Materials & Alloys Reference Guide

Comprehensive UNS classification and density specification reference

1. Aluminum & Aluminum Alloys

UNS	Material	Density (g/cm³)
A03190	Al 319	2.79
A03191	Al 319.1	
A03192	Al 319.2	
A03330	Al 333	
A03331	Al 333.1	2.70
A03550	Al 355	2.71
A03552	Al 355.2	2.68
A03561	Al 356.1	
A03562	Al 356.2	2.68
A03600	Al 360	
A03800	Al 380	
A03900	Al 390	
A04432	Al 443.2	
A05142	Al 514.2	
A05352	Al 535.2	
A07720	Al 772.0	
A91100	Al 1100	2.71
A91145	Al 1145	
A92011	Al 2011	2.82
A92014	Al 2014	2.80
A92017	Al 2017	
A92024	Al 2024	2.77
	Al 2024 ALCLAD	
A92036	Al 2036	

UNS	Material	Density (g/cm³)
A92090	Al 2090	
A92219	Al 2219	
A93003	Al 3003	2.73
A93004	Al 3004	
A94043	Al 4043	
A95005	Al 5005	2.70
A95050	Al 5050	2.69
A95052	Al 5052	2.68
A95083	Al 5083	2.66
A95086	Al 5086	2.65
A95154	Al 5154	2.66
A95182	Al 5182	
A95254	Al 5254	
A95257	Al 5257	
A95454	Al 5454	2.68
A95456	Al 5456	2.66
A95652	Al 5652	
A96061	Al 6061	2.70
A96063	Al 6063	2.70
A97039	Al 7039	
A97050	Al 7050	
A97075	Al 7075	2.80
	Al 7075 ALCLAD	
A97178	Al 7178	2.82

2. Copper & Copper Alloys

UNS	Material	Density (g/cm³)
C10100	CDA 101 OFE	8.89
C10200	CDA 102 OFE	8.89
C10300	CDA 103	8.89
C11000	CDA 110 ETP	8.89
C11400	CDA 114 STP	8.91

UNS	Material	Density (g/cm³)
C12200	CDA 122 DHP	8.94
C15100	CDA 151	
C17200	CDA 172	8.23
C17300	CDA 173	
C18200	CDA 182	
C19400	CDA 194 HSM	8.78
C19500	CDA 195	
C22000	CDA 220 Com. Bronze	8.80
C23000	CDA 230 Red Brass	8.75
C26000	CDA 260 Cartridge Brass	8.53
C26800	CDA 268 Yellow Brass	8.47
C27200	CDA 272	
C27400	CDA 274	
C28000	CDA 280 Muntz Metal	8.39
C31600	CDA 316 Leaded Bronze	8.83
C33000	CDA 330	
C34500	CDA 345	
C35300	CDA 353	
C36000	CDA 360 FC Brass	8.49
C36500	CDA 365	
C44300	CDA 443 Admiralty Brass	8.52
C46400	CDA 464 Naval Brass	8.41
C48500	CDA 485 Leaded Naval Br.	8.44
C51000	CDA 510 Phos. Bronze	8.86
C51900	CDA 519	
C52100	CDA 521	
C61000	CDA 610	
C61300	CDA 613	8.50
C61400	CDA 614 Al Bronze D	8.45
C62300	CDA 623	
C62400	CDA 624	
C62500	CDA 625	

UNS	Material	Density (g/cm³)
C63000	CDA 630 Ni Al Bronze	7.58
C63200	CDA 632	
C64200	CDA 642 Al Bronze	7.69
C65100	CDA 651	
C65500	CDA 655 High Silicon	8.52
C67300	CDA 673	
C67500	CDA 675 Mn Bronze A	8.63
C68700	CDA 687 Al Brass	8.33
C70600	CDA 706	8.94
C71000	CDA 710 (80/20)	8.94
C71500	CDA 715 (70/30)	8.94
C72200	CDA 722	
C75200	CDA 752	
C83600	CDA 836	8.80
C83800	CDA 838	
C84400	CDA 844	
C84500	CDA 845	
C85200	CDA 852	
C85400	CDA 854 Leaded Yellow	8.45
C85700	CDA 857	
C86200	CDA 862	
C86300	CDA 863 Mn Bronze	7.70
C86400	CDA 864	
C87500	CDA 875	
C90300	CDA 903 Tin Bronze	8.80
C90500	CDA 905	8.73
C90700	CDA 907	
C91600	CDA 916	
C92200	CDA 922	8.64
C92700	CDA 927	8.80
C93200	CDA 932	8.91
C93700 / C94400	CDA 937 / CDA 944	8.95

