

BIOMASS LEACHING

Transforming agricultural residues into high-value solid biofuels

UNLOCKING THE POTENTIAL OF AGRICULTURAL RESIDUES

Agricultural residues such as empty fruit bunches, straw, and sugarcane bagasse are abundant but difficult to valorize as high-value solid biofuels due to high ash and mineral contents (e.g. K, Na, Cl, sand/silt), which drive slagging/fouling, corrosion, and accelerated wear while constraining boiler performance and pelleting stability. These critical impurities are removed through a robust, water-based leaching process built from well-proven ANDRITZ equipment.

The result is cleaner, specification-compliant feedstock for white pellets or, in combination with Steam-Ex or Torrefecation, advanced solid biofuels that directly displace coal.

ANDRITZ uniquely supplies stand-alone leaching as well as full-line solutions - from raw material preparation and drying to upgrading and densification - backed by engineering, automation, start-up, and life-cycle service.

From agricultural waste to high-value solid biofuels

RAW MATERIAL PREPARATION

Shredded or fiberized residues are conditioned to appropriate particle size and shape for leaching; upstream preparation can be integrated with existing mill operations or ANDRITZ woodyard/recycling solutions.

LEACHING CORE PROCESS (WATER-BASED)

1. A special mixer forms a biomass-water slurry and provides initial screening.
2. Hydrocyclones remove dense impurities.
3. Optional agitated tanks extend residence time for ion extraction and particulate release; optional second leaching stage
4. Dewatering unit separates leached biomass from the leachate.



LEACHATE TREATMENT (OPTIONAL, ZLD-READY)

The closed-loop concepts minimize freshwater make-up and effluent discharge; treatment trains recover reusable water from the leachate and concentrate dissolved salts.

DRYING (OPTIONAL)

Leached biomass is dried using low-temparature or waste heat to achieve the required moisture for densification or advanced upgrading.

BIOMASS UPGRADING (OPTIONAL)

Integrate Steam-Ex or Torrefecation to enhance energy density, hydrophobicity, and coal-substitution capability.

PELLETING/ DENSIFICATION (OPTIONAL)

Leached (and upgraded) biomass is densified using ANDRITZ pellet mills.

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