



# **Chemical Compatibility Guide**

**The Leak Stops Here.™**

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# XR-5<sup>®</sup>, Urethane & Copolymer 2000<sup>®</sup>

## CHEMICAL COMPATIBILITY GUIDE\*

### For Ultra-Containment Berms

According to EPA guidelines, spills must be cleaned up within 24 hours and any secondary containment areas must be inspected once a week. The chart below lists chemical compatibility of XR-5<sup>®</sup>, Urethane, Copolymer 2000<sup>®</sup> and Polyethylene. The information has been developed from industry available data and offers compatibility based on exposure of one week or less.

The rating system is indicated as:

- A - Fluid has little or no effect at Room Temperature
- B - Fluid has minor to moderate effect at Room Temperature
- C - Fluid has severe effect at Room Temperature

<b>Chemical</b>	<b>XR-5<sup>®</sup></b>	<b>Urethane</b>	<b>Copolymer 2000<sup>®</sup></b>	<b>Polyethylene</b>
Kerosene	A	A	A	A
Diesel Fuel	A	A	A	A
Ohio Crude Oil	A	A	A	A
Hydraulic Fluid- Petroleum Based	A	A	A	A
Naptha	A	A	A	A
Conc. Ammonia Hydroxide	A	C	A	A
50% Acetic Acid	C	C	C	A
50% Phosphoric Acid	A	C	A	A
50% Hydrochloric Acid	A	C	A	A
50% Nitric	C	C	C	B
50% Sulfuric Acid	A	C	A	A
60% Sodium Hydroxide	A	C	A	A
Methyl Alcohol	A	A	A	A
JP-4 Jet Fuel	A	A	A	A
Salt Water 180°F	A	B	A	A
Phthalate Plasticizers	B	A	B	A
SAE-30 Oil	A	A	A	A
Raw Linseed Oil	A	A	A	A

The above ratings were arrived at by visual and physical examination of the membrane samples after their removal from the test chemical. When considering XR-5<sup>®</sup>, Urethane, Copolymer 2000<sup>®</sup>, or Polyethylene for specific applications, it is important to study the requirements such as permeability, service temperature, concentration, size to be contained, etc. Samples of XR-5<sup>®</sup>, Urethane, Copolymer 2000<sup>®</sup>, or Polyethylene should be tested close to actual service conditions and also your distributor should be consulted.

### **\*IMPORTANT USER NOTICE FOR XR-5<sup>®</sup>, URETHANE, COPOLYMER 2000<sup>®</sup> & POLYETHYLENE CHEMICAL COMPATIBILITY GUIDE**

This listing is offered only as a guide and utilizes information which, to the best of UltraTech's knowledge, is accurate and reliable. Due to variables and conditions of application beyond the control of UltraTech, none of the data shown in this guide is to be construed as a guarantee, expressed or implied. UltraTech International, Inc. assumes no responsibility, obligation or liability in conjunction with the use or misuse of the information herein.

# POLYURETHANE CHEMICAL COMPATIBILITY GUIDE\*

for

ULTRA-SPILLBERMS<sup>®</sup>, PART# 2100, 2051, 2052

ULTRA-SPILLBERM<sup>®</sup> CONNECTOR, PART# 2101

ULTRA-SPILLBERM<sup>®</sup> CORNER, PART# 2102

ULTRA-SPILLBERM PLUS<sup>®</sup>, PART# 2054

ULTRA-SPILLBERM-LOW PROFILE<sup>®</sup>, PART# 2052

ULTRA-TABLETOP SPILLBERM<sup>®</sup>, PART# 2051

ULTRA-DRAINSEAL<sup>®</sup>, PART# 2124-7, 2127, 2130-3, 2134-7

ULTRA-DRAINPLUG<sup>®</sup>, PART# 2113, 2114, 2115, 2116

## Key:

### Swelling:

Visually rated from 0-2;

0 = none

1 = slight

2 = significant

### Degradation:

Visually rated from 0-2;

0 = none

1 = slight

2 = significant

### Ratings:

NR (Not Recommended):

