

**SECTION 927**  
**IRON OXIDE PIGMENT**  
**(FOR COLORING CONCRETE SURFACES)**

The iron oxide pigment material used for coloring the concrete shall be a crystalline pigment known as black magnetic oxide of iron or ferrosferric oxide, made by a process of chemical precipitation so as to form a pigment of uniformly small particle size. The material shall have a blue-black color and there shall be no brownish hue.

A representative sample, weighing at least 1/2 lb. [0.2 kg] shall be submitted for testing procedure. The mass tone shall be equal to the Department's standard sample in black intensity and blue tone when compared in the following manner.

A paste is made from 35 g of the sample and 15 g of alkali-refined linseed oil, by rubbing upon a smooth or frosted glass slab or lithographer's stone with a spatula or a muller. A mixture identical in size shall be made with the standard pigment, using the same linseed oil and making the same kind and number of rubs.

The colors of the two pastes shall be compared by viewing the underside of adjacent smears placed upon a colorless microscopic glass slide.

The tinting strength of the material shall be equal to the standard in strength and blue tone when compared in the following manner.

Use a fine ground zinc oxide paste made by grinding 2.75 parts by weight of lead-free zinc oxide with one part by weight of alkali-refined linseed oil. Mix 25 g of this zinc oxide paste with 2 g of black permanent concrete stain and compare the tints on glass as was done for color.

The specific gravity shall be not less than 4.68.

When a 10 g sample is digested for 15 minutes in a hot mixture of 75 mL concentrated hydrochloric acid and 25 mL concentrated nitric acid, only slight trace of insoluble residue shall remain after dilution of 250 mL with distilled water.

Not more than 2% shall be retained on a 325 mesh [45  $\mu$ m] sieve by the water-washing method.