

Is Vinyl Getting a Bad Wrap?

New Data May Soften Opinions

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PVC is one of the most chemically inert materials man has ever created. These resistive properties make PVC an excellent building material for use in severe environmental conditions, (ex. vinyl gloves can withstand 50% solution of caustic soda at pH 13+ indefinitely). It's these very properties that put the word "resilient" in resilient flooring. Yet despite these benefits, the same resistive properties that make PVC so useful are the same properties that contribute toward the negative consequence of PVC use. PVC is bio-acumulative, non-degrative and hard to recycle.

London Olympics 2012 and PVC

Despite the debate surrounding PVC, when cost and intended use were analyzed, it was found to be the best material in several areas, due to its strength, malleability and light weight. It was also cheaper than alternatives such as ethylene tetrafluoroethylene (ETFE). At a recent talk given to the South East Plastics and Rubber Group in London, UK, the ODA's Noah Bold explained, 'We decided we'd use PVC, but to a strict environmental specification'.



London Olympics 2012 Royal Artillery Barracks Shooting Venue

The policy for the use of PVC at the London 2012 Olympics was established in 2009. The Olympic Delivery Authority (ODA) stipulated that PVC destined for constructive purposes was to be manufactured in accordance with the European Council of Vinyl Manufacturers Industry Charter, that it maintain effluent discharges or vent gases below the level set by European Union standards, that efforts be made to procure PVC with a significant amount of recycled content, that the non-recycled content of PVC not contain lead, mercury, or cadmium stabilizers, and that take-back schemes which offer "closed loop" re-use or recycling of PVC used in temporary structures be considered. A hefty challenge but one when forced can be addressed. Fortunately, the technology to meet the ODA requirements already existed. French PVC coated textile manufacturer Serge Ferrari took this challenge and produced a phthalate-free membrane that passed the necessary tests for application. As a result, the largest temporary venue ever built for the Olympics, 100 feet high and a seating capacity of 12,000, the Olympic Basketball Arena used 20,000 square meters of recyclable white PVC membrane. The phthalate-free or "perfect" PVC was also stretched over a modified frame to create a temporary arena for Water Polo as well as the adjacent Aquatics Center and Olympic Velodrome.

ODA stated, "The PVC policy has focused attention on the use of PVC across the project and highlighted that the functional properties of PVC make it the most appropriate material in certain circumstances." It also states, "There are cases that for health and safety reasons, the only solution is a PVC-based material."

The recycling itself is slated to be done in the most sustainable way possible; a novel "closed-loop" process involving crushing, selective dissolving, fibre separation, PVC precipitation and solvent regeneration. The recycled PVC extracted approaches similar quality to virgin material. Most of the recycled vinyl from the London 2012 Olympic Games venues will then be used for the football stadiums currently being constructed for the 2014 FIFA World Cup in Brazil.