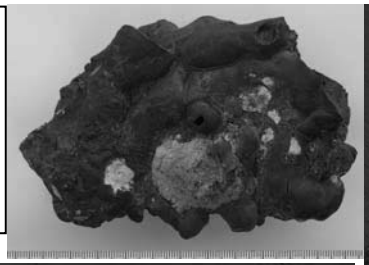
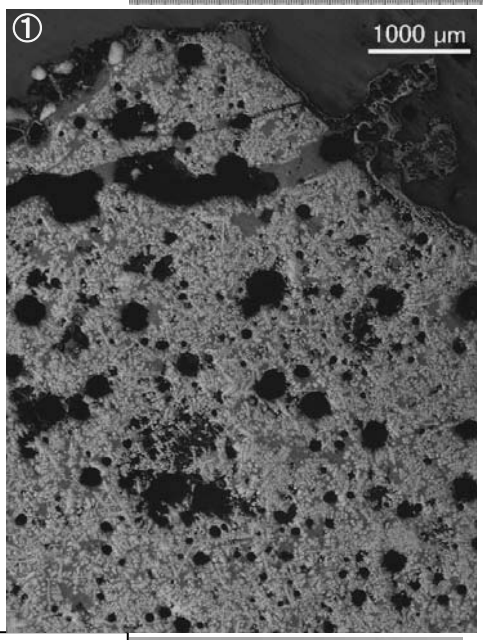
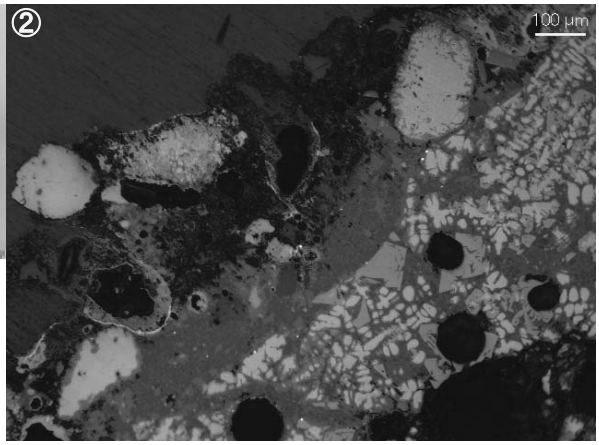
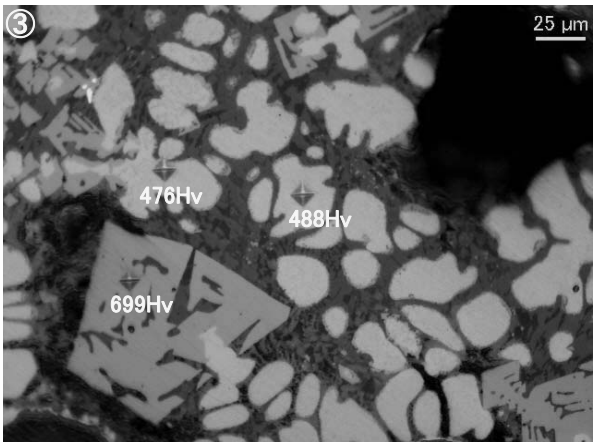
SMH2−15
流出溝滓
①〜③上側表層部:被熱砂鉄付着、含ﾁﾀﾝ鉄鉱滓部:ｳﾙﾎﾞｽﾋﾟﾈﾙ･ｳｽﾀｲﾄ･ﾌｧﾔﾗｲﾄ
硬度:荷重50gf

