	0.7	11.71	1.6	0.4829	1.6	0.991	0.1759	0.2	2614	4	+3
10722-036.1	93	92	1.0	125	9471	5.6E-5	27	0.10	0.295	1.4	12.03	1.6	0.4994	1.6	0.977	0.1747	0.3	2603	6	–0
10722-037.1	69	46	0.7	172	8819	3.7E-4	20	0.65	0.198	2.2	11.67	1.8	0.4920	1.6	0.910	0.1720	0.7	2577	12	–0
10722-038.1	219	143	0.7	389	6334	9.3E-5	23	0.16	0.200	1.3	6.257	1.6	0.3644	1.6	0.972	0.1245	0.4	2022	7	+1
10722-039.1	93	67	0.7	105	10,006	2.4E-5	87	0.04	0.207	1.4	12.92	1.6	0.5110	1.6	0.980	0.1833	0.3	2683	5	+1
10722-040.1	98	105	1.1	296	8622	1.1E-4	29	0.20	0.313	1.2	11.66	1.6	0.4881	1.6	0.970	0.1733	0.4	2589	7	+1
10722-041.1	245	163	0.7	541	7473	2.5E-4	12	0.43	0.184	1.3	5.866	1.6	0.3431	1.6	0.963	0.1240	0.4	2014	8	+6
10722-042.1	139	149	1.1	178	9425	1.1E-4	33	0.18	0.323	1.2	11.70	1.6	0.4893	1.6	0.968	0.1734	0.4	2590	7	+1
10722-043.1	38	24	0.7	78	9717	3.8E-4	27	0.66	0.181	3.0	11.85	1.9	0.4920	1.6	0.862	0.1748	1.0	2604	16	+1
10722-044.1	70	36	0.5	173	9607	9.7E-5	34	0.17	0.154	2.1	11.65	1.6	0.4859	1.6	0.961	0.1739	0.5	2596	8	+2
10722-045.1	92	82	0.9	128	9926	3.9E-4	18	0.68	0.260	1.7	11.51	1.7	0.4798	1.6	0.920	0.1740	0.7	2597	11	+3
10722-046.1	89	65	0.8	96	9786	1.2E-4	65	0.20	0.221	1.8	11.77	1.7	0.4889	1.6	0.923	0.1745	0.7	2601	11	+2
10722-047.1	146	61	0.4	154	10,878	2.5E-5	163	0.04	0.125	1.7	6.286	1.6	0.3678	1.6	0.947	0.1239	0.5	2014	9	–0
10722-048.1	47	32	0.7	110	10,907	8.2E-4	16	1.42	0.216	3.1	11.07	2.1	0.4670	1.7	0.803	0.1720	1.2	2577	21	+5
10722-049.1	136	75	0.6	125	9660	7.3E-5	27	0.13	0.164	1.7	11.66	1.6	0.4849	1.6	0.976	0.1744	0.3	2601	6	+2
10722-050.1	47	46	1.0	168	9022	5.1E-4	18	0.89	0.312	2.3	11.57	1.9	0.4805	1.6	0.877	0.1747	0.9	2603	15	+3
10722-051.1	136	220	1.7	177	7563	1.4E-4	24	0.25	0.472	1.2	12.73	1.6	0.5089	1.6	0.965	0.1814	0.4	2666	7	+1
10722-052.1	171	146	0.9	257	9800	6.5E-5	30	0.11	0.252	1.3	11.72	1.6	0.4865	1.6	0.978	0.1747	0.3	2604	5	+2
10722-054.1	188	111	0.6	280	11,255	2.3E-4	25	0.39	0.176	2.4	6.163	1.8	0.3581	1.6	0.893	0.1248	0.8	2026	14	+3
10722-055.1	75	57	0.8	106	9562	5.0E-4	17	0.87	0.234	2.4	11.56	1.8	0.4843	1.6	0.882	0.1731	0.9	2587	14	+2
10722-056.1_A	160	96	0.6	236	10,629	–1.4E-5	621	-0.03	0.181	1.2	11.35	1.7	0.4750	1.6	0.915	0.1733	0.7	2590	12	+4
10722-057.1	86	77	0.9	142	9203	5.7E-5	35	0.10	0.263	1.4	11.54	1.6	0.4754	1.6	0.976	0.1761	0.4	2617	6	+5
10722-058.1_A	58	41	0.7	201	8897	6.3E-5	63	0.11	0.208	1.9	11.53	1.7	0.4813	1.6	0.955	0.1738	0.5	2595	8	+3
10722-059.1_A	124	60	0.5	134	9536	1.6E-5	121	0.03	0.140	1.6	11.66	1.6	0.4790	1.6	0.982	0.1765	0.3	2620	5	+4
10722-060.1_A	103	82	0.8	161	7692	6.7E-5	25	0.12	0.237	1.3	11.91	1.6	0.4830	1.6	0.981	0.1788	0.3	2642	5	+5
10722-061.1_A	93	90	1.0	113	10,178	8.3E-5	28	0.14	0.263	1.3	11.48	1.6	0.4771	1.6	0.976	0.1746	0.4	2602	6	+4
10722-062.1_A	86	83	1.0	136	9014	4.6E-5	50	0.08	0.285	1.4	11.71	1.6	0.4807	1.6	0.974	0.1767	0.4	2622	6	+4
10722-065.1_A	80	75	1.0	148	8377	6.0E-5	47	0.10	0.278	1.4	11.36	1.6	0.4686	1.6	0.970	0.1758	0.4	2613	7	+6
10722-066.1_A	93	45	0.5	130	9983	2.2E-5	360	0.04	0.144	1.8	11.40	1.7	0.4739	1.6	0.926	0.1745	0.6	2601	11	+5
10722-067.1	33	11	0.3	89	9239	1.8E-4	45	0.31	0.098	3.3	12.31	1.8	0.4928	1.6	0.910	0.1812	0.7	2664	12	+4
10722-068.1_A	67	43	0.7	138	10,860	–1.1E-5	102	-0.02	0.208	2.1	6.173	1.6	0.3550	1.6	0.956	0.1261	0.5	2045	8	+5
10722-070.1	82	56	0.7	170	11,294	2.0E-3	20	3.55	0.200	5.4	10.59	4.1	0.4571	2.1	0.506	0.1681	3.5	2539	59	+5
10722-071.1_A	124	75	0.6	272	7882	3.8E-5	36	0.07	0.176	1.2	22.60	1.6	0.6228	1.6	0.991	0.2632	0.2	3266	3	+6
10722-072.1	45	19	0.4	220	9571	2.9E-4	53	0.50	0.141	4.4	12.67	2.1	0.4940	1.7	0.798	0.1860	1.3	2707	21	+5
10722-073.1	48	23	0.5	150	10,398	3.4E-3	16	5.94	0.131	4.9	11.74	4.7	0.4883	2.0	0.425	0.1744	4.3	2601	72	+2
10722-075.1	60	38	0.6	100	9747	–2.9E-6	1024	0.00	0.192	2.0	11.47	1.6	0.4736	1.6	0.963	0.1756	0.4	2612	7	+5
10722-076.1	116	61	0.5	154	10,061	4.9E-5	53	0.08	0.148	2.1	22.52	1.6	0.6419	1.6	0.976	0.2545	0.4	3213	6	+1
10722-077.1	500	272	0.6	661	9402	5.2E-5	39	0.09	0.159	1.9	6.029	1.6	0.3515	1.6	0.960	0.1244	0.5	2020	8	+5
10722-078.1	164	116	0.7	285	10,674	1.8E-4	13	0.31	0.207	1.1	11.37	1.6	0.4781	1.6	0.984	0.1725	0.3	2582	5	+3
10722-082.1	62	38	0.6	89	9545	–6.8E-6	179	-0.01	0.185	2.0	11.74	1.6	0.4845	1.6	0.970	0.1758	0.4	2614	7	+3
10722-083.1	71	50	0.7	154	9197	3.6E-5	95	0.06	0.201	1.8	11.65	1.6	0.4866	1.6	0.963	0.1736	0.4	2593	7	+2
10722-085.1	66	36	0.6	196	9165	4.1E-5	34	0.07	0.166	2.3	6.114	1.7	0.3578	1.6	0.952	0.1239	0.5	2014	9	+2
10722-089.1	105	105	1.0	210	8811	5.6E-5	36	0.10	0.295	1.2	11.55	1.6	0.4799	1.6	0.979	0.1745	0.3	2601	5	+3
10722-09.1	142	111	0.8	128	10,838	3.1E-5	29	0.05	0.233	1.2	12.02	1.6	0.4948	1.6	0.984	0.1762	0.3	2618	5	+1
10722-092.1	55	42	0.8	116	9725	2.2E-4	24	0.38	0.221	1.9	11.69	1.7	0.4868	1.6	0.942	0.1742	0.6	2598	9	+2
10722-095.1	43	22	0.5	201	9268	1.0E-5	279	0.02	0.148	2.6	12.45	1.7	0.4993	1.6	0.955	0.1809	0.5	2661	8	+2

10722-097.1	46	29	0.7	126	7869	1.8E-4	38	0.31	0.204	2.4	6.029	1.8	0.3548	1.6	0.865	0.1232	0.9	2004	16	+3
10722-099.1	204	107	0.5	228	8801	2.1E-5	73	0.04	0.160	1.3	6.192	1.6	0.3582	1.6	0.981	0.1254	0.3	2034	5	+3
10722-100.1	70	65	1.0	211	9935	6.6E-5	55	0.11	0.269	1.6	10.95	1.6	0.4620	1.6	0.958	0.1720	0.5	2577	8	+6
10722-102.1	31	11	0.4	157	9414	2.5E-4	36	0.43	0.100	3.4	12.38	1.8	0.4964	1.6	0.896	0.1809	0.8	2661	13	+3
HY-C22A-1977																				
10721-002.1	439	178	0.4	229	10,598	1.4E-4	13	0.24	0.123	1.4	5.728	1.6	0.3467	1.6	0.978	0.1198	0.3	1953	6	+2
10721-003.1	270	47	0.2	155	12,928	4.0E-5	45	0.07	0.051	2.9	5.707	1.6	0.3431	1.6	0.970	0.1206	0.4	1966	7	+4
10721-004.1	317	92	0.3	355	12,409	1.8E-5	43	0.03	0.089	2.0	5.902	1.6	0.3492	1.6	0.982	0.1226	0.3	1994	6	+4
10721-005.1	326	189	0.6	373	9645	–1.1E-6	450	0.00	0.169	1.2	13.234	1.6	0.5129	1.6	0.990	0.1871	0.2	2717	4	+2
10721-009.1	81	31	0.4	160	9717	–7.3E-5	98	-0.13	0.122	3.3	5.957	1.9	0.3531	1.6	0.855	0.1224	1.0	1991	17	+2
10721-010.1	153	88	0.6	249	9473	1.3E-4	34	0.22	0.183	1.9	5.840	1.7	0.3454	1.6	0.927	0.1226	0.6	1995	11	+5
10721-015.1	56	27	0.5	161	10,642	6.6E-6	906	0.01	0.151	3.5	6.340	2.0	0.3615	1.7	0.885	0.1272	0.9	2060	16	+4
10721-016.1	146	29	0.2	35	9329	6.0E-5	55	0.10	0.049	3.8	5.809	1.7	0.3470	1.6	0.939	0.1214	0.6	1977	10	+3
10721-017.1	130	114	0.9	91	9275	–2.9E-5	63	-0.05	0.272	1.7	5.855	1.6	0.3468	1.6	0.955	0.1225	0.5	1992	9	+4
10721-021.1	149	74	0.5	260	9330	6.4E-5	66	0.11	0.153	2.2	5.739	1.7	0.3447	1.6	0.927	0.1207	0.6	1967	11	+3
10721-022.1	992	480	0.5	543	13,186	1.7E-3	2	3.02	0.150	0.7	4.936	1.6	0.3205	1.5	0.947	0.1117	0.5	1828	10	+2
10721-023.1	111	44	0.4	200	10,403	–7.6E-6	813	-0.01	0.118	2.8	6.198	1.8	0.3576	1.6	0.890	0.1257	0.8	2039	14	+4
10721-025.1	112	67	0.6	140	7820	–2.4E-5	147	-0.04	0.181	2.1	5.799	1.7	0.3478	1.6	0.937	0.1209	0.6	1970	10	+3
10721-026.1	221	67	0.3	473	11,543	1.5E-4	20	0.26	0.091	2.1	5.923	1.6	0.3536	1.6	0.957	0.1215	0.5	1978	8	+2
10721-028.1	133	55	0.4	153	8425	–1.2E-5	37	-0.02	0.127	2.3	5.859	1.6	0.3550	1.6	0.967	0.1197	0.4	1952	7	–0
10721-029.1	71	27	0.4	187	9986	5.3E-5	60	0.09	0.115	2.7	12.70	1.7	0.5003	1.6	0.960	0.1841	0.5	2690	8	+3
10721-032.1	152	57	0.4	255	8054	2.3E-4	22	0.40	0.107	2.3	5.602	1.7	0.3374	1.6	0.913	0.1204	0.7	1962	13	+5
10721-035.1	361	196	0.6	380	9616	6.0E-4	7	1.04	0.179	1.2	5.381	1.6	0.3256	1.6	0.948	0.1199	0.5	1954	9	+8
10721-036.1	177	115	0.7	180	11,165	5.1E-5	44	0.09	0.209	1.7	6.730	1.6	0.3780	1.6	0.961	0.1291	0.5	2086	8	+1
10721-040.1	70	31	0.5	359	10,747	1.5E-4	25	0.26	0.134	3.3	6.201	1.8	0.3660	1.6	0.906	0.1229	0.7	1998	13	–1
10721-042.1	122	70	0.6	318	8534	–1.3E-5	158	-0.02	0.169	1.8	11.58	1.6	0.4857	1.6	0.975	0.1730	0.4	2587	6	+2
10721-043.1	318	128	0.4	219	11,470	2.5E-6	643	0.00	0.120	1.4	8.639	1.6	0.4255	1.6	0.986	0.1472	0.3	2314	5	+1
10721-044.1	361	269	0.8	260	8993	–4.0E-6	78	-0.01	0.226	1.1	5.664	1.6	0.3451	1.6	0.987	0.1190	0.3	1942	5	+2
10721-045.1	295	124	0.4	276	10,926	1.6E-5	47	0.03	0.125	1.5	5.812	1.6	0.3485	1.6	0.983	0.1210	0.3	1970	5	+3
10721-046.1	48	30	0.6	81	9849	–2.2E-5	65	-0.04	0.179	2.7	12.48	1.7	0.5141	1.6	0.950	0.1761	0.5	2616	9	–3
10721-047.1	219	107	0.5	195	8954	2.1E-5	85	0.04	0.148	1.6	5.739	1.6	0.3460	1.6	0.973	0.1203	0.4	1961	7	+3
10721-048.1	91	54	0.6	162	10,026	3.4E-6	301	0.01	0.177	2.3	6.106	1.7	0.3596	1.6	0.953	0.1231	0.5	2002	9	+1
10721-049.1	203	84	0.4	183	10,278	1.9E-4	17	0.34	0.123	1.7	7.303	1.6	0.3944	1.6	0.961	0.1343	0.5	2155	8	+1
10721-051.1	118	116	1.0	131	9241	4.9E-5	32	0.08	0.287	1.4	12.82	1.6	0.5076	1.6	0.977	0.1831	0.3	2681	6	+2
10721-052.1	169	110	0.7	315	8231	1.6E-5	56	0.03	0.193	1.4	11.90	1.6	0.4919	1.6	0.984	0.1755	0.3	2611	5	+1
10721-054.1	158	82	0.5	261	7347	3.2E-5	71	0.05	0.161	1.9	5.935	1.6	0.3515	1.6	0.961	0.1225	0.5	1992	8	+3
10721-055.1	115	47	0.4	172	9320	8.0E-5	54	0.14	0.129	2.2	6.334	1.7	0.3652	1.6	0.931	0.1258	0.6	2040	11	+2
10721-056.1	219	85	0.4	345	9373	1.2E-3	6	2.10	0.111	1.6	5.410	1.8	0.3325	1.6	0.867	0.1180	0.9	1926	16	+5
10721-057.1	241	176	0.8	90	11,378	3.1E-7	1537	0.00	0.220	1.3	5.862	1.6	0.3510	1.6	0.982	0.1211	0.3	1973	5	+2
10721-058.1	296	113	0.4	280	11,804	2.6E-5	66	0.04	0.116	1.6	5.905	1.6	0.3515	1.6	0.978	0.1218	0.3	1983	6	+2
10721-059.1	35	16	0.5	196	5524	–1.5E-5	858	-0.03	0.156	4.0	5.830	2.3	0.3419	1.7	0.714	0.1237	1.6	2010	29	+7
10721-06.1	174	75	0.4	180	9177	–7.8E-6	225	-0.01	0.139	2.1	5.676	1.6	0.3395	1.6	0.961	0.1213	0.4	1975	8	+5
10721-061.1	157	117	0.8	261	10,004	6.6E-5	49	0.11	0.231	1.5	5.919	1.6	0.3499	1.6	0.950	0.1227	0.5	1996	9	+4
10721-062.1	222	122	0.6	376	10,222	6.7E-4	8	1.16	0.171	1.4	5.671	1.7	0.3424	1.6	0.911	0.1201	0.7	1958	13	+4
10721-063.1	85	56	0.7	165	9783	2.9E-5	42	0.05	0.199	2.1	8.788	1.6	0.4289	1.6	0.962	0.1486	0.5	2330	8	+1
10721-064.1	299	35	0.1	72	11,758	7.0E-6	94	0.01	0.037	2.8	5.813	1.6	0.3459	1.6	0.983	0.1219	0.3	1984	5	+4
10721-066.1	73	56	0.8	1176	11,289	1.4E-5	294	0.02	0.235	2.0	11.32	1.7	0.4805	1.6	0.948	0.1709	0.5	2566	9	+2
10721-068.1	247	207	0.9	126	9489	7.0E-5	23	0.12	0.248	1.0	12.25	1.6	0.4964	1.6	0.987	0.1789	0.3	2643	4	+2
10721-069.1	230	179	0.8	273	10,145	2.1E-5	158	0.04	0.233	1.3	6.025	1.6	0.3565	1.6	0.957	0.1226	0.5	1994	8	+2
10721-071.1	37	29	0.8	109	7959	–3.2E-5	138	-0.06	0.226	2.8	12.99	1.8	0.5107	1.6	0.929	0.1845	0.7	2694	11	+2
10721-072.1	39	49	1.3	345	8792	–7.0E-5	27	-0.12	0.387	2.1	11.64	1.7	0.4841	1.6	0.938	0.1744	0.6	2600	10	+3
10721-073.1	107	110	1.1	206	9688	–1.1E-5	40	-0.02	0.294	1.3	15.53	1.6	0.5425	1.6	0.981	0.2077	0.3	2887	5	+4
10721-074.1	85	65	0.8	198	7667	3.4E-5	37	0.06	0.226	1.9	11.67	1.6	0.4882	1.6	0.968	0.1734	0.4	2591	7	+1
10721-076.1	117	53	0.5	100	10,430	1.8E-7	9999	0.00	0.130	1.8	24.06	1.6	0.6604	1.6	0.985	0.2642	0.3	3272	4	+0
10721-078.1	169	63	0.4	174	9999	1.5E-4	26	0.26	0.114	2.1	5.828	1.7	0.3500	1.6	0.938	0.1208	0.6	1968	10	+2
10721-079.1	190	88	0.5	252	10,145	–4.0E-6	193	-0.01	0.142	1.9	5.947	1.6	0.3552	1.6	0.974	0.1214	0.4	1977	6	+1
10721-084.1	672	28	0.0	69	16,001	2.0E-4	9	0.34	0.012	2.6	5.987	1.6	0.3568	1.5	0.985	0.1217	0.3	1981	5	+1
10721-086.1	142	92	0.7	331	9370	1.0E-3	7	1.81	0.188	1.4	8.283	1.7	0.4135	1.6	0.911	0.1453	0.7	2291	12	+3
10721-087.1	144	60	0.4	212	9802	9.1E-6	60	0.02	0.127	2.1	5.851	1.6	0.3512	1.6	0.971	0.1208	0.4	1969	7	+2
10721-088.1	362	192	0.5	448	10,152	5.2E-6	210	0.01	0.165	1.2	6.045	1.6	0.3572	1.6	0.985	0.1227	0.3	1996	5	+2
10721-089.1	228	126	0.6	464	9,450	–7.1E-8	9999	0.00	0.170	1.4	6.057	1.6	0.3577	1.6	0.981	0.1228	0.3	1998	6	+2
10721-090.1	235	161	0.7	176	11,038	8.1E-4	9	1.40	0.205	1.4	6.778	1.8	0.3866	1.6	0.885	0.1272	0.8	2059	15	–3
10721-092.1	215	89	0.4	225	9174	2.0E-5	42	0.03	0.124	1.7	5.697	1.6	0.3474	1.6	0.979	0.1189	0.3	1940	6	+1
10721-094.1	81	82	1.0	119	9594	–2.5E-5	153	-0.04	0.310	1.6	11.30	1.7	0.4675	1.6	0.958	0.1753	0.5	2609	8	+6
10721-095.1	149	66	0.5	224	9386	2.2E-5	126	0.04	0.132	2.0	5.766	1.6	0.3473	1.6	0.956	0.1204	0.5	1963	9	+2
10721-096.1	152	97	0.7	137	8815	9.5E-5	24	0.16	0.197	1.6	5.528	1.6	0.3357	1.6	0.961	0.1194	0.5	1948	8	+5
10721-100.1	188	93	0.5	395	9397	7.0E-4	9	1.22	0.057	64.1	5.541	13.5	0.3601	12.6	0.932	0.1116	4.9	1826	89	–10
10721-103.1	163	71	0.4	264	8448	4.3E-5	52	0.08	0.128	1.6	12.67	1.6	0.5054	1.6	0.982	0.1819	0.3	2670	5	+2
HY-C359-1977																				
10723-002.1	240	129	0.6	187	10,076	5.5E-5	49	0.10	0.161	1.4	7.748	1.6	0.4099	1.6	0.971	0.1371	0.4	2191	7	–1
10723-003.1	120	50	0.4	190	9265	9.6E-5	29	0.17	0.123	2.0	13.70	1.6	0.5326	1.6	0.974	0.1865	0.4	2712	6	–2
10723-004.1	105	63	0.6	81	8478	1.6E-4	21	0.27	0.187	1.6	5.876	1.6	0.3521	1.6	0.950	0.1210	0.5	1971	9	+2
10723-010.1	114	69	0.6	232	9955	6.6E-5	73	0.11	0.178	1.9	11.77	1.7	0.4976	1.6	0.952	0.1716	0.5	2573	8	–1
10723-011.1	175	67	0.4	81	9680	3.0E-5	73	0.05	0.117	1.9	5.673	1.6	0.3467	1.6	0.966	0.1187	0.4	1936	7	+1
10723-012.1	518	234	0.5	267	12,153	2.2E-5	38	0.04	0.138	1.2	6.220	1.6	0.3687	1.6	0.988	0.1224	0.2	1991	4	–2
10723-014.1	263	150	0.6	351	9308	2.3E-5	92	0.04	0.177	1.3	5.829	1.6	0.3529	1.6	0.974	0.1198	0.4	1953	6	+0
10723-015.1	304	110	0.4	365	11,841	5.0E-5	28	0.09	0.109	1.5	6.075	1.6	0.3631	1.6	0.981	0.1213	0.3	1976	5	–1
10723-019.1	200	162	0.8	162	6748	1.7E-5	104	0.03	0.253	1.2	5.660	1.6	0.3442	1.6	0.972	0.1193	0.4	1945	7	+2
10723-022.1	143	101	0.7	315	10,136	4.5E-5	62	0.08	0.224	1.6	6.177	1.6	0.3640	1.6	0.955	0.1231	0.5	2001	9	–0
10723-023.1	58	30	0.5	120	9522	–3.2E-5	149	-0.06	0.169	2.9	6.733	1.8	0.3801	1.6	0.900	0.1285	0.8	2077	14	+0
10723-024.1	162	142	0.9	448	7726	–4.9E-5	40	-0.08	0.260	1.3	9.924	1.6	0.4586	1.6	0.975	0.1569	0.4	2423	6	–1
10723-027.1	421	101	0.2	105	8972	1.3E-5	42	0.02	0.072	1.4	11.56	1.6	0.4910	1.6	0.994	0.1707	0.2	2564	3	–1

