

Replacement of coal by RDF (Refused Derived Fuel)

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Abstract

Within Municipal Solid Waste (MSW) management, processing of several fractions that are combustible in nature but are not recyclable such as soiled paper, soiled cloth, contaminated plastics, multilayer, packaging materials, other packaging materials, pieces of leather, rubber, tyre, polystyrene (thermocool), wood etc. has remained a challenge and these fractions unwantedly ends up at landfill sites. These fractions can be processed and converted to refuse derived fuel (RDF), which carries significant calorific value, and can be utilized as alternative fuel in various industries in line with the principle of waste to wealth. The principle of RDF production is recovering quality fuel fractions from the waste, particularly through the removal of recyclable particles such as metal and glass, and converting the raw waste into a more usable form of fuel with uniform particle size and higher calorific value than raw MSW. For example, the broad specification of RDF suitable for the Indian cement plants is preferably having Moisture (< 20 %), average particle size (< 75 mm), calorific value (~ 3000 kcal/kg), Chlorine (< 0.7%), Sulphur (< 2%) and should be free of restricted items such as PVC, explosives, batteries, aerosol containers and bio-medical waste.

Keywords: *Refuse derived fuel; Garbage; Pellet; Moisture; Municipal Solid Waste.*

1. Introduction:

The recent growth of metropolitan populace along with societal and economic prosperity leading to higher energy demand and higher rate of wastage production due to accelerated populace growth. Thus, in order to meet the constant energy demand implementation of solid municipal waste material is indeed a promising feedstock for energy production. In a metropolitan region deposition of several types of municipal solid waste material gets deposited at lower elevated region, often termed as waste disposal area or waste repository. The technique or process is much economically feasible thus it is the most acceptable traditional or conventional method of waste management technique. On contradict of above-mentioned

method accumulation of large amount of municipal solid waste material in combination with organic and non-degradable waste material leads to emission of hothouse gases, thus certain regulations must be stipulated in order to maintain socio, economic and environmental sustainability [Balasubramanian Karpana et al. 2012]. Henceforth the immediate search for a newly developed methodology is highly required to convert municipal solid waste materials into usable energy form [S., Kamyab et al. 2020]. Firstly, the solid municipal waste materials can be apartheid into combustive, non-combustive and moisture enriched materials. The combustive proportion of waste material is defined as refused derived fuel mainly consists of carbon enriched by-products includes several bio-degradable and