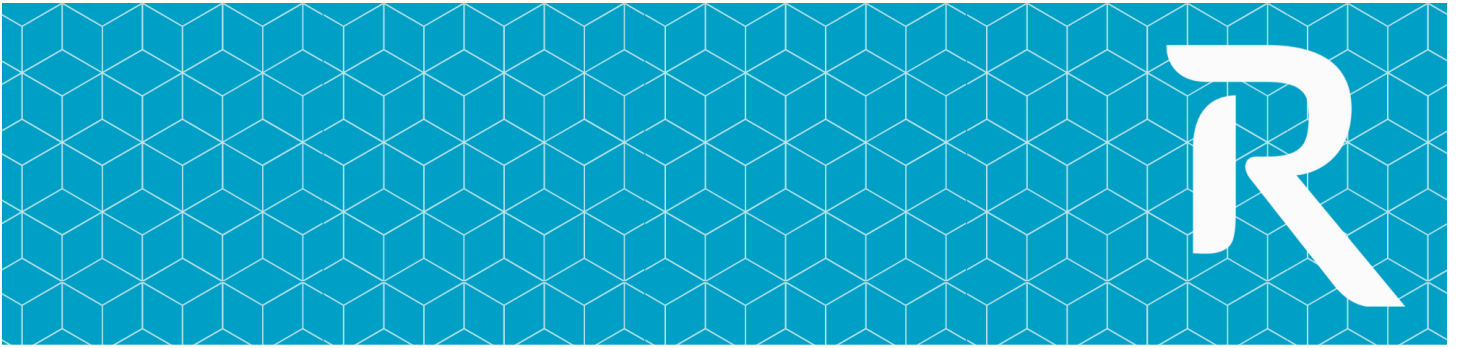


MATERIALS SCIENCE TOOLKIT

Reade



Reade Advanced Materials

TABLE OF CONTENTS

Particle Property Briefings

- Density Conversion Table 4
- Water Vapor Pressure Chart 4

Chemical Elements Data

- Heat of Fusion of the Elements 6
- Boiling and Melting Points of the Elements 8
- Mohs Hardness of the Elements 11
- Mohs Hardness (Typical) of Abrasives 13

Particle Measurement Conversions

- Particle Size Conversion Table 15
- ANSI Particle Size Conversion Chart 17
- Microgrits 18
- FEPA Particle Size Conversion Chart 19
- Microgrits 20

Conversion Tables

- Weight Conversion Table 22
- Volume Conversion Table 22
- Temperature Conversion Chart 23
- Percent to PPM Conversion Table 23



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PARTICLE PROPERTY BRIEFINGS

Density Conversion Table

	lb/cu in	lb/cu ft	lb/gal	g/cu cm	g/liter
1 lb/cu in	1	1728	231	27.68	27680
1 lb/cu ft	---	1	0.1337	0.016	16.019
1 lb/gal	4.33 ⁽¹⁰⁻³⁾	7.481	1	0.1198	119.83
1 gm/cu cm	0.03613	62.43	8.345	1	103
1 gm/liter	---	0.06243	8.345 ⁽¹⁰⁻³⁾	10-3	1

Density Conversions:

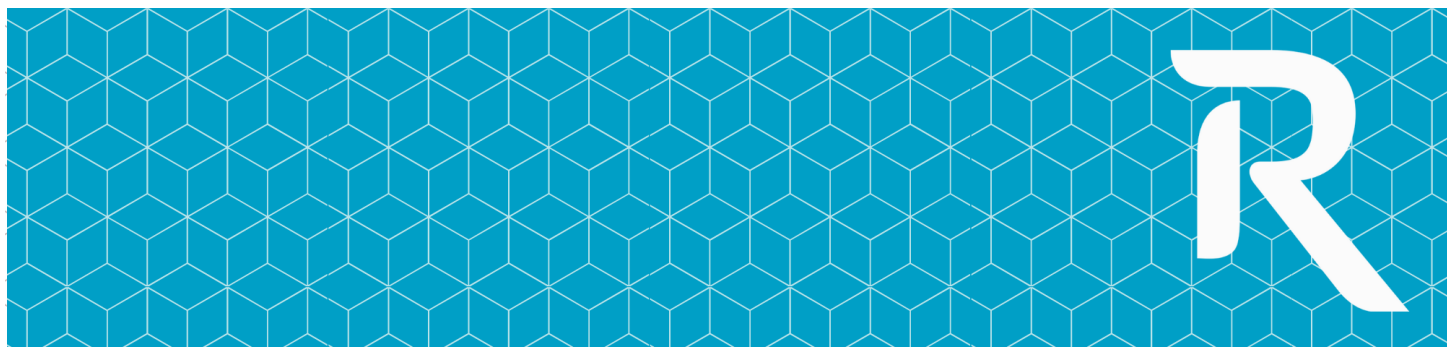
1 milligram per cubic centimeter mg/cm³ = 0.0010 grams per cubic centimeter g/cm³
 1 gram per cubic centimeter g/cm³ = 0.036 pounds per cubic inch lb/in³

