



Aluminum 5052

Chemistry Data

Aluminum	Balance
Chromium	0.15 - 0.35
Copper	0.1 max
Magnesium	2.2 - 2.8
Manganese	0.1 max
Remainder Each	0.05 max
Remainder Total	0.15 max
Silicon + Iron	0.45 max
Zinc	0.1 max

General Information

Principal Design Information

This is a non-heat treatable alloy that is weldable. It is hardened by cold work. It has good forming characteristics and good corrosion resistance, including resistance to salt water.

Applications

Commonly used in the manufacture of hydraulic tubes, kitchen cabinets, small boats, home freezers, milk crates, aircraft tube, fencing, and appliances. Commonly used in sheet metal work and in sheet metal parts..

Machinability

This alloy has relatively fair machinability. It is easier to machine in the hard temper than as annealed and the quality of finish is better if machined in the hard condition. Oil lubricants should be used for machining, except that very light cuts may be done dry.

Forming

AL 5052 is readily formed at room temperature. Successive cold working decreases the formability.

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General Information (cont'd)

Welding

This alloy is readily welded by conventional methods. When filler rod is required it should be aluminum alloy 5356 as filler. Either tungsten or consumable electrode inert gas shielded arc welding is preferred method.

Heat Treatment

AL 5052 cannot be hardened by means of heat treatment. It does harden due to cold working.

Forging

The alloy may be forged in the temperature range of 950 F down to 500 F.

Hot Working

Hot working, as with forging, may be done in the range of 950 F to 500 F.

Cold Working

The alloy cold works readily and may be formed by drawing or spinning. However the amount of cold work imparted by spinning makes intermediate annealing necessary.

Annealing

Anneal at 650 F and air cool.

Aging

Not applicable to this alloy.

Tempering

Not applicable to this alloy.



General Information (cont'd)

Hardening

Hardens as a result of cold working only.

Other Physical Properties

Electrical conductivity 33% of copper.

Other Mechanical Properties

Shear strength for O temper is 18 ksi. For cold worked temper H 34 it is 21 ksi.

Physical Data

Density (lb / cu. in.)	0.097
Specific Gravity	2.68
Melting Point (Deg F)	1130
Modulus of Elasticity Tension	10.2
Modulus of Elasticity Torsion	3.8

Mechanical Data

Form	Condition	Temper	Tensile Strength	Yield Strength	Elongation	Reduction of Area	Brinnell
Sheet	H32	68	33	28	12	18	60
Sheet	H34	-320	55	36	28		
Sheet	H34	-112	40	32	21		
Sheet	H34	-18	38	31	18		
Sheet	H34	68	38	31	10	14	68
Sheet	H34	75	38	31	16		
Sheet	H34	212	38	31	18		
Sheet	H34	300	30	27	27		
Sheet	H34	400	24	15	45		
Sheet	H34	500	12	7.5	80		



Aluminum 5052 Specification Sheet

Mechanical Data (cont'd)

Form	Condition	Temper	Tensile Strength	Yield Strength	Elongation	Reduction of Area	Brinnell
Sheet	H34	600	7.5	5.5	110		
Sheet	H34	700	5	3.1	130		
Sheet	H36	68	40	35	8	10	73
Sheet	H38	-320	60	44	25		
Sheet	H38	-112	44	38			
Sheet	H38	-18	42	37	15		
Sheet	H38	68	42	37	7	8	77
Sheet	H38	75	42	37	14		
Sheet	H38	212	40	36	16		
Sheet	H38	300	34	28	24		
Sheet	H38	400	25	15	45		
Sheet	H38	500	12	7.5	80		
Sheet	H38	600	7.5	5.5	110		
Sheet	H38	700	5	3.1	130		
Sheet	O	-320	44	16	46		
Sheet	O	-112	29	13	35		
Sheet	O	-18	28	13	32		
Sheet	O	68	28	13	25	30	47
Sheet	O	75	28	13	30		
Sheet	O	212	28	13	36		
Sheet	O	300	23	13	50		
Sheet	O	400	17	11	60		
Sheet	O	500	12	7.5	80		
Sheet	O	600	7.5	5.5	110		
Sheet	O	700	5	3.1	130		