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Pelleting - Core Benefits

The main advantages of densified fuels, compared to non-densified ones are the following:

- An increased bulk density (from 80-150 kg/m3 for straw or 200 kg/m3 for sawdust to 600-700 kg/m3 after densification), resulting in lower transportation costs, reduced storage volume and easier handling.
- A lower moisture content (humidity <10%), favouring a long conservation and minor losses of product during the storage period.
- An increased energy density and more homogeneous composition, resulting in better combustion control possibilities and thereby higher energy efficiency during combustion.

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Types of Feedstock Used In Pelleting

Below is a small selection of waste products "feedstock" used in pelleting

- ✓ Wood waste including sawdust, pallets, salvaged value add wood, wood chips, ….
- ✓ Hay, wheat, Hemp, harvested Cannabis, Corn Stocks & Cobs, Corn Stover, Rice Husks,
- ✓ Sorted Municipal Solid Waste (glass, metals, organics and plastics removed).
- ✓ Animal Manure, Human municipal wastewater sludge (bio-solids).
- ✓ Waste fabrics from clothing manufacturing and recycling.
- ✓ Olive Pomace.
- ✓ Grape Marc / Pomace.
- ✓ Bagasse.
- ✓ Leaves, Brush Clippings, Grasses.
- ✓ Standing trees infected with Parasites (no marketable value as lumber).

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Types of Feedstock Used In Pelleting

Crop Residual

MSW

Sawdust, Chips

Hemp

Grape Marc/ Pomace

Sewage Bio solids

Animal Manure

Bagasse

Parasitic Wood

Olive Pomace

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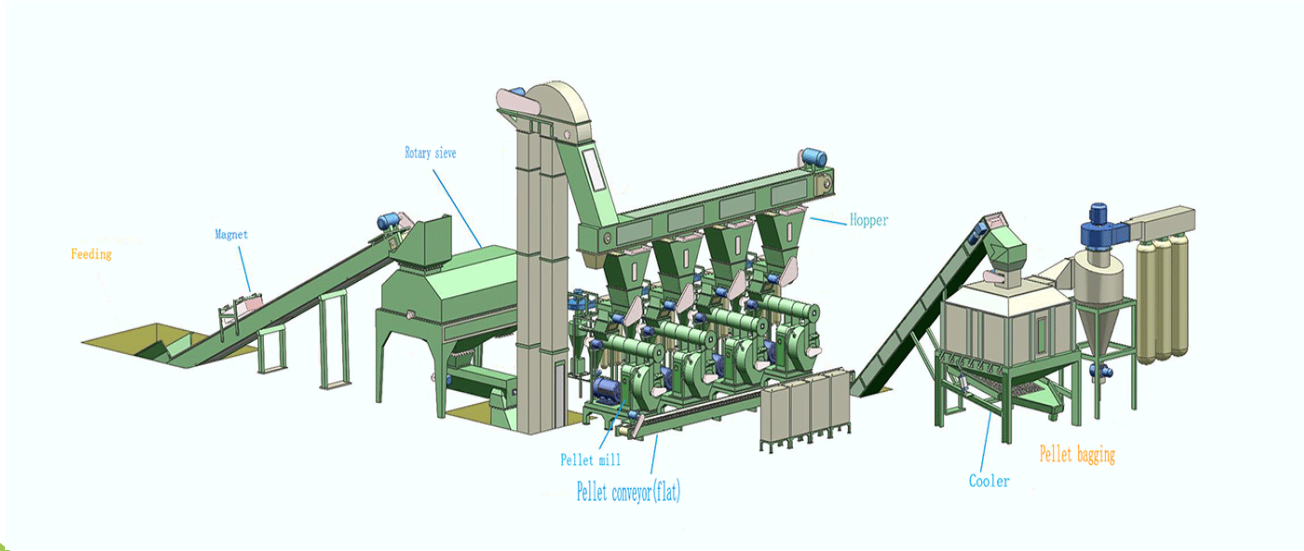
Visual Example – Pelleting Mill



Note: plant configuration will vary based on type of Feedstock, Input & Output Volumes, and Markets Served.

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Pelleting Mill – Steps

1. Waste stream is delivered to the pelleting facility.
2. The waste is sent through a Hammer Mill to homogenise the product.
    - The waste needs to be uniform, and well blended.
3. Homogenised product is fed to the dryer.
    - The dryer removes any excess moisture above 10%.
4. Stable, dry, homogenised waste is sent to the shaker table.
    - The Shaker table removes “fines”, which are reused in the process.
5. The product is now sent to the Pelleting line.
    - The dry, homogenised waste is compressed under pressure to extrude a stable pelleted product.
6. Pellets are cooled and sent to the bagging line.
    - Final product is Bulk Bagged, and transported to market.

Note: plant configuration will vary based on type of Feedstock, Input & Output Volumes, and Markets Served.

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Market Advantages to Pelleting Waste Streams

- Most advanced countries are deploying highly efficient Biomass Boilers/Heaters to replace fossil fuels.
- Although this move is admirable, it in fact creates another non-sustainable draw on dwindling natural resources.
- Most, if not all heating pellets are derived from Virgin Forests. Cutting down large tracks of Virgin Forest is not a sustainable practice, as many of these forest are not re-planted, and or will take a generation to reach a marketable size.
- Most countries are now banning all Virgin Forest pellets.
- There is a deficit of heating pellets in the European market that exceeds 12-million/ tons/ year, and growing.

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Markets Served

Below is a small selection of markets served

- ✓ Heating – pellets are used to efficiently fire biomass boilers, creating heat and electricity.
- ✓ Bedding – safe bedding for animals, providing higher absorption rates than traditional bedding.
- ✓ Absorption - used in the oil & Gas industry (safer, smarter, and more cost effective than chemical absorbents).
- ✓ Fertiliser – slow release, higher concentrate of beneficial nutrients, safer and more cost effective than synthetic chemical compounds.
- ✓ Hemp – produces a higher yield of CBD oil upon extraction.
- ✓ Animal Feed – processing a higher nutrient value, organic, safer, and healthier for the animal (sustainable husbandry practices)

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What We Offer

- ✓ More than 20 years experience.
- ✓ Backed by the industry leading manufacturers.
- ✓ We partner with individuals, and entities looking to make a difference, solve the issue, while creating value in a sustainable cost effective fashion.
- ✓ We provide “Turn Key” facilities to manage all manner of feedstock.
- ✓ Our team assesses the opportunity, analyzes the feedstock, secures end-market clients, engineers the best applicable technology platform, secures permitting, executes and maintains the project to the highest environmental standards.
- ✓ We assume the risk, finance and place the technology platform, while sharing the bottom line with our partners.

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Thank You

For further assistance, and for a personalised assessment of your needs.
Please visit us online at:

https://wwpllc.com/

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WWP WASTE WATER PANELS

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