

ECM Duro-Bond PVC Sheet Lining

Description

Duro-Bond PVC Lining is a flexible lining material of extruded plasticized polyvinyl chloride (PVC) specifically developed for corrosion resistance and adhesive bonding to metals, concrete, and FRP. PVC is a thermoplastic resin that is melt flow processible. Duro-Bond PVC sheet lining is available in thicknesses 90 mils (2.3 mm) and 180 mils (4.6 mm).

Uses

Duro-Bond PVC Lining offers resistance to a variety of chemicals including oxidizing acids such as chromic and nitric, and provides excellent abrasion resistance.

Advantages

The elasticity of **Duro-Bond PVC Lining** allows thermal contraction and expansion without cracking and also minimizes the possible damaging effects of mechanical abuse. Because of its flexibility, bonding is obtained without difficulty, even on intricate contours.

Duro-Bond PVC Lining is applied in sheet form with a smooth, polished surface finish, which makes the lining easy to clean and offers good solution flow. In addition, the electrical insulating properties of **Duro-Bond PVC Lining** are of value in many applications involving electrolytic reactions.

Since heating or curing is not required, **Duro-Bond PVC Lining** can be shop or field installed.

Service Temperature

The maximum continuous service temperature for which Duro-Bond PVC Lining is recommended is 160°F (70°C). Corrosion resistant brick sheathing joined with one of the Electro Chemical Manufacturing corrosion resistant cements is used in conjunction with **Duro-Bond PVC Lining** when excessive temperatures are present. A 4" brick sheathing will provide a temperature drop of approximately 50°F, and an 8" brick lining will provide a drop of about 100°F. When carbon brick are used the temperature drop will be somewhat less.

Chemical Resistance

The information listed may be considered as a basis for recommendation, but not as a guarantee, unless sold and installed by Electro Chemical Manufacturing. For resistance of **Duro-Bond PVC** to chemicals not listed, contact us at 330-313-6372, knightmaterials.com, or info@knightmaterials.com.

Electro Chemical Manufacturing Duro-Bond PVC Lining

Key to Rating

LR = Limited Recommendation
 NR = Not Recommended

Chemical	Conc. (%)	Max. Temp(°F)
Acetic Acid	10	70
Acetic Acid Glacial	100	NR
Acetone	Any	NR
Allyl Alcohol	Any	90
Aluminum Hydroxide	Any	160
Aluminum Salts	Any	130
Ammonia Gas (Dry)	Any	160
Ammonia (Liq-Anhydrous)	Any	NR
Ammonium Hydroxide	10	160
Ammonium Hydroxide	28	100
Amyl Alcohol	Any	90
Aniline	Any	NR
Aniline Hydrochloride	Any	NR
Aqua Regia	Any	NR
Arsenic Acid	80	120
Antimony Trichloride	Any	160
Barium Chloride	Any	160
Barium Hydroxide	Any	160
Barium Sulfate	Any	160
Barium Sulfide	Any	120
Benzaldehyde	Any	NR
Benzene	Any	NR
Benzene Sulfonic Acid	Any	NR
Benzoic Acid	Any	120
Black Liquor	Any	90
Boric Acid	Any	160
Bromine (Liquid)	Any	NR
Bromine (Water)	Any	120
Bromic Acid	Any	120
Butyl Alcohol	Any	90
Butyric Acid	Any	NR
Calcium Chloride	Any	160
Calcium Hypochlorite	Any	120
Calcium Hydroxide	Any	160
Calcium Nitrate	Any	160
Calcium Sulfate	Any	160
Carbon Bisulfide	Any	NR
Carbon Tetrachloride	Any	NR
Castor Oil	Any	90
Chlorine Dioxide	15	90
Chlorine Gas (Dry)	Any	120
Chlorine Gas (Wet)	Any	70-LR
Chlorine Water	Any	90
Chloroacetic Acid	Any	NR
Chlorobenzene	Any	NR
Chromic Acid	10	160
Chromic Acid	30	130
Chromic Acid	40	90
Citric Acid	25	120

Chemical	Conc. (%)	Max. Temp(°F)
Coconut Oil	Any	90
Copper Salts	Any	160
Corn Syrup	Any	120
Cresylic Acid	50	120
Dextrose	Any	160
Disodium Phosphate	Any	150
Ether	Any	NR
Ethyl Acetate	Any	NR
Ethyl Alcohol	Any	100
Ethylene Dichloride	Any	NR
Ethylene Glycol	Any	120
Fatty Acids	Any	90
Ferric Salts	Any	160
Ferrous Salts	Any	160
Fluoboric Acid	Any	160
Fluorine Gas	Any	70
Fluorosilicic Acid	Any	160
Formaldehyde	Any	90
Formic Acid	Any	120
Gasoline	Any	70
Glucose	Any	160
Glycol	Any	70
Hydrobromic Acid	20	130
Hydrochloric Acid	10	160
Hydrochloric Acid	20	130
Hydrochloric Acid	35	NR
Hydrofluoric Acid	10	150
Hydrofluoric Acid	48	NR
Hydrogen Peroxide	3	90
Hydrogen Peroxide	50	NR
Hydrogen Sulfide	Any	120
Hydroquinone	Any	90
Iodine	Any	NR
Kerosene	Any	120
Lactic Acid	28	120
Magnesium Hydroxide	Any	160
Magnesium	Any	160
Maleic Acid	Any	160
Methyl Alcohol	Any	90
Methyl Ethyl Ketone	Any	NR
Mineral Oils	Any	120
Molasses	Any	160
Nickel Salts	Any	160
Nitric Acid	10	160
Nitric Acid	30	130
Nitric Acid	68	NR
Nitric, HF Acid Mix	15-4	160
Nitric, HF Acid Mix	50-10	70
Nitro Benzene	Any	NR
Nitrous Oxide	Any	NR
Oleic Acid	Any	160
Oleum	Any	NR

