AHT Product Scope -
Dry Feedstock Treatment

Overview

AHT's Feedstock Treatment solutions enable the efficient processing and preparation of a wide range of residual materials provided by the client, allowing them to be utilized in subsequent gas generation processes and converted into valuable energy and usable resources. Depending on the nature of the material, some materials must undergo treatment in order to be used for the subsequent gas generation process. While some dry feedstocks are ready for use, some others require pre-treatment to reach optimal conditions. Dry feedstocks wood chips may require drying, while rice husks and sawdust undergo briquetting to be optimal for further uses in the subsequent process.

Products

Within our Dry Feedstock Utilization category, our feedstock treatments is specially tailored to each AHT system, as each of them utilizes a specific suitable type of feedstock. As such, shown here are some examples.

Wood Chips

Briquettes

Technical Data

	Twin-Fire Compact / Performance		Twin-Fire Industrial	
Parameter	**Min. Value**	**Max. Value**	**Min. Value**	**Max. Value**
Fixed Carbon	17 wt.-% (a.r.)	-	35 wt.-% (a.r.)	60 wt.-% (a.r.)
Volatile Matter	60 wt.-% (a.r.)	83 wt.-% (a.r.)	30 wt.-% (a.r.)	45 wt.-% (a.r.)
Moisture	8** wt.-% (a.r.)	15 (18)* wt.-% (a.r.)	8** wt.-% (a.r.)	15 (18)* wt.-% (a.r.)
Ash	-	5 (15)* wt.-% (a.r.)	-	10 (22)* wt.-% (a.r.)
Lower Heating Value	14 (12.5) MJ/kg (a.r.)	21 MJ/kg (a.r.)	16 MJ/kg (a.r.)	24 MJ/kg (a.r.)
Higher Heating Value	17 (15) MJ/kg (a.r.)	23.5 MJ/kg (a.r.)	19 MJ/kg (a.r.)	26 MJ/kg (a.r.)

* for cylindrical geometries

	Permissible Feedstock Sizes	
Dimensions	**Min. Value**	**Max. Value**
Length	40 mm	120 mm
Width	40 mm	80 mm
Thickness	20 mm	80 mm
Diameter*	20 mm	80 mm

Process Breakdown

Firstly, in order to prepare the feedstocks to be efficiently utilized in the subsequent gas generation processes, they must first be treated to ensure optimal usage. For each feedstock type, there is a treatment process that is specifically tailored to suit it.

1. For dry feedstocks such as wood chips, it has to meet certain requirements first before it can be used as fuel for the gasification process
2. To be used as fuel, it cannot be too high in moisture, or it cannot be out of the permissible size range that was specified within the Technical Data table.
3. As such, if the wood chips provided are high in moisture, they would undergo a drying process, and if the wood chips is out of the permissible size range, then they would under chipping in order to be reduced to a permissible size. Once completed, they are then either transported into the gasifier, or stored for future uses.

1. For dry feedstocks like sawdust, they have to first undergo a briquetting process as they are too small and fine to be used as it is to be used as fuel
2. Before the briquetting process, they would first have to undergo drying if they're too high in moisture, similar to woodchips. Once dried, they'll then undergo briquetting, where they are compacted in briquettes that are within the permissible size range.
3. Once they have been compacted into briquettes, they can then be transported directly into the gasification process to be efficiently used as fuel. Alternatively, they can also be stored for future uses if they're not needed to be directly used for any subsequent processes, similar to woodchips.

Benefits

Through our syngas generation technology, a wide range of benefits can be achived, including:

01 Flexible Feedstock Utilization

Pre-treatment technologies such as shredding, drying, and briquetting enable the processing of a wide range of residual materials, allowing different feedstocks to be efficiently converted into usable clean energy.

02 Efficient Energy Utilization

As our gasification processes leaves residual energy when its completed, this energy can be reused to provide the energy that the feedstock pre-treatment requires. Not only is this efficient, but it also reduces OpEx overall.

03 Reduced Transport Costs

Through using biogenic residual and waste materials that can be found within the region or on-site, transport costs can be minimized due to the massively shortened and reduced transport routes.

04 Decentralized Energy

As our approach allows for local communities to potentially produce their own clean energy from on-site materials, this reduces dependance on the power grid, securing a self-sufficient and fossil-free energy supply.

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