

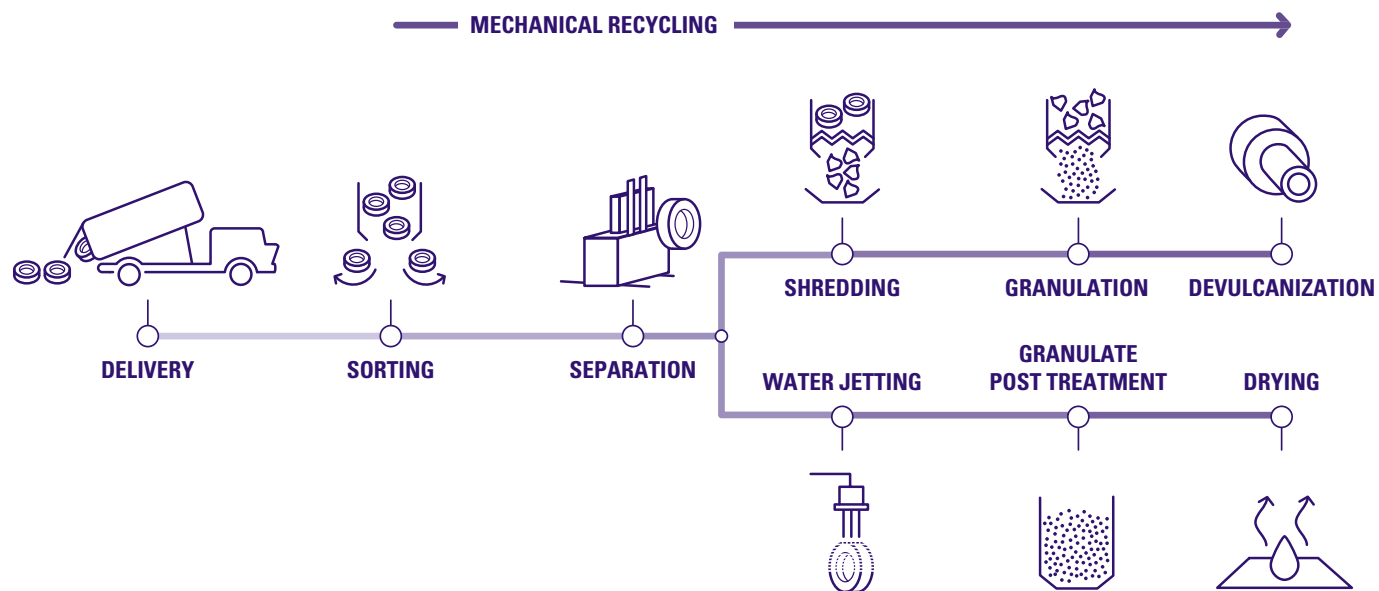
GIVING OLD TIRES A SECOND LIFE

A HOLISTIC APPROACH TO TIRE RECYCLING



zeppelin-systems.com

 **ZEPPELIN®**
WE CREATE SOLUTIONS



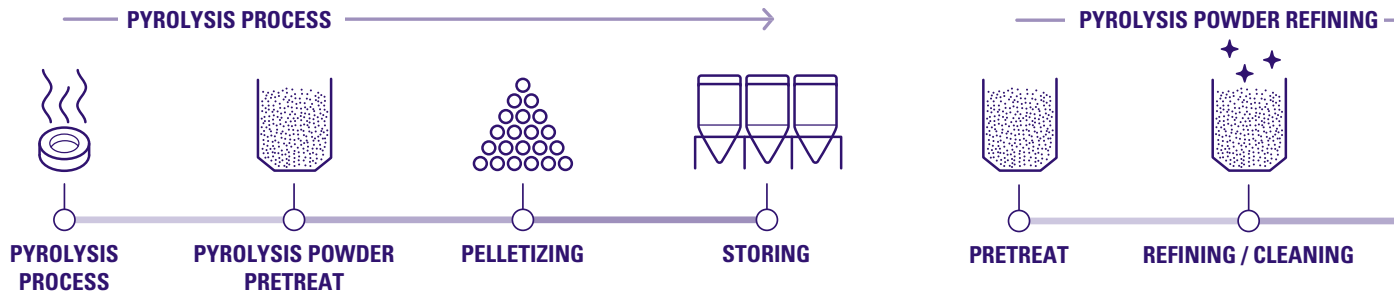
ZEPPELIN SYSTEMS: YOUR PARTNER FOR THE SUSTAINABLE TIRE PRODUCTION OF TODAY AND TOMORROW

We are an integrated solution provider for tire-to-tire production and contribute to the circular economy

HIGH-QUALITY RECYCLATES FOR SUSTAINABLE TIRE RECYCLING

Old tires go through numerous recycling processes before they become new tires. A distinction is made between material recycling (sorting, separating and granulating), raw material recycling (e.g. pyrolysis process) and the cleaning of recyclates. As an integrated solution provider with over 40 years of experience in the tire industry, Zeppelin Systems provides the right plant engineering solution for every process step – irrespective of where customers are in the value chain.