UNS	Material	Density (g/cm³)
C95300	CDA 953	
C95400	CDA 954 Al Bronze 9L	7.45
C95500	CDA 955	8.20
C95800	CDA 958	8.80
C96200	CDA 962	8.94
C96400	CDA 964	8.94
C97800	CDA 978	8.86

3. Carbon & Alloy Steels

UNS	Material	Density (g/cm³)
G10050	C1005	
G10080	C1008	7.85
G10090	C1009	
G10100	C1010 Mild Steel	7.87
G10150	C1015 Mild Steel	7.87
G10180	C1018 Mild Steel	7.87
G10200	C1020 Mild Steel	7.87
G10260	C1026 Mild Steel	7.87
G10350	C1035	
G10400	C1040	
G10420	C1042	
G10450	C1045	7.84
G10500	C1050	7.84
G10600	C1060	
G10740	C1074	
G10750	C1075	
	C1076	
G10800	C1080	
G10950	C1095	
G11170	C1117	
G11370	C11L17 / C1137	
G11410	C1141	

UNS	Material	Density (g/cm³)
G11440	C1144	
G12144	C12L14	
G12150	C1215	
G41300	C15830 / C4130	7.85
	C4130X	7.85
	C4130MOD	
G41400	C4140 / C4140C	7.85
	C4140D	
	C41L40	
	C41L50	
G41420	C4142	
G41500	C4150	
	C4330V	
G43400	C4340 Alloy Steel	7.84
	C4340A	
	C4340B	
G52986	C52100	
G86200	C8620	
G86300	C8630	
G87400	C8740	
G93106	C9310	
K01200	A179	
K01201	A192	
K01800	A516 Gr 55 / A213	
K01807	A214	7.86
K02100	A516 Gr 60	7.60
K02303	A572 Gr 50	
K02400	A537 CL1	
K02401	A515 Gr 60	
K02504	A53 Gr A	7.60
K02600	A36	7.60
K02700	A516 Gr 70	7.60

UNS	Material	Density (g/cm³)
K02801	A285 Gr C	7.60
K03000	A500 Gr B	
K03005	A53 Gr B	7.87
K03006	A333 Gr 6	
K03009	A350 Lf 1	
K03101	A515 G 70	7.60
K03300	A455	
K02707	A210 Gr A1	
K03501	A210 Gr C	
K03502	A181 Gr 2	
K03506	A266 CL 2	
K11430	A588 Gr A / COR-TEN B	7.60
K11510	A242 Type 1 / COR-TEN A	7.89
K11547	A213 T2	
K11572	A182 F11 (1 1/4 Cr, 1/2 Mo)	7.86
K11597	A213 T11	
	A513	
K11662	A514 Gr D	
K11757	A387 F12	7.87
K11789	A387 F11	
K11804	A656 Gr 80	
	A694 Gr 52	
K11820	A204 Gr A	
K11856	A514 Gr A	
K12020	A204 Gr B	
K12022	A302 Gr B	
K12023	A209 T1a	
K12045	A541	
K12521	A533 Gr A	
K12542	A202 Gr B	
K12766	A508 Class 2	
K13050	A350 Lf 5	

UNS	Material	Density (g/cm³)
K13502	A508 CL1	
K20747	A710 Gr A	
K21590	A182 F22 (2 1/4 Cr, 1 Mo)	7.86
K24728	A355 Gr A	
K31820	HY80	
K32018	A203 Gr E	
K32045	HY100	
	HY130	
K41545	A387 F5	
K42544	A182 F5a (5 Cr, 1/2 Mo)	7.78
K81340	A553	
	A569	
	A606	
	A610	
	A611	7.87
K90941	A182 F9 (9 Cr, 1 Mo)	7.67
N08705	HP	
	HP50	
K91283	HP 9-4-30	
K92890	Nimark 250	
	A120	
	A283 Gr C	7.60
	A366	
S50300	A182 F7	7.78
S50200	A387 Gr 5	
	Manganese Steel	
K44220	300M	

