

Miscanthus @ WEPA – a new fibre for tissue products

Miscanthus Society
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wepa

Together
for a better life

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Today we are among the three largest European tissue paper manufacturers

Top 3

Manufacturer
in Europe

1.3 bn

EUR turnover

Top 1

Manufacturer of
recycled hygiene
paper in Europe

13

Sites in
Europe

Top 1

Manufacturer
of hybrid
products

Top 1

Private Label
specialist in Europe
(in the Consumer unit)

850.000 t

Paper production
capacity

4.000

Employees

Our Purpose

Together for a better life

Our Vision

To be the most sustainable and agile first class partner for personal and professional hygiene solutions

Our Mission

We always provide sustainable hygiene solutions to improve well-being every day, everywhere

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We only use raw materials that come from responsible sources



With our 13 sites in Europe, we are strategically close to our customers



**1 | Arnsberg-Müschede
Germany**
65.000 t | 630 (incl. HQ)*



**2 | Marsberg-Giershagen
Germany**
127.000 t | 500 *



**3 | Kriebstein
Germany**
85.000 t | 225*



**4 | Mainz
Germany**
60.000 t | 220 *



**5 | Leuna
Germany**
65.000 t | 220 *



**6 | Piechowice
Poland**
65.000 t | 400 *



**7 | Lucca
Italy**
62.000 t | 310 *



**8 | Cassino
Italy**
52.000 t | 150 *



**9 | Lille
France**
92.000 t | 400 *



**10 | Troyes
France**
32.000 t | 230 *



**11 | Bridgend
United Kingdom**
50.000 t | 300 (incl. office)*



**12 | Swalmen
Netherlands**
28.000 t | 160*



**13 | Château-Thierry
France**
120.000 t DIP | 75*



 **Consumer**

 **Professional**

Why Miscanthus

- High yield (15 – 20 t/ha/a)
- High CO2 absorption
- Locally grown
- Low labor (no pesticides, no fertilizer)
- >20 years harvestable
- Low soil requirements, soil improvement
- Moisture content 10% when harvesting



Why Miscanthus cellulose

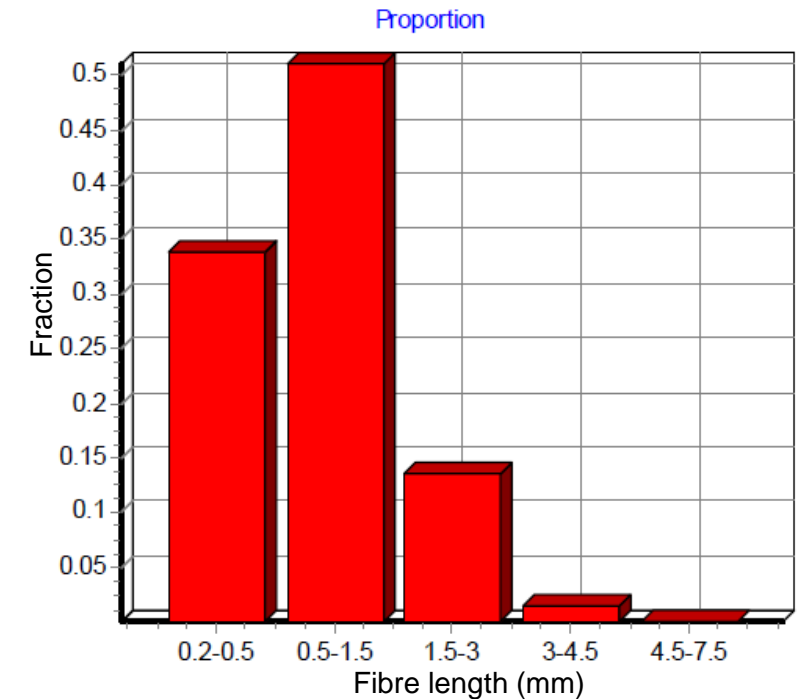
Fibre analysis

- Fibre dimensions and tensile strength are comparable with Eucalyptus
- Unbleached cellulose, unique colour
- Low energy and chemicals demand
- High yield
- High softness
- Unique production process



Length weighted (ISO)