FROM OLD TIRES TO RAW MATERIALS

The methods for material preparation that are currently available on the market generally break the tire down into its individual fractions: Steel, textile and rubber. These traditional processes result in output of only limited quality, and the recycled components are mostly not reusable for new tire production. Up to now, recovered rubber has been used, for example, in the simplest floor coverings or for sports fields.

To date, higher-value use of recycled raw materials or reuse in tires (tire-to-tire) has only been possible in isolated cases. This is where Zeppelin Systems comes in.

ZEPPELIN SUSTAINABLE TIRE ALLIANCE

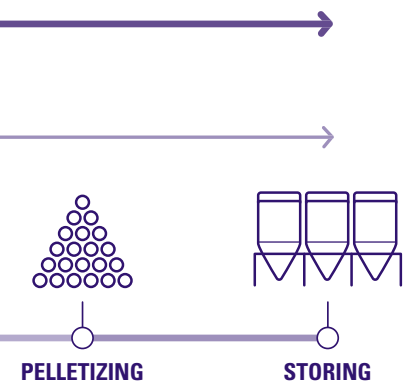
Zeppelin Systems works with international partners to give used tires a new lease of life along the recycling value chain, and to make the tire recycling process even more efficient and sustainable. The priority is facilitating the reuse of obtained secondary raw materials in such a way that they are useful in new tire production.

TURNING OLD INTO NEW

An AI-driven process identifies and selects used tires. Intact tires are fed to the retreading process, and the remainder is mechanically broken down into various components using innovative technologies. Off-the-road tires and giant tires – for example those from construction vehicles in diamond mines with diameters of up to 4 meters – can also be broken down using a high-pressure water jet process. The rubber granulate and/or the rubber powder produced become the basic material for further treatment processes (such as rubber activation via a reclaim process) or for rubber devulcanization; this is a necessary step for the re-vulcanization of recyclates. In concrete terms: This recycled material can be reused for tire production. Other parts of the tire can be recycled as raw materials, for instance by means of pyrolysis. Pyrolysis breaks down old tires into raw materials. The products generated include recovered carbon black (rCB) and pyrolysis oil, etc. The separated textile fibers can be processed to produce stabilizers for stone mastic asphalt.

This reuse is advantageous because the textile fibers used have a higher splitting strength compared to cellulose-based stabilizers. Which increases the service life of road surfaces.





ALL PROCESS STEPS FROM A SINGLE SOURCE

In a subsequent purification step, the rCB obtained from the pyrolysis process is thoroughly freed of the ash and sulfur.

The industry benefits from: rCB with consistent, reproducible quality and purity, like conventionally produced industrial carbon black. The environment benefits from: Careful use of renewable and precious resources. The customer benefit from: All recycling solutions from a single source, from Zeppelin Systems.

We Create Solutions!

Zeppelin Systems' self-image is that of a solution provider for the tire industry

OUR EXPERIENCE = YOUR CUSTOMER SOLUTION!

As a foundation-owned company, we are committed to the infinity principle. For Zeppelin Systems, corporate social responsibility is therefore not just a buzzword of the modern age, but a self-image that is actively lived. Our vision is to shape the future of the tire industry in a sustainable way and to make even better use of existing potential. In concrete terms, this means that as a turnkey solution provider with many years of experience, we offer you holistic plant engineering and technology solutions tailored to your requirements for all tire recycling tasks, the rubber mixing process and the handling of recyclates. Together with international partners of the Zeppelin Sustainable Tire Alliance in combination with the latest technology innovations, we are striving to significantly increase the quantity of high-quality tire recyclates for the production of new tires. In this way, we not only contribute to the circular economy, but at the same time conserve the precious resources of our planet.

Join our mission and revolutionize your tire production together with Zeppelin Systems! We are your strong partner on the way to a sustainable future.

We Create Solutions!

ZEPPELIN
SUSTAINABLE TIRE
ALLIANCE



RECYCLATES AS AN ESSENTIAL COMPONENT OF THE SUSTAINABLE CIRCULAR ECONOMY

Zeppelin Systems is your partner for the economical, sustainable and high-quality production of tires and recyclates

Modern tire production must achieve new goals in terms of accuracy, reliability and quality through precise material handling. It is also critically important that new sustainable materials are developed and that recyclates are returned to the production cycle. As an expert in this field, Zeppelin Systems supplies solutions for mixing rooms as well as revolutionary recycling solutions for the sustainable processing of used tires. The focus is on (sustainable) materials and raw material recycling, as well as the cleaning and refining of recyclates to produce high-quality secondary raw materials and thus also the conservation of resources. With this work we are making our contribution to the sustainable circular economy. We Create Solutions!





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