



IS 269: 2015 Ordinary Portland Cement — Specification (Sixth Revision)

Cement is one of the most important building materials used in construction industry. It acts as a binding material to bind together different constituents of mortar and concrete. Ordinary Portland Cement is manufactured by intimately mixing together calcareous and argillaceous and/or other silica, alumina or iron oxide bearing materials, burning them at a clinking temperature of around 1450 °C and grinding the resultant clinker with gypsum. The various constituents of cement include lime, silica, alumina, iron oxide and magnesia.

Considering the prime importance of cement as the building material, Bureau of Indian Standards (BIS) had formulated standards on 16 different types of cement based on their composition and specific applications. This standard pertains to ordinary Portland cement (OPC) and covers the requirements such as its manufacture, physical and chemical requirements, packing, storage and marking. The standard provides specifications for three grades of cement namely **OPC 33**, **OPC 43** and **OPC 53** based on their compressive strength. This standard also prescribes requirements for sleeper grade cement (**OPC 43S** and **OPC 53S**) for use in manufacture of concrete sleepers for railways.

For ensuring required performance of cement, the standard prescribes physical requirements such as fineness, setting time, soundness and compressive strength, apart from chemical requirements such as insoluble residue, loss on ignition, and maximum limits of chlorides, sulphur content and magnesia.

The standard provides list of different types of performance improvers such as **fly ash**, **granulated slag**, **silica fumes**, **limestone**, **metakaolin** and **rice husk ash** along with their limits of addition which may be added at the time of grinding of cement clinker in order to modify one or more properties of cement.

OPC finds application in nearly all types of construction such as buildings, foundations, bridges, dams, industrial structures, retaining walls, concrete pavements, flooring, roofing, masonry, plastering, cement based products, and many more.