

## Chemical addition and bleaching

High brightness with highest chemical efficiency

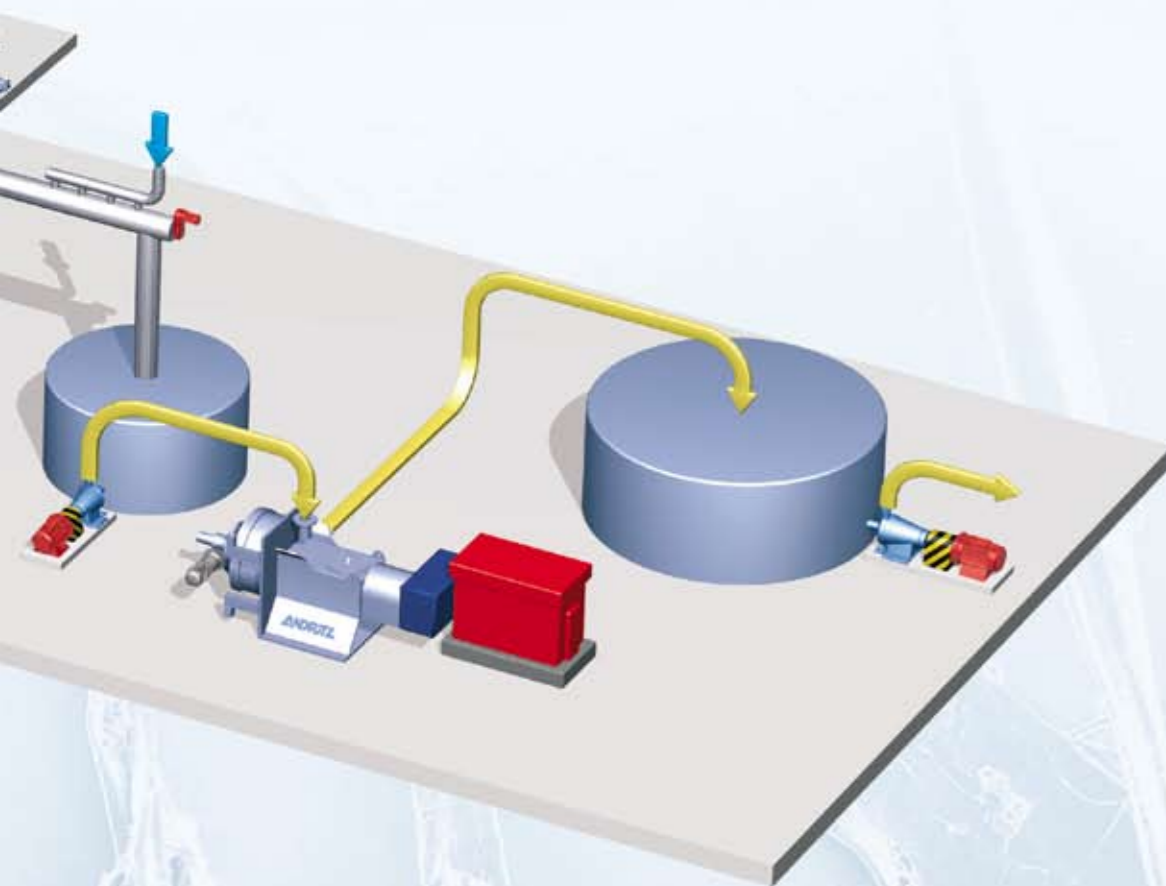
- ▶ Chemicals in the impregnation stage and at the refiner
- ▶ Bleaching reaction completed in a high-consistency bleaching tower after refiner
- ▶ Alkali efficiently used for wood softening and bleaching
- ▶ Flexible in controlling pulp property development
- ▶ Pulp efficiently washed after bleaching in a screw press
- ▶ High brightness also reached with raw materials considered difficult to bleach

## Optimized low-consistency refining

Energy efficient by use of HC/LC refining stages

Low specific energy consumption and well developed fibres after primary refining stage allow efficient use of low-consistency refiners in the second stage and in reject treatment.

