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(54) Titre : Method for Treating Waste.

(57) Abrégé :

The invention relates to a method for treating waste, wherein landfill and/or fuel is obtained from fed waste material by means of downstream treatment steps, wherein the waste material is separated (S1) into at least one first fraction, in particular having waste parts above a specified waste part size, and into a second fraction rich in organic material, in particular having waste parts below the specified waste part size, the second fraction is separated (S2) into at least one fine fraction rich in organic material and a coarse fraction rich in organic material, the coarse fraction rich in organic material is fermented (S3) by means of dry fermentation, and the fermentation residue from the dry fermentation is treated further (S4) together with the previously separated fine fraction rich in organic material.

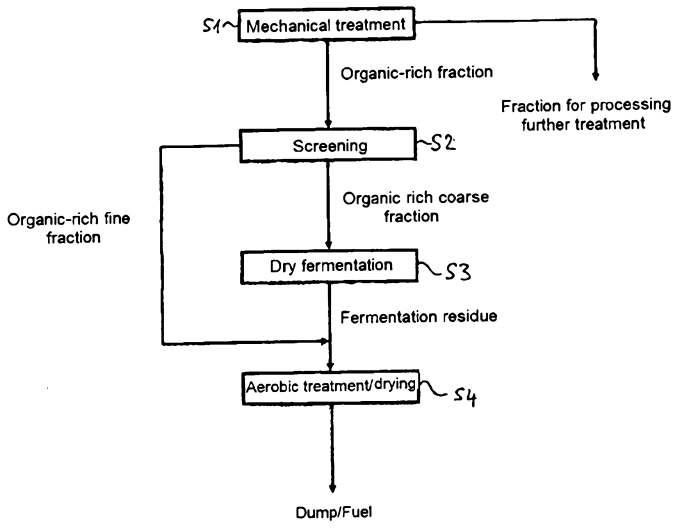


Fig. 1

METHOD FOR TREATING WASTE

The invention refers to a method for treating waste, especially domestic waste or refuse.

During the aforesaid waste treatment, separation of the waste into individual fractions, for example into essentially organic material, plastic, metal and other waste products, is customarily carried out. It is the aim to make the waste dumpable or else to treat the waste for thermal utilization. In order to maintain a dump, in particular the biological activity must be extracted from an organic proportion of the waste. The carried out as a rule by means of an aerobic treatment or by means of a combination of aerobic and anaerobic treatment wherein the organic-rich material is volumetrically separated.

Aerobic treatment is very costly and energy-intensive and the combined treatment which is spoken of can be technically realized only in a very limited lumpiness of the organic-rich material with particle sizes which are smaller than 60 mm.

The invention is therefore based on the object of disclosing a method for treating waste, which is optimised with regard to the aforesaid disadvantages.

This object is achieved by means of the method with the features of Claim 1, advantageous embodiments being found in the dependent claims.

According to the invention, it is intended to separate from the waste an organic-rich fraction which in a subsequent step is again divided into an organic-rich fine and an organic-rich coarse fraction. The fine fraction preferably has particles with an average grain size of between 0 and 45 mm, and the coarse fraction preferably has particles with an average grain size of 10 to 120 mm. the coarse fraction is then supplied as a substrate to a dry fermentation process and in this case fermented to form a fermentation residue. The fine fraction, together with this fermentation residue, is aerobically treated and / or dried.

This procedure has the advantage that by means of the dry fermentation energy can be extracted from a part of the organic rich fraction, producing reusable biogas, which would be lost during conventional aerobic treatment. Moreover, during the dry fermentation within the scope of the design and the size of the corresponding plant, any organic-rich waste parts with almost any grain sizes can be processed.

The invention is subsequently schematically explained in more detail with reference to the flow diagram in the single figure.

The depicted flow diagram represents the process according to the invention in a simplified manner. In a first step S1; mechanical processing of the waste is carried out, wherein separation of the waste into at least one first fraction and into at least one organic-rich fraction is

carried out. Organic-rich means that this fraction in any case contains a considerable part of organic material. Step S1 can also contain a size selection according to the average waste part size or grain size, wherein the organic-rich fraction preferably contains parts with average grain sizes of 0 to 120 mm, preferably 0 to 80 mm, wherein the higher value in each case is referred to as the predetermined waste part size.

In a further step S2, a further separation, for example screening of the organic fraction, is carried out. The separation is carried out so that an organic fine fraction, with parts of an average grain size of 0 to 45 mm, preferably smaller than 30 mm, ideally smaller than 10 mm, is formed, and organic coarse fraction, with parts of an average grain size which is equal to or above the said values in each case, is formed. In a next step S3, the resulting coarse fraction, as a substrate, is subjected to a dry fermentation process which as such is generally known and does not have to be explained in more detail here. By fermenting the coarse fraction in the dry fermentation step S3, a fermentation residue results and at the same time biogas is produced in a controlled manner and can be extracted from the fermenter or from a percolation vessel for further use. As a result, energy is extracted from the coarse fraction and at the same time biogas is made available for further applications. The fine fraction, together with the fermentation residue, is then supplied to a further drying process and/ or (aerobic) treatment so that finally a dump and/ or fuel can be produced in downstream treatment steps S4.

