

# CHEMICAL COMPATIBILITY TABLE

## For DrumQuik<sup>®</sup> PRO Series Coupling Materials

(Updated 11/10/06)

INTERPRETATION OF TEST DATA					
	SWELLING (In 30 days to 1 year of exposure)		LOSS OF TENSILE STR.		DESCRIPTION OF CHEMICAL ATTACK
	Linear (Plastics)	Volumetric (Elastomers)	(Plastics)	(Elastomers)	
A	< 10%	<= 15%	< 15%	<= 15%	Excellent, little or no swelling, softening or surface deterioration
B	< 15%	<= 30%	< 30%	<= 30%	Good chemical resistance, minor swelling, softening or deterioration
C	< 20%	<= 50%	< 50%	<= 60%	Limited chemical resistance, moderate attack, conditional service
NR	> 20%	> 50%	> 50%	> 60%	Severe attack, not recommended for use

NOTE: All temperatures are in degrees Fahrenheit. Conversion: °C = (°F - 32)/1.8

CHEMICAL		SPRING Materials		COUPLING Materials		SEAL Materials		Torque Tool Acetal/POM (Celcon)
Name	Formula	Hastelloy C	316 SS	Polypro	HDPE	FKM	EPDM	
Acetic Acid	C <sub>2</sub> H <sub>4</sub> O <sub>2</sub>	A to 212°	A to 212°	A to 140° AB 50-100% to 160° AB to 80% to 180°	AB 100% to 70° AB 60% to 180°	A 10% to 70° B 10-25% to 100° B 50% to 140° B 50% to 70°	A to 70° AB to 200°	A to 5% to 70° BC 10% @ 70°
Acetic Anhydride (Acetyl Oxide)	(CH <sub>3</sub> CO) <sub>2</sub> O	A	A to 40% to 165° A 40-100% to 300°	AB to 130° NR @ 140°	B/NR 100% 70-180°	NR	B to 200°	NR at 70°
Acetone (Dimethyl Keytone)	CH <sub>3</sub> COCH <sub>3</sub>	A	A to 212°	A to 230°	C at 70°	NR	A to 200°	A at 5% to 140° B at 70°
Acetonitrile (Methyl Cyanide)	CH <sub>3</sub> CN	B @ 70°	A 100% to 100° NR 4% @ 192°	AB to 75° NR @ 122°	A to 122°	NR	A	NR at 70°
Aluminum Sulfate (Aluminum Salt)	Al <sub>2</sub> O <sub>12</sub> S <sub>3</sub>	A to 165°	A to 50% to 212° AB 50-100%	A to 100% to 160° A to 10% to boiling AB 100% at 250°	A to 160°	A to 100% to 176° A to 10% to boiling	A to 176° AB to 200°	A to 10% to 70° AB to 100% to 180°
Amines (General)		A to 85% to 160° AB to 200°	A	AB to 120°	NR	NR	AB to AC	NR at 70°
Ammonia Gas (Anhydrous)	NH <sub>3</sub>	A @ 100% to 140°	A to 40% to 165° A 40-100% to 212°	A to 100% to 212°	A to 140°	NR	A to 140°	NR at 70°
Ammonia (Aqueous) (Ammonium Hydrate)	NH <sub>3</sub>	A to 100% to 70° AB to 100% to 200°	A to 100% to 70° AB to 212°	A to 185°	BC to 30% to 120° NR to 30% at 140°	AB 30% to 70° C 10% @ 104° A ammonia H2O	A 100% to 212°	A/NR 10-30% to 120°
