White-grey-ordinary-portland-cement-wopc

Portland cement

Portland cement is the most common type of cement in general use around the world as a basic ingredient of concrete, mortar, stucco, and non-specialty grout. It is a fine powder, produced by heating limestone and clay minerals in a kiln to form clinker, grinding the clinker, and adding 2 to 3 percent of gypsum. The low cost and widespread availability of the limestone, shales, and other naturally-occurring materials used in Portland cement make it one of the lowest-cost materials widely used over the last century. Concrete produced from Portland cement is one of the world's most versatile construction materials.

White Portland cement

White Portland cement or white ordinary Portland cement (WOPC) is similar to ordinary, grey, Portland cement in all respects, except for its high degree of whiteness. Obtaining this colour requires high purity raw materials (low Fe2O3 content), and some modification to the method of manufacture, among others a higher kiln temperature required to sinter the clinker in the absence of ferric oxides acting as a flux in normal clinker. As Fe2O3 contributes to decrease the melting point of the clinker (normally 1450 °C), the white cement requires a higher sintering temperature (around 1600 °C). Because of this, it is somewhat more expensive than the grey product.

Use for Portland cement

The most common use for Portland cement is in the production of concrete. Concrete is a composite material consisting of aggregate (gravel and sand), cement, and water. As a construction material, concrete can be cast in almost any...
shape desired, and once hardened, can become a structural (load bearing) element. Concrete can be used in lightweight aggregate concrete sandwich panels, beams, and street furniture, or may be cast-in situ for superstructures like roads and dams. These may be supplied with concrete mixed on site, or may be provided with ‘ready-mixed’ concrete made at permanent mixing sites. Portland cement is also used in mortars (with sand and water only), for plasters and screeds, and in grouts.