SNOWWHITE²

SLS 3D PRINTER

SHAREBOT

A POROUS BODY, METHOD FOR MANUFACTURING IT AND ITS USE FOR CATALYSIS

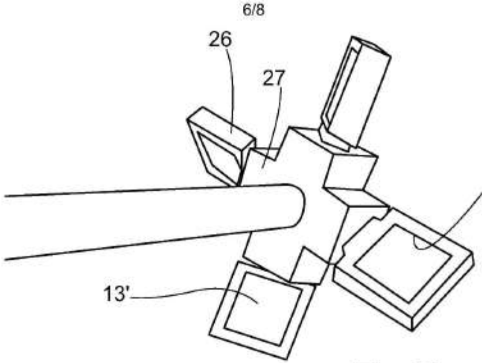


Fig. 5b

Applicants:
Weefiner OY

Publication:
WO2020109658A1

Inventors:
Elmeri Lahtinen, Lauri Kivijärvi, Rissanen Kari, Väisänen Ari and Matti Haukka

ABSTRACT:
Simple, versatile and reusable catalyst based on laser 3D printed porous body has been invented. The shape, porosity and active component of the objects can be easily tuned to generate an efficient catalyst for various reactions such as hydrogenation and C-C bond formation.

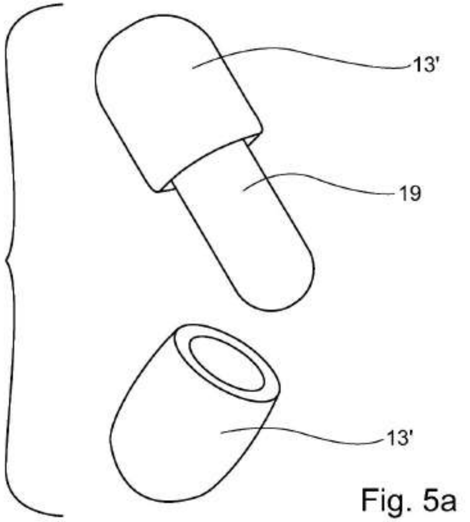


Fig. 5a

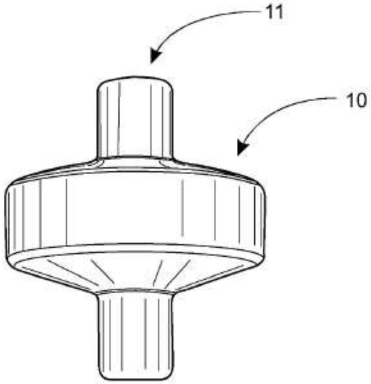


Fig. 1a

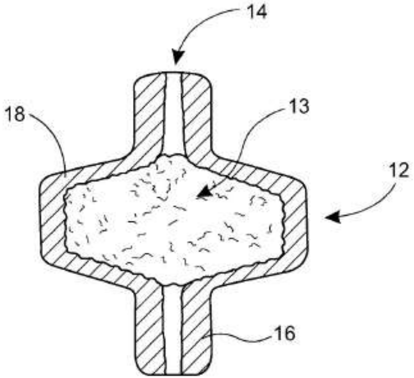


Fig. 1b

SNOWWHITE^2

A POROUS BODY, METHOD FOR MANUFACTURING IT AND ITS USE FOR COLLECTING SUBSTANCE FROM SOURCE MATERIAL

Applicants:
Weefiner OY

Publication:
[WO2019008232A1]

Inventors:
Elmeri Lahtinen, Lauri Kivijärvi, Rissanen Kari, Väisänen Ari and Matti Haukka

ABSTRACT:
Limitations of existing metal recovery processes have raised a need to develop more efficient methods. To answer these needs, we present a simple, effective and selective hydrometallurgic precious metal recovery method based on laser 3D printed collectors. The objects collected from 99-80 % of desired metals (for example Pd, Pt and Au) in both batch or flow systems despite having hundreds of times higher concentrations of other metals. The chosen metals can be collected to separate objects depending on the chemically active species. Using different solutions, the metal ions are stripped from the collectors which can be then reused.

