

Standardization of Refuse Derived Fuel (RDF) based on Municipal Solid Waste

Management of municipal solid waste is one of the key objectives of Swachh Bharat Mission (SBM) and has been the biggest challenge before the Urban Local Bodies, not only because of their limited resources and technical capabilities, but because of the characteristics of municipal waste and old-set practices of dumping mixed waste. With the implementation of Swachh Bharat Mission, new technologies and practices are being adopted by ULBs to improve their existing waste management practices. Under Swachh Bharat Mission a number of significant initiatives have been undertaken like setting up standards and benchmarks for the promotion of Compost in the open market, C&D Waste utilization (BIS Standardisation), compulsory purchase of power from waste to energy plants etc. The thrust area identified is waste to wealth and accordingly, lot of impetus is given on source segregation but utilization of segregated combustible fraction is still a challenge. To close the waste cycle, especially of combustible portion, the need to set standards for RDF is felt essential for successfully achieving targets of Swachh Bharat Mission by 2nd October, 2019.

Solid Waste Rules, 2016 have emphasized use of RDF material as under:

- i. **Clause 15(v)b** under Duties and responsibilities of local authorities and Village Panchayats of census towns and urban agglomerations, it is mentioned that *“waste to energy processes including refuse derived fuel for combustible fraction of waste or supply as feedstock to solid waste based power plants or cement kilns”*
- ii. **Clause 21:** Criteria for waste to energy process- (1) *Non-recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of on landfills and shall only be utilised for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel. And (2) High calorific wastes shall be used for co-processing in cement or thermal power plants*
- iii. **Clause 18:** Duties of the industrial units located within one hundred km from the refused derive fuel and waste to energy plants based on solid waste state that *“All industrial units using fuel and located within one hundred km from a solid waste based refuse derived fuel plant shall make arrangements within six months from the date of notification of these rules to replace at least five percent of their fuel requirement by refuse derived fuel so produced.”*

Present Status of usage of RDF in Industrial Units

As the Swachh Bharat Mission progresses, several national and international companies have shown willingness to showcase and implement their waste to energy solutions and technologies in India under the Swachh Bharat Mission (Urban). Some of these technology alternatives are use of refuse derived fuel and

segregated waste combustible fraction in boilers and cement kilns as replacement of coal or pet coke etc.

Many ULBs like Panaji, Bengaluru, Coimbatore and 17 towns in Himachal Pradesh on their own have signed MoUs with cement manufacturing units for use of segregated waste combustible fraction in cement kilns. However, the issue of non-homogenized waste, variable calorific value, uncertain supply chain and non-availability of standards for manufacturing and use of RDF have been raised by cement industry more than once. Currently, RDF produced by the ULBs find less market for its utilization despite availability of regulatory provisions in SWM Rules, 2016, the directions by the concerned Ministries/departments and even by the Hon'ble National Green Tribunal. The only reason being is inconsistent quality of RDF. The recently commissioned waste to energy plant based on RDF at Narela-Bhawana has also stating to be generating high bottom ash content more than 20% of the input RDF material. This necessitates developing Standards/ norms for producing RDF and its usage by different industrial units.

Secretary (HUA) in the review meeting held on 03.07.2017 desired to form a committee to prepare norms for producing and usage of RDF. The committee shall prepare detailed Guidelines on Refuse Derived Fuel and recommend standards for its utilization in thermal, cement, steel manufacturing units and Waste to Energy Plants based on RDF usage technologies. The committee is chaired by Dr. N. B. Mazumdar, Ex-Chief (SWM) HUDCO. The committee will identify, evaluate & recommend the processes for manufacturing RDF from municipal solid waste and suggest process modification in thermal/ cement/ and steel manufacturing units for accepting RDF material. It will also give recommendations on what non-technological innovations will be needed (e.g. government policies, fiscal incentives, system delivery innovations, social innovations) so that the RDF usage can be practiced on an affordable, sustainable and scalable basis.