



FEED AND BIOFUEL

INDUSTRIAL PELLETING TECHNOLOGIES

HOW CAN WE HELP RECYCLE YOUR WASTE
INTO VALUABLE PRODUCTS?

ANDRITZ

ENGINEERED SUCCESS

Feeding and fueling the planet

Dedicated to feeding and fueling the planet

ANDRITZ is vital to ensuring a reliable global supply of aqua feed, animal feed, pet food, and biofuel and industrial pelleting. With full process lines accounting for half the world's production of aqua feed and biomass alone, we continuously support leading producers in achieving the highest levels in safety, quality, and control from feedstock to final product.

HOW
CAN WE HELP
RECYCLE YOUR
WASTE?

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LET'S FEED AND FUEL YOUR BUSINESS

The future of food and energy is full of ambitious ideas such as novel nutrient blends, unique feed properties that boost conversion rates, and high capacity process lines that virtually eliminate waste. To seize upon these opportunities, feed and biofuel producers demand a partner they can trust to deliver the right production capacity with the right service and expertise today – and for decades to come.

As a partner with more than 180 years of industry experience, no one knows more about these opportunities than ANDRITZ. From initial feedstock analysis to grinding, conditioning, and drying. From extrusion and pelleting all the way through to the largest parts and service supply chain on the planet. Together with leading producers in all major markets worldwide, our knowledge, services, and solutions continue to drive the evolution of tomorrow's feed and biofuel production.

Do not waste your business opportunities

Waste by-products can be highly valuable! A wide variety of materials that are considered waste can be transformed, in most cases, into marketable recycled goods. Among many other production processes, pelleting can further increase the value of these products.

WHY PELLETIZE WASTE?

As a part of the pelleting process, loose materials are converted into compact pellets through the application of pressure and heat. Compressing the structure increases its mass by a factor of 10. For example, in pellets with a diameter of 3 mm, the density will increase up to 30 mm. This increase provides advantages in handling and storing the waste, and significantly reduces transportation costs.

WASTE PELLETS AS BIOENERGY

By using renewable forms of energy, it is possible to reduce our dependency on fossil fuels. Waste material mixtures containing products of high calorific value, such as paper, plastic, and silica, can result in a valuable type of pellet for use in the bioenergy industry, filling a gap in our heating and electricity use.

WASTE PELLETS RECYCLED INTO NEW PRODUCTS

Waste pellets made of pure surplus materials; by-products of another production process, such as celluloses plastic, can be made suitable for many types of applications. The molding process demands stable pellets at bulk densities of approx. 400 kg. Clean plastic pellets can be used in this molding processes to form all sorts of new products like certain types of furniture.

ADVANTAGES OF PELLETING

- Simple handling
- Reduced transport cost
- Better storage capabilities
- Homogenous fuel of identical standard
- Specified bulk material for further processing
- Environmentally friendly
- CO₂ neutral fuel

MATERIALS FOR WASTE PELLETING

- Composite materials for substitute fuel
- Plastic packaging, PE and PP
- Paper industry rejects, paper, sludge, cardboard
- High-calorific plastics
- Mixed waste from households, industry, construction business
- Wood
- Textile, rubber & synthetic material
- Some organic degradable material



PELLETING

The ANDRITZ Paladin pellet mill ensures high output and efficient control of the pelleting process. The pellet mill is dimensioned for large forces and designed with exchangeable wear parts.

The robust Paladin pellet press with twin drive provides smooth operation with low vibration levels. The belt drive and heavy-duty pellet chamber ensure reliable and safe production.

Paladin 2000



Paladin 3000



PM30



PURE MATERIALS FOR RECYCLING INTO NEW PRODUCTS

- Plastics
- Stabilizers
- Compost
- Sewage sludge
- Chemicals
- Chicken manure
- Electronic waste
- Industrial dust
- PUR foam (e.g. refrigerator recycling)
- Biofertilizer
- Pesticides

KEY PROCESSING MACHINERY

ANDRITZ design solutions are centered around highly advanced key machinery for waste shredding and pelleting, including shredders and dryers for the processing of wet waste prior to the pelleting process. By converting waste into compressed waste pellets, density can be substantially increased which generates significant savings on transport, storage, and handling, as well as a variety of other environmental advantages.

In the private market, as well as the market for large-scale power stations, there is a rapidly growing need for environmentally friendly solutions – ANDRITZ will help you find your solution and hereby not wasting your business opportunities.

Boosting your business from waste to energy

ANDRITZ is your reliable partner for applications using your waste and by-product materials. We offer a full range of pelleting, shredding, mixing and screening equipment to handle the processing of many dry materials.

ADVANCED TECHNOLOGIES

We are strongly committed to excellent performance and the quality of our products, thus making us a strong partner for our customers. Our focus is on innovation and keeping up with the technological developments. We always strive to provide our customers with the newest technologies that will result in:

- Better and more efficient production
- Minimizing operation cost
- Maximizing energy efficiency
- Environmental protection considerations

We give our customers the advanced technologies that will ensure them a competitive advantage.