Ammonium Acetate	C <sub>2</sub> H <sub>7</sub> NO <sub>2</sub>	A 19%	A to 100% to 150°	A to 102° AB to 180°	A to 122°	A to 140° B at 212°	A to 140° B at 212°	A to 70°
Ammonium Fluoride	NH <sub>4</sub> F	A to 25% to 175° A 45% to 260°	AB to 10% to 212° NR > 10%	A	AC 25-100% to 120° A to 25% to 160°	A to 140°	A to 140°	NO DATA
Ammonium Hydroxide (Ammonia, Aqueous)	NH <sub>4</sub> OH	A to 47% to 70° A 100% to 150° AB 100% to 200°	A to 100% to 70° A 100% to 150°	A to 225°	AB to 100% to 140°	A 46% to 70° AB to 70° B 104-140°	A to 160° AB to 200°	AB to 100% to 140°
Ammonium Sulfate (Dolamin)	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	A to 10% to boiling A sat. to 130° AB sat. to 200° NR	A to 37% to 221° AB 38-80% to 150° A sat'd to boiling NR	A 10% to 100°	A to 100% to 70° AB to 100% 120-180°	A to 70°	A to 120°	B 100% 70-140° AB fertilizer to 70° AB to 5% to 70° NR at 70°
Aqua Regia (Nitrohydrochloric Acid)	HCL-HNO <sub>3</sub>	(Titanium: A to 70°) (Tantalum: A)	A to 20% to 217° AB 20-100% to 200°	AB to 10% to 70° AB dilute to 140°	NR	A to 70° B to 185°	NR to 140°	AB to 140°
Benzene (Mineral Naphtha) (Benzol)	C <sub>6</sub> H <sub>6</sub>	AB @ 100% to 140° B to 100% to Boiling	A to 20% to 217° AB 20-100% to 200°	AB to 10% to 70° AB dilute to 140°	A to 10% to 70° C/NR at 100% at 70° NR at 122°	B to 158°	NR at 70°	A to 140°
Butyl Acetate (N-Butyl Acetate)	C <sub>8</sub> H <sub>12</sub> O <sub>2</sub>	A	A	NR	AC at 70° BC at 120°	NR at 70°	B at 70°	AB to 70°
Calcium Carbonate (Aglime)	CCaO <sub>3</sub>	B to 100% to Boiling	A Dilute to 120° AB @ 100%	A to 248°	A to 160°	A to 248°	A to 140°	A to 10% to 150° AB to 180°
Ceric Ammonium Nitrate (CAN)	CeH <sub>8</sub> N <sub>8</sub> O <sub>18</sub>	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Chlorine (Anhydrous) (Dichlorine, Chlorinated water)	CL <sub>2</sub>	A to 140° (to 10 ppm to 70°)	A to 70° (to 10 ppm to 70°)	NR	A to 2% to 140° NR	C 400 ppm at 70°	B 400 ppm at 70° C 400 ppm at 104°	NR at 10-100% at 70°
Citric Acid	C <sub>6</sub> H <sub>8</sub> O <sub>7</sub>	A to boiling	A to 50% B 100% 70-212° NR 60-100% >125°	A	A to 100% to 160° AB to 100% at 180°	A	A	AB at 15% at 140-150° B at 15-100% at 70° C at 100% at 140-150° AB to 100% to 140°