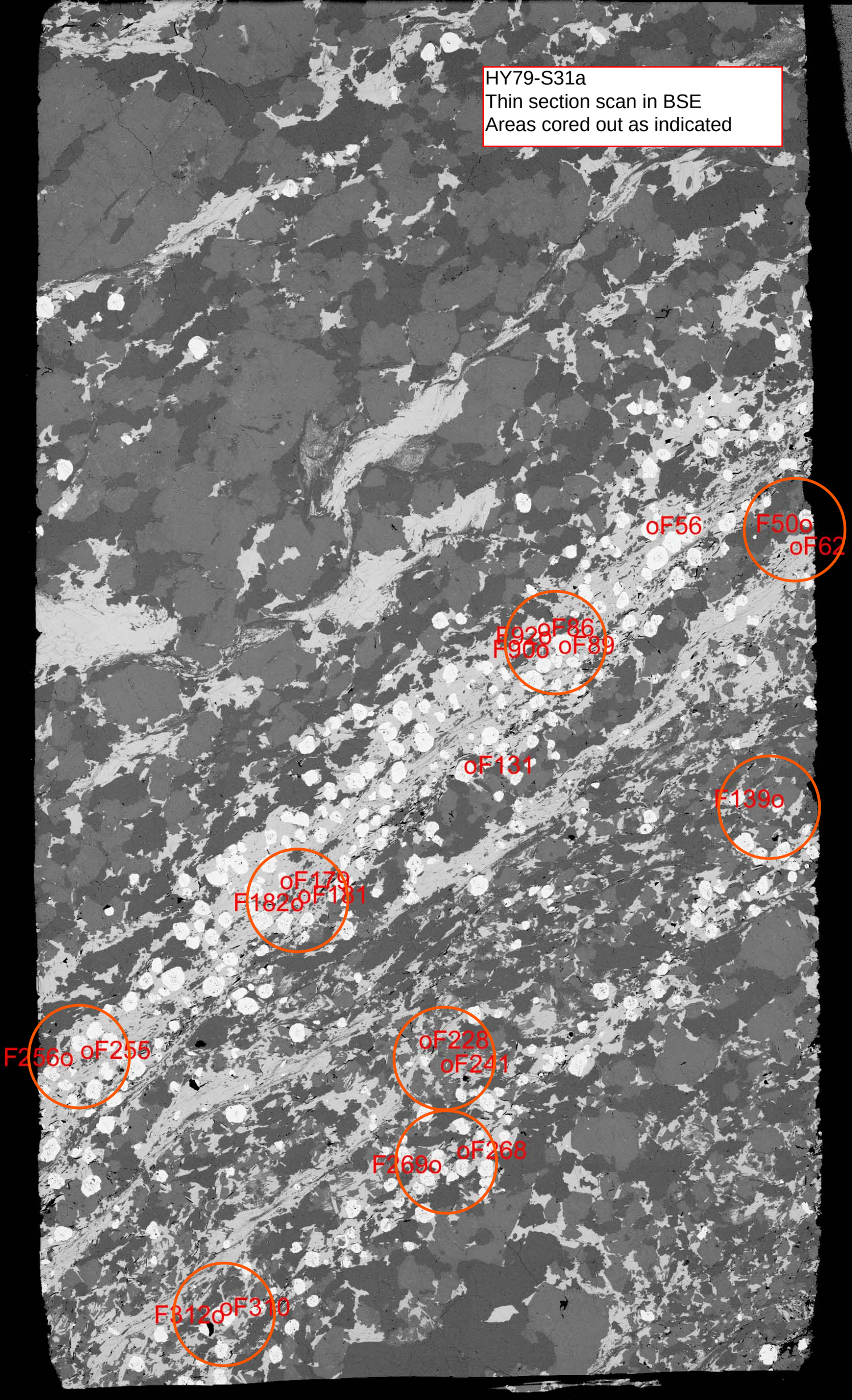
10723-033.1	336	298	0.9	233	7762	3.4E-5	30	0.06	0.270	1.0	5.799	1.6	0.3555	1.6	0.984	0.1183	0.3	1931	5	–2
10723-035.1	181	124	0.7	108	8995	–1.4E-5	111	-0.02	0.210	1.6	5.965	1.6	0.3551	1.6	0.967	0.1218	0.4	1983	7	+1
10723-038.1	127	57	0.5	155	9448	1.7E-4	35	0.30	0.137	2.2	5.841	1.8	0.3506	1.6	0.894	0.1208	0.8	1968	14	+2
10723-039.1	143	70	0.5	134	8164	5.6E-5	37	0.10	0.152	2.2	5.893	1.6	0.3578	1.6	0.953	0.1195	0.5	1948	9	–1
10723-042.1	153	261	1.8	517	12,072	7.7E-5	29	0.13	0.523	1.1	6.025	1.6	0.3562	1.6	0.957	0.1227	0.5	1996	8	+2
10723-043.1	156	72	0.5	182	9591	–3.8E-6	541	-0.01	0.142	1.5	5.969	1.6	0.3562	1.6	0.974	0.1215	0.4	1979	7	+1
10723-044.1	495	166	0.3	256	10,735	3.9E-6	95	0.01	0.105	1.0	5.908	1.6	0.3562	1.5	0.994	0.1203	0.2	1961	3	–0
10723-046.1	142	96	0.7	67	9998	2.2E-5	167	0.04	0.203	1.8	6.022	1.7	0.3574	1.6	0.937	0.1222	0.6	1989	10	+1
10723-049.1	326	111	0.4	461	12,046	8.5E-5	21	0.15	0.104	1.4	6.085	1.6	0.3649	1.6	0.981	0.1209	0.3	1970	5	–2
10723-052.1	168	74	0.5	188	10,388	9.0E-5	34	0.16	0.134	1.7	7.169	1.6	0.4009	1.6	0.961	0.1297	0.4	2094	8	–4
10723-053.1	136	68	0.5	180	10,638	1.6E-5	236	0.03	0.156	1.8	5.654	1.7	0.3384	1.6	0.943	0.1212	0.6	1973	10	+6
10723-054.1	181	82	0.5	249	9494	–4.3E-5	77	-0.08	0.146	1.7	5.811	1.6	0.3442	1.6	0.954	0.1224	0.5	1992	9	+5
10723-055.1	271	106	0.4	246	11,790	5.9E-5	27	0.10	0.122	1.9	6.101	1.6	0.3630	1.6	0.972	0.1219	0.4	1984	7	–1
10723-057.1	665	25	0.0	88	14,117	–1.5E-7	187	0.00	0.011	2.7	6.051	1.6	0.3622	1.5	0.996	0.1212	0.1	1973	3	–1
10723-058.1	194	147	0.8	99	9508	5.8E-5	48	0.10	0.236	1.5	5.947	1.6	0.3559	1.6	0.956	0.1212	0.5	1974	9	+1
10723-059.1	313	312	1.0	461	9358	2.8E-4	11	0.48	0.303	1.0	6.476	1.6	0.3738	1.6	0.961	0.1257	0.4	2038	8	–1
10723-061.1	133	39	0.3	122	11,390	4.4E-5	60	0.08	0.086	2.2	8.780	1.6	0.4347	1.6	0.970	0.1465	0.4	2305	7	–1
10723-062.1	143	84	0.6	118	10,693	9.1E-3	2	15.79	0.193	0.9	12.56	2.2	0.4915	1.6	0.739	0.1854	1.5	2701	24	+6
10723-064.1	82	70	0.9	288	8874	4.5E-5	49	0.08	0.251	1.9	12.99	1.7	0.5170	1.6	0.960	0.1822	0.5	2673	8	–1
10723-066.1	315	98	0.3	293	11,038	1.3E-4	19	0.23	0.094	1.7	6.198	1.6	0.3717	1.6	0.969	0.1209	0.4	1970	7	–4
10723-067.1	223	97	0.4	203	9408	2.1E-5	120	0.04	0.134	2.0	5.958	1.6	0.3587	1.6	0.958	0.1205	0.5	1963	8	–1
10723-074.1	223	199	0.9	214	8790	5.7E-5	49	0.10	0.276	1.7	6.068	1.7	0.3617	1.6	0.949	0.1217	0.5	1981	9	–1
10723-075.1	197	95	0.5	200	10,909	7.3E-5	26	0.13	0.143	1.9	8.797	1.6	0.4327	1.6	0.972	0.1474	0.4	2316	7	–0
10723-077.1	201	131	0.7	96	7996	7.8E-5	43	0.14	0.199	1.6	5.848	1.7	0.3557	1.6	0.946	0.1193	0.5	1945	10	–1
10723-078.1	101	75	0.8	206	10,824	–2.2E-5	259	-0.04	0.235	2.4	8.738	1.8	0.4291	1.6	0.911	0.1477	0.7	2320	12	+1
10723-080.1	183	77	0.4	155	9070	4.7E-5	45	0.08	0.126	2.0	8.763	1.6	0.4372	1.6	0.969	0.1454	0.4	2292	7	–2
10723-081.1	186	80	0.4	91	11,179	3.5E-5	79	0.06	0.131	2.3	6.002	1.7	0.3607	1.6	0.949	0.1207	0.5	1966	9	–1
10723-083.1	483	276	0.6	338	9412	1.9E-5	61	0.03	0.176	1.2	6.074	1.6	0.3596	1.6	0.984	0.1225	0.3	1993	5	+1
10723-087.1	181	149	0.9	135	9030	3.1E-5	51	0.05	0.254	1.5	5.744	1.6	0.3482	1.6	0.963	0.1196	0.4	1951	8	+1
10723-089.1	450	325	0.7	242	10,357	3.5E-5	30	0.06	0.226	1.2	5.919	1.6	0.3553	1.6	0.979	0.1208	0.3	1968	6	+1
10723-092.1	37	16	0.4	88	8846	2.2E-4	73	0.38	0.158	4.0	6.651	2.5	0.3714	1.7	0.671	0.1299	1.8	2096	32	+3
10723-093.1	208	189	0.9	206	8651	5.1E-5	53	0.09	0.281	1.5	5.932	1.6	0.3537	1.6	0.953	0.1216	0.5	1980	9	+2
10723-095.1	147	59	0.4	207	10,691	2.1E-4	30	0.36	0.119	3.2	6.127	1.8	0.3601	1.6	0.866	0.1234	0.9	2006	16	+1
10723-100.1	105	42	0.4	106	8788	2.4E-4	30	0.42	0.123	3.0	5.950	1.9	0.3558	1.6	0.851	0.1213	1.0	1975	17	+1
10723-101.1	158	62	0.4	112	12,155	9.6E-4	11	1.66	0.117	3.0	5.746	2.1	0.3507	1.6	0.746	0.1188	1.4	1939	26	+0
10723-103.1	186	158	0.9	142	8566	2.7E-4	18	0.47	0.250	1.9	5.806	1.7	0.3497	1.6	0.904	0.1204	0.7	1963	13	+2
10723-105.1	310	189	0.6	91	10,216	1.4E-4	27	0.25	0.185	2.2	5.849	1.7	0.3510	1.6	0.926	0.1209	0.6	1969	11	+2
10723-107.1	218	326	1.5	525	10,675	1.6E-4	21	0.27	0.429	1.0	13.62	1.6	0.5279	1.6	0.973	0.1871	0.4	2717	6	–1
10723-109.1	106	65	0.6	91	10,225	3.2E-4	22	0.56	0.184	2.6	13.13	1.8	0.5223	1.6	0.914	0.1824	0.7	2675	12	–2
10723-110.1	184	155	0.9	246	9713	5.2E-5	15	0.09	0.249	2.0	11.40	1.7	0.4741	1.6	0.960	0.1743	0.5	2600	8	+5
10723-113.1	38	29	0.8	81	9632	6.2E-4	33	1.08	0.226	3.3	12.29	2.4	0.5047	1.7	0.713	0.1766	1.7	2621	28	–1
10723-115.1	405	190	0.5	272	10,186	5.8E-4	13	1.00	0.137	2.2	5.840	1.8	0.3513	1.6	0.857	0.1206	0.9	1965	17	+1
10723-119.1	229	57	0.3	155	11,745	9.4E-5	37	0.16	0.073	2.8	9.199	1.6	0.4384	1.6	0.956	0.1522	0.5	2371	8	+1
10723-120.1	151	81	0.6	167	10,984	3.5E-4	29	0.61	0.152	3.3	5.881	2.1	0.3586	1.6	0.757	0.1189	1.4	1940	25	–2
10723-125.1	466	163	0.4	380	10,647	7.7E-5	28	0.13	0.112	1.7	5.990	1.6	0.3575	1.6	0.972	0.1215	0.4	1979	7	+0
10723-128.1	77	59	0.8	112	9306	8.1E-4	17	1.41	0.228	2.6	11.88	2.0	0.4970	1.6	0.809	0.1734	1.2	2591	20	–0
10723-129.1	695	72	0.1	92	10,857	3.3E-5	37	0.06	0.033	3.4	5.776	1.6	0.3497	1.6	0.974	0.1198	0.4	1953	6	+1
10723-131.1	168	116	0.7	118	9990	3.3E-5	31	0.06	0.214	2.4	6.584	1.7	0.3748	1.6	0.946	0.1274	0.5	2063	10	+1
10723-134.1	42	23	0.6	118	8025	4.1E-4	35	0.71	0.159	4.1	11.30	2.1	0.4788	1.7	0.791	0.1712	1.3	2569	22	+2
10723-137.1	322	104	0.3	381	12,131	7.6E-5	35	0.13	0.098	1.9	6.172	1.6	0.3678	1.6	0.964	0.1217	0.4	1981	8	–2
10723-142.1	402	141	0.4	247	10,219	8.0E-5	35	0.14	0.111	2.1	5.855	1.6	0.3499	1.6	0.956	0.1214	0.5	1976	8	+2
10723-144.1	224	79	0.4	315	12,426	2.8E-5	203	0.05	0.109	2.3	6.077	1.7	0.3620	1.6	0.908	0.1218	0.7	1982	13	–1
10723-147.1	85	67	0.8	185	10,367	9.3E-5	26	0.16	0.242	2.7	12.16	1.7	0.4956	1.6	0.929	0.1780	0.6	2634	11	+2
HY-C417-1977																				
10724-54.1	223	94	0.4	194	11,250	1.0E-5	89	0.02	0.128	2.6	5.765	1.2	0.3425	1.1	0.921	0.1221	0.5	1987	8	+5
10724-51.1	373	57	0.2	950	12,727	1.5E-6	781	0.00	0.046	3.2	5.964	1.2	0.3559	1.1	0.947	0.1215	0.4	1979	7	+1
10724-45.1	71	59	0.9	223	9080	1.0E-5	35	0.02	0.244	2.7	10.74	1.3	0.4714	1.2	0.887	0.1653	0.6	2510	10	+1
10724-44.1	106	117	1.1	328	10,022	1.0E-5	38	0.02	0.345	2.2	6.200	1.3	0.3629	1.2	0.872	0.1239	0.7	2014	12	+1
10724-48.1	63	19	0.3	129	10,128	1.0E-5	76	0.02	0.081	5.6	7.478	1.5	0.4009	1.2	0.839	0.1353	0.8	2168	14	–0
10724-46.1	222	98	0.5	301	9237	1.0E-5	9	0.02	0.154	2.1	8.300	1.2	0.3839	1.1	0.948	0.1568	0.4	2421	6	+16
10724-49.1	255	29	0.1	235	12,798	1.0E-5	34	0.02	0.034	4.5	6.014	1.2	0.3599	1.1	0.933	0.1212	0.4	1974	8	-0
10724-41.1	248	57	0.2	672	13,060	1.0E-5	1275	0.02	0.071	2.8	8.622	1.7	0.4312	1.1	0.690	0.1450	1.2	2288	21	–1
10724-36.1	255	108	0.4	472	11,821	1.0E-5	49	0.02	0.123	2.4	6.029	1.2	0.3567	1.1	0.936	0.1226	0.4	1994	7	+2
10724-37.1	250	133	0.6	246	10,251	1.0E-5	25	0.02	0.173	1.9	6.155	1.2	0.3572	1.1	0.943	0.1250	0.4	2029	7	+3
10724-38.1	159	43	0.3	283	12,045	1.0E-5	109	0.02	0.084	3.6	5.771	1.3	0.3469	1.1	0.901	0.1206	0.5	1966	10	+3
10724-35.1	231	52	0.2	340	12,126	1.0E-5	85	0.02	0.066	3.4	5.940	1.2	0.3531	1.1	0.929	0.1220	0.4	1986	8	+2
10724-34.1	190	82	0.4	284	9790	1.0E-5	93	0.02	0.133	2.7	6.531	1.2	0.3718	1.1	0.916	0.1274	0.5	2062	9	+1
10724-33.1	184	142	0.8	310	10,144	1.0E-5	12	0.02	0.242	2.0	5.816	1.2	0.3046	1.1	0.919	0.1385	0.5	2208	8	+25
10724-12.1	253	78	0.3	289	12,091	1.0E-5	174	0.02	0.090	2.8	5.796	1.2	0.3491	1.1	0.922	0.1204	0.5	1962	8	+2
10724-18.1	249	66	0.3	141	11,196	1.0E-5	15	0.02	0.092	2.6	8.178	1.2	0.3818	1.1	0.948	0.1553	0.4	2406	6	+16
10724-04.1	446	190	0.4	390	13,136	1.0E-5	3	0.02	0.187	1.4	7.383	1.1	0.3284	1.1	0.968	0.1631	0.3	2488	5	+30
10724-08.1	293	67	0.2	254	11,717	1.0E-5	8	0.02	0.112	2.3	5.943	1.2	0.3241	1.1	0.946	0.1330	0.4	2138	7	+18
10724-42.1	97	52	0.6	417	9505	1.0E-5	587	0.02	0.162	2.8	13.07	1.3	0.5162	1.2	0.876	0.1836	0.6	2686	11	+0

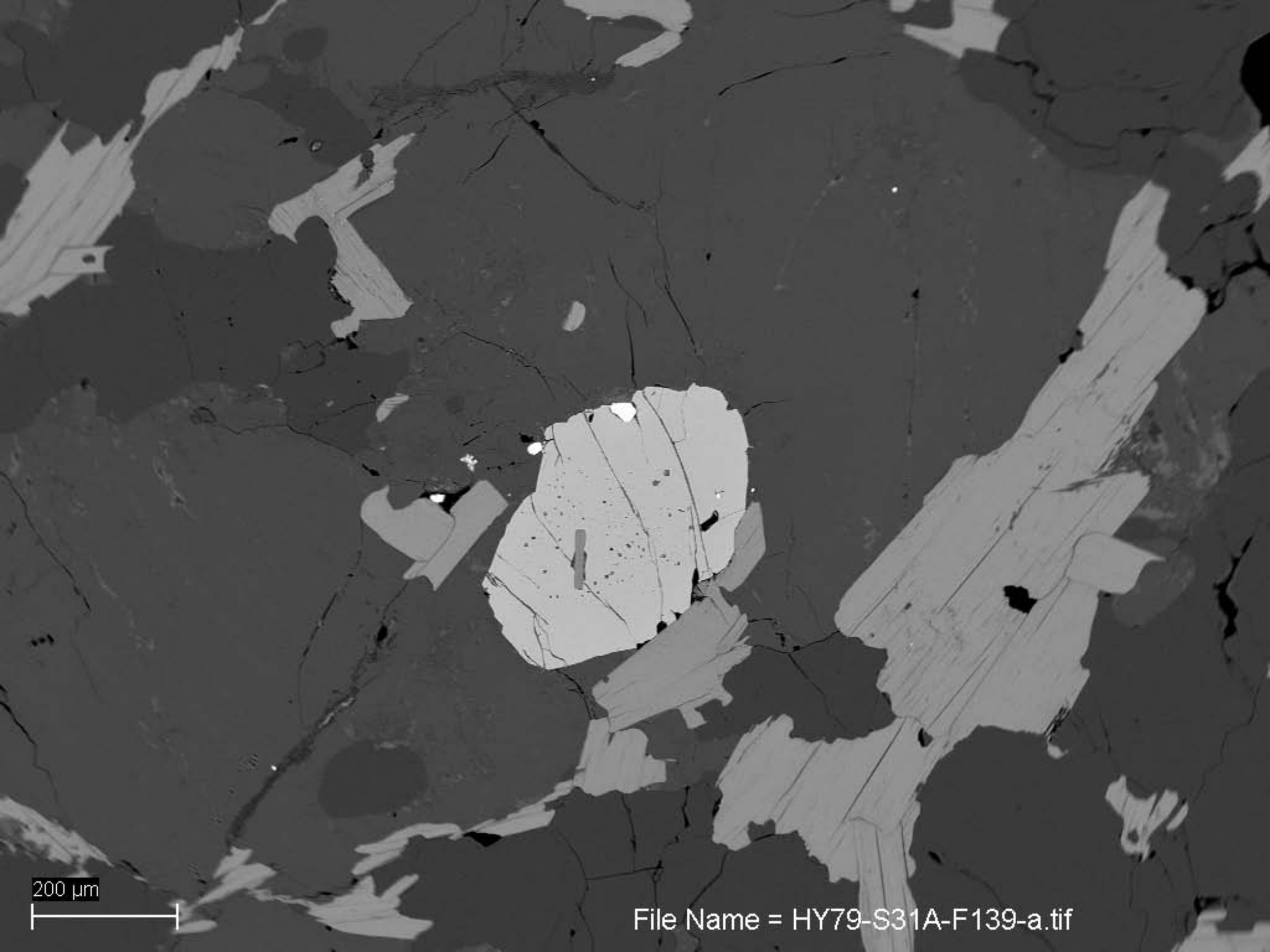
Note: Spot name follows the convention *x-y.z*, where *x* = sample number, *y* = grain number, and *z* = spot number. Multiple analyses in an individual spot are labeled as *x-y.z.z*. Uncertainties are reported at 1σ (%) and were calculated by numerical propagation of all known sources of error using Squid version 2.22. Errors in ages are 1σ absolute in Ma. $f(206)^{204}$ refers to mole fraction of total ^{206}Pb that is due to common Pb, calculated using the ^{204}Pb method; common Pb composition used is the surface blank. Discordance relative to origin = 100 × (1 – [$^{206}Pb/^{238}U$ age]/[$^{207}Pb/^{206}Pb$ age]). Calibration standard 6266; U = 910 ppm; age = 559 Ma; $^{206}Pb/^{238}U$ = 0.09059; external error in calibration constant = 1% applied to all analyses. Th/U calibration: *F* = 0.03900 × Uranium (UO) + 0.85600.

*Refers to radiogenic Pb (corrected for common Pb).

SUPPLEMENTARY DATA SD2

This file consists of Backscatter electron images of thin sections and individual monazite grains analysed in the study. The location of individual monazite grains is indicated on the thin section image by number (e.g. F241). Note: not all monazite grains identified on the thin section were analysed. The individual analyses listed in Table 6 are identified by the file name in the lower right of the BSE images, which follows the convention: sample name – grain number. Grain number corresponds to those listed in Table 6.


HY79-S31a
Thin section scan in BSE
Areas cored out as indicated
oF56
F50o
oF62
F86
oF89
oF131
F139o
oF179
F182o
oF181
F256o
oF255
oF228
oF241
F269o
oF268
F312o
oF310


200 µm
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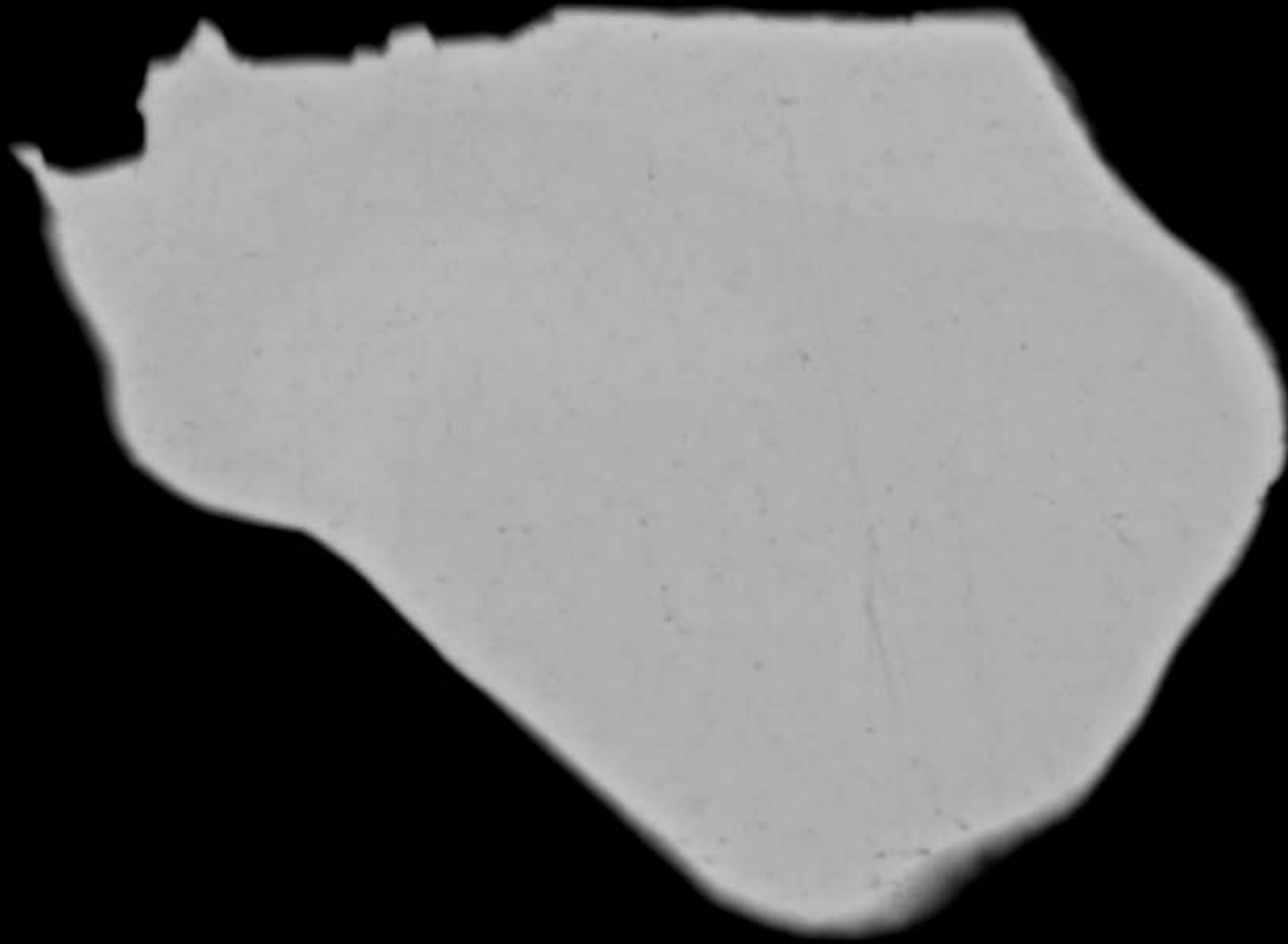

