ISO 9001 Registration

Kuri Tec® hose and tubing products are manufactured in our own plants, which are ISO 9001 Registered facilities in Canada and the United States.

The ISO 9001 family of standards represents an international consensus on good management practices with the aim of ensuring that the organization can time

and time again deliver the product or services that meet the customer's quality requirements.

ISO 9001 is a quality assurance model against which a plant's quality system can be audited. The standard sets out the requirements for an organization whose business processes range all the way from design and development to production.

Compliance Footnotes for Kuri Tec[®] Catalog Products

Many of the Kuri Tec hose & tubing products comply with one or more of the regulatory requirements pertaining to specific applications, such as:

- (01) 3A- The PVC compound complies with the criteria in 3-A Sanitary Standards for Multiple-Use Plastic Materials, number 20.
- (02) ASME A112.18.6 When properly coupled with suitable fittings, this hose will pass the performance tests as outlined in the ASME standard A112.18.6 for Flexible Water Connectors.
- (03) FDA The PVC ingredients used are sanctioned for food contact use under CFR title 21, parts 170-199 or FD&C Act, section 409(h), notifications relating to food contact substance.
- (04) FDA Material complies with 21 CFR 177.1350.
- (05) FDA Material complies with 21 CFR 177.1520 (c) 3.1 (b).
- (06) FDA Type 1, Class A, Category 4 Polyethylene (complies with FDA21 CFR 177.1520 for Olefin Polymers (par (c) 3.2a).
- (07) FDA Material conforms to FDA CFR 21-177-2600.
- (08) MSHA Accepted Cover material accepted by MSHA as having met the requirements for acceptance of flame-resistant solid products taken into mines for hoses transferring air, oil, water or other fluids.
- (09) NSF The polyurethane material is listed under NSF Standard 61.
- (10) NSF This hose is certified under NSF/ANSI standard 61: Drinking Water System Components Health Effects. This product has also been evaluated for use in Mechanical Plumbing Device applications with a maximum use restriction of 130 sq. in./L. This certification applies only to the hose without other components attached to the hose. This hose is certified to NSF/ANSI standard 372: Drinking Water System Components Lead Content and conforms with the lead content requirements for "lead free" plumbing as defined by California, Vermont, Maryland, and Louisiana state laws and the U.S. Safe Drinking Water Act.
- (11) NSF The inner core tube PVC material is certified under NSF/ ANSI standard 51: Food Equipment Materials and is also certified as Pipes and Related Products under NSF/ANSI standard 61: Drinking Water System Components – Health Effects. The inner core tube PVC material is certified to NSF/ANSI standard 372: Drinking Water System Components – Lead Content and conforms with the lead content requirements for "lead free" plumbing as defined by California, Vermont, Maryland, and Louisiana state laws and the U.S. Safe Drinking Water Act.

- (12) NSF The hose is certified under NSF/ANSI standard 51: Food Equipment Materials and is also certified as Pipes and Related Products under NSF/ANSI standard 61: Drinking Water System Components Health Effects. This hose is certified to NSF/ANSI standard 372: Drinking Water System Components Lead Content and conforms with the lead content requirements for "lead free" plumbing as defined by California, Vermont, Maryland, and Louisiana state laws and the U.S. Safe Drinking Water Act.
- (13) NSF The hose is certified under NSF/ANSI standard 51: Food Equipment Materials. The inner surface PVC material is also certified as Pipes and Related Products under NSF/ANSI standard 61: Drinking Water System Components Health Effects. The inner core tube PVC material is certified to NSF/ANSI standard 372: Drinking Water System Components Lead Content and conforms with the lead content requirements for "lead free" plumbing as defined by California, Vermont, Maryland, and Louisiana state laws and the U.S. Safe Drinking Water Act.
- (14) NIOSH –When coupled with suitable fittings and apparatus, this air breathing hose will satisfy the NIOSH Air-Supply-Line requirements and tests of Type C Respirators as described in Table 8 to 42 CFR Part 84, subpart J including the test for permeation of hose by gasoline. NOTE: NIOSH only certifies complete breathing respirators and does not issue certification on individual components, such as hoses. All replacement hoses for NIOSH-certified apparatus must have prior NIOSH certification as a part of that unit.
- (15) Phthalate Free Manufactured from all phthalate free materials
- (16) RoHS The product complies with the requirements of the EU directive 2002/95/EC which is on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
- (17) UL The clear PVC plastic material has been tested and conforms to UL94 Flame Class HB.
- (18) USDA The PVC hose has been found chemically acceptable for use in slaughtering, processing, transporting, or storage areas in direct contact with meat or poultry food product prepared under Federal Inspection.
- (19) USP The PVC compound has been tested and meets the requirements of the USP guidelines, for Class VI Plastics.

See Kuri Tec products on our web site for more details.

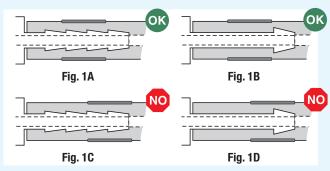
KKTCA0617 63

Fitting Suggestions for Kuri Tec® Hose & Tubing

It is extremely important that the fitting and hose or tubing be properly matched in size and type. The insert should always be slightly larger than the tubing to create a slight expansion of the tube and provide a good consistent seal. If a clamp or ferrule is used to compress the hose, caution must be used to prevent over-crimping the ferrule or over-tightening the clamp. More pressure does not necessarily improve fitting retention.