Copper Sulfate (Cupric Sulfate)	CuO <sub>4</sub> S	A to boiling	A to 100% to 160° A to 45% to 180° A to 10% to 2121° A to 100 to 100°	A	A to 50% to 150° AB at 50-100% to 180	A to conc. to 176° AB to 212°	A to conc. to 176° AB to 212°	AB at 15% at 140-150° B at 15-100% at 70° C at 100% at 140-150° AB to 100% to 140°
Cyclohexanone (Cyclohexyl ketone)	C <sub>6</sub> H <sub>10</sub> O	A to 100°	A to 100 to 100°	AB to 70° B at 70-100° NR at 120°	NR	NR at 70°	BC at 70°	A to 70° AB to 140°
Dichloroacetic Acid (DCA)	CL <sub>2</sub> CHCO <sub>2</sub> H	NO DATA	NO DATA	AB to 100% to 125°	BC at 70°	NR	NO DATA	NO DATA
Dichloromethane (Methylene Dichloride)	CH <sub>2</sub> CL <sub>2</sub>	AB	A to 70°	B/NR @ 70° C/NR @ 88-122°	NR	B @ 70°	BC to 130° NR @ 140°	A to 70°
Dimethyl Acetamide (DMAC)	C <sub>4</sub> H <sub>9</sub> NO	NO DATA	NO DATA	AB to 125°F	A to 122°	NO DATA	NO DATA	NO DATA
DI water	H <sub>2</sub> O	A	A	A	A to 140°	A to 70° AB to 200°	A to 70° AB to 200°	NO DATA
Ethyl Alcohol (Ethanol/Grain Alcohol) (Denatured Alcohol)	C <sub>2</sub> H <sub>5</sub> OH	A to 100% to 212°	A to 100% to 200°	A to 100% to 180°	A to 100% to 160°	A to 70°	A to 200°	A at 96-100% to 70° B at 100% at 120-180°
Ethylene Glycol (Glycol Alcohol)	HOCH <sub>2</sub> -CH <sub>2</sub> OH	A 20-100%	A 40-100% to 200° A 100%	A	A to 160°	A to 250°	A to 212°	A to 100% to 120° AB to 140° B at 180°
Ethyl Acetate (Acetic Ether)	C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	A	A	A to 180°	BC at 100% at 70° C at 100% at 122° NR at 100% at 140° NR at 100% at 140°	NR	A to 130°	A to 10% to 200° AB at 100% to 70° BC at 100% at 140° A to 70°
Ether (Ethyl Ether) (Diethyl Oxide) Formic Acid (Formylic Acid)	C <sub>4</sub> H <sub>10</sub> O CH <sub>2</sub> O <sub>2</sub>	A 100% to 200° A to 56% to 171°	A 100% to 212°	NR	NR	NR	NR	NR at 3-100% at 70°
Gasoline (Petrol)		A	A to 200°	NR at 70°	NR	AB to 200°	NR at 70°	A to 70°
Glycerin (Glycerol)	C <sub>3</sub> H <sub>8</sub> O <sub>3</sub>	A to 100% to 212° A @ 100% to 600°	A to 100% to 200° A @ 100% to 300°	A to 100% to 225°	A to 160° A to 150° AB to 180°	A to 250°	A to 176° AB to 200°	A to 140°
Hexane (Dipropyl) (N-Hexane)	C <sub>6</sub> H <sub>14</sub>	A	A 100% to 200°	BC @ 70-104° C @ 120-140° NR @ 140°	NR	A to 200°	NR	A to 70°