CLAIMS

1. Method for treatment waste materials in which deposits and/ or combustible material are extracted by means of a series of treatment steps from the waste material supplied and comprises the following steps:

a. Separating the waste material into at least one first fraction, more particularly with waste parts above a predetermined waste part size, and into a second organic-rich fraction, more particularly with waste parts below the predetermined waste part size (S1)

b. Separating the second fraction into at least one organic-rich fine fraction and into organic-rich coarse fraction (S2)

c. Fermenting the organic-rich coarse fraction by means of dry fermentation (S3)

d. Further treating the fermented residue from the dry fermentation together with the previously separated organic-rich fine fraction (S4).

2. Method according to claim 1 characterised in that the further treatment according to step d. comprises an aerobic treatment and/ or drying.

3. Method according to one of the proceeding claims characterised in that the separation according to step b. takes place by screening.

4. Method according to one of the proceeding claims characterised in that the predetermined waste part size lies on average between 60 and 120 mm.

5. Method according to claim 4 characterised in that the predetermined waste part size lies on average at 80 mm.

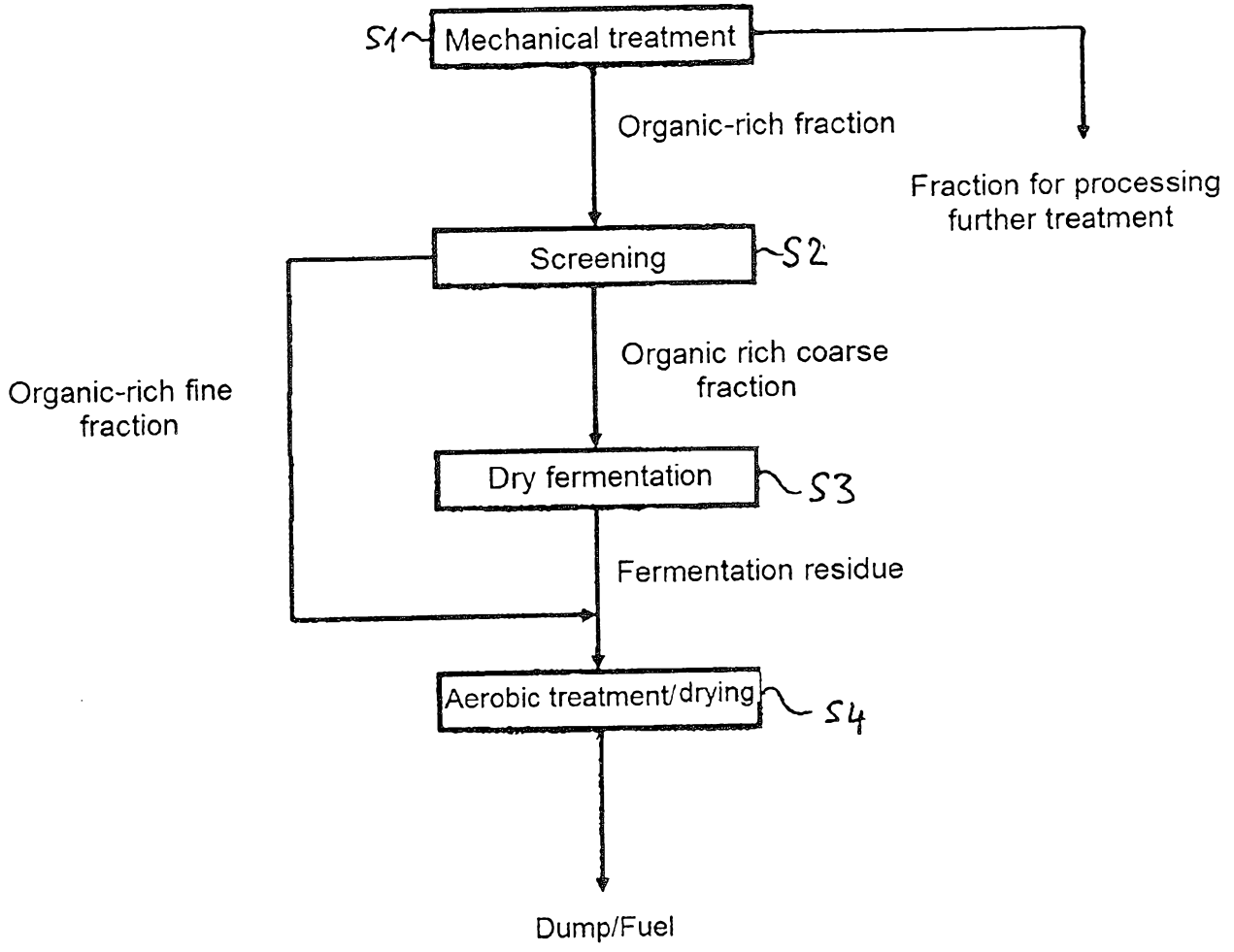
6. Method according to one of the previous claims characterised in that the average size of the waste parts of the organic-rich fine fraction is smaller than 10 to 45 mm.

