SAFETY GUIDELINES

For Sealing BioThane® PVC Coated Belting

CAUTION! Prolonged heating - approximately 5 minutes - of the Alpha, Beta® or Super Grip series belting at 392°F may result in PVC degradation and generate Hydrogen Chloride fumes. Temperatures above 450° F will cause virtually instant degradation and generation of Hydrochloric Acid. [See precautions on reverse side.)

Sealing with Air-Dry Liquids

Water based:

BioSeal is a non-hazardous, non-flammable, low viscosity water sealer, supplied by BioPlastics. It carries no harsh odors and will dry within minutes. It seals the bare fibers of BioThane® belting by penetrating the webbing on cut ends or hole edges of the belt. This sealing action bonds the ends of the web fibers together and prevents fluid absorption into the webbing. This is a high-solids [60%] liquid that generally requires one coating. It may also be pigmented by stirring in commonly available liquid fabric dyes at 5-10% level. The sealer is easily applied with a small brush or pipe cleaner and cleanup is simply done with a damp rag and soapy water.

Solvent Based:

Multi-purpose plastic cement that is used for joining plastic pipe can be used. These products are generally low solids [10%] and can be applied with a brush or pipe cleaner. They contain very flammable solvent that can be a health hazard as well as a fire hazard. Follow the ventilation and handling procedures presented on the container. More than one coating may be necessary to produce a coating of required thickness.

Heat Sealing with Hot Metal Rods/Irons/Flats

Our PVC coatings can be melted over the webbing edges at 400°F or lower, not damage the web and be within safety guidelines. This is the heat sealing process we recommend.

The melting points of Alpha and Beta® coatings vs. the melting point of polyester webbing:

The coating on our Alpha Class has a melting point of 340-360°F. Our Beta Class coatings melt at 290-310°F and our Super Grip melts at 260-300°F. The polyester webbing we use does not melt until 440-460°F. Some customers want to melt the webbing to obtain their seal. To accomplish this they have to heat the web and coating above 460°F and this can be hazardous. Toxic fumes will be generated.

Toxic Fume Generation and Corrosion of Unprotected Metals:

Hydrochloric Acid is also corrosive to unprotected metal. Soft metals like copper or aluminum, as sometimes used in heat sealing belt edges or punched holes, are readily affected and will be corroded in days. Hardened high speed steel drill blanks will last longer, but eventually will be corroded by the acid. In mist or gaseous form, this acid will also corrode the metal in fume exhaust systems unless they are protected with acid resistant coatings. This corrosion begins immediately and can be a fast or slow process. Cleaning of tools and the local area with water-based detergents is recommended.

Metal rods, nails or soldering tips can be somewhat protected from the acid with high temperature mold releases available in spray or liquid form. This is a temporary solution and must be reapplied often for continuous protection. Teflon shrink tubing is another option. It is placed over the metal rod or iron, heated to 625°F+ and shrunk onto the metal piece.

Temperature Control of Metal Sealing Rods or Irons:

Simple soldering irons with 25-35 watts can be purchased from electronic or soldering equipment suppliers. These irons will easily reach 700-800°E The temperature can be controlled with a light dimmer switch. More expensive irons may be required if changing tip sizes is necessary. Teflon shrink tubing over the tips is recommended. If AC electricity is not available but DC electricity can be generated, a power inverter to change DC to AC can also be purchased.

Poison! Danger! Corrosive!
Hydrogen Chloride is a colorless fuming gas. It is highly soluble in water. It will quickly combine with the water in humid air and form Hydrochloric Acid. Hydrochloric Acid liquid and mist cause severe burns to all body tissue. It may be fatal if swallowed or inhaled. Inhalation may cause lung damage.

PLEASE NOTE: this is not a safety issue but the stacking of different colored rolls of bright Beta colors may cause color bleed. We recommend stacking these rolls separately or using a paper or plastic medium in between to prevent color bleed. **DO NOT USE NEWS PAPER**

Potential Health Hazards of Hydrochloric Acid

Inhalation:

Corrosive! Inhalation of vapors can cause coughing, choking, inflammation of the nose, throat, and upper respiratory tract, and in severe cases, pulmonary edema, circulatory failure, and death.

Ingestion:

Corrosive! Swallowing hydrochloric acid can cause immediate pain and burns of the mouth, throat, esophagus and gastrointestinal tract. Swallowing may cause nausea, vomiting, diarrhea and can be fatal.

Skin Contact:

Corrosive! Contact to the skin can cause redness, pain, and severe skin burns. Concentrated solutions cause deep ulcers and discolor skin.

Eye Contact:

Corrosive! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.

Chronic Exposure;

Long-term exposure to concentrated vapors may cause erosion of teeth. Long term exposures seldom occur due to the corrosive properties of the acid.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders or eye diseases may be more susceptible to the effects of this substance.

Precautions

Ventilation and Air Filtration:

Effective exhaust ventilation should always be provided. Local exhaust ventilation is generally preferred because it can evacuate the emissions at their source, preventing dispersion into the general work area. It is also recommended that activated carbon air filters be used at the exhaust entrance to reduce / eliminate the acid gas/organic vapors. Table top or wall mounted fume extractors with active carbon filters can be obtained from electronic or soldering equipment suppliers.

Personal Respirators and Eye Protection:

Extreme exposure to acid gases may require full face piece respirators with a self contained breathing apparatus. Limited exposure to acid gases may only need a half mask respirator with an acid gas / organic vapor cartridge along with chemical safety goggles.

Skin Protection:

We recommend rubber or neoprene gloves, impervious boots, apron or coveralls. The amount of protection needed will depend on the level of exposure to the acid gas / organic vapors.

These guidelines and precautions have been presented to assist our customers when heat sealing our Alpha, Beta® or Super Grip PVC belting. BioPlastics recommend that our customers develop safe work practice programs specifically designed for their individual operations.

BIOTHANE® usa