



KAPIL ENTERPRISES



CHEMICAL COMPOSITION FOR NUTS AS PER SA-194

Grade of carbon and alloy steel for nuts to BS 1750 and ASTM A 194								
SYMBOL	2H	2HM	4	8	8M	8T	L4	7 / 7M
Type	Ferritic	Ferritic	Ferritic	Austenitic Unstabilized	Austenitic	Austenitic Stabilized	Ferritic	Ferritic
Service conditions	High Temp.	High Temp.	High Temp.	High Low. Temp.	High Low. Temp.	High Low. Temp.	Low Temp.	Low Temp.
Material specification ASTM	A 194 Grade 2H	A 194 Grade 2HM	A 194 Grade 4	A 194 Grade 8	A 194 Grade 8M	A 194 Grade 8T	A 194 Grade 4	A 320 Grade 7.
Chemical composition	%	%	%	%	%	%	%	%
C.	0.40 min.	0.40 min.	0.40 --- 0.50	0.08 max.	0.08 max.	0.08 max.	0.40---0.50	0.37---0.49
Mn.	1.00 max.	1.00 max.	0.70---0.90	2.00 max.	2.00 max.	0.70---0.90	0.70---0.90	0.65---1.10
Si.	0.40 max.	0.040 max.	0.15---0.35	1.00 max.	1.00 max.	0.20---0.35	0.15---0.35	0.15---0.35
P.	0.040 max.	0.040 max.	0.035 max.	0.045 max.	0.045 max.	0.045 max.	0.035 max.	0.040 max.
S.	0.050 max.	0.050 max.	0.040 max.	0.030 max.	0.030 max.	0.030 max.	0.040 max.	0.040 max.
Cr.	--- ---	--- ---	--- ---	18.00---20.00	16.00---18.00	17.00---19.00	--- ---	0.75---1.20
Ni.	--- ---	--- ---	--- ---	8.00---10.50	10.00---14.00	9.00---12.00	--- ---	--- ---
Mo.	--- ---	--- ---	0.20---0.30	--- ---	2.00---3.00	--- ---	0.20---0.30	0.15---0.25
V.	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---
Ti.	--- ---	--- ---	--- ---	--- ---	--- ---	5xCMIN	--- ---	--- ---
Heat Treatment	Oil quenched & tempered at 8500F 4550C min	Oil quenched & tempered at 11500F 6200C min	Oil quenched & tempered at 11000F or 5950C min	Carbide solution	Carbide solution	Carbide solution	Oil quenched & tempered at 11000F or 5950C min	Oil quenched & tempered at 11000F or 5950C min
Brinell Hardness	248/352	22 RC max.	248/352	126/300	126/300	126/300	248/352	248/352
Impact value	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	20 ft. lbf. at 1500F	20 ft. lbf. at 1500F