



di Cicerchia Franco & C.

s.a.s.

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COL001 METALLOGRAPHIC SAMPLE COLLECTION 4 STEEL SAMPLES - 4 CAST IRON SAMPLES

	MATERIAL	STRUCTURE	ETCHING
1	CAST IRON G 25	Pearlite - Sulphides Flake graphite (oversized flakes)	Nital 2
2	CAST IRON G 25	Pearlite - Steadite Flake graphite (standard size flakes)	Nital 2
3	NODULAR CAST IRON	Ferrite - Pearlite Nodular graphite	Nital 2
4	WHITE CAST IRON	Cementite - Ledeburite	Nital 2
5	C 10 STEEL Normalized	Ferrite - Pearlite	Nital 2
6	C 40 STEEL Normalized	Perlite - Ferrite	Nital 2
7	C 40 Hardened Water cooled	Boundary: grains of ferrite (decarburized) Centre: Martensite	Nital 2
8	STAINLESS STEEL 18/8	Austenite - Carbides	Glyceresia



**COL002 METALLOGRAPHIC SAMPLE COLLECTION
8 STEEL SAMPLES - 7 CAST IRON SAMPLES**

MATERIAL	STRUCTURE	ETCHING
CAST IRON G 25	Pearlite - Sulphides Flake graphite (oversized flakes)	Nital 2
CAST IRON G 25	Pearlite - Steadite Flake graphite (standard size flakes)	Nital 2
NODULAR CAST IRON	Ferrite - Pearlite - Nodular graphite	Nital 2
NODULAR CAST IRON	Pearlite - Nodular graphite	Nital 2
NODULAR CAST IRON	Ferrite - Nodular graphite	Nital 2
COMPACTED GRAPHITE CAST IRON	Pearlite - Ferrite Compacted graphite	Nital 2
WHITE CAST IRON	Cementite - Ledeburite	Nital 2
C 10 STEEL Normalized	Ferrite - Pearlite	Nital 2
C 10 Cemented Hardened and Tempered	Boundary: Tempered martensite - Austenite Centre: Martensite	Nital 2
Fe 37 STEEL	Ferrite - Pearlite	Nital 2
C 40 STEEL Normalized	Pearlite - Ferrite	Nital 2
C 40 Hardened Water cooled	Martensite	Nital 2
C 100 Annealed	Pearlite	Nital 2
HSS steel	Martensite - Carbides	UNICO COGNE
STAINLESS STEEL 18/8	Austenite - Carbides	Glyceregia



COL003-BOX "A" METALLOGRAPHIC SAMPLE COLLECTION
N°20 STEEL SAMPLES - N°10 CAST IRON SAMPLES
BOX "A" N°15 SAMPLES

	MATERIAL	STRUCTURE	ETCHING
1	CAST IRON G 25	Pearlite - Sulphides Flake graphite (oversized flakes)	Nital 2
2	CAST IRON G 25	Pearlite - Steadite Flake graphite (standard size flakes)	Nital 2
3	NODULAR CAST IRON F+P	Ferrite - Pearlite Nodular graphite	Nital 2
4	NODULAR CAST IRON P	Pearlite Nodular graphite	Nital 2
5	NODULAR CAST IRON F	Ferrite Nodular graphite	Nital 2
6	COMPACTED GRAPHITE CAST IRON	Pearlite - Ferrite Compacted graphite	Nital 2
7	WHITE CAST IRON	Cementite - Ledeburite	Nital 2
8	NODULAR CAST IRON Water quenched	Martensite - Fine Pearlite - Ferrite Nodular graphite	Nital 2
9	MEEHANITE CAST IRON Tempered	Sorbite - fine Pearlite - Ferrite - Steadite Flake graphite	Nital 2
10	CROME CAST IRON Quenched	Carbides - Martensite absence of graphite	Nital 2
11	STAINLESS STEEL 18/8	Austenite - Carbides	Glyceresia
12	C 10 STEEL Normalized	Ferrite - Pearlite	Nital 2
13	C 10 STEEL Cemented	Boundary: Pearlite Centre: Ferrite - Pearlite	Nital 2
14	C 10 STEEL Cemented Hardened and Tempered	Boundary: Tempered Martensite + Austenite Centre: coarse Martensite	Nital 2
15	Fe 37 STEEL	Ferrite - Pearlite	Nital 2



