

CHEMICAL COMPOSITION (WEIGHT %)

Grade	Carbon Max	Oxygen Max	Nitrogen Max	Iron Max	Aluminum	Vanadium	Palladium	Molybdenum	Nickel	Hydrogen Max
Grade 1	0.08	0.18	0.03	0.20	...	...	...	...	...	0.015
Grade 2	0.08	0.25	0.03	0.30	...	...	...	...	...	0.015
Grade 3	0.08	0.35	0.05	0.30	...	...	...	...	...	0.015
Grade 4	0.08	0.40	0.05	0.50	...	...	...	...	...	0.015
Grade 5	0.08	0.20	0.05	0.40	5.5-6.75	3.5-4.5	...	...	...	0.015
Grade 7	0.08	0.25	0.03	0.30	...	...	0.12-0.25	...	...	0.015
Grade 9	0.08	0.12	0.03	0.25	2.5-3.5	2.0-3.0	...	...	...	0.015
Grade 11	0.08	0.18	0.03	0.20	...	...	0.12-0.25	...	...	0.015
Grade 12	0.08	0.25	0.03	0.30	...	...	...	0.2-0.4	0.6-0.9	0.015
Grade 16	0.08	0.25	0.03	0.30	...	...	0.04-0.08	...	...	0.015
Grade 17	0.08	0.18	0.03	0.20	...	...	0.04-0.08	...	...	0.015
Grade 18	0.08	0.15	0.03	0.25	2.5-3.5	2.0-3.0	0.04-0.08	...	...	0.015

MECHANICAL PROPERTIES*

Grade	Tensile Str. ksi min	Tensile Str. MPa min	Yield Strength ksi min/max	Yield Strength MPa min/max	Elongation in 2", % min
CP Grade 1	35	240	20/45	138/310	24
CP Grade 2	50	345	40/65	275/450	20
CP Grade 3	65	450	55/80	380/550	18
CP Grade 4	80	550	70/95	483/655	15
CP Grade 7	50	345	40/65	275/450	20
CP Grade 11	35	240	20/45	138/310	24
CP Grade 16	50	345	40/65	275/450	20
CP Grade 17	35	240	20/45	138/310	24

*Mill Annealed Condition **Minimum