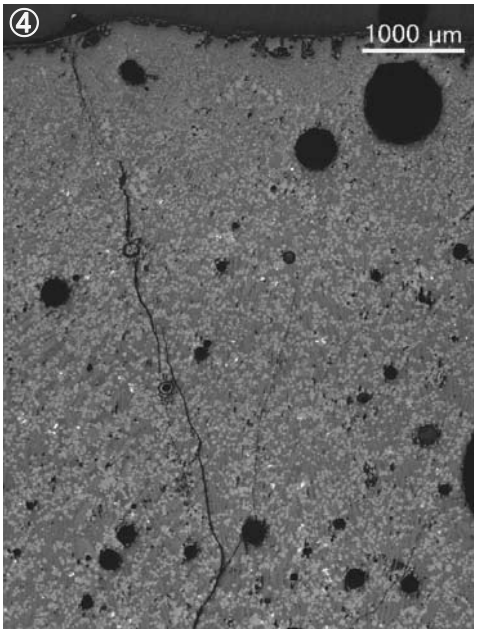


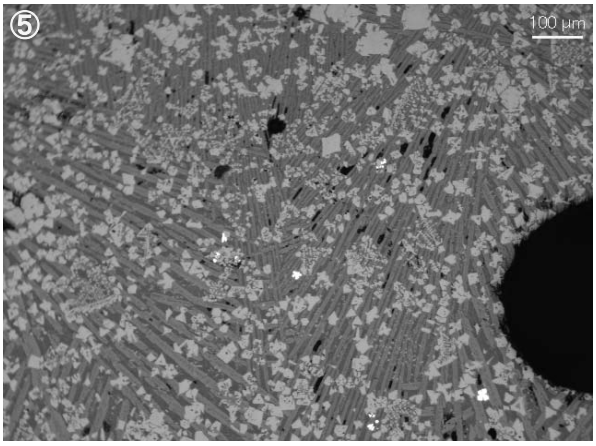






SMH2−16
流出溝滓
④〜⑥微小明白色粒:金属鉄、滓部:ｳﾙﾎﾞｽﾋﾟﾈﾙとﾍﾙｼﾅｲﾄの固溶体･ﾍﾙｼﾅｲﾄ･ﾌｧﾔﾗｲﾄ、硬度:荷重50gf





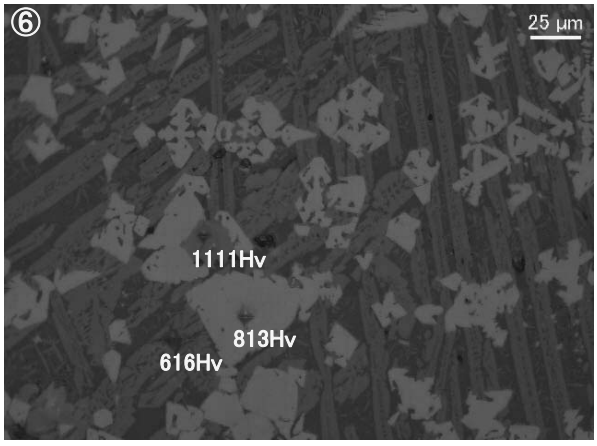
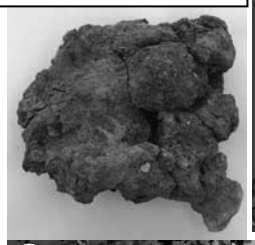
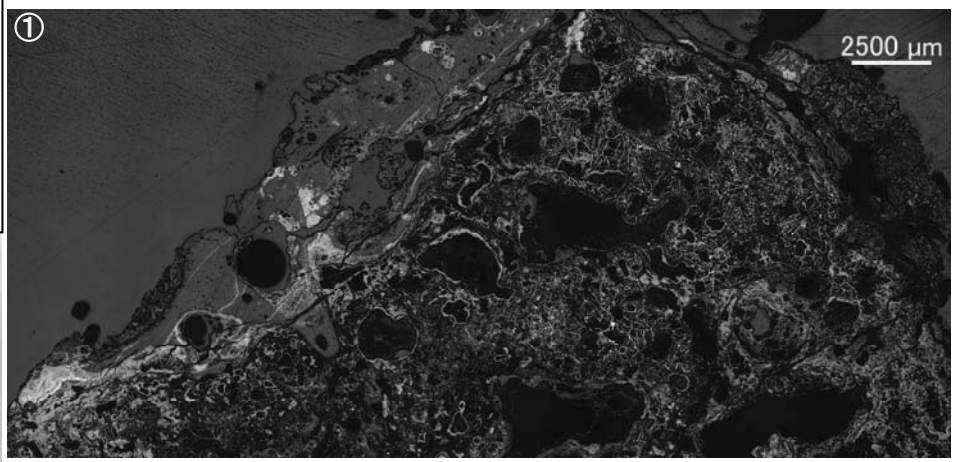
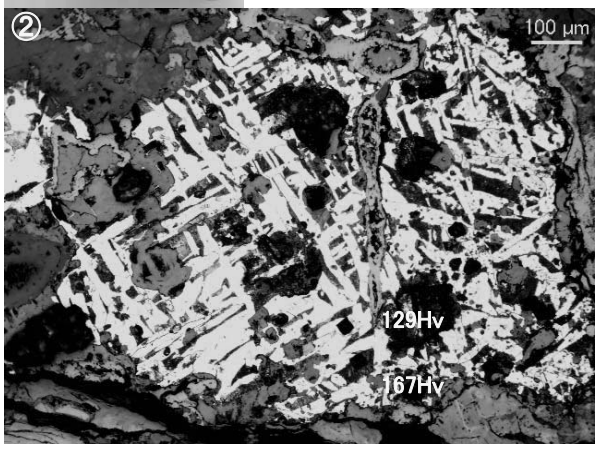


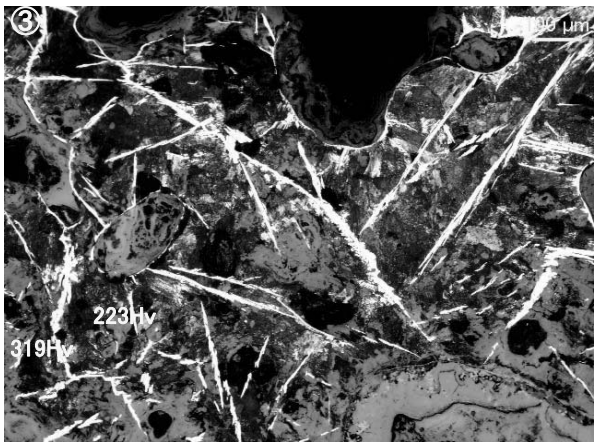
写真47　流出溝滓の顕微鏡組織

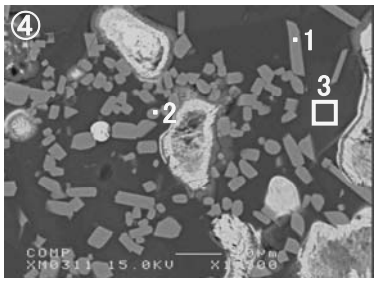
SMH2-17
炉壁（含鉄・滓付き）
①ﾏｸﾛ組織、左上:製錬滓、
鉄部:亜共析組織～過共析組織
②亜共析組織、③過共析組織、硬度:荷重100gf

