

A METHOD OF PROCESSING SCRAP RUBBER

The present invention relates to a method of processing scrap rubber, and, more specifically, to a method of processing rubber blocks containing steel or other metal wire originating as waste from tyre manufacturing companies.

As is known to those skilled in the art, the volume of scrapped material in tyre manufacturing companies is very high.

In this respect, indefinitely shaped rubber blocks with steel wires come from burrs and shavings left over in the tyre production line. This material is of no use to the manufacturers, and its worthlessness may be regarded as a waste of material which makes the tyre production process more expensive. Of course, the costs of this waste have to be incorporated into the cost of the finished product or, in other words, into the cost of the tyre, thereby making the latter more expensive.

It is an object of the invention to provide a method of processing scrap rubber material to make it feasible for this scrap to be reused to obtain raw material for other by-products.

According to the present invention there is provided a method of processing scrap rubber material containing metal wire, the method comprising the steps of crushing pieces of the rubber material to form a blanket of rubber and metal wire, and forming from said blanket slabs of the rubber and metal wire for reuse.

By processing scrap rubber material, for example, from a tyre manufacturing process, the cost of the manufacturing

process can be reduced. Thus, the final costs of tyre production may be reduced.

5 By processing the scrap material, for example, rubber blocks with steel, a low-cost raw material may be obtained which can be used to provide other products. For example, a number of rubber products, such as pallets, mats, floorings, treads, and the like may be manufactured at a lower cost than previously.

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In an embodiment of the invention, pieces of scrap rubber material are cut prior to crushing such that small blocks of the scrap rubber material are crushed, and wherein the thickness of the rubber and metal wire blanket produced by said crushing step is standardised.

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Preferably, a plurality of said blankets of standardised thickness are layered to make a single piece of rubber and metal wire which is substantially homogeneous, and wherein said single piece is cut to produce one or more slabs for reuse in processing lines.

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The invention also extends to a method of processing scrap rubber material containing steel wire and originating from tyre production lines, the method comprising the steps of cutting blocks arriving from the tyre production line into smaller blocks, crushing the smaller blocks until they turn into blankets, standardising the thickness of the rubber and steel wire blankets, joining a number of said blankets together by superimposition to form a single piece of homogeneous thickness, and cutting the single, homogeneously thick rubber and steel wire piece so as to form processed slabs, ready to be used as raw material for other processing lines where rubber articles are manufactured.

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The invention additionally extends to a rubber and metal article when made by a process as defined above.

5 An embodiment of the present invention will hereinafter be described, by way of example, with reference to the accompanying drawing, in which the sole Figure shows a simplified block diagram of the processing steps of a method of processing blocks of scrap rubber material of the invention.

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As is illustrated in the Figure, a method of the invention is arranged to process rubber blocks which come as scrap material from a tyre production line. The arriving rubber blocks are irregular in shape and have
15 steel wire and capillary strands of steel therein. They originate as the scrap material and are collected at the production line and fed to a production line of the invention. The arriving irregular shaped blocks are first cut into smaller sizes and are then crushed, by the use of
20 presses or the like, until a rubber and steel blanket is produced. The thickness of these rubber and steel wire blankets is standardised in any suitable manner, for example, in the presses and/or by passing them between
25 rollers or the like. A number of the standardised blankets are then joined together, for example, by superimposing and pressing a plurality of rubber blankets and steel until a single piece of rubber and steel of homogeneous thickness is obtained. This single piece is then cut into slabs of
30 predetermined dimensions, the dimensions depending upon the by-product manufacturing line for which they are intended.

The product obtained from a processing method of the invention may be used as raw material for the production of
35 pallets, mats, flooring, treads and other manufactured rubber articles.

Although no more than the basic processing steps have been described, it should be emphasized that modifications, variations and improvements may be introduced without departing from the scope of the present invention as defined by the appended claims.

CLAIMS

1. A method of processing scrap rubber material containing metal wire, the method comprising the steps of
5 crushing pieces of the rubber material to form a blanket of rubber and metal wire, and forming from said blanket slabs of the rubber and metal wire for reuse.
2. A method as claimed in Claim 1, wherein pieces of
10 scrap rubber material are cut prior to crushing such that small blocks of the scrap rubber material are crushed, and wherein the thickness of the rubber and metal wire blanket produced by said crushing step is standardised.
- 15 3. A method as claimed in Claim 2, wherein a plurality of said blankets of standardised thickness are layered to make a single piece of rubber and metal wire which is substantially homogeneous, and wherein said single piece is cut to produce one or more slabs for reuse in processing
20 lines.
4. A method of processing scrap rubber material containing steel wire and originating from tyre production lines, the method comprising the steps of cutting blocks
25 arriving from the tyre production line into smaller blocks, crushing the smaller blocks until they turn into blankets, standardising the thickness of the rubber and steel wire blankets, joining a number of said blankets together by superimposition to form a single piece of homogeneous
30 thickness, and cutting the single, homogeneously thick rubber and steel wire piece so as to form processed slabs, ready to be used as raw material for other processing lines where rubber articles are manufactured.
- 35 5. A method of processing scrap rubber material substantially as hereinbefore described with reference to



the accompanying drawing.

6. A rubber and metal article when made by a process as claimed in any preceding claim.

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