Water Vapor Pressure Chart

T °C	P (mm Hg)	P (kPa)
0.0	4.6	0.61
5.0	6.5	0.87
10.0	9.2	1.23
15.0	12.8	1.71
15.5	13.2	1.76
16.0	13.6	1.82
16.5	14.1	1.88
17.0	14.5	1.94
17.5	15.0	2.00
18.0	15.5	2.06
18.5	16.0	2.13
19.0	16.5	2.19
19.5	17.0	2.27

T °C	P (mm Hg)	P (kPa)
20.0	17.5	2.34
20.5	18.1	2.41
21.0	18.6	2.49
21.5	19.2	2.57
22.0	19.8	2.64
22.5	20.4	2.72
23.0	21.1	2.81
23.5	21.7	2.90
24.0	22.4	2.98
24.5	23.1	3.10
25.0	23.8	3.17
26.0	25.2	3.36
27.0	26.7	3.57

T °C	P (mm Hg)	P (kPa)
28.0	28.3	3.78
29.0	30.0	4.01
30.0	31.8	4.25
35.0	42.2	5.63
40.0	55.3	7.38
50.0	92.5	12.34
60.0	149.4	19.93
70.0	233.7	31.18
80.0	355.1	47.37
90.0	525.8	70.12
95.0	633.9	84.53
100.0	760.0	101.32



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CHEMICAL ELEMENTS DATA

Heat of Fusion of the Elements

Element	Number	Heat of Fusion (kJ/mol)	Element	Number	Heat of Fusion (kJ/mol)		
H	Hydrogen	1	0.558	Ga	Gallium	31	5.59
He	Helium	2	0.02	Ge	Germanium	32	31.8
Li	Lithium	3	3	As	Arsenic	33	27.7
Be	Beryllium	4	7.95	Se	Selenium	34	5.4
B	Boron	5	50	Br	Bromine	35	5.8
C	Carbon	6	105	Kr	Krypton	36	1.64
N	Nitrogen	7	0.36	Rb	Rubidium	37	2.19
O	Oxygen	8	0.222	Sr	Strontium	38	8
F	Fluorine	9	0.26	Y	Yttrium	39	11.4
Ne	Neon	10	0.34	Zr	Zirconium	40	21
Na	Sodium	11	2.6	Nb	Niobium	41	26.8
Mg	Magnesium	12	8.7	Mo	Molybdenum	42	36
Al	Aluminum	13	10.7	Tc	Technetium	43	23
Si	Silicon	14	50.2	Ru	Ruthenium	44	25.7
P	Phosphorus	15	0.64	Rh	Rhodium	45	21.7
S	Sulfur	16	1.73	Pd	Palladium	46	16.7
Cl	Chlorine	17	3.2	Ag	Silver	47	11.3
Ar	Argon	18	1.18	Cd	Cadmium	48	6.3
K	Potassium	19	2.33	In	Indium	49	3.26
Ca	Calcium	20	8.54	Sn	Tin	50	7
Sc	Scandium	21	16	Sb	Antimony	51	19.7
Ti	Titanium	22	18.7	Te	Tellurium	52	17.5
V	Vanadium	23	22.8	I	Iodine	53	7.76
Cr	Chromium	24	20.5	Xe	Xenon	54	2.3
Mn	Manganese	25	13.2	Cs	Cesium	55	2.09
Fe	Iron	26	13.8	Ba	Barium	56	8
Co	Cobalt	27	16.2	La	Lanthanum	57	6.2
Ni	Nickel	28	17.2	Ce	Cerium	58	5.5
Cu	Copper	29	13.1	Pr	Praseodymium	59	6.9
Zn	Zinc	30	7.35	Nd	Neodymium	60	7.1

