identifying a marker in the sample of the plastic compound based on the received scan data and the plurality of markers of the database (S300), wherein the marker comprises a chemical tracer embedded in the plastic compound;

determining a sustainability score based on the identified marker of the sample of the plastic compound (S400), wherein the sustainability score is suitable for controlling the further processing of the plastic compound.

According to a first example of the present disclosure a computer-implemented method for determining a sustainability score is provided, comprising the steps of: providing a computer-based database comprising entries on a plurality of markers each identifying a specific plastic compound; receiving scan data from a sample of a plastic compound; identifying a marker in the sample of the plastic compound based on the received scan data and the plurality of markers of

beginning uses the present disclosure and computer program that by means of an update turns an existing program into a program that uses the present disclosure. Moreover, the computer program element might be able to provide all necessary steps to fulfil the procedure of an exemplary example of the method as described above. According to a further exemplary example of the present disclosure, a computer readable medium, such as a CD-ROM, USB stick or the like, is presented wherein the computer readable medium has a computer program element stored on it which computer program element is described by the preceding section. A computer program may be stored and/or distributed on a suitable medium, such as an optical storage medium or a solid state medium supplied together with or as part of other hardware, but may also be distributed in other forms, such as via the internet or other wired or wireless telecommunication systems. However, the computer program may also be presented over a network like the World Wide Web and can be downloaded into the working memory of a data processor from such a network. According to a further exemplary example of the present disclosure, a medium for making a computer program element available for downloading is provided, which computer program element is arranged to perform a method according to one of the previously described examples of the present disclosure.

A further aspect of the present disclosure relates to a computer readable medium storing the above described computer program element.

A further example of the present disclosure relates to a plastic compound handling device, comprising: a wavelength scanner; a programmable controller; wherein the wavelength scanner is configured for scanning a sample of a plastic compound; wherein the programmable controller is configured for determining a sustainability score by means of the above described method.

In another aspect, there is provided a plastic compound handling device (10), comprising:

a wavelength scanner (11);

a programmable controller (15);

wherein the wavelength scanner (11) is configured for scanning a sample of a plastic compound (16);

wherein the programmable controller (15) is configured for determining a sustainability score by means of the method as defined above, and in particular, a user interface (24), wherein the user interface (24) is configured for displaying the determined sustainability score.

The term wavelength scanner is to be understood broadly in the present case and comprises a scanner that is configured to determine a wavelength of an atom or a molecule. The term wavelength scanner comprises scanners based on UV detection technique, a near infra-red

A further example of the present disclosure relates to a system for determining a sustainability score, comprising: a computer-based database comprising entries on a plurality of markers each identifying a specific plastic compound; at least one receiving unit configured to receive scan data from a sample of a plastic compound; at least one processing unit configured to identify a marker in the sample of the plastic compound based on the received scan data and the plurality of markers of the database; at least one processing unit configured to determine a sustainability score based on the identified marker of the sample of the plastic compound. The receiving unit and/or processing units may be distributed hardware components (e.g. separate CPUs), virtual components on one hardware component (e.g. central CPU). The receiving unit may comprise an interface with a specific communication standard (e.g. Ethernet, USB, HTML, NFC, Bluetooth, PCI etc.).

In an aspect, there is provided a system (30) for determining a sustainability score, comprising:

a computer-based database (31) comprising entries on a plurality of markers each identifying a specific plastic compound;

at least one receiving unit (32) configured to receive scan data from a sample of a plastic compound;

at least one processing unit (33) configured to identify a marker in the sample of the plastic compound based on the received scan data and the plurality of markers of the database (31), wherein the marker comprises a chemical tracer embedded in the plastic compound;

at least one processing unit (33) configured to determine a sustainability score based on the identified marker of the sample of the plastic compound, wherein the sustainability score is suitable for controlling the further processing of the plastic compound.

A further aspect of the present disclosure relates to a use of a computer-based database comprising entries on a plurality of markers each identifying a specific plastic compound and/or scan data from a sample of a plastic compound in a method described above.

A further aspect of the present disclosure relates to computer-implemented method for validating a sustainability score of a plastic compound, the method comprising:

receiving a sustainability score determined according to a method explained-above;

receiving a third party sustainability score linked to the plastic compound;

comparing the determined sustainability score and the third party sustainability score to validate the plastic compound and/or to validate if the plastic compound fulfils a predefined quality and/or predefined sustainability criteria.

