



An Applicators Guide to TGIC in Powder Coatings

Powder coatings provide a very durable finish and aesthetically pleasing appearance which enhances the appeal and longevity of the items coated. Powder coatings are applied by manufacturers to a wide array of consumer goods including outdoor furniture, lawn equipment, major appliances and metal office furniture. Since the 1970's these high quality coatings have been safely applied by thousands of coating application companies. The powder coating process is very environmentally friendly, as no solvents are used, and the overspray can be captured and reused. This virtually eliminates any waste streams.

Powder coatings are a fine powder form which is spray applied to the end product. During the application process the powder is electrostatically charged. The items coated with this dry layer are then placed in an oven where the coating melts and hardens into a tough finish. During the hardening process the polymers in the coating chemically react to form an inert hard finish.

TGIC (triglycidyl isocyanurate) is a chemical compound formulated in some powder coatings as a curing agent; this curing agent has been used safely for over 40 years. TGIC is blended with polymers and pigments during the powder coating manufacturing process. During the powder coating manufacturing process TGIC is encapsulated by the polymers in the formulation. The compounded material is then delivered to an industrial finishing operation for application.

The use of TGIC coatings require the same safety precautions as with other powder coatings. Proper housekeeping and industrial hygiene rules must be followed when applying any coating. Applicators should consult the Safety Data Sheet (SDS) for proper Personal Protective Equipment (PPE). Applicators should use proper engineering practices to insure good housekeeping which reduces employee exposure and the possible ignition of airborne dust.

Powder coated items undergo a heat treatment in an industrial oven which allows the powder layer to melt and chemically react, to form a hard and durable surface. The TGIC contained in some powder coatings chemically reacts with polymers during this curing process and transforms into a very stable polymeric matrix.

Industry studies have concluded that TGIC in powder coated finishes is chemically bound into a polymer and cannot volatilize or leach into the environment. When disposing of unused or contaminated powder local disposal rules must be followed (many areas allow material into the normal waste stream when correctly packaged, however each jurisdiction is different and local rules MUST be followed).