Transforming Waste Into Soil Improver

Our Waste Processor Bournemouth UK

Next step from waste to enriched soil

Cardboard, paper, food waste

Organic landfill content

SOIL IMPROVER

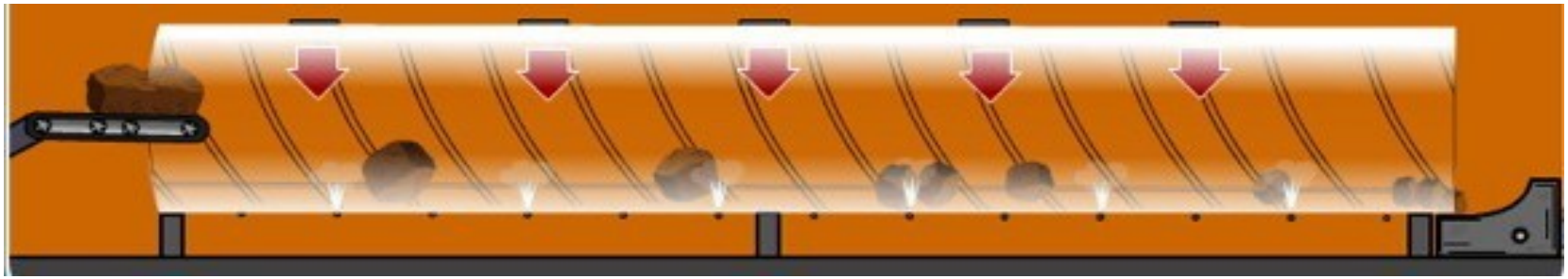
Process Description

Organic waste is shredded for uniformity to ensure even application of 140˚C steam for one hour. The combination of the both factors eradicates all major pathogens, bacteria and prions.

Waste volume is reduced by 50%. The process homogenises waste into uniform biomass, heat and steam starts the composting process.

Process Description

Shredded waste is continually loaded into the rotating Processor and injected with high pressure steam



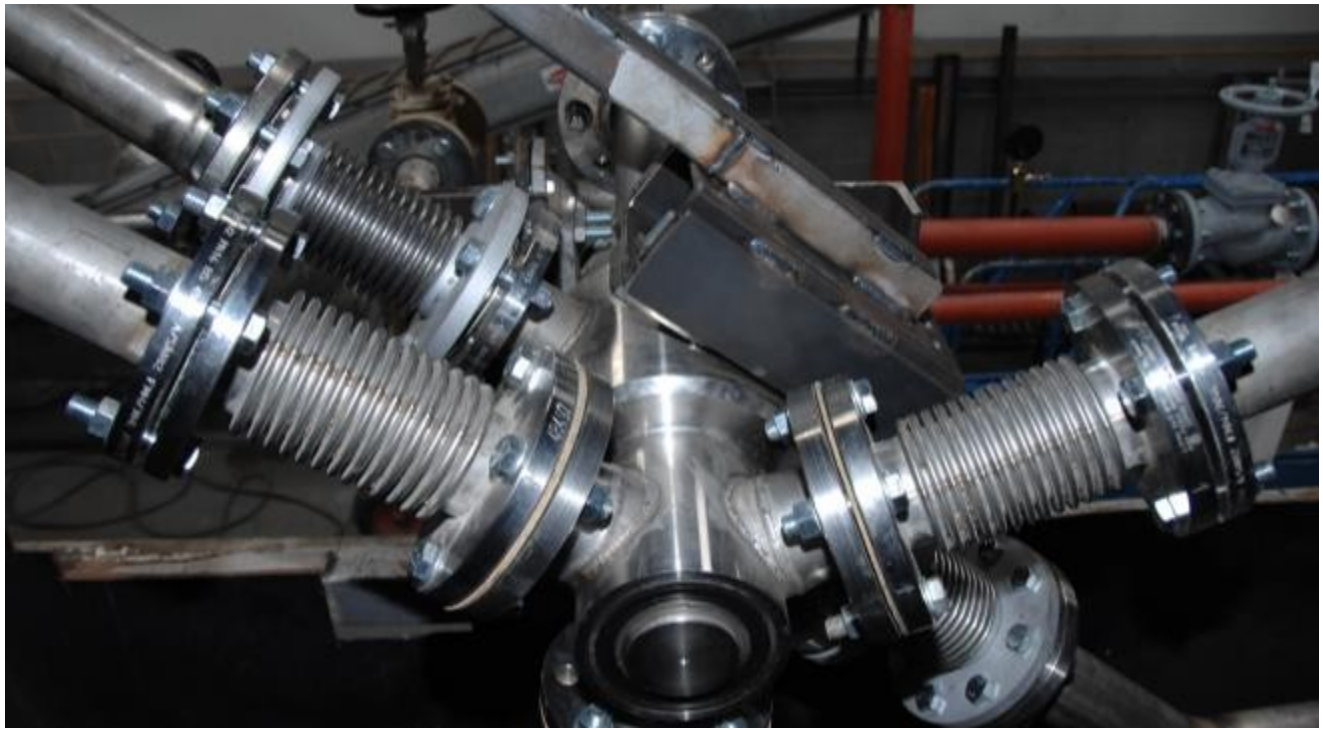
As waste rotates through the Processor, it is sanitized and reduced in volume