Heat of Fusion of the Elements

Element	Number	Heat of Fusion (kJ/mol)	Element	Number	Heat of Fusion (kJ/mol)		
Pm	Promethium	61	7.7	Pa	Protactinium	91	15
Sm	Samarium	62	8.6	U	Uranium	92	14
Eu	Europium	63	9.2	Np	Neptunium	93	10
Gd	Gadolinium	64	10	Pu	Plutonium	94	N/A
Tb	Terbium	65	10.8	Am	Americium	95	N/A
Dy	Dysprosium	66	11.1	Cm	Curium	96	N/A
Ho	Holmium	67	17	Bk	Berkelium	97	N/A
Er	Erbium	68	19.9	Cf	Californium	98	N/A
Tm	Thulium	69	16.8	Es	Einsteinium	99	N/A
Yb	Ytterbium	70	7.7	Fm	Fermium	100	N/A
Lu	Lutetium	71	22	Md	Mendelevium	101	N/A
Hf	Hafnium	72	25.5	No	Nobelium	102	N/A
Ta	Tantalum	73	36	Lr	Lawrencium	103	N/A
W	Tungsten	74	35	Rf	Rutherfordium	104	N/A
Re	Rhenium	75	33	Db	Dubnium	105	N/A
Os	Osmium	76	31	Sg	Seaborgium	106	N/A
Ir	Iridium	77	26	Bh	Bohrium	107	N/A
Pt	Platinum	78	20	Hs	Hassium	108	N/A
Au	Gold	79	12.5	Mt	Meitnerium	109	N/A
Hg	Mercury	80	2.29	Ds	Darmstadtium	110	N/A
Tl	Thallium	81	4.2	Rg	Roentgenium	111	N/A
Pb	Lead	82	4.77	Cn	Copernicium	112	N/A
Bi	Bismuth	83	10.9	Nh	Nihonium	113	N/A
Po	Polonium	84	13	Fl	Flerovium	114	N/A
At	Astatine	85	6	Mc	Moscovium	115	N/A
Rn	Radon	86	3	Lv	Livermorium	116	N/A
Fr	Francium	87	2	Ts	Tennesine	117	N/A
Ra	Radium	88	8	Og	Oganesson	118	N/A
Ac	Actinium	89	14				
Th	Thorium	90	16				

Boiling and Melting Points of the Elements

Name	Atomic Mass	Number	Boiling Point (K)	Melting Point (K)	Boiling Point (°F)	Melting Point (°F)
Hydrogen	1.00794	1	20.28	14.01	-423.3	-434.5
Helium	4.0026	2	4.22	N/A	-452	N/A
Lithium	6.941	3	1,615	453.69	2,447	356.97
Beryllium	9.01218	4	2,743	1,560	4,478	2,348
Boron	10.811	5	4,273	2,348	7,332	3,767
Carbon	12.011	6	4,300	3,823	7,280	6,422
Nitrogen	14.0067	7	77.36	63.05	-320.4	-346.2
Oxygen	15.9994	8	90.2	54.8	-297	-361
Fluorine	18.9984	9	85.03	53.5	-306.6	-363
Neon	20.1797	10	27.07	24.56	-410.9	-415.5
Sodium	22.98977	11	1,156	370.87	1,621	207.90
Magnesium	24.305	12	1,363	923	1,994	1,200
Aluminum	26.98154	13	2,792	933.47	4,566	1,220.6
Silicon	28.0855	14	3,173	1,687	5,252	2,577
Phosphorus	30.97376	15	553.6	317.3	536.8	111.5
Sulfur	32.066	16	717.87	388.36	832.50	239.38
Chlorine	35.4527	17	239.11	171.6	-29.272	-150.8
Argon	39.948	18	87.3	83.8	-303	-309
Potassium	39.0983	19	1,032	336.53	1,398	146.08
Calcium	40.078	20	1,757	1,115	2,703	1,547
Scandium	44.9559	21	3,103	1,814	5,126	2,806
Titanium	47.88	22	3,560	1,941	5,948	3,034
Vanadium	50.9415	23	3,680	2,183	6,164	3,470
Chromium	51.996	24	2,944	2,180	4,840	3,464
Manganese	54.938	25	2,334	1,519	3,742	2,275
Iron	55.847	26	3,134	1,811	5,182	2,800
Cobalt	58.9332	27	3,200	1,768	5,300	2,723
Nickel	58.6934	28	3,186	1,728	5,275	2,651
Copper	63.546	29	2,835	1,357.77	4,643	1,984.32
Zinc	65.39	30	1,180	692.68	1,664	787.15