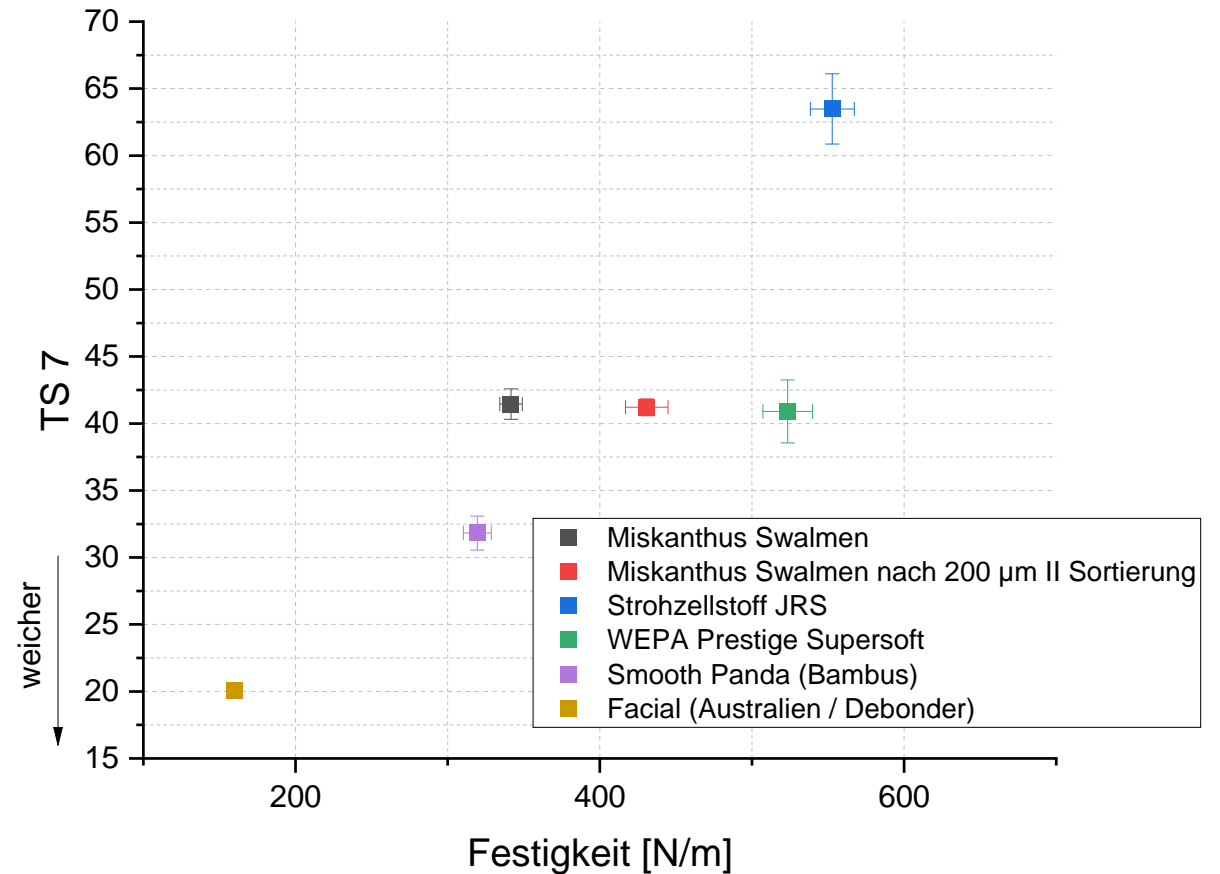
Variable	Value	Difference
Mean length	0.890 mm	-0.022 mm
Mean width	21.6 μ m	0.1 μ m
Mean shape	87.9 %	-0.3 %
Mean fibril area	1.6 %	0.0 %
Mean fibril perimeter	4.0 %	0.0 %
Mean fines	31.6 %	



