Overview of Recycling and Reuse of Waste Tyres in China

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Overview

- In recent years, along with the continuous development of the rubber industry in China, the comprehensive utilization of used rubber (including waste tyres) has been booming. Production and application of reclaimed rubber in particular have become the driving force of the comprehensive utilization of used rubber.
Overview

- China is a large producer of rubber products, at the same time a large maker of waste rubber, including tyres. According to statistics, about 100 million pieces of waste tyres will be generated per year in China. Nowadays, China has explored a relatively mature mechanism to recycle and reuse waste tyres, among which production of reclaimed rubber plays a major role.
3 approaches of comprehensive utilization of waste tyres in China:

- Production of reclaimed rubber
- Production of vulcanized rubber powder
- Retreading waste tyres
Production of Reclaimed rubber

- **Definition**: Reclaimed rubber, as the advanced form of rubber recycling, is the most scientific, rational and popular approach to the rubber recycle business.

- **Current situation**: China, as a large consumer of rubber, lacks proficient rubber resources.

- **Advantages**: Reclaimed rubber is a solution for the shortage of raw rubber and can reduce the rubber waste, hence the pollution caused by that waste. It makes a contribution to the protection of the environment.
Production of Reclaimed rubber

- According to statistics, the production of reclaimed rubber in China increased from 1.1 million ton in 2002 to 2.5 million ton in 2009, accounting for 73% of total recycled rubber products and 81% of total reclaimed rubber worldwide.
Production of vulcanized rubber powder

- **Definition**: rubber powder is made from waste rubber and tyres that are ground and shredded into powder of different sizes. It can be used directly or mixed with other materials.

- **Processing methods**: The mostly used method in China is shredding at room temperature.
Production of vulcanized rubber powder

Applications of rubber powder:

※ Most rubber powder production is used to produce reclaimed rubber.

※ A small portion is used to mix with rubber material to substitute raw rubber, which reduces product costs.

※ Activated and modified rubber powder can be used to produce different rubber products (automobile tyres, car components, transport belts, mud fenders, dust covers, shoes, flexible tiles, gaskets and pads, etc.)
Production of vulcanized Rubber Powder

Applications of rubber powder:

※ When mixing with asphalt or cement, it can be used for road or house construction

※ When mixing with plastic, it can be used to produce water-proof materials, infiltrating irrigation tubes, soundproof materials, floor, water tape, oil pipes, packing materials, frames, circulation box, bathtubs, water tanks

※ Make coatings, paints and adhesives

※ Produce active carbon.
Production of vulcanized Rubber Powder

- **Scale**: according to statistics, there are more than 600 companies that produce rubber powder in China, with a total annual production capacity of 5 million ton. Over 100 producers have a capacity of 5000 to 10,000 ton. Over 300 producers are specialized in rubber powder, with a capacity ranging from 500 to 20,000 ton.
Retreading waste tyres

- **Definition**: Retreading is the most important and efficient approach to recycle waste tyres.

- **Advantages**: A used tyre can be retreaded repeatedly and a retreaded tyre can regain 60% to 90% of the life span of a new tyre, if it is correctly used and well-maintained. By repeatedly retreading, a tyre’s life cycle can be doubled or tripled. A retreaded tyre consumes only 15%-30% of raw materials of a new one with the same specification, and the price is only 20%-50%. The advantages of retreaded tyres are: prolonging the life cycle of a tyre, saving energy, saving raw materials, reducing costs and pollution. Therefore, it fits into an environmental protection industry with a bright future.
Retreading waste Tyres

- **Current Situation**: proportion between production of new tyres and of retreaded tyres in China is 26:1, far lower than the world average of 10:1.

- **Scale**: According to statics, there are over 500 enterprises in the tyre retreading industry in China, with the total production capacity of 10 million pieces.
China has state of the art technology in the field of tyre shredding at room temperature and world leading process technology of producing reclaimed rubber. China is willing to exchange information and work together with all the other countries to promote and make contribution to the tyre and rubber recycle business.
Thanks for your attention!