Boiling and Melting Points of the Elements

Name	Atomic Mass	Number	Boiling Point (K)	Melting Point (K)	Boiling Point (°F)	Melting Point (°F)
Gallium	69.723	31	2,477	302.91	3,999	85.568
Germanium	72.61	32	3,093	1,211.4	5,108	1,720.9
Arsenic	74.9216	33	887	1,090	1,140	1,502
Selenium	78.96	34	958	494	1,260	430
Bromine	79.904	35	332	265.8	138	18.77
Krypton	83.8	36	119.93	115.79	-243.80	-251.25
Rubidium	85.4678	37	961	312.46	1,270	102.76
Strontium	87.62	38	1,655	1,050	2,519	1,430
Yttrium	88.9059	39	3,618	1,799	6,053	2,779
Zirconium	91.224	40	4,682	2,128	7,968	3,371
Niobium	92.9064	41	5,017	2,750	8,751	4,490
Molybdenum	95.94	42	4,912	2,896	8,382	4,753
Technetium	98	43	4,538	2,430	7,709	3,914
Ruthenium	101.07	44	4,423	2,607	7,502	4,233
Rhodium	102.9055	45	3,968	2,237	6,683	3,567
Palladium	106.42	46	3,236	1,828.05	5,365	2,830.82
Silver	107.868	47	2,435	1,234.93	3,923	1,763.20
Cadmium	112.241	48	1,040	594.22	1,412	609.93
Indium	114.82	49	2,345	429.75	3,761	313.88
Tin	118.71	50	2,875	505.08	4,715	449.47
Antimony	121.757	51	1,860	903.78	2,888	1,167.1
Tellurium	127.6	52	1,261	722.66	1,810	841.12
Iodine	126.9045	53	457.4	386.85	363.7	236.66
Xenon	131.29	54	165.1	161.3	-162.5	-169.3
Cesium	132.9054	55	944	301.59	1,240	83.192
Barium	137.33	56	2,143	1,000	3,398	1,300
Lanthanum	138.9055	57	3,737	1,193	6,267	1,688
Cerium	140.12	58	3,633	1,071	6,080	1,468
Praseodymium	140.9077	59	3,563	1,204	5,954	1,708
Neodymium	144.24	60	3,373	1,294	5,612	1,870

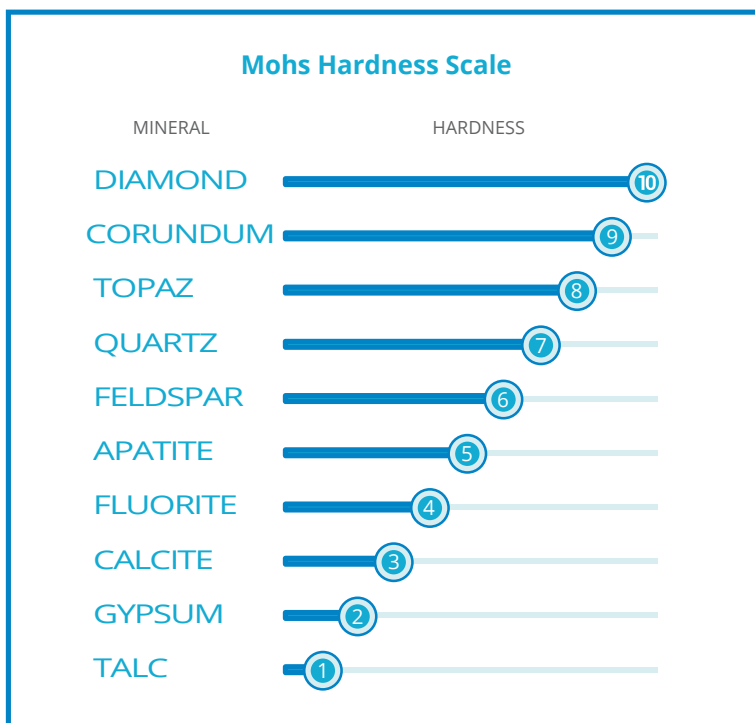
Boiling and Melting Points of the Elements

Name	Atomic Mass	Number	Boiling Point (K)	Melting Point (K)	Boiling Point (°F)	Melting Point (°F)
Promethium	145	61	3,273	1,373	5,432	2,012
Samarium	150.36	62	2,076	1,345	3,277	1,961
Europium	151.965	63	1,800	1,095	2,800	1,511
Gadolinium	157.25	64	3,523	1,586	5,882	2,395
Terbium	158.9253	65	3,503	1,629	5,846	2,473
Dysprosium	162.5	66	2,840	1,685	4,652	2,573
Holmium	164.9303	67	2,973	1,747	4,892	2,685
Erbium	167.26	68	3,141	1,770	5,194	2,726
Thulium	168.9342	69	2,223	1,818	3,542	2,813
Ytterbium	173.04	70	1,469	1,092	2,185	1,506
Lutetium	174.967	71	3,675	1,936	6,155	3,025
Hafnium	178.49	72	4,876	2,506	8,317	4,051
Tantalum	180.9479	73	5,731	3,290	9,856	5,462
Tungsten	183.35	74	5,828	3,695	10,030	6,191
Rhenium	186.207	75	5,869	3,459	10,100	5,767
Osmium	190.2	76	5,285	3,306	9,053	5,491
Iridium	192.22	77	4,701	2,739	8,002	4,471
Platinum	195.08	78	4,098	2,041.4	6,917	3,214.9
Gold	196.9665	79	3,129	1,337.33	5,173	1,947.52
Mercury	200.59	80	629.88	234.32	674.11	-37.894
Thallium	204.383	81	1,746	577	2,683	579
Lead	207.2	82	2,022	600.61	3,180	621.43
Bismuth	208.9804	83	1,837	544.4	2,847	520.3
Polonium	209	84	1,235	528	1,763	491
Astatine	210	85	623	575	662	575
Radon	222	86	211.3	202	-79.33	-96.1
Francium	223	87	923	294	1,200	69.5
Radium	226.0254	88	2,010	973	3,158	1,290
Actinium	227	89	3,473	1,323	5,792	1,922
Thorium	232.0381	90	5,093	2,023	8,708	3,182