Significant degradation or swelling

FAIR: Slight swelling

GOOD: No swelling

Chemical	Chemical Class	Swelling (0-2)	Visible Degradation (0-2)	Rating
Acetone	Ketones	2	0	NR
Acetonitrile	Nitriles	1	0	FAIR
Aluminum Salts	Aluminum Compounds	0	0	GOOD
Barium Salts	Barium Compounds	0	0	GOOD
Benzyl Alcohol	Hydroxyl Compounds	1	1	FAIR
Boric Acid	Inorganic Acids	0	0	GOOD
Butanol	Hydroxyl Compounds	0	0	GOOD
Calcium Chlorite	Calcium Compounds	0	0	GOOD
Carbon Disulfide	Sulfur Compounds	1	0	FAIR
Cupric Chloride	Copper Compounds	0	0	GOOD
Cyclohexanone	Ketones	1	2	NR
Dichloromethane	Halogen Compounds	2	2	NR
Diethylamine	Aliphatic Amines	1	1	FAIR
Dimethylformamide	Aliphatic Amides	2	2	NR
Ethyl Acetate	Carboxylic Esters	1	0	FAIR
Formaldehyde	Aliphatic Aldehydes	0	0	GOOD
Gasoline	Aromatic Hydrocarbons	0	0	GOOD
Gycol Ether	Ethers	0	0	GOOD
Hexane	Aliphatic Hydrocarbons	0	0	GOOD
Hydrochloric Acid (37%)	Inorganic Acids	0	2	NR
Hydrogen Peroxide (30%)	Peroxides	1	0	FAIR
Hydrofluoric Acid (48%)	Inorganic Acids	0	2	NR
Jet Fuel (JP-5)	Aliphatic Hydrocarbons	0	0	GOOD
Kerosene	Hydrocarbons	0	0	GOOD
Metahanol	Aliphatic Hydroxylic Compounds	0	0	GOOD
Methyl Ethyl Ketone	Aliphatic Ketones	2	0	NR
Mineral Oil	Aliphatic and Alicyclic Hydrocarbons	0	0	GOOD
Naphtha	Hydrocarbons	0	0	GOOD
Nitrobenzene	Nitro Compounds	0	2	NR
Phenol	Aromatic Hydroxylic Compounds	0	2	NR
Propylene Glycol	Hydroxylic Compounds	0	0	GOOD
Sodium Hydroxide (50%)	Inorganic Bases	0	0	GOOD
Sulfuric Acid (98%)	Inorganic Acids	0	2	NR
Sulfuric Acid (50%)	Inorganic Acids	0	2	NR
Tetrachloroethylene	Halogen Compounds (Vinyl Halides)	0	0	GOOD
Tetrahydrofuran	Alicyclic Ethers	2	2	NR
Toluene	Aromatic Hydrocarbons	1	0	FAIR
1,1,1-Trichloroethane	Aliphatic Halogen Compounds	1	0	FAIR
Trichloroethylene	Halogen Compounds (Vinyl Halides)	1	0	FAIR
Triethylamine	Aliphatic Amines	0	0	GOOD
Turpentine	Hydrocarbons	0	0	GOOD
Water	Misc.	0	0	GOOD

## \*IMPORTANT USER NOTICE FOR BOTH THE POLYURETHANE & POLYETHYLENE CHEMICAL COMPATIBILITY GUIDES


The data contained herein is a compilation of existing published data from leading manufacturers of polyethylene and polyurethane and does not represent actual testing performed by UltraTech International, Inc.

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# POLYETHYLENE

## CHEMICAL COMPATIBILITY GUIDE\*

for Ultra  Environmental Containment Products

This listing was prepared to provide guidance to the chemical compatibility of Ultra  Environmental Containment Products® which are manufactured and constructed of a molded polyethylene.

Polyethylene is susceptible to attack by some chemicals which may cause stress cracking, swelling, oxidation or may permeate the polyethylene. These reactions may reduce the physical properties of polyethylene.

When considering an UltraTech polyethylene product for use in secondary containment applications, it is important to note that most secondary containment products are designed to hold leaked chemicals for only hours, a day, at most a week. These secondary containment units would then be cleaned of any chemical. In these short term applications, a greater variety of chemicals may be used with the polyethylene since the exposure time of the chemical to the polyethylene is limited.

A = Suitable for long term storage at 100 degrees F or less.

B = Suitable for short term storage less than one year.

C = Do NOT store these chemicals in UltraTech containers.