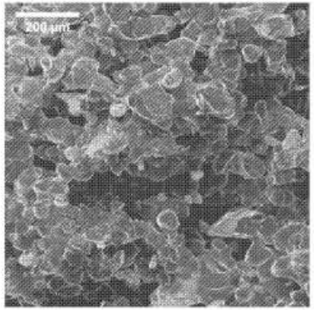


Fig. 2a

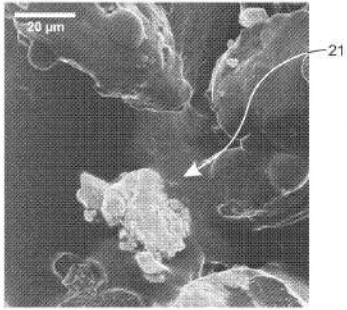


Fig. 2b

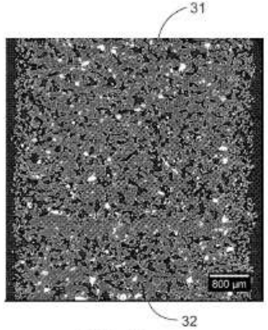


Fig. 3a

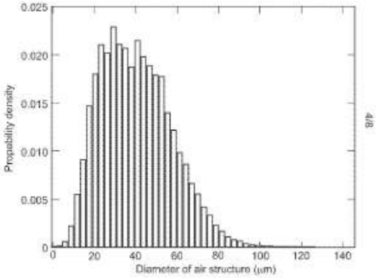


Fig. 3b

SNOWWHITE²

POWDER-BASED ADDITIVE MANUFACTURING PROCESS AT LOW TEMPERATURES

Applicants:
COVESTRO DEUTSCHLAND AG

Publication:
US10926459B2

Inventors:
Achten Dirk, Akbas Levent, Arndt Wolfgang, Büchner Jörg, Büsgen Thomas, Degiorgio Nicolas, Dijkstra Dirk, Reichert Peter, Wagner Roland

ABSTRACT:
A process for manufacturing an article comprises the steps of: applying a layer that consists of particles to a target area; allowing, in a chamber, energy to act on a selected portion of the layer, according to a cross-section of the article, so that the particles in the selected portion are bonded, and repeating the steps of applying and allowing energy to act for a plurality of layers so that the bonded portions of the adjacent layers are bonded to form the article, at least part of the particles comprising a fusible polymer. The fusible polymer has a fusion range (DSC, differential scanning calorimetry; 2nd heating at a heating rate of 5 K/min.) of ≥20° C. to ≤100° C. The fusible polymer further has a complex viscosity \η*\ (determined by viscosity measurement in the melt using a plate-plate oscillating viscometer according to ISO 6721-10 at 100° C. and a shear rate of 1/s) of ≥10 Pas to ≤1000000 Pas. Finally, the temperature inside the chamber is ≤50° C. The invention also relates to an article manufactured by the process according to the invention, to an article having a substrate and to an article bonded to the substrate, the article being in the form of an adhesive joint or varnish region, and to the use of a particular polyurethane in powder-based additive manufacturing processes.

PROCESS FOR PRODUCING 3D STRUCTURES FROM POWDERED RUBBER MATERIAL AND ITS PRODUCTS

Applicants:
COVESTRO DEUTSCHLAND AG

Publication:
CN109689340A

Inventors:
Achten Dirk, Akbas Levent, Busgen Thomas, Dijkstra Dirk, Kessler Michael, Mettmann Bettina, Wagner Roland

ABSTRACT:
A process is described for producing a three dimensional structure, the process including the following steps a) applying of at least a first material M1 onto a substrate to build a first layer L1 onthe substrate; b) layering of at least one further layer Ly of the first material M1 or of a further material Mx onto the first layer L1, wherein the at least one further layer Ly covers the first layer L1 and/or previous layer Ly-1 at least partially to build a precursor of the three dimensional structure; c) curing the precursor to achieve the three dimensional structure; wherein at least one ofthe materials M1 or Mx provides a Mooney viscosity of > 10 ME at 60 degrees centigrade and of < 200 ME at 100 degrees centigrade before curing and wherein at least one of the first material Mi or ofthe further material Mx is a powder. Also, a three dimensional structure is described which is available according to the process according to the invention.