In an example, the step of identifying the marker comprises determining parameters from the previous lifecycle of the plastic compound based on the identified marker in said sample of the plastic compound and/or determining the content of recycled plastic of the

Claims

1. Computer-implemented method for determining a sustainability score, comprising the steps of:

providing a computer-based database comprising entries on a plurality of markers each identifying a specific plastic compound (S100);

receiving scan data from a sample of a plastic compound (S200);

identifying a marker in the sample of the plastic compound based on the received scan data and the plurality of markers of the database (S300), wherein the marker comprises a chemical tracer embedded in the plastic compound;

determining a sustainability score based on the identified marker of the sample of the plastic compound (S400), wherein the sustainability score is suitable for controlling the further processing of the plastic compound.

2. Computer-implemented method according to claim 1, comprising the steps of:

receiving a block chain storing a plurality of scan data of samples, a plurality of identified markers of samples and/or a plurality of sustainability scores of samples;

uploading into the block chain the received scan data of the sample, the identified marker of the sample and/or the determined sustainability score of the sample.

3. Computer-implemented method according to claim 1 or claim 2, wherein the step of determining the sustainability score comprises:

identifying in the block chain at least one data entry associated with the identified marker of the sample;

determining the sustainability score based on the at least one data entry and the identified marker.

4. Computer-implemented method according to any one of the preceding claims, wherein the step of identifying the marker comprises:

determining a type and/or a quantity of the marker in the sample of the plastic compound, and/or

determining a weight portion of the marker in the sample of the plastic compound.

5. Computer-implemented method according to any one of the preceding claims, comprising the step of:

determining based on the sustainability score an emission footprint, in particular a CO_2 footprint, over the lifetime of the sample of the plastic compound, and/or

determining based on the sustainability score a fluid usage, in particular a water usage, over the lifetime of the sample of the plastic compound, and/or

generating a signal, which comprises the command to display the determined sustainability score on a user interface.

6. Computer-implemented method according to any one of the preceding claims, wherein the marker is selected from the group consisting of UV marker, XRD marker, XRF marker, QR code and/or steganographic feature.

7. Computer-implemented method according to any one of the preceding claims, wherein the sample of the plastic compound comprises one or more elements selected from the group consisting of: low density polyethylene (LDPE), linear LDPE (LLDPE), high density polyethylene (HDPE), polyoxmethylene (POM) polypropylene (PP), polyamide (PA), poly ethylene terephthalate (PET), poly butylene terephthalate (PBT), acrylnitril-butadiene-styrene (ABS), polymethylmethacrylate (PMMA), thermoplastic polyurethane (TPU), polystyrene (PS), polylactic acid (PLA), polyvinylchloride (PVC) or polycarbonate (PC).

8. Computer-implemented method according to any one of the preceding claims, further comprising providing a determined sustainability score for validating a received sustainability score of the plastic compound, wherein preferably the content of recycled material and/or the number recycling loops of the recycled material of the plastic compound is/are validated.

9. Computer-program element, which, when executed, instructs a processor to perform any one of the steps of the method according to any one of the claims 1 to 8.

10. Computer readable medium storing the computer program element according to claim 9.

11. Plastic compound handling device (10), comprising:

a wavelength scanner (11);

a programmable controller (15);

wherein the wavelength scanner (11) is configured for scanning a sample of a plastic compound (16);

wherein the programmable controller (15) is configured for determining a sustainability score by means of the method according to any one of the claims 1 to 8, and in particular, comprising:

a user interface (24), wherein the user interface (24) is configured for displaying the determined sustainability score.

12. A system (30) for determining a sustainability score, comprising:

a computer-based database (31) comprising entries on a plurality of markers each identifying a specific plastic compound;

at least one receiving unit (32) configured to receive scan data from a sample of a plastic compound;

at least one processing unit (33) configured to identify a marker in the sample of the plastic compound based on the received scan data and the plurality of markers of the database (31), wherein the marker comprises a chemical tracer embedded in the plastic compound;

at least one processing unit (33) configured to determine a sustainability score based on the identified marker of the sample of the plastic compound, wherein the sustainability score is suitable for controlling the further processing of the plastic compound.

13. Use of a computer-based database comprising entries on a plurality of markers each identifying a specific plastic compound and/or scan data from a sample of a plastic compound in a method according to any one of the claims 1 to 8.

14. Computer-implemented method for validating a sustainability score of a plastic compound, the method comprising the steps of:

receiving a sustainability score determined according to any of one of the claims 1 to 8;

receiving a third party sustainability score linked to the plastic compound;

comparing the determined sustainability score and the third party sustainability score to validate the plastic compound and/or to validate if the plastic compound fulfils a predefined quality and/or predefined sustainability criteria.