



TECHNICAL BULLETIN # 7

RESILIENT PLAYGROUND SURFACING SYSTEMS

General Health and Safety Issues

Material Toxicity and Other Considerations

Pour-in-Place surfaces are not a new product on the marketplace. For well over 25 years, rubber and polyurethane based playground and other recreational surfaces have been in use throughout the world. In all research known to date, the components and manufactured end products have been deemed safe for use by all populations. This Technical Bulletin discusses both the end product and installer safety issues.

The Components of a PIP Surface

The basic materials include EPDM rubber and MDI based, moisture cure polyurethane. EPDM is a synthetic rubber that is compounded with clay fillers and pigments of various colors. EPDM is latex free. MDI is a part of a family of isocyanates that is the safest of all commercially available forms of isocyanate suitable for manufacture of binders and adhesives. The liquid binders in their raw form are fully reacted and contain no volatile organic compounds or solvents. The mixture has a slight musty and rubber odor, and the only by-product of the installation process is harmless carbon dioxide. Both the EPDM and polyurethane binders are non toxic and non-regulated products that have also tested negative for heavy metals, phthalates and other toxic substances according to the requirements of the Consumer Product Safety Commission.

Safety Concerns of the Installers

As with all chemicals, it is important to prevent skin contact and observe high standards of personal hygiene in order to prevent the risk of irritation caused by dermal exposure and to prevent accidental ingestion of the chemicals. Always wash contaminated hands before eating or smoking. Diisocyanates have been linked to two forms of occupational asthma: allergic and irritant. For additional information see the MSDS for BTR binders and Technical Bulletin #2.

During the many years experience in atmospheric monitoring of our production facility detected levels of MDI have never exceeded TWA / PEL exposure limits. It is important to note that if the binder is heated on site to facilitate mixing and installation because of low temperatures, the free MDI vapor levels will increase and therefore will be more likely to be inhaled. Likewise, smoking will increase the amount of vapor inhaled when

working in proximity to open binder material. When considering the possibility of unreacted MDI (free monomer) in open air, it is safe to conclude that the associated health hazards from inhaling MDI vapor is very low indeed.

Summary

Isocyanate binders in unreacted or uncured form are respiratory sensitizers, and therefore must be treated with care and respect at all times.

The use of MDI based wet pour binders should pose no significant risk to persons using it for the intended application provided that it is used, handled and stored in accordance with the information detailed in the MSDS.

While it is possible that an installer can become sensitized to MDI from using the products as instructed, one should be vigilant for potential problems. Once the material has cured, the surface will emit no odor or off-gassing of organic compounds or solvents.

There has been no limitation placed on the use of these materials in child care centers, schools or hospitals by the Consumer Safety Commission. There are restrictions for domestic or international transport by land, sea or air of BTR MDI based aromatic polyurethane binders

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