

PLAINTIFF'S
EXHIBIT
UTX-2



HOUSTON, TEXAS



FLUID COMPATIBILITY

Fluid sealing technology involves more than the simple selection of packing or sealing material for any given fluid media.

First consideration must be given to compatibility of basic materials, and then temperature, pressure, and mechanical condition of the equipment involved should be taken into account.

Concerning the compatibility of basic materials, the following charts are offered as an aid in the selection of material for the fluid media listed. These charts are not a guarantee of performance and should only be used as a basic guide, subject

to modification as other factors — temperature, pressure, and mechanical condition — vary.

Where extreme temperature or pressure exists — or a combination of the two — please contact Utex Industries or one of our distributors. We are convinced that sealing technology can at times be applied only on an individual basis; we avoid blanket recommendations to cover conditions over which we have no control or of which we are not aware.

Utex Industries welcomes your inquiries and is prepared to work with you in the satisfactory application of sealing technology.

MECHANICAL PACKINGS

STYLE	DESCRIPTION
105 114 115	Hot Oil Asbestos Packing — Braid Over Braid, Graphited Interlocking Braided General Service Asbestos Packing, Graphited Square Braided General Service Asbestos Packing, Graphited
118 119 128	TFE Impregnated Blue African Asbestos, Square Braided TFE Impregnated, Interlocking Braided Asbestos Packings Soft, Interlocking Braided Pure TFE Packing
129 150 155	Hard, Interlocking Braided Pure TFE Packing Square Braided Flax, Graphited Square Braided Flax, No Graphite
199 250 255	Square Braided Copper Packing Combination Set — Die Formed 128 and 129 Combination Set — Die Formed 119 with 1140 Spacers
260 265 701	Combination Set — Die Formed 119 with 1112 Spacers Combination Set — Die Formed Lead, Flax, & Phenolic Spacers Nitrile & Duck "V" Packing
710 805 827	Neoprene & Duck "V" Packing Nitrile, Duck, Synthetic & TFE "V" Packing Viton & Asbestos "V" Packing
829 838 845	Butyl, Duck & Synthetic "V" Packing Non-adjustable Plunger Packing — Nitrile & Synthetic Non-adjustable Plunger Packing — Acid Service Nitrile & Synthetic
911 805-4 827-4	Glass & Moly Filled TFE "V" Packing Spring Loaded 805 Spring Loaded 827
829-4 911-4 7257	Spring Loaded 829 Spring Loaded 911 EPDM, Molded
7507 7757 8257	VITON, Molded BUTYL, Molded NEOPRENE, Molded
8507 8557 8757	Nitrile Molded Nitrile Molded Nitrile Molded
4550 4570	TFE, Molded TFE, Machined

SERVICE FLUID	STATIC			RECIPROCATING		ROTARY	
	COMPOSITION	HOMOGENOUS	BRAIDED TYPE	NON-ADJUSTABLE	ADJUSTABLE	CLEAN	SLURRIED
Acetaldehyde	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Acetamide	701	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Acetic Acid, Glacial	911, 829	7257	118, 128, 129	911-4, 829-4	118-1140, 250	118, 128, 129	-
Acetic Acid, 30%	911, 805	7257, 8757	118, 128, 129	911-4, 805-4, 845	118-1140, 250	118, 128, 129	118-1112
Acetic Anhydride	911, 710	8257	118, 128, 129	118, 128, 129	118-1140, 250	118, 128, 129	118-1112
Acetone	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Acetophenone	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Acetyl Chloride	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Acetylene	829, 827	7757, 7507	119, 128, 129	829-4, 827-4	255, 250	119, 128, 129	119-1113
Acrylonitrile	911	4570, 4550	119, 128, 129	911-4	255, 250	119, 128, 129	-
Adipic Acid	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	119-1113
Alkylene	911, 827	7507	119, 128, 129	911-4, 827-4	255, 250	119, 128, 129	-
Alum-NH ₃ -Cr-K	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Aluminum Acetate	829, 805	7757, 8757	119, 128, 129	829-4, 805-4, 845	255, 250	119, 128, 129	260
Aluminum Chloride	701, 805	8557, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Aluminum Fluoride	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Aluminum Hydroxide	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	-
Aluminum Nitrate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Aluminum Phosphate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Aluminum Sulfate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Ammonia Anhydrous	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Ammonia Aqueous (See Ammonium Hydroxide)	-	-	-	-	-	-	-
Ammonia Gas (Cold)	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Ammonia Gas (Hot)	911, 829	4570, 4550, 7757	119, 128, 129	911-4	255, 250	119, 128, 129	260
Ammonium Carbonate	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	260
Ammonium Chloride	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	118-1112
Ammonium Hydroxide	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	260
Ammonium Nitrate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Ammonium Nitrite	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Ammonium Persulfate	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	260
Ammonium Phosphate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Ammonium Sulfate	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	118-1112
Amyl Acetate	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Amyl Alcohol	829, 805	7757, 8757	119, 128, 129	829-4, 805-4, 845	255, 250	119, 128, 129	260
Amyl Borate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Amyl Chloronaphthalene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Amyl Naphthalene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Aniline	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Aniline Dyes	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	260
Aniline Hydrochloride	911, 805	8757	119, 128, 129	911-4, 805-4, 845	255, 250	119, 128, 129	119-1113
Animal Fats*	701, 805	8557, 8507, 8757	115, 114, 155	838, 805-4	255, 250	115, 114, 155	260
Ansul Ether	911	4570, 4550, 8757	119, 128, 129	911-4	255, 250	119, 128, 129	-
Aqua Regia	827	7507	128, 129	827-4	255, 250	128, 129	-
Arochlor(s)	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Arsenic Acid	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	118-1112
Arsenic Trichloride	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Askarel	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	119-1113
Asphalt	827, 805	7507	105	827-4, 805-4, 845	105-199	105	-
Barium Chloride	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	118-1112
Barium Hydroxide	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Barium Sulfate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Barium Sulfide	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Benzaldehyde	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Benzene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	260
Benzenesulfonic Acid	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	260
Benzoic Acid	827	7507	118, 128, 129	827-4	118-1140, 250	118, 128, 129	-
Benzyl Alcohol	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	260
Benzyl Benzoate	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Benzyl Chloride	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Blast Furnace Gas	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Bleach Solutions	829, 827	7757, 7507	128, 129	829-4, 827-4	255, 250	128, 129	-
Borax	829, 827, 805	7757, 7507, 8757	119, 128, 129	829-4, 827-4, 805-4, 845	255, 250	119, 128, 129	260
Bordeaux Mixture	829, 827	7757, 7507	119, 128, 129	829-4, 827-4	255, 250	119, 128, 129	260
Boric Acid	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Brine	701, 805	8557, 8507, 8757	115, 114, 119	838, 805-4	255, 250	119, 128, 129	260
Bromine - Anhydrous	827	7507	128, 129	827-4	255, 250	128, 129	-
Bromine Water	827	7507	128, 129	827-4	255, 250	128, 129	260
Bromobenzene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Bunker Oil	701, 805	8557, 8507, 8757	115, 114	838, 805-4	255, 250	119, 128, 129	119-1113
Butadiene	911, 827	7507	119, 128, 129	911-4, 827-4	255, 250	119, 128, 129	260
Butane	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Butyl Acetate	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	-
Butyl Acetyl Ricinoleate	829, 827	7757, 7507	119, 128, 129	829-4, 827-4	255, 250	119, 128, 129	119-1113
Butyl Acrylate	911	4570, 4550	128, 129	911-4	250	128, 129	-
Butyl Alcohol	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Butyl Amine	911	4570, 4550	119, 128, 129	911-4	255, 250	119, 128, 129	-
Butyl Benzoate	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Butyl Carbitol	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Butyl Cellosolve	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	260
Butyl Oleate	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Butyl Stearate	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Butylene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	119-1113
Butyraldehyde	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	-
Calcium Acetate	829, 805	7757, 8757	119, 128, 129	829-4, 805-4, 845	255, 250	119, 128, 129	260
Calcium Bisulfite	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	260
Calcium Chloride	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	260
Calcium Hydroxide	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Calcium Hypochlorite	829	7757	118, 128, 129	829-4	118-1140, 250	118, 128, 129	-
Calcium Nitrate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Calcium Sulfide	829, 827, 805	7757, 7507, 8757	119, 128, 129	829-4, 827-4, 805-4, 845	255, 250	119, 128, 129	260
Carbamate	827, 805	7507	119, 128, 129	827-4, 805-4	255, 250	119, 128, 129	260
Carbitol	911, 805	8757	119, 128, 129	911-4, 805-4, 845	255, 250	119, 128, 129	260
Carbolic Acid	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Carbon Bisulfide	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Carbon Dioxide	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Carbon Monoxide	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Carbon Tetrachloride	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Carbonic Acid	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260

*NOTE: NOT FDA APPROVED

SERVICE FLUID	STATIC			RECIPROCATING		ROTARY	
	COMPOSITION	HOMOGENOUS	BRAIDED TYPE	NON-ADJUSTABLE	ADJUSTABLE	CLEAN	SLURRIED
Castor Oil*	701, 805	8557, 8507, 8757	115, 114, 155	838, 805-4	155, 255	155, 119	260
Cellosolve	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Cellosolve Acetate	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Cellulube	829, 827	7757, 7507	119, 128, 129	829-4, 827-4	255, 250	119, 128, 129	-
Chloroacetic Acid	829	7757	118, 128, 129	829-4	118-1140, 250	118, 128, 129	-
Chloroacetone	829	7257, 7757	119, 128, 129	829-4	255, 250	128, 129	260
Chlorine (Dry)	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Chlorine (Wet)	827	7507	118, 128, 129	827-4	118-1140, 250	118, 128, 129	-
Chlorine Dioxide	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Chlorobenzene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Chlorobromomethane	829, 827	7757, 7507	119, 128, 129	829-4, 829-4	255, 250	119, 128, 129	-
Chlorobutadiene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Chlorododecane	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Chloroform	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
O-Chloronaphthalene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
1-Chloro 1-Nitro Ethane	911	4570, 4550	119, 128, 129	911-4	255, 250	119, 128, 129	-
Chlorosulfonic Acid	911	4570, 4550	118, 128, 129	911-4	118-1140, 250	118, 128, 129	-
Chlorotoluene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Chrome Plating Solutions	827	7507	118, 128, 129	827-4	118-1140	118, 128, 129	-
Chromic Acid	827	7507	118, 128, 129	827-4	118-1140	118, 128, 129	-
Citric Acid	701, 805	7507	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	260
Cobalt Chloride	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Cocconut Oil*	701, 805	8557, 8507, 8757	115, 114, 155	838, 805-4	155, 119	155, 119	260
Cod Liver Oil*	701, 805	8557, 8507, 8757	155, 119	838, 805-4	155, 119	119, 128, 129	260
Coke Oven Gas	827	7507	115, 114, 119	827-4	255, 250	119, 128, 129	260
Copper Acetate	829, 805	7757, 8757	119, 128, 129	829-4, 805-4, 845	255, 250	119, 128, 129	260
Copper Chloride	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Copper Cyanide	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Copper Sulfate	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	118-1112
Corn Oil*	701, 805	8557, 8507, 8757	155, 119	838, 805-4	155, 119	155, 119	260
Cottonseed Oil	701, 805	8557, 8507, 8757	155, 119	838, 805-4	155, 119	155, 119	260
Creosote	827, 805	7507	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	119-1113
Cresol	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Cresylic Acid	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Crude Oil	701, 805	8557, 8507, 8757	114, 115, 119	838, 805-4	114, 115, 255	114, 115, 119	-
Cumene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Cyclohexane	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	119-1113
Cyclohexanol	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	260
Cyclohexanone	829	7757, 7257	119, 128, 129	829-4	255, 250	119, 128, 129	-
p-Cymene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Decalin	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Decane	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	119-1113
Denatured Alcohol	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Detergent Solutions	701, 805	8557, 8507, 8757	155, 119	838, 805-4	155, 119	155, 119	260
Developing Fluids	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Diacetone	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Diacetone Alcohol	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	260
Dibenzyl Ether	829	7757, 7257	119, 128, 129	829-4	255, 250	119, 128, 129	260
Dibenzyl Sebecate	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Dibutyl Amine	911	4570, 4550	119, 128, 129	911-4	255, 250	119, 128, 129	-
Dibutyl Ether	911	4570, 4550	119, 128, 129	911-4	255, 250	119, 128, 129	-
Dibutyl Phthalate	829	7257, 7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Dibutyl Sebecate	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
O-Dichlorobenzene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Dichloro-Isopropyl Ether	911	9507	119, 128, 129	911-4	255, 250	119, 128, 129	-
Dicyclohexylamine	911	4570, 4550	119, 128, 129	911-4	255, 250	119, 128, 129	-
Diesel Oil	701, 805	8557, 8507, 8757	150, 119	838, 805-4	155, 119	155, 119	260
Diethanolamine	911	4570, 4550	119, 128, 129	911-4	255, 250	119, 128, 129	-
Diethylamine	911	7757, 7257	119, 128, 129	911-4	255, 250	119, 128, 129	-
Diethyl Benzene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Diethyl Ether	911	9507	128, 129	911-4	250	128, 129	-
Diethyl Sebecate	829, 827	7757, 7507	119, 128, 129	829-4, 827-4	255, 250	119, 128, 129	119-1113
Diethylene Glycol	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Diglycol Amine	805	8757	119, 128, 129	805-4	255, 250	119, 128, 129	119-1113
Diisobutylene	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	-
Diisopropyl Benzene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Diisopropyl Ketone	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Dimethyl Aniline	911	7257	119, 128, 129	911-4	255, 250	119, 128, 129	-
Dimethyl Formamide	911, 805	8757	119, 128, 129	911-4, 805-4, 845	255, 250	119, 128, 129	119-1113
Dimethyl Phthalate	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	-
Dinitrotoluene	911	4570, 4550	128, 129	911-4	250	128, 129	-
Diocetyl Phthalate	911, 829, 827	7757, 7507	119, 128, 129	911-4, 829-4, 827-4	255, 250	119, 128, 129	-
Diocetyl Sebecate	911, 829, 827	7757	119, 128, 129	911-4, 829-4, 827-4	255, 250	119, 128, 129	-
Dioxane	911, 829	7757	119, 128, 129	911-4, 829-4, 827-4	255, 250	119, 128, 129	-
Dioxolane	911	7257	119, 128, 129	911-4	255, 250	119, 128, 129	-
Dipentene	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	119-1113
Diphenyl	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Diphenyl Oxides	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Dowtherm Oil	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Dry Cleaning Fluids	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Epichlorohydrin	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	-
Ethane	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Ethanolamine	911, 805	8757	119, 128, 129	911-4, 805-4, 845	255, 250	119, 128, 129	260
Ethyl Acetate	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	-
Ethyl Acetoacetate	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	-
Ethyl Acrylate	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	-
Ethyl Alcohol	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Ethyl Benzene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Ethyl Benzoate	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Ethyl Cellosolve	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	-
Ethyl Cellulose	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	260
Ethyl Chloroacetate	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Ethyl Chloride	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Ethyl Chloroformate	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Ethyl Ether	911	4570, 4550	128, 129	911-4	255, 250	119, 128, 129	-
Ethyl Formate	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Ethyl Mercaptan	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	260
Ethyl Oxalate	829, 827	7757, 7507	119, 128, 129	829-4, 827-4	255, 250	119, 128, 129	-
Ethyl Pentochlorobenzene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-