Miscanthus - advantages

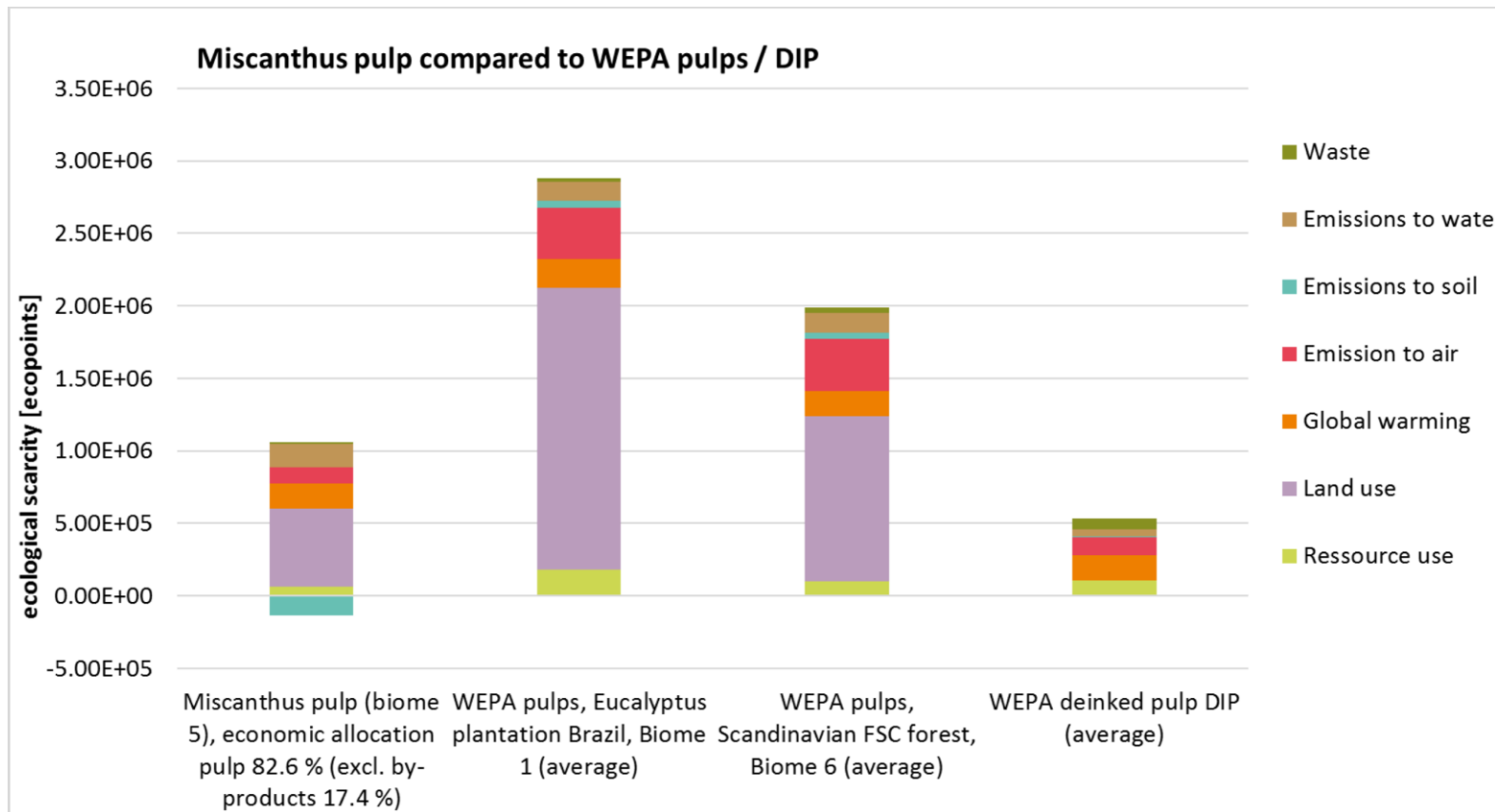
Softness measurement

- Miscanthus-paper (mix with RcF) is equal to standard pure pulp products
- What if we increase the Miscanthus amount? (see 100% bamboo)