Boiling and Melting Points of the Elements

Name	Atomic Mass	Number	Boiling Point (K)	Melting Point (K)	Boiling Point (°F)	Melting Point (°F)
Protactinium	231.0359	91	4,273	1,845	7,232	2,861
Uranium	238.029	92	4,200	1,408	7,100	2,075
Neptunium	237.0482	93	4,273	917	7,232	1,190
Plutonium	244	94	3,505	913	5,846	1,180
Americium	243	95	2,284	1,449	1,664	787.15
Curium	247	96	3,383	1,618	5,630	2,453
Berkelium	247	97	N/A	1,323	N/A	1,922
Californium	251	98	N/A	1,173	N/A	1,652
Einsteinium	252	99	N/A	1,133	N/A	1,580
Fermium	257	100	N/A	1,800	N/A	2,800
Mendelevium	258	101	N/A	1,100	N/A	1,500
Nobelium	259	102	N/A	1,100	N/A	1,500
Lawrencium	266	103	N/A	1,900	N/A	3,000

Mohs Hardness of the Elements



Mohs Hardness of the Elements

Number	Symbol	Name	Mohs Hardness	Number	Symbol	Name	Mohs Hardness
3	Li	Lithium	0.6	44	Ru	Ruthenium	6.5
4	Be	Beryllium	5.5	45	Rh	Rhodium	6.0
5	B	Boron	9.3	46	Pd	Palladium	4.75
6	C	Carbon	(graphite) 0.5	47	Ag	Silver	2.5
6	C	Carbon	(diamond) 10.0	48	Cd	Cadmium	2.0
11	Na	Sodium	0.5	49	In	Indium	1.2
12	Mg	Magnesium	2.5	50	Sn	Tin	1.5
13	Al	Aluminum	2.75	51	Sb	Antimony	3.0
14	Si	Silicon	6.5	52	Te	Tellurium	2.25
16	S	Sulfur	2.0	55	Cs	Cesium	0.2
19	K	Potassium	0.4	56	Ba	Barium	1.25
20	Ca	Calcium	1.75	57	La	Lanthanum	2.5
22	Ti	Titanium	6.0	58	Ce	Cerium	2.5
23	V	Vanadium	7.0	72	Hf	Hafnium	5.5
24	Cr	Chromium	8.5	73	Ta	Tantalum	6.5
25	Mn	Manganese	6.0	74	W	Tungsten	7.5
26	Fe	Iron	4.0	75	Re	Rhenium	7.0
27	Co	Cobalt	5.0	76	Os	Osmium	7.0
28	Ni	Nickel	4.0	77	Ir	Iridium	6.5
29	Cu	Copper	3.0	78	Pt	Platinum	3.5
30	Zn	Zinc	2.5	79	Au	Gold	2.5
31	Ga	Gallium	1.5	80	Hg	Mercury	1.5
32	Ge	Germanium	6.0	81	Tl	Thallium	1.2
33	As	Arsenic	3.5	82	Pb	Lead	1.2
34	Se	Selenium	2.0	83	Bi	Bismuth	2.25
37	Rb	Rubidium	0.3	90	Th	Thorium	3.0
38	Sr	Strontium	1.5	92	U	Uranium	6.0
40	Zr	Zirconium	5.0				
41	Nb	Niobium	6.0				
42	Mo	Molybdenum	6.0				