HMDS (1,1,1,3,3,3-Hexamethyldisilazane) Bis(trimethylsilyl)amine	C <sub>6</sub> H <sub>19</sub> NSi <sub>2</sub>	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Hydrobromic Acid (Hydrogen Bromide)	HBr	A 50% to 80° A 100% to 140° AB to 20% to 70°	NR	A 20% to 225° A to 50% to 150° B Conc. to 185°	A to 20% to 160° A to 50% to 140° B 50-100% at 70-150°	A to 140°	A to 200°	NR
Hydrochloric Acid (Muriatic Acid)	HCL	A to 40% to 140° NR 5-100% 175°	NR 3-100%	A to 100% to 70° A to 36% to 150° A to 10% to 185°	A to 100% to 140° A to 40% to 160° AB to 40% to 150°	A to 20% to 230° A to 25% to 140° AB 50-100% to 70°	A to 25% to 140° A to 3 molar to 158° AB to 37% to 130°	A to 10% to 70° NR at 30-100% at 70°
Hydrofluoric Acid	HF	A to 100% to 70° A 90% to 125°	A to 10% AB 16% to 120° NR 45-80%	A to 50% to 140° A to 40% to 200° A to 30% to 225°	A to 60% to 140° A to 40% to 180° A to 30% to 160°	A to 60% to 130° A to 50% to 176° A to 30% to 212°	A dilute to 212° AB to 60% to 130° AB to 65% to 70°	NR at 70°
Hydrogen Peroxide (Hydrogen Dioxide)	H <sub>2</sub> O <sub>2</sub>	A to 100% to 75° A to 50% to 200°	A to 30% to 104° A 50-100% to 70°	A to 80% to 70° A to 5% to 170° NR 30% > 125°	A to 30% to 140° AB at 30-90% to 120° AB at 30-100% to 70°	A to 104° A 50% to 200° AB @ 100% @ 160°	B 3-30% @ 70°	NR at 4-100% at 70°
Iodine	I <sub>2</sub>	A	A 9-10% to 72° NR > 10%	A to 100% @ 75° AB to 100% @ 176°	A to 6.5% to 70°	A to 100% to 140°	AB to 160°	A to 70° C/NR at 100% at 70°
Isopropyl Alcohol (IPA) (Isopropanol)	(CH <sub>3</sub> ) <sub>2</sub> CH-OH	A 100% to 212° A 47% to 356° A 11% to 70° A to 212°	A to 100% to 140° A 100% to 212°	A to 225°	A to 160°	A to 170° B @ 212°	A to 160° B @ 176°	A to 70°
Methyl Alcohol (Methanol) (Wood Alcohol)	CH <sub>3</sub> OH	A	A	A to 70° BC 100 @ 180°	A to 100% to 122° AB at 100% at 140°	NR	A to 160° AB to 176°	A to 140° B at 180°
Methylene Chloride	CH <sub>2</sub> CL <sub>2</sub>	A	A to 100% to 200° A to 90% to 212°	NR	NR	B @ 70°	BC to 130°	A to 70°
Methyl Ethyl Keytone (MEK)	C <sub>4</sub> H <sub>8</sub> O	A to 200°	A to 200°	A to 100% to 70° AB at 100% at 125° AB at 100% at 122°	NR	NR at 70°	A to 140° AB to 240°	A to 70° AB at 70-180°
MINNOCARE® Cold Sterilant (Hydr. Peroxide, Peracetic acid, Acetic acid)	H <sub>2</sub> O <sub>2</sub> C <sub>2</sub> H <sub>4</sub> O <sub>3</sub> C <sub>2</sub> H <sub>4</sub> O <sub>2</sub>	A	A	A	A	B	B	NO DATA
N-Methyl 2-Pyrrolidone	NMP CH <sub>3</sub> N(CH <sub>2</sub> ) <sub>3</sub> CO	NO DATA	NO DATA	A	NO DATA	NR	NR	NO DATA
Nitric Acid (Hydrogen Nitrate)	HNO <sub>3</sub>	A to 99% to 130° A to 50% to 140° AB 10% to 185°	A to 100% to 120° A to 60% to 175° A to 50% to boiling	A to 50% to 104° A to 30% to 180° A to 10% to 210°	A to 30% to 140° A to 40% to 70° AB at 50% to 70°	A 50% to 140° A 90-100% to 158° AC 60-70% to 70°	A to 25% to 70° A to 10% to 104° B 25-30% to 140°	NR