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Oxalic Acid	Any	160
Ozone	Any	120-LR
Phosphorous (Yellow)	Any	NR
Phosphorous Pentoxide	Any	NR
		Max.
Chemical	Conc. (%)	Temp(°F)
Phosphorous Trichloride	Any	NR
Perchloric Acid	10	120
Perchloric Acid	70	NR
Phenol	Any	NR
Phosphoric Acid	85	160
Picric Acid	Any	NR
Potassium Acid Sulfate	Any	160
Potassium Bromate	Any	160
Potassium Bromide	Any	160
Potassium Chlorate	Any	160
Potassium Dichromate	50	NR
Potassium Ferricyanide	Any	160
Potassium Fluoride	Any	160
Potassium Hydroxide	10	160
Potassium Hydroxide	50	120
Potassium Nitrate	Any	160
Potassium Permanganate	10	120
Potassium Permanganate	25	NR
Potassium Sulfate	Any	160
Potassium Sulfide	Any	160
Potassium Thiosulfate	Any	160
Propyl Alcohol	Any	120
Selenic Acid	Any	70
Silver Nitrate	Any	160
Soaps	Any	160
Sodium Acid Sulfate	Any	160
Sodium Bisulfite	Any	160
Sodium Chlorate	Any	160
Sodium Fluoride	Any	160
Sodium Hydroxide	10	160

Sodium Hydroxide	25	130
Sodium Hydroxide	50	NR
		Max.
Chemical	Conc. (%)	Temp(°F)
Sodium Hypochlorite	16 Cl ₂	70
Sodium Nitrate	Any	160
Sodium Sulfide	Any	120
Sodium Sulfite	Any	160
Sodium Thiosulfate	Any	160
Stannic Chloride	Any	160
Stannous Chloride	25	100
Stearic Acid	Any	70
Sulfur Dioxide Gas	Any	120
Sulfuric Acid	10	160
Sulfuric Acid	35	130
Sulfuric Acid	50	100
Sulfuric Acid	80	NR
Sulfuric Acid	99	NR
Tannic Acid	Any	120
Tartaric Acid	Any	120
Tetraethyl Lead	Any	NR
Turpentine	Any	70-LR
Toluene	Any	NR
Trichloroethylene	Any	NR
Trisodium Phosphate	Any	160
Urea	Any	160
Water	Any	160
White Liquor	Any	90
Zinc Salts	Any	160

Plating Solutions for:
 Cadmium, Copper, Gold,
 Lead, Nickel, Rhodium,
 Tin and Zinc Any 160
 Chromium Any 140

Physical Properties

The normal physical properties of the E-CTFE sheeting are shown in the following table:

Chemical characterization	Thermoplastic polymer
Color	Black
Odor	None
Melting point	160°C
Upper Service Temperature	70°C
Density (23°C)	1.42 g/cm ³
Tensile Strength (N/mm ²)	45 -55
Elongation at Break	20 0%
Solubility in water	Insoluble
Explosion limits	None
Hardness Durometer	D 95
Water absorption	< 0.01
Flammability	V-0
Thermal Expansion Coefficient	7 - 8 x 10 ⁻⁵
23 -150°C (mm/mm/°C)	

Application

The installation of a completely homogeneous lining with **Duro-Bond PVC Lining** is carried out in two steps:

1. After proper cleaning and priming of the surface to be lined, **Duro-Bond PVC Lining** is cemented onto the surface, using a three part adhesive system, consisting of primers for the substrate and vinyl surfaces and a bonding cement. Tensile strength bonds between the lining and the lined surface in the range of 200 psi and peel values up to 50 lbs. per lineal inch are obtained.
2. The butt and corner joints formed between the individual **Duro-Bond PVC Lining** sheets are then sealed by using **Duro-Bond PVC Lining** sealing strips. These sealing strips are heat welded to the seams with a special hot air welding gun, resulting in a homogeneous lining which does not require any vulcanization or other curing.

Method of Testing

All lined surfaces are visually inspected for surface defects. Any special dimensional tolerances required after lining are also checked. All lined areas are then spark tested for pinhole leaks using a dielectric spark tester adjusted to 10,000 volts. The tester is moved constantly and quickly over the lining surface to prevent a burn through.

Repair Procedures

Duro-Bond PVC sheet lining can be shop or field repaired. The repairs to defective or damaged areas in the sheet lining are accomplished by cutting out the faulty area, grinding or grit blasting the substrate surface, preparing a piece of sheet of the same dimension, cementing it into position and subsequently welding the joints as described under Application. The repaired area is then inspected and spark tested to insure lining integrity.

Additional Information

For additional technical or safety information, contact us at 330-313-6372, knightmaterials.com, or info@knightmaterials.com.

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The data provided herein falls within the normal range of product properties, but they should not be used to establish specification limits nor used alone as the basis of design. Electro Chemical Manufacturing assumes no obligation or liability for any advice furnished by it or for results obtained with respect to these products. All such data and advice is provided gratis and Buyer assumes sole responsibility for results obtained in reliance thereon.