*NOTE: NOT FDA APPROVED

SERVICE FLUID	STATIC			RECIPROCATING		ROTARY	
	COMPOSITION	HOMOGENEOUS	BRAIDED TYPE	NON-ADJUSTABLE	ADJUSTABLE	CLEAN	SLURRIED
Ethyl Silicate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Ethylene	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	—
Ethylene Chloride	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Ethylene Chlorohydrin	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	260
Ethylene Diamine	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Ethylene Dichloride	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Ethylene Glycol	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Ethylene Oxide	911	4570, 4550	119, 128, 129	911-4	255, 250	119, 128, 129	—
Ethylene Trichloride	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Fatty Acids	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	260
Ferric Chloride	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	118-1112
Ferric Nitrate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Ferric Sulfate	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	118-1112
Fish Oil	701, 805	8557, 8507, 8757	155, 119	838, 805-4	155, 119	155, 119	—
Fluorinated Cyclic Ethers	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	—
Fluorine (Liquid)	911, 827	7507	119, 128, 129	911-4, 827-4	255, 250	119, 128, 129	—
Fluoroboric Acid	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Fluorobenzene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Fluorocarbon Oils	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	—
Fluorolube	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Fluosilicic Acid	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Formaldehyde	829, 827, 805	7757, 7507, 8757	119, 128, 129	829-4, 827-4, 805-4, 845	255, 250	119, 128, 129	260
Formic Acid	829, 805	7757	118, 128, 129	829-4, 805-4	118-1140, 250	118, 128, 129	118-1112
Freon 11	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon 12	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon 13	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon 21	911	8257	119, 128, 129	911-4	255, 250	119, 128, 129	260
Freon 22	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	260
Freon 31	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	260
Freon 32	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon 112	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	260
Freon 113	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon 114	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon 115	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon 142B	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon 152A	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon 218	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon C316	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon C318	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon 13B1	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon 114B2	911, 805	8757	119, 128, 129	911-4, 805-4, 845	255, 250	119, 128, 129	260
Freon 502	911, 805	8757	119, 128, 129	911-4, 805-4, 845	255, 250	119, 128, 129	260
Freon TF	701, 805	8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon T-WD602	829, 827, 805	7757, 7507, 8757	119, 128, 129	827-4, 829-4, 805-4, 845	255, 250	119, 128, 129	260
Freon TMC	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	260
Freon T-P35	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon TA	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon TC	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Freon MF	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	119-1113
Freon BF	911, 805	8757	119, 128, 129	911-4, 805-4, 845	255, 250	119, 128, 129	260
Fuel Oil	701, 805	8557, 8707, 8757	150, 119	838, 805-4	150, 119	150, 119	260
Fumaric Acid	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Furan, Furfuran	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	—
Furfural	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	260
Gallic Acid	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	260
Gasoline	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Gelatin*	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Glauber's Salt	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Glucose*	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Glue	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Glycerin	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Glycols	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Green Sulfate Liquor	829, 827, 805	7757, 7507, 8757	119, 128, 129	829-4, 827-4, 805-4, 845	255, 250	119, 128, 129	260
Halowax Oil	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
n-Hexaldehyde	710, 911	8257	119, 128, 129	911-4, 710-4	255, 250	119, 128, 129	260
Hexane	701, 805	8557, 8507, 8857	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
n-Hexene-1	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	260
Hexyl Alcohol	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Hydraulic Oil (Petroleum)	701, 805	8557, 8507, 8757	150, 119	838, 805-4	150, 119	150, 119	260
Hydrazine	829, 805	7757, 8757	119, 128, 129	829-4, 805-4, 845	255, 250	119, 128, 129	260
Hydrobromic Acid	829	7757	118, 128, 129	829-4	118-1140, 250	118, 128, 129	118-1112
Hydrochloric Acid (Cold) 37%	829, 827, 805	7757, 8757	118, 128, 129	829-4, 827-4, 805-4	118-1140, 250	118, 128, 129	118-1112
Hydrochloric Acid (Hot) 37%	827	7507	118, 128, 129	827-4	118-1140, 250	118, 128, 129	—
Hydrocyanic Acid	829, 805	7757, 8757	119, 128, 129	829-4, 805-4, 845	118-1140, 250	118, 128, 129	118-1112
Hydrofluoric Acid (Cond.) Cold	827	7507	118, 128, 129	827-4	118-1140, 250	118, 128, 129	118-1112
Hydrofluoric Acid (Cond.) Hot	911, 827	7507	118, 128, 129	911-4, 827-4	118-1140, 250	118, 128, 129	—
Hydrofluoric Acid - Anhydrous	911, 829	7757	118, 128, 129	911-4, 829-4	118-1140, 250	118, 128, 129	—
Hydrofluosilicic Acid	829, 827	7757, 7507	118, 128, 129	829-4, 827-4	118-1140, 250	118, 128, 129	118-1112
Hydrogen Gas	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Hydrogen Peroxide (90%)	911, 827	7507	119, 128, 129	911-4, 827-4	255, 250	119, 128, 129	—
Hydrogen Sulfide (Cold)	827, 829	10177, 7507, 7757	119, 128, 129	827-4, 829-4	255, 250	119, 128, 129	260
Hydrogen Sulfide (Wet) (Hot)	827, 829	7507, 10177, 7757	119, 128, 129	827-4, 829-4	255, 250	119, 128, 129	260
Hydroquinone	911	4570, 4550	119, 128, 129	911-4	255, 250	119, 128, 129	—
Hypochlorous Acid	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Iodine Pentafluoride	911	4570, 4550	119, 128, 129	911-4	255, 250	119, 128, 129	—
Iodoform	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	—
Isobutyl Alcohol	829, 827, 805	7757, 7507, 8757	119, 128, 129	829-4, 827-4, 805-4, 845	255, 250	119, 128, 129	260
Isocetane	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Isophorone	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	—
Isopropyl Acetate	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	—
Isopropyl Alcohol	829, 827, 805	7757, 7507, 8757	119, 128, 129	827, 827, 805-4, 845	255, 250	119, 128, 129	260
Isopropyl Chloride	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Isopropyl Ether	805	8757	119, 128, 129	845, 805-4	255, 250	119, 128, 129	260
Kerosene	701, 805	8557, 8507, 8757	150, 119	838, 805-4	150, 119	150, 119	119-1113
Lacquers	911	4570, 4550	128, 129	911-4	250	128, 129	—
Lacquer Solvents	911	4570, 4550	128, 129	911-4	250	128, 129	—
Lactic Acid	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	260
Lard*	701, 805	8557, 8507, 8757	155, 119	838, 805-4	155, 119	155, 119	119-1113
Lavender Oil*	827, 805	7507, 8757	155, 119	827-4, 805-4, 845	155, 119	155, 119	119-1113

*NOTE: NOT FDA APPROVED

SERVICE FLUID	STATIC			RECIPROCATING		ROTARY	
	COMPOSITION	HOMOGENOUS	BRAIDED TYPE	NON-ADJUSTABLE	ADJUSTABLE	CLEAN	SLURRIED
Lead Acetate	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	260
Lead Nitrate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Lead Sulfamate	829, 827, 805	7757, 7507, 8757	119, 128, 129	829-4, 827-4, 805-4, 845	255, 250	119, 128, 129	260
Lean Oil	701, 805	8557, 8507, 8757	114, 115, 119	838, 805-4	255, 250	114, 115, 119	260
Lime Bleach	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Lime Sulfur	829, 827	7757, 7507	119, 128, 129	829-4, 827-4	255, 250	119, 128, 129	260
Lindol	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	—
Linoleic Acid	911, 805	8757	119, 128, 129	911-4, 805-4, 845	255, 250	119, 128, 129	119-1113
Linseed Oil	701, 805	8557, 8507, 8757	155, 119, 114, 115	838, 805-4	155, 119, 255	155, 119	260
Liquified Petroleum Gas	701, 805	8557, 8507, 8757	150, 119, 114, 115	838, 805-4	150, 119, 255	150, 119	260
Lubricating Oils (Petroleum)	701, 805	8557, 8507, 8757	150, 119, 114, 115	838, 805-4	150, 119, 255	150, 119	260
Lye	829, 805	7757, 8757	119, 128, 129	829-4, 805-4, 845	255, 250	119, 128, 129	260
Magnesium Chloride	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Magnesium Hydroxide	829, 827, 805	7757, 7507, 8757	118, 128, 129	829-4, 827-4, 805-4, 845	118-1140, 250	118, 128, 129	118-1112
Magnesium Sulfate	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	118-1112
Maleic Acid	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	260
Maleic Anhydride	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	260
Malic Acid	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Mercuric Chloride	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	118-1112
Mercury	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Mesityl Oxide	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	—
Methane	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Methyl Acetate	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	260
Methyl Acrylate	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	260
Methyl Acrylic Acid	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	260
Methyl Alcohol	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Methyl Bromide	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	119-1113
Methyl Butyl Ketone	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	—
Methyl Cellosolve	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	260
Methyl Chloride	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Methyl Cyclopentane	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Methyl Ethyl Ketone	829	7757, 7257	119, 128, 129	829-4	255, 250	119, 128, 129	—
Methyl Formate	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	260
Methyl Isobutyl Ketone	911	4570, 4550	128, 129	911-4	255, 250	119, 128, 129	—
Methyl Methacrylate	911	4570, 4550	119, 128, 129	911-4	255, 250	119, 128, 129	—
Methyl Oleate	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Methyl Salicylate	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	—
Methylene Chloride	911, 827	7507	119, 128, 129	911-4, 827-4	255, 250	119, 128, 129	—
Mineral Oil *	701, 805	8557, 8507, 8757	155, 119	838, 805-4	155, 119	155, 119	260
Monochlorobenzene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Monoethanolamine	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	—
Monomethyl Aniline	911, 827	7507	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	—
Monomethylether	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Monovinyl Acetylene	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Mustard Gas	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	260
Naptha	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Napthalene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Napthaenic Acid	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	119-1113
Natural Gas	701, 805	8557, 8507, 8757	155, 119, 114, 115	838, 805-4	155, 119	155, 119	260
Neatsfoot Oil	701, 805	8557, 8507, 8757	150, 119, 114, 115	838, 805-4	150, 119	150, 119	—
Neville Acid	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Nickel Acetate	829, 805	7757, 8757	119, 128, 129	829-4, 805-4, 845	255, 250	119, 128, 129	260
Nickel Chloride	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	260
Nickel Sulfate	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	260
Niter Cake	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Nitric Acid - Conc.	827	7507	118, 128, 129	827-4	118-1140, 250	118, 128, 129	260
Nitric Acid - Dilute	827	7507	118, 128, 129	827-4	118-1140, 250	118, 128, 129	260
Nitric Acid - Red Fuming	911	4570, 4550	128, 129	911-4	118-1140, 250	118, 128, 129	—
Nitrobenzene	911, 827	7507	118, 128, 129	911-4, 827-4	118-1140, 250	118, 128, 129	—
Nitrobenzine	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Nitroethane	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	—
Nitromethane	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	—
Nitrogen	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Nitrogen Tetroxide	911	4570, 4550	128, 129	911-4	250	128, 129	—
Octadecane	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
n-Octane	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Octachlorotoluene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Octyl Alcohol	829, 827, 805	7757, 7507, 8757	119, 128, 129	829-4, 827-4, 805-4, 845	255, 250	119, 128, 129	260
Oleic Acid	911, 829, 827	7757, 7507	119, 128, 129	911-4, 829-4, 827-4	255, 250	119, 128, 129	—
Oleum Spirits	827, 805	7507, 8757	118, 128, 129	827-4, 805-4, 845	118-1140, 250	118, 128, 128	118-1113
Olive Oil *	701, 805	8557, 8507, 8757	155, 119, 114, 115	838, 805-4	155, 119	155, 119	260
o-Dichlorobenzene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Oxalic Acid	829, 827	7757, 7507	118, 128, 129	829-4, 827-4	118-1140, 250	118, 128, 129	260
Oxygen - Cold *	829, 827	7757, 7507, 8757	119, 128, 129	829-4, 827-4, 805-4, 845	255, 250	128, 129	260
Oxygen - 200 - 400°F. *	911, 827	7507	119, 128, 129	911-4, 827-4	255, 250	128, 129	—
Ozone	827	7507, 7257	119, 128, 129	827-4	255, 250	119, 128, 129	260
Paint Thinner, Duco	911, 827	7507	119, 128, 129	911-4, 827-4	255, 250	119, 128, 129	—
Palmitic Acid	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Peanut Oil *	701, 805	8557, 8507, 8757	155, 119, 114, 115	838, 805-4	155, 119	155, 119	260
n-Pentane	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	—
Perchloric Acid	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	260
Perchloroethylene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Petroleum - Below 250	701, 805	8557, 8507, 8757	150, 119, 114, 115	838, 805-4	150, 119, 255	150, 119	260
Petroleum - Above 250	827	7507	105, 114, 115, 119	827-4	105, 119, 255	105, 119	—
Phenol	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Phenylbenzene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Phenyl Ethyl Ether	911	4570, 4550	128, 129	911-4	250	128, 129	—
Phenyl Hydrazine	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	—
Phorone	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	—
Phosphoric Acid - 20%	829, 827, 805	7757, 7507, 8757	118, 128, 129	829-4, 827-4, 805-4, 845	118-1140, 250	118, 128, 129	—
Phosphoric Acid - 45%	827	7507	118, 128, 129	827-4	118-1140, 250	118, 128, 129	—
Phosphorous Trichloride	829, 827	7757, 7507	119, 128, 129	829-4, 827-4	255, 250	119, 128, 129	—
Pickling Solution	911, 827	7507	118, 128, 129	911-4, 827-4	118-1140, 250	118, 128, 129	—
Picric Acid	827, 805	7507, 8757	118, 128, 129	827-4, 805-4, 845	118-1140, 250	118, 128, 129	118-1112
Pine Oil	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	—
Pinene	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	260
Piperdine	911	4570, 4550	128, 129	911-4	250	128, 129	—
Plating Solution - Chrome	829, 827	7757, 7507	118, 128, 129	829-4, 827-4	118-1140, 250	118, 128, 129	—
Polyvinyl Acetate Emulsion	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	260