4. Coated, Plated or Special Conditioned Steels

UNS	Material	Density (g/cm³)
	Aluminized Steel	
	Chrome Plated Steel	
	Galvanized Steel	
	Terne Steel	
	Tin Plated Carbon-Steel	
	Tin Plated Steel	

5. Heat & Corrosion Resistant Steels (Including Stainless Steels)

UNS	Material	Density (g/cm³)
S13800	13-8 PH Mo	
S15500	15-5 PH	7.80
S15700	15-7 PH Mo	7.80
	15B30	
S17400	17-4 PH	7.80
S17700	17-7 PH	7.80
K14675	17-22A	
K23015	17-22AS	
	18SR	
S16100	CROLOY 16-1	
S20100	201L	7.94
S20300	203	
S30100	301	7.90
S30200	302	7.94
	302 HQ	
S30300	303 / 303 (P-70)	7.90
S30323	303Se	
S30400	304	7.94
S30403	304L	7.94
S30409	304H	
	304 .25%B	

UNS	Material	Density (g/cm³)
	304 1%B	
S30451	304N	
S30453	304LN	
S30800	308	8.00
S30883	308L	
S30900	309	7.98
S30908	309S	8.00
S31000	310	7.98
S31008	310S	7.98
S31009	310H	
S31603	316/316L	
	316LM	7.98
S31653	316LN	
S31700	317	7.98
S31703	317L	7.98
S31725	317LM	7.98
S31753	317LN	7.90
	317LNMo	7.98
S32100	321	7.90
S32900	329	7.98
N08330	330	8.03
N06333	333	8.24
S34700	347	8.03
S34800	348	
S40300	403	7.70
S40500	405	7.80
	406A1	
	406A2	
S40900	406A4 / 409	7.64
S41000 / S41008	410 / 410S	7.70
S41600	416	7.70
S41800	418	

UNS	Material	Density (g/cm³)
S42000	420	7.70
S42020	420F	
S42200	422	
S43000	430	7.72
S43036	430Ti	
S43100	431	7.73
S43700	437	
S43035	439	7.64
S44002	440A	7.70
S44004	440C	7.70
S44100	441	
S44400	444	7.80
S44600	446	7.65
N08904	904L	8.00
	904LN	
S21460	XM-14 (Tenelon)	
S38100	XM-15	
S66286	A-286	7.90
S35000	AM 350	7.81
S35500	AM 355	7.91
	AM 363	
	Maraging 250	
	Maraging 300	
	Maraging 350	

6. Nickel Alloys

UNS	Material	Density (g/cm³)
N99645	Colmonoy 45	
N99646	Colmonoy 46	
N13100	IN 100	7.75
N06003	Nichrome 5	
N06004	Nichrome 60	8.31

UNS	Material	Density (g/cm³)
N06008	Nichrome 70	
	Nimonic 105	
	Nichrome 3228	

7. Pure Metals

UNS	Material	Density (g/cm³)
M02XXX	Barium B10	
L01XXX	Cadmium	8.65
R2XXXX	Chromium	7.19
R30XXX	Cobalt	8.85
W6XXXX	Copper	8.89
P00020	Gold (99.95)	18.88
R02XXX	Hafnium	13.10
L04XXX	Indium	
FXXXXX	Iron	7.87
L50050	Lead	11.35
MIXXXX	Magnesium	1.74
M2XXXX	Manganese	7.21/7.44
R03XXX	Molybdenum	10.22
N02290	Nickel	8.57
R04210	Niobium	8.57
P03980	Palladium	12.02
P04995	Platinum	21.45
M3XXXX	Silicon	2.33
P07010	Silver	10.50
R05XXX	Tantalum	16.65
L13008	Tin	7.30
R07005	Tungsten	19.30
R08XXX	Vanadium	
Z15001	Zinc	7.13

8. Magnesium Alloys

UNS	Material	Density (g/cm³)
M10410	Magnesium AS41A	
M11311	Magnesium AZ31B	1.83
	Magnesium WE43	
	Magnesium ZC71	
M11910	Magnesium AZ91A	
M12330	Magnesium EZ33A	
M16400	Magnesium ZK40A	
M16410	Magnesium ZE41A	

