ENVIRONMENTAL ATTRIBUTES FOR PLASTIC ADDITIVES

TECHNICAL FIELD

The present disclosure relates to systems for producing an plastic additive associated with an plastic additive passport or digital asset, methods for producing an plastic additive associated with an plastic additive passport or digital asset, apparatuses for generating an plastic additive passport or digital asset, computer-implemented methods for generating a chemical passport, computer program elements for generating an plastic additive passport or digital asset, uses of an plastic additive associated with an plastic additive passport or digital asset, uses of an plastic additive passport or digital asset, products produced from the plastic additive and associated with an plastic additive passport or digital asset, a plastic additive, an plastic additive passport or digital asset including one or more decentral identifier(s) and data related to the environmental impact data, apparatuses for producing a product associated with the plastic additive passport or digital asset and methods for producing a product associated with the plastic additive passport or digital asset.

TECHNICAL BACKGROUND

In supply chains the environmental impact of each supply chain participants is of great interest. Specifically in the field of plastics, plastic additives are employed for a wide range of applications and are supplied to diverse value chains. In such complex systems transparency between value chain participants is hard to achieve.

SUMMARY

In an aspect, there is provided a system for producing a plastic additive associated with a digital asset, the system comprising:

- a chemical production network configured to produce the plastic additive wherein the plastic additive is produced from one or more input material(s) through one or more chemical process(s) of the chemical production network, wherein the one or more input material(s) and/or the one or more chemical process(s) are associated with environmental attribute(s);
- a production operating apparatus configured to generate the digital asset by providing a decentral identifier associated with the produced plastic additive and linking the decentral identifier to the environmental attribute(s) of the one or more input material(s) and/or the one or more chemical process(s).

In another aspect, there is provided a method for producing an plastic additive associated with a digital asset, wherein the method comprises:

- producing the plastic additive from one or more input material(s) through one or more chemical process(s) of a chemical production network, wherein the one or more input material(s) and/or the one or more chemical process(s) are associated with environmental attribute(s);
- generating the digital asset by
providing a decentral identifier associated with the produced plastic additive and one or more environmental attribute(s) associated with the one or more input material(s) and/or the one or more chemical process(s);
linking the decentral identifier and the one or more environmental attribute(s);
- providing the produced plastic additive in association with the digital asset.

In another aspect, there is provided a plastic additive associated with a digital asset including a decentral identifier associated with the plastic additive and linked to one or more environmental attribute(s) of the one or more input material(s) and/or the one or more chemical process(s) used to produce the plastic additive.

In another aspect, there is provided a method for generating a digital asset associated with an plastic additive, wherein the plastic additive is produced from one or more input material(s) through one or more chemical process(s) of a chemical production network, wherein the one or more input material(s) and/or the one or more chemical process(s) are associated with environmental attribute(s), the method comprising:

- providing a decentral identifier associated with the produced plastic additive and one or more environmental attribute(s) of the one or more input material(s) and/or the one or more chemical process(s) used to produce the plastic additive;
- linking the decentral identifier and the environmental attribute(s);
- providing the digital asset in association with the produced plastic additive, wherein the environmental attribute(s) associated with the plastic additive is made accessible to a user of the plastic additive through the digital asset.

In another aspect, there is provided a digital asset as generated according to the method as defined above.

In another aspect, there is provided a method for using the digital asset generated according to the method as defined above in production of a product produced from the plastic additive associated with the digital asset or a method for using the plastic additive as defined above

associated with the digital asset for producing a product from the plastic additive and deriving a digital asset associated with the product from the plastics additive digital asset.

In one example disclosed is a system for producing a plastic additive associated with an plastic additive passport or a digital asset, the system comprising:

- a chemical production network configured to produce the plastic additive wherein the plastic additive is produced from one or more input material(s) through one or more chemical process(s) of the chemical production network, wherein the one or more input material(s) and/or the one or more chemical process(s) are associated with environmental attribute(s);
- a production operating apparatus configured to generate the plastic additive passport or digital asset by

providing a decentral identifier associated with the produced plastic additive and one or more environmental attribute(s) of the one or more input material(s) and/or the one or more chemical process(s);

linking the decentral identifier and the environmental attribute(s);

- providing the produced plastic additive in association with the plastic additive passport or digital asset.