*NOTE: NOT FDA APPROVED

SERVICE FLUID	STATIC			RECIPROCATING		ROTARY	
	COMPOSITION	HOMOGENEOUS	BRAIDED TYPE	NON-ADJUSTABLE	ADJUSTABLE	CLEAN	SLURRIED
Potassium Acetate	829, 805	7757, 8757	119, 128, 129	845, 805-4, 829-4	255, 250	119, 128, 129	260
Potassium Carbamate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Potassium Chloride	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Potassium Cupro Cyanide	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Potassium Cyanide	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Potassium Dichromate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Potassium Hydroxide	829, 805	7757, 8757	119, 128, 129	845, 805-4, 829-4	255, 250	119, 128, 129	260
Potassium Nitrate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Potassium Sulfate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Power Oil	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250, 265	119, 128, 129	260
Producer Gas	701, 805	8557, 8507, 8757	150, 119, 114, 115	838, 805-4	150, 255, 250	150, 119	260
Propane	701, 805	8557, 8507, 8757	150, 119, 114, 115	838, 805-4	160, 255	150, 119	260
Propyl Acetate	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
n-Propyl Acetate	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	-
Propyl Alcohol	701, 805	8557, 8507, 8757	155, 119, 128, 129	838, 805-4	155, 255, 250	155, 119	260
Propyl Nitrate	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	-
Propylene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Propylene Oxide	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	-
Pydraul	827, 829	7507	119, 128, 129	827-4, 829-4	255, 250	119, 128, 129	-
Pyranol	701, 805	8557, 8507, 8757	155, 119, 128, 129	838, 805-4	155, 255	155, 119	119-1113
Pyridine	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	-
Pyroligneous Acid	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	260
Pyroole	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Radiation	911, 805	8757	119, 128, 129	911-4, 805-4	255, 250	119, 128, 129	260
Rapeseed Oil	829, 827, 805	7757, 7507, 8757	119, 128, 129	845, 805-4, 829-4, 827-4	255, 250	119, 128, 129	260
Red Oil	701, 805	8557, 8507, 8757	150, 119	838, 805-4	150, 255	150, 119	260
Sal Ammoniac	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Salicylic Acid	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Salt Water	701, 805	8557, 8507, 8757	150, 119	838, 805-4	150, 255	150, 119	260
Sewage	701, 805	8557, 8507, 8757	150, 119	838, 805-4	150, 255	150, 119	260
Silicate Esters	827, 805	7507, 8757	119, 128, 129	845, 805-4, 827-4	255, 250	119, 128, 129	260
Silicone Greases	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Silicone Oils	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Silver Nitrate	829, 827, 805	7757, 7507, 8757	119, 128, 129	845, 805-4, 829-4, 827-4	255, 250	119, 128, 129	260
Skydrol 500	911, 829	7757, 7257	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	-
Skydrol 7000	829	7757, 7257	119, 128, 129	829-4	255, 250	119, 128, 129	-
Soap Solutions	701, 805	8557, 8507, 8757	155, 119	838, 805-4	155, 255	155, 119	260
Soda Ash	701, 805	8557, 8507, 8757	155, 119	838, 805-4	155, 255	155, 119	260
Sodium Acetate	829, 805	7757, 8757	119, 128, 129	845, 805-4, 829-4	255, 250	119, 128, 129	260
Sodium Bicarbonate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Sodium Bisulfite	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	260
Sodium Borate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Sodium Chloride	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Sodium Cyanide	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Sodium Hydroxide	829, 805	7757, 8757	119, 128, 129	845-3, 829-4	255, 250	119, 128, 129	260
Sodium Hypochlorite	827, 805	7507, 8757	118, 128, 129	845, 805-4, 827-4	118-1140	118, 128, 129	260
Sodium Metaphosphate	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140	118, 128, 129	260
Sodium Nitrate	829, 805	7757, 8757	118, 128, 129	845, 805-4, 829-4	118-1140	118, 128, 129	260
Sodium Perborate	829, 827, 805	7757, 7507, 8757	119, 128, 129	845-3, 829-4, 827-4	255, 250	119, 128, 129	260
Sodium Peroxide	829, 827, 805	7757, 7507, 8757	119, 128, 129	845, 829-4, 827-4	255, 250	119, 128, 129	260
Sodium Phosphate	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140	118, 128, 129	260
Sodium Silicate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Sodium Sulfate	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Sodium Thiosulfate	829, 827, 805	7757, 7507, 8757	119, 128, 129	845, 805-4, 829-4, 827-4	255, 250	119, 128, 129	260
Soybean Oil *	701, 805	8557, 8507, 8757	155, 119	838, 805-4	155, 255	155, 119	260
Stannic(ous) Chloride	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 128	260
Steam Under 300°F.	829	7757, 7257	115, 114, 119	829-4	255, 250	114, 119	260
Steam Over 300°F.	911	7257	115, 114, 117	911-4	255, 250	114, 119	260
Stearic Acid	911, 805	8757	119, 128, 129	911-4, 845, 805-4	255, 250	119, 128, 129	260
Stoddard Solvent	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	119-1113
Styrene	911, 827	7507	119, 128, 129	911-4, 827-4	255, 250	119, 128, 129	-
Sucrose Solution *	701, 805	8557, 8507, 8757	155, 119	838, 805-4	155, 255	155, 119	260
Sulfite Liquors	827, 805	7507, 8757	119, 128, 129	827-4, 845, 805-4	255, 250	119, 128, 129	260
Sulfur	829, 827	7757, 7507	119, 128, 129	829-4, 827-4	255, 250	119, 128, 129	260
Sulfur Chloride	827	7507	118, 128, 129	827-4	118-1140, 250	118, 128, 129	-
Sulfur Dioxide	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Sulfur Hexafluoride	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	118-1113
Sulfur Trioxide	827	7507	118, 128, 129	827-4	118-1140	118, 128, 129	-
Sulfuric Acid (Dilute)	827	7507	118, 128, 129	827-4	118-1140	118, 128, 129	118-1112
Sulfuric Acid (Concentrated)	911	7507	118, 128, 129	911-4	118-1140	118, 128, 129	-
Sulfuric Acid (20% Oleum)	911	7507	118, 128, 129	911-4	118-1140	118, 128, 129	-
Sulfurous Acid	827	7507	118, 128, 129	827-4	118-1140	118, 128, 129	118-1112
Tannic Acid	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Tar, Bituminous	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	119-1113
Tartaric Acid	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Terpineol	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	119-1113
Tertiary Butyl Alcohol	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	260
Tertiary Butyl Catechol	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	260
Tertiary Butyl Mercaptan	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Tetrabromomethane	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Tetrabutyl Titanate	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	260
Tetrachloroethylene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Tetraethyl Lead	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	119-1113
Tetrahydrofuran	911, 829	7757	119, 128, 129	911-4, 829-4	255, 250	119, 128, 129	-
Tetralin	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Thionyl Chloride	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Titanium Tetrachloride	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Toluene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Toluene Diisocyanate	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Transformer Oil	701, 805	8557, 8507, 8757	150, 119, 114, 115	838, 805-4	150, 255	150, 119	260
Transmission Fluid	701, 805	8557, 8507, 8757	150, 119, 114, 115	838, 805-4	150, 255	150, 119	260
Type A							
Triacetin	829, 805	7757, 8757	119, 128, 129	829-4, 805-4, 845	255, 250	119, 128, 129	260
Tributoxy Ethyl Phosphate	829, 827	7757, 7507	119, 128, 129	829-4, 827-4	255, 250	119, 128, 129	-
Tributyl Phosphate	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Tributyl Mercaptan	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Trichloroacetic Acid	911, 805	8757	119, 128, 129	911-4, 805-4, 845	255, 250	119, 128, 129	260
Trichloroethane	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Trichloroethylene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-

*NOTE: NOT FDA APPROVED

SERVICE FLUID	STATIC			RECIPROCATING		ROTARY	
	COMPOSITION	HOMOGENOUS	BRAIDED TYPE	NON-ADJUSTABLE	ADJUSTABLE	CLEAN	SLURRIED
Tricresyl Phosphate	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Triethanol Amine	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	260
Triethyl Aluminum	911, 827	7507	119, 128, 129	911-4, 827-4	255, 250	119, 128, 129	-
Triethyl Borane	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Trinitrotoluene	911, 827	7507	119, 128, 129	911-4, 827-4	255, 250	119, 128, 129	260
Triocetyl Phosphate	829	7757	119, 128, 129	829-4	255, 250	119, 128, 129	-
Tung Oil	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Turbine Oil	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	260
Turpentine	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	119-1113
Unsymmetrical Dimethyl Hydrazine (UDMH)	829, 805	7757, 8757	119, 128, 129	829-4, 805-4, 845	255, 250	119, 128, 129	-
Urea	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Varnish	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	119-1113
Vegetable Oils*	701, 805	8557, 8507, 8757	155, 119, 114, 115	838, 805-4 -	155, 255	155, 119	260
Versilube	701, 805	7757, 8757	150, 119, 114, 115	838, 805-4	150, 255	150, 119	260
Vinegar*	829, 805	7757, 8757	119, 128, 129	829-4, 805-4, 845	255, 250	119, 128, 129	260
Vinyl Chloride	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Wagner 21 B Fluid	911, 710	7257, 8257	119, 128, 129	911-4, 710-4	255, 250	119, 128, 129	260
Water	701, 805	8557, 8507, 8757	155, 119	838, 805-4	265, 255, 155	155, 119	260
Whiskey, Wines*	701, 805	8557, 8507, 8757	155, 119	838, 805-4	155, 255	155, 119	260
White Oil	701, 805	8557, 8507, 8757	155, 119	838, 805-4	155, 255	155, 119	260
White Pine Oil	827, 805	7507, 8757	119, 128, 129	827-4, 805-4, 845	255, 250	119, 128, 129	119-1113
Wood Oil	701, 805	8557, 8507, 8757	155, 119	838, 805-4	155, 255	155, 119	260
Xylene	827	7507	119, 128, 129	827-4	255, 250	119, 128, 129	-
Xylidenes	911	4570, 4550	119, 128, 129	911-4	255, 250	119, 128, 129	-
Zeolites	701, 805	8557, 8507, 8757	119, 128, 129	838, 805-4	255, 250	119, 128, 129	260
Zinc Acetate	829, 805	7757, 8557	119, 128, 129	829-4, 805-4, 845	255, 250	119, 128, 129	260
Zinc Chloride	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	118-1112
Zinc Sulfate	701, 805	8557, 8507, 8757	118, 128, 129	838, 805-4	118-1140, 250	118, 128, 129	118-1112