We do not recommend the use of reusable fittings unless the hose and fitting have been specifically designed to be compatible and have been thoroughly tested in combination prior to use.

Clamps over barbed fittings



In the illustrations above, the clamps are properly positioned in Figure 1A and 1B, directly over the middle barbs and behind the first barb. This is extremely important in the case of single-barb fittings, as shown in Figure 1B, since the barb is generally much larger than the shank of the fitting. The compressed material cannot pass over the barb when under tension, thus securely holding the fitting to the hose.

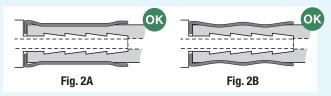
In Figures 1C and 1D, the clamp has been improperly positioned too close to the end of the fitting. In Figure 1C, only the barb nearest the end of the fitting is effective in maintaining fitting retention. The first two barbs serve no purpose whatsoever in providing fitting retention or leak resistance. In Fig. 1D, the situation is even worse, since the clamp can very easily cut the core tube over the enlarged barb, leading to leakage and subsequent cover blisters or bursts.

When choosing multi-barb fittings for use with Kuri Tec hose, as in Fig. 1A and 1C, it is important that the barbs not be too deep. The core tubes in Kuri Tec hoses are generally somewhat harder than conventional rubber tubes and therefore the material cannot flow into the deep barb, as it would with a soft rubber compound.

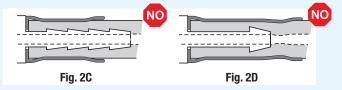


Ferrules crimped over barbed fittings

When properly crimped, a metal ferrule over a multibarbed fitting can provide excellent fitting retention and leak resistance. However, excessive crimping pressure can damage the core tube, leading to hose failure. Extreme care must also be taken to control the crimping diameter for hydraulic fittings. For this reason, as a general rule we do not recommend the use of one-piece crimped hydraulic fittings with Kuri Techoses.



In figures 2A and 2B above, two styles of crimping die have been used successfully. The ferrules and fittings are properly matched in length.

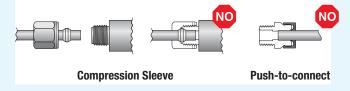


In Fig. 2C, the ferrule is much shorter than the barbed insert. Without the protection of the ferrule, repeated harsh flexing of the hose at the fitting can damage the tube. In addition, the short ferrule does not take full advantage of the sealing or retention properties of the barbed insert.

In figure 2D, there are two potential problems: 1) The excessively-long ferrule can reduce the inside diameter of the hose just beyond the fitting; and 2) a single-barb fitting is not the ideal insert for a crimped ferrule. Because of the increased depth of the single barb, the tube can be cut by the force of the crimping before sufficient compression is exerted on the shank of the fitting.

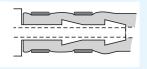
Compression Fittings

Compression fittings depend solely on contact with the outer surface of the tubing to provide sealing and holding power. There is no seal on the inner surface of the tubing. With the exception of 220/221 Series LLDPE tubing, we do not recommend the use of compression fittings with Kuri Tec hose and tubing. To work properly, the material must be hard and smooth and there must be no yarn reinforcement layer.



Fitting suggestions for Kuri Tec® spray hoses

In addition to the properly installed fittings shown in Fig. 1A, 1B, 2A and 2B above, we also suggest the use of a two-barb clamped fitting when high pressures are involved.



The double-barb fitting, held in place by two properly positioned clamps, provides excellent fitting retention and

leak resistance without risk of damage to the core tube or deterioration of the yarn reinforcement due to wicking.

Hose failure near a fitting

A hose is most susceptible to failure near the fitting. The installation of the fitting involves some risk of damage to the core tube. There is also some possibility of slight leakage along a fitting and subsequent yarn wicking, particularly if a one-piece crimped fitting is used. The greatest amount of flexing often occurs near the fitting at either the supply or service end of the hose.

In the investigation of a hose failure near the fitting, it is essential that the fitting/hose interface be examined. In the field, if the failure or deterioration is isolated to the area near the fitting, it is best to cut off the end of the hose, reinstall a new fitting, and monitor the hose in service to see if the problem reoccurs.

If the problem involves a spray hose and fluid slowly leaking through the cover perforations near the fitting, the most likely cause is wicking along the reinforcing yarn from the end of the hose or from a cut or break in

the core tube. Such wicking can extend over several feet and a leak may be seen at a considerable distance from the source of the leak.

If a hose is being returned to the supplier for investigation of a failure, it is essential that the fitting . . . or at least the section of hose in contact with the fitting . . . be returned. Only by examining the inner surface of the tube that was in contact with the fitting can one determine with certainty if the problem began at the fitting.

WARNING

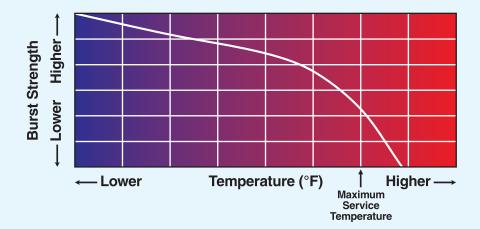
The above comments and fitting suggestions are intended for use as guidelines only. The information provided is based on tests which we believe to be reliable and on our past observations and experience. No warranty is expressed or implied, as applications and methods of fitting installation can vary widely. Before placing a hose in service, the user *must* determine the suitability of the fitting and hose/tube for his or her intended use. The user assumes all risk and liability resulting from the use of any Kuri Tec product with any fitting whatsoever.