In another example disclosed is a system for producing a plastic additive associated with an plastic additive passport or a digital asset, the system comprising:

- a chemical production network configured to produce the plastic additive, wherein the plastic additive is produced from one or more input material(s) through one or more chemical process(s) of the chemical production network, wherein the one or more input material(s) and/or the one or more chemical process(s) are associated with environmental attribute(s);
- a production operating apparatus configured to generate the plastic additive passport or digital asset by providing a decentral identifier associated with the produced plastic additive and linking the decentral identifier and the environmental attribute(s) of the one or more input material(s) and/or the one or more chemical process(s).

In one example disclosed is a system for producing a plastic additive associated with an plastic additive passport or a digital asset, the system comprising:

- a chemical production network configured to produce the plastic additive wherein the plastic additive is produced from one or more input material(s) through one or more chemical process(s) of the chemical production network, wherein the one or more input material(s) and/or the one or more chemical process(s) are associated with environmental attribute(s);
- a production operating apparatus configured to generate the plastic additive passport or digital asset by

providing a decentral identifier associated with the produced plastic additive and one or more environmental attribute(s) of the one or more input material(s) and/or the one or more chemical process(s);

linking the decentral identifier and the environmental attribute(s);

- optionally the chemical production network or the system is configured to provide the produced plastic additive in association with the plastic additive passport or digital asset.

In another example disclosed is a system for producing a plastic additive associated with an plastic additive passport or digital asset, the system comprising:

- a chemical production network configured to produce the plastic additive from one or more input material(s) through chemical process(s), wherein the one or more input material(s) and/or the chemical process(s) are associated with environmental attribute(s);
- a production operating apparatus configured to generate the plastic additive passport or digital asset by providing and/or linking a decentral identifier associated with the plastic additive and one or more environmental attribute(s) associated with the one or more input material(s) and/or the chemical process(s).

In another example disclosed is a method for producing a plastic additive associated with an plastic additive passport or digital asset, wherein the method comprises:

- producing the plastic additive from one or more input material(s) through one or more chemical process(s) of a chemical production network, wherein the one or more input material(s) and/or the one or more chemical process(s) are associated with environmental attribute(s);
- generating the plastic additive passport or digital asset by
  providing a decentral identifier associated with the produced plastic additive and one or more environmental attribute(s) associated with the one or more input material(s) and/or the one or more chemical process(s);
  linking the decentral identifier and the one or more environmental attribute(s);
- providing the produced plastic additive in association with the plastic additive passport or digital asset.

In another example disclosed is a method for producing a plastic additive associated with an plastic additive passport or a digital asset, wherein the method comprises:

- producing the plastic additive from one or more input material(s) through one or more chemical process(s) of a chemical production network, wherein the one or more input material(s) and/or the one or more chemical process(s) are associated with environmental attribute(s),
- generating the plastic additive passport or digital asset by providing and/or linking a decentral identifier associated with the plastic additive and one or more environmental attribute(s) of the one or more input material(s) and/or the chemical process(s).

In another example disclosed is an apparatus for generating a passport or digital asset associated with a plastic additive, wherein the plastic additive is produced from one or more input material(s) through one or more chemical process(s) of a chemical production network, wherein the one or more input material(s) and/or the one or more chemical process(s) are associated with environmental attribute(s), the apparatus comprising:

- decentral identity provider configured to provide a decentral identifier associated with the produced plastic additive and one or more environmental attribute(s) of the one or more input material(s) and/or the one or more chemical process(s) used to produce the plastic additive;
- an assignor configured to link the decentral identifier and the environmental attribute(s);
- a passport provider configured to provide the plastic additive passport or digital asset in association with the produced plastic additive e.g. to a decentral network, wherein the environmental attribute(s) associated with the plastic additive is made accessible to a user of the plastic additive through the plastic additive passport or digital asset.

In another example disclosed is a method, e.g. a computer-implemented method, for generating an plastic additive passport or digital asset associated with an plastic additive, wherein the plastic additive is produced from one or more input material(s) through one or more chemical process(s) of a chemical production network, wherein the one or more input material(s) and/or the one or more chemical process(s) are associated with environmental attribute(s), the method comprising:

- providing a decentral identifier associated with the produced plastic additive and one or more environmental attribute(s) of the one or more input material(s) and/or the one or more chemical process(s) used to produce the plastic additive;
- linking the decentral identifier and the environmental attribute(s);
- providing the plastic additive passport or digital asset in association with the produced plastic additive e.g. to a decentral network, wherein the environmental attribute(s) associated with the plastic additive is made accessible to a user of the plastic additive through the plastic additive passport or digital asset.