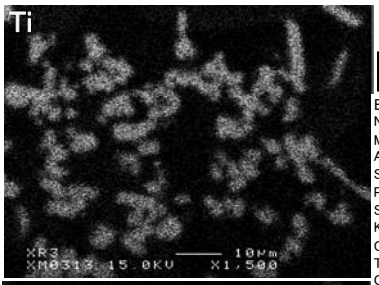


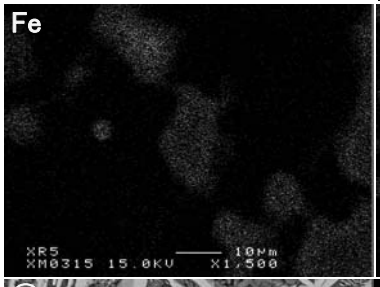


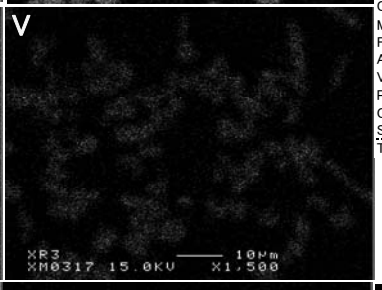


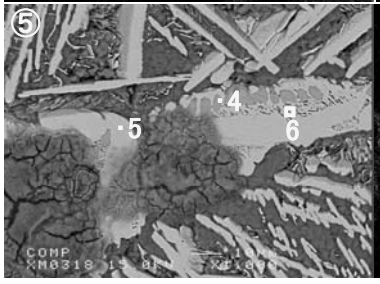


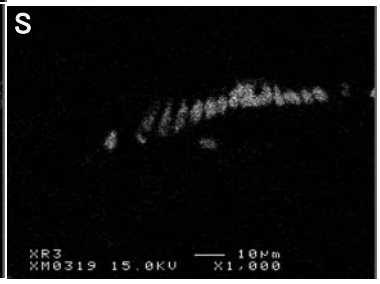










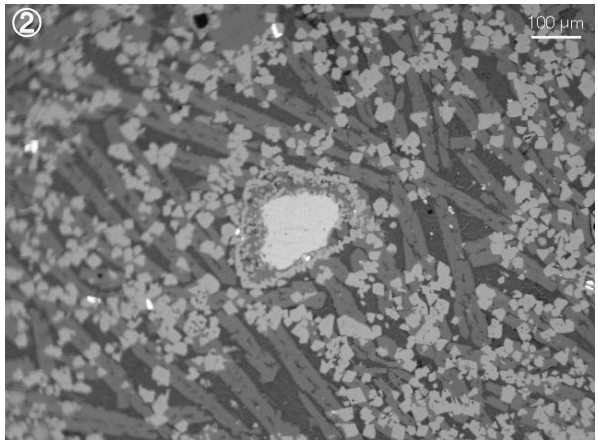


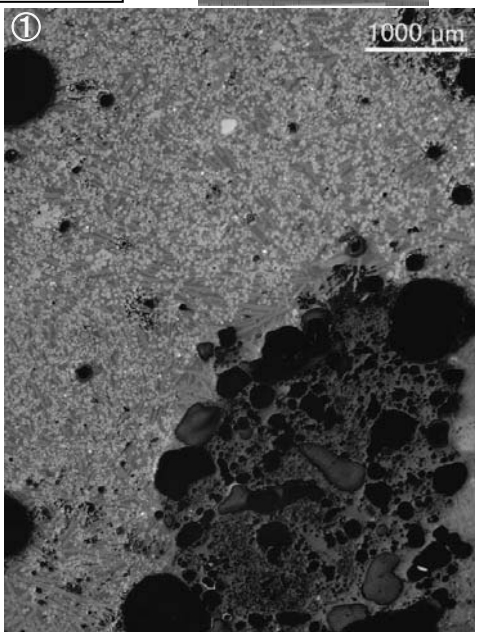
定量分析値

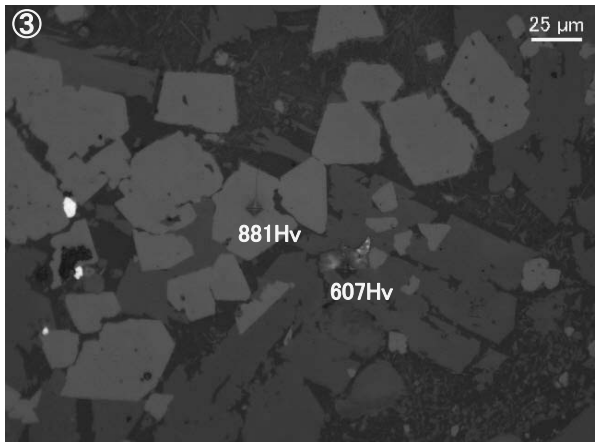
Element	1	2	3	Element	4	5	6
Na_2O	0.040	0.012	2.010	O	0.221	0.011	6.026
MgO	2.874	2.981	0.300	P	0.121	0.028	9.273
Al_2O_3	8.932	8.478	30.600	S	37.264	0.006	0.266
SiO_2	1.443	0.131	50.380	V	3.852	0.240	0.071
P_2O_5	0.007	–	–	Mn	0.653	–	–
S	–	–	0.018	Fe	58.624	92.123	82.540
K_2O	0.069	0.089	1.100	Co	0.048	0.143	0.270
CaO	0.706	0.273	13.541	Ni	0.005	0.043	0.133
TiO_2	62.271	72.172	–	Cu	0.080	–	–
Cr_2O_3	0.764	0.705	0.039	Zn	–	0.009	0.032
MnO	0.182	0.185	0.100	As	–	–	–
FeO	2.066	2.349	0.906	Sn	0.016	–	–
As_2O_5	–	0.043	–	Sb	0.017	–	–
V_2O_3	11.914	12.283	0.067	Pb	–	0.084	0.063
PbO	–	–	0.014	Ag	0.015	0.043	–
CuO	0.055	–	0.073	Bi	–	–	–
SnO_2	–	–	–	Se	–	0.052	0.037
Total	91.323	99.701	99.148	Ti	–	–	–
				Total	100.916	92.782	98.711

写真48　炉壁（含鉄・滓付き）の顕微鏡組織・EPMA調査結果

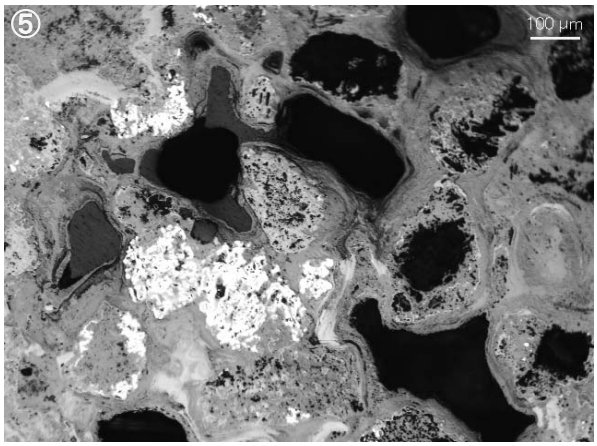
SMH2−18
流出孔～溝滓
①～③灰褐色粒:被熱砂鉄、滓部:ウルボスピネルとヘルシナイトの固溶体・ファヤライト、右下暗色部:被熱粘土、
硬度:荷重50gf