*NOTE: NOT FDA APPROVED

SHEET PACKINGS

STYLE	DESCRIPTION
1101	General Service Asbestos — Grey Black Color
1102	General Service Asbestos — White Color
1103	High Temperature Asbestos
1104	Oil Proof Asbestos
1105	Acid Proof Asbestos
1110	Commercial Red Rubber
1112	Neoprene
1113	Nitrile
1121	Soft Gum Rubber
1130	Cork
1131	Cork & Neoprene Composition
1134	Cork & Fibre Composition
1135	Vegetable Tan Plant Fibre
1140	TFE
1150	Viton
1151	Butyl
1152	EPDM
1155	Silicone

RESISTANCE RATINGS G — Good F — Fair U — Unsatisfactory	HOMOGENOUS										Compressed Asbestos w/ Binder		Organic Composition	
	1110	1112	1113	1121	1140	1150	1151	1152	1155	1101, 1102, 1103, 1108	1104	1105	1130, 1134, 1135	1131
SERVICE FLUID														
Acetaldehyde	U	U	U	U	G	U	G	G	G	U	G	U	U	U
Acetamide	U	F	U	U	G	U	F	G	G	F	F	F	U	U
Acetic Acid, Glacial	U	U	U	F	G	U	F	G	F	F	F	G	U	U

RESISTANCE	RATINGS	G - Good F - Fair U - Unsatisfactory	SERVICE FLUID	HOMOGENEOUS														Compressed Asbestos w/ Blinder	Organic Compo- sition
				1110	1112	1113	1121	1140	1150	1151	1152	1155	1101, 1102, 1103, 1108	1104	1105	1130, 1134, 1135	1131		
			Acetic Acid, 30%	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Acetic Anhydride	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Acetone	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Acetophenone	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Acetyl Chloride	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Acetylene	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Acrylonitrile	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Adipic Acid	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Alkane	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Alum-NH ₃ -Cr-K	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Aluminum Chloride	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Aluminum Acetate	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Aluminum Fluoride	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Aluminum Hydroxide	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Aluminum Nitrate	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Aluminum Phosphate	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Aluminum Sulfate	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Ammonia Anhydrous	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Ammonia Aqueous (See Ammonium Hydroxide)	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Ammonia Gas (Cold)	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Ammonia Gas (Hot)	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Ammonium Chloride	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Ammonium Carbonate	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Ammonium Hydroxide	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Ammonium Nitrate	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Ammonium Nitrite	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Ammonium Persulfate	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Ammonium Phosphate	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Ammonium Sulfate	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Amyl Acetate	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Amyl Alcohol	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Amyl Borate	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Amyl Chloronaphthalene	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Amyl Naphthalene	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Aniline	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Aniline Dyes	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Aniline Hydrochloride	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Animal Fats*	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Ansul Ether	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Aqua Regia	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Archlor(s)	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Arsenic Trichloride	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Asphalt	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Barium Chloride	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Barium Hydroxide	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Barium Sulfate	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Barium Sulfide	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Benzaldehyde	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Benzene	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Benzenesulfonic Acid	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Benzyl Alcohol	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Benzyl Benzoate	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Benzyl Chloride	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Blast Furnace Gas	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Bleach Solutions	F	F	F	F	G	G	G	G	G	G	G	G	G	G		
			Borax	F	F	F	F	G	G	G	G	G	G	G	G	G	G		

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RESISTANCE RATINGS G – Good F – Fair U – Unsatisfactory											Compressed Asbestos w/ Binder		Organic Compo- sition		
	HOMOGENOUS										1101, 1102, 1103, 1108	1104	1105	1130, 1134, 1135	1131
	1110	1112	1113	1121	1140	1150	1151	1152	1155						
SERVICE FLUID															
Bordeaux Mixture	F	G	F	F	G	G	G	G	F	G	G	G	F	F	
Boric Acid	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Brine	—	G	G	—	G	—	G	G	—	G	G	G	F	G	
Bromine — Anmydrous	—	—	—	—	G	G	—	—	U	F	F	G	F	F	
Bromine Water	—	F	—	—	G	G	—	—	—	F	F	G	F	F	
Bromobenzene	U	U	U	U	G	G	U	U	U	U	U	U	U	U	
Bunker Oil	—	—	G	—	G	G	—	—	F	U	G	F	G	G	
Butadiene	U	F	U	U	G	F	U	U	—	U	G	F	F	F	
Butane	U	G	G	U	G	G	U	U	—	F	G	G	G	G	
Butyl Acetate	—	U	—	—	G	U	F	F	U	U	U	U	G	G	
Butyl Acetyl Ricinoleate	—	F	—	—	G	G	G	G	—	U	F	U	U	U	
Butyl Acrylate	U	—	—	—	G	U	U	U	—	U	U	U	U	U	
Butyl Alcohol	G	G	G	G	G	G	G	G	—	G	G	G	G	F	
Butyl Amine	U	U	U	U	G	U	U	U	F	U	U	U	U	U	
Butyl Benzoate	—	U	—	—	G	G	G	G	—	U	U	U	U	U	
Butyl Carbitol	—	F	G	—	G	G	G	G	—	F	G	F	U	U	
Butyl Cellosolve	—	F	U	—	G	U	G	G	—	F	F	F	U	U	
Butyl Oleate	U	U	—	U	G	G	F	F	—	U	U	U	U	U	
Butyl Stearate	U	—	F	U	G	G	F	F	—	U	U	U	U	U	
Butylene	U	U	F	U	G	G	U	U	—	U	F	U	U	F	
Butyraldehyde	U	U	U	U	G	U	F	F	U	U	U	U	U	U	
Calcium Acetate	—	F	F	G	G	U	G	G	—	G	G	G	F	F	
Calcium Bisulfite	U	G	G	U	G	G	U	U	G	G	G	G	F	F	
Calcium Chloride	G	G	G	G	G	G	G	G	G	G	G	G	F	F	
Calcium Hydroxide	G	G	G	G	G	G	G	G	G	G	G	G	U	U	
Calcium Hypochlorite	U	U	U	U	G	G	G	G	F	U	U	U	U	U	
Calcium Nitrate	G	G	G	G	G	G	G	G	F	G	G	G	U	U	
Calcium Sulfide	F	G	F	F	G	G	G	G	F	G	G	G	U	U	
Carbamate	U	F	F	F	G	G	F	F	—	U	F	U	U	F	
Carbitol	F	F	F	F	G	F	F	F	F	G	G	G	F	F	
Carbolic Acid	U	U	U	U	G	G	F	F	U	U	U	U	U	U	
Carbon Bisulfide	—	U	U	—	G	G	U	U	—	U	U	U	F	F	
Carbon Dioxide	F	F	G	F	G	G	G	F	G	G	G	G	G	G	
Carbon Monoxide	F	G	G	F	G	G	G	G	G	G	G	G	G	G	
Carbon Tetrachloride	U	U	U	U	G	G	U	U	U	G	G	G	G	G	
Carbonic Acid	G	G	G	G	G	G	G	G	G	G	G	G	U	U	
Castor Oil*	G	G	G	G	G	G	F	F	G	G	G	G	G	G	
Cellosolve	G	—	—	G	G	U	F	F	—	U	U	U	U	U	
Cellosolve Acetate	U	—	—	U	G	U	F	F	—	F	F	F	U	U	
Cellulube	U	U	U	U	G	G	G	G	—	U	U	U	U	U	
Chloracetic Acid	—	—	—	—	G	—	F	F	—	F	U	U	U	U	
Chloracetone	—	F	U	F	G	U	F	G	—	F	G	F	G	G	
Chlorine (Dry)	U	U	—	U	G	G	—	—	—	F	F	F	U	U	
Chlorine (Wet)	U	U	—	U	G	G	U	U	—	F	F	F	U	U	
Chlorine Dioxide	—	U	U	—	G	G	U	U	—	U	U	U	U	U	
Chlorobenzene	U	U	U	U	G	G	U	U	U	U	U	U	U	U	
Chlorobromomethane	U	U	—	U	G	F	F	F	U	U	U	U	U	U	
Chlorobutadiene	U	U	U	U	G	G	U	U	—	U	U	U	U	U	
Chlorododecane	U	U	U	U	G	G	U	U	—	U	U	U	U	U	
Chloroform	U	U	U	U	G	G	U	U	—	U	U	U	U	U	
O-Chloronapthalene	U	U	U	U	G	G	U	U	—	U	U	U	U	U	
1-Chloro 1-Nitro Ethane	U	U	U	U	G	U	U	U	U	U	U	U	U	U	
Chlorosulfanic Acid	U	U	U	U	G	U	U	U	U	U	U	U	U	U	
Chlorotoluene	U	U	U	U	G	G	U	U	—	U	U	U	U	U	
Chrome Plating Solutions	U	U	U	U	G	G	U	U	F	U	U	U	U	U	
Chromic Acid	U	U	U	U	G	G	U	U	U	U	U	U	U	U	
Citric Acid	G	G	G	G	G	G	G	G	G	G	G	G	U	U	
Cobalt Chloride	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Cocoonut Oil*	U	G	G	U	G	G	G	G	G	G	G	G	G	G	
Cod Liver Oil*	U	F	G	U	G	G	G	G	F	F	G	F	G	G	

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	1110	1112	1113	1121	1140	1150	1151	1152	1155	1101, 1102, 1103, 1108	1104	1105	1130, 1134, 1135	1131
SERVICE FLUID														
Ethyl Acetoacetate	U	U	U	U	G	U	F	F	F	U	U	U	F	F
Ethyl Acrylate	U	U	U	U	G	U	F	F	F	U	U	U	U	U
Ethyl Alcohol	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Ethyl Benzene	U	U	U	U	G	G	U	U	U	U	F	U	G	F
Ethyl Benzoate	U	U	U	U	G	G	F	F	U	U	F	U	G	F
Ethyl Cellosolve	U	U	U	U	G	U	F	F	U	U	U	U	U	U
Ethyl Cellulose	F	F	U	F	G	U	F	F	U	F	F	F	G	G
Ethyl Chloracarbonate	U	U	U	U	G	G	U	U	U	U	U	U	G	U
Ethyl Chloride	F	F	G	F	G	G	G	G	U	G	G	G	G	G
Ethyl Chloroformate	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Ethyl Ether	U	U	U	U	G	U	U	U	U	F	F	F	G	G
Ethyl Formate	U	F	U	U	G	G	F	F	U	U	F	U	U	U
Ethyl Mercaptan	U	F	U	U	G	G	U	U	U	U	F	U	U	U
Ethyl Oxalate	G	U	U	G	G	G	G	G	U	G	U	U	U	U
Ethyl Pentochlorobenzene	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Ethyl Silicate	F	G	G	F	G	G	G	G	U	G	G	G	F	F
Ethylene	U	U	U	U	G	G	U	U	U	U	F	U	G	G
Ethylene Chloride	U	U	U	U	G	G	U	U	U	G	G	G	G	G
Ethylene Chlorohydrin	U	F	U	U	G	G	U	U	U	U	F	U	U	U
Ethylene Diamine	F	G	G	F	G	U	G	G	G	G	G	G	F	F
Ethylene Dichloride	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Ethylene Glycol	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Ethylene Oxide	U	U	U	U	G	U	U	U	U	U	U	U	U	U
Ethylene Trichloride	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Fatty Acids	U	F	F	U	G	G	U	U	U	F	F	F	G	G
Ferric Chloride	G	G	G	G	G	G	G	G	G	G	G	G	F	F
Ferric Nitrate	G	G	G	G	G	G	G	G	U	G	G	G	F	F
Ferric Sulfate	G	G	G	G	G	G	G	G	F	G	G	G	F	F
Fish Oil*	U	U	G	U	G	G	U	U	G	F	G	F	G	G
Fluorinated Cyclic Ethers	U	U	U	U	G	U	G	G	U	U	U	U	U	U
Fluorine (Liquid)	U	U	U	U	G	F	U	U	U	U	U	U	F	U
Fluoroboric Acid	G	G	G	G	G	F	G	G	U	U	U	U	F	U
Fluorobenzene	U	U	U	U	G	G	U	U	U	U	U	U	F	U
Fluorocarbon Oils	U	U	U	U	G	U	G	G	U	U	F	U	F	F
Fluorolube	U	G	G	U	G	F	G	G	U	U	G	F	F	F
Fluosillicic Acid	U	G	G	G	G	G	U	U	U	F	G	G	F	F
Formaldehyde	U	G	F	U	G	G	G	G	U	G	G	G	G	G
Formic Acid	G	G	F	G	G	U	G	G	F	G	G	G	F	F
Freon 11	U	F	G	U	G	G	U	U	U	U	F	U	U	U
Freon 12	G	G	G	F	G	F	F	F	U	G	G	G	U	U
Freon 13	G	G	G	G	G	G	G	G	U	G	G	G	U	U
Freon 21	U	F	U	U	G	U	U	U	U	U	F	U	U	U
Freon 22	G	G	U	G	G	U	G	G	U	G	G	G	U	U
Freon 31	F	G	U	F	G	U	G	G	U	F	G	F	U	U
Freon 32	G	G	G	G	G	U	G	G	U	G	G	G	U	U
Freon 112	U	F	F	U	G	G	U	U	U	U	F	U	U	U
Freon 113	F	G	G	U	G	F	U	U	U	F	G	F	U	U
Freon 114	G	G	G	G	G	G	G	G	U	G	G	G	U	U
Freon 115	G	G	G	G	G	F	G	G	U	G	G	G	U	U
Freon 142B	G	G	G	G	G	U	G	G	U	G	G	G	U	U
Freon 152A	G	G	G	G	G	U	G	G	U	G	G	G	U	U
Freon 218	G	G	G	G	G	G	G	G	U	G	G	G	U	U
Freon C316	G	G	G	G	G	U	G	G	U	G	G	G	U	U
Freon C318	G	G	G	G	G	G	G	G	U	G	G	G	U	U
Freon 13B1	G	G	G	G	G	G	G	G	U	G	G	G	U	U
Freon 114B2	U	G	F	U	G	F	U	U	U	F	G	F	U	U
Freon 502	G	G	F	G	G	F	U	U	U	G	G	G	U	U
Freon TF	F	G	G	U	G	G	U	U	U	F	G	F	U	U
Freon T-WD602	F	F	F	U	G	G	F	F	U	F	F	F	U	U
Freon TMC	U	F	F	F	G	G	F	F	U	U	F	F	U	U