Temperature Dependence of Pressure Rating

As a general rule, the working pressure ratings for plastic reinforced hoses are based on room temperature conditions. The maximum allowable pressure for a hose decreases as the temperature increases and the material becomes softer and more elastic. Fitting retention decreases at higher temperatures as the compression on the material declines.

Working pressure ratings can be affected significantly by the type of fitting used, the method of attachment, and the temperature to which the hose assembly is exposed in service. Repeated intermittent periods of exposure to elevated temperatures can affect fitting retention and it is, therefore, very difficult to assign working pressure ratings at high temperatures. The graph below demonstrates the overall trend.

Burst strength decreases as temperature increases



Working Pressure Ratings

Working pressure ratings are given in this catalog at 70°F and 122°F. Between 122°F and the maximum service temperature, it must be noted that a rapid decline in the pressure rating of the hose may occur, and all factors relating to the hose, fittings and service conditions must be taken into consideration.

No warranty is expressed or implied, as applications and methods of fitting installation may vary widely. Before placing a hose in service, the user *must* determine the suitability of the product under the correct working conditions, and assumes all risk and liability in connection therewith.

KKTCA0408 65



Chemical Resistance Guide

Many new materials have been developed to handle the wide range of modern chemicals being used in industry today. Many of these materials are now being used in the construction of Kuri Tec® hose and tubing products.

The following guide has been prepared to assist the user in the selection of the correct hose for the application. The recommendations are based on the best chemical data available at the time of printing. This guide will be continuously reviewed and new information added as it becomes available.

A material's resistance to the effects of a chemical depends not only upon the particular chemical, but also on other factors such as length of exposure, service temperature, pressure, fluid velocity, and the relative concentration of each component in multi-component mixtures. Therefore, no guarantee is expressed or implied.

The chemical resistance ratings for materials are based on pure material samples and may not take into account specific factors related to the material when used in a hose or tube. It is always advisable that the product be tested under actual conditions.

Additionally, the Chemical Resistance Guide which follows does not imply conformance to any food handling regulations or federal or state/provincial laws governing hose and tubing applications.

Before using any Kuri Tec hose/tubing product with any chemical substance the user must determine the suitability of the product for his/her intended use. The user assumes all risk and liability for the use of any Kuri Tec product with any chemical or other substance.

Key to Chemical Resistance Guide Ratings

- E = Excellent Little or no effect due to exposure to the chemical.
- G = Good Satisfactory service expected, but some deterioration may occur after lengthy exposure or under extreme conditions.
- L = Limited Variable resistance depending upon the conditions of use (e.g. nature of the chemical, its concentration, service temperature, pressure, etc.).
- U = Unsuitable Not resistant. Not recommended for use under any conditions.
- C = Cautionary Although the chemical resistance of the material may be good, special factors exist that must be considered in hose applications, such as regulatory issues, permeation of vapors, and safety, health or environmental concerns.
- = No Data

