"AFR has become integral to our fuel mix."

Sanjay Joshi, Chief Projects and Manufacturing Officer, Nuvoco Vistas Corp, discusses the integration of alternative fuels and raw materials (AFR) into cement manufacturing.

Tell us about the alternative fuels and raw materials (AFR) used by your organisation in cement manufacturing.

The AFR usage can decrease environmental impacts, lower consumption of fossil fuels to reduce the economic impact to the cement industry. Fast depleting natural resources like limestone, increased cost of conventional fuels like pet coke and coal, have become a matter of great concern for cement industry all over the world. The high temperature and adequate retention time makes cement kilns most suitable for disposing of alternative fuels. Utilisation of AFR in the cement industry, helps in reduction of the carbon footprint, substituting consumption of fossil fuels and reducing its associated higher cost.

Nuvoco has been a pioneer in this regard, utilising substantial quantities of non-recyclable hazardous wastes, plastics, tire wastes, surplus biomass and RDF as alternative fuels since 2014. To support this initiative, Nuvoco has established comprehensive AFR storage, handling, and feeding facilities in all its plants. Additionally, Nuvoco incorporates alternative raw materials into its cement and clinker raw mix, sourced from industrial and mineral wastes in metallurgy, petrochemicals, chemicals, paper and pulp sectors. These materials include fly ash, slag, metallurgical slags, phosphogypsum and red mud, contributing to a reduced carbon footprint and decreased reliance on fossil fuels and natural conventional raw material.

What factors do you consider when selecting alternative fuels and raw materials?

The selection of AFR for usage in a cement kiln involves a thorough assessment of their potential impacts on clinker and cement manufacturing operations, product quality and the environment. Several important factors must be considered before finalising the choice of AFR.



Sanjay Joshi, Chief Projects and Manufacturing Officer, Nuvoco Vistas Corp

Among these, key parameters include alkali, sulphur, chloride, trace element content, heat (calorific) value and moisture content. Regular reviews of the acceptance criteria are conducted in accordance with local regulations to ensure ongoing alignment with environmental standards and manufacturing requirements. This comprehensive evaluation process ensures that the selected AFR optimally contributes to the cement kiln process while minimising adverse effects on both the product and the surrounding environment.

What is the impact created on the environment by use of AFR in your organisation?

Concerning the co-processing of AFR, the cement industry is actively working towards reducing greenhouse gas emissions and preserving natural resources by incorporating a variety of AFRs in the cement kiln.