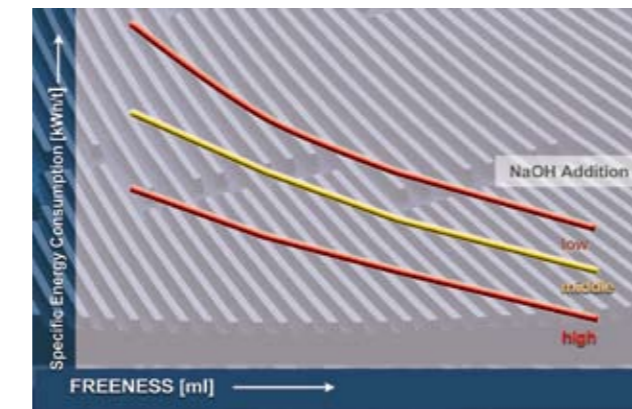
- ▶ Further reduction of specific energy consumption compared to the HC Refiner
- ▶ Simplified process, easy operation and minimum maintenance
- ▶ Excellent pulp property developed in LC Refiner



# Andritz P-RC™ APMP

We improve your profitability

Andritz patented P-RC™ APMP systems help you save money where it counts – minimum consumption of specific refining energy and chemicals, lower COD generation and lower yield losses !

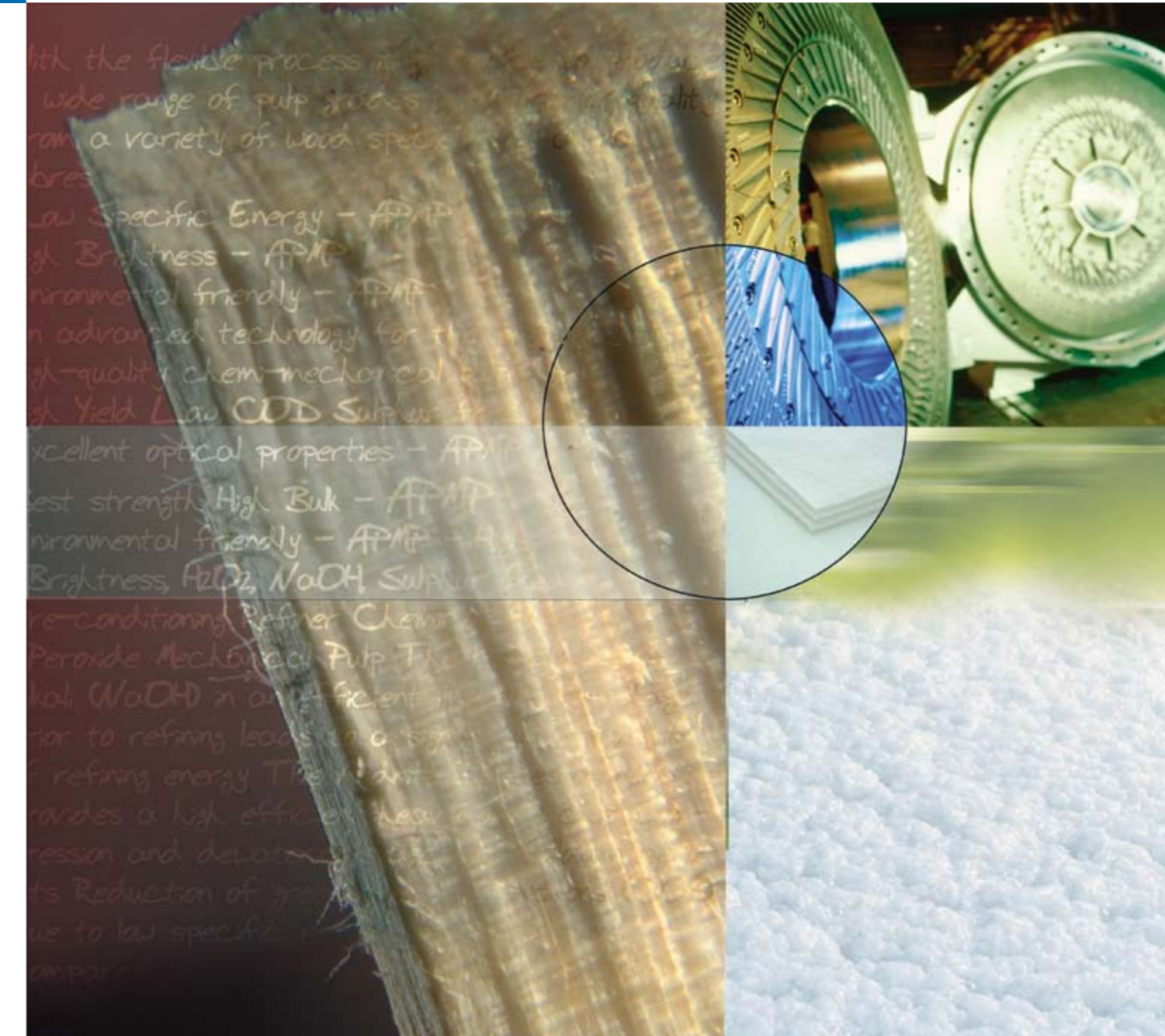


### Andritz P-RC™ APMP – environmental awareness with a technological benefit

- Benefits**
- ▶ Minimum specific energy consumption
  - ▶ High chemical efficiency
  - ▶ Low operating costs
  - ▶ High process yield
  - ▶ Superior pulp quality
  - ▶ High tensile strength at high bulk
  - ▶ Excellent optical properties - brightness, light scattering, opacity
  - ▶ Minimum generation of COD and BOD
  - ▶ Sulfur free process leads to improved bio-degradability of pulp mill effluents
  - ▶ Reduction of greenhouse gas emissions (CO<sub>2</sub>) due to low specific refining energy consumption
  - ▶ Flexible operation: wide range of pulp grades and wood species
  - ▶ Optimized and reliable equipment for a wide range of applications
  - ▶ Technology proven in several installations

# Andritz P-RC™ APMP

Quality and efficiency in mechanical pulping



www.andritz.com

mech.pulp@andritz.com

Andritz AG, Vienna, Austria  
Phone: +43 1 81195-0

Andritz AG, Graz, Austria  
Phone: +43 316 6902-0

Andritz Ltd., Montreal, Canada  
Phone: +1 514 631 7700

Andritz Inc., Springfield, OH, USA  
Phone: +1 937 390 3400

We accept the challenge!



# The Challenge: Producing high quality fiber at the lowest operating cost

## Andritz P-RC™ APMP System

The Andritz P-RC™ APMP process is an advanced technology for the production of high-quality chemi-mechanical pulps (Pre-conditioning Refiner Chemical Alkaline Peroxide Mechanical Pulp). This environmentally friendly process is designed to meet today's and tomorrow's market requirements for high quality paper and board products at maximum production efficiency.