9. Reactive & Refractory Metals

UNS	Material	Density (g/cm³)
	Colubium 85	
	Tantaloy "60"	
	Tantaloy "63"	
	60/Ta-40/Co	12.10
R03640	Molybdenum (TZM)	10.22
R30003	Elgiloy	8.30
R30035	MP35N	8.91
	Ti Beta 21S	
	Ti Di-Boride	
R50250	Ti Gr 1	4.52
R50400	Ti Gr 2 (cp)	4.52
R58010	Ti 3-11-13	
R50700	Ti Gr 4	
R54521	Ti 5-2.5	
R56210	Ti 6-2-1-1	
R54620	Ti 6-2-4-2	
R56401	Ti 6-4ELI	
R56260	Ti 6-2-4-6	
R56400	Ti Gr 5 (6 Al, 4 V)	4.43

UNS	Material	Density (g/cm³)
R52400 / R54810	Ti Gr 7 / Ti 8-1-1	4.52
	Ti Gr 9	4.52
R52250	Ti Gr 11	4.52
R53400	Ti Gr 12	4.43
R52402	Ti Gr 16	4.52
	Ti 15-3-3-3	
	Ti 25MO	
	Ti Gr 444	
	Ti Gr 450	
	Ti Gr 479	
R58640	Beta C-Ti	4.82
	HD17 Tungsten	
	KBI 40	
	KBI 41	
	Tribocor 532	
R60702	Zirconium 702	6.10
R60704	Zirconium 704	6.52
R60705	Zirconium 705	6.51
R60802	Zircalloy II	6.56
R60804	Zircalloy IV	6.56

10. Solders

UNS	Material	Density (g/cm³)
L50113	2.5 Sn/97 Pb/.5 Ag	
L50750	Calcium Sn Pb	
L51120	Lead (Chemical)	
L52605	Lead with 1% Sb	
L52901	Lead with 4% Sb	
L53105	Lead with 6% Sb	
L54320	5 Sn/95 Pb	11.00
	3 Sn/97 Pb	
L54520	10 Sn/90 Pb	10.90

UNS	Material	Density (g/cm³)
L54710 / L54821	20 Sn/80 Pb / 30 Sn/70 Pb Alloy B (Sn30A)	10.20
L54822	30 Sn/70 Pb Alloy C (Sn30B)	
L54915	40 Sn/60 Pb	9.31
L55030	50 Sn/50 Pb	8.89
	60 Sn/40 Pb	8.42
	70 Sn/30 Pb	
	92.5 Sn/7 Pb/.5 Ag	
P07500	Silver Solder B AG1A	
P07501	Silver Solder B AG3	
P07720	Silver Solder B AG8 / Anti-Friction Babbit	
	DZL Tin Babbit	
	Modine	
	Lead Babbit	
	Tin Babbit	
	ZAMAK 3	
	ZAMAK 5	

11. Tool Steels

UNS	Material	Density (g/cm³)
T11302	M2	8.16
T11304	M4 / M35-1	
T11342	M42	
T11350	M50	
T12001	M509 / T1	8.67
T20811	H11	7.75
T20812	H12	
T20813	H13	7.79
T20821	H21	
T30102 / T30106 / T30110	A2 / A6 / A10	7.86
T30402	D2	7.76
T30404	D4	

UNS	Material	Density (g/cm³)
T30407	D7	
T31501	O1	
T31502	O2	
T31506	O6	
T41901	S1	
T41905	S5	
T41906	S6	
T41907	S7	
T51620	P20	
T61206 / T72301	L6 / W1 / CPM10V	7.86
	AZ	
	CRB-7	
T20813	H13	7.79
	M73	
	Silicon Carbide	
	KZ-84 Carbide	
	KZ-94 Carbide	
	Titanium Carbide	
	Tungsten-Carbide C-2	14.85
	Tungsten-Carbide 6% NI	
	Tungsten-Carbide 8% CO	
	Tungsten 2% TH	

12. Non-Metals

UNS	Material	Density (g/cm³)
	ABS	
	Acetal	
	Acrylic	
	AD85 Ceramic	
	Buna-N	
	Butyl Rubber	
	Ceramic	