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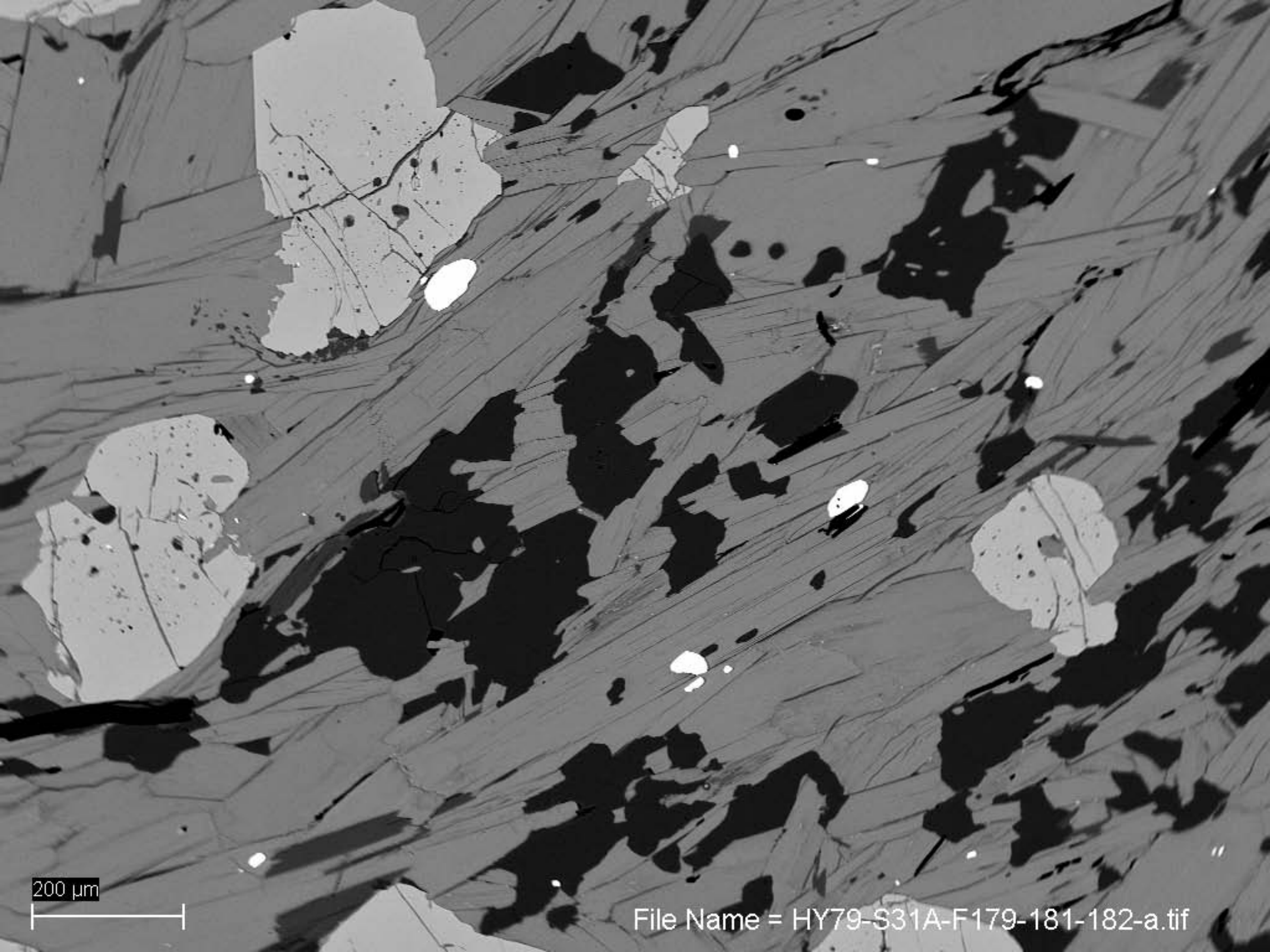
200 µm
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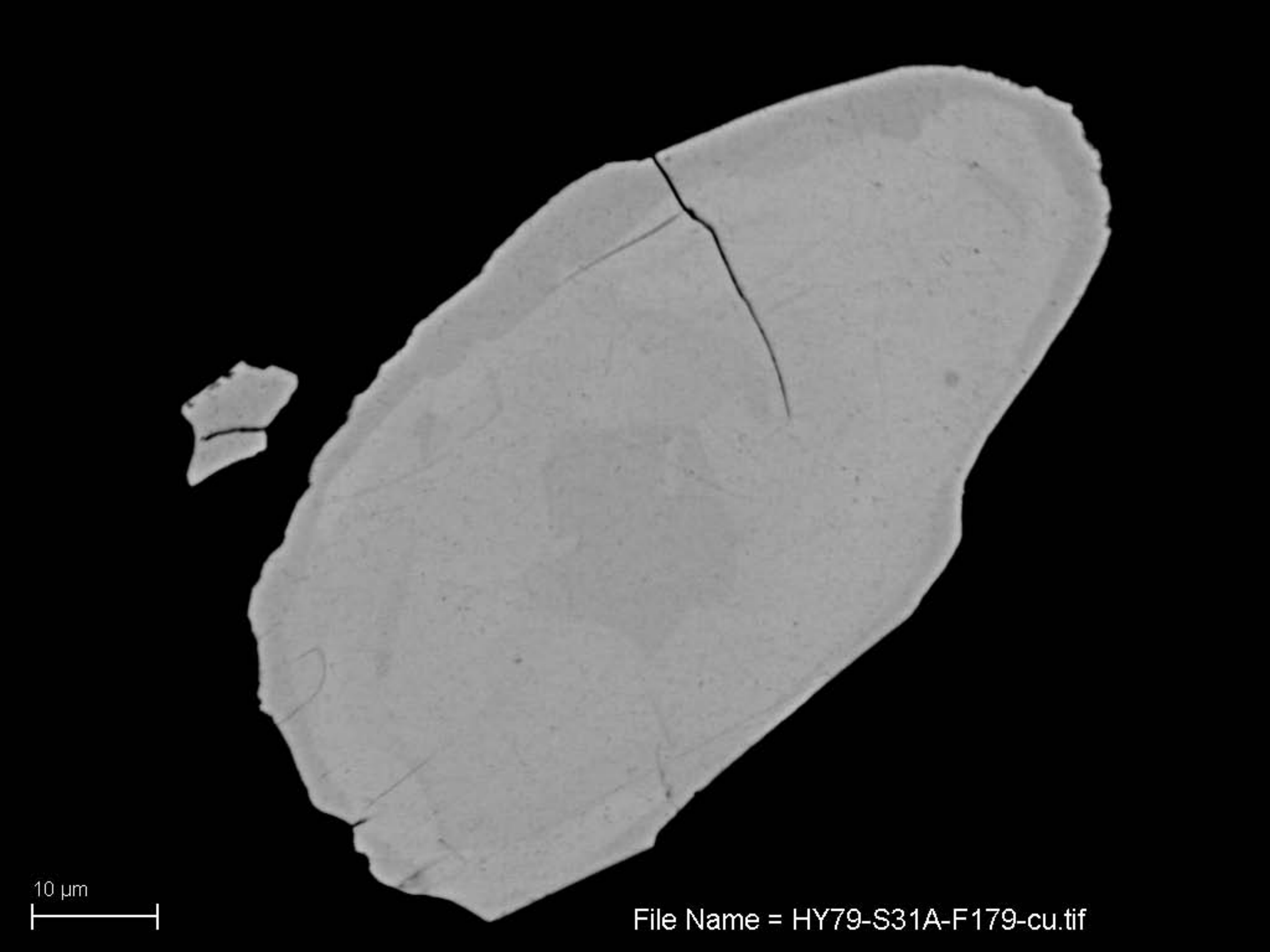
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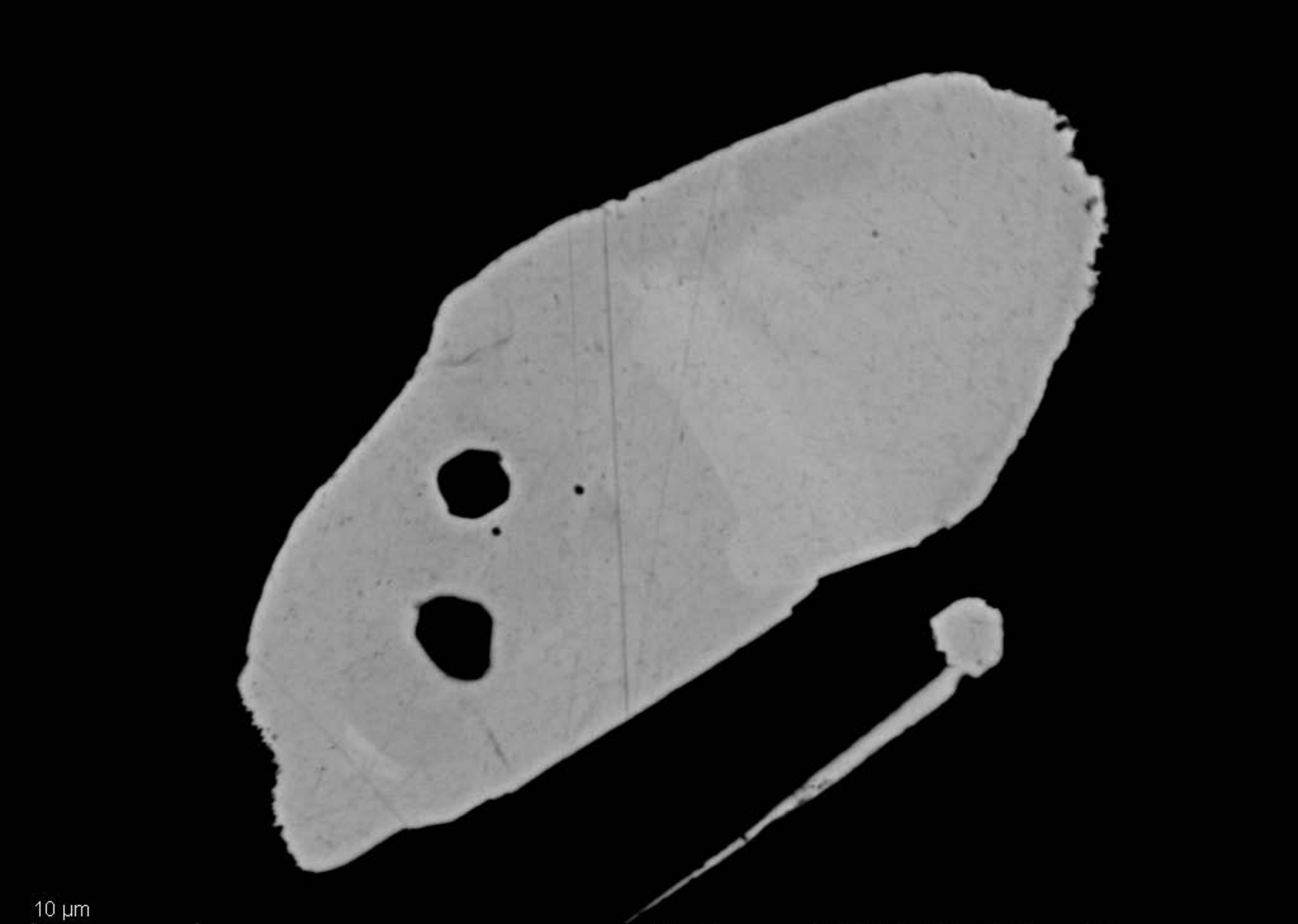
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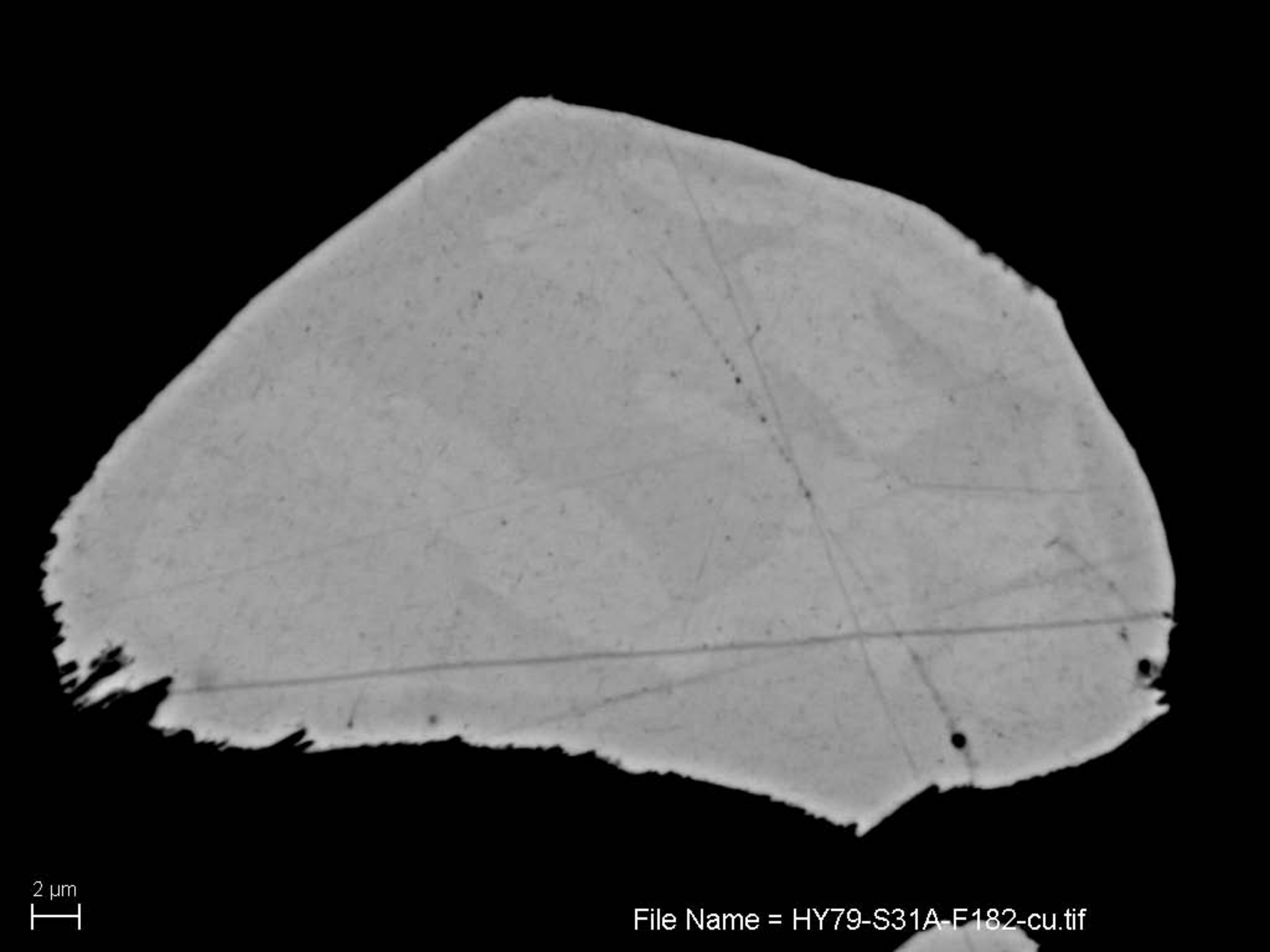
2 µm
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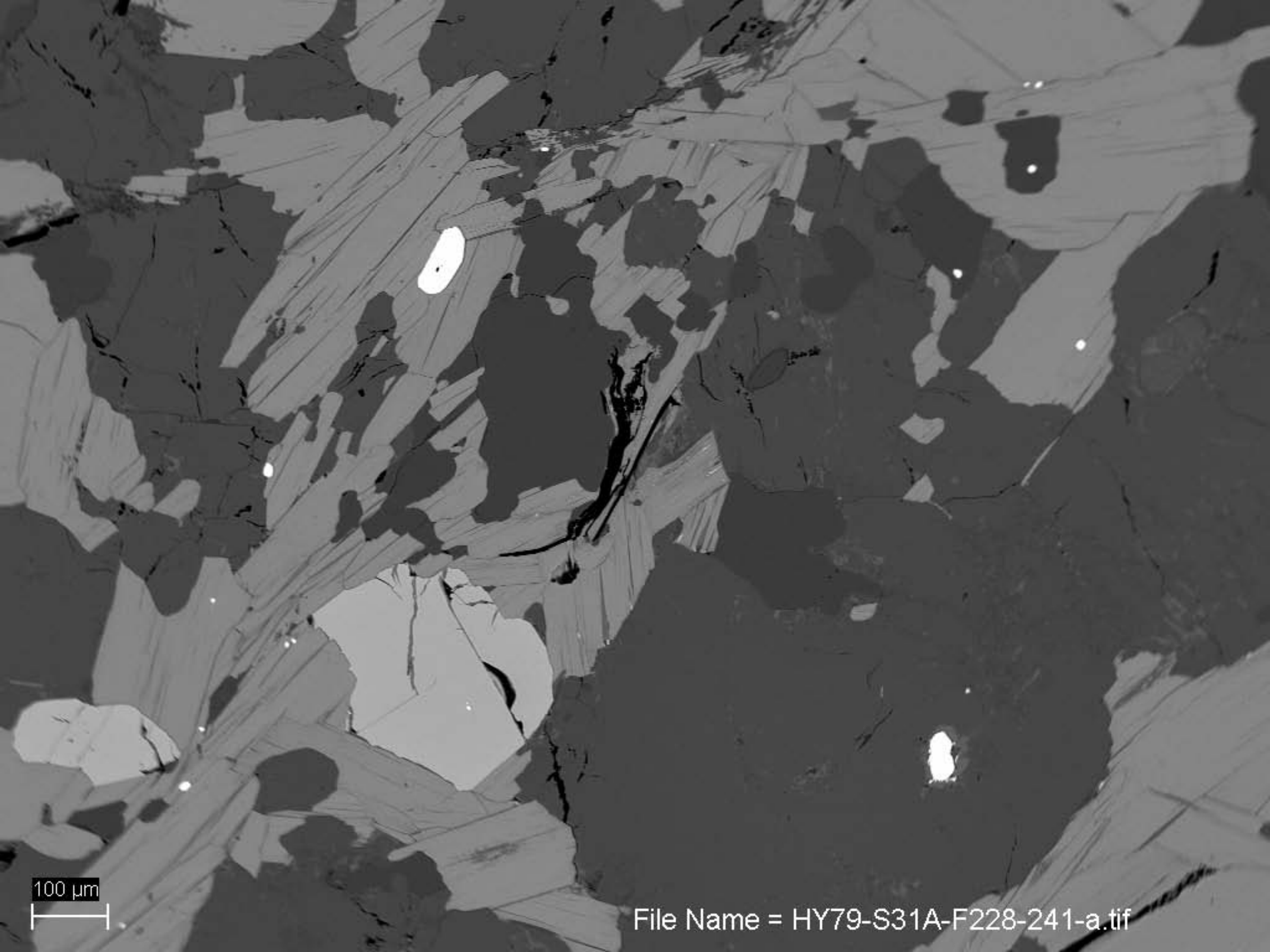
100 µm
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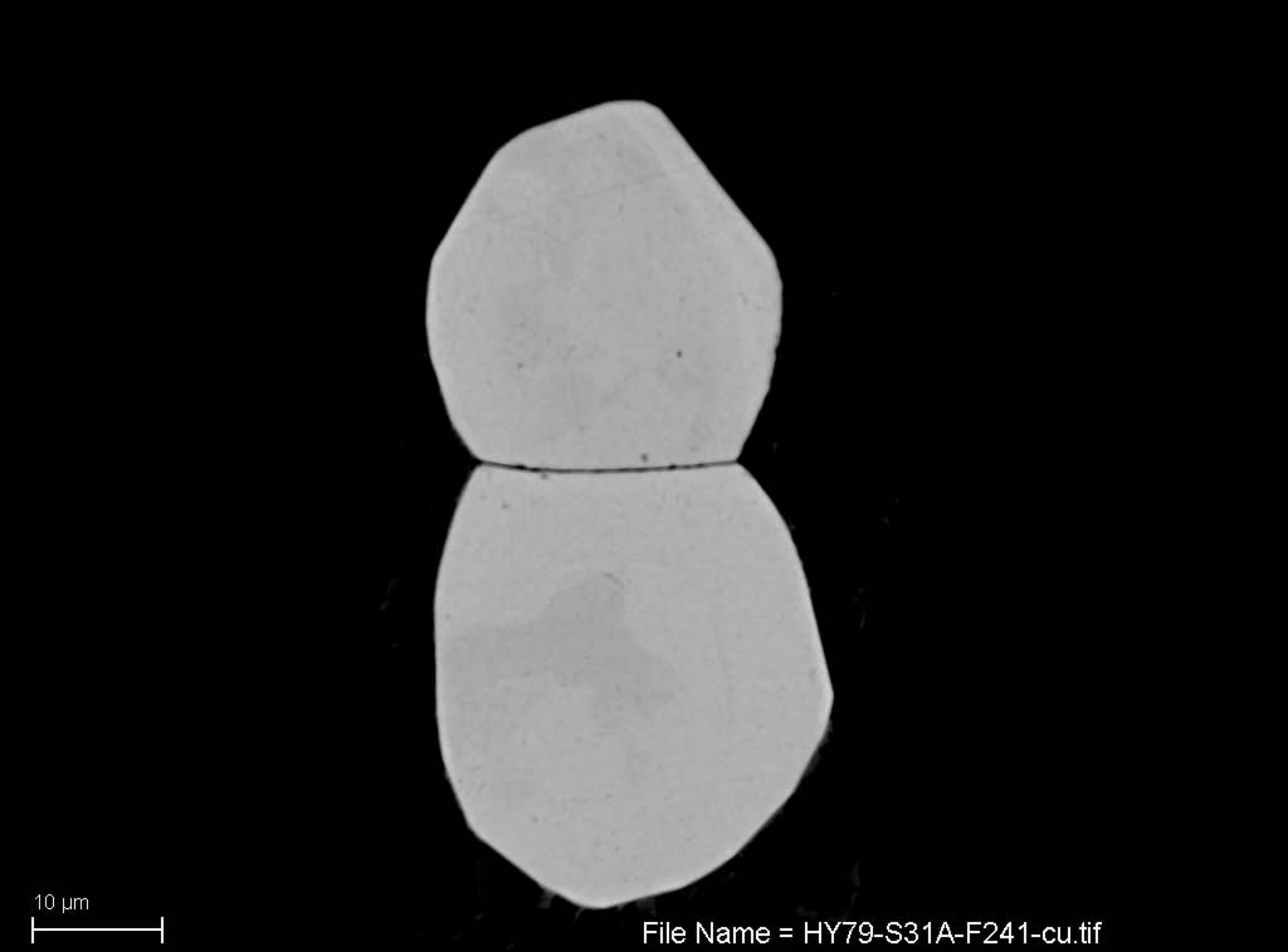
10 µm
File Name = HY79-S31A-F228-cu.tif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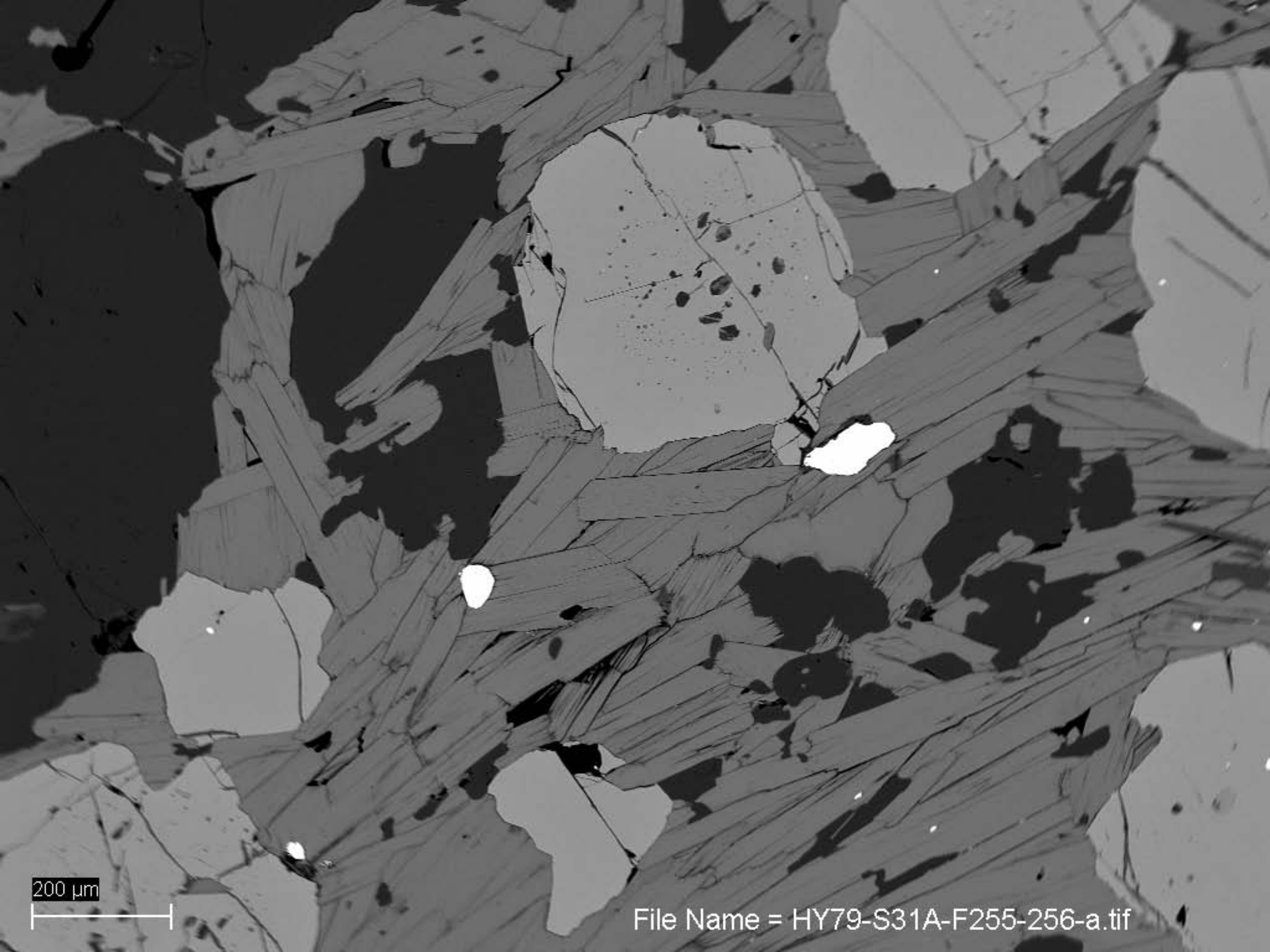
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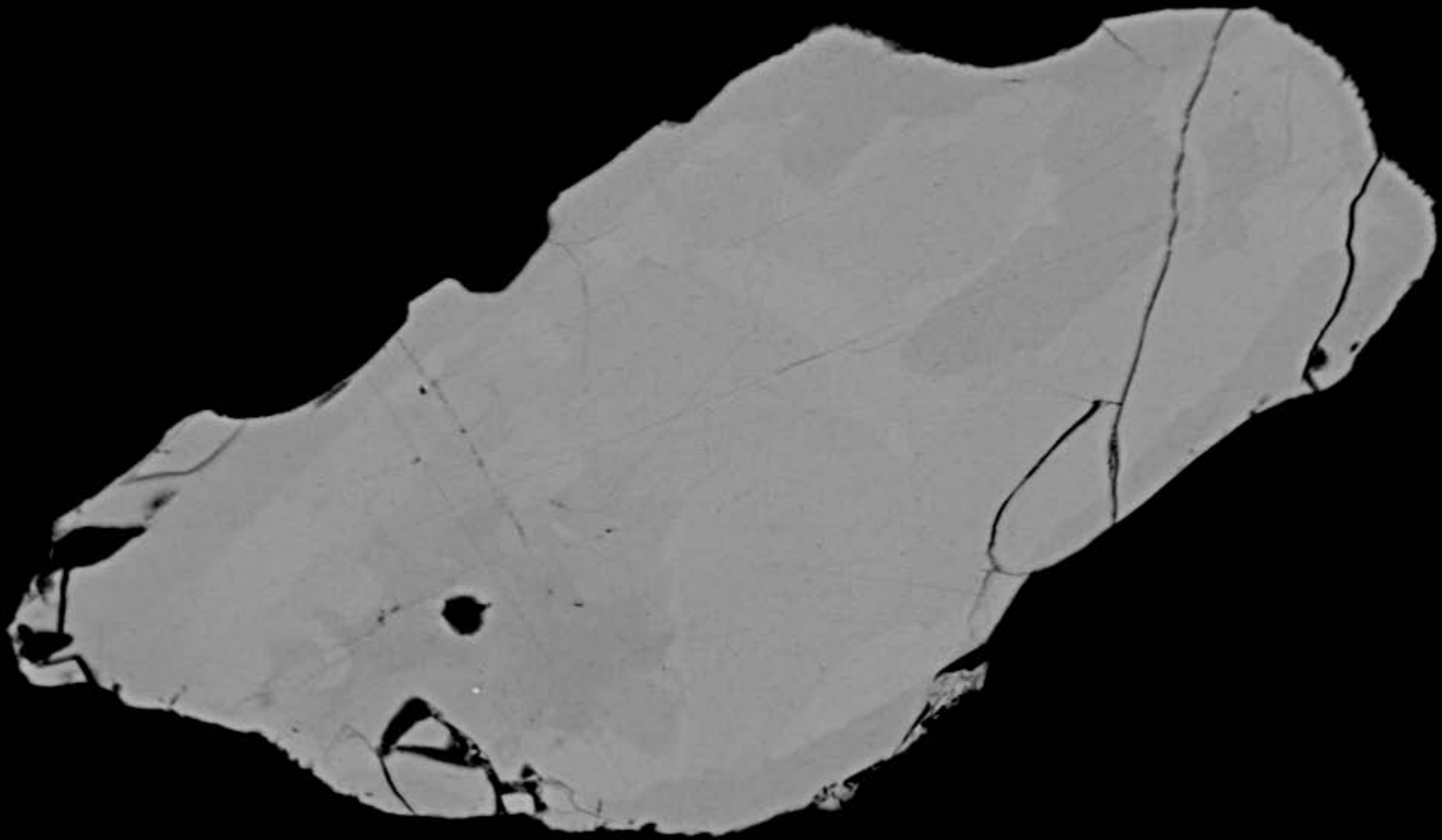

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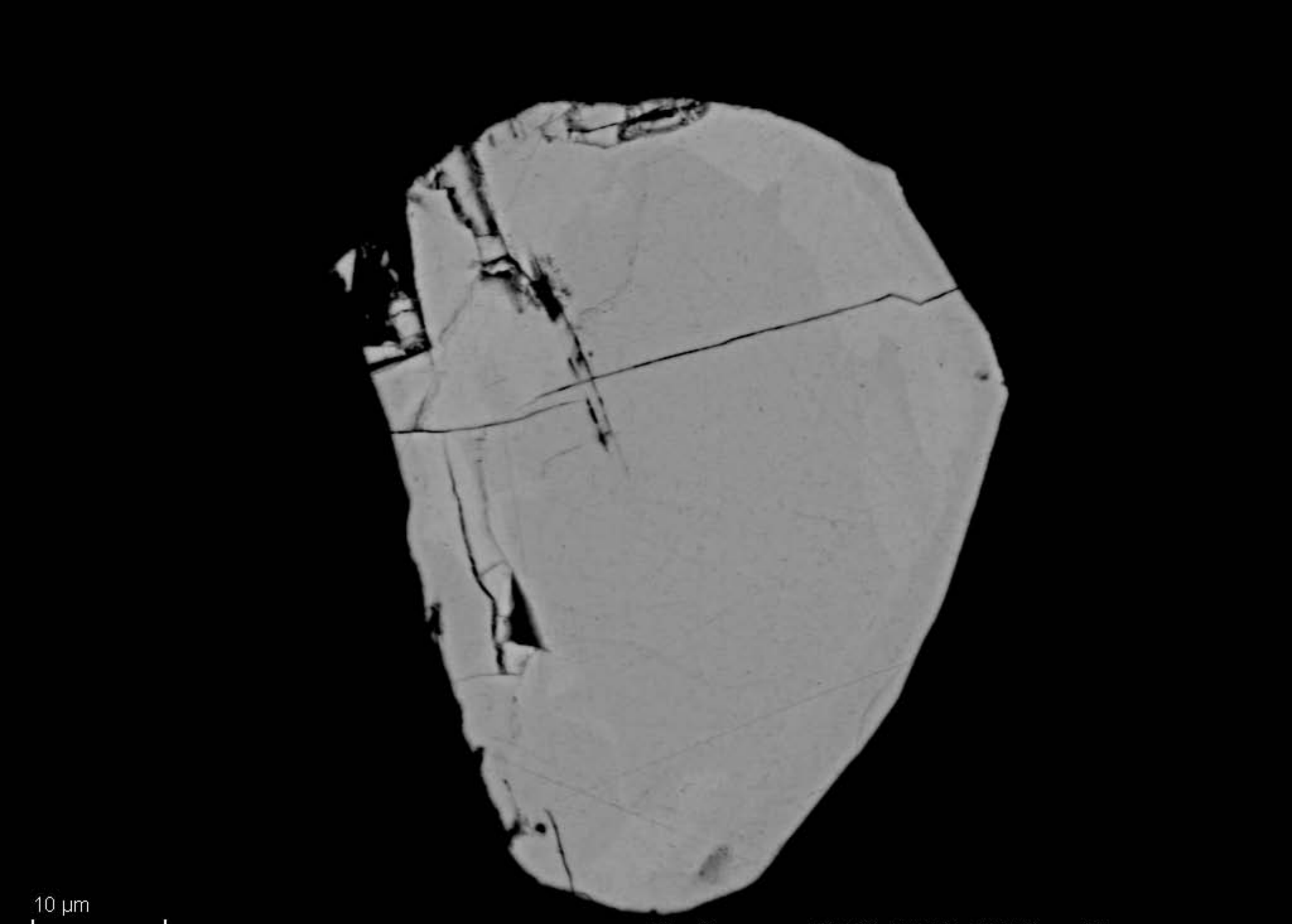
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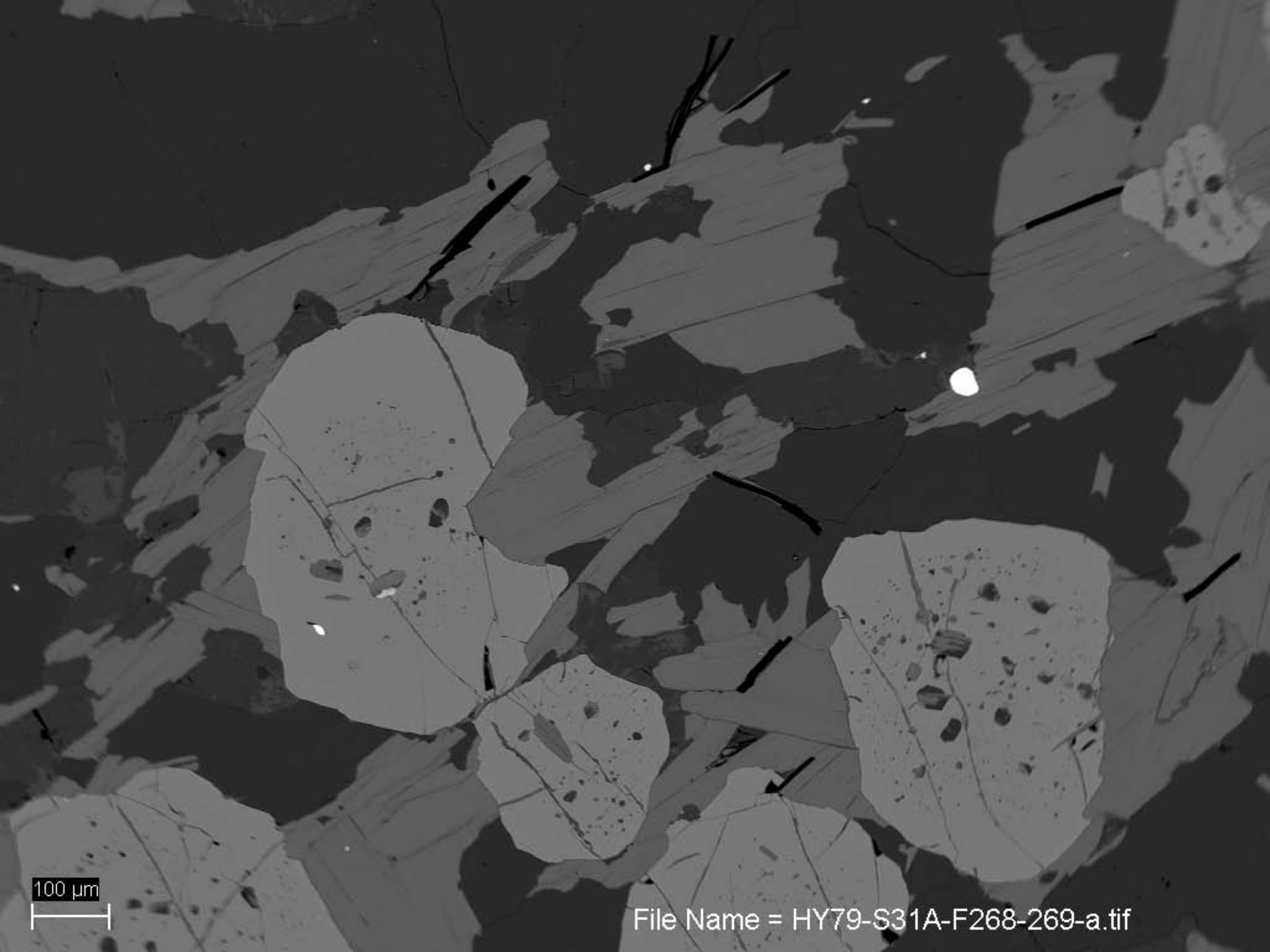
100 µm
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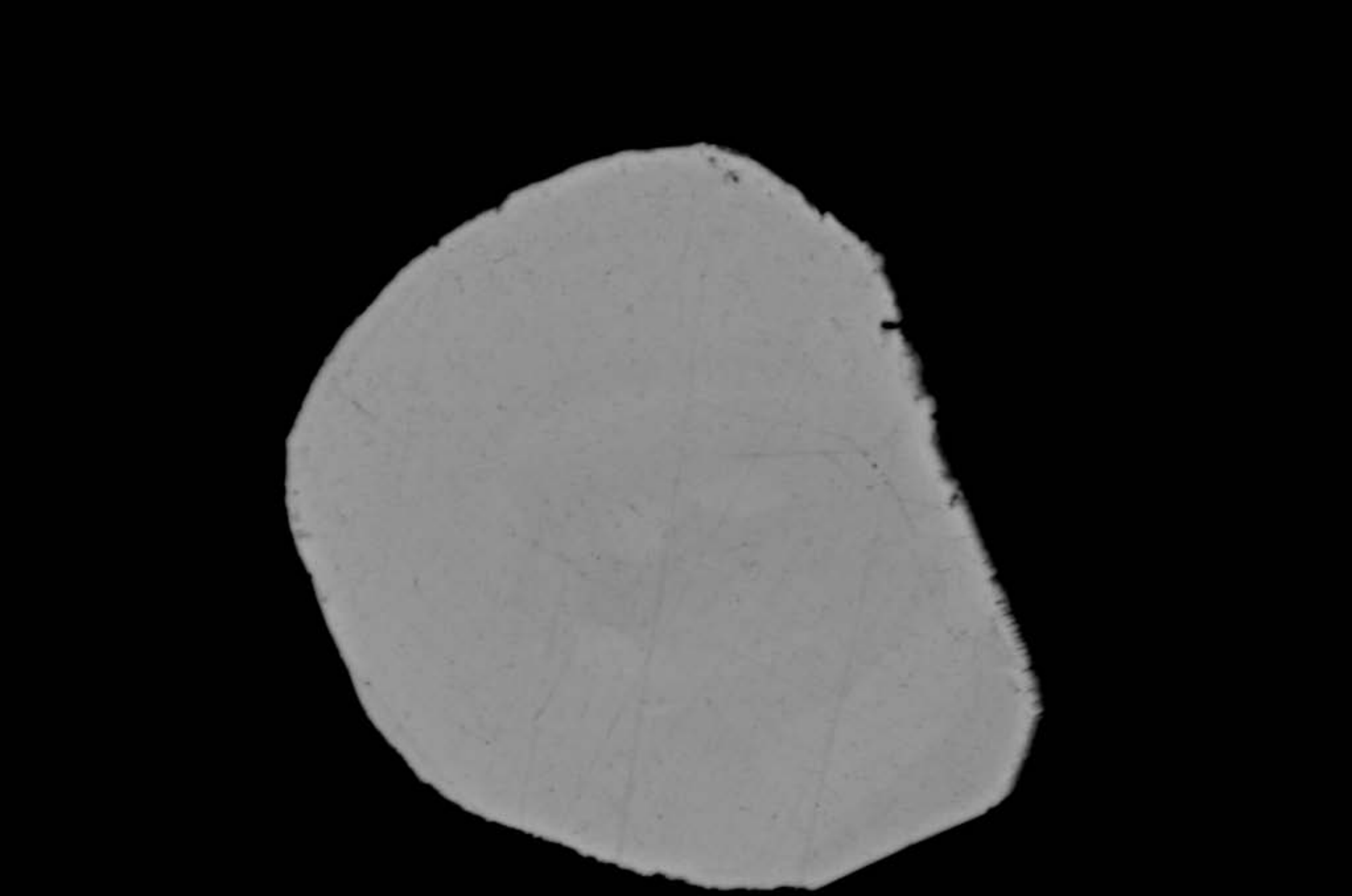