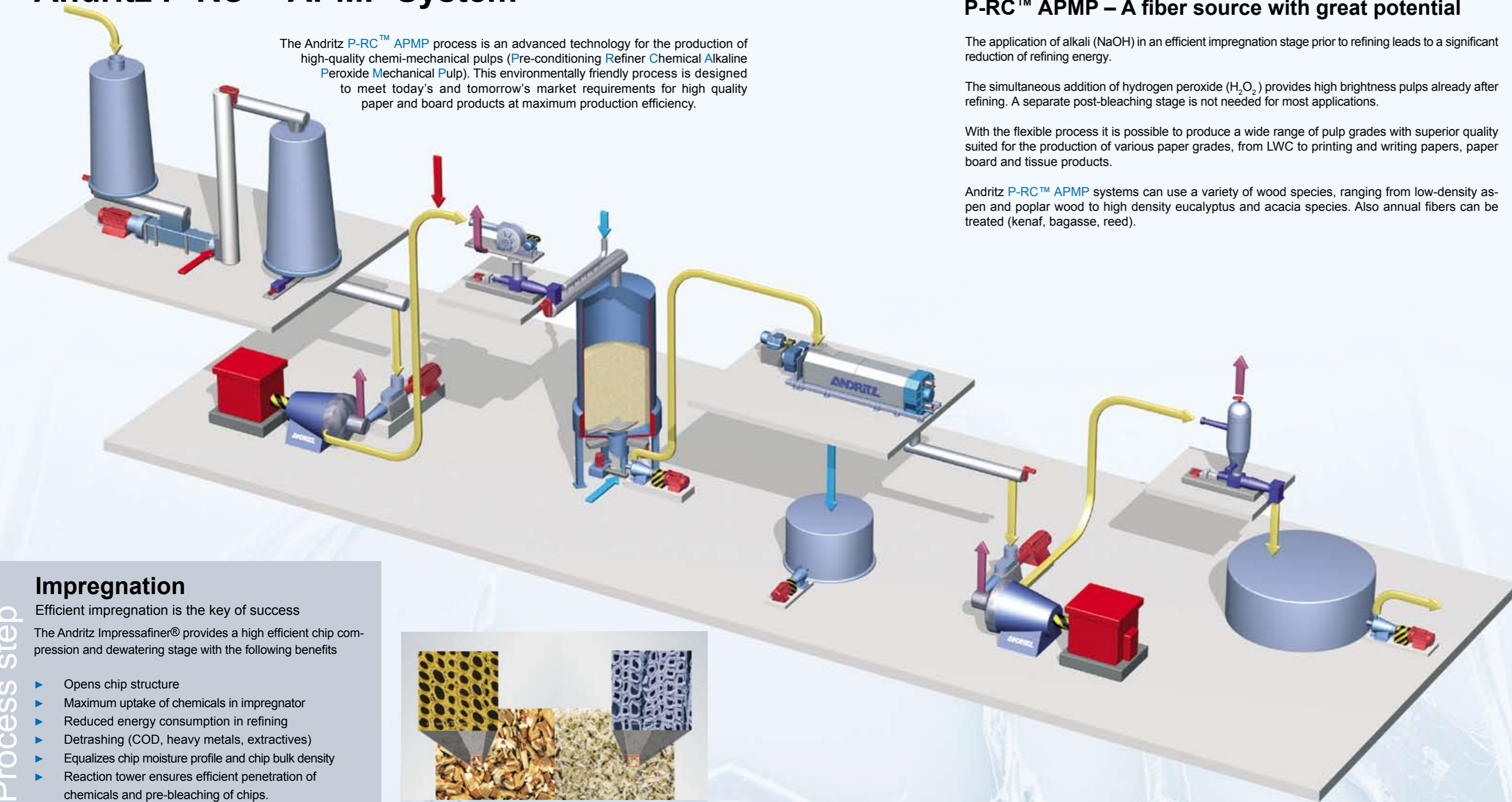
### P-RC™ APMP – A fiber source with great potential

The application of alkali (NaOH) in an efficient impregnation stage prior to refining leads to a significant reduction of refining energy.

The simultaneous addition of hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) provides high brightness pulps already after refining. A separate post-bleaching stage is not needed for most applications.

With the flexible process it is possible to produce a wide range of pulp grades with superior quality suited for the production of various paper grades, from LWC to printing and writing papers, paper board and tissue products.

Andritz P-RC™ APMP systems can use a variety of wood species, ranging from low-density aspen and poplar wood to high density eucalyptus and acacia species. Also annual fibers can be treated (kenaf, bagasse, reed).



### Impregnation

Efficient impregnation is the key of success

The Andritz Impressafiner® provides a high efficient chip compression and dewatering stage with the following benefits

- ▶ Opens chip structure
- ▶ Maximum uptake of chemicals in impregnator
- ▶ Reduced energy consumption in refining
- ▶ Detrashing (COD, heavy metals, extractives)
- ▶ Equalizes chip moisture profile and chip bulk density
- ▶ Reaction tower ensures efficient penetration of chemicals and pre-bleaching of chips.



chip structure before impregnation chip structure after impregnation

### Refining

Reliable refiner technology for optimum fiber development

- ▶ Proven technology to powers beyond 30 MW
- ▶ Large flat disc refiners provide optimum fiber development and lowest shive levels
- ▶ High-speed refining possible for further energy reduction
- ▶ Pressurized process for steam and heat recovery



### High-consistency refining

Optimum pulp quality for low-freeness pulps

Value added low freeness pulp grades (LWC) and wood species with a high demand for specific energy require a 2-stage high-consistency refining process.

- ▶ Optimum split of specific energy between primary and secondary refiner
- ▶ Optimum fiber development in HC Refiner
- ▶ Steam generated in the pressurized refiner can be recovered and re-used in the process.

Process step

Process step