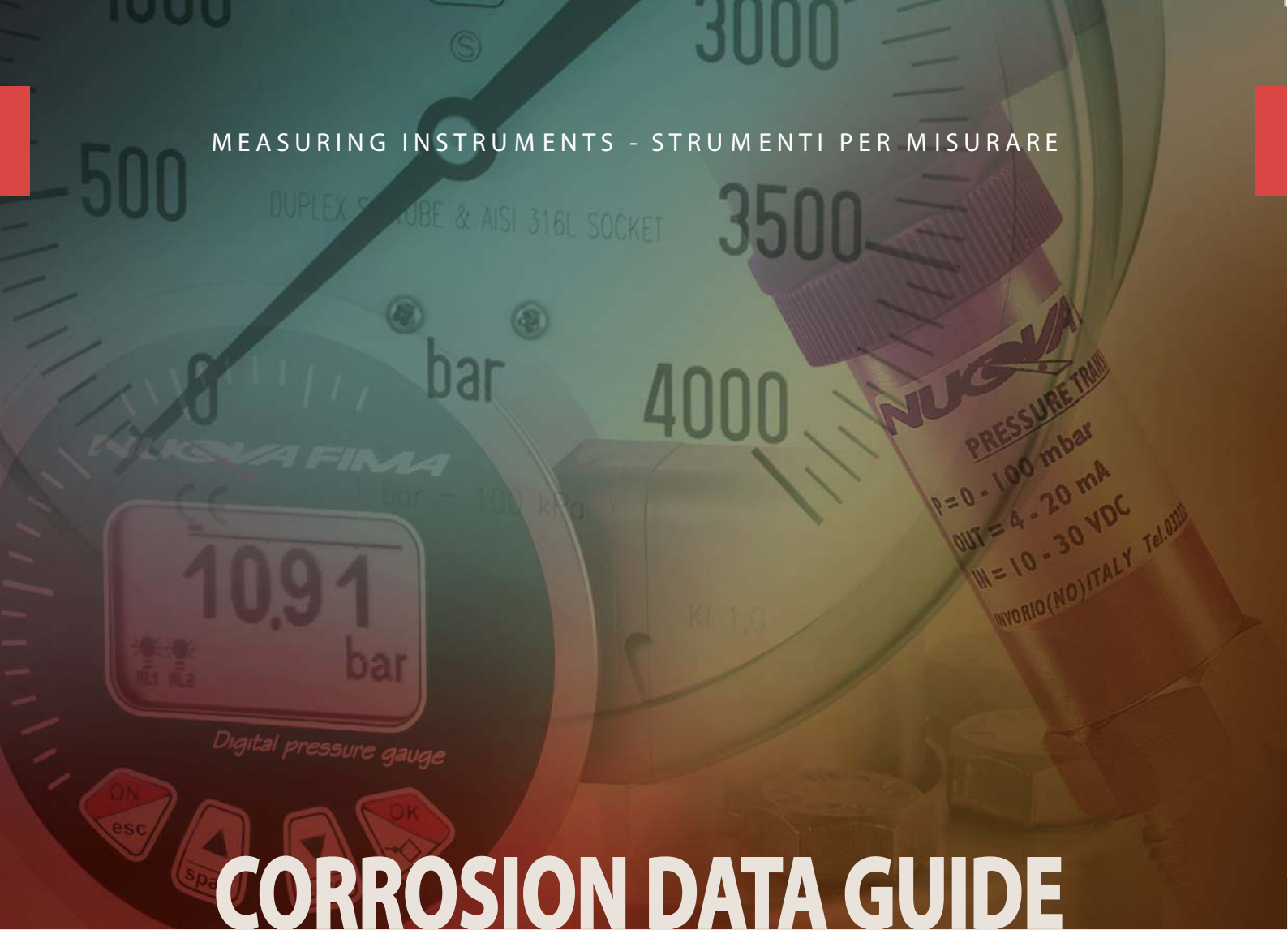


MEASURING INSTRUMENTS - STRUMENTI PER MISURARE



# CORROSION DATA GUIDE

**NUOVA FIMA**



## CORROSION DATA GUIDE

This guide was developed from general corrosion literature, standard references and field experiences.