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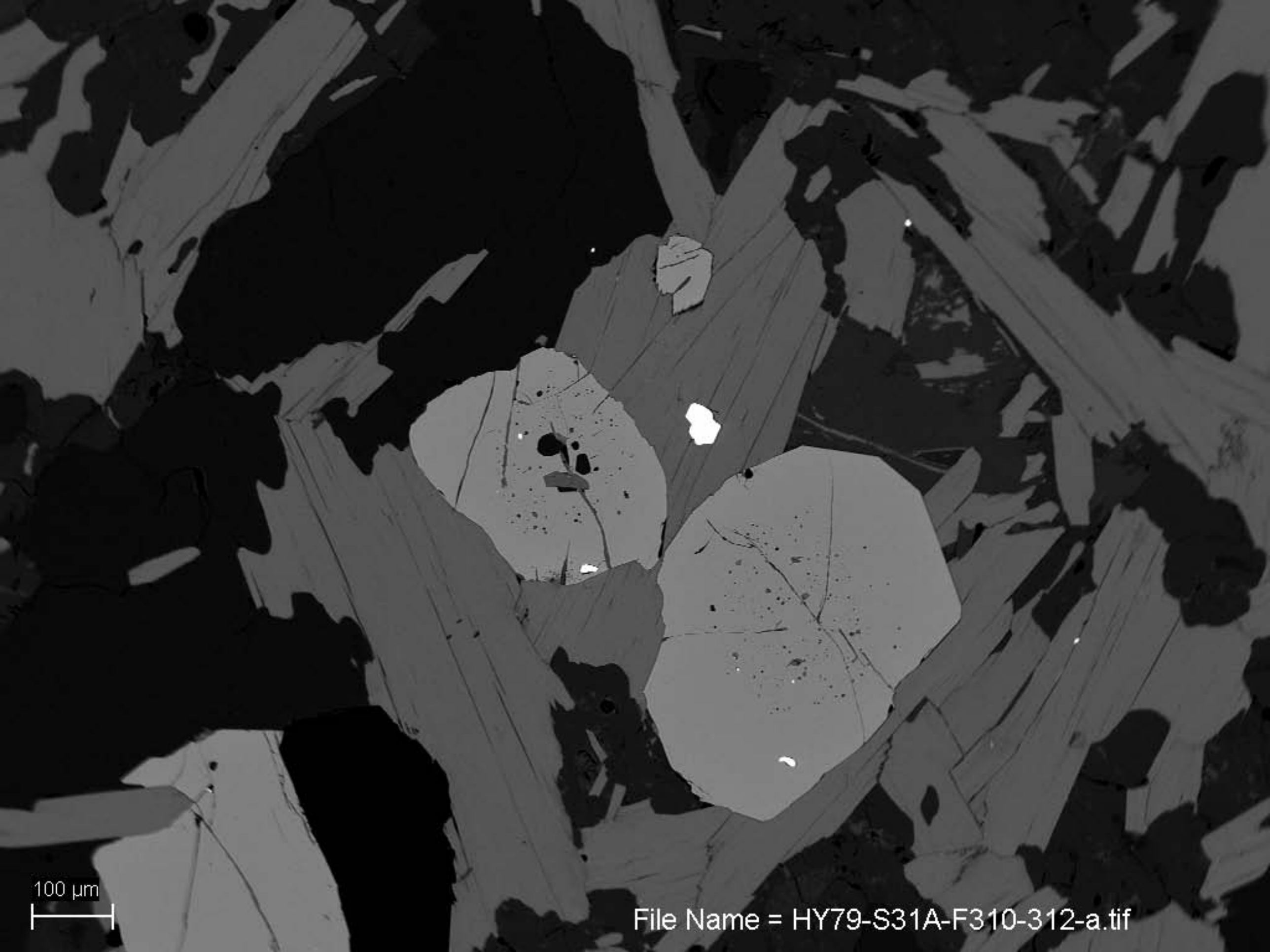
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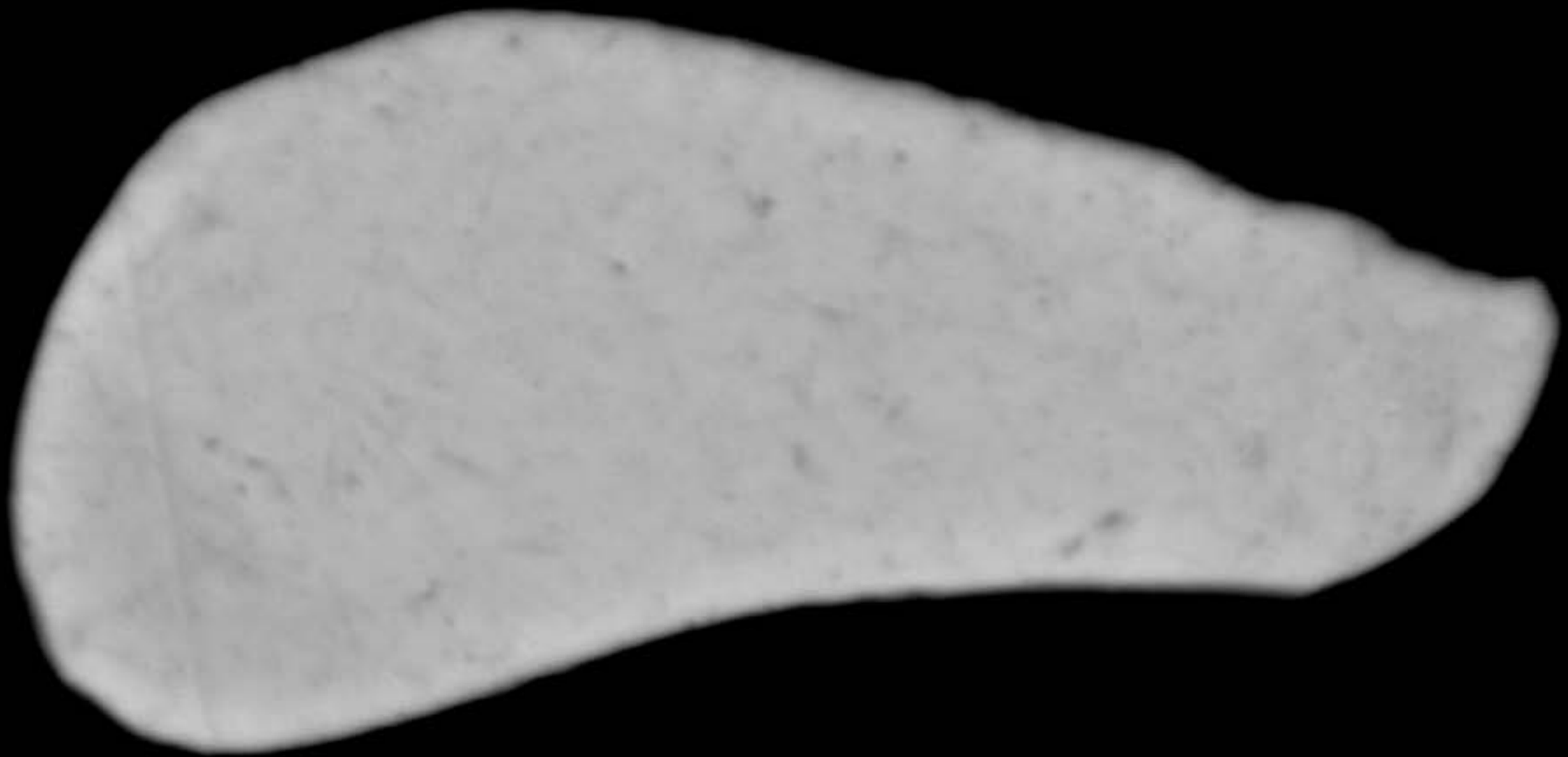

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100 µm

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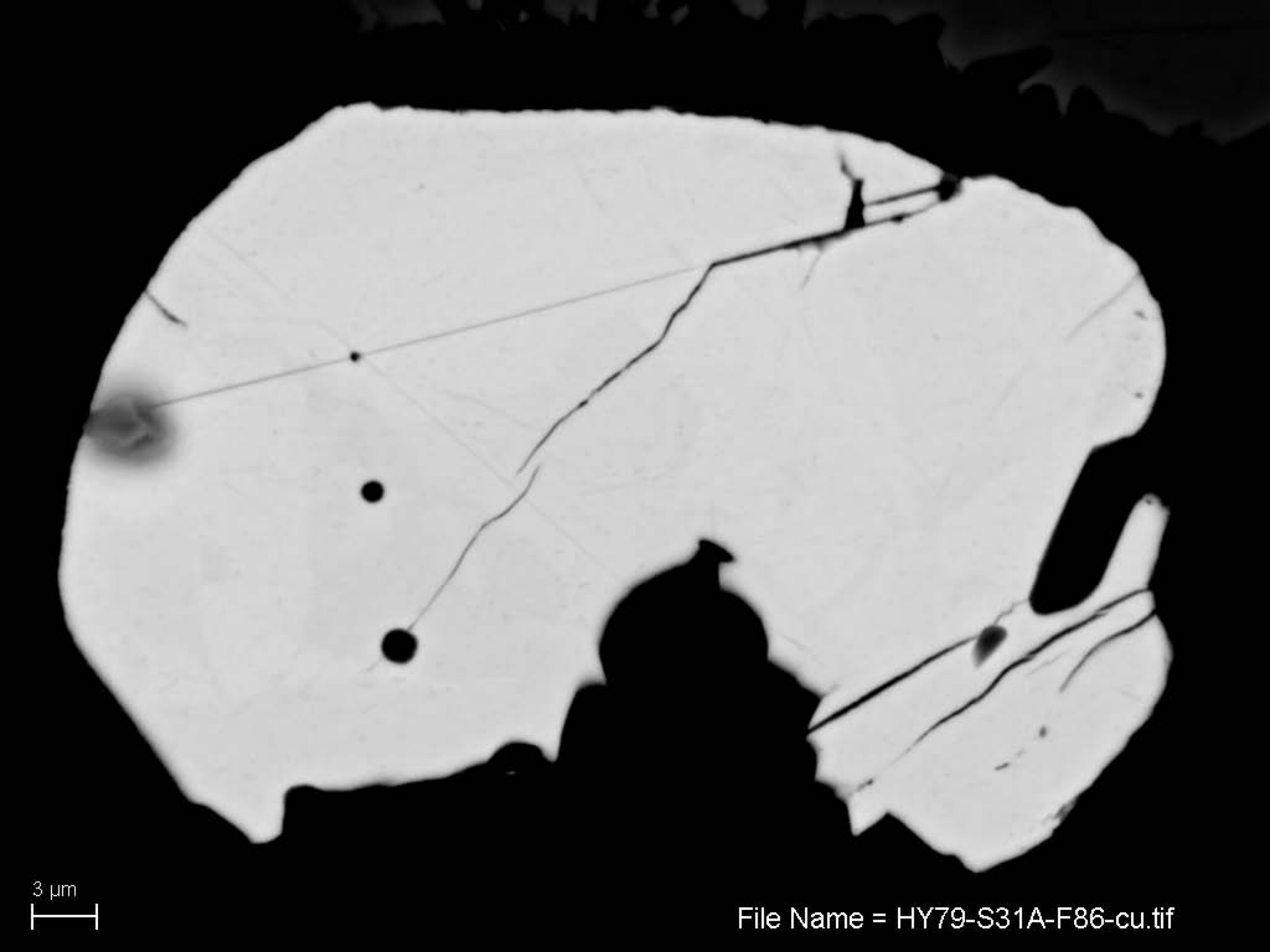
3 µm
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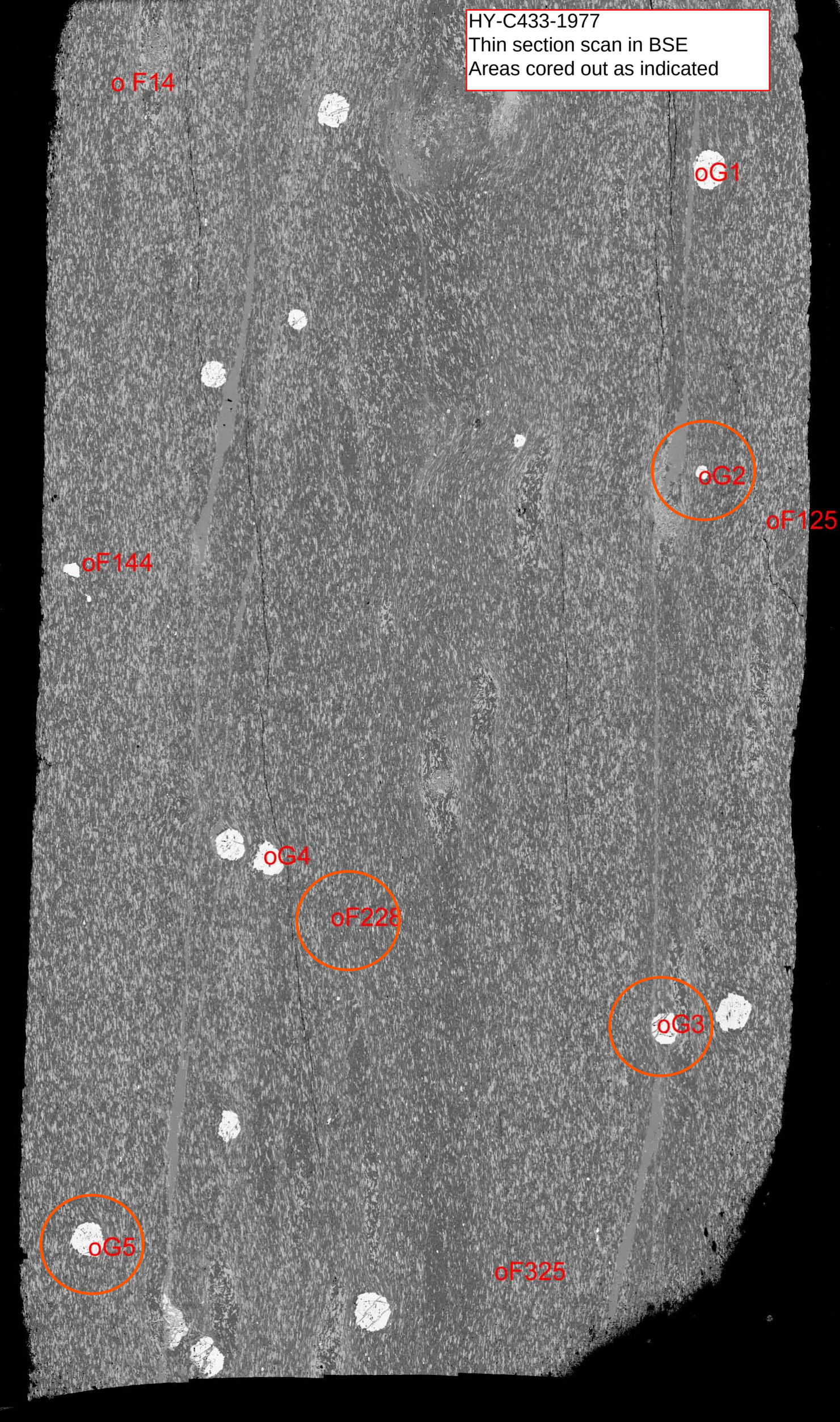
HY-C433-1977
Thin section scan in BSE
Areas cored out as indicated
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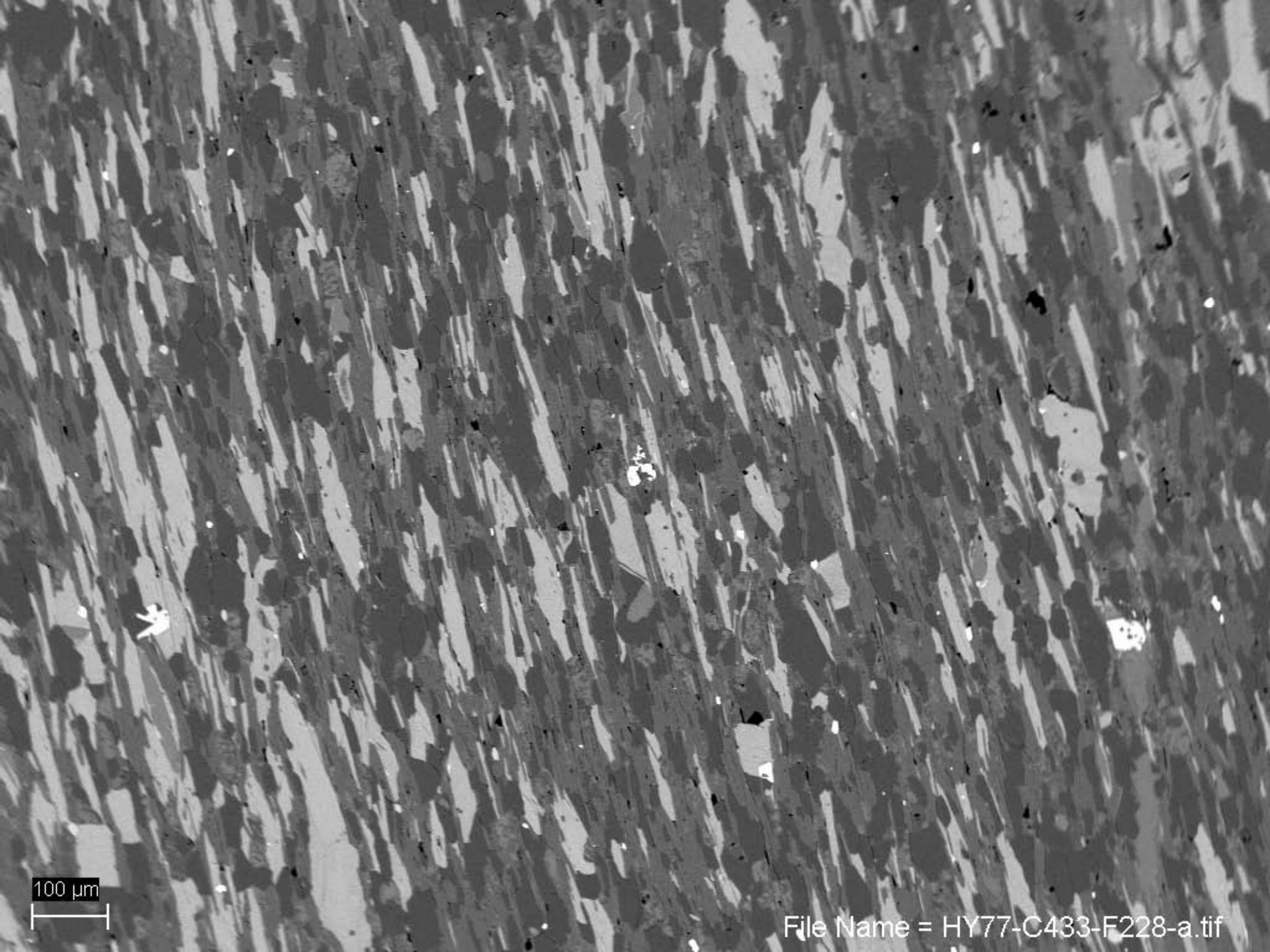
oG1
oG2
oF125
oF144
oG4
oF228
oG3
oG5
oF325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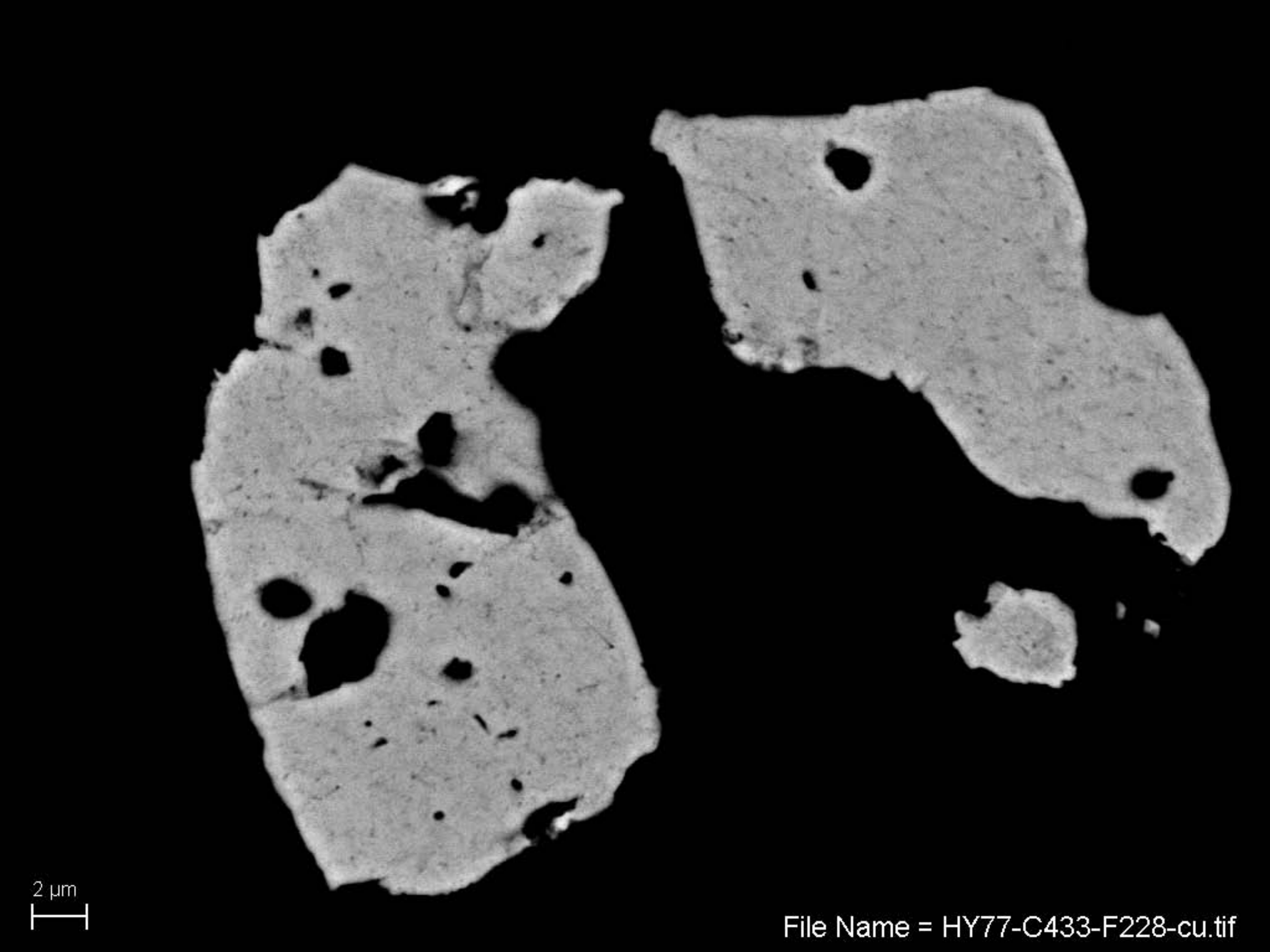