Waste Processor Detail

Steam is generated by oil fired boiler rated at 1,75 KW

Internal helix screw and flights arrangement

Waste Processor Detail



The rotary valve allows the distribution of consistent steam flow during the rotation of the Waste Processor

Temperature Control

As with any chamber in rotation, only 25% of volume is occupied and 75% is air. If ambient temperature is 20 ˚C , then steam, injected at 140 ˚C, is immediately cooled down.

To compensate, a hot air recirculation system is installed to heat the inside of the Processor, ensuring steam was entering at the required temperature, and being maintained for the duration of the treatment.

Waste Processor Overview

Conversion of organic waste into Soil Improver, Bio-Mass, Briquettes, Pellets

Processing capacity 15 tons per hour, 100,000 tons per year (18 hour operation per day)

Operating at atmospheric pressure and temperature of up to 180˚ C.

16 m long, 2.7 m diameter, stainless steel (Grade 304L) rotating cylinder.

Open ended, internal helix screw, waste treatment with 8 bar steam at 140°C for one hour.

Low energy usage. No incineration. No harmful emissions.

Water Consumption

600 litres/an hour

Screw presses are used to de-water feedstock prior to treatment

Steam capture provides a possibility to be self-sufficient in water consumption

Requirements of Soil Improver

Destructed latent seeds and/or seedling growth

Sterilized of fungi, bacteria, spores, prions - recommended state of 121-132˚C for 60 minutes or 134˚C for at least 18 minutes

Pasteurized of liquids - occurs at 140˚C for any liquids

Eradicated of human, animal and plant pathogens

Minimal content of non-organic, non-biodegradable content

Organism	Time (in minutes) for destruction of organisms at several temperatures				
	50˚C	55˚C	60˚C	65˚C	70˚C
Bacteria					
Salmonella typhi	-	-	30	-	4
E.coli	-	-	60	-	5
Mycobacterium tuberculosis	-	-	-	-	20
Shigella sp.	60	-	-	-	-
Mycobacterium diphtheriae	-	45	-	-	4
Brucella abortus	-	60	-	3	-
Corynebacterium diphtheriae	-	45	-	-	4
Viruses					
Viruses	-	-	-	-	25
Protozoa					
Entamoeba histolytica cysts	5	-	-	-	-
Helminths					
Ascaris lumbricoides eggs	60	7	-	-	-
Necator americanus	50	-	-	-	-
Taenia saginata	-	-	-	-	5

Thermal Death Rates of Common Organisms

Organism	Time (in minutes) for destruction of organisms at several temperatures		
	50°C	55°C	60°C
Salmonella typhosa	-	30 min	20 min
Salmonella sp	-	60 min	15-20 min
Shigella sp	-	60 min	15-20 min
Escherichia coli	-	60 min	15-20 min
Streptococcus pyogenes	-	10 min	-
Mycobacterium diphtheriae	-	45 min	-
Brucella abortus or suis	-	60 min	3 min
Entamoeba histolytica (cysts)	1 sec	-	-
Trichinella spiralis	-	-	1 sec
Necator americanus	50 min	-	-
Ascaris lumbricoides	-	60 min	-

OBJ OBJ

Thermal Death Rates of Common Organisms

Background

- Formation 2011.
- Ownership of Intellectual Property and Waste Processing worldwide patented technology.
- Plant in Bournemouth, Dorset, U.K.
- Focus on the upgrading and testing of the Waste Processor.
- A.A.Thornton & Co patent attorneys oversee worldwide patent applications.