SNOWWHITE²

METHOD FOR PRODUCING AN AT LEAST PARTIALLY COATED OBJECT

Applicants:
COVESTRO DEUTSCHLAND AG

Publication:
CN109963898A

Inventors:
Achten Dirk, Akbas Levent, Busgen Thomas, Guedou Arnaud, Hittig Jurgen, Mettmann Bettina, Michaelis Thomas, Wagner Roland

ABSTRACT:
The invention relates to a method for producing an at least partially coated object, comprising the step of producing the object from a construction material by means of an additive manufacturing method, the construction material comprising a thermoplastic polyurethane material. Following the production of the object, the method comprises the step of at least partially bringing a preparation intocontact with the object, the preparation being selected from: an aqueous polyurethane dispersion; an aqueous dispersion of a polymer comprising OH groups, this dispersion also containing a compound comprising NCO groups; an aqueous preparation of a compound containing NCO groups, but not containing any polymers comprising OH groups; or a combination of at least two thereof. The invention also relates to an at least partially coated object that was obtained by a method according to the invention.

POWDER OF SPHERICAL CROSSLINKABLE POLYAMIDE PARTICLES, PREPARATION PROCESS AND USE WITH THE SELECTIVE LASER SINTERING TECHNIQUE

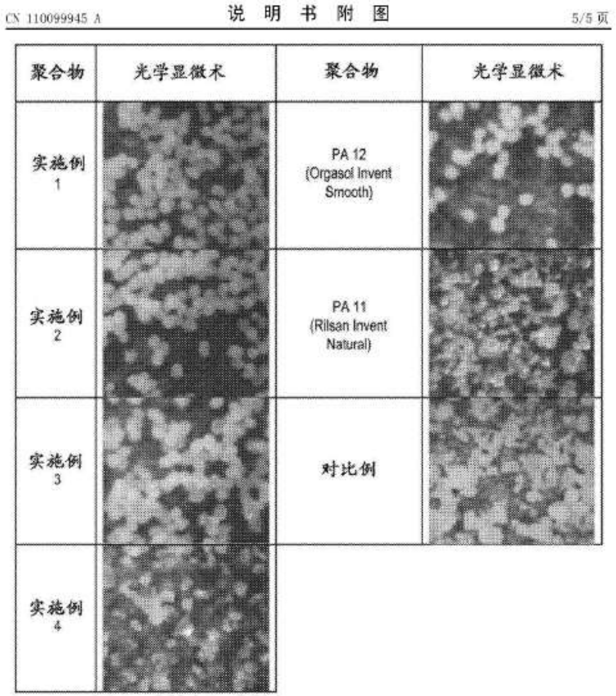
Applicants:
SETUP PERFORMANCE

Inventors:
Gimenez Jerome

Publication:
CN110099945A

ABSTRACT EN:
The present invention relates to a powder of crosslinkable polyamide spherical particles, which is suitable for selective laser sintering (SLS) technology, and a method for preparing the powder of such crosslinkable polyamide spherical particles. The present invention also relates to the production of articles by performing SLS starting from the powder of the crosslinkable polyamide spherical particles, and then performing a crosslinking step.

ABSTRACT ZH:
本发明涉及可交联性聚酰胺球形粒子的粉末，其适用于 选择性激光烧结(SLS)技术，和涉及制备这种可交联性聚酰胺球形粒子的粉末的方法。本 发明也涉及通过从所述可交联性聚酰胺球形粒子的粉末开始 进行SLS、然后进行交联步骤以生产制品。



SNOWWHITE²

POWDERS FOR LASER SINTERING

Applicants:
XEROX CORP

Publication:
US10577458B2

Inventors:
Farrugia Valerie, Gardner Sandra J., Zwartz Edward G.