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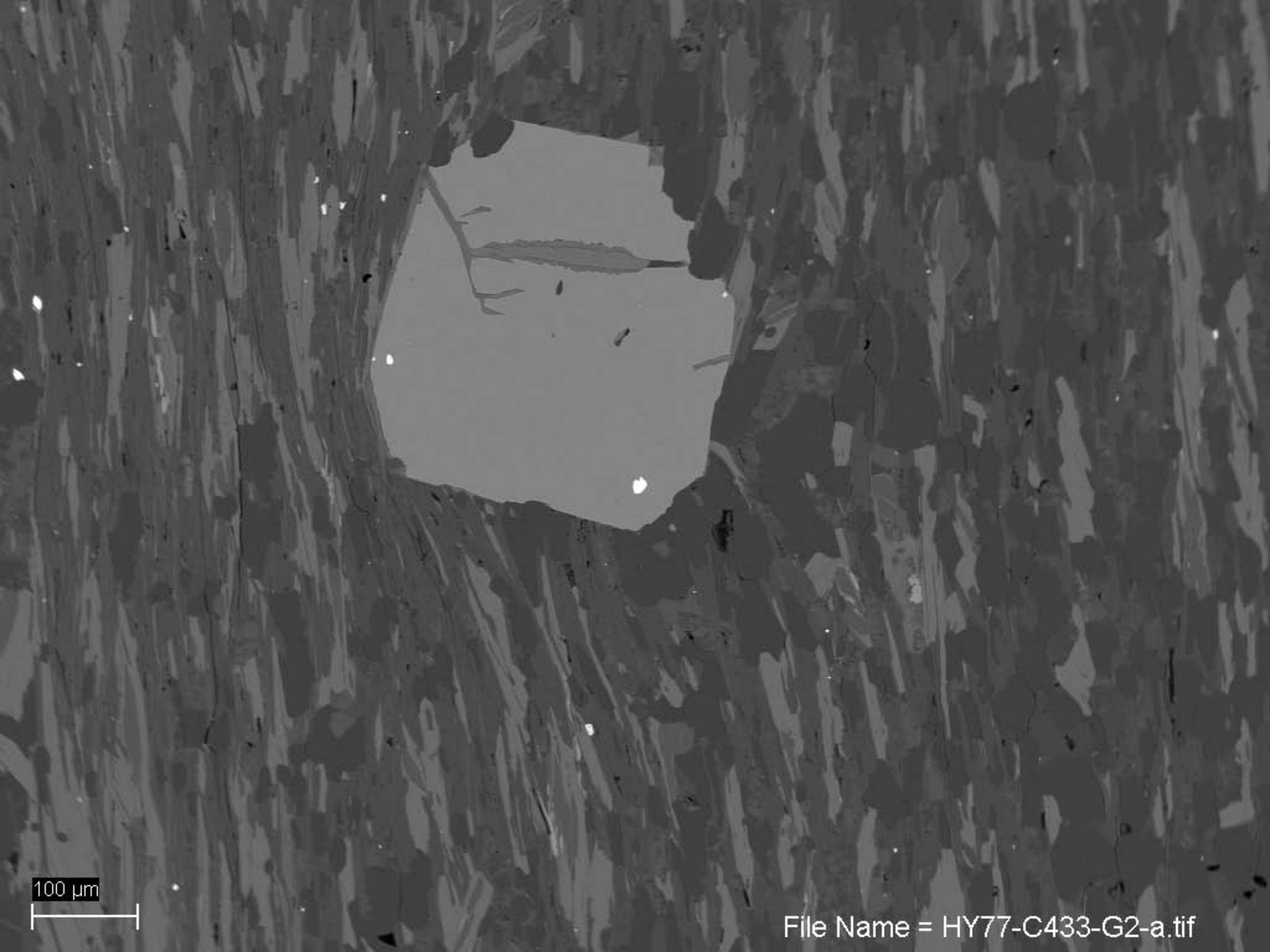
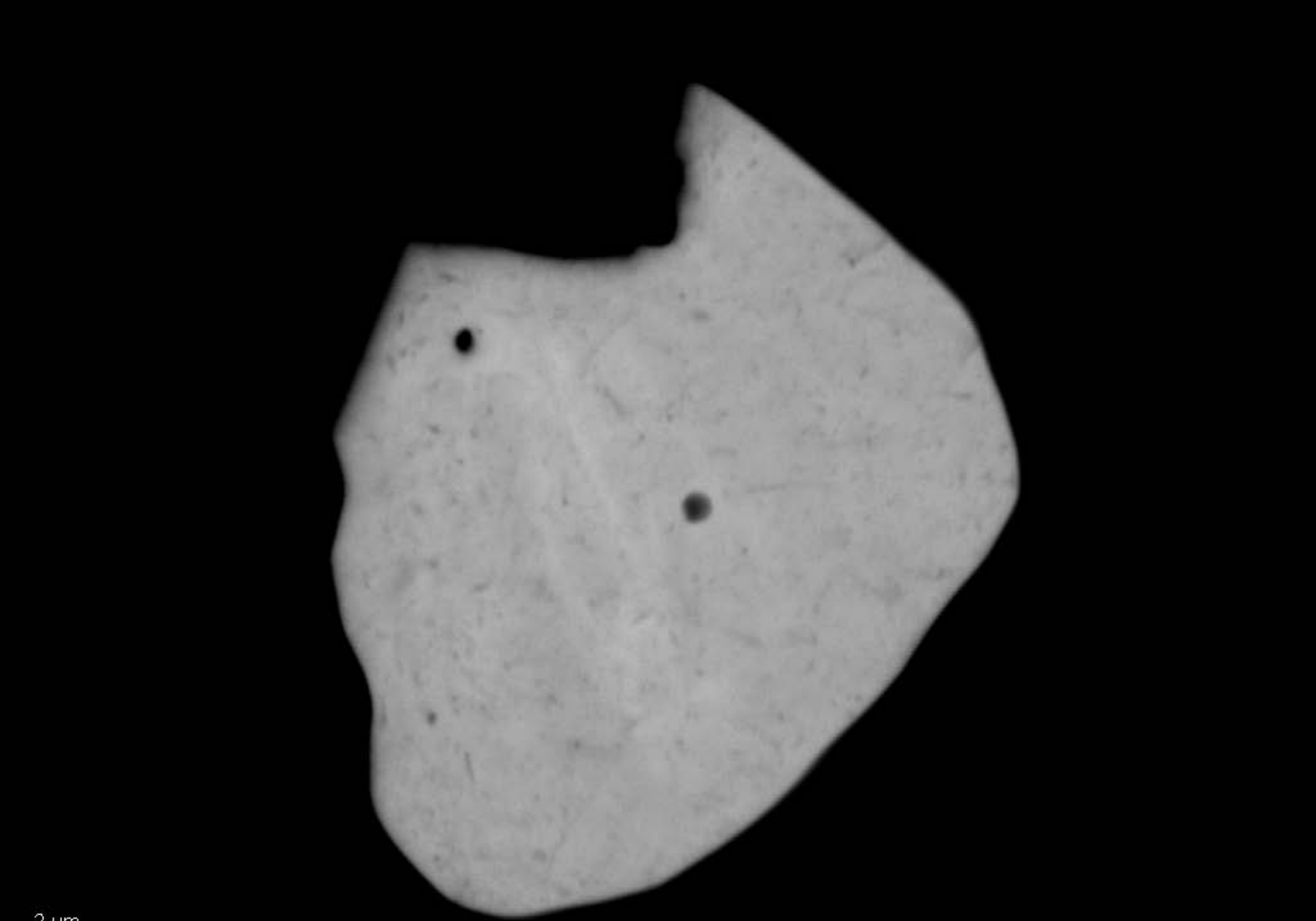
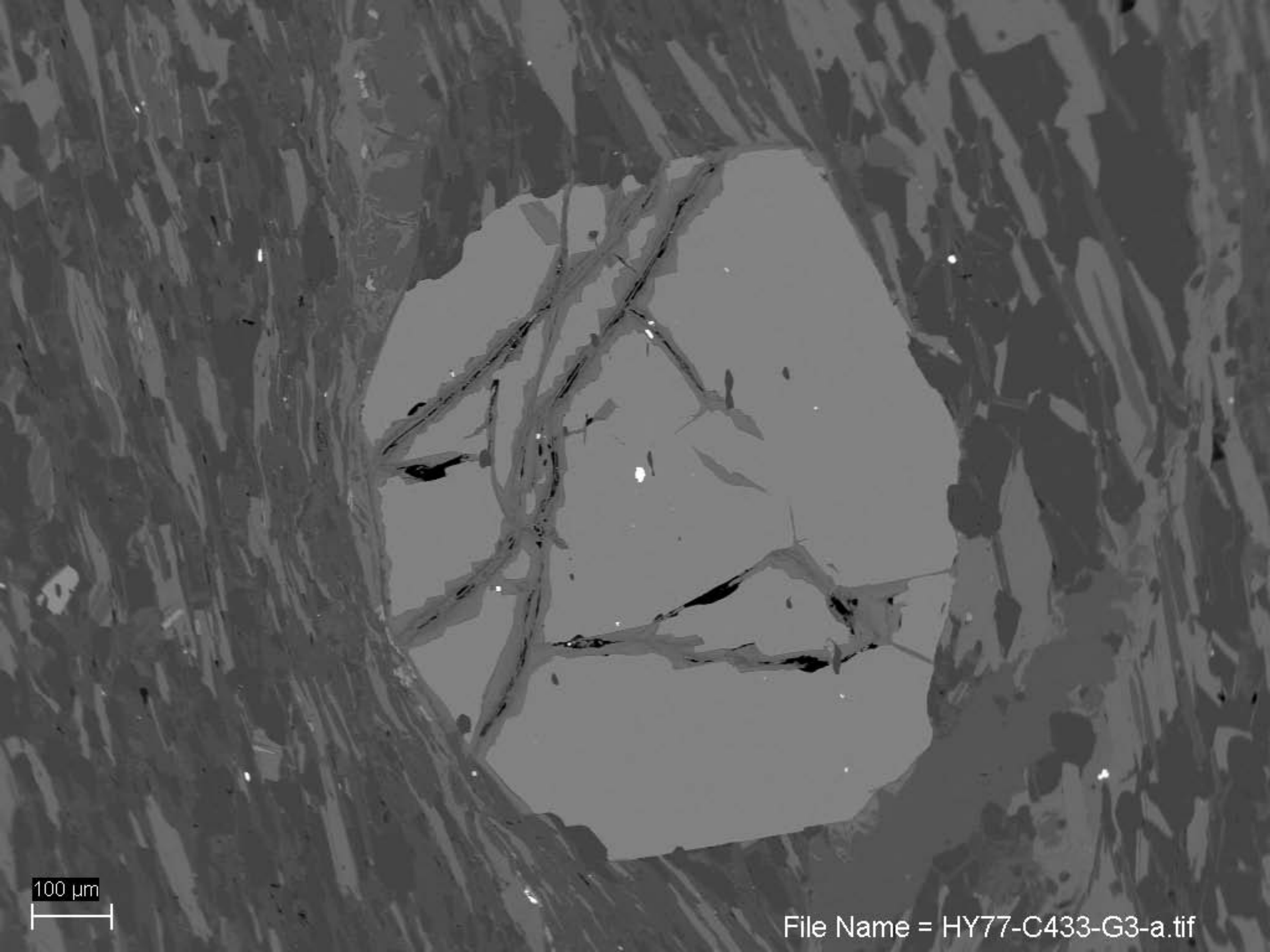
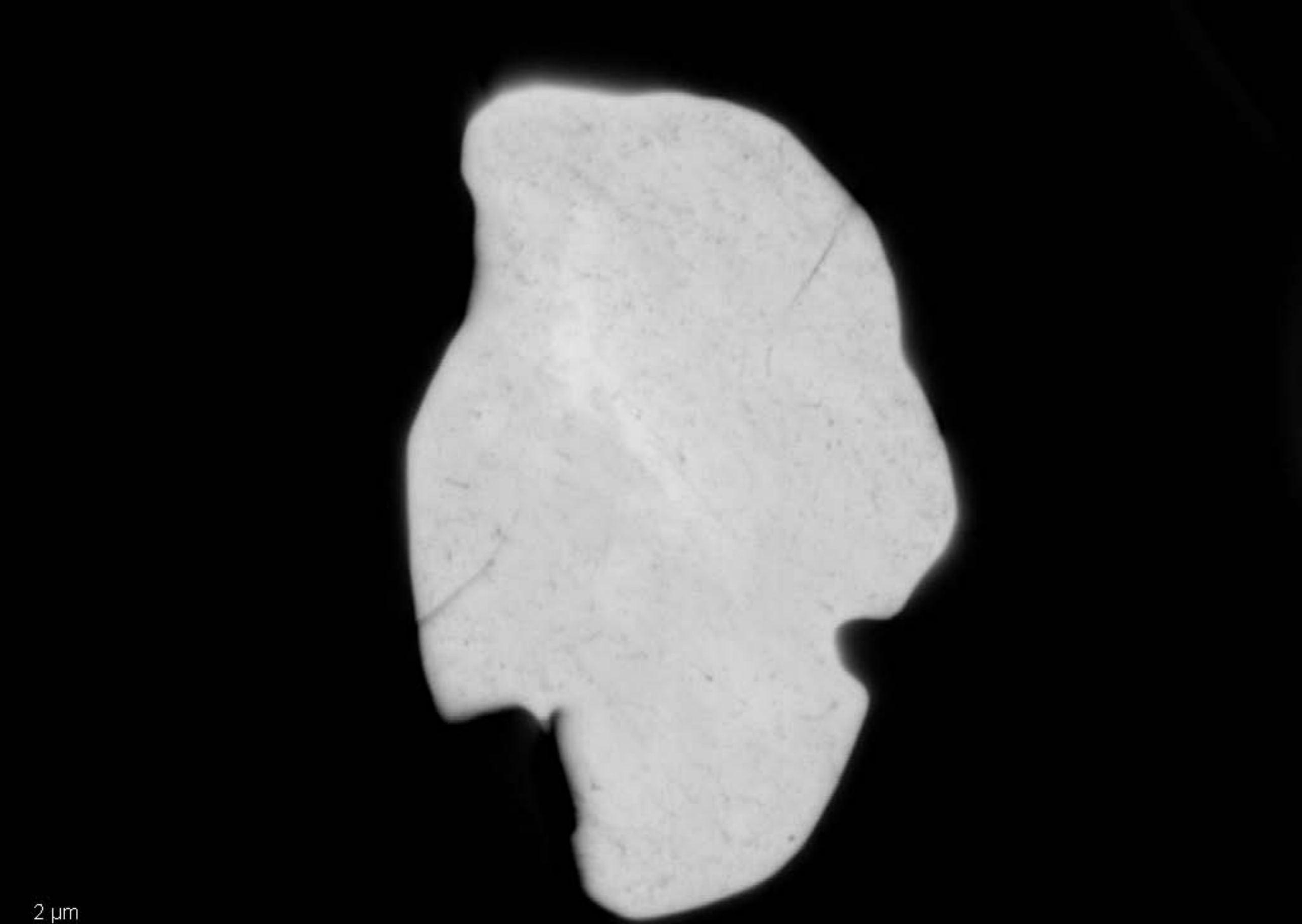
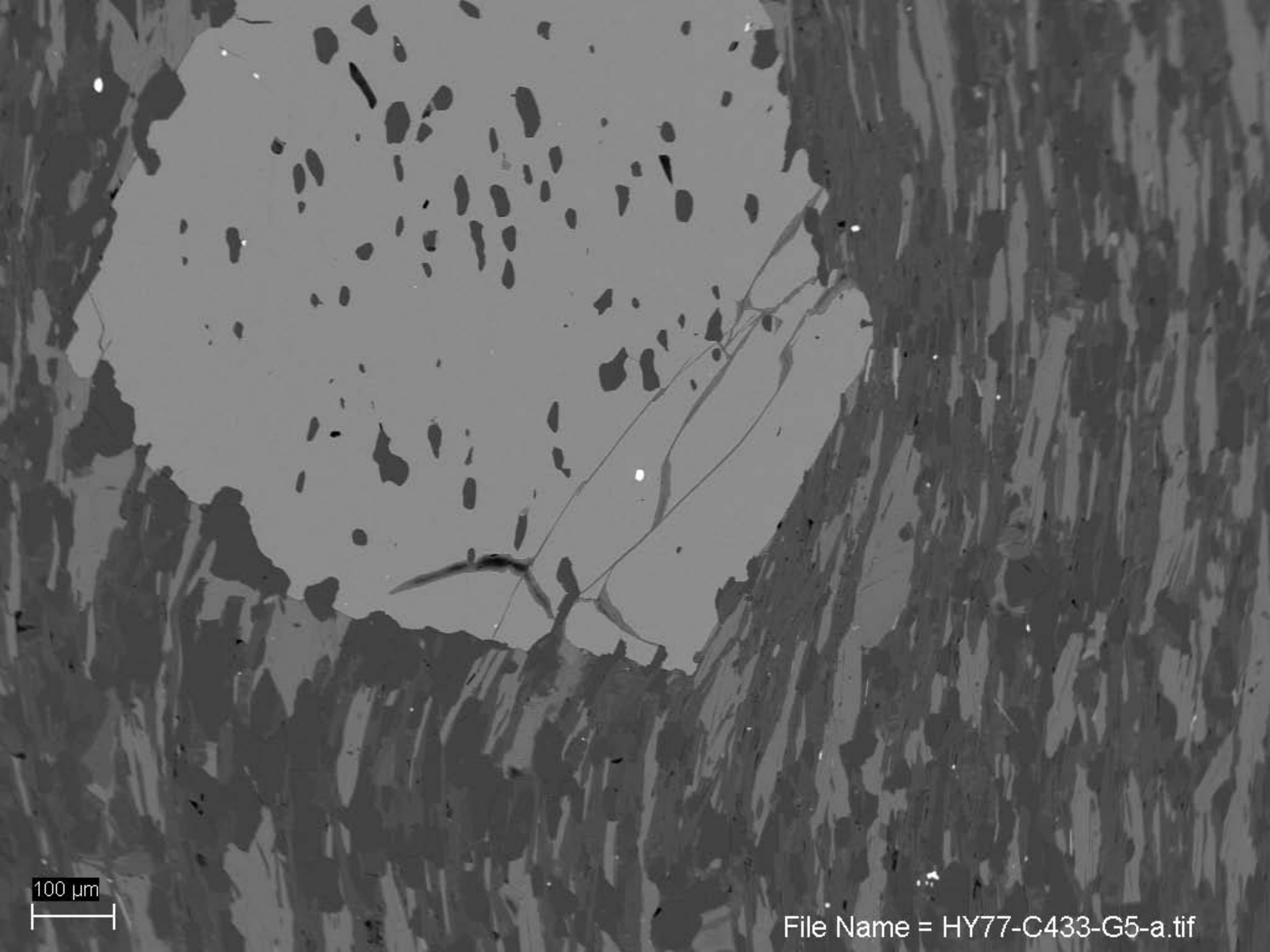