Oxalic Acid (Ethanedioic Acid)	C <sub>2</sub> H <sub>2</sub> O <sub>4</sub>	A to 100% to 140° A to 50% to Boil B 60-100% to Boil	A to 100% to 100° A 20-50 to 125° B 60-90% @ 70°	A to 50% to 180°	A to 100% to 140° AB to 100% to 180° NR at 100% at 212°	A to 100% to 140° A to 50% to 176°	A	C at 5% at 70-150° C at 10% at 70°
Ozone (trioxygen)	O <sub>3</sub>	A 2% to 140°	A to 70° A 2% to 140°	NR	AB weak conc. at 70° C sat'd in H2O at 70° NR at 2-100% at 105°	A to sat. to 70° NR sat @ 140°	A to sat. to 70° NR sat @ 140°	NR
Phosphoric Acid	H <sub>3</sub> PO <sub>4</sub>	A to 200° A to 50% to boiling	A to 40% to 240° A to 70% to 150°	A to 185° A to 75% to 225°	A to 100% to 140° A to 75% to 160° AB to 90% at 160-180	A to 140° A to 85% to 176° A 75% to 212°	A to 130° A to 85% to 176° B to 30% to 212°	C at 0.3-10% at 70° NR at 10-100% at 70°
Propylene Glycol (PG-12)	C <sub>3</sub> H <sub>8</sub> O <sub>2</sub>	B @ 100% @ 70°	A to 30% A @ 80-90% A @ 60%	AB to 160°	A to 140° AB at 180°	A to 140°	A to 70°	A to 70°
PGMEA (Propylene Glycol Monomethyl Ether Acetate)	C <sub>6</sub> H <sub>12</sub> O <sub>3</sub>	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
PGME (Propylene Glycol Monomethyl Ether) (Dowtherm 209 / Dowanol PM)	C <sub>4</sub> H <sub>10</sub> O <sub>2</sub>	A	A	A to 140° AB to 150°	NO DATA	NR	A 50% to 70°	NO DATA
Potassium Carbonate (Carbonic Acid) (Potash)	CK <sub>2</sub> O <sub>3</sub>	A to 90% to 212° AB 100% to 140°	A to 17% to 240° AB 20- 100% to boil	A to 225°	A to 160° AB at 180°	A to 212°	A to 176° AB to 200°	A to 60-100% to 180°
Potassium Hydroxide (Caustic Potash)	KOH	A to 50% to 200° AB 100% to 185°	A to 100% to 70° A to 70% to 150°	A to 70% to 185°	A to 100% to 160° AB to 100% at 180°	AB to 70° AB to 70% to 140° A 5% to 150°	A to 200° B 25% @ 212	B to 100% to 180°
Potassium Permanganate	KMNO <sub>4</sub>	A to 50% to 75° AB 100% to 200° B to 30% 75-212°	A to 25% to 70° AB to 100% to 100° A 100% to 130°	A to 100% to 70° A to 25% to 140° A to 10% to 180°	A to 100% to 160° A to 10% to 180° AB at 20% to 180°	A to 140°	A to 200°	A to 10% to 140° NR conc.-100% at 70°
Pyridine (Azine)	C <sub>5</sub> H <sub>5</sub> N	A to 100% to 100° A 100% to 140°	A to 100% to 212°	A to 100% to 75° AB 100% 120-180° NR 100% @ 120°	BC at 70° C at 140°	NR	B to 160°	AB to 70°
Sodium Bicarbonate (Baking Soda)	CHNaO <sub>3</sub>	A to 100% to 150° AB to 20% to boiling	A to 100% to 150° A to 20% to 212°	A to 225°	A to 160° AB at 180°	A to 212°	A to 176° B at 212°	A to 200°
Sodium Carbonate (Soda Ash)	CNa <sub>2</sub> O <sub>3</sub>	A to 100% to 212°	A to 100% to 212°	A to 100% to 225°	A to 100% to 160° AB to 100% at 180°	A to 212°	A to 176° B at 212°	A to 100% to 140° A to 20% to 180°
Sodium Hydroxide (Caustic Soda)	NaOH	A to 100% to 70° A to 50% to 200° AB 50-80% to 170°	A to 20% AB 20- 70% to 212° AB 70-100% to 125°	A to 125° A to 70% to 225°	A to 100% to 140° A to 70% to 160° AB to 100% at 180°	B to 70° B 80% @ 140°	A to 70° A to 50% to 176° B 20% @ 212°	A to 60% to 180° AB at 60-80% to 180° BC at 80-100% at 70° NR at 10-100% at 70°