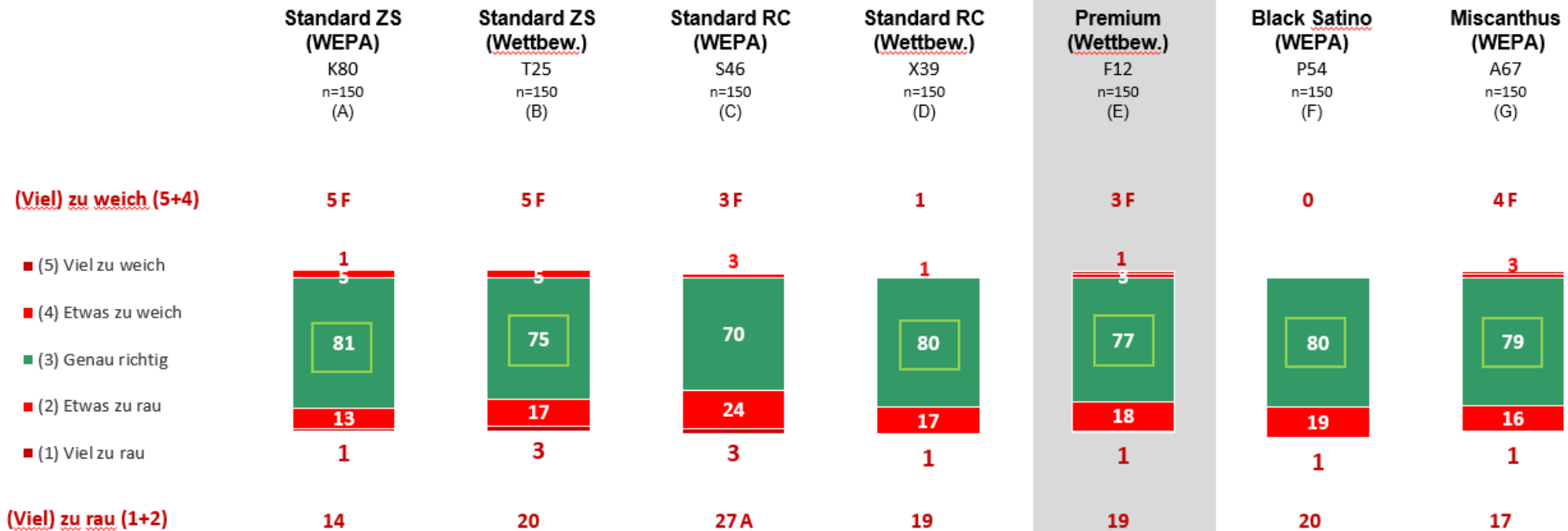
Miscanthus – sustainable effects

Lifecycle Analyse:



Softer tissue by using Miscanthus pulp

Customer survey results show product quality benefits from Miscanthus pulp in tissue