Key: E=Excellent G=Good L=Limited U=Unsatisfactory C=Cautionary -=No Data

	P۱	/C	PVC Ble		Rub		LLI	PE	Ε\	/A	Т	PU		PV	С	PVC. Ble		Rub Ble		LLDI	PE	EVA	١	TPU	
Material Handled	70	150	70		emp 70					150	70	150	Material Handled	70	150	70				ure 70 1		70 1	50 7	70 1	50
Acetaldehyde Acetate Solvents - Pure Acetic Acid - Glacial Acetic Acid 0-10% Acetic Acid 10-20%	U U L E G	U U U G L	U U L G	U U U G G	L G U E G	U L U G L	G E L E	L G U G	G L U E	U U U E G	U L U U	U U U U	Arylsulfonic Acid Asphalt ASTM #1 Oil ASTM #3 Oil ASTM Fuel A	L L L L	U U U U	L L L L		_ L _	_	_ L _	-	_	– U –	U G G G	U L G G
Acetic Acid 20-30 Pct Acetic Acid 30-60% Acetic Acid 80% Acetic Acid Vapors Acetic Anhydride	G G L G U	L L G U	G G L G U	L L G U	G L U G U	L U L U	E G U G	G L U L	E L G L	L U U L L	U U U U	U U U U	ASTM Fuel B ASTM Fuel C Barium Carbonate Barium Chloride Barium Hydroxide	U U E E L	U U E E L	U U E E L	U U E E L	– E E E	– E E E	Ε	Ε	– E E	- -	Ē E	L E E L
Acetone Acetylene Acrylonitrile Adipic Acid Alcohol (See Type)	U C L G	U C U L	U C L G	U C U L	L U - G	U U - L	E U - E -	G U - G -	L U - E -	U U - G	L C - U	U C - U -	Barium Sulfate Barium Sulfide Beer Beet-Sugar Liquor Benzaldehyde	E E E U	E L E U	E E - U	-	E E E U	E E E U	E E	E L E	E E E L	- -	E E - ·	_ _ _
Allyl Alcohol 96% Allyl Chloride Alum Aluminum Chloride Aluminum Fluoride	U U E E G	U U E E G	U U E E G	U U E E G	E G E G	G L E G	E G E G	G L E G	E L E G G	G U G C L	U U E G	U U E G L	Benzene Benzoic Acid Benzol Bismuth Carbonate Black Liquor (Paper industry)	U G U E E	U L U E E	L G L E	U L U E E	U G U E E	U G U E E	U E	G U E	G U	U	Ū	U U U E
Aluminum Hydroxide Aluminum Nitrate Aluminum Oxychloride Aluminum Sulfate Ammonia - Aqueous	L E E L	L E E U	L E E L	L E E U	G E G E G	G E G E G	G E G E	G E G E G	G E G E	G - -	G L - G U	L L G U	Bleach - 12.5% Active CL Borax Boric Acid Boron Trifluoride Brake Fluid	G E E U	L E E U	G E E U	L E E U	G E E E	L E E	Ε	E E	G E E E	- -	E G E	U E U E U
Ammonia - Dry Gas Ammonia - Liquid Ammonium Carbonate Ammonium Chloride Ammonium Fluoride 25%	L U E E U	U U E E U	L U E E U	U U E E U	E G E G	E L E G	E E E G	G L E G	E E E G	- U - -	U U E G L	U U E L U	Brine Bromic Acid Bromine - Liquid Bromine - Water Butadiene	E U U L	E L U U U	E U U L	E U U L	E G U U	E G U U	G U U	G U U	U U	– U	U U	_
Ammonium Hydroxide 28% Ammonium Metaphosphate Ammonium Nitrate Ammonium Persulfate Ammonium Phosphate	L E E G	U E E G	L E E G	U E E G	G G E G	G G E G	E G E E	E G E G	E E E E	E E - -	L G G G	U G G G	Butane Butanol - Primary Butanol - Secondary Butter Butyl Acetate	C U U L U	C U U L U	C U U - L	C U U - U	-	U G G - U	E E L	G G L	G G	U - - U	L -	C U U – U
Ammonium Phosphate – Neutral Ammonium Sulfate Ammonium Sulfide Ammonium Thiocyanate	E E E	E E E	E E E	E E E	G E E	G E E	E E E	G E E	E E E	- - - -	G E G	G E E G	Butyl Alcohol Butyl Cellosolve Butyl Phenol Butylene Butyric Acid 20%	L U L C L	U U C U	L U C L	L U C U	E G U U	G L U U	E U U	G U U	_ U _	– U –		U - - C U
Amyl Acetate Amyl Alcohol Amyl Chloride Aniline Aniline Chlorohydrate	U L U U U	U U U U	U L U U U	U U U U	U G U U U	U L U U U	L G U U	U L U U U	U G U U U	_ L _ U U	U U - U U	U U - U U	Calcium Bisulfite Calcium Carbonate Calcium Chlorate Calcium Chloride Calcium Hydroxide	E E E L	E E E L	E E E L	E E E L	E E E E	E E E E	E E E	E E E	Е	- - -	E G E	E E L G L
Aniline Hydrochloride Animal Oils Anthraquinone Anthraqunonesulfonic Acid Antimony Trichloride	U L E E	U U E E	U L E E	U U E E E	U U E E E	U U E E	U L E E	U U E E	U L E E	U U - -	U G - U E	U L - U E	Calcium Hypochlorite Calcium Nitrate Calcium Sulfate Cane Sugar Liquors Carbon Bisulfide	E E E U	E E E U	E E E - U	E E E - U	E E G U	E E G U	E G	E E G	G		-	U E E -
Apple (Sauce or Juice) Aqua Regia Aromatic Hydrocarbons Arsenic Acid 80%	E L U E	E U U G	_ L _ E	– U – G	-	_	E U - E	-	– U – G	– U – –	_	– U – U	Carbon Dioxide (Aqueous Solution) Carbon Dioxide Gas (Wet) Carbon Monoxide	E E E	E E E	E E E	E E E	E E G	E E G	Ε	Ε	_	-	Е	E E

