

# Understanding Poured in Place Rubber Surfacing

020619

## EPDM Rubber:

**Chemical Makeup:** Ethylene propylene diene monomer

### **Background:**

The most widely used synthetic rubber used for safety surfacing for Playgrounds, Water Parks, Concrete Resurfacing, Running Tracks and more.

### **Problems/Concerns:**

EPDM rubber regardless of the binders used (aromatic/aliphatic) will still breakdown with U.V. The colors will fade or change colors sometimes within days or within the first 2 years of installation. The binders act like a window, allowing the U.V. rays to go through the binder and attack the EPDM Granular. Like a rubber band that's left in the sun to long, the EPDM's physical characteristics will change causing it to become brittle and begin to crack, chalk and pitting will begin. This will have a negative impact for public playground safety surfaces that require compliance to ASTM F1292 and become a liability within 2 years of the surface being installed. Not only will the wear course degrade, the use of recycled, ground up tires for the cushion layer will break down creating an overall surface that is a liability to the safety of the children.

When used for aquatic surfacing, EPDM Surfacing does not hold up well to chlorinated environments. Both the single component urethanes and EPDM Rubber Granules will quickly begin to breakdown in chlorine, in most cases. Another problem when using EPDM Rubber Surfacing is the growth of mold/bacteria. This is a big concern when creating an environment for children to play.

## TPV Rubber:

**Chemical Makeup:** Ethylene Propylene Rubber

### **Background:**

TPV is marketed by Rosehill Polymers as a TPV when in fact it is not a true thermoplastic rubber. TPV stands for Thermoplastic Vulcanized Rubber, where as the material Rosehill Polymers produces is an Ethylene Propylene Rubber without the Diene Monomer.

### **Problems/Concerns:**

When used for aquatic surfacing, EPR "TPV" Surfacing does not hold up well to chlorinated environments. Both the single component urethanes and Rubber Granules will breakdown in chlorinated environments, in most cases. EPR "TPV" Rubber also has issues with the growth of mold/bacteria.

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### PolySoft:

#### **Chemical Makeup: Thermoplastic Olefin**

#### **Background:**

Polysoft is classified as a thermoplastic olefin, its backbone chemistry is based on EVA (ethylene vinyl acetate) which classifies it as a TPE (Thermoplastic Elastomer) not a true rubber. This compound is U.V. resistant and somewhat chemical resistant by nature. Its binders are a single component moisture cured aliphatic urethane which is U.V. stable. This type of polymer is usually used in hospital tubing and mouth guards, to name a few of the most common uses.

#### **Problems/Concerns:**

The problem with this system, being a round pebble type rubber, it can become slippery in wet areas. The single component binder that is used is also not chlorine resistant in long-term chlorinated environments such as zero entry pools. In addition, there has also been issues with mold/bacteria growth on Polysoft Surfaces in some cases. In hot temperature environments, being a TPO (thermoplastic olefin), Polysoft has a low melt point which means it could distort in surface temperatures of 140°F. There has also been complaints in situations when patio furniture is dragged across the surface, the round pebble will change color in areas the furniture comes in contact with.

### PebbleFlex/AquaFlex:

#### **Chemical Makeup: Thermoplastic Urethane Rubber**

#### **Background:**

PebbleFlex/AquaFlex is the 1<sup>st</sup> generation of thermoplastic rubber surfacing that was introduced back in 2001. Classified as a true thermoplastic urethane rubber, it is U.V. stable. When combined with their two-part urethane binder, is a chlorine resistant system.

#### **Problems/Concerns:**

The problem with this system, being a round pebble type rubber like Polysoft, it can become slippery in wet areas.