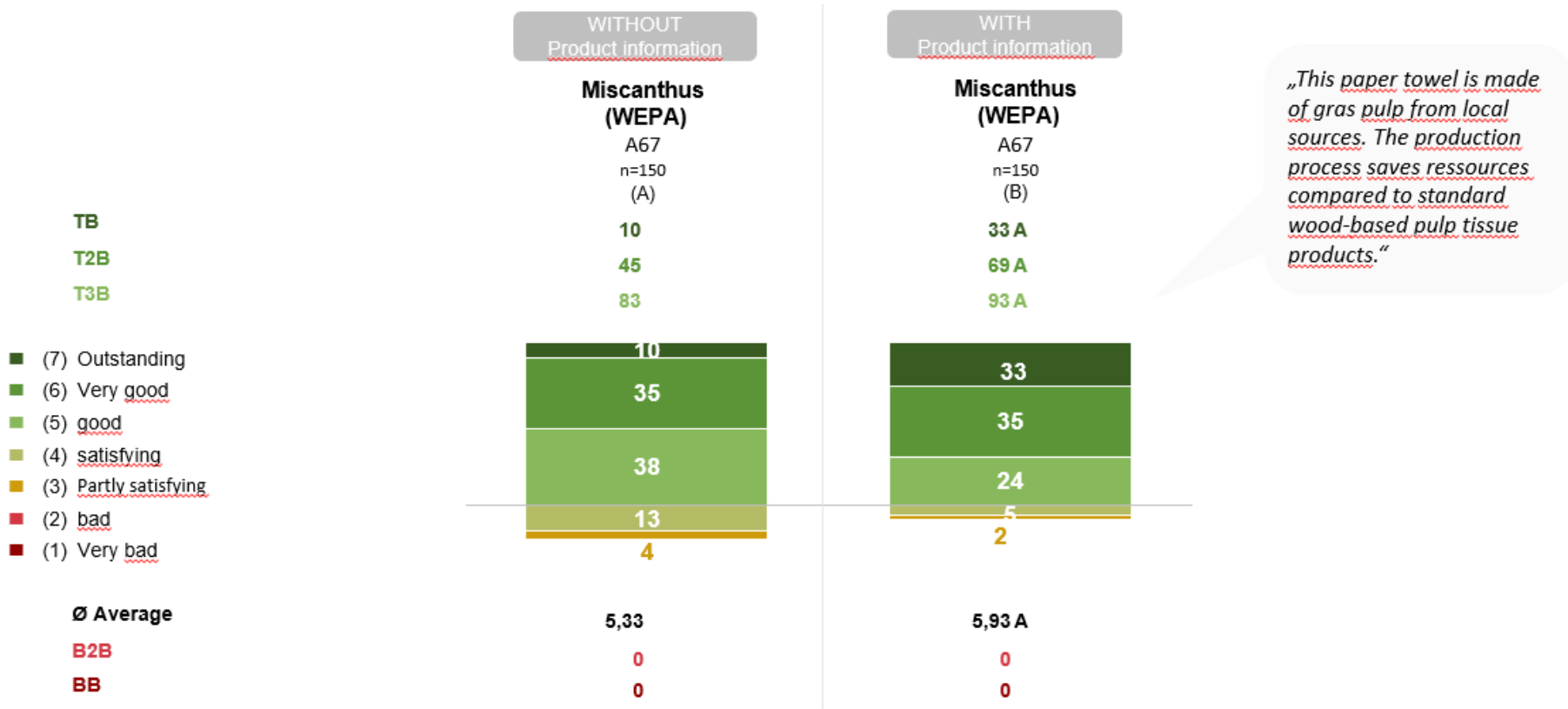


Basis: Alle Befragte // Werte in % // Sig.-Test 95%: A/B/C/D/E/F/G

P8: Wenn Sie einmal an die **Weichheit** der Blätter des getesteten Produktes denken, würden Sie sagen, die Blätter sind...?

Miscanthus pulp as raw material drives positive customer reception

Customer reception of Miscanthus tissue products is even better if they know...



Process

3 in 1 process:

- Fiber preparation process
- Lignin process
- NaOH recovery process

4 products:

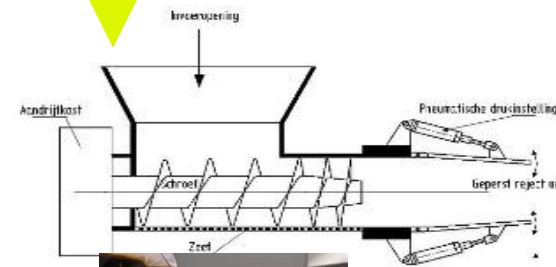
- Fibers
- Lignin powder
- NaOH (re-use)
- CaCO_3

Fiber line

Digestion Miscanthus straw



Refining to cellulose fibers,
and thickening.

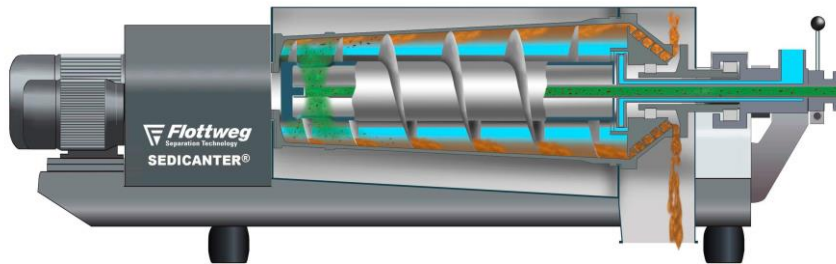


Mxg pulp ready for
washing

Weak Black liquor ready for
downstream process

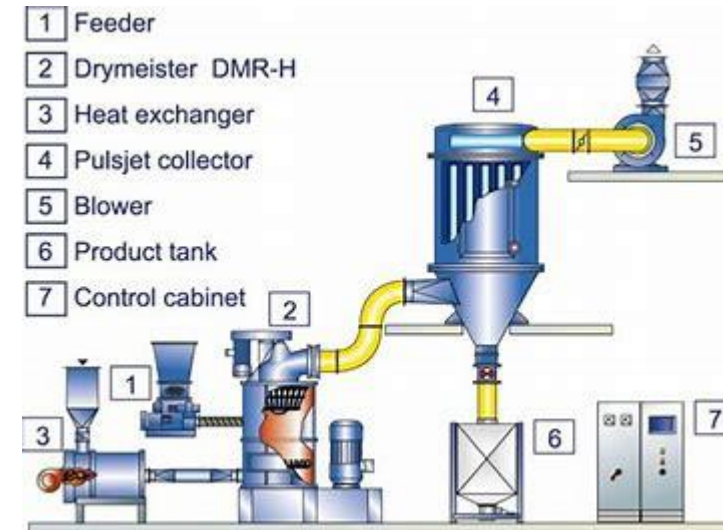
Downstream process Lignin

Washing Lignin with water



Washed lignin

Drying lignin



High quality lignin for
our customers

Recovery process

Spent liquor out of
downstream process



CaO



To digester



Calcium carbonate
slurry

To customer

In January 2022, we successfully started our small Miscanthus pulp line.

Impressions from current line in Swalmen





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