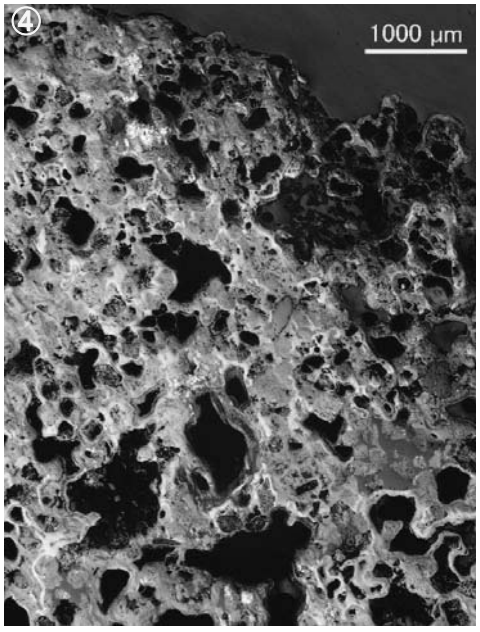






SMH2−19
炉内滓
（含鉄・砂鉄焼結）
④～⑥被熱砂鉄、含ﾁﾀﾝ鉄鉱、還元・滓化進行、微小明白色部:金属鉄、不定形青灰色部:銹化鉄
硬度:荷重50gf





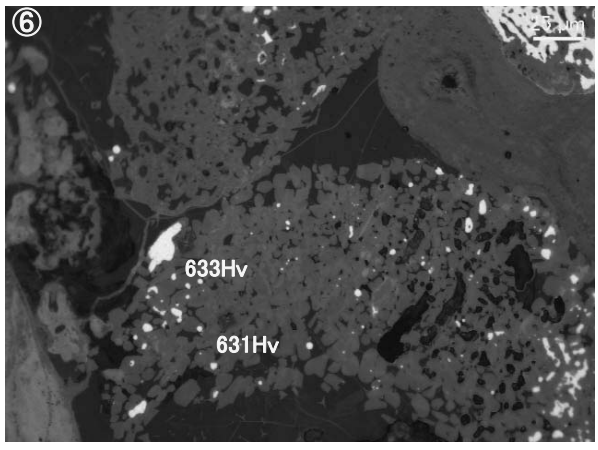
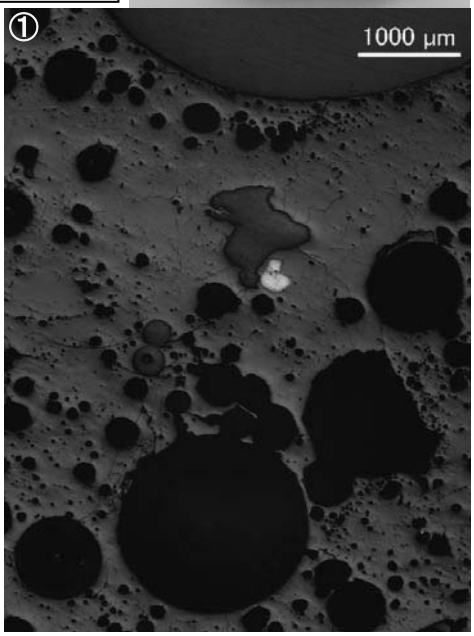
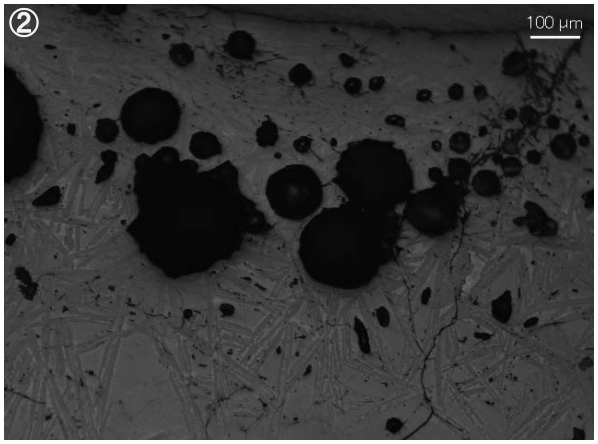
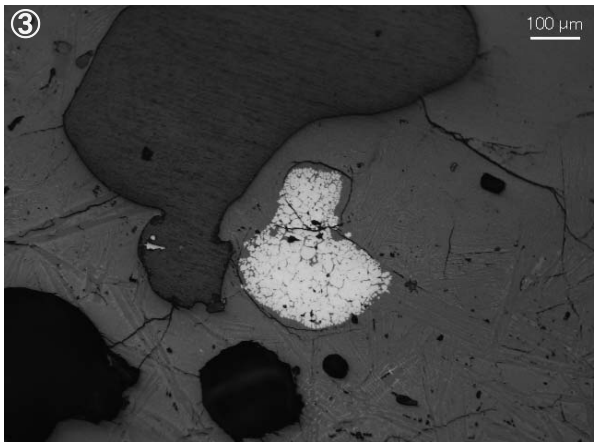


写真49　流出孔～溝滓・炉内滓（含鉄・砂鉄焼結）の顕微鏡組織

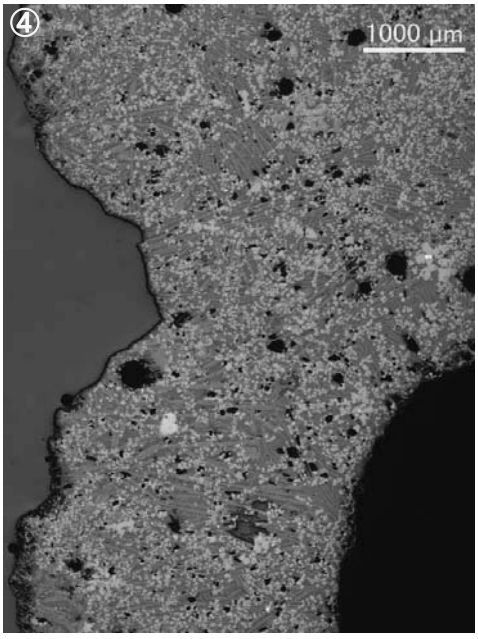
SMH2-20
炉床土
①～③炉材粘土溶融物（ｶﾞﾗｽ質滓）、灰褐色粒:砂鉄粒子（胎土中に含まれていた可能性が高い）

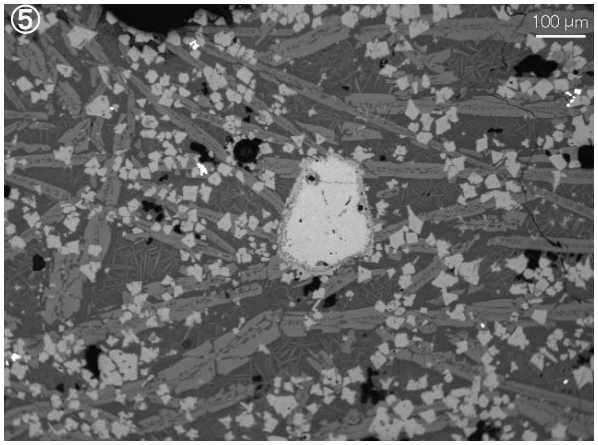






SMH2-21
流出孔～溝滓
④～⑥微小明白色粒:金属鉄、滓部:ｳﾙﾎﾞｽﾋﾟﾈﾙとﾍﾙｼﾅｲﾄの固溶体･ﾌｧﾔﾗｲﾄ、灰褐色粒:被熱砂鉄、含ﾁﾀﾝ鉄鉱、外周部滓化、
硬度:荷重50gf





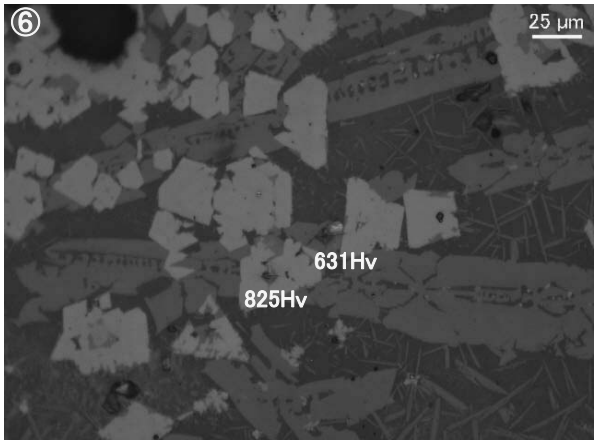
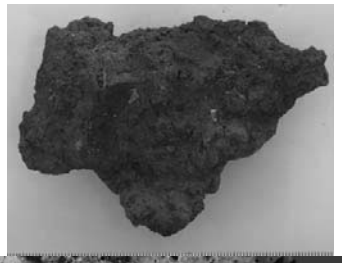
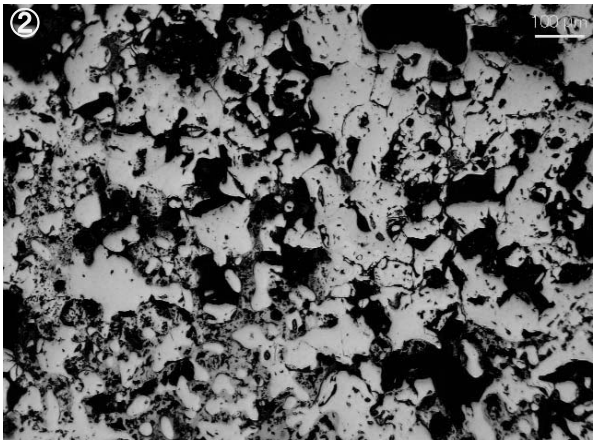
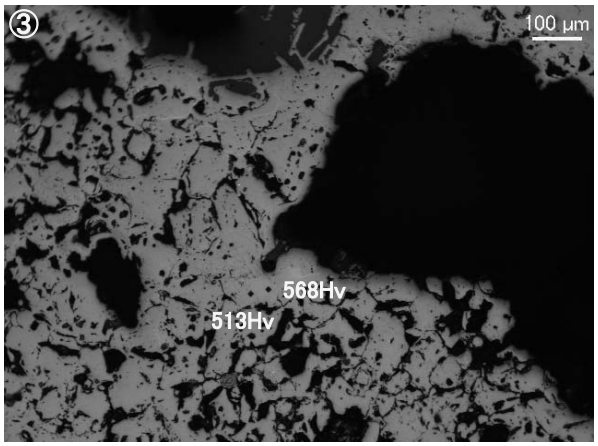