COL003-BOX "B" METALLOGRAPHIC SAMPLE COLLECTION
N°20 STEEL SAMPLES - N°10 CAST IRON SAMPLES
BOX "B" N°15 SAMPLES

	MATERIAL	STRUCTURE	ETCHING
16	C 40 STEEL Normalized	Pearlite - Ferrite	Nital 2
17	C 40 STEEL Hardened - Water cooled	Boundary: grains of ferrite (decarburized) Centre: Martensite	Nital 2
18	C 40 STEEL Tempered	Sorbite	Nital 2
19	C 60 STEEL Normalized	Pearlite - Ferrite	Nital 2
20	C 100 STEEL Annealed	Globular Pearlite	Nital 2
21	C 100 STEEL Hardened - Water cooled	Boundary: Martensite - Carbides Centre: Martensite - Troostite - Carbides	Nital 2
22	18NiCrMo5 STEEL Normalized	Ferrite - fine Pearlite	Nital 2
23	18NiCrMo5 STEEL Cemented Hardened and Tempered	Boundary: Martensite Centre: Martensite - Ferrite	Nital 2
24	38NiCrMo4 STEEL Annealed	grains of ferrite in globular pearlite matrix	Nital 2
25	38NiCrMo4 STEEL Tempered	Sorbite	Nital 2
26	Molybdenum TOOL STEEL Normalized	Globular Pearlite	Nital 2
27	Molybdenum TOOL STEEL Hardened and Tempered	Martensite - Carbides	UNICO COGNE
28	HSS STEEL	Martensite - Carbides	UNICO COGNE
29	17-4 PH STEEL	Fine precipitates dispersed in Martensite matrix	UNICO COGNE
30	42CrMoS4 STEEL NITRIDED	Boundary: white layer + compound layer Centre: Martensite	Nital 2



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COL004 METALLOGRAPHIC SAMPLE COLLECTION N°5 ALUMINIUM ALLOYS SAMPLES

	MATERIAL	STRUCTURE	ETCHANT
1	G-AlSi9MnMg UNI 3051 As-cast	α matrix, Si particles, $MnAl_6$, Mg_2Si	HF 0,5%
2	GD-AlSi12Cu2Fe UNI EN 5076 As-cast	α phase, Si coarse particles, Fe and Cu compounds	HF 0,5%
3	P-AlCu4,4SiMnMg UNI 3581	α matrix, $CuAl_2$ (light pink) and other complex compounds	HF 0,5%
4	P-AlMg 5 UNI 7790 Draft wire	α phase, particles of $MgAl_6$ scattered in the matrix	HF 0,5%
5	P-AlZn5,8Mg0,8Zr UNI 9007 Extruded	α phase, particles of Mg_2Al_3	HF 0,5%



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COL005 METALLOGRAPHIC SAMPLE COLLECTION

5 COPPER ALLOYS SAMPLES

MATERIAL	STRUCTURE	ETCHANT
Pure copper	Crystals of copper	Ammonium Persulfate
Bronze B 12	α phase and eutectic	Ammonium Persulfate
Aluminum Bronze Al7.6 Fe2.5 Ni1.4	Dendritic α phase and fine precipitates	Ammonium Persulfate
Brass Annealed OT64	α phase	Ammonium Persulfate
P - Cu Zn 39 Pb 1 UNI 7279	α phase and eutectoid	Ammonium Persulfate



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COL001 METALLOGRAPHIC SAMPLE COLLECTION 4 STEEL SAMPLES - 4 CAST IRON SAMPLES

	MATERIAL	STRUCTURE	ETCHING
1	CAST IRON G 25	Pearlite - Sulphides Flake graphite (oversized flakes)	Nital 2
2	CAST IRON G 25	Pearlite - Steadite Flake graphite (standard size flakes)	Nital 2
3	NODULAR CAST IRON	Ferrite - Pearlite Nodular graphite	Nital 2
4	WHITE CAST IRON	Cementite - Ledeburite	Nital 2
5	C 10 STEEL Normalized	Ferrite - Pearlite	Nital 2
6	C 40 STEEL Normalized	Perlite - Ferrite	Nital 2
7	C 40 Hardened Water cooled	Boundary: grains of ferrite (decarburized) Centre: Martensite	Nital 2
8	STAINLESS STEEL 18/8	Austenite - Carbides	Glyceresia



**COL002 METALLOGRAPHIC SAMPLE COLLECTION
8 STEEL SAMPLES - 7 CAST IRON SAMPLES**

MATERIAL	STRUCTURE	ETCHING
CAST IRON G 25	Pearlite - Sulphides Flake graphite (oversized flakes)	Nital 2
CAST IRON G 25	Pearlite - Steadite Flake graphite (standard size flakes)	Nital 2
NODULAR CAST IRON	Ferrite - Pearlite - Nodular graphite	Nital 2
NODULAR CAST IRON	Pearlite - Nodular graphite	Nital 2
NODULAR CAST IRON	Ferrite - Nodular graphite	Nital 2
COMPACTED GRAPHITE CAST IRON	Pearlite - Ferrite Compacted graphite	Nital 2
WHITE CAST IRON	Cementite - Ledeburite	Nital 2
C 10 STEEL Normalized	Ferrite - Pearlite	Nital 2
C 10 Cemented Hardened and Tempered	Boundary: Tempered martensite - Austenite Centre: Martensite	Nital 2
Fe 37 STEEL	Ferrite - Pearlite	Nital 2
C 40 STEEL Normalized	Pearlite - Ferrite	Nital 2
C 40 Hardened Water cooled	Martensite	Nital 2
C 100 Annealed	Pearlite	Nital 2
HSS steel	Martensite - Carbides	UNICO COGNE
STAINLESS STEEL 18/8	Austenite - Carbides	Glyceregia