Recommendations for corrosive service are given to assist the user in making the appropriate material choices for an application. This table must be regarded as indicative only and not as any guarantee for a specific service.

Any material will behave differently under the influence of such variables as pressure, temperature, flow rate, mixtures, concentrations and aeration of fluids, etc. For that reason the end user is responsible to choice of appropriate material in his own application. Nuova Fima S.p.A. cannot guarantee that a material is suited to a particular application and cannot accept responsibility for any problems caused from use of this data guide.

Nuova Fima S.p.A. remember moreover, that careless use of this document could be dangerous for people life and properties.

LEGEND		
A = Recommended	Best service life	Attack < 0,05 mm/year
B = Suitable	Good service life	Attack 0,05...0,5 mm/year
C = Not recommended	Fair service life	Attack 0,5...1,27 mm/year
D = Unsuitable	No service life	Attack > 1,27 mm/year
(*) The symbol ● in this column indicated that Fluorolube is a liquid fill for gauges and diaphragm seals required for use with oxidizing substances		

CORROSIVE SUBSTANCE	TEMP. °C	TEMP. °F	CONCENTRATION	C.STEEL	AISI 304 ST.ST.	AISI 316 ST.ST.	BRONZE	BRASS	MONEL 400	NICKEL	HASTELLOY B	HASELLOY C276	TANTALUM	PVC	HALAR	TEFLON	VITON	Fluorolube (*)
Acetic Acid	200	93	All	D	C	B	C	D	C	D	C	A	A	C	A	A	C	
Acetic Anhydride	175	79	All	D	D	B	D	D	C	C	B	A	A	D	A	A	C	
Acetone	100	38	All	B	B	B	A	A	A	A	A	A	A	D	A	A	C	
Acetylene, Dry	400	204	100	A	A	A	D	D	B	B	A	A	A	A	A	A	A	
Alcohols	212	100	All	B	B	A	A	A	A	A	A	A	A	A	A	A	A	
Alkali Cleaners	212	100	All	C	B	A	B	D	A	A	A	B	B	A	A	A	A	
Aluminium Chloride	212	100	All	D	D	D	D	D	D	D	A	B	A	A	A	A	A	
Aluminium Hydroxide	212	100	All	B	B	B	B	B	B	B	C	B	A	A	A	A	B	
Aluminium Sulphate	212	100	All	D	D	A	C	D	D	D	A	A	A	A	A	A	A	
Amil Acetate	250	121	All	B	B	A	A	A	A	A	A	A	A	D	C	A	C	
Ammonium Chloride	212	100	<40	D	D	C	C	D	B	B	B	A	A	A	A	A	A	