Mohs Hardness (Typical) of the Abrasives

Material	Mohs Hardness	Material	Mohs Hardness
Alumina (Synthetic aluminum oxide)	3.4	Magnetite	5.5 - 6.5
Aluminum oxide	9	Olivine	6.5
Alundum (Fused brown Al ₂ O ₃)	9.0	Orthoclase	6
Amalgam	4 - 5	Petalite	- 6
Anatase	5.5 - 6	Plastic media	3 - 4
Apatite	5	Porcelain, feldspathic	6 - 7
Barium sulfate	3	Pyrite	6.5
Boron carbide	9 - 10	Pumice	6
Burundum	9 +	Quartz (Silica sand)	7
Calcite	3	Serpentine	2 - 4
Chalk (Calcium carbonate)	3	Silica sand	6 - 7
Chrysoberyl	8.5	Silicon carbide	9 - 10
Copper slag	7	Sillimanite	6 - 7
Corundum (Natural aluminum oxide)	9	Soda (Sodium bicarbonate)	2.5
Crystolon (SiC)	9.0	Specular hematite	7 - 7.5
Cuttlebone	7	Spinel	- 8
Dentin	3 - 4	Spodumene	6 - 7
Diamond	10	Staurolite	7.0 - 7.5
Diopside	5 - 6	Steatite (Soapstone)	1 - 2.5
Emery	7 - 9	Steel grit	RC = 42 - 62
Enamel	5	Steel shot	8 or RC = 42 - 50
Enstatite	5.5	Strontium titanate	5 - 6
Feldspar	6	Talc	1
Fluorite	4	Topaz	8
Furnace slag	7	Titanium dioxide, Anatase	5.5
Garnet	6.5 - 7.5	Titanium dioxide, Rutile	6.5
Glass Bead	5.5	Tungsten carbide	9
Glass (lead free)	7	YAG	~ 8 1/4
Gold	2.5 - 3	Zinc sulfide	3
Gypsum	2	Zirconia	8
Hematite	5.5 - 6.5	Zirconium silicate (Zircon)	6.5 - 7.5
Kyanite	4 - 7		



Reade Advanced Materials
YOUR SPECIALTY CHEMICALS RESOURCE

PARTICLE MEASUREMENT CONVERSIONS

Particle Size Conversion Table

Information courtesy of [Sigma Aldrich](#), updated 2021.

Sieve Designation		Nominal Sieve Opening		
Standard	Standard	Inches	Millimeters	Microns
25.4 mm	1 in.	1.00	25.4	25400
22.6 mm	7/8 in.	0.875	22.6	22600
19.0 mm	3/4 in.	0.750	19.0	19000
16.0 mm	5/8 in.	0.625	16.0	16000
13.5 mm	0.530 in.	0.530	13.5	13500
12.7 mm	1/2 in.	0.500	12.7	12700
11.2 mm	7/16 in.	0.438	11.2	11200
9.51 mm	3/8 in.	0.375	9.51	9510
8.00 mm	5/16 in.	0.312	8.00	8000
6.73 mm	0.265 in.	0.265	6.73	6730
6.35 mm	1/4 in.	0.250	6.35	6350
5.66 mm	No. 3 1/2	0.223	5.66	5660
4.76 mm	No. 4	0.187	4.76	4760
4.00 mm	No. 5	0.157	4.00	4000
3.36 mm	No. 6	0.132	3.36	3360
2.83 mm	No. 7	0.111	2.83	2830
2.38 mm	No. 8	0.0937	2.38	2380
2.00 mm	No. 10	0.0787	2.00	2000
1.68 mm	No. 12	0.0661	1.68	1680
1.41 mm	No. 14	0.0555	1.41	1410
1.19 mm	No. 16	0.0469	1.19	1190
1.00 mm	No. 18	0.0394	1.00	1000
0.841 mm	No. 20	0.0331	0.841	841
0.707 mm	No. 25	0.0278	0.707	707
0.595 mm	No. 30	0.0234	0.595	595
0.500 mm	No. 35	0.0197	0.500	500
0.420 mm	No. 40	0.0165	0.420	420
0.354 mm	No. 45	0.0139	0.354	354
0.297 mm	No. 50	0.0117	0.297	297

Particle Size Conversion Table

Information courtesy of [Sigma Aldrich](#), updated 2021.

Sieve Designation		Nominal Sieve Opening		
Standard	Standard	inches	mm	Microns
0.250 mm	No. 60	0.0098	0.250	250
0.210 mm	No. 70	0.0083	0.210	210
0.177 mm	No. 80	0.0070	0.177	177
0.149 mm	No. 100	0.0059	0.149	149
0.125 mm	No. 120	0.0049	0.125	125
0.105 mm	No. 140	0.0041	0.105	105
0.088 mm	No. 170	0.0035	0.088	88
0.074 mm	No. 200	0.0029	0.074	74
0.063 mm	No. 230	0.0025	0.063	63
0.053 mm	No. 270	0.0021	0.053	53
0.044 mm	No. 325	0.0017	0.044	44
0.037 mm	No. 400	0.0015	0.037	37

Large sieve openings (1 in. to 1/4 in.) have been designated by a sieve "mesh" size that corresponds to the size of the opening in inches. Small sieve "mesh" sizes of 3 1/2 to 400 are designated by the number of openings per linear inch in the sieve.