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	1110	1112	1113	1121	1140	1150	1151	1152	1155	1101,1102, 1103,1108	1104	1105	1130,1134, 1135	1131	
SERVICE FLUID															
Freon T-P35	G	G	G	G	G	G	G	G	G	G	G	G	U	U	
Freon TA	G	G	G	G	G	U	G	G	G	G	G	G	U	U	
Freon TC	F	G	G	U	G	G	G	F	U	G	G	G	U	U	
Freon MF	F	U	G	U	G	—	U	—	—	F	U	F	U	U	
Freon BF	U	F	F	U	G	—	U	—	—	U	F	F	U	U	
Fuel Oil	U	F	G	U	G	G	U	U	U	F	G	F	G	G	
Fumaric Acid	G	F	G	G	G	G	U	—	F	G	G	G	G	G	
Furan, Furfuran	U	U	U	U	G	—	—	—	—	U	U	U	U	U	
Furfural	U	F	U	U	G	U	F	F	—	F	F	F	G	G	
Gallic Acid	F	F	F	G	G	G	F	F	—	F	F	F	G	G	
Gasoline	U	F	G	U	G	G	U	U	U	U	F	U	G	G	
Gelatin*	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Glauber's Salt	U	—	—	—	G	G	F	F	—	U	U	U	U	U	
Glucose*	G	G	G	G	G	G	G	G	—	G	G	G	G	G	
Glue	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Glycerin	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Glycols	G	G	G	G	G	G	G	G	G	G	G	G	F	F	
Green Sulfate Liquor	F	F	F	F	G	G	G	G	G	F	F	F	F	F	
Halowax Oil	U	U	U	U	G	G	U	U	U	U	U	U	F	F	
n-Hexaldehyde	U	G	U	U	G	—	F	G	F	U	G	U	F	G	
Hexane	U	F	G	U	G	G	U	U	U	U	F	F	F	G	
n-Hexene-1	U	F	F	U	G	G	U	U	U	U	F	F	U	F	
Hexyl Alcohol	G	F	G	G	G	G	U	U	F	F	G	F	F	G	
Hydraulic Oil (Petroleum)	—	F	G	—	G	G	U	U	U	F	G	G	G	G	
Hydrazine	—	F	F	—	G	—	G	G	U	F	F	F	F	F	
Hydrobromic Acid	U	G	U	G	G	G	G	G	U	U	G	F	U	U	
Hydrochloric Acid (Cold) 37%	F	F	F	F	G	G	G	G	F	F	F	G	U	U	
Hydrochloric Acid (Hot) 37%	U	U	U	U	G	G	U	U	U	F	F	G	U	U	
Hydrocyanic Acid	F	F	F	F	G	G	G	G	—	F	F	G	U	U	
Hydrofluoric Acid (Conc.) Cold	U	G	U	U	G	G	F	F	U	U	F	G	U	U	
Hydrofluoric Acid (Conc.) Hot	U	U	U	U	G	F	U	U	U	U	U	U	U	U	
Hydrofluoric Acid - Anhydrous	U	—	—	—	G	—	F	F	—	U	U	F	U	U	
Hydrofluosilicic Acid	F	F	F	G	G	G	G	G	—	F	G	G	U	U	
Hydrogen Gas	F	G	G	F	G	G	G	G	U	G	G	G	U	U	
Hydrogen Peroxide (90%)	U	—	U	U	G	F	U	U	G	U	U	U	U	U	
Hydrogen Sulfide (Wet) (Cold)	U	G	—	U	G	U	G	G	U	U	F	F	U	U	
Hydrogen Sulfide (Wet) (Hot)	U	F	U	U	G	U	G	G	—	U	F	F	U	U	
Hydroquinone	F	—	U	F	G	U	—	—	—	F	F	F	U	U	
Hypochlorous Acid	F	—	U	F	G	G	F	F	—	U	U	U	U	U	
Iodine Pentafluoride	U	U	U	U	G	U	U	U	U	U	U	U	U	U	
Iodoform	—	—	—	—	G	—	G	G	—	U	U	U	U	U	
Isobutyl Alcohol	F	G	F	G	G	G	G	G	G	G	G	G	G	G	
Isooctane	U	F	G	U	G	G	U	U	U	U	F	U	F	F	
Isophorone	—	—	U	—	G	U	G	G	—	U	U	U	U	U	
Isopropyl Acetate	—	U	U	—	G	U	G	G	—	U	U	U	U	U	
Isopropyl Alcohol	G	G	F	G	G	G	G	G	G	G	G	G	G	G	
Isopropyl Chloride	U	—	U	U	G	G	—	—	—	U	U	U	U	U	
Isopropyl Ether	U	F	F	U	G	U	U	U	—	U	F	U	U	U	
Kerosene	U	U	G	U	G	G	U	U	U	F	G	F	G	G	
Lacquers	U	U	U	U	G	U	U	U	U	U	F	U	G	G	
Lacquer Solvents	U	U	U	U	G	U	U	U	U	U	F	U	G	G	
Lactic Acid	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Lard*	U	U	G	U	G	G	U	U	F	U	G	F	G	G	
Lavender Oil*	U	U	F	U	G	G	U	U	—	U	F	U	F	F	
Lead Acetate	—	F	F	G	G	—	G	G	U	G	G	G	F	F	
Lead Nitrate	G	G	G	G	G	—	G	G	F	G	G	G	F	F	
Lead Sulfamate	F	G	F	F	G	G	G	G	F	F	G	F	F	F	
Lean Oil	U	U	G	U	G	G	U	U	U	F	G	F	G	G	
Lime Bleach	G	F	G	G	G	G	G	G	F	F	G	F	F	F	
Lime Sulfur	U	G	U	U	G	G	G	G	G	F	G	F	F	F	

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RESISTANCE RATINGS G – Good F – Fair U – Unsatisfactory	HOMOGENOUS										Compressed Asbestos w/ Binder		Organic Composition	
	1110	1112	1113	1121	1140	1150	1151	1152	1155	1101, 1102, 1103, 1108	1104	1105	1130, 1134, 1135	1131
SERVICE FLUID														
Lindol	U	U	F	U	G	F	G	G	U	U	U	U	U	U
Linoleic Acid	U	F	G	U	G	G	F	U	U	U	G	U	G	G
Linseed Oil	U	F	G	U	G	G	F	U	U	U	G	U	G	G
Liquified Petroleum Gas	U	F	G	U	G	G	U	U	U	F	G	F	G	G
Lubricating Oils (Petroleum)	U	F	G	U	G	G	U	U	U	F	G	F	G	G
Lye	F	F	F	F	G	F	G	G	F	G	G	G	U	U
Magnesium Chloride	G	G	G	G	G	G	G	G	G	G	G	G	U	F
Magnesium Hydroxide	F	G	F	F	G	G	G	G	U	G	G	G	G	F
Magnesium Sulfate	F	G	G	F	G	G	G	G	G	G	G	G	G	F
Maleic Acid	F	U	U	F	G	G	U	U	U	F	F	F	U	U
Maleic Anhydride	F	U	U	F	G	G	U	U	U	F	F	F	U	U
Malic Acid	F	F	G	U	G	G	U	U	F	F	F	F	U	U
Mercuric Chloride	G	G	G	G	G	G	G	G	U	G	G	G	G	G
Mercury	G	G	G	G	G	G	G	G	U	G	G	G	G	G
Mesityl Oxide	U	U	U	U	G	U	F	F	U	U	U	U	U	U
Methane	U	F	G	U	G	G	U	U	U	F	G	F	U	U
Methyl Acetate	U	F	U	U	G	U	F	U	U	F	F	F	U	U
Methyl Acrylate	F	F	U	F	G	U	F	F	U	F	F	F	U	U
Methyl Acrylic Acid	U	F	U	U	G	F	F	F	U	U	F	U	U	U
Methyl Alcohol	G	G	G	G	G	U	G	G	U	G	G	G	G	G
Methyl Bromide	U	U	F	U	G	G	U	U	U	U	F	U	U	U
Methyl Butyl Ketone	U	U	U	U	G	U	G	G	F	U	U	U	U	U
Methyl Cellosolve	U	F	U	U	G	U	F	F	U	U	U	U	U	U
Methyl Chloride	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Methyl Cyclopentane	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Methyl Ethyl Ketone	U	U	U	U	G	U	G	G	U	U	U	U	U	U
Methyl Formate	U	F	U	U	G	U	F	F	F	U	F	U	U	U
Methyl Isobutyl Ketone	U	U	U	U	G	U	U	U	U	U	U	U	U	U
Methyl Methacrylate	U	U	U	U	G	U	U	U	U	U	U	U	U	U
Methyl Oleate	U	U	U	U	G	G	F	F	U	U	U	U	U	U
Methyl Salicylate	U	U	U	U	G	U	F	F	U	U	U	U	U	U
Methylene Chloride	U	U	U	U	G	F	U	U	U	U	U	U	U	U
Mineral Oil*	U	F	G	U	G	G	U	U	F	F	G	F	G	G
Monochlorobenzene	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Monoethanolamine	F	U	U	F	G	U	F	F	F	F	F	F	U	U
Monomethyl Aniline	U	U	U	U	G	F	U	U	U	U	U	U	U	U
Monoethylether	F	G	G	F	G	U	G	G	U	G	G	G	F	F
Monovinyl Acetylene	F	F	G	F	G	G	G	G	F	G	G	G	U	U
Mustard Gas	U	G	U	G	G	U	G	G	G	G	G	G	F	F
Naptha	U	U	U	U	G	G	U	U	U	U	U	U	F	F
Napthalene	U	U	U	U	G	G	U	U	U	U	U	U	F	F
Napthaenic Acid	U	U	F	U	G	G	U	U	U	U	U	U	U	U
Natural Gas	F	G	G	F	G	G	U	U	G	F	G	F	G	G
Neatsfoot Oil	U	U	G	U	G	G	F	F	F	F	G	F	G	G
Neville Acid	U	F	F	U	G	G	F	F	U	U	F	U	U	U
Nickel Acetate	U	F	F	G	G	U	G	G	U	F	G	F	U	U
Nickel Chloride	G	G	G	G	G	G	G	G	G	G	G	G	F	F
Nickel Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	F	F
Niter Cake	G	G	G	G	G	G	G	G	G	G	G	G	F	F
Nitric Acid - Conc.	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Nitric Acid - Dilute	U	G	U	U	G	G	F	F	F	U	G	G	U	U
Nitric Acid - Red Fuming	U	U	U	U	G	U	U	U	U	U	U	U	U	U
Nitrobenzene	U	U	U	U	G	F	U	U	U	U	U	U	U	U
Nitrobenzine	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Nitroethane	F	U	U	F	G	U	F	F	U	F	F	F	U	U
Nitromethane	F	U	U	F	G	U	F	F	U	F	F	F	U	U
Nitrogen	G	G	G	G	G	G	G	G	G	G	G	G	U	U
Nitrogen Tetroxide	U	U	U	U	G	U	U	U	U	U	U	U	U	U
Octadecane	U	F	G	U	G	G	U	U	U	F	G	F	U	U
n-Octane	U	U	U	U	G	G	U	U	U	U	U	U	U	U