KKTCA0512 67



Key: E=Excellent G=Good L=Limited U=Unsatisfactory C=Cautionary -=No Data

M	P۱	/C	PVC Ble		Rub	ber end	LLE	PE	Ε\	/A	T	PU]	M. I. J. H. I. H. I	P۱	/C	PVC Ble		Rub Ble		LLD	PE	EV	Ά	TP	U
Material Handled	70	150	70		emp					150	70	150		Material Handled	70	150	70			erat			70	150	70	150
Carbon Tetrachloride Carbonic Acid Casein Castor Oil Catsup	U L E E		L G E	U G E	U G E U	U G E	L G E	U G E	U G E	U G –	L U E			Diethylene Glycol Diglycolic Acid Di-isodecyl Phthalate Dimethylamine Dioctyl Phthalate	G E U U	L G U U	G E - U	L E –	E E - U	L G –	E E –	G G	G E –	L - - U	U - -	U - -
Caustic Potash Caustic Soda Cellosolve Chloracetic Acid Chloral Hydrate	L L E E	L U U E	L G E	L L U E	L G G U	L L U U	L G G U	L L L U	L G L U L	- U U U		U U L U L		Disodium Phosphate Distilled Water Ethers Ethyl Acetate Ethyl Acrylate	E U U U	E U U U	E L L U	E U U U	E U L	E U U			E U L	– E U U	E G	E L L U
Chloric Acid 20% Chlorinated Hydrocarbons Chlorine Gas (Dry) Chlorine Gas (Moist) Chlorine Water 2%	E U G L G	E U G U L	E U G L G	E U G L	– U U U L	- U U U U	– U U U G	– U U U L	– U U U G	– U U U L	U U U U L	U U U U		Ethyl Alcohol 0-50% Ethyl Alcohol 50-98% Ethyl Chloride Ethyl Ether Ethylene Bromide	G L U U E	L U U U	E G U U	G L U U U	G L U U U		E U	G U U	L U	L U U U	E U G	L G U L
Chlorine Water Saturated Chlorobenzene Chloroform Chlorsulfonic Acid Chrome Alum	L U U L E	U U U U E	L U U L E	U U U U E	– U U U G	– U U U G	E U L U E	G U U U G	E U U U E	L U U U G	– U U U Е	– U U U Е		Ethylene Dichloride Ethylene Glycol Ethylene Oxide Fatty Acids Ferric Chloride	U E U E E	U E U E	U E U E E	U E U E E	U E U G E	U G U L E	U E U G E	G U	U E U L E	U G U U	G U	U L U L E
Chromic Acid 10% Chromic Acid 25% Chromic Acid 30% Chromic Acid 40% Chromic Acid 50%	G G L L	L U U U	G G L L	L U U U	G G L L	L U U U	L L	L U U U	L L	- U U U	Ū	U		Ferric Nitrate Ferric Sulfate Ferrous Chloride Ferrous Sulfate Fish Solubles	E E E E	E E E E	E E E E	E E E U	E E E E	E E E E	E E E E	E E E E	E E E E	- - - -	E E E E	E E E G
Chromic Acid Plating Solution Cider Citric Acid Coal Tar	– E E U	– L E U	– – E U	– – E U	– – E U	– – E U	– E E U	– G Е U	E E U	E L E U	U - U U	U - U U		Fluorine Gas - Dry Fluorine Gas - Wet Fluoroboric Acid Fluorosilicic Acid Foric Acid	U U E E E	U U E E L	U U E E E	U U E E L	U U E G E	U U E L G	U U E G E	U	_	U U - E	U E U	U U E U U
Coconut Oil Copper Chloride Copper Cyanide Copper Fluoride 2% Copper Nitrate	G E E E	L E E G	E E E E	G E E E	G E E E	L E E G	G E E E	L E E G	L E E E	U - - -	E E E E	E E E E		Formaldehyde (40% Aqueous) Formic Acid 3% Formic Acid 10% Formic Acid 25%	U - -	U - -	G - -	G - -	G - -	L - -	G - -	L - -	E E E	G E E	_ _ _ _	_ _ _ _
Copper Sulfate Corn Oils Cottonseed Oil Creosote Cresol	E G U	G G L U	E - E U -	E - E U -	E - E U U	E - G U	E L E U U	E U G U	E - E U U	- - U U	_ E _	E - E - U		Formic Acid 50% Formic Acid 100% Freon-12 Fructose Fruit Pulps and Juices	_ _ L E E	– U E E	- G -	- L -	– G E	– L E	Е	– L E	٠.	E U - -	– E E E	– E E E
Cresylic Acid 50% Crude Oil - Sour Crude Oil - Sweet Cyclohexane Cyclohexanol	U L L U	U U U U U	L L U U	L U U U	U U U L L	U U U U U	U U U G G		U U U L E			U E E L U		Fuel Oil Furfural Furfuryl Alcohol Gallic Acid Gas - Coke Oven	G U - E G	L U - E G	G U - E G	L U - E G	U -	U U - E -	U –		U U U E –	U U U -		G U - G
Cyclohexanone Demineralized Water Dextrin Dextrose Di-acetone Alcohol	U E E E	U E E G	U E E -	U E E -	U E E E	U E E E	G E E E	L E E G	_	L E - -	Ε	U L E E		Gas - Natural (Dry) Gas - Natural (Wet) Gasoline Gasoline - Refined Gasoline - Sour	C U L L	C U U U	C C U G G	C U U U	U U U L U		U G L	U L U	U U - U U	U - U	C C E E	C C G G
Diazo Salts Dichlorobenzene Diesel Oils Diethyl Ether	E U L U	E U U U	E U L U	U	E - -	_	_	G U – L	_	_	G	_ _ L L		Gelatine Glucose Glycerine (Glycerol) Glycol	E E E	E E E	E E E	E E E	E E E	E E E	Е	Ε	E	_ _ _ _	E E G	E E G

