Civil-Tex

Geosynthetics

GUIDELINES FOR POLYPROPYLENE GEOTEXTILES CHEMICAL RESISTANCE

Polypropylene resin is the most common polymer used in the manufacturing of geotextiles. In fact, more than 85% of the geotextiles manufactured in the world a made from polypropylene fibers. Polypropylene is highly resistant to mechanical abuse and chemical attack. Polypropylene is stable within a pH range of 2 through 13 making it one of the most stable polymers available for geotextile application today. Most of the geotextiles produced from polypropylene fibers are UV stabilized using a proprietary chemical stabilization package.

This is intended to provide general guidelines on the possible utilization of polypropylene geotextiles for the conveyance of fluids

- at temperatures up to 100 ^{o}C.
- in the absence of internal pressure and external mechanical stress.

The following table has been extracted from ISO/DATA 5-1978.

Table - Fluids considered as conveyable without pressure up to 100 C in polypropylene not subjected to mechanical stress.

CHEMICAL OR PRODUCT	CONCENTRATION
Ammonium metaphosphate	Sat. sol.
Ammonium nitrate	Sat. sol.
Ammonium sulphate	Sat. sol.
Amyl alcohol	100%
Barium carbonate	Sat. sol.
Barium chloride	Sat. sol.
Barium hydroxide	Sat. sol.
Barium sulphate	Sat. sol.
Calcium carbonate	Sat. sol.
Calcium chloride	Sat. sol.
Citric acid	10%
Copper (11) nitrate	30%
Distilled water	100%
Ethyl alcohol	Up to 95%
Ethylene glycol	100%
Fructose	Sol.
Fruit juice	

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Glucose	20%
Glycerine	100%
CHEMICAL OR PRODUCT	**CONCENTRATION**
Hydrochloric acid	From 2% to 7%
Isopropyl alcohol	100%
Linseed oil	
Magnesium carbonate	Sat. sol.
Milk	
Phosphoric acid	Up to 85%
Potassium hydroxide	Up to 50%
Sea water	
Silicone oil	
Sodium acetate	Sat. sol.
Sodium chloride	10%
Sodium dichromate	Sat. sol.
Sodium hydrogen carbonate	Sat. sol.
Sodium hydroxide	1%
Sodium hydroxide	60%
Sodium phosphate (neutral)	Sat. sol.
Sodium sulphite	40%
Sulphuric acid	Up to 10%
Water brackish, mineral, potable	

Polymers / Properties	Polypropylene*	Polyethylene*	Polyester*
Resistance against			
Acids, diluted	excellent	excellent	good
Acids, concentrated	requires assess	requires assess	not achieved
Alkali, diluted	excellent	good	requires assess.
Alkali, concentrated	requires assess.	requires assess.	not advised.
Microorganisms	very good	very good	very good
Hydrolysis (Humidity and high temperature)	excellent	excellent	not advised
Sunlight	good	very good	good

*U.V. stabilized

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