Ammonium, Dry	600	316	100	A	A	A	D	D	A	A	A	A	C	A	A	A	C	
Ammonium Hydroxide	212	100	All	B	B	B	D	D	D	D	B	B	D	A	A	A	B	
Ammonium Nitrate	212	100	All	D	C	B	D	D	D	D	C	B	A	A	A	A	C	•
Ammonium Sulphate	212	100	<50	D	D	B	C	D	B	B	C	B	A	A	A	A	C	
Aniline	250	121	100	A	A	A	D	D	B	B	B	B	A	D	C	A	C	
Argon	300	149	100	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Asphalt	250	121		B	B	A	B	B	A	A	B	A	A	B	A	A	A	
Atmosphere, Ind. & Marine	-			B	A	A	A	B	A	A	A	A	A	A	A	A	A	
Atmosphere, Rural				B	A	A	A	A	A	A	A	A	A	A	A	A	A	
Bauxite & Water	212	100	All	B	B	A	B	B	B	B	B	B	A	A	A	A	A	
Benzene	212	100	All	B	B	B	A	B	A	A	B	B	A	C	C	A	B	
Benzidine				B	B	B	B	B	B	B	B	B	A	C	A	A	B	
Benzoic Acid				D	D	B	C	C	B	B	A	A	A	A	A	A	A	
Bier	70	21		C	C	A	A	B	A	A	A	A	A	A	A	A	A	
Borax (sodium borate)	212	100	<50	B	B	C	A	A	A	A	A	B	A	A	A	A	A	
Boric Acid	212	100	All	D	D	B	B	B	B	B	A	A	A	A	A	A	A	
Bromine, Dry	125	52	100	D	D	D	D	D	A	A	A	A	A	D	A	A	A	
Bromobenzene	212	100	100	C	B	B	B	B	B	B	B	B	A	C	B	A	B	
Butane	212	100		A	A	A	A	A	A	A	A	A	A	B	A	A	A	
Butyl Alcohol	212	100		B	A	A	A	A	A	A	A	A	A	A	A	A	A	
Butyric Acid	212	100	All	D	C	B	C	D	B	C	B	A	A	C	A	A	C	
Calcium Bisulphite	212	100	All	D	C	B	D	D	D	D	D	C	A	A	A	A	A	
Calcium Chloride	212	100	All	C	C	C	B	C	B	A	B	A	A	A	A	A	A	
Calcium Hydroxide	212	100	10	B	B	B	B	B	B	B	B	A	C	A	A	A	A	
Calcium Hypochlorite	212	100	All	D	D	D	C	C	D	D	C	B	A	A	A	A	B	•
Carbon Dioxide, Dry	100	38		A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Carbon Sulphide	125	52		B	B	A	B	A	B	B	A	A	A	D	A	A	A	
Carbon Tetrachloride, Dry	212	100	100	C	A	A	A	C	A	A	D	B	A	D	C	A	A	
Carbon Tetrachloride, Moist	212	100		D	D	C	D	D	A	A	D	B	A	D	C	A	A	
Carbonated Water	212	100	All	D	A	B	B	D	C	C	A	A	A	A	A	A	A	
Carbonic Oxide	300	149		A	A	A	A	B	A	A	A	A	A	A	A	A	A	
Caustic Potassium	212	100	<50	D	B	B	D	D	A	A	B	C	D	A	A	A	C	
Caustic Soda	212	100	All	C	C	C	D	D	B	B	B	C	D	A	A	A	C	
Caustic Soda	212	100	<40	C	B	A	B	D	A	A	A	B	D	A	A	A	C	
Cement Slurry	212	100	All	B	A	A	B	B	B	B	B	B	C	A	A	A	C	