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SERVICE FLUID														
Octachlorotoluene	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Octyl Alcohol	U	G	F	F	G	F	F	G	F	U	U	G	G	G
Oleic Acid	U	U	U	U	G	F	F	F	F	U	U	U	G	G
Oleum Spirits	U	U	F	U	G	G	F	F	U	U	F	U	U	U
Olive Oil*	U	F	G	U	G	G	F	F	U	F	G	G	G	G
o-Dichlorobenzene	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Oxalic Acid	F	F	F	F	G	G	G	G	F	G	G	G	G	F
Oxygen - Cold*	F	F	F	F	G	G	G	G	G	F	F	F	U	U
Oxygen - 200 - 400° F.*	U	U	U	U	G	F	U	U	F	U	U	U	U	U
Ozone	U	F	U	U	G	G	F	G	G	U	F	U	U	U
Paint Thinner, Duco	U	U	U	U	G	G	F	U	U	U	U	U	F	F
Palmitic Acid	F	F	G	F	G	G	F	F	U	G	G	G	F	F
Peanut Oil*	U	F	G	U	G	G	U	U	G	G	G	G	G	G
n-Pentane	U	U	G	U	G	G	U	U	U	U	F	U	F	F
Perchloric Acid	U	G	U	U	G	G	F	F	U	F	G	F	U	U
Perchloroethylene	U	U	U	U	G	G	U	U	F	U	U	U	U	U
Petroleum - Below 250	U	F	F	U	G	G	U	U	F	F	G	G	G	U
Petroleum - Above 250	U	U	U	U	G	F	U	U	U	F	G	G	U	U
Phenol	U	U	U	U	G	G	F	F	U	U	U	U	U	U
Phenylbenzene	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Phenyl Ethyl Ether	U	U	U	U	G	U	U	U	U	U	U	U	U	U
Phenyl Hydrazine	F	U	U	G	G	G	U	U	U	F	F	F	U	U
Phorone	U	F	F	F	G	U	F	F	U	F	G	F	U	U
Phosphoric Acid - 20%	U	U	U	U	G	G	G	G	U	U	U	U	U	U
Phosphoric Acid - 45%	U	F	U	U	G	G	F	F	U	U	U	U	U	U
Phosphorous Trichloride	U	U	U	U	G	G	G	G	U	U	U	U	U	U
Pickling Solution	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Picric Acid	U	F	F	U	G	G	F	F	U	F	G	F	U	U
Pine Oil	U	U	F	U	G	G	U	U	U	F	F	F	U	U
Pinene	U	U	F	U	G	G	U	U	U	U	U	U	U	U
Piperidine	U	U	U	U	G	U	U	U	U	U	U	U	U	U
Plating Solution - Chrome	U	U	U	U	G	G	G	G	U	U	U	U	U	U
Polyvinyl Acetate Emulsion	U	U	U	U	G	G	G	G	U	U	U	U	U	U
Potassium Acetate	U	F	U	U	G	U	G	G	U	U	F	U	U	U
Potassium Carbamate	U	F	F	G	G	U	G	G	U	F	G	F	G	F
Potassium Chloride	G	G	G	G	G	G	G	G	G	G	G	G	G	F
Potassium Cupro Cyanide	G	G	G	G	G	G	G	G	G	G	G	G	G	F
Potassium Cyanide	G	G	G	G	G	G	G	G	G	G	G	G	G	F
Potassium Dichromate	F	G	G	F	G	G	G	G	G	G	G	G	U	U
Potassium Hydroxide	F	G	F	F	G	F	G	G	U	F	G	F	U	U
Potassium Nitrate	G	G	G	G	G	G	G	G	G	G	G	G	G	U
Potassium Sulfate	F	G	G	F	G	G	G	G	G	G	G	G	G	U
Power Oil	U	U	G	U	G	G	U	U	U	F	G	F	F	F
Producer Gas	U	F	G	U	G	G	U	U	F	F	G	F	G	G
Propane	U	G	G	U	G	G	U	U	U	F	G	F	G	G
Propyl Acetate	U	U	U	U	G	U	F	F	U	U	U	U	U	U
n-Propyl Acetate	U	U	U	U	G	U	G	G	U	U	U	U	U	U
Propyl Alcohol	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Propyl Nitrate	U	U	U	U	G	U	F	F	U	U	U	U	U	U
Propylene	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Propylene Oxide	U	U	U	U	G	U	F	F	U	U	U	U	U	U
Pyranol	U	U	G	U	G	G	U	U	F	U	F	U	U	U
Pydrauls	U	U	U	U	G	G	F	F	F	U	U	U	U	U
Pyridine	U	U	U	U	G	U	F	F	U	U	U	U	U	U
Pyroligneous Acid	U	F	U	U	G	U	F	F	U	U	F	U	U	U
Pyrrole	F	F	F	F	G	U	U	U	F	F	F	F	U	U
Radiation	F	F	F	F	G	U	U	U	F	F	F	F	U	U
Rapeseed Oil	U	F	F	U	G	G	G	G	U	F	G	F	G	G
Red Oil	U	F	G	U	G	G	U	U	F	F	G	F	G	G
Sal Ammoniac	G	G	G	G	G	G	G	G	F	G	G	G	G	G

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	1110	1112	1113	1121	1140	1150	1151	1152	1155	1101, 1102, 1103, 1108	1104	1105	1130, 1134, 1135	1131
SERVICE FLUID														
Salicylic Acid	F	—	G	G	G	G	G	G	—	G	G	G	G	G
Salt Water	F	G	G	F	G	G	F	F	F	G	G	G	F	F
Sewage	F	G	G	G	G	G	G	G	—	G	G	G	G	G
Silicate Esters	U	G	F	U	G	G	U	U	U	F	G	G	F	F
Silicone Greases	G	G	G	G	G	G	G	G	U	G	G	G	G	G
Silicone Oils	G	G	G	G	G	G	G	G	U	G	G	G	G	G
Silver Nitrate	G	G	F	G	G	G	G	G	G	G	G	G	G	G
Skydrol 500	U	U	U	U	G	U	F	G	U	U	U	U	U	U
Skydrol 700	U	U	U	U	G	F	G	G	F	U	U	U	U	U
Soap Solutions	F	G	G	F	G	G	G	G	G	G	G	G	G	G
Soda Ash	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Sodium Acetate	U	F	F	G	G	U	G	G	—	F	G	F	F	F
Sodium Bicarbonate	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Sodium Bisulfite	F	G	G	G	G	G	G	G	G	G	G	G	G	F
Sodium Borate	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Sodium Chloride	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Sodium Cyanide	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Sodium Hydroxide	G	G	F	G	G	F	G	G	F	G	G	G	U	U
Sodium Hypochlorite	U	F	F	U	G	G	F	F	F	F	G	F	U	U
Sodium Metaphosphate	G	F	G	G	G	G	G	G	—	G	G	G	G	G
Sodium Nitrate	F	G	F	F	G	—	G	G	U	G	G	G	F	F
Sodium Perborate	F	F	F	F	G	G	G	G	F	G	G	G	G	G
Sodium Peroxide	F	F	F	F	G	G	G	G	U	G	G	G	F	F
Sodium Phosphate	F	G	G	G	G	G	G	G	U	G	G	G	G	G
Sodium Silicate	G	G	G	G	G	G	G	G	—	G	G	G	G	G
Sodium Sulfate	G	F	F	G	G	G	G	G	G	G	G	G	G	G
Sodium Thiosulfate	F	G	F	F	G	G	G	G	G	G	G	G	G	F
Soybean Oil*	U	F	G	U	G	G	U	U	G	F	G	F	G	G
Stannic(ous) Chloride	G	G	G	G	G	G	F	F	F	G	G	G	G	G
Steam Under 300°F.	U	U	U	U	G	U	G	G	U	G	G	G	U	U
Steam Over 300°F.	U	U	U	U	G	—	U	F	U	G	G	G	U	U
Stearic Acid	F	F	F	F	G	G	U	F	U	G	G	G	U	F
Stoddard Solvent	U	U	G	U	G	G	U	U	U	U	U	U	U	F
Styrene	U	U	U	U	G	F	U	U	U	U	U	U	U	U
Sucrose Solution*	G	G	G	G	G	—	G	G	—	G	G	G	U	U
Sulfite Liquors	F	F	F	F	G	G	F	F	U	G	G	G	F	F
Sulfur	U	G	U	U	G	G	G	G	G	F	G	G	F	F
Sulfur Chloride	U	U	U	U	G	G	U	U	—	U	U	U	U	U
Sulfur Dioxide	U	U	U	U	G	G	F	G	G	U	U	U	U	U
Sulfur Hexafluoride	G	G	G	—	G	G	G	G	G	G	G	G	F	F
Sulfur Trioxide	U	U	U	F	G	G	F	F	F	U	U	U	U	U
Sulfuric Acid (Dilute)	U	F	U	U	G	G	F	F	U	U	U	F	U	U
Sulfuric Acid (Concentrated)	U	U	U	U	G	G	F	F	U	U	U	U	U	U
Sulfuric Acid (20% Oleum)	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Sulfurous Acid	F	F	F	F	G	G	F	F	U	F	F	G	U	U
Tannic Acid	F	G	G	G	G	G	G	G	F	G	G	G	G	G
Tar, Bituminous	U	U	F	U	G	G	U	U	F	F	F	F	F	F
Tartaric Acid	F	F	G	G	G	G	F	F	G	G	G	G	G	F
Terpineol	U	U	F	U	G	G	U	U	—	U	U	U	U	U
Tertiary Butyl Alcohol	F	F	F	F	G	G	F	F	F	G	G	G	G	G
Tertiary Butyl Catechol	U	F	U	U	G	G	F	F	—	F	F	F	U	U
Tertiary Butyl Mercaptan	U	U	U	U	G	G	U	U	—	U	U	U	U	U
Tetrabromomethane	U	—	U	U	G	G	U	U	—	U	U	U	U	U
Tetrabutyl Titanate	F	G	F	F	G	G	F	G	—	G	G	G	U	U
Tetrachloroethylene	U	—	U	U	G	G	U	U	—	U	U	U	U	U
Tetraethyl Lead	U	—	—	U	G	G	U	F	—	U	U	U	U	U
Tetrahydrofuran	U	—	—	U	G	G	U	F	—	U	U	U	U	U
Tetralin	U	U	U	U	G	G	U	U	—	U	U	U	U	U
Thionyl Chloride	U	U	—	U	G	G	U	U	—	U	U	U	U	U
Titanium Tetrachloride	U	U	U	U	G	G	U	U	—	U	U	U	U	U

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SERVICE FLUID														
Toluene	U	U	U	U	G	G	U	U	—	U	U	U	G	F
Toluene Diisocyanate	U	F	G	U	G	G	U	U	F	F	G	F	U	G
Transformer Oil	U	F	G	U	G	G	U	U	F	F	G	F	G	G
Transmission Fluid Type A	U	F	F	F	G	U	G	G	—	F	G	F	U	U
Triacetin	U	F	F	F	G	U	G	G	—	F	G	F	U	U
Tributoxy Ethyl Phosphate	F	U	U	F	G	G	G	G	—	F	F	F	U	U
Tributyl Phosphate	U	U	U	F	G	G	G	G	—	U	U	U	U	U
Tributyl Mercaptan	U	U	U	U	G	G	U	U	—	U	U	U	U	U
Trichloroacetic Acid	F	F	F	U	G	U	F	F	—	F	F	F	U	U
Trichloroethane	U	U	U	U	G	G	U	U	U	U	U	U	G	G
Trichloroethylene	U	U	U	U	G	G	U	U	F	U	U	U	G	G
Tricresyl Phosphate	U	U	U	U	G	F	G	G	U	U	U	U	U	U
Triethanol Amine	F	G	U	F	G	U	F	F	—	G	G	G	F	F
Triethyl Aluminum	—	—	—	—	G	F	—	—	—	U	U	U	U	U
Triethyl Borane	—	—	—	—	G	G	—	—	—	U	U	U	U	U
Trinitrotoluene	U	F	U	U	G	F	U	U	—	F	U	F	U	U
Trioctyl Phosphate	U	U	U	U	G	F	G	G	U	U	U	U	U	U
Tung Oil	U	F	G	U	G	G	U	U	—	F	G	F	F	F
Turbine Oil	U	F	F	U	G	G	U	U	—	F	G	F	F	F
Turpentine	U	U	G	U	G	G	U	U	U	F	G	F	G	G
Unsymmetrical Dimethyl Hydrazine (UDMH)	—	F	F	—	G	U	G	G	U	F	G	F	U	U
Urea	—	G	F	U	G	U	G	—	—	G	G	G	F	F
Varnish	U	U	F	U	G	G	U	U	—	U	F	U	F	G
Vegetable Oils*	U	F	G	U	G	G	G	G	G	F	G	F	G	G
Versilube	G	G	G	G	G	G	G	G	U	G	G	G	G	G
Vinegar*	F	G	F	F	G	G	G	G	G	G	G	G	G	G
Vinyl Chloride	—	—	—	—	G	G	—	F	—	U	U	U	U	U
Wagner 21 B Fluid	G	G	U	—	G	U	F	G	U	G	G	G	U	U
Water	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Whiskey, Wines*	G	G	G	G	G	G	G	G	G	G	G	G	G	G
White Oil	U	U	F	U	G	G	U	U	—	U	F	U	G	G
White Pine Oil	U	F	G	U	G	G	U	U	U	F	G	F	G	G
Wood Oil	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Xylene	U	U	U	U	G	G	U	U	U	U	U	U	U	U
Xylidenes	U	U	U	U	G	U	U	U	U	U	U	U	U	U
Zeolites	G	G	G	G	G	G	G	G	—	G	G	G	G	G
Zinc Acetate	U	F	F	G	G	U	G	G	U	F	G	F	F	F
Zinc Chloride	G	G	G	G	G	G	G	G	—	G	G	G	G	G
Zinc Sulfate	F	G	G	F	G	G	G	G	G	G	G	G	G	G