Key: E=Excellent G=Good L=Limited U=Unsatisfactory C=Cautionary -=No Data

Metavial Handlad	PV	C	PVC Ble		Rub		LLE	PE	Ε\	/A	TI	PU		Matarial Handlad	PV	C	PVC Ble	/PU nd	Rub Ble		LLD	PE	EV	A	TP	U
Material Handled	70	150	70		emp 70					150	70	150		Material Handled	70	150	70		-		ure 70			150	70	150
Glycolic Acid 30% Grease Green Liquor (Paper industry) Heptane	E E E	E L E U	E E G	E G E U	E - E U	E -		E - E U		- - U		U G -	J	Linseed Oil Liquors (Chemical) Lubricating Oils Magnesium Carbonate Magnesium Chloride	E E G E	E G L E	E E G E	E G G E		U - U E E		U G U E E	L E U	U G U -	E – E E E	E - E E E
Hexadecanol Hexane Hexanol, Tertiary Hydrobromic Acid 20% Hydrochloric Acid 10%	_ L L E	U U G G	L L E	U U G G	- G G E	– L G E	– E G G	U E L G E	U - L G E	U - U - E	– G U	- - U U		Magnesium Hydroxide Magnesium Nitrate Magnesium Sulfate Maleic Acid 25% Aqueous Maleic Acid 50%	L E E E	L E E	L E E	L E E	E E G	E E G	E E G E	E E G E	E E E E	– – E E	G E E L	L E U
Hydrochloric Acid 48% Hydrofluoric Acid 4% Hydrofluoric Acid 10% Hydrofluoric Acid 48% Hydrofluoric Acid 60%	E G G G	G G L U	E G G G	G G L U	E G G G	G G L L	E G G G	G G L L	G E E E	_ E E E	U U U U	U U U U		Maleic Acid Concentrated Malic Acid Mayonnaise Mercuric Chloride Mercuric Cyanide	– Е Е G U	– E E L U	– E – G U	– E – G U	- G - G	- G - G	E G G G	G G G G	E G G G	G - G G	_ L _ G _	_ U _ L _
Hydrofluorosilic Acid Hydrogen Hydrogen Bromide (Dry) Hydrogen Chloride (Dry) Hydrogen Cyanide	G C - C	L C - C	G C - C	L C - C	- C - C	- C - C	_ C _ C	_ C _ C	– C E C	– E E C	U C - - U	U C - U		Mercurous Nitrate Mercury Methyl Acetate Methyl Alcohol Methyl Bromide	G G U L	G U U U	G U L U	G U U U	G G - G	G G - G	G G - E	G G - G	G G U E U	L U	G - L -	G - U -
Hydrogen Peroxide 3 -12% Hydrogen Peroxide 30% Hydrogen Peroxide 50% Hydrogen Peroxide 90% Hydrogen Phosphide	E E U E	G G L U L	E E U E	G G L U L	G G L U G	L U U G	G G L U G	L U U G	G U U E	L U U E	G G L U	L U U		Methyl Chloride Methyl Ethyl Ketone Methyl Isobutyl Ketone Methyl Sulfate Methyl Sulfuric Acid	U U U E E	U U U G E	U U U E E	U U U G E	U L L - G	U U U - G	_		U L L – E	U U U – E	_ E	U U - G U
Hydrogen Sulfide (Aqueous Solution) Hydrogen Sulfide - Dry Hydrombromic Acid 20% Hydroquinone	E E E	E E G E	E E E	E E G E	E E G E	G G G E	E E G E	G G G E	E E G E	- - -	– U E	– U E		Methylated Spirit Methylene Chloride Milk Mineral Oils Mineral Spirits	– U E G	– U E L	_ L _ E	– U – E –	– U – L	– U – U –	– U E L	U E U G	E U G L	G U L U	– U – E	_ U _ E _
Hypochlorous Acid Inks Iodine (In Alcohol) Iso-octane Isopropyl Acetate	E - U L U	E - U U U	E - U L	E - U U -	E - U -	G - U - -	E U -	G E U -	L E U -	U E U -	L - U -	U - U -		Molasses Monochlorobenzene Naphtha Napthalene Nickel Acetate	E U U U E	E U U U E	E U L U E	E U U U E	E - U L E	E - U U E	E G L E	E - L U E	E - U U E	– U U	E - G - E	E - U - E
Isopropylalcohol Jelly Jet Fuels JP 3, 4, 5 Kerosene Ketones	E U U U	G E U U U	E - U L U	G - U U U	E - U U L	E - U U U	E - L E	E - U G	E - U L	- - U U	– G E G	– L G L		Nickel Chloride Nickel Nitrate Nickel Sulphate Nicotine Nicotine Acid	E E E E	E E E G	E E E E	E E E E	E E E E	E E E E	E E E E	E E E E	E E E E	- - - -	E E C C	E E C C
Kraft Liquor (Paper industry) Lacquer Thinners Lactic Acid 28% Lard Oil Lauric Acid	E U E E	E U E G E	E U E E	E U E E	E G E G	G L E L	E E G L	G E L U	G L E G	U - L	G L E L	– U G U		Nitric Acid (Anhydrous) Nitric Acid 10% Nitric Acid 25% Nitric Acid 35% Nitric Acid 40%	U E G G	U G L L	U G G G	U L L L	U G G L	U L L U	G	U G G U		G L U	U U U	U U U U
Lauryl Chloride Lauryl Sulfate Lead Acetate Lead Arsenate Lead Nitrate	E E E E	E E E E	E E E E	E E E E	L U E -	U U E -	L U E -	U U E -	L U E E	– U – E E		G - E -		Nitric Acid 50% Nitric Acid 60% Nitric Acid 68% Nitric Acid 70% Nitrobenzene	G G L U	U U U U	G G L U	U U U U	L U U U	U U U U U	L U U	U U		Ü U U	U U U	U U U U
Lead Tetra-ethyl Lemon Juice Lime Sulfur Linoleic Acid	E E E	E G E E	E - E E	E - E E	– G –	– G –	– G –	– G –	E - G -	E - -	- - L	- - U		Nitrous Oxide Oils and Fats Oils, Petroleum Oleic Acid	E E G	E G G L	Ε		G			L	G	U	Е	E E U