100 µm
File Name = HY77-C433-G2-a.tif

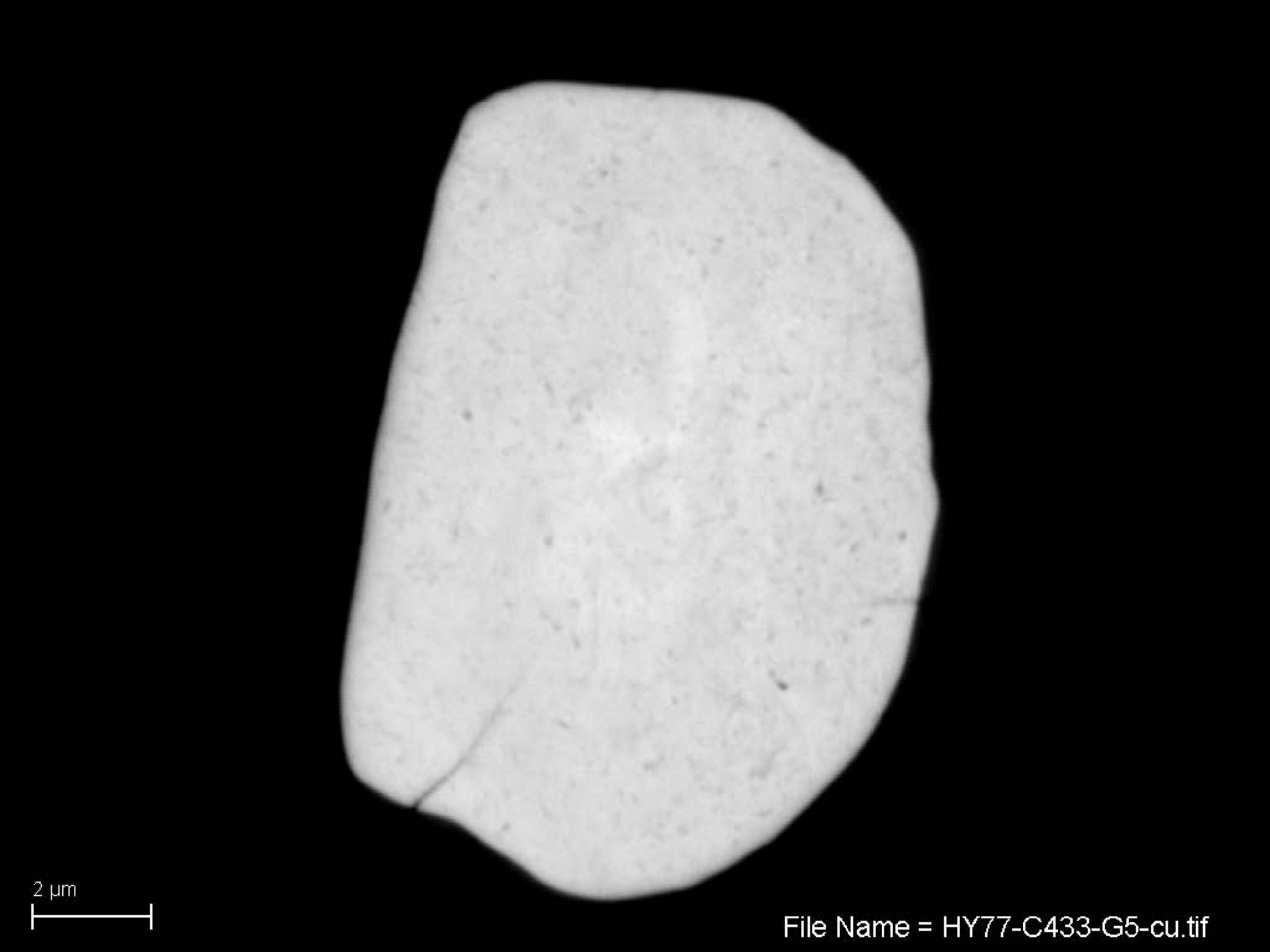


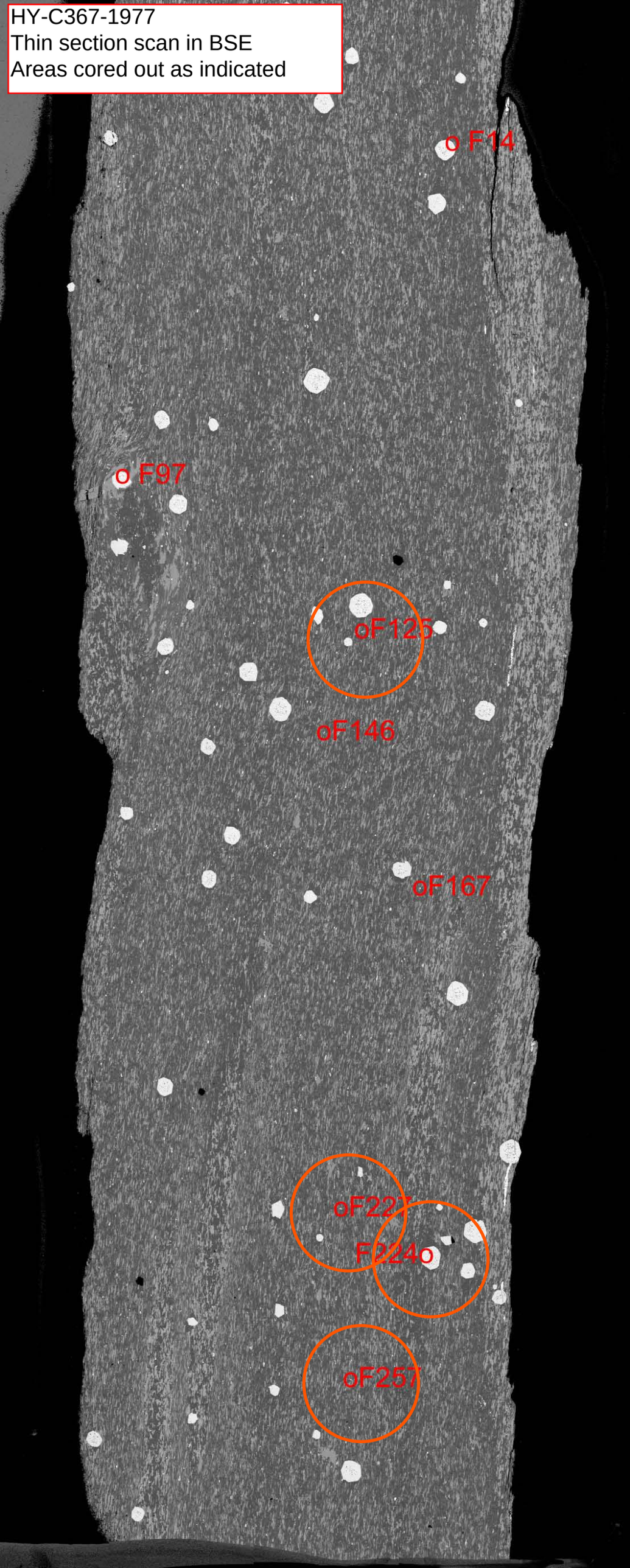
File Name = HY77-C433-G2-cu.tif

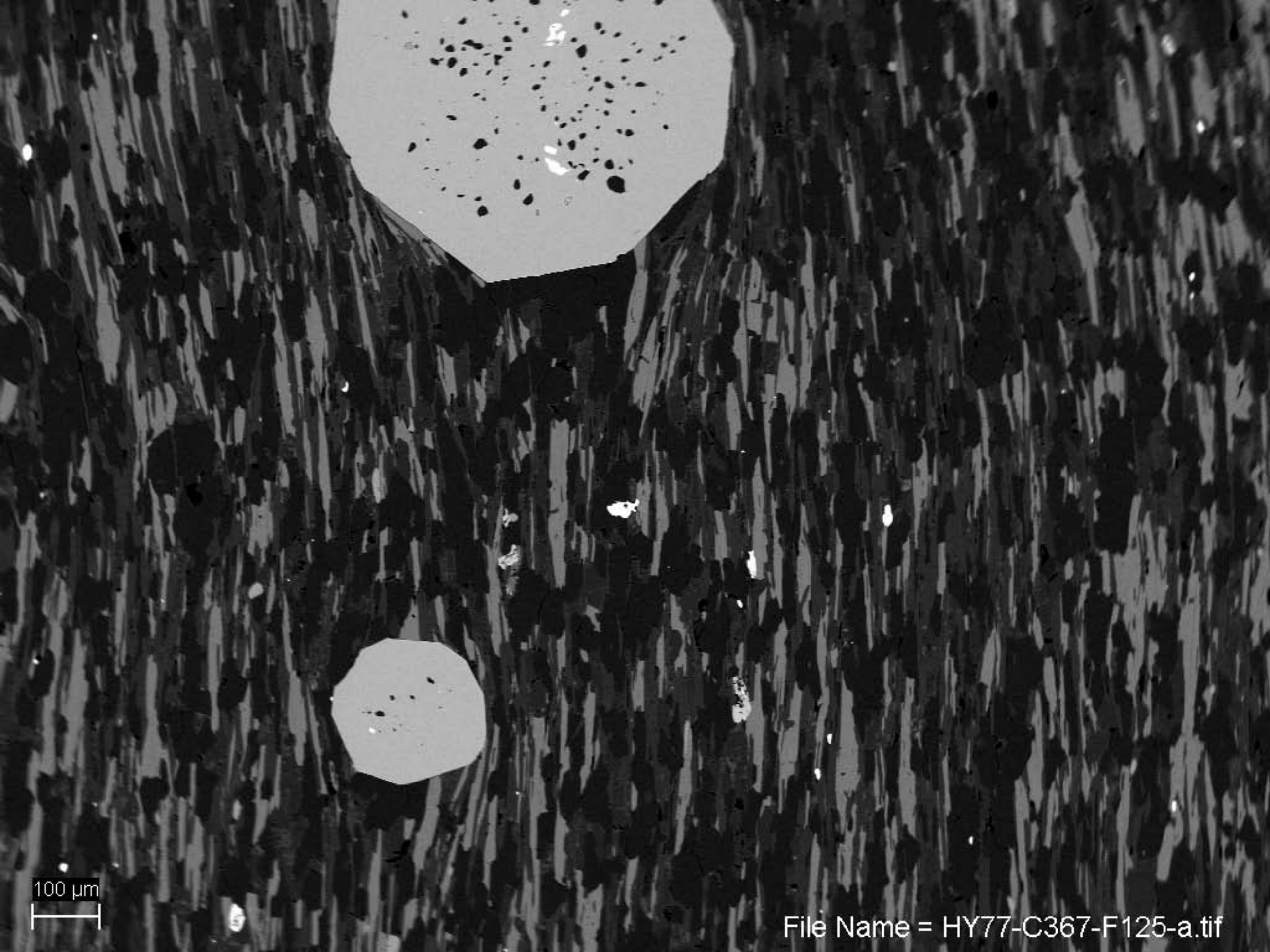

100 µm
File Name = HY77-C433-G3-a.tif


2 µm
File Name = HY77-C433-G3-cu.tif


100 µm
File Name = HY77-C433-G5-a.tif

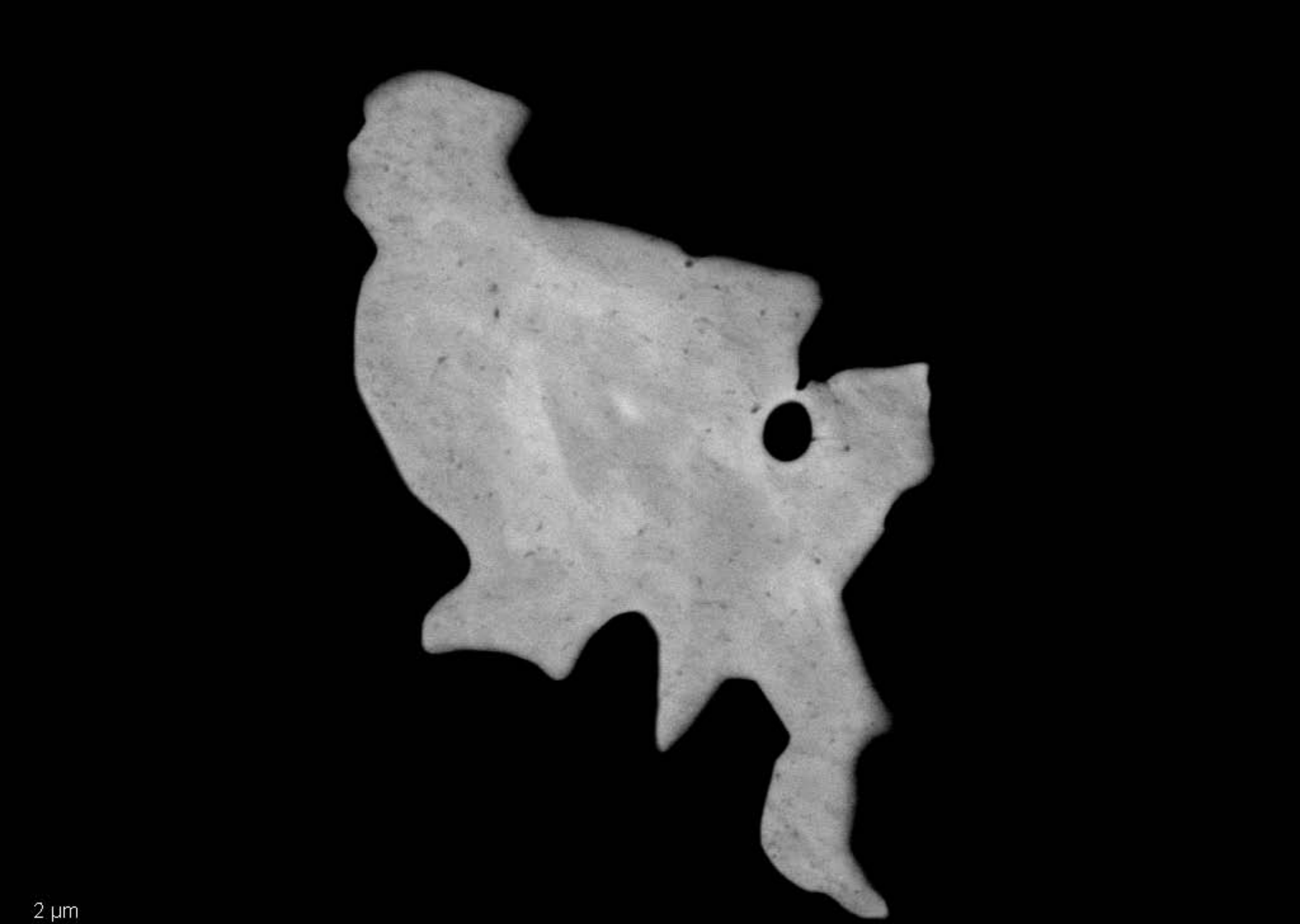

2 µm
File Name = HY77-C433-G5-cu.tif

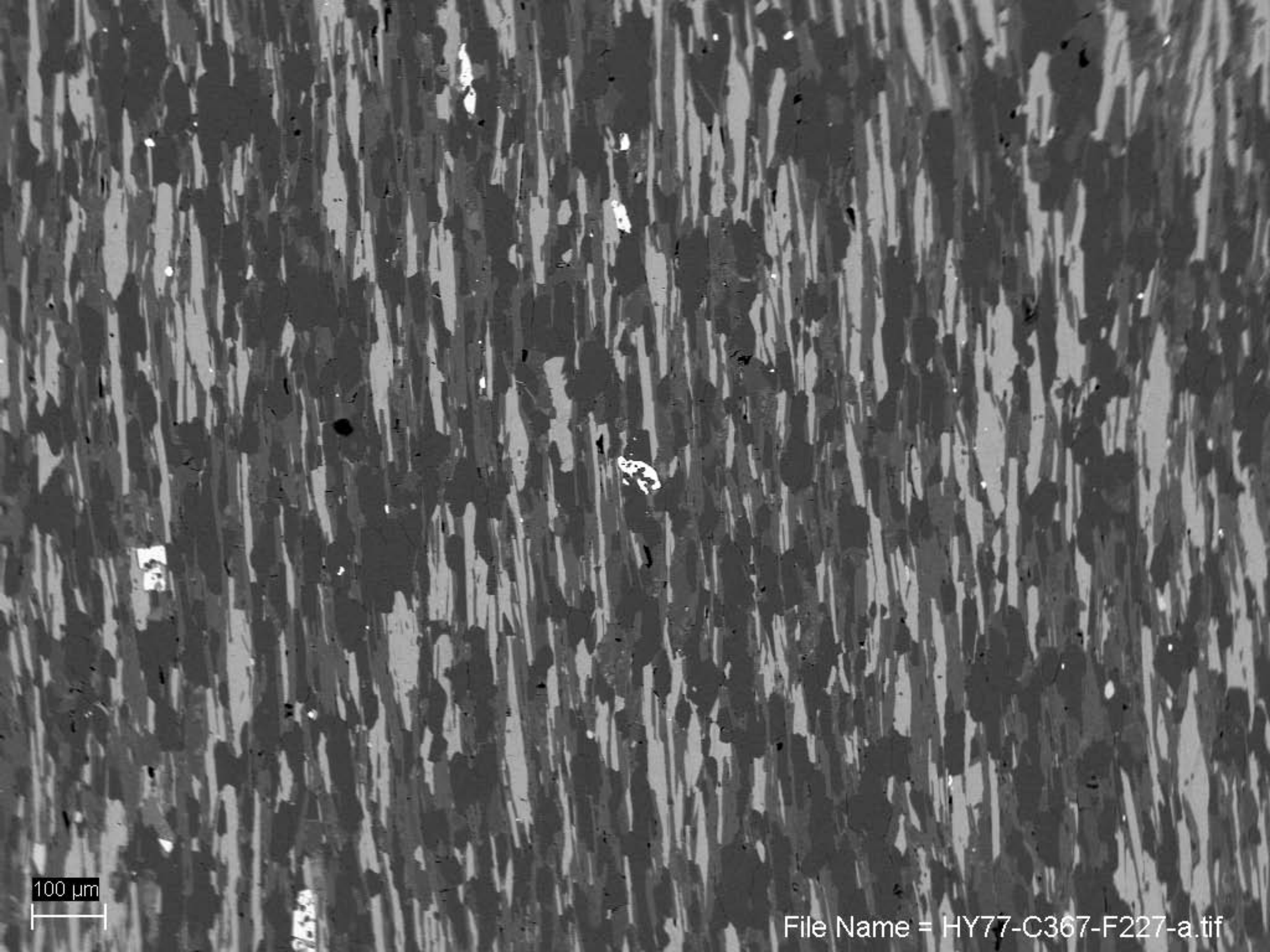

HY-C367-1977
Thin section scan in BSE
Areas cored out as indicated
o F14
o F97
oF125
oF146
oF167
oF227
F224o
oF257


100 µm
File Name = HY77-C367-F125-a.tif

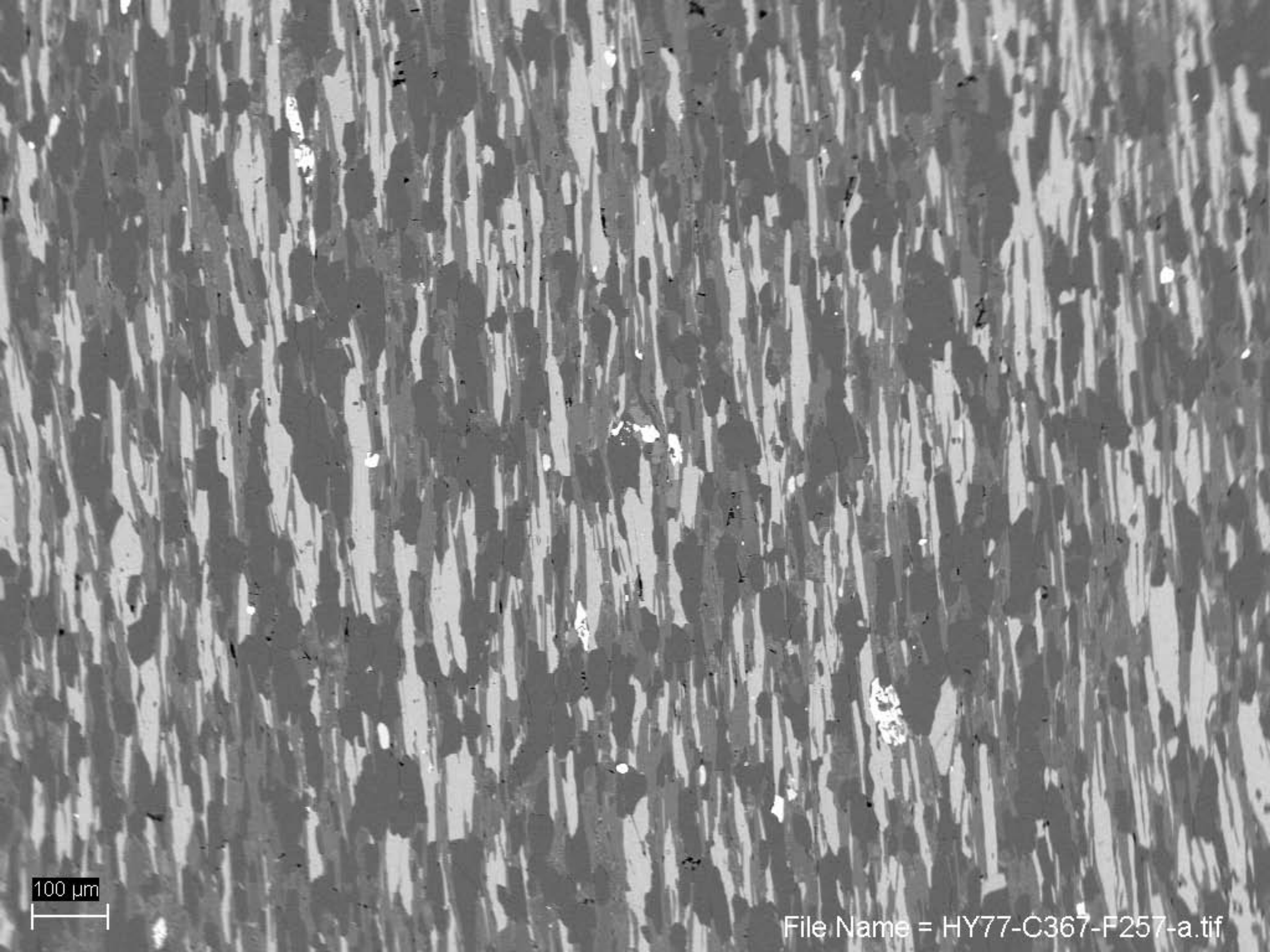
File Name = HY77-C367-F125-cu.tif

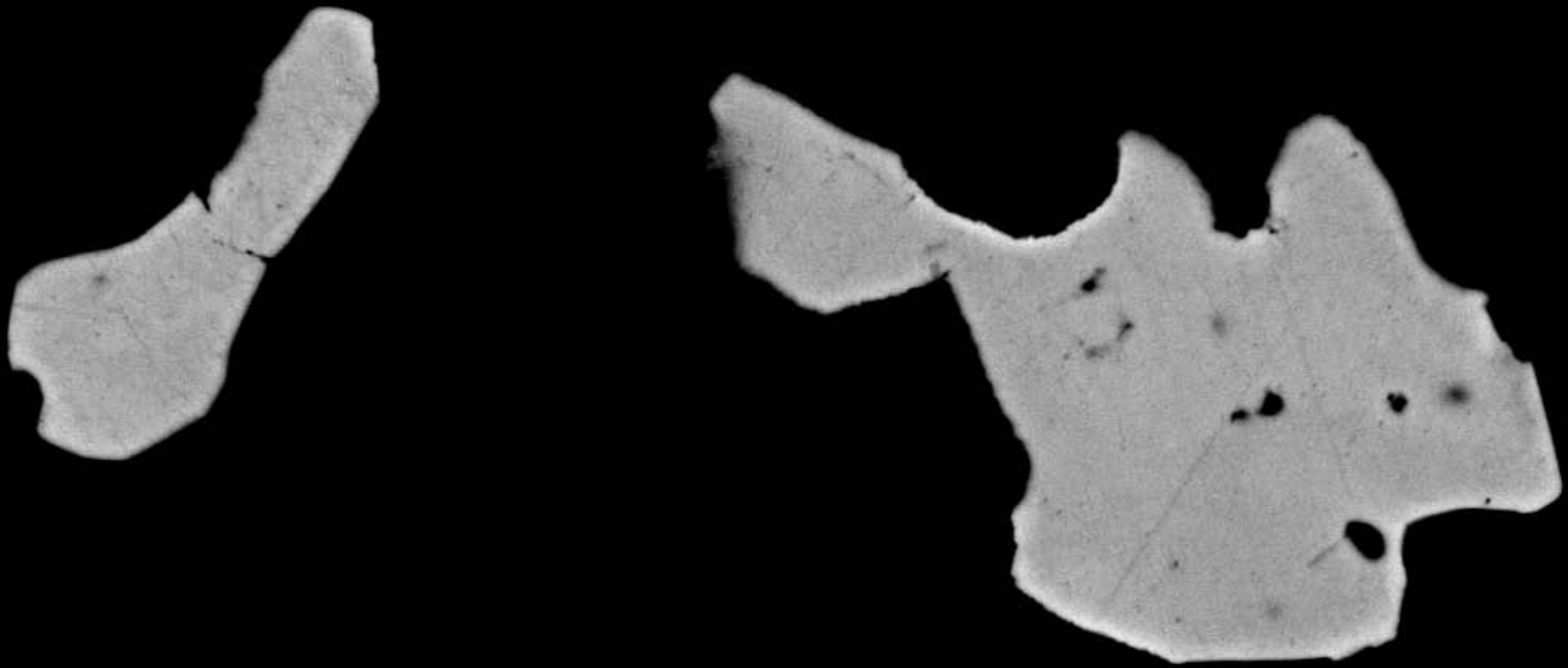

100 µm
File Name = HY77-C367-F224-a.tif


2 µm
File Name = HY77-C367-F224-cu.tif


100 µm
File Name = HY77-C367-F227-a.tif

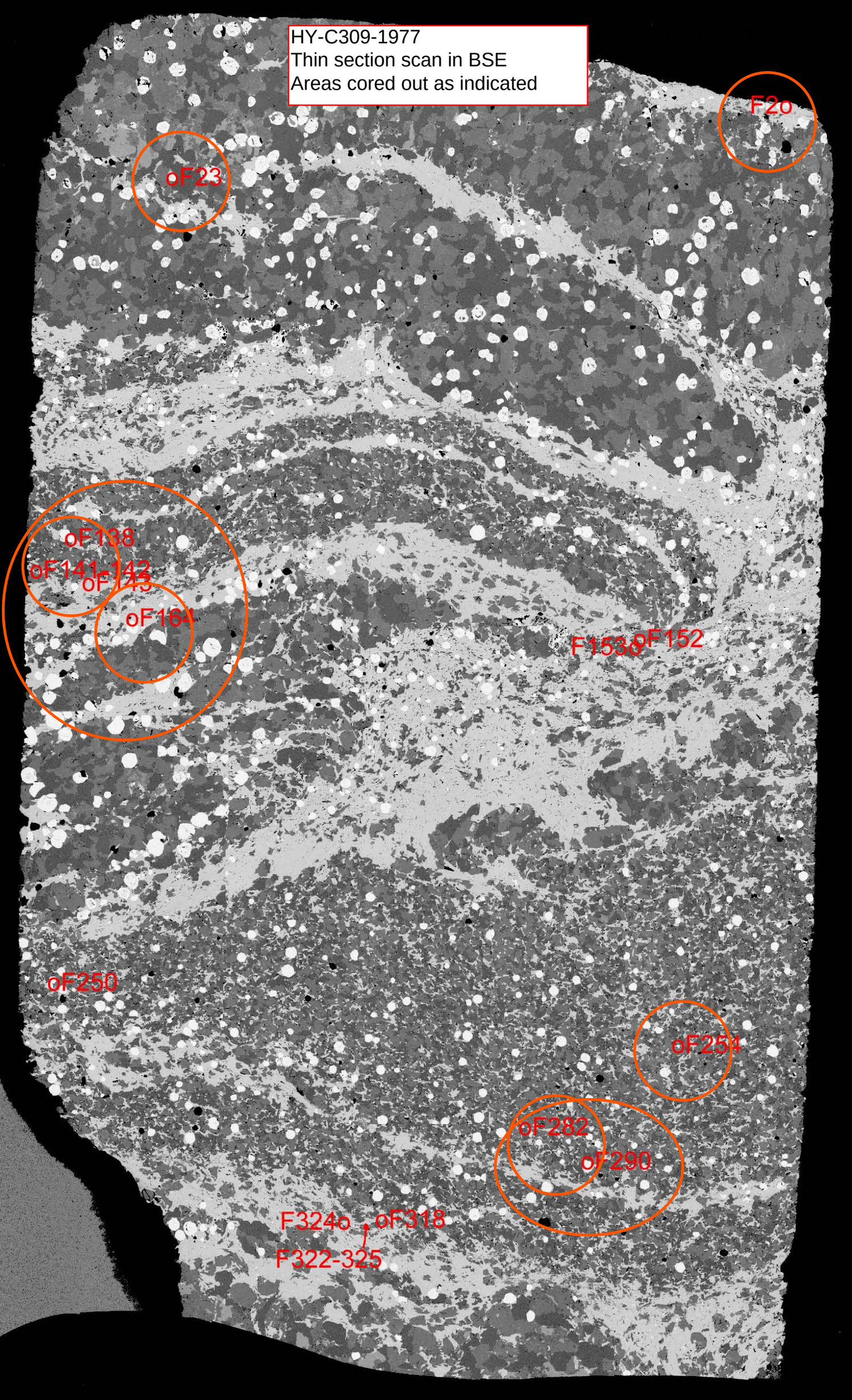

2 µm
File Name = HY77-C367-F227-cu.tif

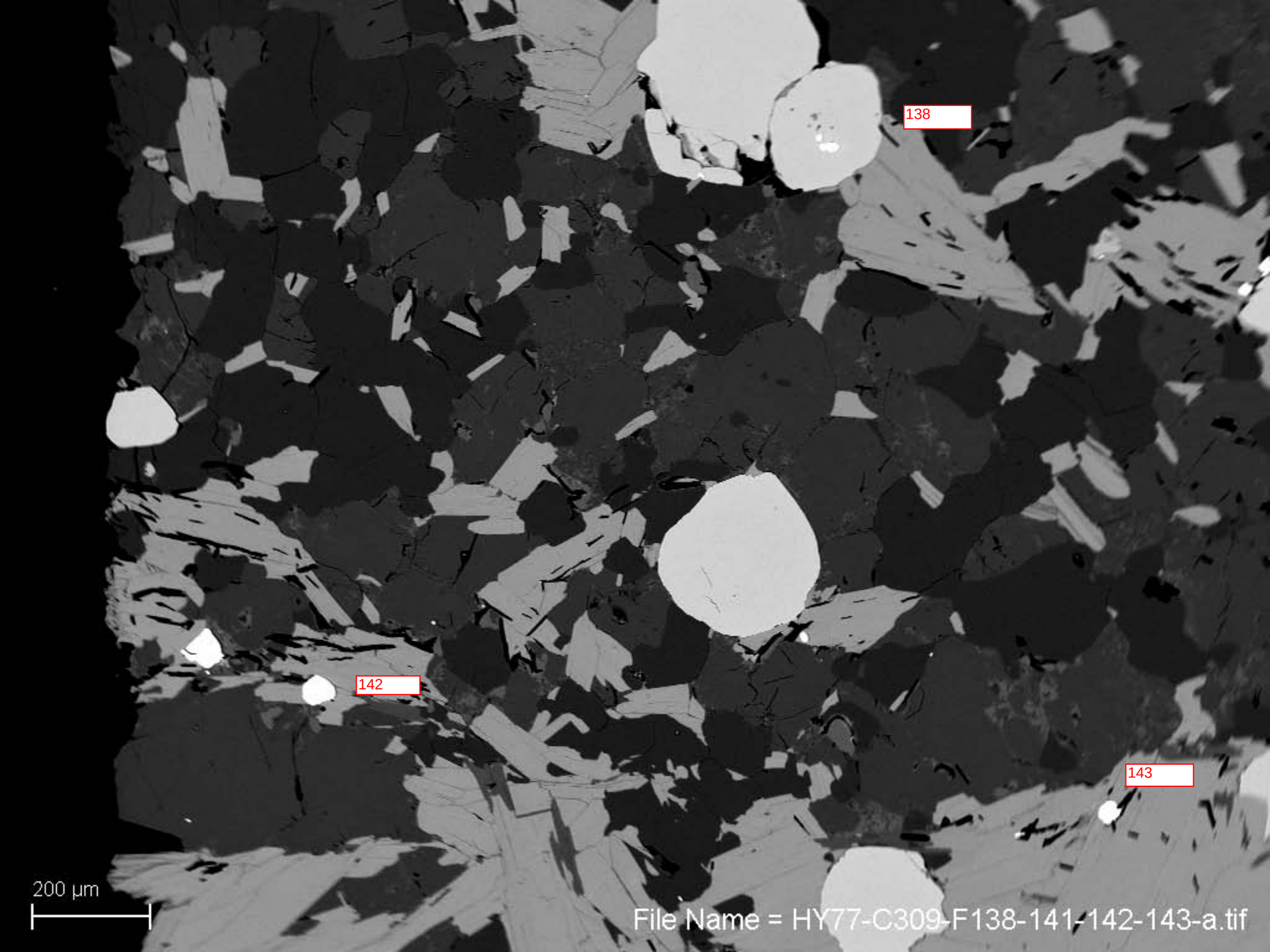

100 µm
File Name = HY77-C367-F257-a.tif



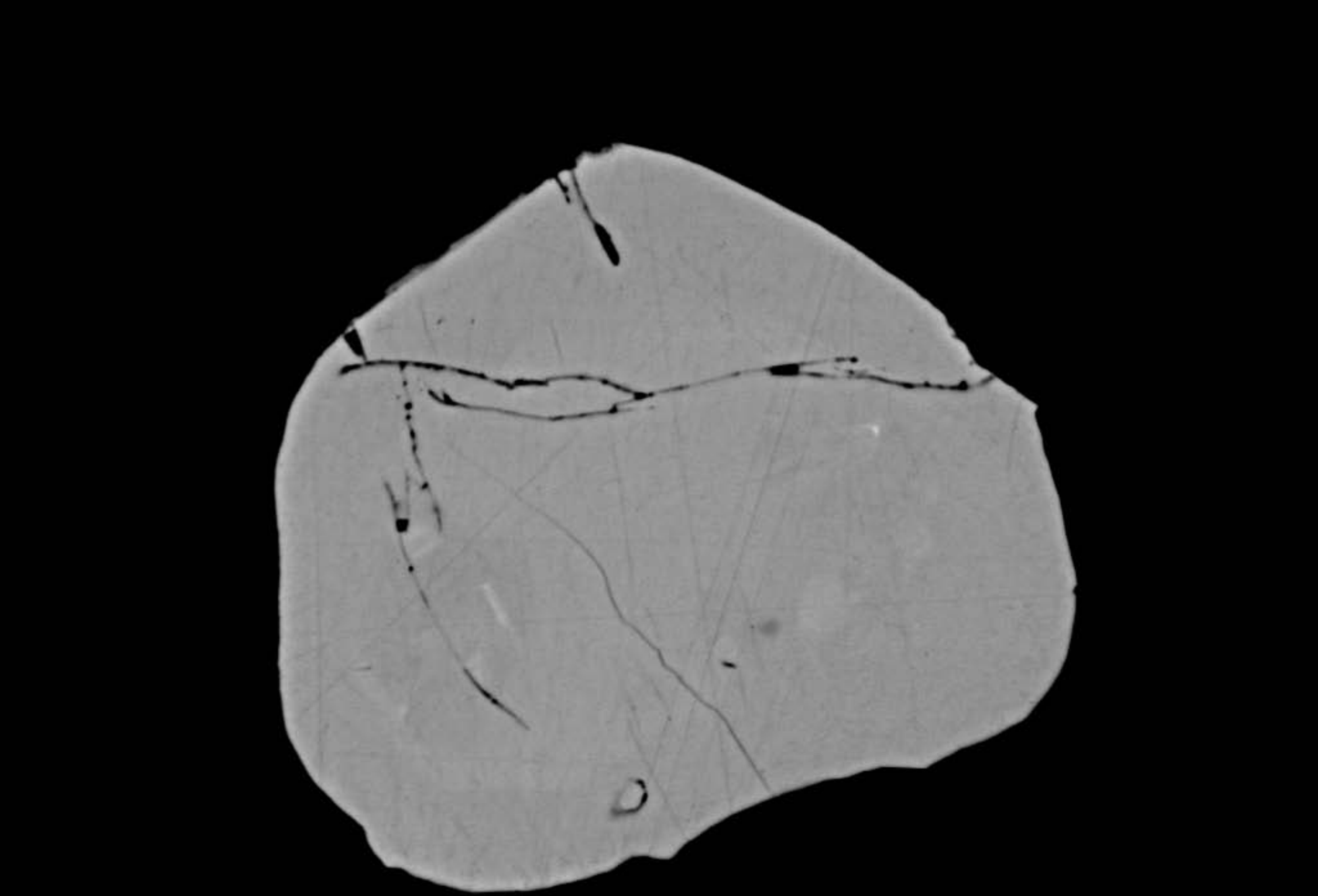
2 µm

File Name = HY77-C367-F257-cu.tif

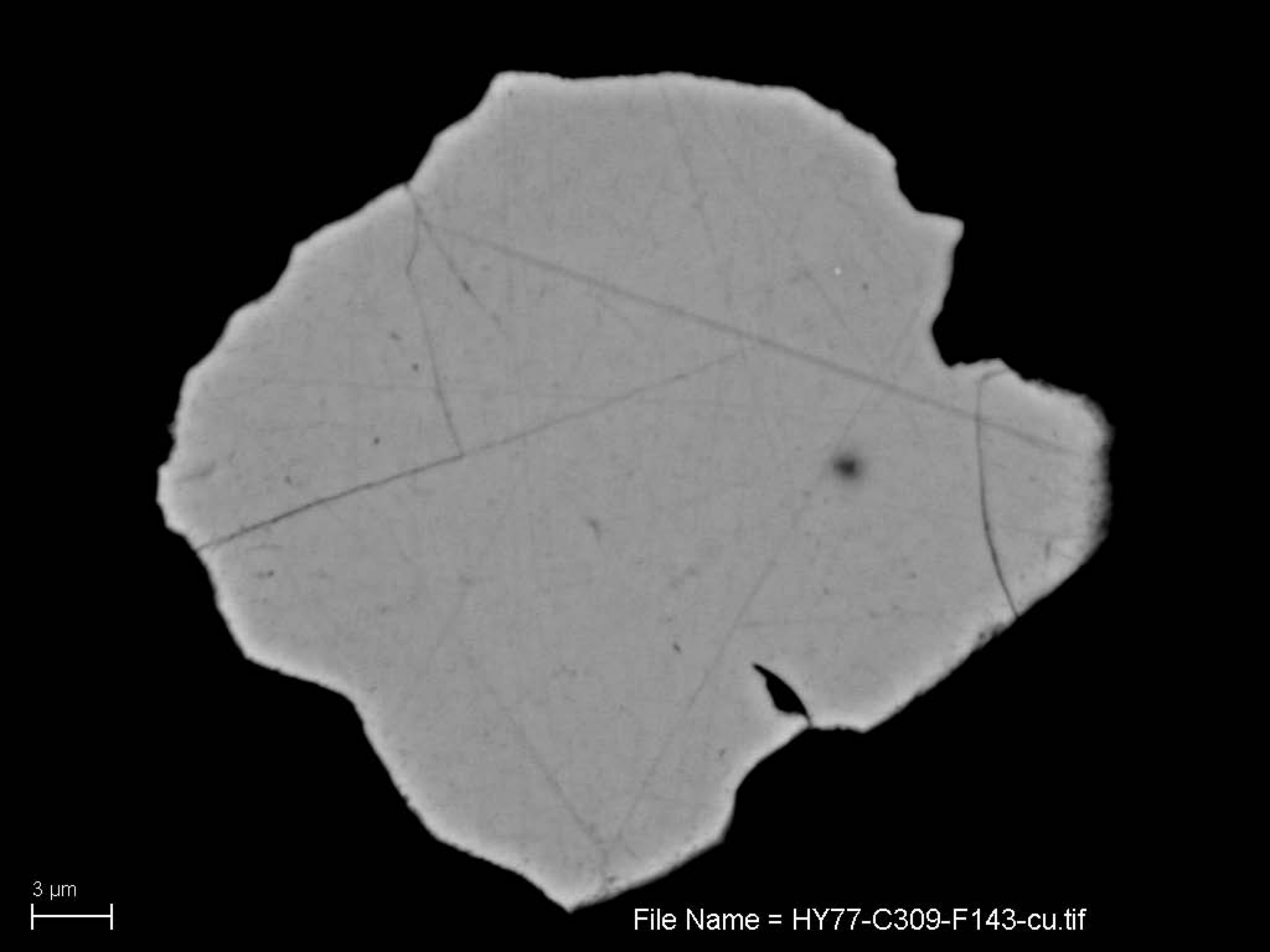

HY-C309-1977
Thin section scan in BSE
Areas cored out as indicated
F2o
oF23
oF138
oF141-142
oF143
oF164
F153o
oF152
oF250
oF254
oF282
oF290
F324o
oF318
F322-325