COL003-BOX "A" METALLOGRAPHIC SAMPLE COLLECTION
N°20 STEEL SAMPLES - N°10 CAST IRON SAMPLES
BOX "A" N°15 SAMPLES

	MATERIAL	STRUCTURE	ETCHING
1	CAST IRON G 25	Pearlite - Sulphides Flake graphite (oversized flakes)	Nital 2
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4	NODULAR CAST IRON P	Pearlite Nodular graphite	Nital 2
5	NODULAR CAST IRON F	Ferrite Nodular graphite	Nital 2
6	COMPACTED GRAPHITE CAST IRON	Pearlite - Ferrite Compacted graphite	Nital 2
7	WHITE CAST IRON	Cementite - Ledeburite	Nital 2
8	NODULAR CAST IRON Water quenched	Martensite - Fine Pearlite - Ferrite Nodular graphite	Nital 2
9	MEEHANITE CAST IRON Tempered	Sorbite - fine Pearlite - Ferrite - Steadite Flake graphite	Nital 2
10	CROME CAST IRON Quenched	Carbides - Martensite absence of graphite	Nital 2
11	STAINLESS STEEL 18/8	Austenite - Carbides	Glyceresia
12	C 10 STEEL Normalized	Ferrite - Pearlite	Nital 2
13	C 10 STEEL Cemented	Boundary: Pearlite Centre: Ferrite - Pearlite	Nital 2
14	C 10 STEEL Cemented Hardened and Tempered	Boundary: Tempered Martensite + Austenite Centre: coarse Martensite	Nital 2
15	Fe 37 STEEL	Ferrite - Pearlite	Nital 2



COL003-BOX "B" METALLOGRAPHIC SAMPLE COLLECTION
N°20 STEEL SAMPLES - N°10 CAST IRON SAMPLES
BOX "B" N°15 SAMPLES

	MATERIAL	STRUCTURE	ETCHING
16	C 40 STEEL Normalized	Pearlite - Ferrite	Nital 2
17	C 40 STEEL Hardened - Water cooled	Boundary: grains of ferrite (decarburized) Centre: Martensite	Nital 2
18	C 40 STEEL Tempered	Sorbite	Nital 2
19	C 60 STEEL Normalized	Pearlite - Ferrite	Nital 2
20	C 100 STEEL Annealed	Globular Pearlite	Nital 2
21	C 100 STEEL Hardened - Water cooled	Boundary: Martensite - Carbides Centre: Martensite - Troostite - Carbides	Nital 2
22	18NiCrMo5 STEEL Normalized	Ferrite - fine Pearlite	Nital 2
23	18NiCrMo5 STEEL Cemented Hardened and Tempered	Boundary: Martensite Centre: Martensite - Ferrite	Nital 2
24	38NiCrMo4 STEEL Annealed	grains of ferrite in globular pearlite matrix	Nital 2
25	38NiCrMo4 STEEL Tempered	Sorbite	Nital 2
26	Molybdenum TOOL STEEL Normalized	Globular Pearlite	Nital 2
27	Molybdenum TOOL STEEL Hardened and Tempered	Martensite - Carbides	UNICO COGNE
28	HSS STEEL	Martensite - Carbides	UNICO COGNE
29	17-4 PH STEEL	Fine precipitates dispersed in Martensite matrix	UNICO COGNE
30	42CrMoS4 STEEL NITRIDED	Boundary: white layer + compound layer Centre: Martensite	Nital 2



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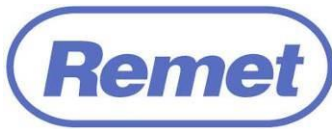
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1	G- AlSi9MnMg UNI 3051 As-cast	α matrix, Si particles, $MnAl_6$, Mg_2Si	HF 0,5%
2	GD- AlSi12Cu2Fe UNI EN 5076 As-cast	α phase, Si coarse particles, Fe and Cu compounds	HF 0,5%
3	P- AlCu4,4SiMnMg UNI 3581	α matrix, $CuAl_2$ (light pink) and other complex compounds	HF 0,5%
4	P- AlMg 5 UNI 7790 Draft wire	α phase, particles of $MgAl_6$ scattered in the matrix	HF 0,5%
5	P- AlZn5,8Mg0.8Zr UNI 9007 Extruded	α phase, particles of Mg_2Al_3	HF 0,5%



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COL005 METALLOGRAPHIC SAMPLE COLLECTION

5 COPPER ALLOYS SAMPLES

MATERIAL	STRUCTURE	ETCHANT
Pure copper	Crystals of copper	Ammonium Persulfate
Bronze B 12	α phase and eutectic	Ammonium Persulfate
Aluminum Bronze Al7.6 Fe2.5 Ni1.4	Dendritic α phase and fine precipitates	Ammonium Persulfate
Brass Annealed OT64	α phase	Ammonium Persulfate
P - Cu Zn 39 Pb 1 UNI 7279	α phase and eutectoid	Ammonium Persulfate