ValuPAP™
Paper Mill Site

Source : Paper Mill waste pulper and cellulosic fiber

Mission : On Site RDF Preparation and Energy Production

Year : 2020

The solutions :

- Revolution™ dewatering
- Paddle defiber™
- Synecom™ gasifier
- Waste heat Recovery
- Steam production

Caracteristics			
Throughput stage 1	Preparation 15000 to/y RDF	15 m^3/h	45% dm
Throughput stage 2	Energy PRODUCTION 38 GW to/y	8 to/h	18 MJ/kg

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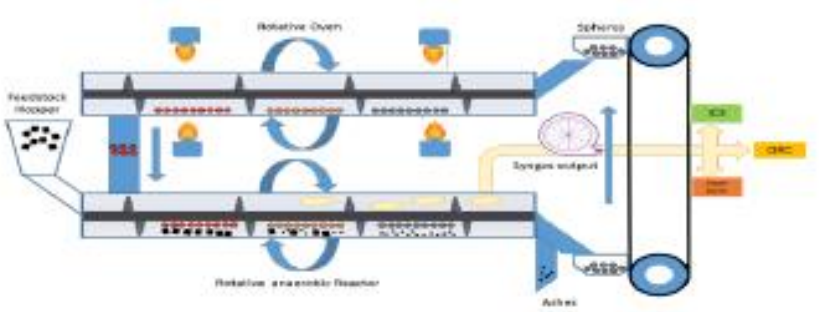
Problem solving : Waste 2 Energy solution



Benefits :

- A Zero waste solution
- On-site energy conversion
- Low carbon impact
- Water saving
- Environmentally friendly
- Reduced C0 2 impact

Project objective : We use pulper waste from recycled paper process to produce steam on-site. This is to reduce the cost of supply of natural gas, as well as to reduce the cost off-site waste disposal.

Context: Over 500 paper mill sites all over the world generate an average of 15000 tons of waste per site.

Scope of the work : During the pulping process of recycled paper, industrial waste is generated (such as plastics and cellulose). The waste that is generated is usually transported off-site and either incinerated or put in landfills. On the quest for a greener economy and to reduce overall costs, paper mill groups are looking for a way to produce energy on-site (e.g. steam) by using the generated waste as a fuel source.

Engineering : By providing up-to-date combined technologies at the first stage of RDF preparation and Stage 2 gasification, we ensure both technical and commercial advantages (ROI is under 7 years on waste volume on-site). ValuPAP™ is a turnkey engineering solution that converts waste into energy. We combine technical know-how with effective BOOT financial engineering.

Environmental Impact : Each plant will reduce their consumption of natural gas by 12 Mm3/year if the the waste generated is equal to 15000 tonnes/year, by converting this waste into energy on-site. This is the equivalent of the natural gas consumption of 11,000 average families over a year. This is as much as an Olympic swimming pool which contains on average 3000 M3/y.

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Paper Mill : Plant Description Pyrolysis of Pulper with input MP of **1000 kg/h**		
Pulper LHV considered	18 MJ/kg	
Input STAGE 1 : RDF Preparation	**15000 to/y**	
Input STAGE 2 : Energy PRODUCTION	t/y	8.000
Mass Flow Rate	t/d	24
	kg/h	1.000
Working hours per Year	h/y	8.000
Inlet Humidity	%	15%
LHV (Dry basis)	MJ/kg	18,0
Thermal Energy	MW_th	4,3
Mass Flow Rate to Pyrolysis	kg/h	1000
Pyrolysis Output		
Gas	%	61%
LHV Gas	MJ/kg	20,0
Oil	%	32%
LHV Oil	MJ/kg	17,5
Syngas	%	93%
LHV Syngas	MJ/kg	17,8
Char	%	7%
LHV Char	MJ/kg	17,0
Boiler Production		
Fuel burned		*Syngas*
Thermal Energy Aviable	MW_th	5,02
Boiler efficiency	%	93%
Thermal Energy Product from fuel bur	MW_th	4,7
Flue Gas Thermal Energy Recovery	kW_th	76
Total Available Thermal Energy	MW_th	4,7
Saturated Steam Production		
Inlet Water Temperature	°C	80,0
Inlet Water Pressure	bara	1
Outlet Steam Temperature	°C	237,5
Outlet Steam Pressure	bara	32
m Steam Produced	t/h	6,9
Thermal Energy Produced in the Ye	**GW_th y**	**38,0**

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