写真50　炉床土・流出孔～溝滓の顕微鏡組織

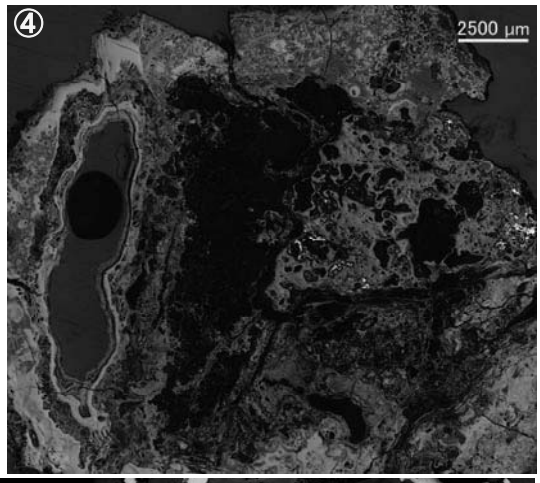
SMH2-22
炉内滓（含鉄）
①～③滓部:ﾏｸﾞﾈﾀｲﾄまたはﾁﾀﾝ磁鉄鉱･ｳｽﾀｲﾄ凝集、不定形青灰色部:錆化鉄
硬度:荷重50gf

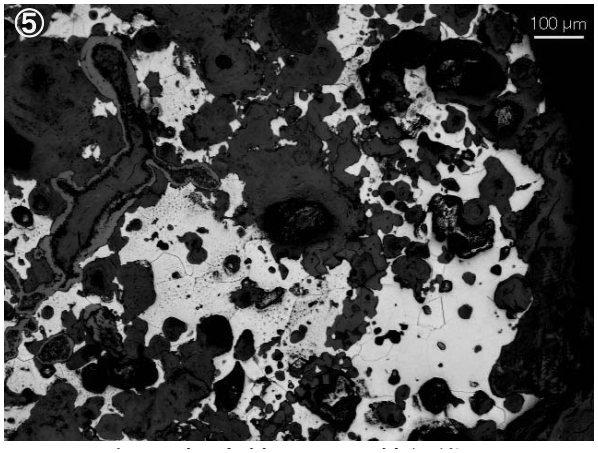






SMH2-23
炉内滓（含鉄）
④ﾏｸﾛ組織
⑤⑥明白色部:金属鉄、ﾅｲﾀﾙetch ﾌｪﾗｲﾄ単相、滓部:ｳﾙﾎﾞｽﾋﾟﾈﾙとﾍﾙｼﾅｲﾄの固溶体
硬度:荷重50gf





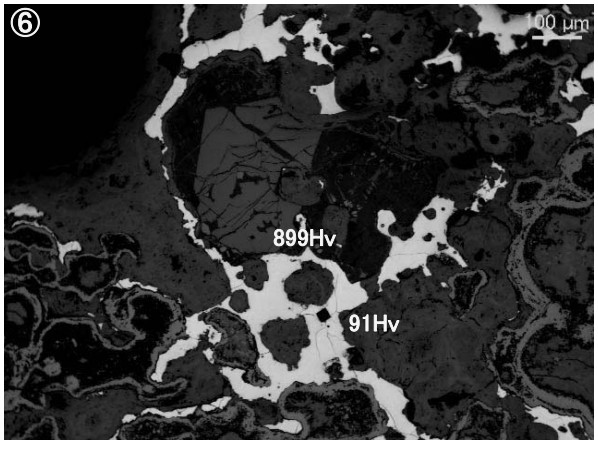
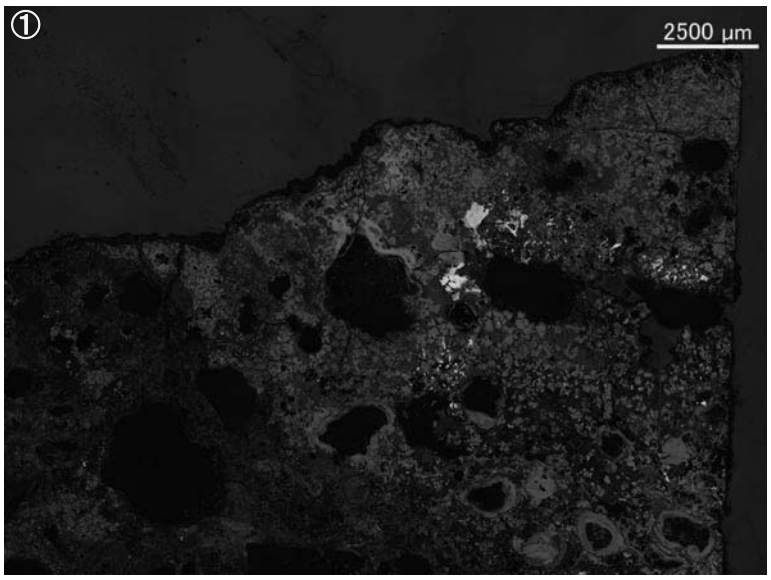
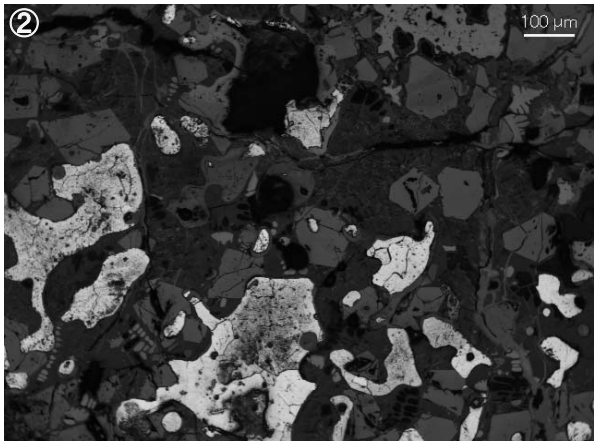
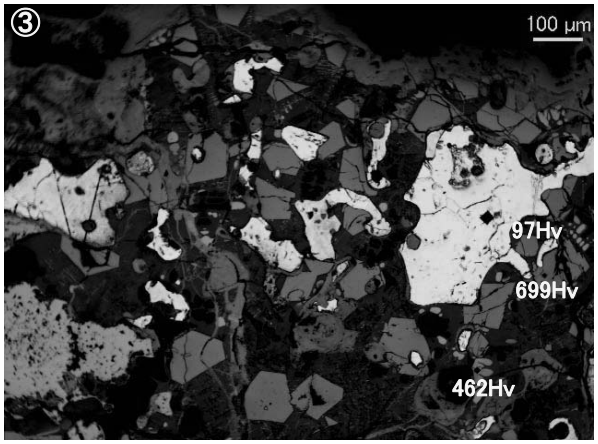


