

Woodpower!



A project of two companies: Solvay and AVG

The Rheinberger Solvay plant produces soda and sodium bicarbonate. Products from Rheinberg are used for example for glass, solar panels, laundry detergents and baking powder. Solvay is rarely mentioned anywhere, but it's in almost everything!

The Solvay plant in Rheinberg significantly reduces CO₂ emissions by around 190,000 tonnes per year. To achieve this goal, Solvay Chemicals is building a power plant to generate process steam and electricity using waste wood as fuel. Each year around 300,000 tonnes of waste wood will be used to generate energy in the power plant.

Within a radius of 150 km certified disposal companies collect the waste wood and supply it to the power plant. AVG Baustoffe Goch GmbH is responsible for processing the waste wood into high-quality biofuel.

The challenge

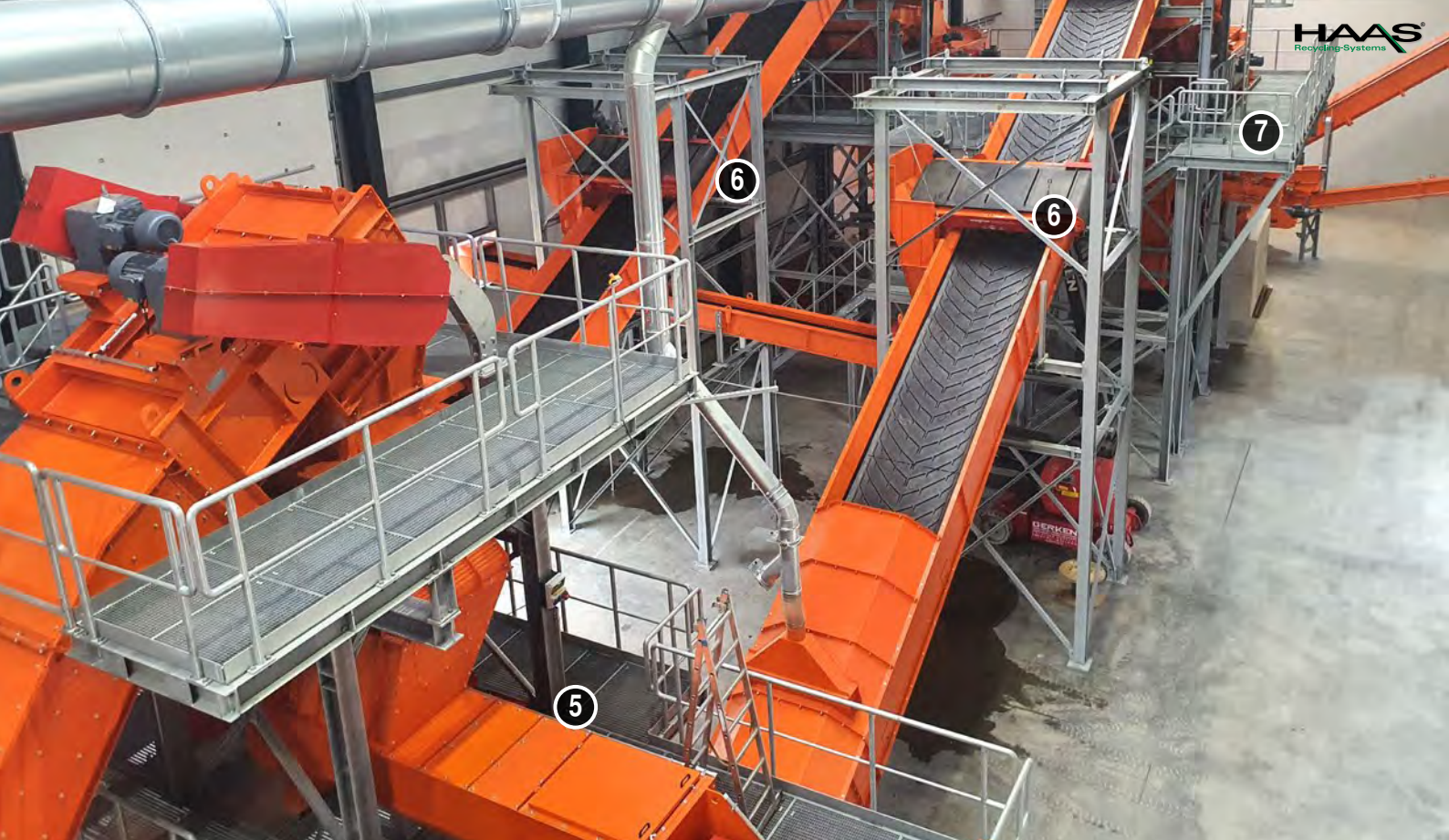
AVG Baustoffe Goch was faced with the challenge of having to process 300,000 tonnes of waste wood per year according to precisely defined biofuel specifications. The plant must process at least 60 t of waste wood per hour in order to cover the power plant's demand. To achieve the optimum efficiency of the CHP boiler, clean wood chips without any impurities are required.

System components

1. TYRON 2500-E 2.0 pre-shredder
2. Overband magnet (enclosed)
3. ECOSTAR HEXACT dynamic disc screen
4. ARTHOS 2000-E hammermill
5. HAAS distribution screw(s)
6. 2 overband magnets
7. 2 non-ferrous separators 2500
8. 2 HAAS flat screens
9. Interface to the power plant
10. Dust extraction system



60 t/h



The solution

AVG has been using a stationary HAAS waste wood processing system at its Goch site for many years. Another benefit that led to the decision in favour of a HAAS plant is a HAAS waste wood plant that has already been installed since 2017 and produces the fuel for an identical biomass power plant in the UK.

The waste wood of the classes A I to A IV is first pre-shredded with the largest HAAS pre-shredder, a TYRON 2500-E. The wood is then processed by a hammermill, ARTHOS 2000-E, equipped with two powerful 315 kW electric motors to produce recycling chips < 100 mm.

The special ballistic chute protects the hammermill from wear and tear and machine breakage. Impurities, especially iron, are automatically separated. In addition, the mill can be opened hydraulically in a flash so that wear parts and the screen basket can be changed within a very short period of time. This minimises downtimes and reduces the costs.

To ensure optimum cleaning and screening of the wood chips, the material flow is distributed over two lines. Intelligent material diverters and distribution screws guarantee redundancies and thus operational reliability in the event of problems during processing. Powerful neodymium magnetic separators, magnetic drums and eddy current separators remove the remaining impurities such as nails, screws or staples from the wood.

The cleaned biofuel is finally separated into three fractions with HAAS flat screens. The usable fraction is fed into the power plant's storage silo, the fine fraction is separated and the oversize is fed back into the process. This is where the process chain ends.

A dust extraction system consisting of a filter unit with a suction capacity of 40,000 m³ air per hour keeps the plant almost dust-free.

