

Non-Burn Treatment of Health Care Risk Waste

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Abstract : This research discusses a South African case study for the potential of utilizing refuse-derived fuel (RDF) obtained from non-burn treatment of health care risk waste (HCRW) as potential feedstock for green energy production. This specific waste stream can be destroyed via non-burn treatment technology involving high-speed mechanical shredding followed by steam or chemical injection to disinfect the final product. The RDF obtained from this process is characterised by a low moisture, low ash, and high calorific value which means it can be potentially used as high-value solid fuel. Due to the raw feed of this RDF being classified as hazardous, the final RDF has been reported to be non-infectious and can blend with other combustible wastes such as rubber and plastic for waste to energy applications. This study evaluated non-burn treatment technology as a possible solution for on-site destruction of HCRW in South African private and public health care centres. Waste generation quantities were estimated based on the number of registered patient beds, theoretical bed occupancy. Time and motion study was conducted to evaluate the logistics viability of on-site treatment. Non-burn treatment technology for HCRW is a promising option for South Africa, and successful implementation of this method depends upon the initial capital investment, operational cost and environmental permitting of such technology; there are other influencing factors such as the size of the waste stream, product off-take price as well as product demand.

Keywords : autoclave, disposal, fuel, incineration, medical waste

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