Sodium Hypochlorite (Bleach)	CLNaO	A to 50% to 115° A to 20% to 140° AB @ 100% to 200	Generally NR A to 6% to 160° A sat'd to 200°	A to 100% to 70° A to 5% to 120° C 12%-70°	A to 100% to 160° AB to 100% at 180°	A to 100% to 130° BC 20% @ 158°	AB 20-100% to 130°	NR at 10-100% at 70°
STERIS® CIP 100 (Potassium Hydroxide & Tetrasodium EDTA)	Alkaline Cleaner KOH & C <sub>10</sub> H <sub>12</sub> N <sub>2</sub> Na <sub>4</sub> O <sub>8</sub>	A to 200°	A to 150°	A	NO DATA	AB to 140°	A to 200°	NO DATA
STERIS® CIP 200 (Phosphoric Acid & Citric Acid)	Acid Cleaner H <sub>3</sub> PO <sub>4</sub> C <sub>6</sub> H <sub>8</sub> O <sub>7</sub>	A to 200°	A to 150°	A	A	A	A to 176°	C
Sulfuric Acid (Air-free) (Better when aerated)	H <sub>2</sub> SO <sub>4</sub>	A to 60% to 70° A 90-100% to 100° (A to 100% to 140°)	A to 20% to 70° A 80-100% to 70° Sensetive to concen.	*A to 10% to 212° A to 50% to 176° A to 90% to 104°	A to 75% to 70° NR at 70°	A to 158° A to 60% to 140° A to 50% to 212°	A to 90% to 70° A to 80% to 140° A 10% to 176°	A to 3% to 70° NR at 10-100% at 70° NR at 30% at 70° A to 70°
Tetrahydrofuran (Tetramethylene Oxide)	C <sub>4</sub> H <sub>8</sub> O	A to 200°	A to 200°	BC @ 70° C/NR @ 100-120° NR @ 140° A to 150°	NR at 70°	NR	NR	A to 70°
Tetramethyl Ammonium Hydroxide (TMAH)	C <sub>4</sub> H <sub>13</sub> NO	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Thionyl Chloride (Sulfinyl Chloride) (Sulfurous Chloride)	CL <sub>2</sub> OS	NO DATA	NR	B/NR 10 - 100% @ 70°	NR	AB to 70°	NR	AC at 70°
Toluene (Toluol)	C <sub>7</sub> H <sub>8</sub>	A to 212°	A 100% to 212°	NR	AB to 70° C/NR at 70° NR at 140°	A to 100° BC to 200°	NR	A to 70° AB at 140° C at 180° NR at 70°
Trichloroacetic Acid (TCA)	C <sub>2</sub> HCL <sub>3</sub> O <sub>2</sub>	A 100% to boiling AB to 100% to boil.	NR	A to 140° AB @ 150°	A to 10% to 140° AC at 70-150°	NR	B at 70°	NR at 70°
Trichloroethylene (Ethylene Trichloride) (Triad)	C <sub>2</sub> HCL <sub>3</sub>	B 90% to 212° A 100% to 212°	A 90% to 212° A 100 to 140°	NR	B at 70° C at 122° NR at 212°	NR	B	AB at 70-180°
Xylene (Xylol)	C <sub>8</sub> H <sub>10</sub>	A	A 75-100% A 50% to 220°	NR	NR at 70°	A to 140°	NR	A to 140° AB at 180°

**WARNING:**

The compatibility data was assembled primarily from the Chemical Resistance Guides published by COMPASS PUBLICATIONS ©. The table is to be used as a general guide only. Colder Products Company is not responsible for the accuracy of this data and assumes no obligation of liability in connection with its use. Therefore, CPC insists that all customers test and evaluate the suitability for use of CPC couplings in their particular application before using the couplings!

**NOTES:**

\* Polypropylene may discolor after prolonged exposure in Sulfuric Acid.