KKTCA0512 69



Key: E=Excellent G=Good L=Limited U=Unsatisfactory C=Cautionary -=No Data

	P۱	/C		/PU nd	Rub		LLD	PE	Ε\	/A	TF	PU]		P۱	/C	PVC.		Rub Ble		LLDI	PE	EV	A	TP	U
Material Handled	70	150	70			erat		•		150	70	150		Material Handled	70	150	70		-	erat			70 1	150	70 1	150
Oleum Orange Juice Oxalic Acid Oxygen Ozone	U E E E	U E G G	U - E E L			U - G - U			U - G G		U - U		J	Potassium Bromide Potassium Carbonate Potassium Chlorate Potassium Chloride Potassium Chromate 40%	E E E E	E E E E	E E E E	E E E E	E E E E	G E E E	E E E	G E E	E E E	- - - -	E E G E	E E G G
Palmitic Acid 10% Palmitic Acid 70% Paraffin Pentane Peracetic Acid 40%	E L E L U	E U G U	E L E L U	E U G U	_	L U - -	G G E	L U L G	E L L -	G U U -	U U E - U	G –		Potassium Cuprocyanide Potassium Cyanide Potassium Dichromate 40% Potassium Ferricyanide Potassium Fluoride	E C E E	_ C _ _	Ē	– C G E								
Perchlorethylene Perchloric Acid 10% Perchloric Acid 70% Petrol Petroleum Ether	U G L U L	U L U U L	U G L U L	U L U U L	U G G U	U G L U		- G L -	– G G U	- G - U U	– U U –	Ü –		Potassium Hydroxide 10% Potassium Hydroxide 20% Potassium Hydroxide 35% Potassium Hydroxide Conc. Potassium Hypochlorite	L U U G	_	L U U G	L U U L	E G G	E E L G	_	E E G - L	E G E E	- - L -	Ū U –	U U U - U
Phenol Phenylhydrazine Phenylhydrazine Hydrochloride	U U L	UUU	U U L			U	L	U U U	U -	U -	U -	U -		Potassium Nitrate Potassium Perborate Potassium Perchlorite Potassium	E E E	E E E	E E E	E E E		G L G	G G G	G L G		E E -	-	E E L
Phosgene (Gas) Phosgene (Liquid)	C	C	С	С	-	_	-	-	С	U	-	_		Permanganate 10% Potassium Persulfate	G E	G E	E	E E	E E	E E	E	E	U	U	G	L E
Phosphoric Acid 0-25% Phosphoric Acid 25-50% Phosphoric Acid 50-90% Phosphorus (Yellow)	E E G	G G G L	E E G	G G G L	E E G L	G G L L	E E G L	G G L L	E E E U	G G L U	U U U	-		Potassium Fersunate Potassium Sulfate Potassium Sulfide Potassium Thiosulfate	E E E	E E E	-	_	E E E	E E E	E E E	E E E	E E E	E - -	E E E	E E E
Phosphorus Pentoxide Phosphorus Trichloride Photographic Developers Photographic Emulsions Photographic Fixers	L U L L		L U L L	U U U U	-		G L E E	L U E E	G L E E	L U E E	_ L _	_ _ _ _		Power Steering Fluid Propane Propargyl Alcohol Propyl Alcohol Propylene Dichloride	E C E U	L C E L U	E C E E U	L C E U	– И Б Е И	– И G E U	– U G E U	– U G E U	– U E E U	– U E – U		E C - L U
Picric Acid Pitch Plating Solutions Brass Cadmium	U G E E	U L E E	U G E E	U L E E	G - G	U - G G	G E G	U G G	G - L L	L - -	U - E E	U - E E		Propylene Glycol Prune Juice Ritchfield "A" Weed Killer Salicylic Acid Salt Water	– E E – E	– E L –	– E – E	– G – E	- - - E	- - - E	- - - - E	- - - - E	E - E E	E - E E	- - - - E	- - - L
Chromium Copper Gold Judium Lead	G E E E	G E E E	G E E E	G E E E	U G G G	U G G G	U G G G	U G G G	U L L L	U - - -	G E E E	G E E E		Selenic Acid Shortening Silicic Acid Silicone Fluids Silver Cyanide	E G E -	G L E –	E - E - E	G - E - E	G - E - E	L E E	G E E –	L E E	G E E E	L E E	_	U - U - E
Nickel Rhodium Silver Tin Zinc	E E E E	E E E G	E E E E	E E E E	G G G G	G G G G	G G G G	G G G G		- - - -	E E E E	E E E E		Silver Nitrate Silver Plating Solutions Soap Solution Sodium Acetate Sodium Acid Sulfate	E E E E	E G G E	E E E E	E G G E	E E E E	E G G E	E G E	E G L E	E G E E	_ _ L _	E G E E	E U E E
Potable Water Potassium Acid Sulfate Potassium Antimonate Potassium Bicarbonate Potassium Bichromate	E E E E	G E E E	_ E E E	– E E E	_ E E E	G E E E	E E E E	E G E E	E G E E	G - - -	– E E E	- E E E		Sodium Antimonate Sodium Arsenite Sodium Benzoate Sodium Bicarbonate Sodium Bisulfate	E E E E	E G E	E E E E	- - - -	E E E E	E E E E						
Potassium Bisulfite Potassium Bisulphate Potassium Borate 1% Potassium Bromate 10%	E G E E	E L E E	E - E E	E - E E	E - E E	E E G	E E E	E E G	E E E	- - - -	E - E E	E - E E		Sodium Bisulfite Sodium Bromide Sodium Carbonate (Soda Ash)	E E	_	- -	_	E G E							