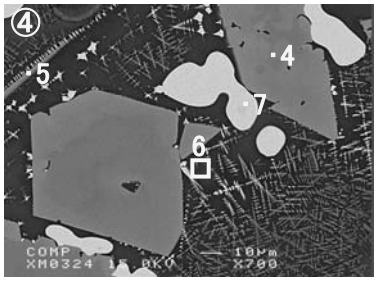
写真51　炉内滓（含鉄）の顕微鏡組織

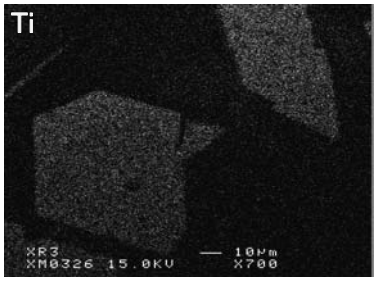
SMH2-24
炉内滓（含鉄）
①ﾏｸﾛ組織
②③明白色部:金属鉄、ﾅｲﾀﾙetch ﾌｪﾗｲﾄ単相、滓部:ｳｽﾎﾞｽﾋﾟﾈﾙ･ｳｽﾀｲﾄ、荷重:50gf

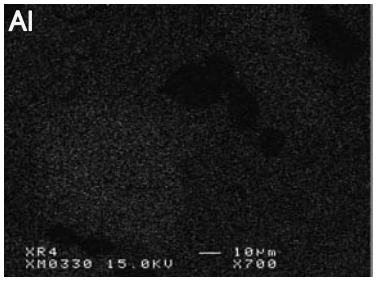


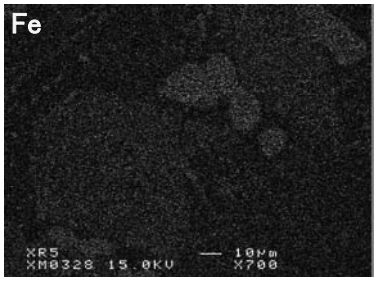


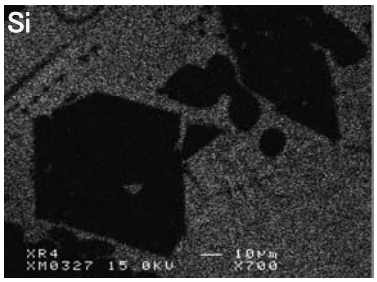










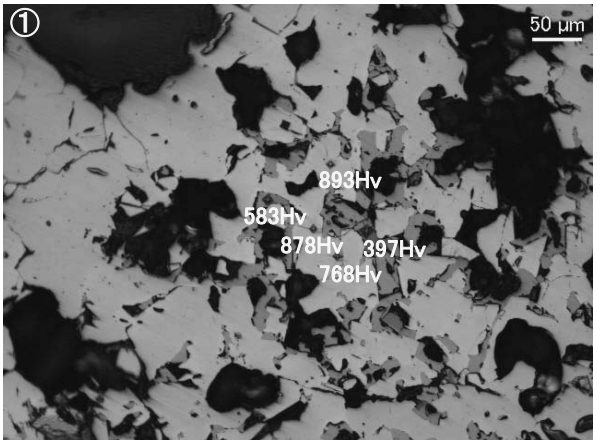


定量分析値

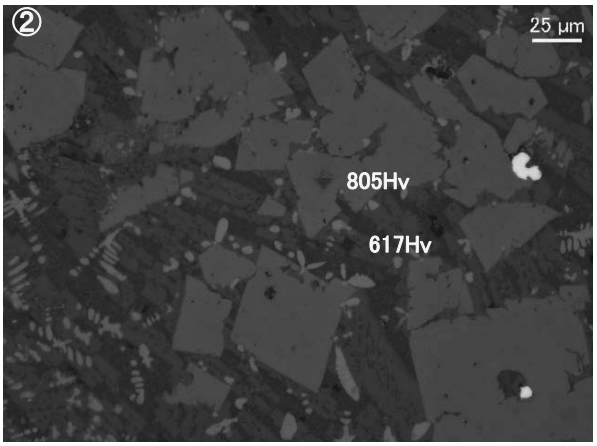
Element	4	5	6	7
Na_2O	0.042	0.441	1.804	0.036
MgO	1.204	0.950	1.111	1.010
Al_2O_3	13.735	10.586	9.619	0.873
SiO_2	0.108	13.990	35.738	0.235
P_2O_5	–	0.156	0.341	0.018
S	0.005	0.035	0.071	0.009
K_2O	–	1.264	2.273	–
CaO	0.004	4.334	10.678	0.039
TiO2	19.742	11.722	1.781	3.560
Cr_2O_3	0.314	–	–	0.033
MnO	0.284	0.421	0.472	0.292
FeO	62.223	55.137	35.962	95.442
As_2O_5	0.059	–	–	0.053
V_2O_3	1.655	0.156	0.061	0.190
PbO	0.008	–	–	–
CuO	–	–	0.007	–
SnO_2	0.079	–	–	0.038
Total	99.462	99.192	99.918	101.828

写真52　炉内滓（含鉄）の顕微鏡組織・EPMA調査結果

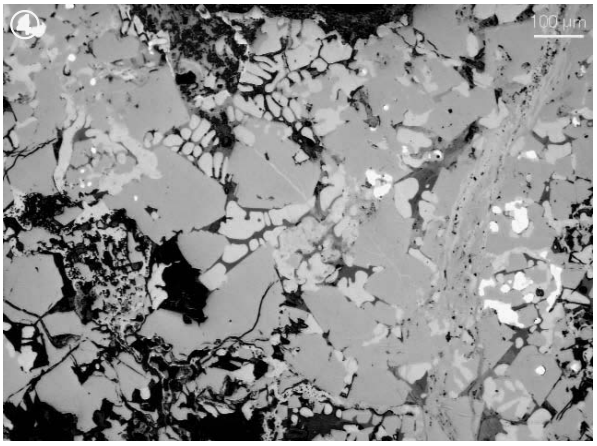
SMH2-25
マグネタイト系遺物
①マグネタイトとウスボスピネルおよびヘルシナイトの固溶体・ウルボスピネル凝集、
硬度:荷重50gf

