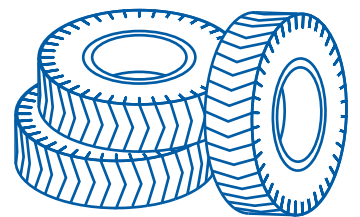


A photograph of a tyre recycling plant. In the foreground, several large, dark, worn tyres are stacked. In the background, a large, blue, industrial machine with a conveyor belt is visible, processing the tyres. The sky is clear and blue.

**RECYCLING
PLANTS FOR
WASTE TYRES**



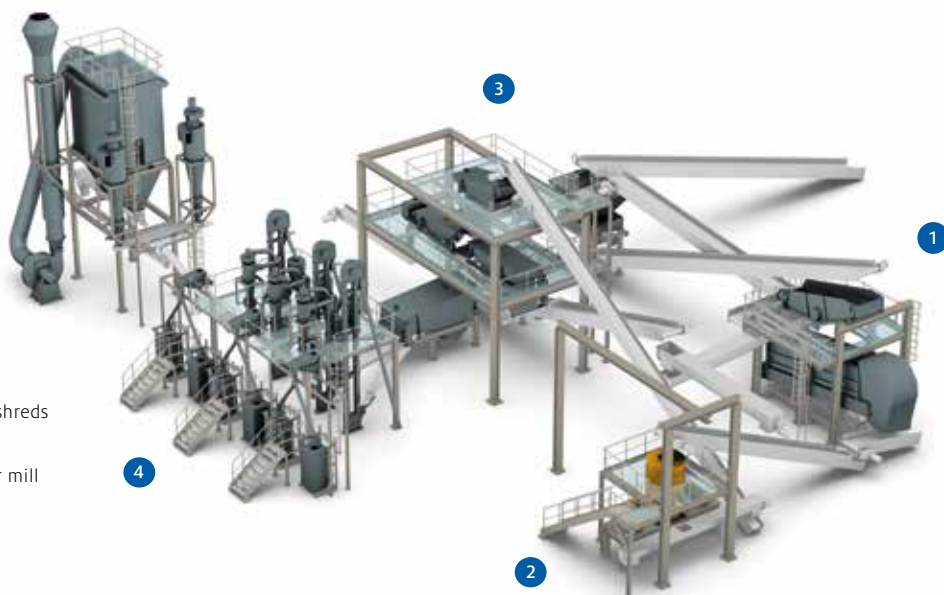


RECYCLING PLANTS FOR WASTE TYRES

Waste tyres consist of caoutchouc, textile fibres, steel and additives, and have a high recycling potential. The recycling method (energy or material recycling) depends on the value of the subsequent products and on the availability and price of the raw materials. Legal regulations such as the landfill ban in the EU states advance waste tyre recycling for the benefit of conservation of resources. In material recycling, the waste tyres are crushed and granulated. The granulation process separates the textile and steel fraction from the rubber so that the desired particle shape, particle surface and particle size distribution of rubber crumb and rubber powder are obtained. For more than 10 years, AMANDUS KAHL has been active in waste tyre treatment and has delivered plants from reception to packing worldwide.

THE CENTRAL PART OF THE GRANULATION UNIT IS THE FLAT DIE PRESS

In waste tyre recycling, the flat die press used in many applications as a pelleting press for the compaction of various bulk products is used as a crushing machine functioning according to the pan grinder roller principle. In this case, it is also called pan grinder mill. The pelleting elements such as pan grinder rollers and die exert a combined shearing and cutting impact on the product to be processed. The result is the desired separation of rubber, textile fibres and steel of the waste tyre.



- 1 Precrushing of tyres for the production of tyre shreds or chips (about 50 x 50 mm).
- 2 Granulation using the flat die press/pan grinder mill
- 3 Iron separation and classification
- 4 Cleaning of the granulate

The plant design is subdivided basically into 4 process stages, with the waste tyre processing (e.g. 70 % car tyres and 30 % truck tyres) being designed for a standard input quantity of 2.5 t/h. In three shift operation this amounts to a processing quantity of about 15,000 t/a.

The individual process groups and the layout of the plant components are in modular design. Thus, the machine groups can be modified and extended, depending on the throughput quantity and requirements on the quality of the final products (granulate size, purity etc.).

WASTE TYRE GRANULATES WITH A HIGH PURITY DEGREE

Rubber crumbs and rubber powder are used in rubber mixtures of new tyres, in other rubber products (sports grounds and floor coverings, rubber mats, noise insulation materials etc.), in asphalt for road construction (low noise asphalt), in gardening and landscaping as well as in oil binding agents.

This saves raw materials and resources!



ADVANTAGES OF THE PROCESS WITH FLAT DIE PRESS/PAN GRINDER MILL

- *Reduced investment and operating costs in comparison to cryogenic processes*
- *Reduced machine expenditure and energy input*
- *Reduced operating costs*
- *Reduced noise emission*
- *Cutting granulators are not required*
- *Long service life of the granulation tools, about 5,000 t of waste tyre shreds*
- *Rapid change of wear parts*
- *Ease of maintenance of plant components*
- *No process waste due to optimum material recycling*
- *High content of fine rubber particles (optional)*
- *Large surface of the crumbs*
- *High purity (rubber/steel)*



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