WE OFFER

- Process line solutions
- Unit machines
- Technical consultancy
- Engineering services
- Aftermarket service and support

COMPLETE PLANT SOLUTIONS


Our solutions are simple and effective. We strive to be a "one-stop" all-round supplier for all pelleting needs. Whether it is individual process machines, complete processing lines, or spare parts and services that you need - ANDRITZ will take you smoothly from raw material intake to finished product.

PROJECT MANAGEMENT

Our easy-to-operate plants, adaptable systems, short implementation times and proven performance make us the stand out partner for the industrial shredding and pelleting technologies. Our core competencies, leading technologies, and international business units work together in perfect unison. The ANDRITZ staff commitment and dynamics truly distinguish us from other suppliers. Experienced project managers teamed with specialized, subject area experts ensures that we exceed your expectations every time. Through outstanding performance, mastery of key process technologies, and engineering capabilities, ANDRITZ has become a leading global supplier of shredding and pelleting equipment and systems.

Being the largest supplier worldwide of equipment to the Feed and Biofuel industry with more than 180 years of experience, five manufacturing facilities, and a global network of sales and service companies, plus a supplementary worldwide distribution network, we are confident in claiming that ANDRITZ is able to supply the optimum technology solution for any possible need in industrial plants.



A photograph of industrial machinery on a ship's deck. The machinery is primarily white with blue accents, including large rollers and pipes. It is mounted on a metal structure with railings. The background shows the ship's superstructure and a staircase.

When it comes to not wasting your business opportunities, our commitment covers your operation's entire life cycle. From the first feedstock analysis in the field, through non-stop industrial production.

**HOW
CAN WE HELP
RECYCLE YOUR
WASTE?**

Basic process flow for commercial waste

SHREDDING

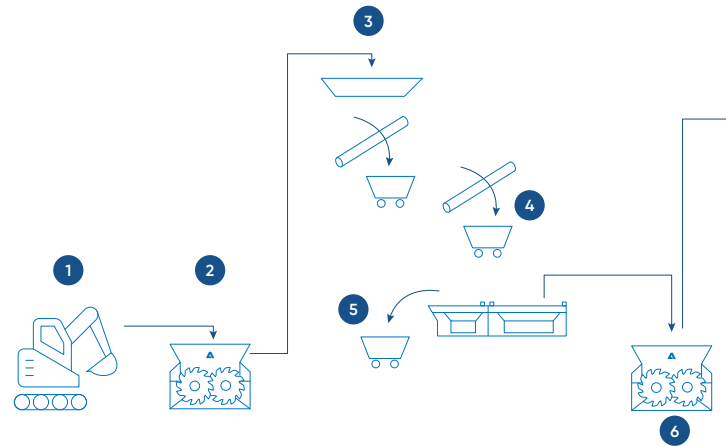
ANDRITZ is able offering an extensive variety of primary and secondary shredders to resize all possible products to enable the down-stream equipment to process it.

CLEANING AND SEPARATION

Besides process control on resizing ANDRITZ has engineering capabilities for cleaning and separation of less suitable components for the end products. Such as: Organic matter, Sand, Stones, (Non) Ferro and PVC.

DRYING

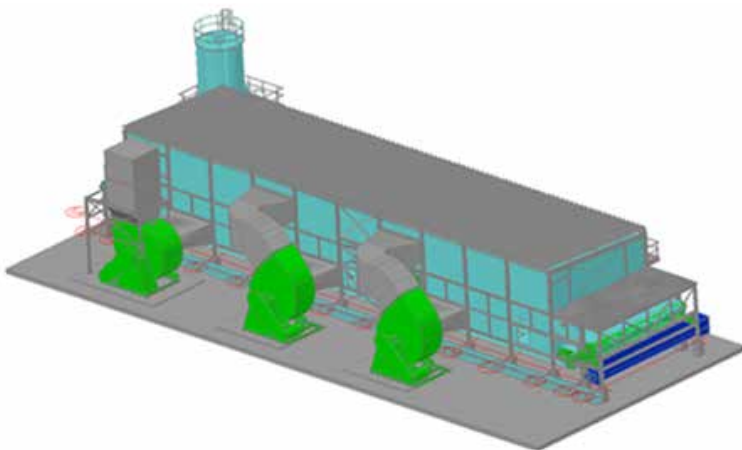
Depending of required CV value in end products ANDRITZ can utilize one of the dryers (Drum or Belt types) engineered to match the heating sources available with our relations.