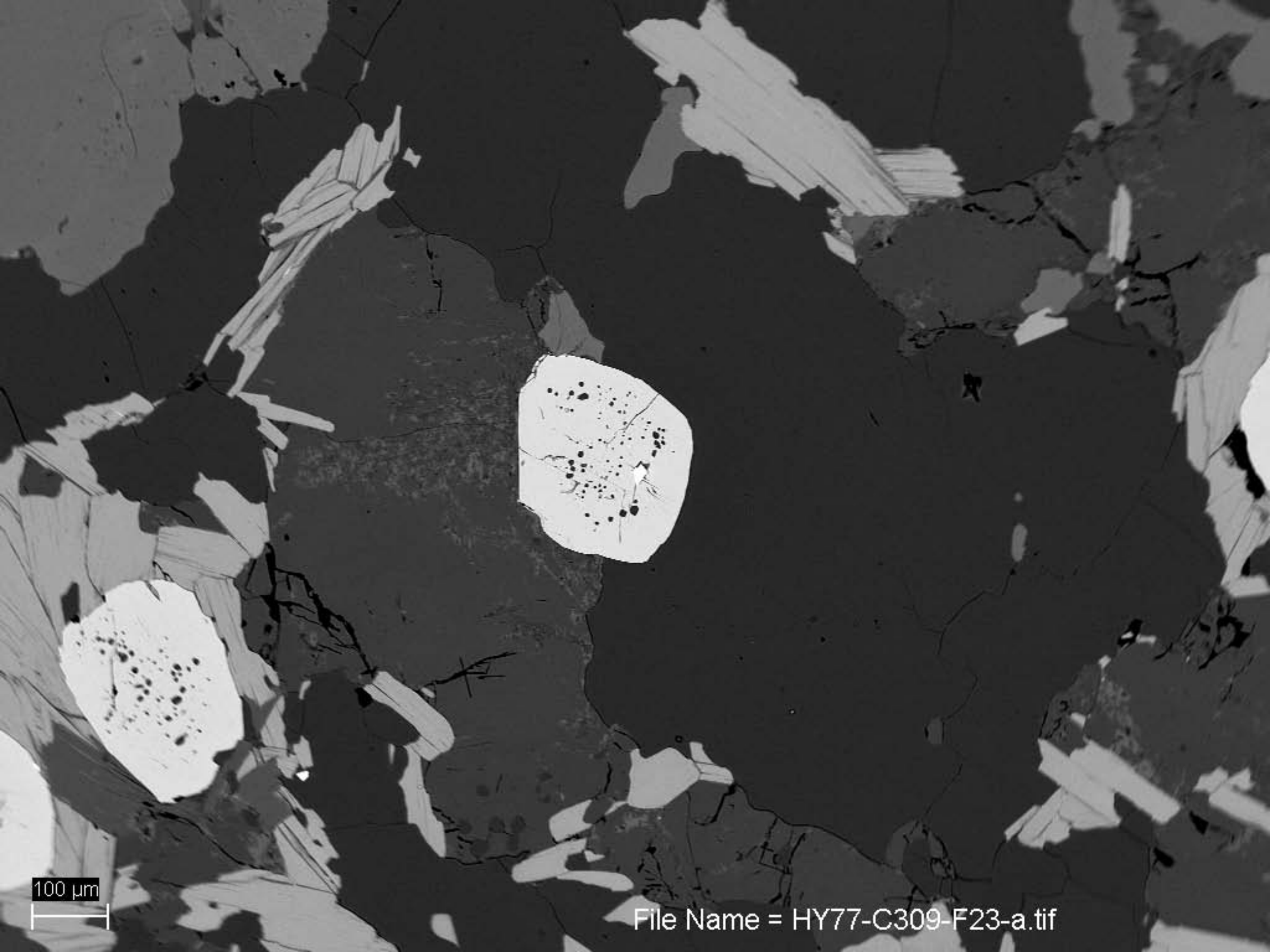

138
142
143
200 µm
File Name = HY77-C309-F138-141-142-143-a.tif

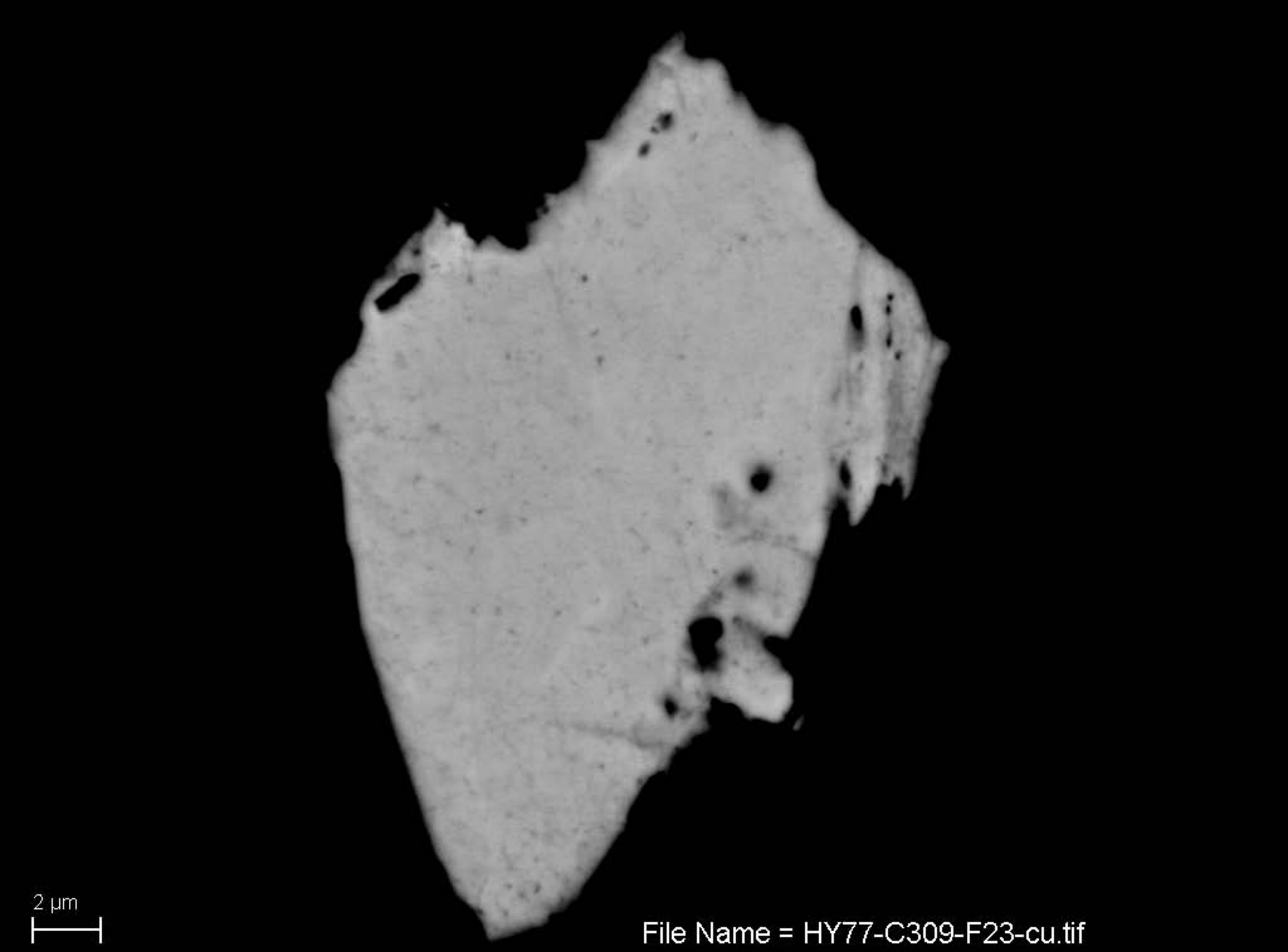

2 µm
File Name = HY77-C309-F138-cu.tif

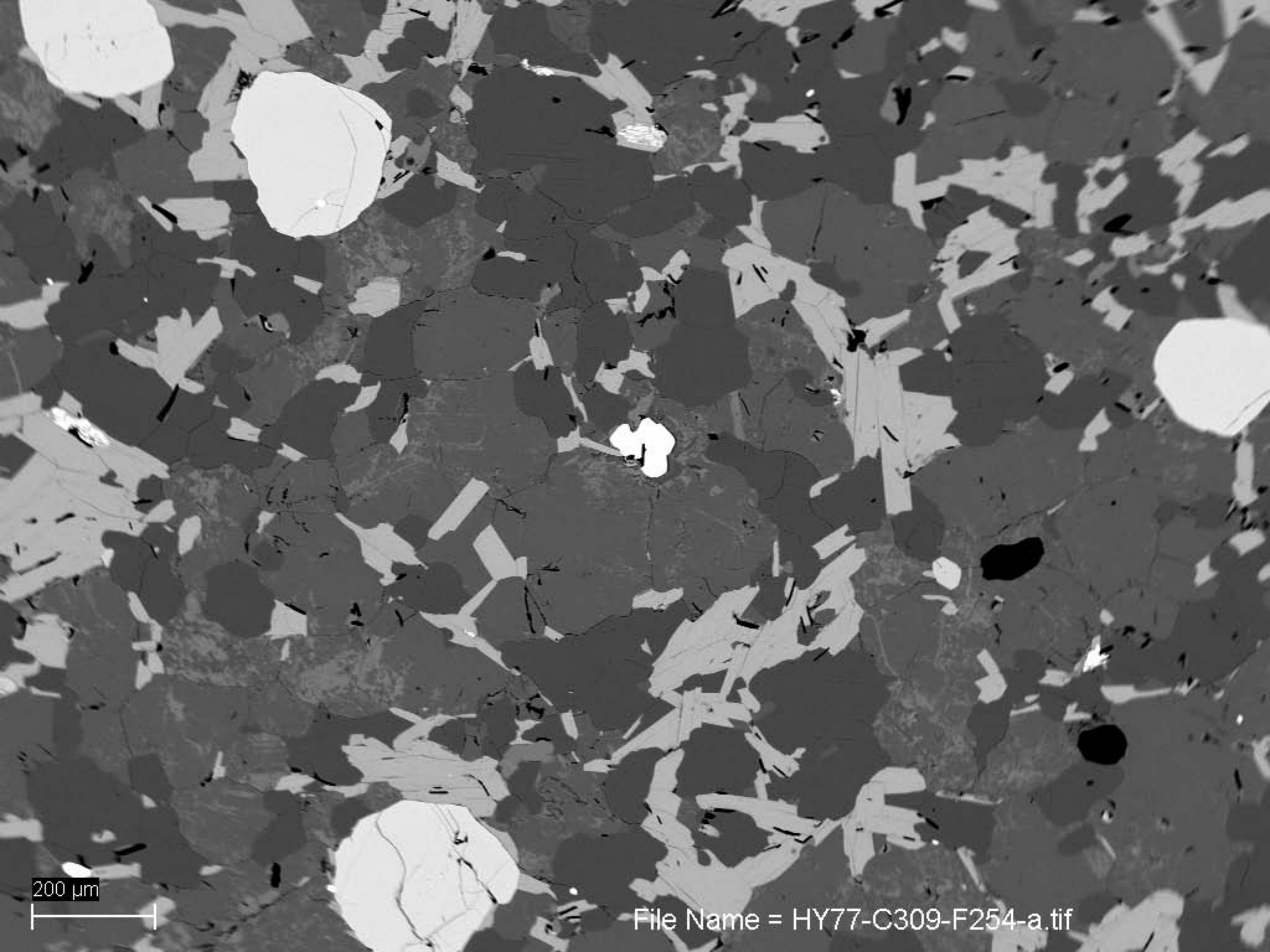


File Name = HY77-C309-F142-cu.tif

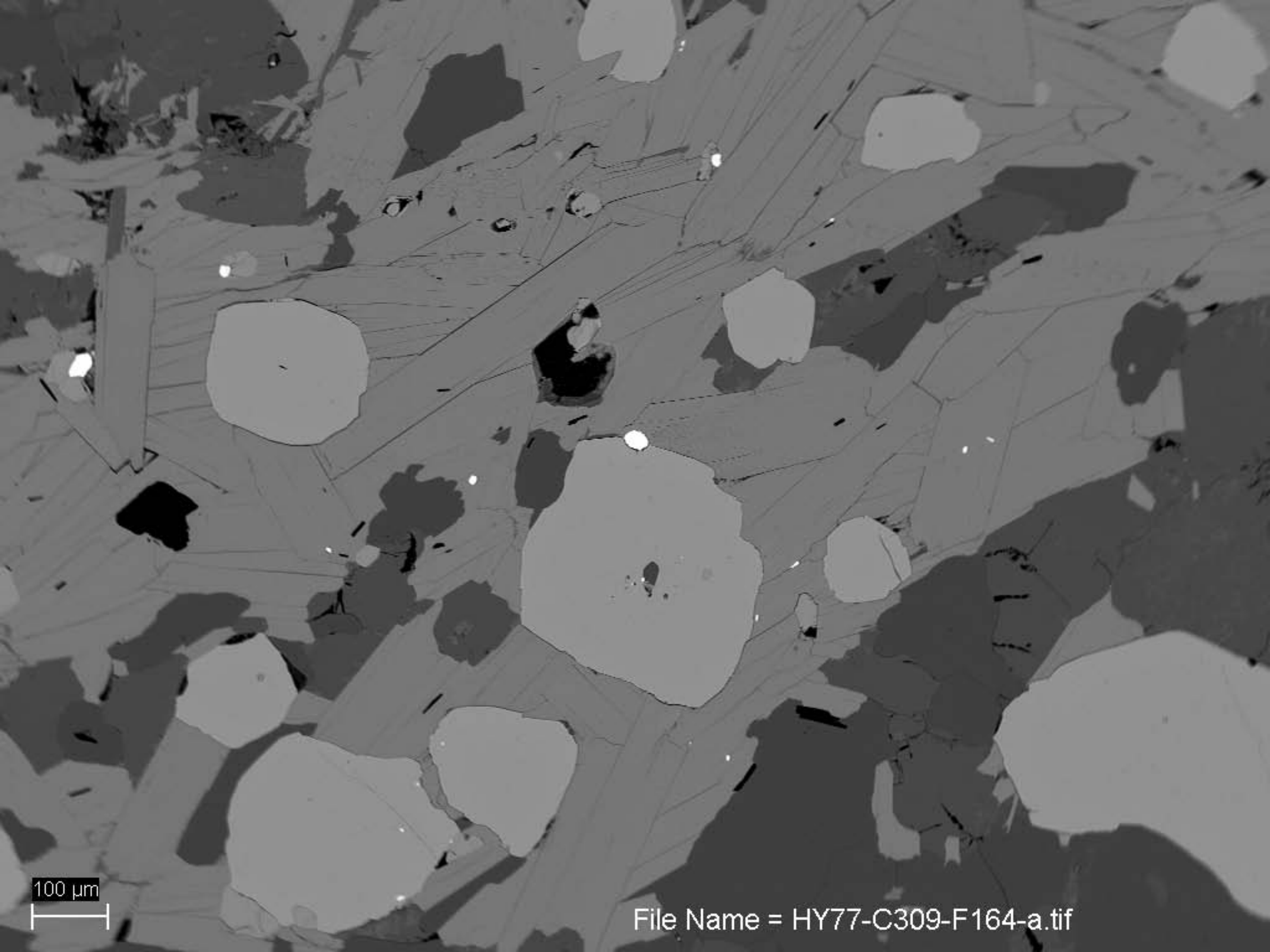

3 µm
File Name = HY77-C309-F143-cu.tif

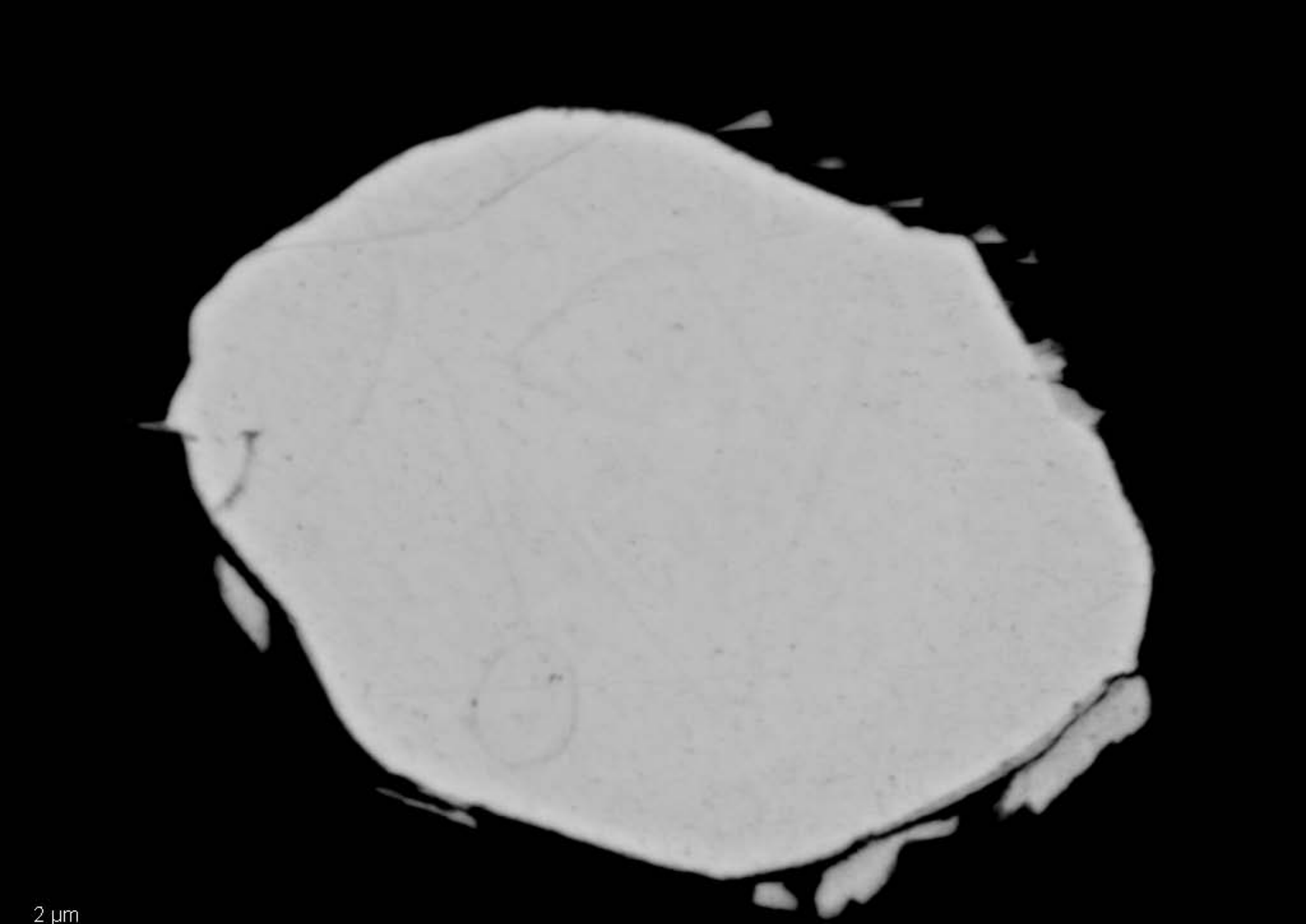

100 µm
File Name = HY77-C309-F23-a.tif

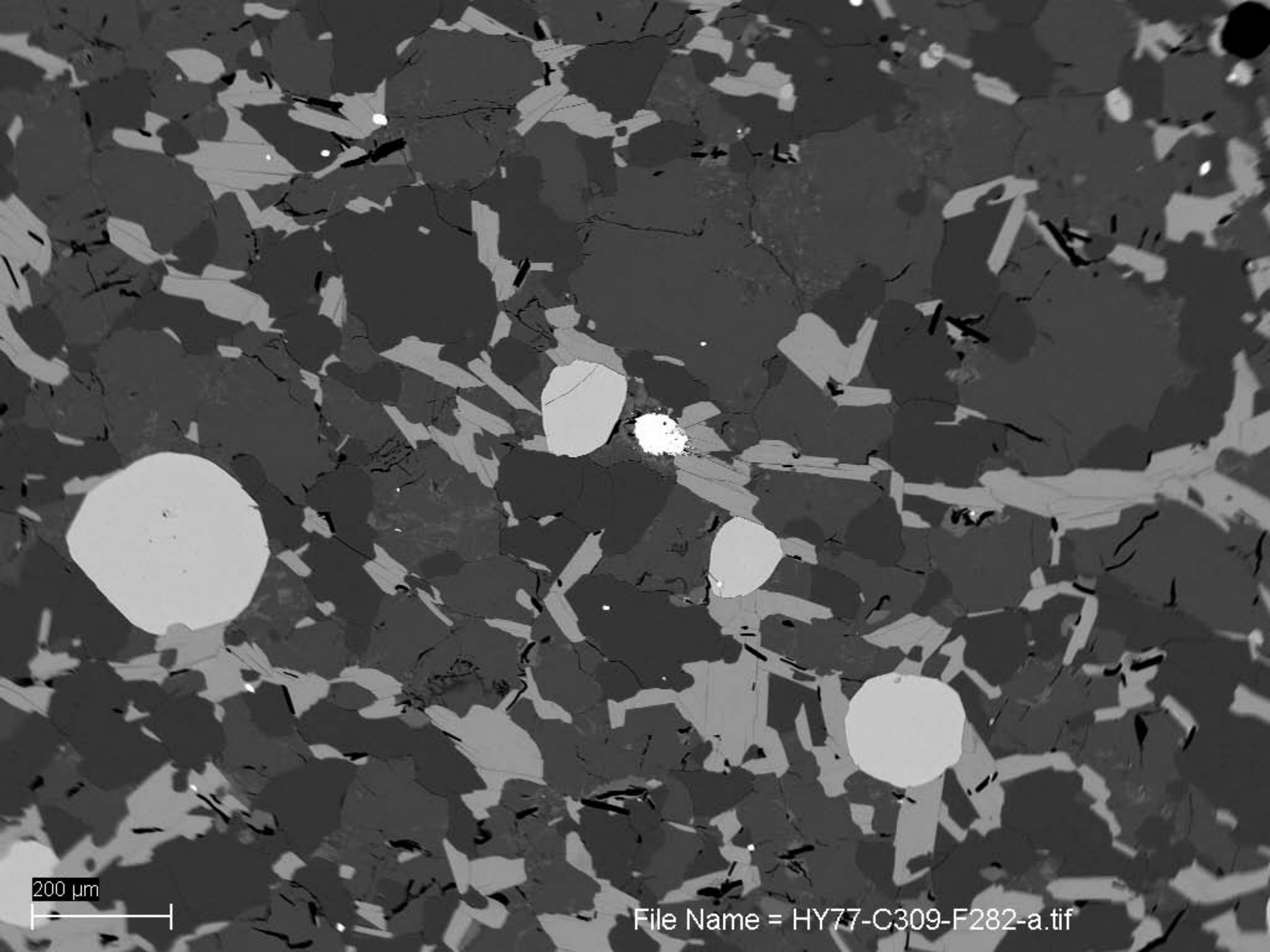

2 µm
File Name = HY77-C309-F23-cu.tif

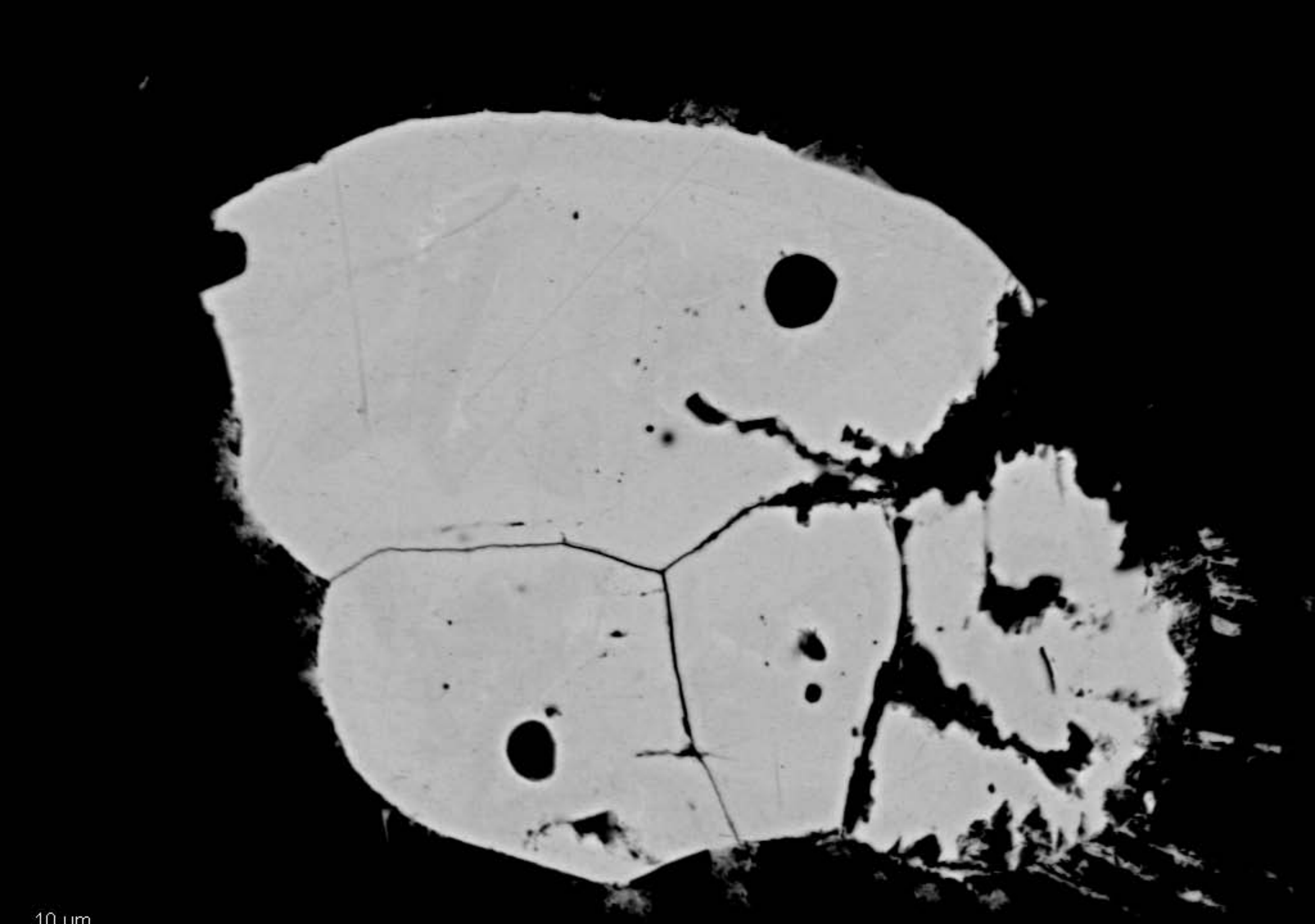

200 µm
File Name = HY77-C309-F254-a.tif

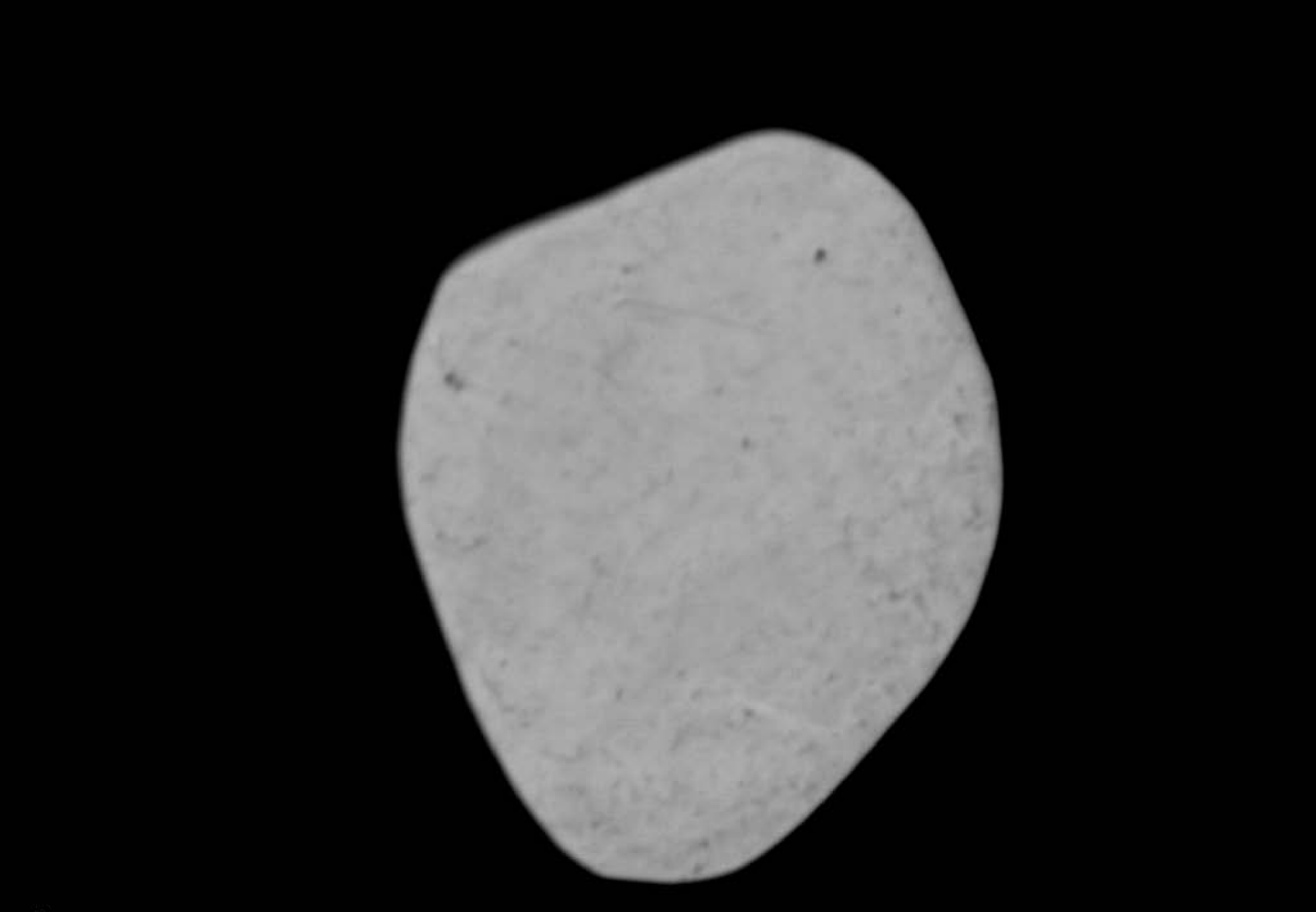
File Name = HY77-C309-F254-cu.tif


100 µm
File Name = HY77-C309-F164-a.tif


2 µm
File Name = HY77-C309-F164-cu.tif

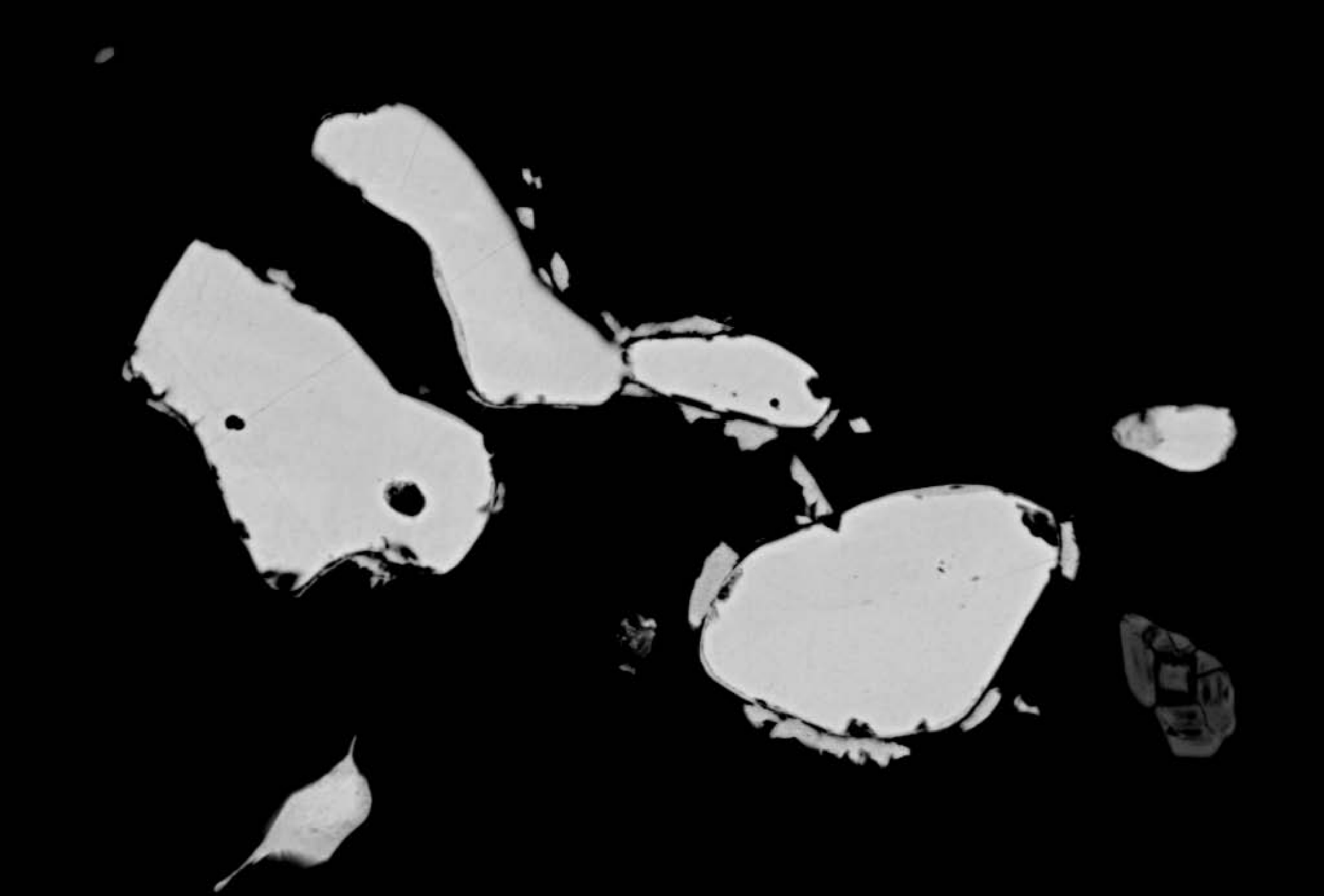

200 µm
File Name = HY77-C309-F282-a.tif


