

REVIEW PAPER ON EFFECT OF ALUMINIUM DROSS ON PROPERTIES OF CONCRETE

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Abstract - Aluminium dross is a by-product of aluminium production. Industrial waste is one of the major problem to dump in the Environment. The requirement of space for dumping the waste is very difficult to manage at the site. At present, dross is processed in rotary kilns to recover the aluminum.. Test on the setting time, compressive strength, flexural strength and soundness test were conducted at replacement by weight of cement.

Keywords - Aluminum Dross, Environmental Impacts, Rotary Kilns, compressive strength, flexural strength, setting time.

I. Introduction -

The major problem arises in today's environment is handling and disposal of waste materials. Depending on different condition during charging ,melting refining as well as skimming, the metal content of dross may vary between 20 -80% aluminium. According to organization economic co-operation and development definition, residues with more than 45%

Thus; utilize the aluminium dross in the natural cycle by using it as an engineered material. Replacing the cement in concrete by aluminium dross with appropriate proportion can give better performance of concrete. Properties of concrete like compressive strength, flexural strength, durability, corrosion resistivity and setting time enhanced by use of AD^[6].

II. PREVIOUS WORK -

1. N. Y. Galat (2017) "Performance of concrete using aluminium dross". The objective of this project is to investigate the potential use of Dross in concrete products such as, non-aerated concrete, concrete cube.

The main advantage if this type of concrete over the conventional ones is the reduction in the quantity of raw materials.

2. Gireesh M. (2016) Conducted study on "Investigation of concrete produced using recycled aluminium dross for hot weather concreting conditions". They investigated the utilization of recycled Aluminium Dross in producing concrete, which is suitable for hot weather concreting condition. The result observed that initial setting time of the recycled Aluminium Dross concrete extended by about 30min at 20% replacement level.

3. Shaik M. H. (2016) Has worked on "An Experimental Investigation on Use of Secondary Aluminium Dross in Cement Concrete". They studied mechanical properties of new concrete type obtained by adding Aluminium Dross, which is an impure Aluminium mixture, obtained from metals melting and mixing with flux. The result of this study indicate that Aluminium Dross can be used as an ingredient up to 5% to improve expanded concrete.

4. M. Satish reddy (2014) Has worked on "An Experimental In Vestigation On Use Of Secondary Aluminium Dross In Concrete". The objective of this paper is to utilize the aluminium dross in the natural cycle by using it as an engineered material and to investigate the mechanical properties of new concrete type obtained by adding aluminium dross. The results of this study indicate that aluminium dross can be used as an ingredient up to 5% to improve expanded concrete.

5. Nesibe G. O. (2014) Conducted study on "The Effect of Aluminium Dross on Mechanical and Corrosion Properties of Concrete". They investigated the mechanical and chemical behavior of new concrete type

obtained by adding aluminium dross. They concluded that up to a certain limit, Aluminium Dross can improve expanded concrete and corrosion resistivity of concrete.

6. A. U. Elinwa (2011) Has worked on "The Use of Aluminum Waste for Concrete Production". They investigated that setting times, compressive and flexural strengths tests were conducted at replacement levels of 5, 10, 20, 30 and 40 % by weight of cement. They concluded that Aluminium Dross is used as a retarder and hence more suitable in hot weather concrete. The result of this study gives optimum replacement for compressive and flexural strengths are at 10% replacement.

III. CONCLUSION -

From the literature it was observed that;

1.Replacement levels of 10% of cement by aluminum dross can be used to achieve good quality concrete.

2.AD has pozzolonic values and retards the setting times of concrete and, thus could be beneficial for hot-weather concreting.

3.The Aluminium dross improve the durability of concrete.

4.High volume aluminium dross replacement is not appropriate because of its high water absorption capacity.

5.Since aluminium dross swells after in contact with water and cement, it acts as an expanding agent, it can be used in the manufacturing of building subfloors, blocks and pre-molded panels.

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