WASTE SHREDDING

CONTAMINANT REMOVAL

FINE SHREDDING



Belt dryer
BDS Series for small feed capacities
(indoor installation)

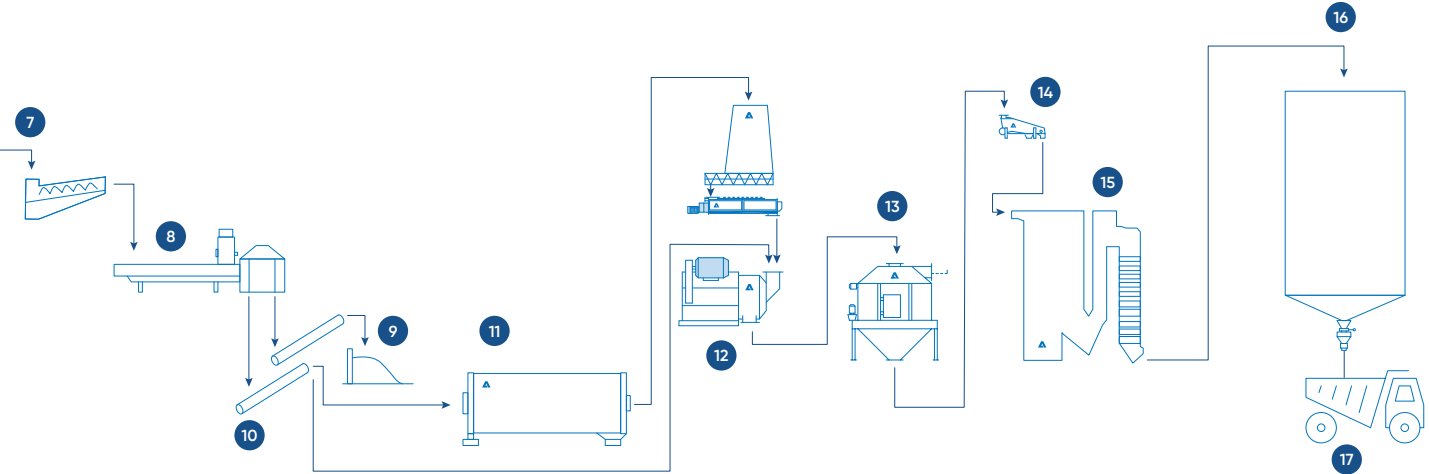
PELLETING

ANDRITZ offers two types of waste pellet mills. Both ensure high output and effective control over pellet quality. The dimensions of these pellet mills have been fixed to withstand great force and come with replaceable wear parts. The level of process control obtained by using the ANDRITZ pellet mill ensures high flexibility and optimum energy utilization.

COOLING

The intense friction applied in the die during the pelleting process causes additional heat to develop. Coolers are in place to reduce critical temperatures before sifting, packing and storing the pellets. ANDRITZ coolers utilize the sur-

- 1 Waste loading
- 2 Pre-Shredding incl. discharge conveyor
- 3 Fe-removal
- 4 Stone trap or wind shifter
- 5 Sand separation
- 6 Fine Shredding incl. discharge conveyor
- 7 Product distributor
- 8 PVC separator
- 9 PVC separated
- 10 Cleaned product for drying or pelleting proces
- 11 Drum dryer
- 12 Pelleting
- 13 Cooling
- 14 Sifting
- 15 Boiling
- 16 Silo
- 17 Outloading.



rounding air to lower the temperature of the pellets, resulting in a pellet temperature 5 to 10 °C above room temperature. The diameter of pellets and the holding time in the cooler are crucial in determining the size of the cooler needed.

FINAL SIFTING

Finally, the pellets pass through a sifter to remove crumbs and dust which get recirculated back into the process.

PROCESS CONTROL

ANDRITZ offers modularly designed, computerized controls for individual key machines, complete processing channels, and complete plant controls.

Waste-to-energy / Comprehensive process capabilities

Converting trash to treasure

Waste-to-energy (WTE) is the process of creating energy using waste as valuable fuel source. Due to changing environmental legislation and the need for alternative fuels, new designs for mechanical and biological treatment of municipal solid waste (MSW) and of commercial and industrial waste (C&I) are being developed all over the world.

Refuse-derived fuel (RDF) is an alternative fuel produced by shredding, sorting and dewatering the light fraction of solid waste. The objective of this concept is to obtain high-calorific and stable material. These fuels can replace fossil fuels in many applications, such as cement kiln plants, steel furnaces, or power plants.

A well-proven and highly efficient drying process turns the wet RDF into a valuable energy source for further gasification, combustion, or densification.

'TRASHY' ABBREVIATIONS

WTE

Waste-to energy

MSW

Municipal Solid Waste

C&I

Commercial and Industrial Waste

RDF

Refuse-Derived Fuel (RDF) is a fuel produced from various types of waste such as Municipal Solid Waste (MSW), industrial waste or commercial waste.

SRF

Solid Recovered Fuels (SRF) is basically the same as RDF but has a much lower content of MSW ie higher Caloric Value than RDF also caused by lower moisture levels.

The SRF is more valuable than RDF but can be used for the same incineration purposes.





GLOBAL SUPPLIER – LOCAL PRESENCE

With sales, service, engineering, manufacturing and production sites located all around the world, ANDRITZ Feed and Biofuel is truly a global organization with a local presence. ANDRITZ is vital to ensuring a reliable global supply of aqua feed, animal feed, pet food, and biofuel. With full process lines accounting for half the world's production of aqua feed and biomass alone, we continuously support leading producers in achieving the highest levels in safety, quality, and control from feedstock to final product.

How can we help grow your business?

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