Analysis of worldwide Portland Cement Market Size and Their Properties

Prof. Barry Wiling
Professor, Department of Computer Science,
U.S.M.N Oman
barrywiling@usmn.edu

Abstract
Portland cement concrete that's Portland cement when combined with water, hardens into a solid mass. Qualitative analysis of cement raw materials gave knowledge into the substance properties of cement. During this paper we are discussing about the varied chemical composition and properties of hydraulic cement. During this paper we also are discussing about the market size of hydraulic cement and application of cement and their ratio.

Keywords: Silica, Lime, fineness, gypsum etc.

I. INTRODUCTION
Portland concrete is an essential component of concrete. Portland solid makes a paste with water that attaches with sand and rock to harden into a structure a strong. These solid has a substance formation of calcium, silicon, aluminum, iron and various fixings. Non-water fueled cements, and pressure driven cement are 2 noteworthy classes of progress concrete. Non-pressure driven cement doesn't set in wet conditions or lowered. Weight driven cements set and become stick due to a manufactured reaction between the dry fixings and water.

Non-hydraulic cements e.g.
(i) Plaster of Paris (CaSO₄.½H₂O)
CaSO₄.½H₂O + 1½H₂O ⇒ CaSO₄.2H₂O (gypsum)

(ii) lime-based cement (CaO)
CaO + H₂O ⇒ Ca(OH)₂ + CO₂→ CaCO₃ (calcite)

II. PORTLAND CEMENT CHEMICAL COMPOUNDs OF PORTLAND CEMENT
It is create by finely ground limestone and finely divided clay to give a burned product containing 65-70% CaO, 18-24% SiO₂, 3-8% Fe₂O₃, 3-8% Al₂O₃ with some others Na₂O, K₂O, MgO, etc. Present day plants grant considerably more proficient handling and moreover, proportion raw mix compositions to create a cement from which a range of strength development and robustness properties can be expected. Effective crushing and mixing of raw materials is fundamental.

![Fig 1 Portland Cement manufacturing](image)

This table shows the chemical compounds of Portland cement, its formula and properties of this compound with weight.

**TABLE 1**

**CHEMICAL COMPOUNDS OF PORTLAND CEMENT**
The graph 2 shows the market size of Portland cement and other from 2014 to expected 2015. Fig 3 shows the application of cement and their ratio.

III. ANALYSIS OF GLOBAL PORTLAND CEMENT MARKET SIZE AND SHARE

Fig 2 Cement market size
IV. CONCLUSION

Portland cement is used worldwide. In this paper we have discussed about the various chemical composition and properties of Portland cement. In this paper we have also discussed about the market size of Portland cement and application of cement and their ratio.

REFERENCES