CORROSIVE SUBSTANCE	TEMP. °C	TEMP. °F	CONCENTRATION	C.STEEL	AISI 304 ST.ST.	AISI 316 ST.ST.	BRONZE	BRASS	MONEL 400	NICKEL	HASTELLOY B	HASELLOY C276	TANTALUM	PVC	HALAR	TEFLON	VITON	Fluorolube (*)
Chloride	500	260		B	A	A	D	D	B	C	B	A	A	A	A	A	C	
Chlorine Dioxide	150	66		D	D	D	D	D	D	D	B	B	A	D	B	A	B	
Chlorine, Dry	200	93	100	B	B	C	B	C	B	B	C	A	A	C	A	A	A	•
Chlorine, Moist	200	93	All	D	D	D	D	D	D	D	D	A	A	C	A	A	A	•
Chloroacetic Acid	212	100	All	D	D	D	D	D	C	C	B	A	A	C	A	A	C	
Chlorobenzene	150	66	100	C	B	B	B	C	B	B	B	B	A	D	B	A	A	
Chloroform, Dry	150	66	100	A	B	C	B	B	A	A	B	B	A	C	B	A	A	
Chromic Acid	212	100	All	C	D	D	D	D	D	D	D	D	A	C	A	A	A	
Chromium Plating Solution	212	100	All	C	D	D	D	D	D	D	D	D	A	C	A	A	A	
Citric Acid	212	100	All	D	C	A	C	D	C	C	A	A	A	A	A	A	A	
Coffee	212	100	All	D	B	A	A	C	B	B	B	A	A	A	A	A	A	
Copper Chloride	212	100	All	D	D	D	C	D	D	D	D	D	A	A	A	A	A	
Copper Nitrate	212	100	All	D	B	B	D	D	D	D	D	D	A	A	A	A	A	•
Copper Plating (Acid)	212	100	All	D	C	B	D	D	B	B	C	C	A	A	A	A	A	
Copper Plating (cyanide)	212	100	All	B	A	A	D	D	B	B	B	A	A	A	A	A	A	
Copper Sulphate	212	100	<40	D	C	B	C	D	D	D	C	A	A	A	A	A	A	
Corn Oil	500	260	All	D	B	A	A	C	B	B	A	A	A	A	A	A	A	
Creosol	212	100	All	B	A	A	B	C	B	B	B	A	A	D	A	A	A	
Creosote	212	100		B	B	B	B	C	B	B	B	A	A	D	A	A	A	
Crude Oil	300	149	All	B	B	B	B	C	A	B	B	C	A	B	A	A	A	
Ethanol	212	100	All	B	A	A	A	A	A	A	B	A	A	A	A	A	A	
Ethyl Acetate	212	100	100	D	B	B	B	B	B	C	C	B	A	D	C	A	C	
Ethyl Chloride, Dry	212	100		B	C	A	A	A	B	A	B	B	A	D	A	A	A	
Ethylene Glycol	212	100	All	C	B	B	B	B	B	B	A	A	A	A	A	A	A	
Ethylene Oxide	75	24	100	B	A	B	D	D	B	B	A	A	A	C	B	A	C	
Fatty Acids	500	260	100	D	C	A	C	C	B	A	A	A	A	A	A	A	A	
Ferric Chloride	150	66	<50	D	D	D	D	D	D	D	D	B	A	A	A	A	A	
Ferric Sulphate	150	66	10	D	B	A	D	D	D	B	B	A	A	A	A	A	A	
Ferrous Chloride	212	100	<50	D	D	D	C	D	D	D	B	B	A	A	A	A	A	
Ferrous Sulphate	212	100	All	D	C	B	C	D	C	D	B	B	A	A	A	A	A	
Fluorine, Gas	300	149	100	D	A	A	C	C	A	A	C	B	D	B	A	A	C	
Fluorine, Liquid	75	24	100	D	A	A	B	C	A	A	C	B	C	B	B	A	C	
Fluorosilicic Acid	75	24	10	D	B	B	C	C	A	B	B	A	C	A	A	A	B	
Formaldehyde	212	100	<50	D	B	A	B	B	B	B	B	A	A	B	B	A	B	
Formic Acid	212	100	All	D	B	D	B	C	B	B	A	A	A	B	A	A	A	
Gasoline	200	93		A	A	A	A	A	C	A	A	A	A	B	A	A	A	
Glucose	300	149	All	B	A	A	A	A	A	A	A	A	A	A	A	A	A	
Glue	300	149	All	C	A	A	A	B	A	A	A	A	A	A	A	A	A	
Glycerine	212	100	All	B	A	A	B	B	A	A	A	A	A	A	A	A	A	
Hexane, Dry	212	100		A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Hydrobromic Acid	212	100	All	D	D	D	D	D	D	D	B	D	A	B	A	A	A	
Hydrochloridric Acid	212	100	All	D	D	D	D	D	D	D	B	C	A	B	A	A	A	
Hydrofluoric Acid	212	100	All	D	D	D	C	D	B	D	B	B	D	C	A	A	C	
Hydrogen	500	260		B	A	A	A	A	A	A	A	A	A	A	A	A	A	
Hydrogen Chloride	400	204		D	C	C	D	D	A	A	A	A	A	A	A	A	A	
Hydrogen Fluoride, Dry	200	93	100	C	B	B	C	C	B	B	C	B	C	A	A	A	C	