7. Method according to claim 6 charaterised in that the average size of the waste particles of the organic-rich fine fraction is smaller than 30 mm.

ABSTRACT

The invention related to a method for treating waste, wherein landfill and/ or fuel is obtained from fed waste material by means of downstream treatment steps, wherein the waste material is separated (S1) into at least one first fraction, in particular having waste parts above a specified waste part size, and into a second fraction rich in organic material, in particular having waste parts below the specified waste part size, the second fraction is separated (S2) into at least one fine fraction rich in organic material and coarse fraction rich in organic material, the coarse fraction rich in organic material is fermented (S3) by means of dry fermentation, and the fermentation residue from the dry fermentation is treated further (S4) together with the previously separated fine fraction rich in organic material.

Figure en appui de l'abrégé



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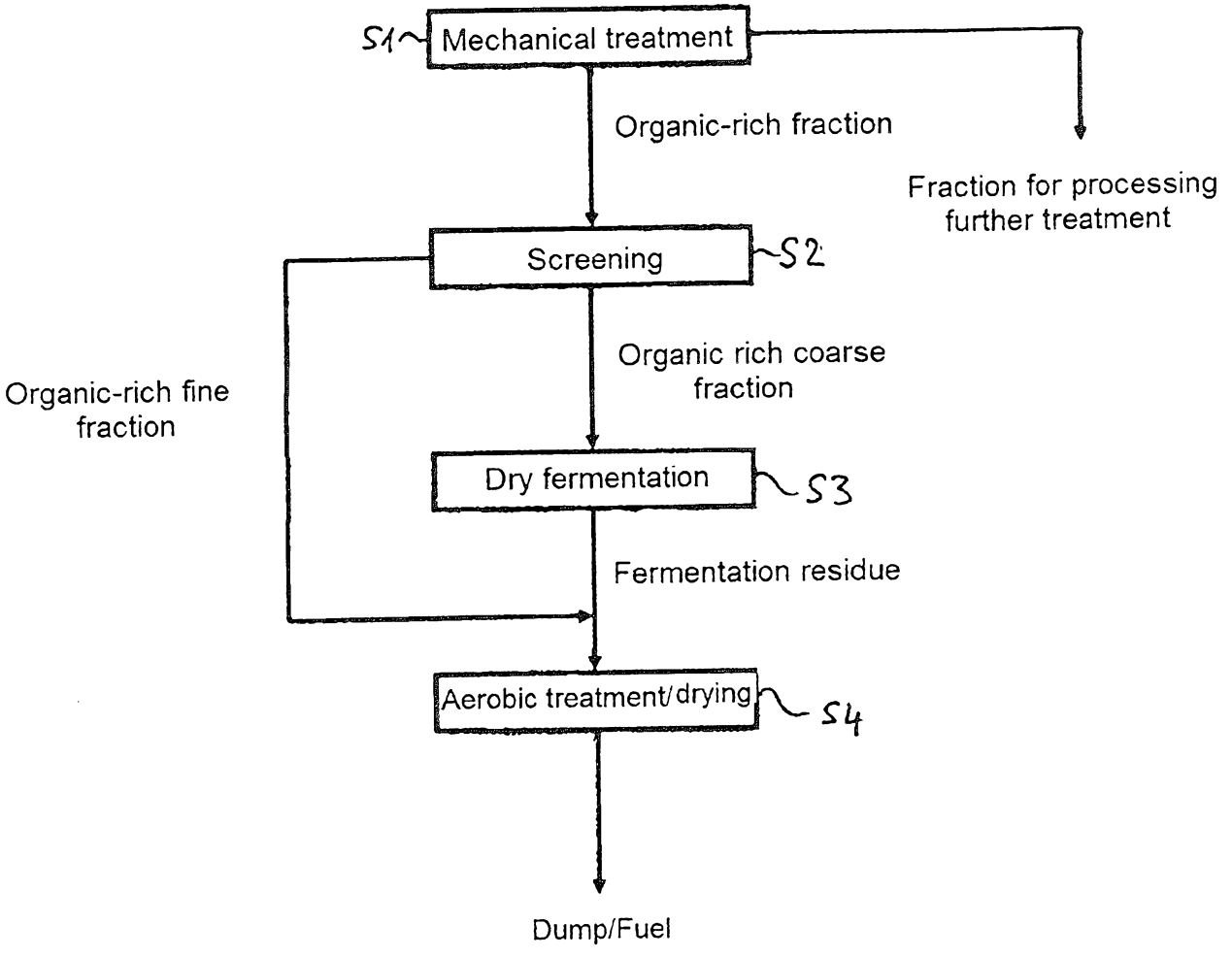
S1
Mechanical treatment
Organic-rich fraction
Fraction for processing further treatment
Screening
S2
Organic rich coarse fraction
Organic-rich fine fraction
Dry fermentation
S3
Fermentation residue
Aerobic treatment/drying
S4
Dump/Fuel