10 µm
File Name = HY77-C309-F282-cu.tif

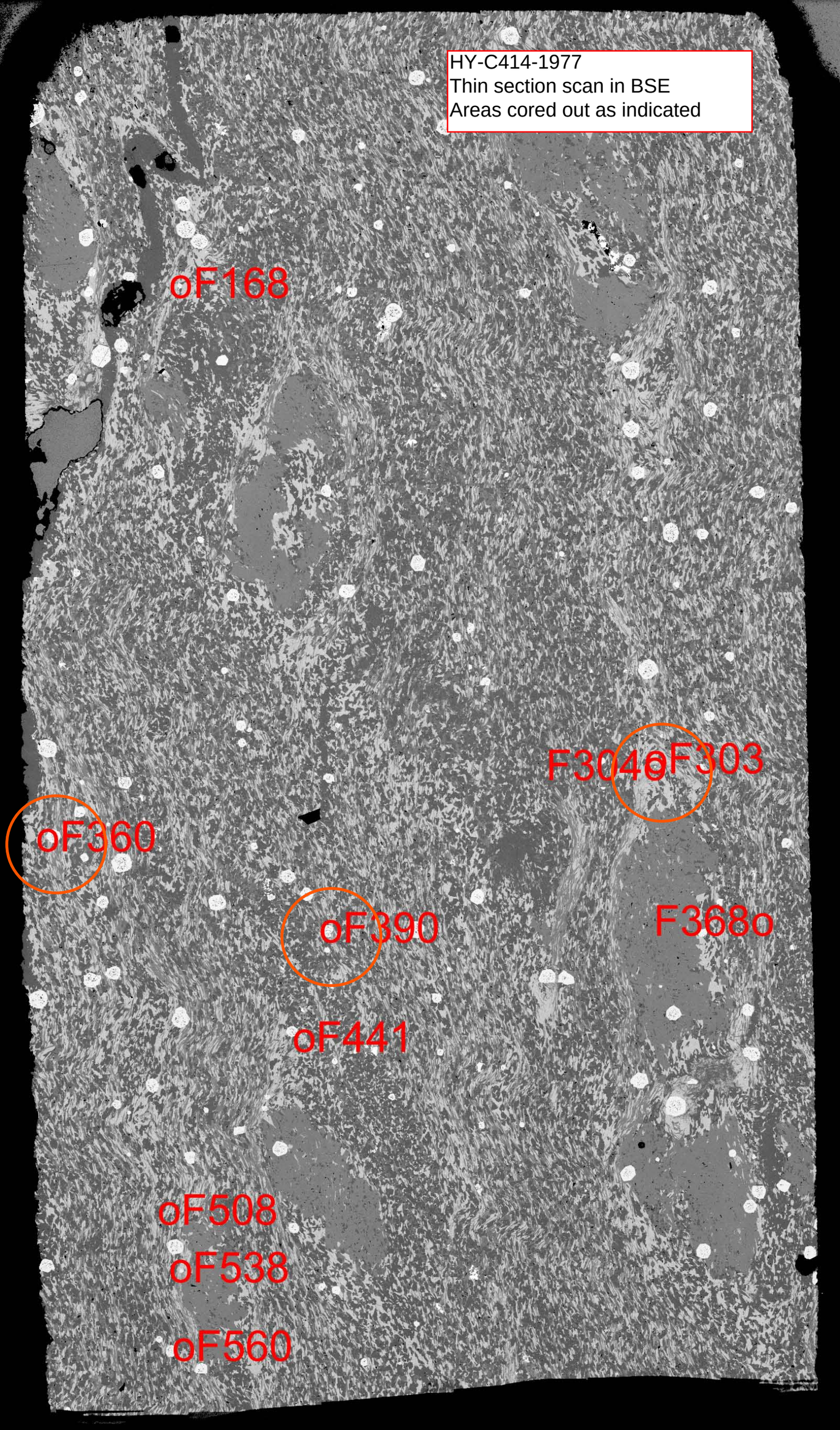


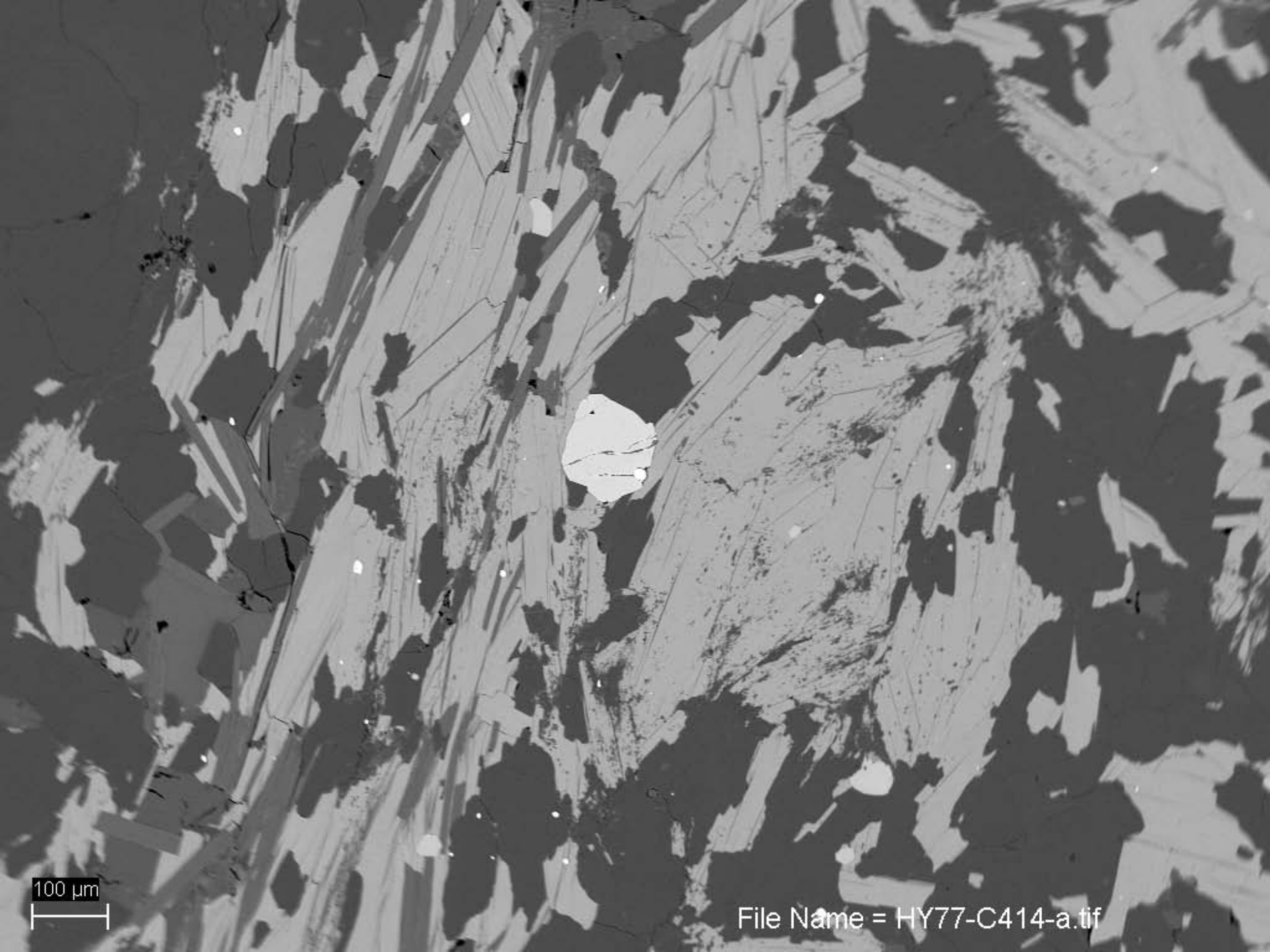
File Name = HY77-C309-F290-cu.tif

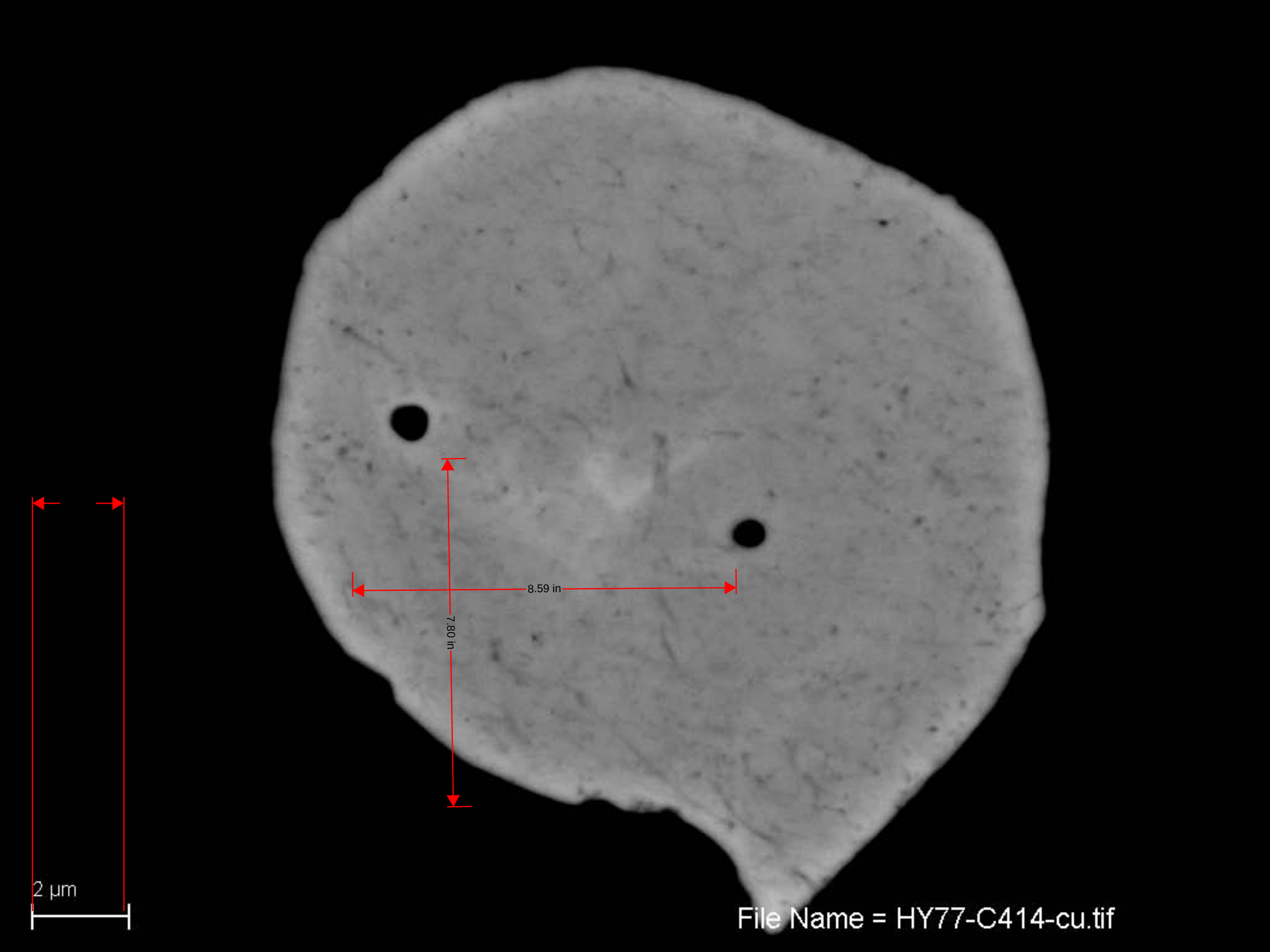

100 µm
File Name = HY77-C309-F2-a.tif

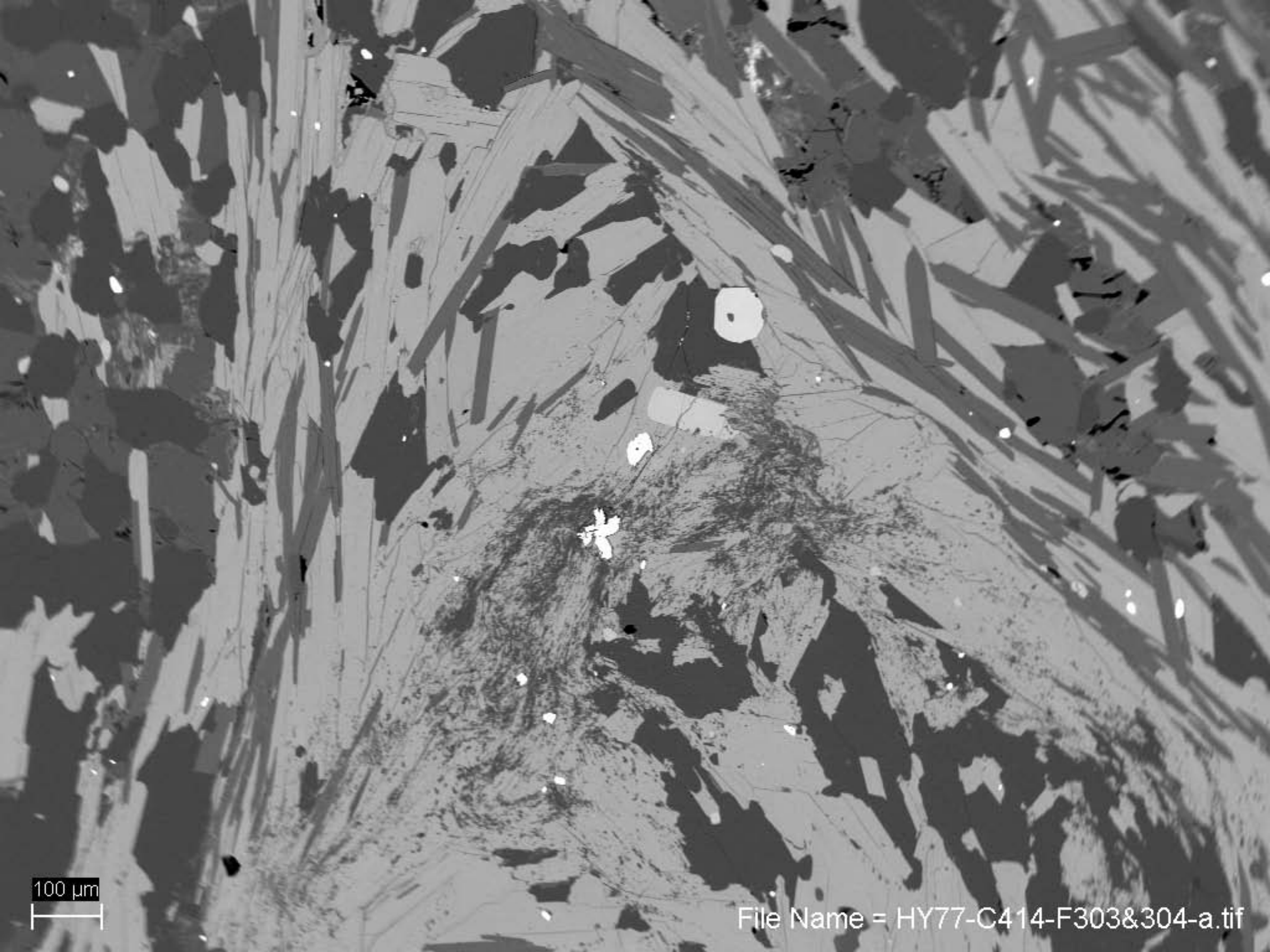


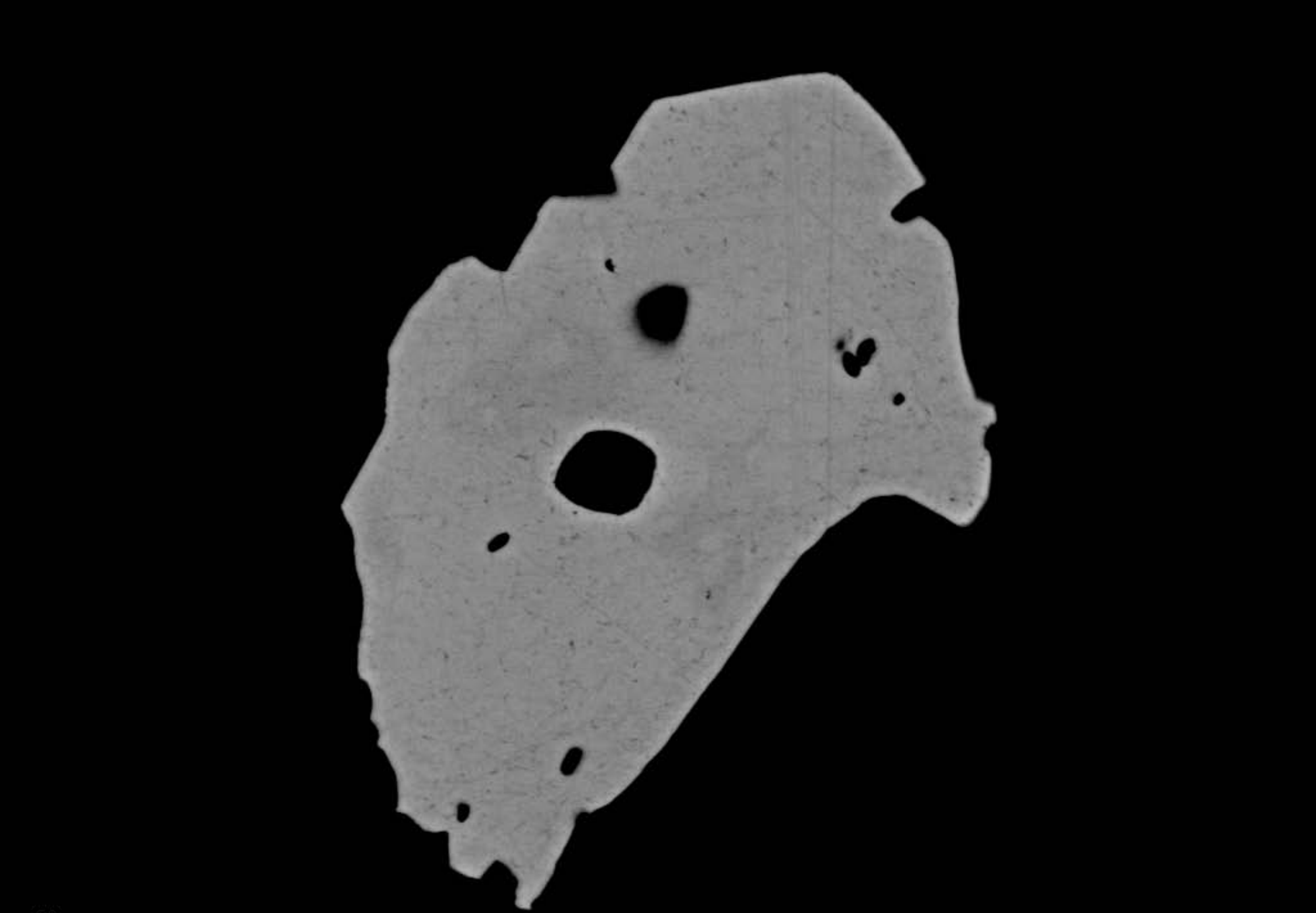
File Name = HY77-C309-F2-cu.tif


HY-C414-1977
Thin section scan in BSE
Areas cored out as indicated
oF168
F304
oF303
oF360
oF390
F368o
oF441
oF508
oF538
oF560


100 µm
File Name = HY77-C414-a.tif

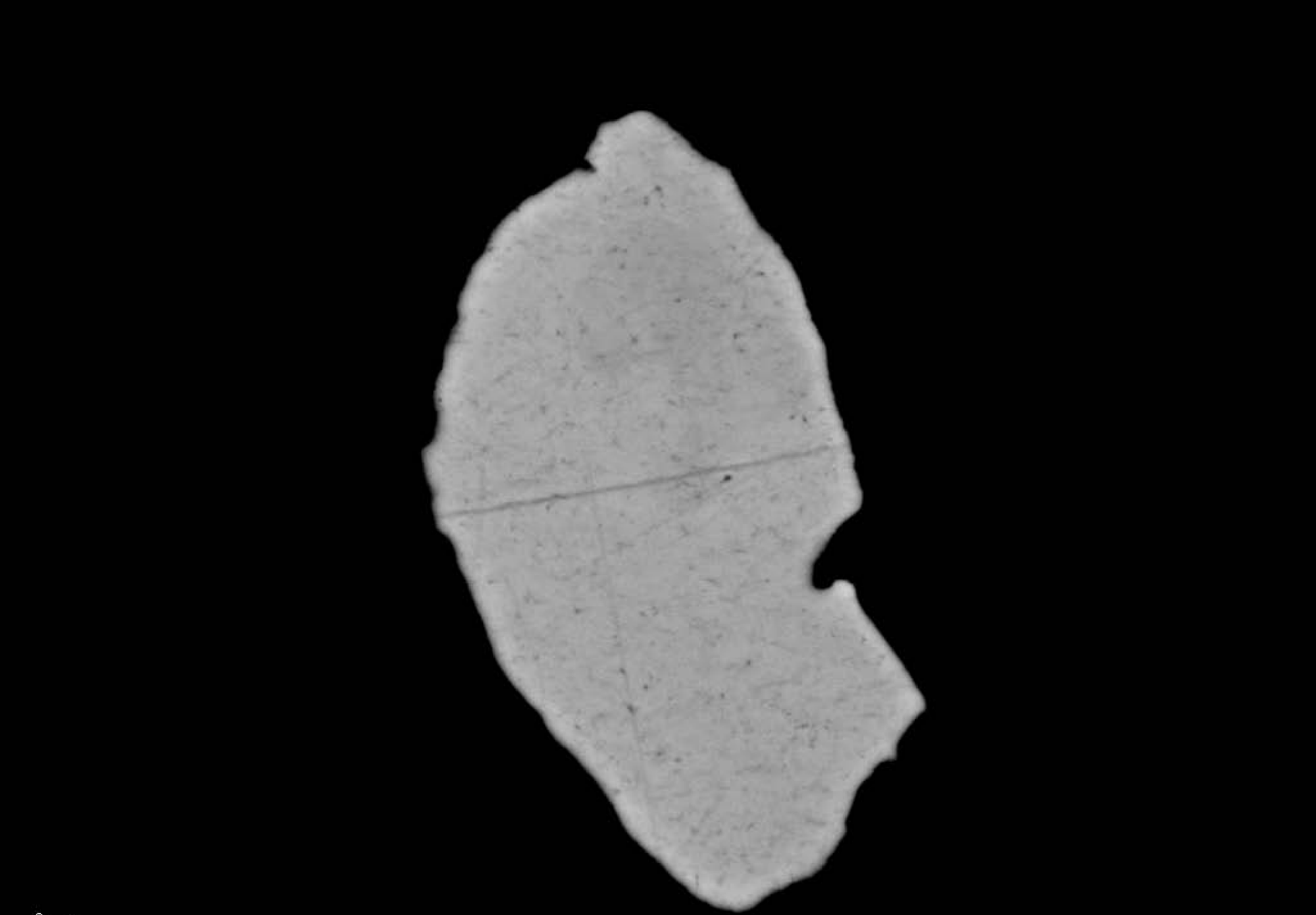

8.59 in
7.80 in
2 µm
File Name = HY77-C414-cu.tif


100 µm
File Name = HY77-C414-F303&304-a.tif


10 µm
File Name = HY77-C414-F
Grain 303

File Name = HY77-C414-F304-cu.tif


200 µm
File Name = HY77-C414-F390-a.tif



File Name = HY77-C414-F390-cu.tif