*NOTE: NOT FDA APPROVED

MELTING POINTS OR TEMPERATURES OF FUSION

SOLID	Cent.	Fahr.	SOLID	Cent.	Fahr.
Aluminum	656	1214	Lead	327	620
Brass	1030	1886	Magnesium	750	1382
Bronze	920	1688	Nickel	1435	2615
Chromium	1487	2709	Platinum	1753	3187
Copper	1084	1983	Steel — mild	1475	2687
Iron — cast, gray	1220 to 1530	2228 to 2786	Steel — hard	1420	2588
Iron — cast, white	1050 to 1135	1922 to 2075	Tin	232	449
Iron — wrought	1500 to 1600	2732 to 2912	Zinc	419	786

FRACTIONAL INCHES TO DECIMAL INCHES AND MILLIMETERS

1 INCH = 25.4 MILLIMETERS

1 MILLIMETER = .03937 INCH

FRACTIONS	INCHES	MMS.	FRACTIONS	INCHES	MMS.
1/64	.0156	.397	33/64	.5156	13.097
1/32	.0313	.794	17/32	.5313	13.494
3/64	.0469	1.191	35/64	.5469	13.891
1/16	.0625	1.588	9/16	.5625	14.288
5/64	.0781	1.984	37/64	.5781	14.684
3/32	.0938	2.381	19/32	.5938	15.081
7/64	.1094	2.778	39/64	.6094	15.478
1/8	.1250	3.175	5/8	.6250	15.875
9/64	.1406	3.572	41/64	.6406	16.272
5/32	.1563	3.969	21/32	.6563	16.669
11/64	.1719	4.366	43/64	.6719	17.066
3/16	.1875	4.763	11/16	.6875	17.463
13/64	.2031	5.159	45/64	.7031	17.859
7/32	.2188	5.556	23/32	.7188	18.256
15/64	.2344	5.953	47/64	.7344	18.653
1/4	.2500	6.350	3/4	.7500	19.050
17/64	.2656	6.747	49/64	.7656	19.447
9/32	.2813	7.144	25/32	.7813	19.844
19/64	.2969	7.541	51/64	.7969	20.241
5/16	.3125	7.938	13/16	.8125	20.638
21/64	.3281	8.334	53/64	.8281	21.034
11/32	.3438	8.731	27/32	.8438	21.431
23/64	.3594	9.128	55/64	.8594	21.828
3/8	.3750	9.525	7/8	.8750	22.225
25/64	.3906	9.922	57/64	.8906	22.622
13/32	.4063	10.319	29/32	.9063	23.019
27/64	.4219	10.716	59/64	.9219	23.416
7/16	.4375	11.113	15/16	.9375	23.813
29/64	.4531	11.509	61/64	.9531	24.209
15/32	.4688	11.906	31/32	.9688	24.606
31/64	.4844	12.303	63/64	.9844	25.003
1/2	.5000	12.700	1.000	1.0000	25.400

STEAM PRESSURES AND TEMPERATURES

Gauge Press. Lbs.	Temp. Deg. F.	Gauge Press. Lbs.	Temp. Deg. F.	Gauge Press. Lbs.	Temp. Deg. F.	Gauge Press. Lbs.	Temp. Deg. F.	Gauge Press. Lbs.	Temp. Deg. F.	Gauge Press. Lbs.	Temp. Deg. F.
5	228	80	324	142	362	194	385	247	405	277	415
10	240	85	327	144	363	198	387	249	405	279	415
15	250	90	331	148	365	202	388	251	406	281	416
20	259	95	334	152	367	206	390	253	407	283	416
25	267	100	338	156	368	210	391	255	407	285	417
30	274	106	341	160	370	214	393	257	408	295	420
35	281	110	344	164	372	218	394	259	409	305	423
40	287	116	348	168	374	222	396	261	409	335	437
45	292	120	350	172	376	226	397	263	410	375	442
50	298	124	352	176	378	230	399	265	411	385	444
55	302	128	354	178	378	234	400	267	411	405	449
60	307	130	355	180	379	237	401	269	412	455	460
65	312	134	357	182	380	239	402	271	413	510	472
70	316	138	359	186	382	241	403	273	413	560	481
75	320	140	361	190	384	245	405	275	414	585	486

TEMPERATURE CONVERSION CHART

°C	°F	°C	°F	°C	°F	°C	°F
-273	-459.4	190	+374	740	+1364	1880	+3416
-260	-436	200	+392	750	+1382	1900	+3452
-240	-400	204	+400	760	+1400	1920	+3488
-220	-364	210	+410	780	+1436	1940	+3524
-200	-328	220	+428	800	+1472	1960	+3560
-180	-292	230	+446	820	+1508	1980	+3596
-160	-256	232	+450	840	+1544	2000	+3632
-140	-220	240	+464	860	+1580	2020	+3668
-120	-184	250	+482	880	+1616	2040	+3704
-100	-148	260	+500	900	+1652	2060	+3740
-90	-130	270	+518	920	+1688	2080	+3776
-80	-112	280	+536	940	+1724	2100	+3812
-70	-94	290	+554	960	+1760	2120	+3848
-57	-70	300	+572	980	+1796	2140	+3884
-55	-67	310	+590	1000	+1832	2160	+3920
-54	-65	316	+600	1020	+1868	2180	+3956
-40	-40	320	+608	1040	+1904	2200	+3992
-34	-30	330	+626	1060	+1940	2220	+4028
-30	-22	340	+644	1080	+1976	2240	+4064
-29	-20	350	+662	1100	+2012	2260	+4100
-20	-4	360	+680	1120	+2048	2280	+4136
-10	+14	370	+698	1140	+2084	2300	+4172
0	+32	380	+716	1160	+2120	2320	+4208
1	+33.8	390	+734	1180	+2156	2340	+4244
5	+41.0	400	+752	1200	+2192	2360	+4280
10	+50.0	410	+770	1220	+2228	2380	+4316
15	+59.0	420	+788	1240	+2264	2400	+4352
20	+68.0	430	+806	1260	+2300	2420	+4388
23	+73.4	440	+824	1280	+2336	2440	+4424
25	+77.0	450	+842	1300	+2372	2460	+4460
30	+86.0	460	+860	1320	+2408	2480	+4496
35	+95.0	470	+878	1340	+2444	2500	+4532
40	+104.0	480	+896	1360	+2480	2520	+4568
45	+113.0	490	+914	1380	+2516	2540	+4604
50	+122.0	500	+932	1400	+2552	2560	+4640
55	+131.0	510	+950	1420	+2588	2580	+4676
60	+140.0	520	+968	1440	+2624	2600	+4712
65	+149.0	530	+986	1460	+2660	2620	+4748
70	+158.0	540	+1004	1480	+2696	2640	+4784
75	+167.0	550	+1022	1500	+2732	2660	+4820
80	+176.0	560	+1040	1520	+2768	2680	+4856
82	+180.0	570	+1058	1540	+2804	2700	+4892
85	+185.0	580	+1076	1560	+2840	2720	+4928
90	+194.0	590	+1094	1580	+2876	2740	+4964
95	+203.0	600	+1112	1600	+2912	2760	+5000
100	+212.0	610	+1130	1620	+2948	2780	+5036
107	+225.0	620	+1148	1640	+2984	2800	+5072
110	+230.0	630	+1166	1660	+3020	2820	+5108
120	+248.0	640	+1184	1680	+3056	2840	+5144
121	+250.0	650	+1202	1700	+3092	2860	+5180
130	+266.0	660	+1220	1720	+3128	2880	+5216
135	+275.0	670	+1238	1740	+3164	2900	+5252
140	+284.0	680	+1256	1760	+3200	2920	+5288
149	+300.0	690	+1274	1780	+3236	2940	+5324
150	+302.0	700	+1292	1800	+3272	2960	+5360
160	+320.0	710	+1310	1820	+3308	2980	+5396
170	+338.0	720	+1328	1840	+3344	3000	+5432
180	+356	730	+1346	1860	+3380		

General formula: °F = (°C X 9/5) + 32 ; °C = (°F - 32) X 5/9

USEFUL CONVERSIONS

TO CONVERT FROM	TO	MULTIPLY BY
Atmospheres	Millimeters of mercury at 32°F	760
Atmospheres	Feet of water at 39.1°F	33.90
Atmospheres	Inches of mercury at 32°F	29.921
Atmospheres	Pounds per square inch	14.696
Atmospheres	Pounds per square feet	2116.3
Bags (cement)	Pounds (cement)	94
Barrels (cement)	Pounds (cement)	376
Barrels (oil)	Gallons	42
Barrels (U. S. liquid)	Cubic meters	0.11924
Barrels (U. S. liquid)	Gallons	31.5
Barrels per day	Gallons per minute	0.02917
Boiler horsepower	Btu per hour	33,480
Boiler horsepower	Kilowatts	9.803
Btu	Kilowatt-hours	2.930×10^{-4}
Btu per minute	Horsepower	0.02357
Circular mills	Square centimeters	5.067×10^{-6}
Circular mills	Square inches	7.854×10^{-7}
Circular mills	Square mils	0.7854
Cubic feet	Cubic yards	0.03704
Cubic feet	Gallons	7.481
Cubic feet — atmospheres	Foot-pounds	2116.3
Cubic feet of water (60°F)	Pounds	62.37
Cubic feet per minute	Gallons per second	0.1247
Cubic feet per minute	Gallons per minute	448.8
Feet per minute	Miles per hour	0.011364
Foot pounds	Btu	0.0012856
Foot pounds	Horsepower-hours	5.051×10^{-7}
Foot pounds	Kilowatt-hours	3.766×10^{-7}
Foot pounds per second	Horsepower	0.0018182
Foot pounds per second	Kilowatts	0.0013558
Gallons	Barrels (U. S. liquid)	0.03175
Gallons	Cubic feet	0.13368
Gallons	Ounces (U. S. fluid)	128
Gallons per minute	Cubic feet per hour	8.021
Gallons per minute	Cubic feet per second	0.002228
Horsepower (British)	Btu per minute	42.42
Horsepower (British)	Btu per hour	2545
Horsepower (British)	Foot-pounds per minute	33,000
Horsepower (British)	Foot-pounds per second	550
Joules (absolute)	Btu (mean)	9.480×10^{-4}
Joules (absolute)	Foot-pounds	0.7376
Joules (absolute)	Kilowatt-hours	2.7778×10^{-7}
Kilowatt-hours	Btu	3414
Kilowatt-hours	Foot-pounds	2.6552×10^6
Kilowatts	Horsepower	1.3410
Microns	Angstrom units	1×10^4
Miles	Feet	5280
Miles per hour	Feet per second	1.4667
Mils	Inches	0.001
Pounds per square foot	Atmospheres	4.725×10^{-4}
Pounds per square inch	Atmospheres	0.06805
Tons (long)	Pounds	2240
Tons (short)	Pounds	2000