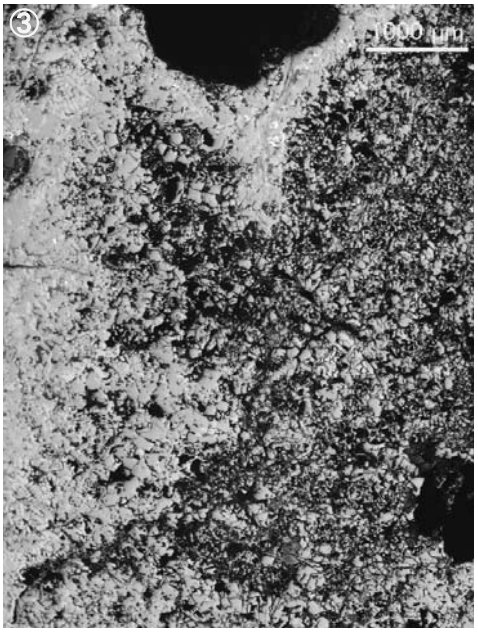


SMH2-26
流出溝滓
②微小明白色粒:金属鉄、滓部:ウルボスピネルとヘルシナイトの固溶体・ウスタイト・ファヤライト、硬度:荷重50gf



SMH2-27
炉内滓
③～⑤微小明白色粒:金属鉄、不定形青灰色部:錆化鉄、滓部:ウルボスピネルとヘルシナイトの固溶体・ウスタイト、
硬度:荷重50gf





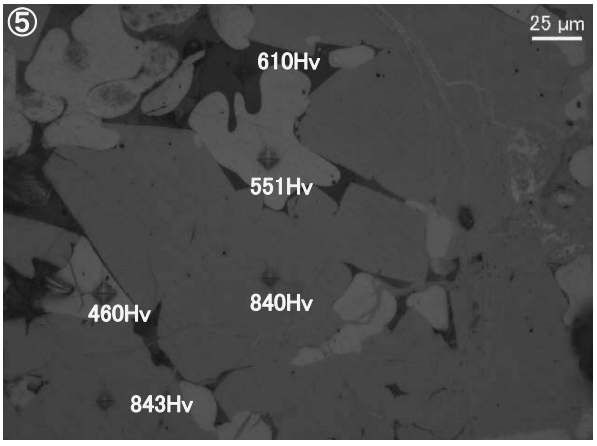
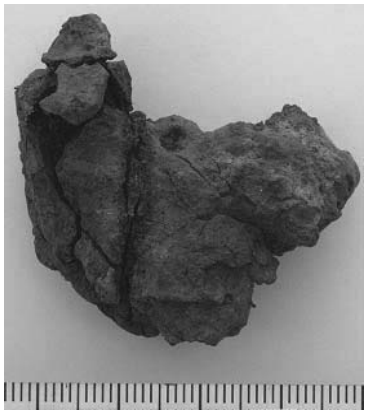
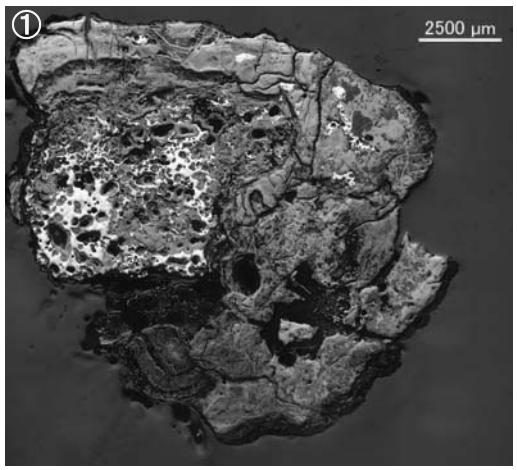
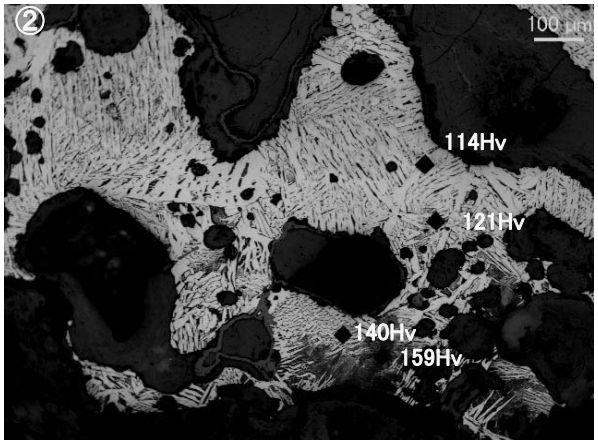


