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## DRYING OF REJECTS AND FIBER SLUDGE



## Reject & Fiber Sludge Drying

In recent years many countries enacted environmental requirements on recycling, treatment, and disposal procedures for municipal waste. This created an issue for the handling of solid waste for the recycled paper industry as related to the disposal of screen pulper rejects & fiber sludge.

A simple and effective solution was required to reduce the volume and cost for reject waste at recycle pulp & paper mills.

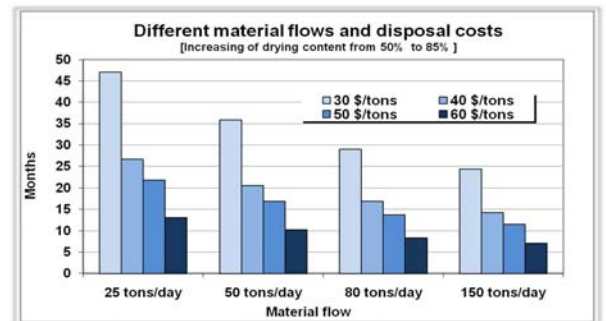
Therefore L&E Environmental Technologies developed a new technology to dry these rejects and sludge using low temperature heat.

*Reject - Drying for 6000 kg/h*

### References

- Fripa Herzberg (Germany)
- SCA Lucca (Italy)
- Cartiere Tivoli (Italy)

*Amortization in months*



The Reject & Sludge Dryer by L&E Environmental uses recovered heat from mill sources to easily and reliably raise the dry content of the screen rejects or fiber sludge to as high as 90%. Current dewatering techniques like compacting only reduce the water content to about 50% weight by volume.

The heat needed for this drying is recovered from various existing plant sources, such as exhaust air from IR and hot-air dryers, condensate / hot water from PM systems, PM exhaust air, compressor heat loss (air and oil) and boiler flue gases.

The disposal costs of the screen rejects/fiber sludge discharged from the pulper compactor or press are therefore reduced in inverse proportion to the dry content.



*Reject - Drying for 2000 kg/h*

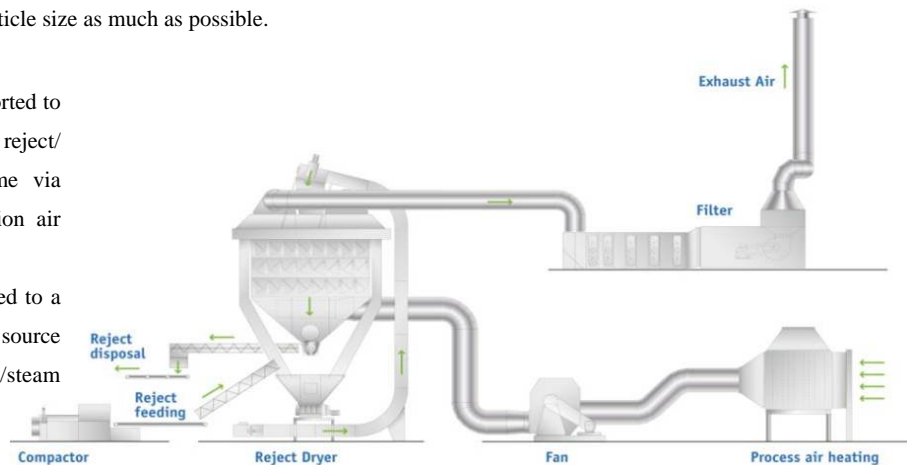


*Heat recovery, Exhaust gas from the gas turbine*

The L&E Environmental Technology drying system consists of several modules at the heart of which is a rack dryer. After exiting existing dewatering compactors, the rejects/fiber sludge would then enter the 1<sup>st</sup> L&E module which is a shredder that breaks up and shreds the material to reduce particle size as much as possible.

After shredding, the rejects/fiber sludge are transported to our uniquely designed L&E rack dryer. There the reject/fiber sludge material is dried for a preset time via uniform, low temperature, through-flow convection air before it is discharged.

The dried reject/fiber sludge can then be transferred to a post drying stage for conversion to a fuel source (compacted), burned for energy recovery/steam generation, disposed of in lower volume at landfill or transferred to other processing stage.



**SOME KEY ADVANTAGES AND FEATURES TO THE L&E STAGED RACK DRYER SYSTEM ARE:**

- ▶ Low drying temperature means no melting of plastic or activation of residual adhesives, no caking of material risk of blockages are eliminated
- ▶ No material flow during the drying is required, risk of blockages are eliminated
- ▶ Material remains loose while being dried inside the dryer also reducing risks of blockages...higher system reliability
- ▶ Low pressure losses, more energy efficient when compare to other dewatering/drying systems
- ▶ Low drying temperature of 180°F (80 °C), 100% from recovered mill sources of waste heat
- ▶ Best material through-flow, drying air is forced through the material, resulting in high drying rate even at the low operating temperature
- ▶ Variations in reject/fiber sludge composition, particle size, incoming drying content have no influence to the process
- ▶ Variations in reject/fiber/sludge quantities are equalized by a special material handling technique inside the dryer
- ▶ Rugged design and good accessibility for routine maintenance and cleaning



»Climate protection is a major issue in industrial manufacturing today, and it demands sustainable concepts. We respond to this demand with our initiative »rethink, redesign, rebuild«. We ask the critical questions and are constantly looking for new ways to save energy and materials, to streamline production processes and offer new technologies – in short: to be truly innovative! That is how we help our customers shape a successful future.«

Dr. Peter Engelmann  
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## The L&E Group of Companies

Langbein & Engelbracht is a major engineering and plant construction company with a long and illustrious tradition. We have written German industrial history, and our expertise as a maker of innovative production facilities has been in demand for more than 75 years. As L&E Group we have an international orientation and are represented by our subsidiaries in China and the USA. We manufacture at

our site in Bochum in Germany, collaborate with the best partners the world has to offer and inspire our customers with our profound engineering know-how. We take on the special challenges of the various markets with our product development expertise. Whether the market is booming, technology leaps are being made, the economy is in a crisis or resources are scarce, we always have the right solution.

### L&E in brief

Head office:	Bochum, Germany
Subsidiaries:	Hering AG (Germany), L&E Shanghai (China), L&E America (USA)
Products/Services:	planning, production and assembly of plants for a wide range of industrial applications
Industries:	automotive, chemicals, plastics, paper, packaging, wood processing, waste incineration
Employees:	316 – 75 engineers in the development center in Bochum



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