User testing may prove some of these chemicals are suitable for secondary containment applications with exposure time of one week or less.

ACETALDEHYDE (40%)	A	BROMINE, WATER	C	ELECTROLYTE	A	MAGNESIUM NITRATE	A	POTASSIUM HYDROXIDE	A
ACETAMIDE	A	BROMOBENZENE	C	ETHANOL	A	MAGNESIUM OXIDE	A	POTASSIUM NITRATE SAT'D	A
ACETIC ACID (50%)	A	BROMOFORM	C	ETHER	C	MAGNESIUM SULFATE	A	POTASSIUM PERBORATE SAT'D	A
ACETIC ACID ANHYDRIDE	B	BUTADIENE	A	ETHYL ACETATE (100%)	B	MALEIC ACID	A	POTASSIUM PERCHLORATE	A
ACETIC ETHER	B	BUTANEDIOL (100%)	A	ETHYL ALCOHOL	A	METHANOL	A	POTASSIUM PHOSPHATES	A
ACETONE	A	BUTANOL	A	ETHYL BUTYRATE	B	METHYL ACETATE	A	POTASSIUM SULFATE	A
ACETYLENE TETRABROMIDE	B	BUTYL ACETATE	A	ETHYL CHLORIDE	C	METHYL ALCOHOL (100%)	A	PROPANOL	A
ACRYLIC EMULSIONS	B	BUTYL ALCOHOL (100%)	A	ETHYL ETHER	C	METHYL AMINE (32%)	A	PROPARGYL ALCOHOL (7%)	A
ACRYLONITRILE	A	BUTYLENE	C	ETHYLENE CHLORIDE	C	METHYL BROMIDE	C	PROPIONIC ACID (50%)	A
ADIPIC ACID	A	BUTYLENE GLYCOL	A	ETHYLENE CHLOROHYDRIN	A	METHYL CHLORIDE	C	PROPYL ALCOHOL	A
ALIPHATIC HYDROCARBONS	A	BUTYLENE LIQUID	C	ETHYLENE DIAMINE	A	METHYLENE CHLORIDE	C	PROPYLENE DICHLORIDE (100%)	A
ALKALINE	A	BUTYL PHENOL	C	ETHYLENE DICHLORIDE	C	METHYL ETHYL KETONE	B	PROPYLENE GLYCOL	A
ALLYL ALCOHOL (96%)	A	BUTYRIC ACID	A	ETHYLENE GLYCOL	A	METHYL ISOBUTYL KETONE	B	PROPYLENE OXIDE	A
ALUMINUM CHLORIDE (20%)	A	CALCIUM CARBONATE	A	ETHYLENE OXIDE	C	METHYL ISOPROPYL KETONE	B	PYRIDINE	B
ALUMINUM FLUORIDE	A	CALCIUM CHLORIDE	A	FATTY ACIDS	A	METHYL SULFATE	A	SELENIC ACID	A
ALUMINUM HYDROGEN SOLUTION (10%)	A	CALCIUM HYDROXIDE	A	FERRIC SULFATE	A	METHYL SULFURIC ACID (ALL CONC.)	A	SEWAGE	A
ALUMINUM HYDROXIDE	A	CALCIUM HYPOCHLORITE	A	FERROUS SALTS	A	MINERAL OILS	A	SILICIC ACID	A
ALUMS (ALL TYPES)	A	CALCIUM NITRATE (50%)	A	FERROUS SULFATE	A	MONOCHLOROACETIC ACID ETHYL ESTER	A	SILVER NITRATE	A
AMMONIA (AQUEOUS)	A	CALCIUM SULFATE	A	FLUOBORIC ACID	A	MONOCHLOROACETIC ACID	A	SODA ASH	A
AMMONIUM SALTS	A	CARBON BISULFIDE	C	FLUOSILICIC ACID (ALL CONC.)	A	METHYL ESTER	A	SODIUM ACETATE SAT'D	A
AMMONIUM ACETATE	A	CARBON DISULFIDE	C	FORMALDEHYDE (40%)	A	MOWILITH D	A	SODIUM BISULFATE (10%)	A