In another example disclosed is a computer element, such as a computer readable storage medium, a computer program or a computer program product, comprising instructions, which when executed by a computing node or a computing system, direct the computing node or computing system to carry out the steps of the computer-implemented methods disclosed herein.

In another example disclosed is a computer element, such as a computer readable storage medium, a computer program or a computer program product, comprising instructions, which when executed by the apparatuses disclosed herein, direct the apparatuses to carry out steps the apparatuses disclosed herein are configured to execute.

In another example disclosed is a plastic additive associated with a plastic additive passport or a digital asset as produced according to the methods disclosed herein. In another example disclosed is an plastic additive associated with an plastic additive passport or digital asset as produced according to the systems disclosed herein.

In another example disclosed is a plastic additive associated with a plastic additive passport or digital asset, wherein the plastic additive is produced from one or more input material(s) through one or more chemical process(s) of a chemical production network, wherein the one or more input material(s) and/or the one or more chemical process(s) are associated with environmental attribute(s), wherein the plastic additive passport or digital asset includes a decentral identifier associated with the produced plastic additive and a link to environmental attribute(s) associated with one or more environmental attribute(s) of one or more input material(s) and/or one or more chemical process(s) used to produce the plastic additive.

In another example disclosed is a plastic additive passport or digital asset as generated according to the methods disclosed herein. In another example disclosed is an plastic additive passport or digital asset as generated according to the apparatuses disclosed herein.

In another example disclosed is a production system for producing a product from the plastic additive associated with the plastic additive passport or digital asset as provided according to the systems, apparatuses or methods disclosed herein. In another example disclosed is a production method for producing a product from the plastic additive associated with the plastic additive passport or digital asset as provided according to the systems, apparatuses or methods disclosed herein.

In another example disclosed is a use of the plastic additive associated with the plastic additive passport or digital asset as disclosed herein for producing a product from the plastic additive associated with the plastic additive passport or digital asset.

In another example disclosed is a use of the plastic additive passport or digital asset as disclosed herein for generating a product passport or digital asset associated with a product produced from the plastic additive associated with the plastic additive passport or digital asset. In another example disclosed is a method for using the digital asset generated according to the methods disclosed herein in production of a product produced from the plastic additive associated with the plastic additive passport or digital asset.

In another example disclosed is a plastic additive associated with a digital asset including a decentral identifier associated with the plastic additive and linked to one or more environmental attribute(s) of the one or more input material(s) and/or the one or more chemical process(s) used to produce the plastic additive.

In another example disclosed is a use of the plastic additive associated with the plastic additive passport or digital asset for producing a product from the plastic additive and associating the plastic additive passport or digital asset with the product produced from the plastic additive. In another example disclosed is a use of the plastic additive associated with the plastic additive passport or digital asset for producing a product from the plastic additive and deriving a product passport or digital asset from the plastic additive passport or digital asset. In another example disclosed is a method for using the plastic additive associated with the digital asset for producing a product from the plastic additive as disclosed herein and deriving a digital asset associated with the product from the plastic additive passport or plastic additive digital asset.

Any disclosure and examples described herein relate to the methods, the systems, chemical products, plastics additives, plastic additive passports, digital assets and the computer elements lined out above and below. Advantageously, the benefits provided by any of the examples and examples equally apply to all other examples.

EMBODIMENTS

In the following, embodiments of the present disclosure will be outlined by ways of embodiments and/or example. It is to be understood that the present disclosure is not limited to said embodiments and/or examples.

Determining, generating includes initiating or causing to determine, generate. Providing includes “initiating or causing to access, determine, generate, send or receive”. “Initiating or causing to perform an action” includes any processing signal that triggers a computing node to perform the respective action.

The methods, the systems, plastic additives, plastic additive passports, digital assets and the computer elements disclosed herein provide an efficient, secure and robust way for sharing or exchanging environmental impact data across different participant nodes in value chains. In particular, by providing plastic additive specific data via the plastic additive passport or digital asset, environmental impacts can be shared and made transparent from the material to the product produced from such material. The plastic additive passport or digital asset enables se-