The following convention is used to characterize particle size by mesh designation:

- "+" before the sieve mesh indicates the particles are retained by the sieve;
- "-" before the sieve mesh indicates the particles pass through the sieve;
- typically 90% or more of the particles will lie within the indicated range.

For example, if the particle size of a material is described as -4 +40 mesh, then 90% or more of the material will pass through a 4-mesh sieve (particles smaller than 4.76 mm) and be retained by a 40-mesh sieve (particles larger than 0.420 mm). If a material is described as -40 mesh, then 90% or more of the material will pass through a 40-mesh sieve (particles smaller than 0.420 mm).

ANSI Particle Size Conversion Chart

Millimeters	Microns	Inches	ASTM Sieve	Tyler Sieve	*ANSI Table 2	*ANSI Table 3
5.60	5600	0.220	3 1/2	3 1/2	S-5	-
4.75	4750	0.187	4	4	4	-
4.00	4000	0.157	5	5	5	-
3.35	3350	0.132	6	6	6	-
2.80	2800	0.110	7	7	7	-
2.36	2360	0.093	8	8	8	-
2.00	2000	0.079	10	9	10	-
1.70	1700	0.067	12	10	12	-
1.40	1400	0.055	14	12	14	-
1.18	1180	0.046	16	14	16	16
1.00	1000	0.039	18	16	20	20
0.850	850	0.033	20	20	22	24
0.710	710	0.028	25	24	24	-
0.600	600	0.024	30	28	30	30
0.500	500	0.02	35	32	36	36
0.425	425	0.018	40	35	40	-
0.355	355	0.014	45	42	46	46
0.300	300	0.012	50	48	54	54
0.250	250	0.010	60	60	60	60
0.212	212	0.008	70	65	70	70
0.180	180	0.007	80	80	80	80
0.150	150	0.006	100	100	90	90
0.125	125	0.005	120	115	100	100
0.106	106	0.004	140	150	120	120
0.075	75	0.0030	200	200	150	150

ANSI Particle Size Conversion Chart

Millimeters	Microns	Inches	ASTM Sieve	Tyler Sieve	*ANSI Table 2	*ANSI Table 3
0.063	63	0.0025	230	250	180	180
0.053	53	0.0021	270	270	220	220
0.045	45	0.0018	325	325	240	240

Microgrits

Millimeters	Microns	Inches	ANSI Grit Size
0.0500	50.0	0.00200	240
0.0395	39.5	0.00156	280
0.0295	29.5	0.00116	320
0.0230	23.0	0.00091	360
0.0183	18.3	0.00072	400
0.0139	13.9	0.00055	500
0.0106	10.6	0.00042	600
0.0077	7.8	0.0003	800
0.0058	5.8	0.00023	1000
0.0038	3.8	0.00015	1200
0.0450	45	0.0018	F
0.0275	27.5	0.0011	FF
0.0160	16	0.00063	FFF
0.0110	11	0.00043	FFFF

* A grit size is defined by the distribution of grits retained on a sieve setup that meets the requirements of ANSI Table 2 or 3. The numbers in the two sieve columns in this chart represent the midpoint sieve for the grading of the corresponding grit size. This has been chosen to show midpoint sieve since more material will be retained on this sieve than on any other in the sieve setup.

FEPA Particle Size Conversion Chart

Millimeters	Microns*	Inches	FEPA Grit
4.75	4750	0.189	F4
4	4000	0.159	F5
3.35	3350	0.133	F6
2.8	2800	0.111	F7
2.36	2360	0.094	F8
2	2000	0.079	F10
1.7	1700	0.068	F12
1.4	1400	0.056	F14
1.18	1180	0.047	F16
1	1000	0.040	F20
0.85	850	0.034	F22
0.71	710	0.028	F24
0.6	600	0.024	F30
0.5	500	0.020	F36
0.425	425	0.017	F40
0.355	355	0.014	F46
0.3	300	0.012	F54
0.25	250	0.010	F60
0.212	212	0.008	F70
0.18	180	0.007	F80
0.15	150	0.006	F90
0.125	125	0.005	F100
0.106	106	0.004	F120
0.075	75	0.0030	F150
0.063	63	0.0025	F180
0.053	53	0.0021	F220