CORROSIVE SUBSTANCE	TEMP. °C	TEMP. °F	CONCENTRATION	C.STEEL	AISI 304 ST.ST.	AISI 316 ST.ST.	BRONZE	BRASS	MONEL 400	NICKEL	HASTELLOY B	HASELLOY C276	TANTALUM	PVC	HALAR	TEFLON	VITON	Fluorolube (*)
Hydrogen Peroxide	212	100	30	D	C	B	D	D	C	C	C	C	A	A	A	A	A	•
Hydrogen Peroxide	212	100	100	D	C	C	D	D	C	C	D	C	A	A	A	A	A	•
Kerosene	300	149		A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Lacquers & Thinners	200	93	All	B	A	A	A	B	A	A	A	A	A	D	C	A	C	
Lactic Acid	212	100	All	D	C	B	D	D	D	D	B	B	A	A	C	A	A	
Lime	212	100	All	B	B	B	B	B	B	B	B	A	A	A	A	A	A	
Linseed Oil	75	24		A	A	A	B	C	B	B	B	B	A	A	A	A	A	
Magnesium Chloride	212	100	<40	D	D	C	B	C	B	A	A	A	B	A	A	A	A	
Magnesium Oxide	212	100	All	B	B	B	A	B	B	A	B	B	D	A	A	A	A	
Magnesium Sulphate	212	100	<50	B	A	A	A	B	A	A	C	A	A	A	A	A	A	
Mercuric Chloride	75	24	10	D	D	D	D	D	D	C	C	B	A	A	A	A	A	
Mercury				A	A	A	D	D	C	B	B	B	A	A	A	A	A	
Methyl Chloride, Dry	212	100	100	A	B	A	A	B	B	B	B	B	A	D	A	A	A	
Methylene Chloride	212	100	100	C	C	C	C	B	B	C	A	A	A	D	C	A	B	
Milk				D	A	A	B	C	C	A	B	B	A	A	A	A	A	
Naphta	75	24	100	B	A	A	A	A	A	A	B	A	A	B	A	A	A	
Naphtaline	212	100	100	A	A	A	B	B	B	B	B	B	A	C	A	A	A	
Nickel Chloride	212	100	<40	D	D	C	D	D	B	C	A	B	A	A	A	A	A	
Nickel Sulphate	212	100		D	C	B	B	C	B	B	B	B	A	A	A	A	A	
Nitric Acid	75	24	All	D	A	A	D	D	D	D	D	B	A	A	A	A	A	•
Nitric Acid	212	100	All	D	C	C	D	D	D	D	D	D	A	C	B	A	C	•
Oxalic Acid	212	100	All	D	D	D	B	C	B	C	B	B	A	A	A	A	A	
Oxygen	300	149	All	A	A	A	A	A	A	A	A	A	A	A	A	A	A	•
Perchloric Acid	120	49	All	D	D	D	D	D	D	D	C	D	A	D	A	A	A	
Phenol	175	79	100	B	B	A	A	B	A	A	A	A	A	C	A	A	A	
Phosphoric Acid	212	100	All	D	C	C	D	D	D	D	B	C	A	A	A	A	A	
Phthalic Anhydride	250	121	100	B	A	A	C	C	A	A	B	A	A	C	B	A	B	
Picric Acid	212	100	All	D	B	B	D	D	D	D	D	B	A	C	A	A	A	
Propan	300	149		A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Quinine	212	100	100	D	B	B	B	B	B	B	B	B	A	A	A	A	A	
Resin Solution	150	66	All	D	B	A	B	B	B	B	B	A	A	D	A	A	C	
Rochelle Salt	212	100	100	D	B	B	B	C	B	B	B	B	A	A	A	A	A	
Rosin	700	371	100	D	B	B	B	B	A	A	B	A	A	A	A	A	A	
Sea Water	75	24		D	C	C	D	C	A	A	A	A	A	A	A	A	A	
Silicate Solutions	212	100	All	B	A	A	B	B	A	A	A	A	A	A	A	A	A	
Silicone Fluids	212	100	100	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Silver Nitrate	212	100	<60	D	B	B	D	D	D	D	B	C	A	A	A	A	A	•
Soap & Detergents	212	100	All	B	A	A	A	B	A	A	A	A	A	A	A	A	A	
Sodium Bicarbonate	212	100	20	B	A	A	B	B	A	A	B	B	A	A	A	A	A	
Sodium Bisulphate	212	100	<10	D	B	B	B	D	B	B	B	B	A	A	A	A	A	
Sodium Bisulphite	212	100	<40	D	D	C	C	C	B	C	C	B	A	A	A	A	A	
Sodium Carbonate	212	100	<40	B	B	B	B	C	B	B	B	B	A	A	A	A	A	
Sodium Chloride	212	100	<40	C	C	C	B	B	B	B	B	B	A	A	A	A	A	
Sodium Cyanide	212	100	10	B	A	A	D	D	D	D	B	C	A	A	A	A	A	
Sodium Hydroxide	180	82	<60	C	B	A	B	C	A	A	A	B	D	A	A	A	C	
Sodium Hypochlorite	75	24	10	D	D	D	D	D	D	D	C	A	A	A	A	A	A	•

