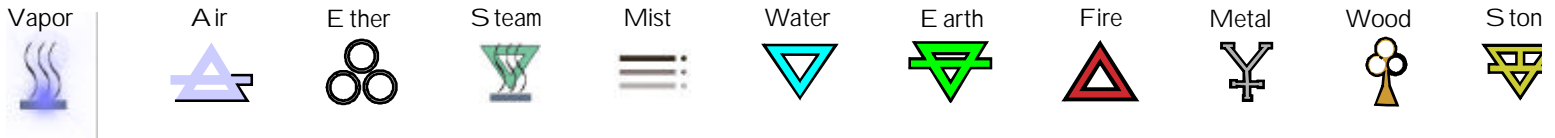




Proper Elements For Great Art

Tullahoma, Tennessee



All Data presented herein was done in good faith. It is intended to act as a guide and there is no warranty or guarantee, implied or express, as to its accuracy. Use it at your own risk.  
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### Approximate conversions

Gallon (US\_ = 231 cu. In.  
1 Liter = 61 cu. in. Or 1000 cc  
1 quart = 57.75 cu.in.  
1 Pint (uS) = 28.8 cu.in.  
1 Cup = 14.4 cu. in

### Measurement Equivalents

1 tablespoon (tbsp) = 3 teaspoons (tsp)  
1/16 cup (c) = 1 tablespoon  
1/8 cup = 2 tablespoons  
1/6 cup = 2 tablespoons + 2 teaspoons  
1/4 cup = 4 tablespoons  
1/3 cup = 5 tablespoons + 1 teaspoon  
3/8 cup = 6 tablespoons  
1/2 cup = 8 tablespoons  
2/3 cup = 10 tablespoons + 2 teaspoons  
3/4 cup = 12 tablespoons  
1 cup = 48 teaspoons  
1 cup = 16 tablespoons  
8 fl.oz. = 1 cup  
1 pint = 2 cups  
1 quart = 2 pints  
4 cups = 1 quart  
1 gallon = 4 quarts  
16 ounces (oz) = 1 pound (lb)  
1 milliliter (ml) = 1 cubic centimeter (cc)  
1 inch (in) = 2.54 centimeters (cm)

### Multiply By: to get:

Fluid Ounces 29.57 grams  
Ounces (dry) 28.35 grams  
Grams 0.0353 ounces  
Grams 0.0022 pounds  
Kilograms 2.21 pounds  
Pounds 453.6 grams  
Pounds 0.4536 kilogram  
Quarts 0.946 liters  
Quarts (dry) 67.2 cu.in.  
Quarts(liquid) 57.7 cu.in.  
Liters 1.0567 quarts  
Gallons 3,785 cu.cm  
Gallons 3.785 liters

	N/a=Not applicable F = Fair G=Good VG= Very Good	Cat. #	Name	Castable	Carve with tools	Work with Hot Pen	Model without heating	Bend without break	Rigidity
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">↑ Softer</div> <div style="margin-bottom: 10px;">Mid-range</div> <div style="margin-bottom: 10px;">Harder ↓</div> </div> <div style="display: flex; flex-direction: column; align-items: center; font-weight: bold; font-size: 2em; margin-top: 10px;"> <span style="writing-mode: vertical-rl; transform: rotate(180deg);">Modeling</span> </div>		W010	VAPOR <small>Very Soft Modeling</small>	G	VG	N/a	VG	VG	N/a
		W020	AIR <small>Soft Modeling</small>	G	VG	F	VG	VG	N/a
		W030	ETHER <small>Firm Modeling</small>	G	VG	G	G	G	F
		W040	Steam <small>Stiff Modeling</small>	G	VG	VG	F	G	G
		W050	MIST <small>Hybrid Modeling</small>	G	VG	VG	F	F	VG
		W060	WATER <small>Firm Hybrid Tooling</small>	G	VG	VG	N/a	N/a	G
		W070	Earth <small>Firm Hybrid Tooling</small>	G	VG	VG	N/a	N/a	VG
		W080	FIRE <small>Hard Hybrid Tooling</small>	G	VG	VG	N/a	N/a	VG
		W090	METAL <small>Hard Hybrid Tooling</small>	G	VG	VG	N/a	N/a	VG
		W100	WOOD <small>Med. Hard Tooling</small>	VG	VG	VG	N/a	N/a	VG
		W110	STONE <small>Hard Tooling</small>	VG	G	VG	N/a	N/a	VG

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If it was a science, it'd be too easy!

## Viscosity table (the ability of a liquid to flow)

Liquid	Centipoise	Centistokes	Saybolt Seconds Universal
	Cp	cST	SSU
Water	1	1	31
Milk	3	4	40
No.4 Fuel Oil	12.6	15.7	80
Cream	20	20.6	100
Vegetable Oil	40	43.2	200
SAE 10 Oil	88	110	500
Tomato Juice	180	220	1000
SAE 30 Oil	352	440	2000
Glycerine	800	1100	5000
Honey	1500	2200	10000
Mayonnaise	5000	6250	28000
Molasses	8640	10800	50000
Sour Cream	15000	19000	86000

Centipoise = centistokes x spec. grav, where sg is assumed to be .8

## Durometer

Scales are 1-100  
 Scale A for Rubbers  
 Scale D for Plastics  
 a10- a20 soft rubber  
 a10 - soft chewing gum  
 a-50 car tire  
 a-80 is low end of scale "d"  
 d-90 is very hard plastic