*Micron size is based upon the 40% min sieve

Microgrits

Millimeters	Microns*	Inches	FEPA Grit
0.053	53	0.00211	F230
0.0445	44.5	0.00177	F240
0.0365	36.5	0.00145	F280
0.0292	29.2	0.00116	F320
0.0228	22.8	0.00091	F360
0.0173	17.3	0.00069	F400
0.0128	12.8	0.00051	F500
0.0093	9.3	0.00037	F600
0.0065	6.5	0.00026	F800
0.0045	4.5	0.00018	F1000
0.003	3	0.00012	F1200
0.002	2	0.00008	F1500
0.0012	1.2	0.00005	F2000

*Micron size is based upon the average of the d50



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CONVERSION TABLES

Weight Conversion Table

From/To	g	kg	metric ton	grain	oz	lb
g	1	0.001	1×10^{-6}	15.43	0.03527	0.0022
kg	1000	1	0.001	1.54×10^4	35.27	2.205
metric ton	1×10^6	1000	1	1.54×10^7	3.53×10^4	2205
grain	6.48×10^{-2}	6.48×10^{-5}	6.48×10^{-5}	1	2.29×10^{-3}	1.43×10^{-4}
oz	28.35	0.02835	2.83×10^{-5}	437.5	1	0.0625
lb	453.6	0.4536	4.45×10^{-4}	7000	16	1

Volume Conversion Table

From/To	cm ³	liter	m ³	in ³	ft ³	yd ³	fl oz	fl pt	fl qt	gal
cm ³	1	0.001	1×10^{-6}	0.06102	3.53×10^{-5}	1.31×10^{-5}	0.003381	0.00211	0.00106	2.64×10^{-4}
liter	1000	1	0.001	61.02	0.03532	0.00131	33.81	2.113	1.057	0.2642
m ³	1×10^6	1000	1	6.10×10^4	35.31	1.308	3.38×10^4	2113	1057	264.2
in ³	16.39	0.01639	1.64×10^{-5}	1	5.79×10^{-4}	2.14×10^{-5}	0.5541	0.03463	0.01732	0.00433
ft ³	2.83×10^4	28.32	0.02832	1728	1	0.03704	957.5	69.84	29.92	7.481
yd ³	7.65×10^5	764.5	0.7646	4.67×10^4	27	1	2.59×10^4	1616	807.9	202
fl oz	29.57	0.02957	2.96×10^{-5}	1.805	0.00104	3.87×10^{-5}	1	0.0625	0.03125	0.00781
fl pt	473.2	0.4732	4.73×10^{-4}	28.88	0.01671	6.19×10^{-4}	16	1	0.6	0.125
fl qt	946.4	0.9463	9.46×10^{-4}	57.75	0.03342	0.00124	32	2	1	0.25
gal	3785	3.786	0.00379	231	0.1337	0.00495	128	8	4	1

Temperature Conversion Chart

Converting Fahrenheit to Celsius	Converting Celsius to Fahrenheit
$((^{\circ}\text{F} - 32) \times (5/9)) = ^{\circ}\text{C}$	$(^{\circ}\text{C} \times (9/5)) + 32 = ^{\circ}\text{F}$

Celsius °C	Fahrenheit °F
0	32
10	50
20	68
25	77
28	82.4
50	122
100	212
150	302
200	392
250	482
300	572
350	662
400	752
450	842
500	932
550	1022
600	1112

Celsius °C	Fahrenheit °F
650	1202
700	1292
750	1382
800	1472
850	1562
900	1652
950	1742
1000	1832
1050	1922
1100	2012
1150	2102
1200	2192
1250	2282
1300	2372
1350	2462
1400	2552
1450	2642

Celsius °C	Fahrenheit °F
1500	2732
1550	2822
1600	2912
1650	3002
1700	3092
1750	3182
1800	3272
1850	3362
1900	3452
1950	3542
2000	3632
2050	3722
2100	3812
2150	3902
2200	3992
2250	4082
2300	4172

Celsius °C	Fahrenheit °F
2350	4262
2400	4352
2450	4442
2500	4532
2550	4622
2600	4712
2650	4802
2700	4892
2750	4982
2800	5072
2850	5162
2900	5252
2950	5342
3000	5432

Percent to PPM Conversion Table

How to convert percent to ppm: 1% = 10000ppm so z(ppm) = 10000 x z(%)

Percent (%)	ppm
0	0
0.0001	1
0.001	10
0.01	100
0.1	1000
1	10000
2	20000
3	30000

Percent (%)	ppm
4	40000
5	50000
6	60000
7	70000
8	80000
9	90000
10	100000
20	200000

Percent (%)	ppm
30	300000
40	400000
50	500000
60	600000
70	700000
80	800000
90	900000
100	1000000



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- BAA compliant suppliers
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- Food grade (kosher certified)
- Proximity warehousing



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- Particle Coating
- Size Reduction
- Spray Drying

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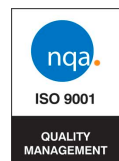
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