UNS	Material	Density (g/cm³)
	Chlorobutyl	
	Clear Vinyl	
	CPVC	
	Cured Rubber	
	Delrin	
	Delrin Black	
	EPDM-42	
	EPDM-60	
	EPDM-70	0.86
	EPDM-80	
	Ethylene Propylene Teropolymer	
	FRP	
	Graphitar 14	
	Graphite	1.91
	Halar	
	Hypalon®	
	Kalrez®	
	Kanthal A1	
	Kanthal D	
	Kel-F	
	Kynar	1.75
	Lexan	1.20
	Neoprene	1.40
	NORYL EN-265	
	Nylatron GS	
	Nylon	
	Nylon 66	
	Nylon 101	
	Penlon	
	Phenolic	
	Plexiglass	
	Polystyrene	

UNS	Material	Density (g/cm³)
	Polyamide-Nylon	
	Polycarbonate	
	Polyetheretherketone (PEEK)	
	Polyethylene-Crosslink	
	Polyethylene-High density	0.952
	Polyethylene-Low density	0.923
	Polyethylene-UHMW	
	Polypropylene	0.905
	Polyurethane / Porcelain / PVCCL / Pyrex / Polyvinylchloride (PVC) / CTD	1.39
	Quartz	
	Roulon	
	Rubber	
	Ryton	
	Si C Ceramic	
	Si C Hexaloy	
	Silicon Lump	
	Silicon Rubber	
	Teflon®	2.16
	Teflon® FEP / Teflon® GL/F	2.15
	Teflon® PFA	2.15
	Teflon® PTFE	2.16
	Tefzel	
	Ultra High Molecular Polyethylene	
	Viton®	1.81
	Viton® A	
	Viton® B	

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13. Miscellaneous Cast Alloys

UNS	Material	Density (g/cm³)
	128 Gr C	
	422	
	ABEX-SPA	
	ABEX-HC-250	
	Alloyco N-3	
F10005	Grey Cast Iron G-2 C50	
F11401	Grey Cast Iron CL20	
F12101	Grey Cast Iron Type G-1 CL30	
F12401	Grey Cast Iron CL35	6.97
F12801	Grey Cast Iron Type G-2 CL40	
F13502	Grey Cast Iron CL50	
F32800	Ductile Cast Iron Type 60-40-18	
F33100	Ductile Cast Iron Type 65-45-12	
F33101	Ductile Cast Iron Type 60-45-10	
	Ductile Cast Iron Type 70-50-05	
F33800	Ductile Cast Iron Type 80-55-06	
F45000	A532 CLI Type A	
F45003	A532 CLI Type D	
F45009	A532 CL3	
F43010	A571	
J02502	A218 WCA Cast Steel	
J03002	A216 WCB Cast Steel	
J42045	A217-C5	
J22000	A217-WC5	
J03000	A27 GR60-30	
J03001	A27 GR65-35	
J02501	A27 GR70-40	
J03008	B STEEL	
J91150	CA-15	7.61
J91540	CA-6NM	
J92110	CB-7Cu2	

UNS	Material	Density (g/cm³)
J92200	CB-7Cu1	
J92600	CF-8	7.75
J92602	CF-20	7.75
J92700	CF-3	
J92701	CF-16F	7.75
J92710	CF-8C	7.75
J92800	CF-3M	7.75
J92900	CF-8M	7.75
J93000	CG-8M	7.75
J93370	CD-4MCu	7.81
J95150	CN-7M	8.00
N06040	CY40	
N02100	CZ100	
	CW2M	
	CW12M	
	CW6MC	
	CW7M	
S45100	F6NM	
J93005	HD	
J93403	HE	
J92603	HF	
J93503	HH	
J94204	HK40	
J94224	HK50	
J94605	HT	
	N7M	
	N12M	
	NI HARD I	
	NI HARD IV	
	NIRESIST Type 1	7.32
	NIRESIST Type 2	
	NIRESIST Type 2B	

14. Miscellaneous Pipe Alloys

UNS	Material	Density (g/cm³)
K03006	A106 GrB	7.60
	A178	
	API5LX-42	
	API5LX-52	
	API5LX-60	
	API5LX-65	
	API5LX-70	
	API Gr5L (ASTM A53)	7.87
	C56	
	C75	
	C90	
	C95	
	J55	7.86
	K55	7.86
	L80	7.86
	N80	7.86
	P105	
	P110	
	Q125	
	Zeron 100	