Key: E=Excellent G=Good L=Limited U=Unsatisfactory C=Cautionary -=No Data

Material Handled	P۱	/C	PVC Ble		Ble	end		PE (°F)	Ε\	/A	TI	PU	Material Handled	P\	/C	PVC Ble	nd	Rub Ble	nd	LLD		EV	/A	TP	U
	70	150	70		-			150		150	70	150		70	150	70		-					150	70	150
Sodium Chlorate Sodium Chloride Sodium Cyanide Sodium Dichromate Sodium Ferricyanide	G E E E	L E G E	G E E E	L E G E	E E E E	E E E E	E E E E	E E E E	E E E E	- - - -	G E E E	G G E G	Titanium Trichloride Toluol or Toluene Tomato Juice Transformer Oil Transmission Fluid	– U E – E	– U E – L			_ U _ _		– E G –	L	U U L U	U U U U	_ _	– U – – E
Sodium Ferrocyanide Sodium Fluoride Sodium Hydroxide 10% Sodium Hydroxide 35% Sodium Hydroxide 50%	E E L U	E E L U	E E L U	E E L U	E E E	E E E	E E E	E E E	_	- - - -	E G L	E G L U	Tributyl Phosphate Trichlorobenzene Trichloroethylene Tricresyl Phosphate Triethanolamine	U U U U L	U U U U	U U L U G		– U L G	- U L L	– G L G		– U U U L	– U U U	– L U	– U U
Sodium Hypochlorite Sodium Nitrate Sodium Nitrite Sodium Phosphate-Acid Sodium Silicate	E E G E	E E G E	E E G E	E E G E	E E E E	E E E E	E E E E	E E E E	E E E E	- - - -	U E E U E	U E E U E	Triethylamine Trimethyl Propane Trisodium Phosphate Turpentine Urea	G L E L	L U E U E	G L E G E	L U E L E	– E L E	– E U E	– E G E	– E L E	– E U E	- - - -	– E E E	– E G E
Sodium Sulfate Sodium Sulfide Sodium Sulfite Sodium Thisulfate (Hypo) Soft Drinks	E E E E	E E E G	E E E	E E E	E E E	E E E	E E E E	E E E E	E E E G	- - - L	E E E	E E G	Urine Varnish Varsol Vegetable Oils Vinegar	E U - G E	E U - L E	E U - G -	E U - L	E G - E	E L - G	E G E –	E L G - G	E U - U E	- U - U	Ē -	E G - L
Soya Oil Soybean Oil Stannic Chloride Stannous Chloride Starch	E G E E	G L E G	– E E	– E G	– E E	- E E	– E E	- E E	– E E E	- - - E	– E E	– G G	Vinyl Acetate Vinyl Chloride Water-Acid Mine Water Water-Distilled Water-Fresh	U U E E	U U E E	U U E E	U U E E	L E E E	U - E E E	L E E E	U - E E E	U - E E E	U - - -	U G G G	U - U U U
Stearic Acid Stoddard Solvent Styrene Sucrose Sulfur	L U - G	L U U - G	L G U - G	L U - G	E G - E	E L - E	E G - E	E L - E	E L - E E	– U – E –	L G - -	U U - -	Water-Salt Whey Whiskey White Gasoline White Liquor (Paper industry)	E L E E	E G U E	E - E E	E - E E	E - U -	E - U -	E G E U	L L	E G - U	_ L _ U _	G - E -	U - G -
Sulfuric Acid 0-10% Sulfuric Acid 10-40% Sulfuric Acid 50-60% Sulfuric Acid 70% Sulfuric Acid 95%	E E E U	G G G U	E E E U	G G G U	E G L U	G G L U	E G L U	G G L U	G G L U	- G L U	U U U U U	U U U U	Wines Xylene or Xylol Zinc Chloride Zinc Chromate Zinc Cyanide	G U E E	L U E E	L E E	– U E E	– U E E	– U E E	E G E E	E L E E	– U E E	_ U _ _	E E	L E E
Sulfuric Acid 95% to Furning Sulfurous Acid Sulphur Dioxide - Liquid Sulphur Dioxide Gas - Dry Sulphur Dioxide Gas - Wet	L E L E L	L E U E U		L E U E U	U G U G G	U L U G L	U G U G G	U L U G L	U L U E E	U U G	U U - -	U U - -	Zinc Nitrate Zinc Sulfate Mixtures of Acids:	E E	E	E E	E E	E E	E E	E E	E E	E E	_	E	E
Sulphur Trioxide Sulphurous Acid 10% Sulphurous Acid 30%	E -	G -	E -	G -	U - -	U - -	U - -	U - -	U E U	U E U	- - -	- - -	Nitric 15%, Hydrofluoric 4% Sodium Dichromate 13%, Nitric Acid 16%, Water	E		E E	G G	- Е	- Е	– Е	– Е	- Е	- Е	U E	U L
Tallow Tannic Acid	E	E	E	E	E	E	E	E	E	U E	L	U													
Tanning Extracts Tanning Liquors Tartaric Acid Tea (Brewed) Tetraethyl Lead	E E E G	E E G L	– E E – G	– E E – G	- G E -	_ L E _	– G E E	L E G	E L E G	E - L -	- L - G	- U - G													
Tetrahydrofurane Thionyl Chloride Tin Chloride Titanium Tertachloride	U U E E	U U E U	U U E E	U U E U	U U - -	U U -	U U - -	U U -	U U - -	U U - -	U U E L	U U E U													

KKTCA0512 71