AMMONIUM BIFLUORIDE	A	CARBON MONOXIDE	A	FORMAMIDE	A	NAPHTHA	B	SODIUM BISULFITE	A
AMMONIUM CARBONATE (50%)	A	CARBON TETRACHLORIDE	C	FORMIC ACID (ALL CONC.)	A	NAPHTHALENE	B	SODIUM BROMATE	B
AMMONIUM CHLORIDE	A	CAUSTIC (AQUEOUS)	A	FUEL OIL	A	NICOTINE DILUTE	A	SODIUM CHLORIDE	A
AMMONIUM HYDROGEN FLUORIDE (50%)	A	CAUSTIC POTASH SOL. (50%)	A	FURFURAL (100%)	A	NICOTINIC ACID	A	SODIUM CHLORITE	A
AMMONIUM HYDROXIDE	A	CAUSTIC SODA SOL. (10%)	A	FURFURYL ALCOHOL	C	NITRIC ACID <50%	A	SODIUM CHROMATE	A
AMMONIUM METAPHOSPHATE SAT'D	A	CHLORAL HYDRATE	A	GALLIC ACID SAT'D	A	NITROBENZENE	B	SODIUM DISULFITE	A
AMMONIUM NITRATE SAT'D	A	CHLOROETHANOL	A	GASOLINE	A	NITROBENZENE	B	SODIUM DITHIONITE (10%)	A
AMMONIUM PERSULFATE SAT'D	A	CHLORIC ACID (10%)	A	GLUCONIC ACID (ALL CONC.)	A	NITROTOLUENE	B	SODIUM FLUORIDE SAT'D	A
AMMONIUM PHOSPHATE	A	CHLOROACETIC ACID	A	GLYCERINE	A	OCTYL CRESOL	A	SODIUM HYDROXIDE CONC.	A
AMMONIUM SULFATE SAT'D	A	CHLOROBEZENE	A	GLYCOL	A	OLEIC ACID (ALL CONC.)	A	SODIUM HYPOCHLORITE	A
AMMONIUM SULFIDE SAT'D	A	CHLOROPFORM	C	GLYCOLIC ACID (ALL CONC.)	A	OLEUM CONC.	C	SODIUM NITRATE	A
AMMONIUM THIOCYANATE SAT'D	A	CHLOROMETHANE	C	HEPTANE	A	OXALIC ACID (ALL CONC.)	A	SODIUM OXALATE	A
AMYL ACETATE	A	CHLORSULFONIC ACID (100%)	C	HEXANE	A	PALMITIC ACID	C	SODIUM PERSULFATE	A
AMYL ALCOHOL (100%)	A	CHROME ALUM SAT'D	A	HYDRAZINE HYDRATE	A	PARAFFIN EMULSIONS	A	SODIUM PHOSPHATE	A
AMYL CHLORIDE	C	CHROMIC ACID (50%)	B	HYDROSULFITE (10%)	A	PERCHLORIC ACID (50%)	A	SODIUM SULFONATES	A
ANILINE (100%)	B	COPPER CYANIDE	A	HYDROXYLAMINE SULFATE	A	PERCHLOROETHYLENE	B	STEARIC ACID (ALL CONC.)	A
ANILINE HYDROCHLORIDE	B	CRESYLIC ACID	A	HYDROZINE (35%)	A	PETROLEUM	A	SUCCINIC ACID	A
ANTI-FREEZE	A	CROTONIC ALDEHYDE	A	HYDROZINE HYDROCHLORIDE	A	PETROLEUM ETHER	B	SULFURIC ACID (98%)	B
ANTIMONY SALTS	A	CUPROUS CHLORIDE SAT'D	A	HYDROIODIC ACID (ALL CONC.)	A	PHENYLHYDRAZINE	C	SULFURIC ACID, FUMING	C
ANTIMONY TRICHLORIDE (90%)	A	CYCLOHEXANE	A	HYDROBROMIC ACID (50%)	A	PHOSPHORIC ACID (ALL CONC.)	A	SULFUROUS ACID	A
AQUA REGIA	A	CYCLOHEXANOL	A	HYDROCYANIC ACID SAT'D	A	PHOSPHOROUS CHLORIDES	B	SULFURYL CHLORIDE	C