CORROSIVE SUBSTANCE	TEMP. °C	TEMP. °F	CONCENTRATION	C.STEEL	AISI 304 ST.ST.	AISI 316 ST.ST.	BRONZE	BRASS	MONEL 400	NICKEL	HASTELLOY B	HASELLOY C276	TANTALUM	PVC	HALAR	TEFLON	VITON	Fluorolube (*)
Sodium Nitrate	212	100	<50	B	A	A	C	C	B	B	C	B	A	A	A	A	B	•
Sodium Nitrate	212	100	60	B	C	B	B	B	B	B	B	B	A	A	A	A	B	
Sodium Peroxide	212	100	10	B	B	B	C	D	B	B	B	B	A	A	A	A	A	•
Sodium Phosphate (Tribasic)	212	100	All	B	A	A	B	B	B	B	A	B	A	A	A	A	A	
Sodium Silicate	212	100	All	B	A	A	B	B	B	B	B	B	A	A	A	A	A	
Sodium Sulphate	212	100	<50	B	B	B	B	B	B	B	B	B	A	A	A	A	A	
Sodium Sulphate	212	100	10	D	A	A	C	D	B	B	C	B	A	A	A	A	A	
Sodium Sulphide	175	79	20	D	A	A	D	D	B	B	B	B	D	A	A	A	A	
Steam	800	427		A	A	A	D	D	B	B	B	B	A	C	A	A	B	
Sulphur Chloride, Dry	212	100	100	D	B	C	C	C	C	B	C	B	A	A	A	A	A	
Sulphur Dioxide, Dry	500	260	100	B	B	B	C	D	B	B	B	B	A	A	A	A	C	
Sulphur Trioxide, Dry	300	149		B	B	B	C	C	B	B	A	B	D	A	A	A	A	
Sulphuric Acid	212	100	10	D	D	D	D	D	D	D	C	B	A	A	A	A	A	
Sulphuric Acid	212	100	<30	D	D	D	D	D	D	D	B	C	A	B	A	A	A	
Sulphuric Acid	212	100	100	D	D	D	D	D	D	D	B	B	A	C	A	A	A	
Sulphuric Acid, Fuming	175	79	100	D	A	B	D	D	D	D	B	B	C	C	A	A	B	
Sulphurous Acid	212	100	All	D	C	C	C	C	C	C	B	B	A	A	A	A	A	
Tannic Acid	212	100	All	C	B	B	B	C	B	B	B	B	A	A	A	A	A	
Tartaric Acid	212	100		D	A	A	B	C	B	B	B	B	A	A	A	A	A	
Tin Chloride	125	52	All	D	D	D	D	D	D	D	B	B	A	A	A	A	A	
Titanium Tetrachloride, Dry	75	24	100	A	B	B	D	D	B	B	B	B	A	A	A	A	A	
Toluene	212	100		A	A	A	A	A	A	A	A	A	A	D	A	A	B	
Trichloroacetic Acid	212	100	All	D	D	D	D	D	B	C	B	B	A	D	C	A	C	
Trichloroethane, Dry	125	52		A	A	A	A	A	A	A	A	A	A	D	C	A	B	
Trichloroethylene, Dry	300	149		B	B	B	B	B	A	A	B	A	A	D	D	A	A	
Turpentine	75	24	100	B	A	A	A	B	A	B	A	A	A	C	A	A	A	
Urea	100	38	50	C	A	A	B	B	B	B	B	B	A	A	A	A	A	
Varnish	250	121		A	A	A	B	B	A	A	A	A	A	D	A	A	A	
Vynil Chloride	150	66	100	C	B	B	C	C	A	A	B	A	A	D	A	A	A	
Water (demineralized)	212	100		C	A	A	A	B	A	A	A	A	A	A	A	A	A	
Whiskey (hot mash)	212	100		C	A	A	B	B	A	B	A	A	A	B	A	A	A	
Zinc Chloride	212	100	<40	D	D	D	C	D	B	B	B	B	A	A	A	A	A	
Zinc Sulphate	212	100	<30	D	A	A	B	D	B	B	B	B	A	A	A	A	A	



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