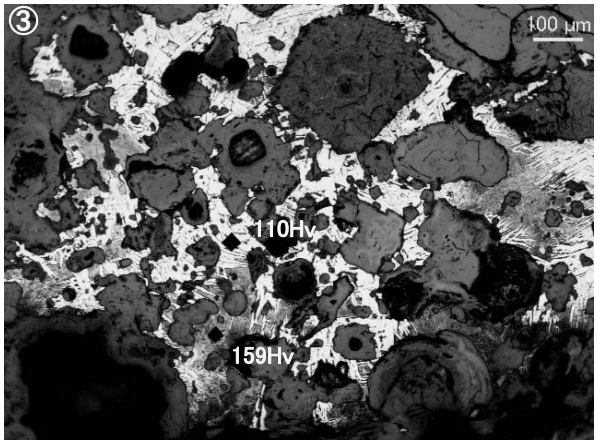
写真53　マグネタイト系遺物・流出溝滓・炉内滓の顕微鏡組織

SMH2-28
鉄塊系遺物
①ﾏｸﾛ組織
②③金属鉄部拡大、ﾅｲﾀﾙetch　針状ﾌｪﾗｲﾄ･素地:ﾍﾟｲﾅｲﾄ
硬度:荷重100gf

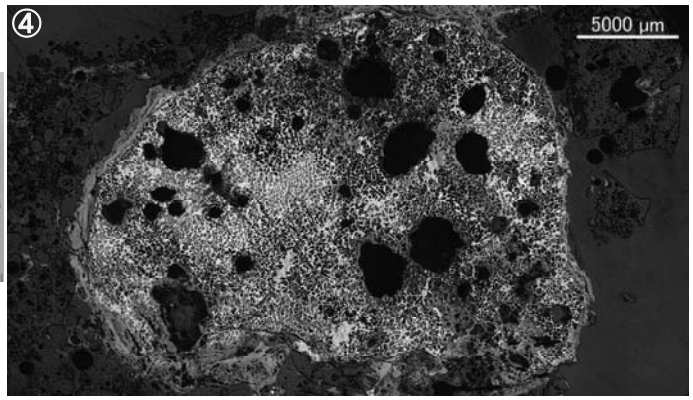


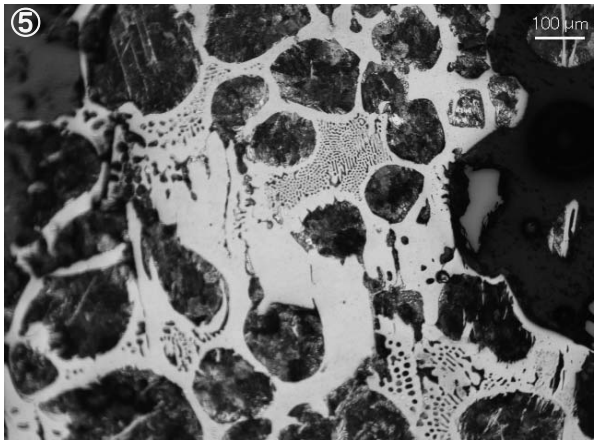






SMH2-29
炉床土（含鉄）
④ﾏｸﾛ組織
⑤⑥金属鉄部拡大:ﾅｲﾀﾙetch 亜共晶組成白鋳鉄組織
硬度:荷重100gf





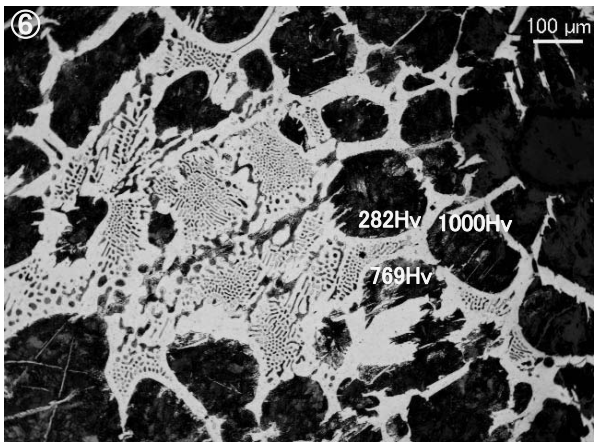
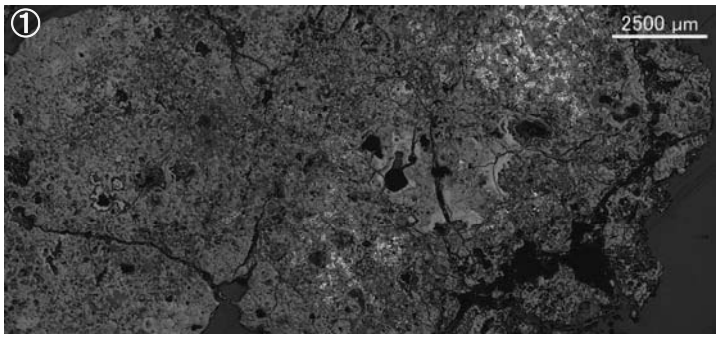
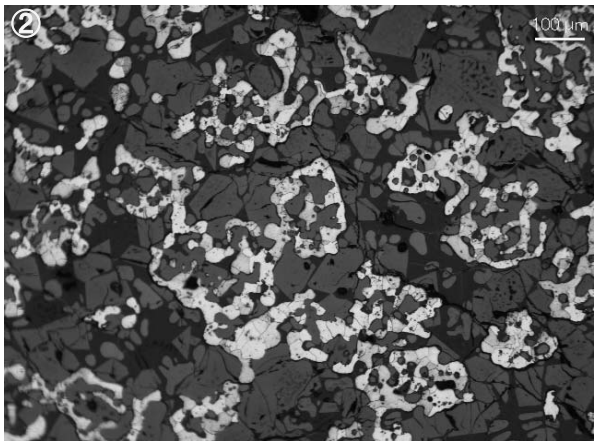
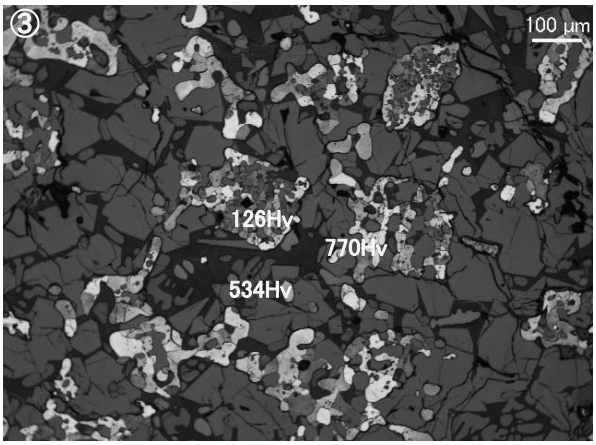


写真54　鉄塊系遺物・流出溝滓・炉床土の顕微鏡組織

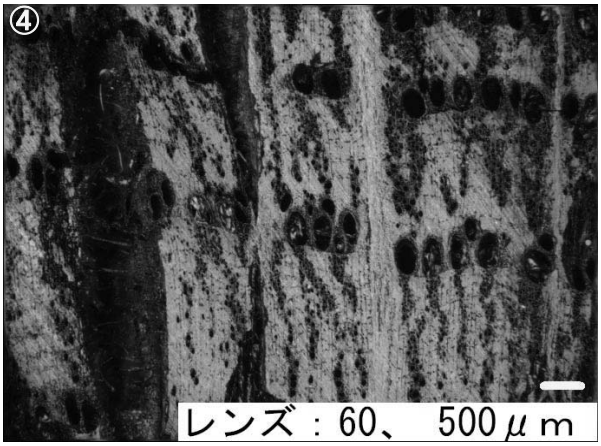
SMH2-30
炉内滓（含鉄）
①ﾏｸﾛ組織
②③不定形明白色部:金属鉄、ﾅｲﾀﾙetch ﾌｪﾗｲﾄ単相、滓部:ｳﾙﾎﾞｽﾋﾟﾈﾙ・ｳｽﾀｲﾄ、硬度:荷重50gf

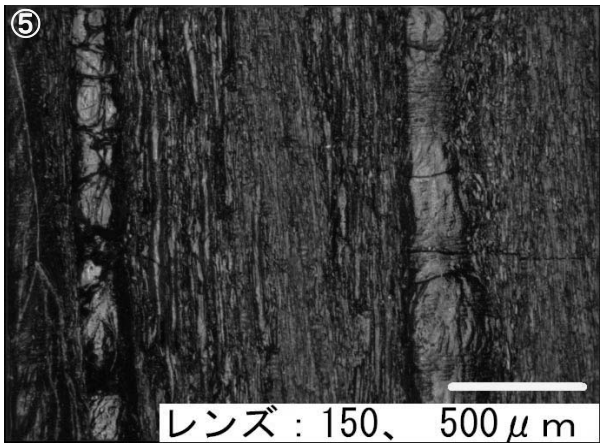






SMH2-31
木炭
④木口、⑤柾目、⑥板目
広葉樹環孔材





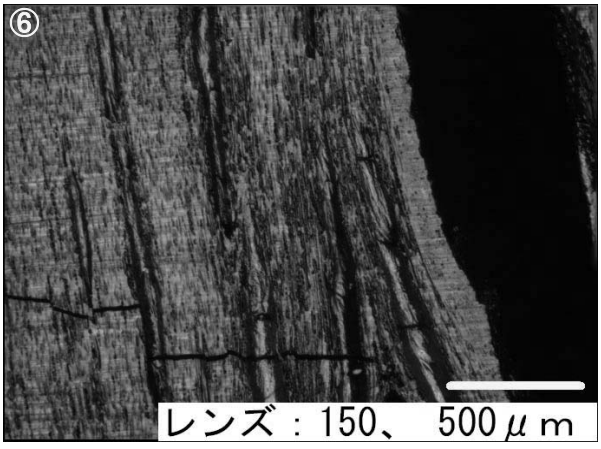


写真55　炉内滓（含鉄）・木炭の顕微鏡組織