## How to calculate shrinkage

$(1-s)p=f$   
 p= Pre-shrink, f= finished ,  
 s= shrinkage percent  
 Solve for Start size  $f(1-s)=p$   
 Solve for Finished size  $(1-s)p=f$   
 Solve for Shrinkage  $1-(f/p)=s$

Original= Inches	0.021 "1/48"	0.029 "1/35"	0.0295 54mm	0.031 "1/32"	0.0390 70mm	0.042 "1/24 or 75mm"	0.0445 80mm	0.0500 90mm	0.0556 "1/18"	0.0625 120m or 1/16	0.0833 "1/12"	0.1000 "1/10"	0.1250 "1/8"	0.1667 "1/6"	0.2500 "1/4"
0.25	0.005	0.007	0.007	0.008	0.010	0.010	0.011	0.013	0.014	0.016	0.021	0.025	0.031	0.042	0.063
0.5	0.010	0.014	0.015	0.016	0.020	0.021	0.022	0.025	0.028	0.031	0.042	0.050	0.063	0.083	0.125
0.75	0.016	0.021	0.022	0.023	0.029	0.031	0.033	0.038	0.042	0.047	0.063	0.075	0.094	0.125	0.188
1	0.021	0.029	0.030	0.031	0.039	0.042	0.045	0.050	0.056	0.063	0.083	0.100	0.125	0.167	0.250
2	0.042	0.057	0.059	0.063	0.078	0.083	0.089	0.100	0.111	0.125	0.167	0.200	0.250	0.333	0.500
3	0.063	0.086	0.089	0.094	0.117	0.125	0.134	0.150	0.167	0.188	0.250	0.300	0.375	0.500	0.750
4	0.083	0.114	0.118	0.125	0.156	0.167	0.178	0.200	0.222	0.250	0.333	0.400	0.500	0.667	1.000
5	0.104	0.143	0.148	0.156	0.195	0.208	0.223	0.250	0.278	0.313	0.417	0.500	0.625	0.833	1.250
6	0.125	0.171	0.177	0.188	0.234	0.250	0.267	0.300	0.333	0.375	0.500	0.600	0.750	1.000	1.500
7	0.146	0.200	0.207	0.219	0.273	0.292	0.312	0.350	0.389	0.438	0.583	0.700	0.875	1.167	1.750
8	0.167	0.229	0.236	0.250	0.312	0.333	0.356	0.400	0.444	0.500	0.667	0.800	1.000	1.333	2.000
9	0.188	0.257	0.266	0.281	0.351	0.375	0.401	0.450	0.500	0.563	0.750	0.900	1.125	1.500	2.250
10	0.208	0.286	0.295	0.313	0.390	0.417	0.445	0.500	0.556	0.625	0.833	1.000	1.250	1.667	2.500
11	0.229	0.314	0.325	0.344	0.429	0.458	0.490	0.550	0.611	0.688	0.917	1.100	1.375	1.833	2.750
12	0.250	0.343	0.354	0.375	0.468	0.500	0.534	0.600	0.667	0.750	1.000	1.200	1.500	2.000	3.000
1	0.250	0.343	0.354	0.375	0.468	0.500	0.534	0.600	0.667	0.750	1.000	1.200	1.500	2.000	3.000
2	0.500	0.686	0.708	0.750	0.936	1.000	1.068	1.200	1.333	1.500	2.000	2.400	3.000	4.000	6.000
3	0.750	1.029	1.062	1.125	1.404	1.500	1.602	1.800	2.000	2.250	3.000	3.600	4.500	6.000	9.000
4	1.000	1.371	1.416	1.500	1.872	2.000	2.136	2.400	2.667	3.000	4.000	4.800	6.000	8.000	12.000
5	1.250	1.714	1.770	1.875	2.340	2.500	2.670	3.000	3.333	3.750	5.000	6.000	7.500	10.000	15.000
6	1.500	2.057	2.124	2.250	2.808	3.000	3.204	3.600	4.000	4.500	6.000	7.200	9.000	12.000	18.000
7	1.750	2.400	2.478	2.625	3.276	3.500	3.738	4.200	4.667	5.250	7.000	8.400	10.500	14.000	21.000
8	2.000	2.743	2.832	3.000	3.744	4.000	4.272	4.800	5.333	6.000	8.000	9.600	12.000	16.000	24.000
9	2.250	3.086	3.186	3.375	4.212	4.500	4.806	5.400	6.000	6.750	9.000	10.800	13.500	18.000	27.000
10	2.500	3.429	3.540	3.750	4.680	5.000	5.340	6.000	6.667	7.500	10.000	12.000	15.000	20.000	30.000
11	2.750	3.771	3.894	4.125	5.148	5.500	5.874	6.600	7.333	8.250	11.000	13.200	16.500	22.000	33.000
12	3.000	4.114	4.248	4.500	5.616	6.000	6.408	7.200	8.000	9.000	12.000	14.400	18.000	24.000	36.000
13	3.250	4.457	4.602	4.875	6.084	6.500	6.942	7.800	8.667	9.750	13.000	15.600	19.500	26.000	39.000
14	3.500	4.800	4.956	5.250	6.552	7.000	7.476	8.400	9.333	10.500	14.000	16.800	21.000	28.000	42.000
15	3.750	5.143	5.310	5.625	7.020	7.500	8.010	9.000	10.000	11.250	15.000	18.000	22.500	30.000	45.000
16	4.000	5.486	5.664	6.000	7.488	8.000	8.544	9.600	10.667	12.000	16.000	19.200	24.000	32.000	48.000
17	4.250	5.829	6.018	6.375	7.956	8.500	9.078	10.200	11.333	12.750	17.000	20.400	25.500	34.000	51.000