



Ti-Pure™
Titanium Dioxide

Toy Safety and Ti-Pure™ Titanium Dioxide Pigment

The Toy Standards, including European Standard EN71-3:2013, European Council Directive 2009/48/EC, ASTM Standard F963-11, International Standard ISO/FDIS

8124-3:2010, the Canadian SOR 2011/17 and the Hazardous Products Act R.S.C., 1985, c. H-3 for Consumer Toy Safety, China GB6675-2003 and Japan ST 2002 (v2010) have requirements for toys to meet in order to be sold in these jurisdictions.

Included in these requirements are extraction limits for metals in toys and toy components, but extraction limits are not provided for individual raw materials used in the manufacturing of toys or their components, such as titanium dioxide. The manufacturer of any toy product has the responsibility to ensure that the finished article complies with this directive including the migration limits relevant to the intended condition of use.

An update to the European Standard EN71-3 and European Council Directive 88/378/EEC has recently been published as European Toy Standard EN71-3:2013, and European Council Directive on Toy Safety 2009/48/EC. The major changes are that the standard defines three different toy categories, and migration limits for 19 elements are specified for each category. This means that the formerly common practice, where the raw material manufacturer generally determines conformance with all values to the processor, will no longer be workable under this Standard, since migration values can be influenced during processing in toy production.

Aluminum was added to the updated EU Standard and Directive. Apart from aluminium, none of the metals or organic compounds cited in the EU Standard and

Directive are intentionally added as raw materials or additives in the manufacture of titanium dioxide pigments. Aluminum surface treatments are utilized throughout the titanium dioxide industry to impart desired processing and durability characteristics to the finished pigment product. In practice, titanium dioxide pigment is encapsulated during compounding by the customer, or is contained within inks or coatings, and is not directly available in unprocessed form to the consumer. Per the standards, final testing of the toy or toy component would be required to determine whether the matrix the titanium dioxide pigment is introduced into prevents migration of aluminum above the allowable limit.

Chromium (VI) is a special case. As described in Annex I to EN 71-3:2013, the detection limit for chromium (VI) is higher than the migration limits for toy materials of Categories I and II.

It should always be remembered that the onus for ensuring compliance of a toy, or toy component, with the requirements of EN71-3 remains with the legal entity placing the article on the market. However if one were to apply these standards directly to the white pigment component of the toys, titanium dioxide pigments would be compliant with ASTM Standard F963-11, International Standard ISO/FDIS 8124-3:2010, the Canadian SOR 2011/17 and the Hazardous Products Act R.S.C., 1985, c. H-3 for Consumer Toy Safety, China GB6675-2003, and Japan ST 2002 (v2010).

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C-10701 (2/16)