AQUEOUS ALKALIES (NaOH)	C	CYCLOHEXANONE	B	HYDROCHLORIC ACID (ALL CONC.)	A	PHOSPHOROUS (YELLOW 100%)	A	TARTARIC ACID SAT'D	A
ARSENIC ACID	A	DEXTROSE SAT'D	A	HYDROFLUORIC ACID (ALL CONC.)	A	PHOSPHOROUS PENTOXIDE	A	TETRACHLOROETHANE	C
ARIUM SALTS	A	DIBUTYL ETHER	C	HYDROFLUORIC ACID (ALL CONC.)	A	PHOTOGRAPHIC SOLUTIONS	A	TETRACHLOROETHYLENE	C
ARIUM CARBONATE	A	DIBUTYL PHTHALATE	B	HYDROFLUOROSILICIC ACID (ALL CONC.)	A	PHTHALIC ACID (ALL CONC.)	A	TETRAHYDROFURANE	C
ARIUM CHLORIDE	A	DIBUTYL SEBACATE	B	HYDROGEN BROMIDE (10%)	A	PHTHALIC ANHYDRIDE	A	TETRAHYDRONAPHTHALENE	C
ARIUM CYANIDE	A	DICHLOROACETIC ACID	B	HYDROGEN PEROXIDE (90%)	A	PICKLING BATHS	A	THIONYL CHLORIDE	C
ARIUM HYDROXIDE	A	DICHLOROBENZENE, LIQUID	C	HYDROGEN SULFIDE (100%)	A	SULFURIC ACID	A	TITANIUM SALTS	B
ARIUM NITRATE	A	DICHLOROTHYLENE	C	HYDROQUINONE	A	HYDROCHLORIC ACID	A	TOLUENE	B
ARIUM SULFATE	A	DIESEL FUEL	B	HYDROGEN SULFIDE	A	PICRIC ACID (1%)	A	TOLUENE SULFONIC ACID (ALL CONC.)	B
ARIUM SULFIDE	A	DIESEL OIL	B	HYPOCHLOROUS ACID	A	PLATING SOLUTIONS	A	TRANSFORMER OIL	A
BATTERY FLUID, ACID	B	DIETHYL CARBONATE	A	ISO-OCTANE	B	POTASSIUM/ALUMINUM SULFATES (50%)	A	TRIBUTYLPHOSPHATE	A
BENZALDEHYDE	A	DISODIUM PHOSPHATE	A	ISOPROPYL ACETATE	A	POTASSIUM BICHROMATE	A	TRICHLOROACETIC ACID	B
BENZENE	B	DIETHYLENE GLYCOL	A	ISOPROPYL ALCOHOL	A	POTASSIUM BORATE (10%)	A	TRICHLOROETHANE	C
BENZENE SULFONIC ACID	B	DIETHANOLAMINE	B	ISOPROPYL ETHER	C	POTASSIUM BROMIDE	A	TRICHLOROETHYLENE	C
BENZOIC ACID	A	DIGLYCOLIC ACID (30%)	A	JET FUEL	B	POTASSIUM CHLORATE	A	TRICRESYL PHOSPHATE	A
BENZYL ALCOHOL	A	DI-ISOBUTYL KETONE	B	KEROSENE	B	POTASSIUM CHLORIDE	A	TRITHANOLAMINE	A
BENZYL CHLOROPFORMATE	A	DIMETHYLAMINE	B	LACTIC ACID (ALL CONC.)	C	POTASSIUM CHROMATE	A	TRIOCTYL PHOSPHATE	C
BORAX COLD SAT'D	A	DIMETHYL FORMAMIDE	B	LEAD ACETATE SAT'D	A	POTASSIUM CYANIDE	A	TRISODIUM PHOSPHATE SAT'D	A
BORIC ACID DILUTE	A	DINONYL PHTHALATE	C	MAGNESIUM SALTS	A	POTASSIUM DICHROMATE (40%)	A	TRICHLOROETHYLENE	C
BORIC ACID CONC.	A	DIOCTYL PHTHALATE	C	MAGNESIUM CARBONATE	A	POTASSIUM FERRI/FERRO CYANIDE SAT'D	A	TURPENTINE OIL	C
BROMINE, LIQUID	C	DIPHENYL OXIDE	C	MAGNESIUM HYDROXIDE	A	POTASSIUM FLUORIDE	A	XYLENE	C