



December 10, 2010

GARED HOLDINGS POWDER COATED MANUFACTURING PROCESS

To Whom It May Concern:

Gared Holdings, LLC uses powder coating in the manufacturing process on our tubing, accessories, backstop structures, portables, etc. Our powder coating system is cured at **210°C**, and complies with LEED requirements as it does not emit VOCs. Our conclusions are based on current information regarding this subject. This document references one such source.

Supporting information – Source Rohm and Hass The Dow Chemical Company

VOC's in Powder Coatings

“The official test method for determining VOC's is EPA Reference Test Method 24, which uses ASTM D2369 for determination of volatile content. EPA test conditions expose the specimen to 110°C for one hour. Under these conditions, powder coatings can show a volatile loss of up to 1%. It can be shown by other tests, such as the Karl Fischer test which measures water only, that the volatile content of = 1% is the result of moisture absorbed on the powder or in the raw materials used in the manufacture of the powder. **Since water is not classified as a VOC, EPA Reference Test Method 24 shows that powder coatings contain no VOC's.**”

“For the most part, powder coatings are not cured at 110°C, but more typically at temperatures between 140°C and 210°C. At these higher temperatures, very low levels (<0.5%) of weight loss can be attributed to additives such as flow modifiers, degassing additives and stabilizers.”

More detailed information on VOC's in powder coatings may be found in the following references:

1. **Polyester Urethane Powder Coatings Health and Safety Information**, PCI Technical Brief #18, The Powder Coating Institute, Alexandria, VA 22314
2. **Identifying VOC in Powder Coatings**, European Coatings Journal, Nov. 1995
3. **Laboratory Determination of VOC Values**, Modern Paint and Coatings, March 1977
4. **Standard Test Method for Volatile Content of Coatings (ASTM D 2369)**, American Society for Testing and Materials, Philadelphia, PA

Sincerely,

Kevin Needler

Operations Manager

Gared Holdings, LLC

Tel: 317.774.9840 ext. 202

kneedler@perfsports.com