

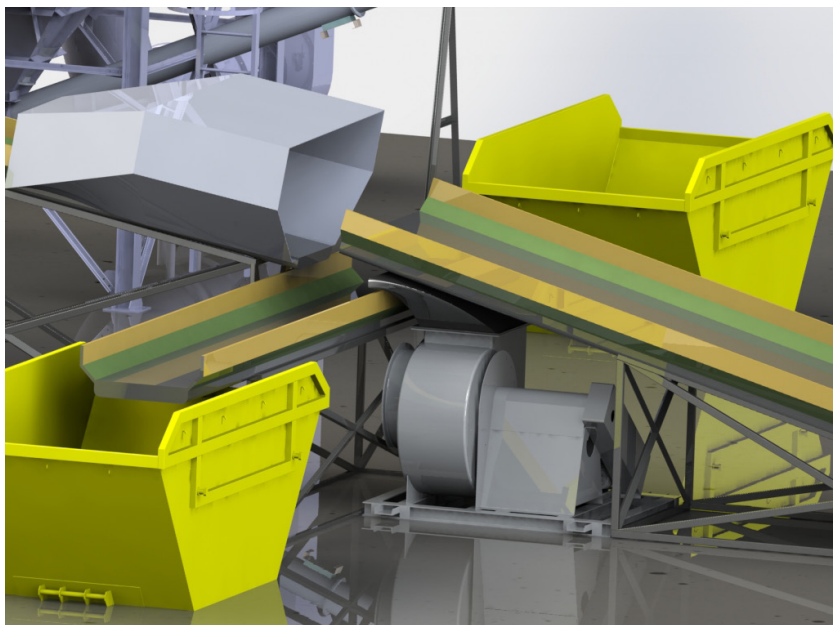
REFUSE DERIVED FUEL

Creating high calorific value fuel from municipal solid waste

The management of domestic waste streams is currently undergoing a fundamental change in many countries around the world. Amongst one of the prime options for consideration is that of producing a waste derived fuel by recovering high-calorific materials from municipal solid waste. A system that can achieve this objective is Organics Refuse Derived Fuel (RDF) production line. The process presented in this datasheet addresses the opportunity afforded by the use of RDF production and it's use as a coal substitute.

RDF consists largely of the combustible components of municipal solid wastes, such as rubber, plastics, paper, cardboard, textiles, and wood. These fractions are passed through different processing steps, for example, screening, air classification, magnetic separation to remove ferrous materials, glass, stones and other foreign materials. This classification is followed by shredding of the waste into a uniform particle size, to produce a homogeneous material which can be used as substitute for fossil fuels, for example, in cement plants, process water heating and coal fired power plants.

Organics has over 20 years of experience in the waste-to-energy sector, recovering energy from municipal solid waste. Organics designs, builds, installs and commissions refuse derived fuel system specific to the needs of each location. Every waste stream is different and requires a complete analysis of the waste to determine the equipment required to create a quality RDF product. The following page will outline the typical requirements needed to produce a quality waste derived fuel used as a coal substitute for the purpose of power production and the heating of cement kilns.



KEY FEATURES

Versatile design

Limited wear & tear through efficient product conveyence

Excellent quality control

Low power consumption

Various equipment and drive arrangements to meet individual requirements

Waste becomes an energy resource

Proven system for fuel production used for the substitution of coal



SPECIFICATION DATA

Equipment Provided:

ODF10 Drum Feeder
 OWC10 Weighing Scale
 OBO10 Bag Opener
 OSS10 Sorting Station
 OMS10 Magnetic Separator
 OST10 Screen Trommel
 OS5010 Shredder
 OTD10 Thermal Dryer

Units can be combined to fit larger throughput needs

CONCEPT

A refuse derived fuel system can contain numerous options of equipment depending on the quality of the RDF required. Typically, RDF Grade 3 meets the necessary standards for substituting coal with RDF for power production and heating cements kilns. The equipment list and description below outlines a typical RDF system design:

DRUM FEEDER

Drum feeders simultaneously feed, sort and orient large quantities on one or multiple linear tracks. It ensures a consistent flow rate of sized waste entering the RDF system.

WEIGHING SCALE

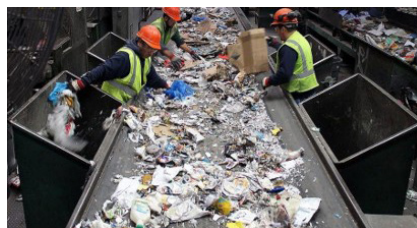
Waste is weighed in batches to ensure an even flow rate of MSW throughout the RDF production process

BAG OPENER

Bag openers are special blade double shaft shredders that are perfectly adapted for the treatments of MSW prior to automatic sorting equipment, if installed. This process is essential for the preparation of waste for both manual and automatic sorting.

SORTING STATION

A hand sorting line with conveyer system will be installed after the bag opener. The purpose of the hand sorting line is to manually remove inert objects are such as metals, glass, large indestructible items, etc., which are not suitable for producing RDF.



MAGNETIC SEPARATOR

The magnetic separator will be installed after the sorting station as a secondary backup system to remove metal objects that may have been missed. Metals can then be recycled.

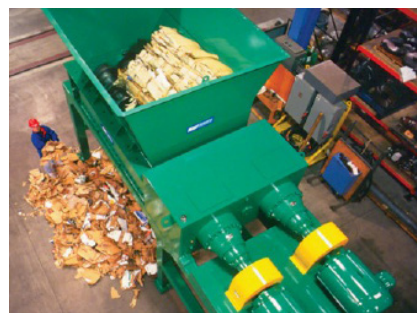
SCREEN TROMMEL

A rotary trommel will accept waste and remove target particles by size. This will filter out soil and other organic components, increasing the calorific value and lowering the moisture content.



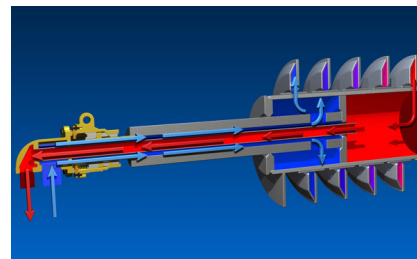
SHREDDER

The shredder(s) will reduce the RDF particle size to below 200 mm or 50 mm depending on site specific RDF requirements. Additionally, it will have a grate, removing any large rejects which weren't removed during the previous sorting stages.



THERMAL DRYER

The dryer is heated from within a hollow screw by heated oil. Waste heat from an external source (e.g. pyrolyser thermal oxidation process) is redirected to the dryer, and used to heat the oil to the desired temperature. As the waste makes its way through the screw conveyer, moisture evaporates and reaches the desired moisture content level by the end of the process.



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