METRIC CONVERSIONS

TO CONVERT FROM	TO	MULTIPLY BY
Angstrom Units	Centimeters	1×10^{-8}
Atmospheres	Millimeters of mercury at 32° F	760
Atmospheres	Dynes per square centimeter	1.0133×10^6
Atmospheres	Grams per square centimeter	1033.3
Barrels (U. S. liquid)	Cubic meters	0.11924
Btu	Calories (gram)	252
Btu (60° F) per degree Fahrenheit	Calories per degree centigrade	453.6
Calories, gram	Btu	3.968×10^{-3}
Calories, gram	Foot-pounds	3.087
Calories, gram	Joules	4.185
Calories, kilogram	Kilowatt-hours	0.0011626
Centimeters	Angstrom units	1×10^8
Centimeters	Feet	0.03281
Centimeters	Inches	0.3937
Centimeters	Microns	10,000
Centimeters of mercury at 0° C	Atmospheres	0.013158
Centimeters of mercury at 0° C	Feet of water at 39.1° F	0.4460
Centimeters of mercury at 0° C	Pounds per square foot	27.845
Centimeters of mercury at 0° C	Pounds per square inch	0.19337
Centimeters per second	Feet per minute	1.9685
Cubic centimeters	Cubic feet	3.532×10^{-5}
Cubic centimeters	Gallons	2.6417×10^{-4}
Cubic centimeters	Ounces (U. S. fluid)	0.03381
Cubic centimeters	Quarts (U. S. fluid)	0.0010567
Cubic feet	Cubic centimeters	28316.0
Cubic feet	Cubic meters	0.028317
Cubic feet	Liters	28.316
Cubic feet per minute	Cubic centimeters per second	472.0
Feet	Centimeters	30.48
Feet per minute	Centimeters per second	0.5080
Foot pounds	Calories, gram	0.3239
Gallons	Cubic centimeters	3785
Gallons	Liters	3.785
Grams	Pounds (avoir du pois)	0.0022046
Grams	Pounds (troy)	0.002679
Grams per cubic centimeter	Pounds per gallon	8.345
Grams per liter	Pounds per cubic foot	0.0624
Grams per square centimeter	Pounds per square foot	2.0482
Grams per square centimeter	Pounds per square inch	0.014223
Joules (absolute)	Calories, gram (mean)	0.2389
Kilograms per square centimeter	Pounds per square inch	14.223
Liters	Cubic feet	0.03532
Liters	Gallons	0.26418
Microns	Centimeters	1×10^{-4}
Miles per hour	Centimeters per second	44.70
Millimeters	Cubic centimeters	1.000027
Mils	Centimeters	0.00254
Pounds (avoir du pois)	Grams	453.59
Pounds per square foot	Kilograms per square meter	4.882
Pounds per square inch	Kilograms per square centimeter	0.07031
Pounds per cubic foot	Grams per cubic centimeter	0.016018
Square feet	Square centimeters	929.0
Square inches	Square centimeters	6.452
Tons (metric)	Tons (short)	2240
Tons per square inch	Kilograms per square millimeter	1.5479
Tons (metric)	Pounds	2204.6

CIRCUMFERENCES AND AREAS OF CIRCLES

Diam.	Circ.	Area	Diam.	Circ.	Area	Diam.	Circ.	Area	Diam.	Circ.	Area	Diam.	Circ.	Area	Diam.	Circ.	Area
1/32	.0981	.00076	7	21.90	38.484	15	47.12	176.71	23	72.25	415.47	31	97.38	754.76	39	122.5	1194.5
1/16	.1963	.00306	1/8	22.38	39.871	1/8	47.51	179.67	1/8	72.64	420.00	1/8	97.78	760.86	1/8	122.9	1202.2
1/8	.3926	.01227	1/4	22.77	41.282	1/4	47.90	182.72	1/4	73.04	424.55	1/4	98.17	766.99	1/4	123.3	1209.9
3/16	.5890	.02761	3/8	23.16	42.718	3/8	48.30	185.66	3/8	73.43	429.13	3/8	98.56	773.14	3/8	123.7	1217.6
1/4	.7854	.04908	1/2	23.56	44.178	1/2	48.69	188.69	1/2	73.82	433.73	1/2	98.96	779.31	1/2	124.0	1225.4
5/16	.9817	.07669	5/8	23.95	45.663	5/8	49.08	191.74	5/8	74.21	438.30	5/8	99.35	785.51	5/8	124.4	1233.1
3/8	1.178	.1104	3/4	24.34	47.173	3/4	49.48	194.82	3/4	74.61	443.01	3/4	99.74	791.73	3/4	124.8	1240.9
7/16	1.374	.1503	7/8	24.74	48.707	7/8	49.87	197.73	7/8	75.00	447.69	7/8	100.1	797.97	7/8	125.2	1248.7
1/2	1.570	.1963	8	25.13	50.265	16	50.26	201.06	24	75.39	452.39	32	100.5	804.24	40	125.6	1256.6
9/16	1.767	.2485	1/8	25.52	51.848	1/8	50.65	204.21	1/8	75.79	457.11	1/8	100.9	810.45	1/8	126.0	1264.5
5/8	1.963	.3097	1/4	25.91	53.456	1/4	51.05	207.39	1/4	76.18	461.86	1/4	101.3	816.86	1/4	126.4	1272.3
11/16	2.159	.3712	3/8	26.31	55.088	3/8	51.44	210.59	3/8	76.57	466.63	3/8	101.7	823.21	3/8	126.8	1280.3
3/4	2.356	.4417	1/2	26.70	56.745	1/2	51.83	213.82	1/2	76.96	471.43	1/2	102.1	829.57	1/2	127.2	1288.2
13/16	2.552	.5184	5/8	27.09	58.426	5/8	52.22	217.07	5/8	77.36	476.25	5/8	102.4	835.97	5/8	127.6	1291.2
7/8	2.748	.6013	3/4	27.47	60.132	3/4	52.62	220.35	3/4	77.75	481.10	3/4	102.8	842.39	3/4	128.0	1304.2
15/16	2.945	.6902	7/8	27.88	61.862	7/8	53.01	223.65	7/8	78.14	485.97	7/8	103.2	848.83	7/8	128.4	1312.2
1	3.141	.7854	9	28.27	63.617	17	53.40	226.98	25	78.54	490.87	33	103.6	855.30	41	128.8	1320.2
1/8	3.534	.9940	1/8	28.66	65.396	1/8	53.79	230.33	1/8	78.93	495.79	1/8	104.0	861.79	1/8	129.1	1328.3
1/4	3.927	1.227	1/4	29.05	67.200	1/4	54.19	233.70	1/4	79.32	500.74	1/4	104.4	868.30	1/4	129.5	1336.4
3/8	4.319	1.484	3/8	29.45	69.029	3/8	54.58	237.10	3/8	79.71	505.71	3/8	104.8	874.88	3/8	129.9	1344.5
1/2	4.712	1.767	1/2	29.84	70.882	1/2	54.97	240.52	1/2	80.10	510.70	1/2	105.2	881.41	1/2	130.3	1352.6
5/8	5.105	2.073	5/8	30.23	72.759	5/8	55.37	243.97	5/8	80.50	515.72	5/8	105.6	888.00	5/8	130.7	1360.8
3/4	5.497	2.405	3/4	30.63	74.662	3/4	55.76	247.45	3/4	80.89	520.70	3/4	106.0	894.61	3/4	131.1	1369.0
7/8	5.890	2.761	7/8	31.02	76.588	7/8	56.16	250.94	7/8	81.28	525.83	7/8	106.4	901.25	7/8	131.5	1377.2
2	6.283	3.141	10	31.41	78.539	18	56.54	254.46	26	81.68	530.93	34	106.8	907.92	42	131.9	1385.4
1/8	6.675	3.546	1/8	31.80	80.515	1/8	56.94	258.01	1/8	82.07	536.04	1/8	107.2	914.61	1/8	132.3	1393.7
1/4	7.068	3.976	1/4	32.20	82.516	1/4	57.33	261.58	1/4	82.46	541.18	1/4	107.5	921.32	1/4	132.7	1401.9
3/8	7.461	4.430	3/8	32.59	84.540	3/8	57.72	265.18	3/8	82.85	546.35	3/8	107.9	928.06	3/8	133.1	1410.2
1/2	7.854	4.908	1/2	32.98	86.590	1/2	58.11	268.80	1/2	83.25	551.54	1/2	108.3	934.82	1/2	133.5	1418.6
5/8	8.246	5.411	5/8	33.37	88.664	5/8	58.51	272.44	5/8	83.64	556.76	5/8	108.7	941.60	5/8	133.9	1426.9
3/4	8.639	5.939	3/4	33.77	90.762	3/4	58.90	276.11	3/4	84.03	562.00	3/4	109.1	948.41	3/4	134.3	1435.3
7/8	9.032	6.491	7/8	34.16	92.885	7/8	59.29	279.81	7/8	84.43	567.26	7/8	109.5	955.25	7/8	134.6	1443.7
3	9.424	7.068	11	34.55	95.033	19	59.69	283.52	27	84.82	572.55	35	109.9	962.11	43	135.0	1452.2
1/8	9.817	7.669	1/8	34.95	97.205	1/8	60.08	287.27	1/8	85.21	577.87	1/8	110.3	968.99	1/8	135.4	1460.6
1/4	10.21	8.295	1/4	35.34	99.402	1/4	60.47	291.03	1/4	85.60	583.20	1/4	110.7	975.90	1/4	135.8	1469.1
3/8	10.60	8.946	3/8	35.73	101.62	3/8	60.86	294.83	3/8	86.00	588.57	3/8	111.1	982.84	3/8	136.2	1477.6
1/2	10.99	9.621	1/2	36.12	103.86	1/2	61.26	298.64	1/2	86.39	593.95	1/2	111.5	989.80	1/2	136.6	1486.1
5/8	11.38	10.320	5/8	36.52	106.13	5/8	61.65	302.48	5/8	86.78	599.37	5/8	111.9	996.78	5/8	137.0	1494.7
3/4	11.78	11.044	3/4	36.91	108.43	3/4	62.04	306.35	3/4	87.17	604.80	3/4	112.3	1003.7	3/4	137.4	1503.3
7/8	12.17	11.793	7/8	37.30	110.75	7/8	62.43	310.24	7/8	87.57	610.26	7/8	112.7	1010.8	7/8	137.8	1511.9
4	12.65	12.566	12	37.69	113.00	20	62.83	314.16	28	87.96	615.75	36	113.0	1017.8	44	138.2	1520.5
1/8	12.95	13.364	1/8	38.09	115.46	1/8	63.22	318.09	1/8	88.35	621.26	1/8	113.4	1024.9	1/8	138.6	1529.1
1/4	13.35	14.186	1/4	38.48	117.85	1/4	63.61	322.06	1/4	88.75	626.79	1/4	113.8	1032.0	1/4	139.0	1537.8
3/8	13.74	15.033	3/8	38.87	120.27	3/8	64.01	326.05	3/8	89.14	632.35	3/8	114.2	1039.1	3/8	139.4	1546.5
1/2	14.13	15.904	1/2	39.27	122.71	1/2	64.40	330.06	1/2	89.53	637.94	1/2	114.6	1046.3	1/2	139.8	1555.2
5/8	14.52	16.800	5/8	39.66	125.18	5/8	64.79	334.10	5/8	89.92	643.54	5/8	115.0	1053.5	5/8	140.1	1564.0
3/4	14.92	17.720	3/4	40.05	127.67	3/4	65.18	338.16	3/4	90.32	649.18	3/4	115.4	1060.7	3/4	140.5	1572.8
7/8	15.31	18.665	7/8	40.44	130.19	7/8	65.58	342.25	7/8	90.71	654.83	7/8	115.8	1067.9	7/8	140.9	1581.6
5	15.70	19.635	13	40.84	132.73	21	65.97	346.36	29	91.10	660.52	37	116.2	1075.2	45	141.3	1590.4
1/8	16.10	20.629	1/8	41.23	135.29	1/8	66.36	350.49	1/8	91.49	666.22	1/8	116.6	1082.4	1/8	141.7	1599.2
1/4	16.49	21.647	1/4	41.62	137.88	1/4	66.75	354.65	1/4	91.89	671.95	1/4	117.0	1089.7	1/4	142.1	1608.1
3/8	16.88	22.690	3/8	42.01	140.50	3/8	67.15	358.84	3/8	92.28	677.71	3/8	117.4	1097.1	3/8	142.5	1617.0
1/2	17.27	23.758	1/2	42.41	143.13	1/2	67.54	363.05	1/2	92.67	683.49	1/2	117.8	1104.4	1/2	142.9	1625.9
5/8	17.67	24.850	5/8	42.80	145.80	5/8	67.93	367.28	5/8	93.06	689.29	5/8	118.2	1111.8	5/8	143.3	1634.9
3/4	18.06	25.967	3/4	43.19	148.48	3/4	68.32	371.54	3/4	93.46	695.12	3/4	118.6	1119.2	3/4	143.7	1643.8
7/8	18.45	27.108	7/8	43.58	151.20	7/8	68.72	375.82	7/8	93.85	700.98	7/8	118.9	1126.6	7/8	144.1	1652.8
6	18.84	28.274	14	43.98	153.93	22	69.11	380.13	30	94.24	706.86	38	119.3	1134.1	46	144.5	1661.9
1/8	19.24	29.464	1/8	44.37	156.69	1/8	69.50	384.46	1/8	94.64	712.76	1/8	119.7	1141.5	1/8	144.9	1670.9
1/4	19.63	30.679	1/4	44.76	159.48	1/4	69.90	388.82	1/4	95.03	718.69	1/4	120.1	1149.0	1/4	145.2	1680.0
3/8	20.02	31.919	3/8	45.16	162.29	3/8	70.29	393.20	3/8	95.42	724.64	3/8	120.5	1156.6	3/8	145.6	1689.1
1/2	20.42	33.183	1/2	45.55	165.13	1/2	70.68	397.60	1/2	95.81	730.61	1/2	120.9	1164.1	1/2	146.0	1698.2
5/8	20.81	34.471	5/8	45.94	167.98	5/8	71.07	402.03	5/8	96.21	736.61	5/8	121.3	1171.7	5/8	146.4	1707.3
3/4	21.20	35.784	3/4	46.33	170.87	3/4	71.47	406.49	3/4	96.60	742.64	3/4	121.7	1179.3	3/4	146.8	1716.5
7/8	21.57	37.122	7/8	46.73	173.78	7/8	71.86	410.97	7/8	96.99	748.69	7/8	122.1	1186.9	7/8	147.2	1725.7

