

SAFETY GUIDELINES

For Sealing BioThane® TPU Coated Belting

CAUTION! Prolonged heating - approximately 5 minutes - of the Gold, Diamond, Granite™ or Griamond® series belting at 482°F may result in TPU degradation and generate Diphenylmethane Diisocyanate (MDI) fumes.

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 edges of punched holes in 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 TPU coatings can be melted over the webbing edges at 400°F or lower, and not damage the web and be within safety guidelines. This is the heat sealing process that we recommend.

The melting points of Gold, Diamond, Granite™ and Griamond® coatings vs. the melting point of polyester webbing:

The coatings on our Gold and Diamond Class have a melting point of 275-295°F. Our Granite™ and Griamond® Class coatings melt at 290-310°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 but this can be hazardous above 482°F.

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°F. 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.

Potential Health Hazards of Diphenylmethane Diisocyanate (MDI)

Inhalation

Vapor can irritate (burning sensation) the mucus membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function.

Ingestion

Skin Contact:

Vapor may cause allergic skin reaction with symptoms of reddening, itching, swelling and rash. Individuals that develop a skin sensitization can develop these symptoms upon a later exposure, even at very low levels.

Eye Contact:

Vapor may cause irritation with symptoms of burning and tearing, and it may cause temporary corneal injury.

Chronic Exposure:

Long-term exposure to Diisocyanate has been reported to cause lung damage that may be permanent.

Aggravation of Pre-existing Conditions:

Persons with pre-existing non-specific bronchial hyper reactivity can respond with asthma-like symptoms. Those persons that are sensitized to Diisocyanate can respond with chest tightness, wheezing, cough, shortness of breath or asthmatic attack.

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 decomposition gases may require full face piece respirators with self contained breathing apparatus. Limited exposure to decomposition gases may only need a half mask respirator with an acid gas/organic vapor cartridge. Safety glasses with side shields are recommended.

Skin Protection:

Wear heat resistant gloves.

These guidelines and precautions have been presented to assist our customers when heat sealing our Gold, Diamond, Granite™ and Griamond® TPU based belting. BioPlastics recommend that our customers develop safe work practice programs specifically designed for their individual operations.

The information contained herein is believed to be reliable, but no representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications or the results to be obtained there from. The information is based on laboratory work with small-scale equipment and does not necessarily indicate end-product performance. Because of the variations in methods, conditions and equipment used commercially in processing these materials, no warranties or guarantees are made as to the suitability of the products for the applications disclosed. Full-scale testing and end-product performance are the responsibility of the user.

BioPlastics shall not be liable for and the customer assumes all risk and liability of any use or handling of any material beyond BioPlastics' direct control. THE SELLER MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Nothing contained herein is to be considered as permission, recommendation, nor as an inducement to practice and patented invention without permission of the patent owner.