ABSTRACT:
Provided herein is a powder composition comprising a silica-infused crystalline polyester particle for laser sintering comprising at least one crystalline polyester resin and silica nanoparticles present in the particle an amount ranging from about 10 wt % to about 60 wt % relative to the total weight of the particle. Further provided herein are methods of preparing silica-infused crystalline polyester particles.

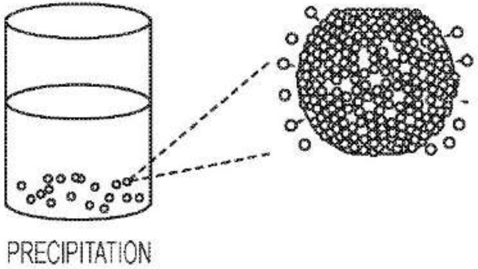


FIG. 1

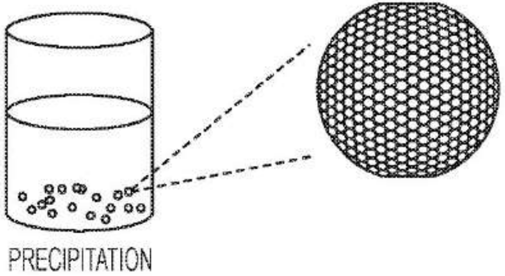


FIG. 2

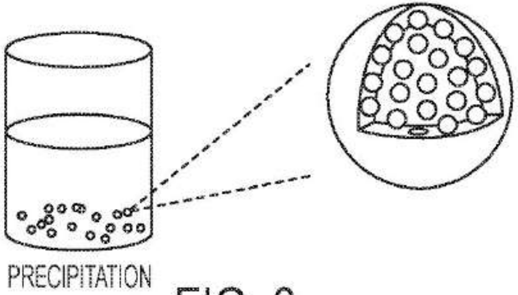


FIG. 3

CURABLE UNSATURATED CRYSTALLINE POLYESTER POWDER AND METHODS OF MAKING THE SAME

Applicants:
XEROX CORP

Publication:
EP3569634A1

Inventors:
Farrugia Valerie M., Hawkins Michael S., Sacripante Guerino G., Zwartz Edward G.

ABSTRACT:
A process for producing unsaturated polyester microparticles comprising: melt-mixing an unsaturated polyester and an oil in an extruder; washing the microparticles with an organic solvent to reduce the amount of oil; and removing the organic solvent to form the microparticles.

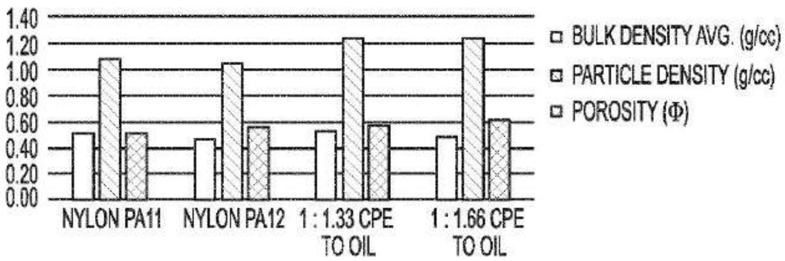


FIG. 7

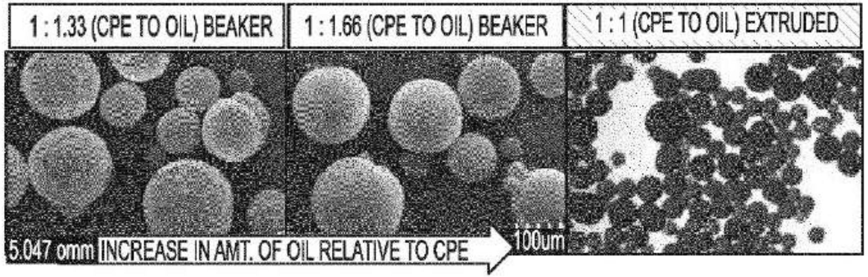


FIG. 8a FIG. 8b FIG. 8c

SNOWWHITE²

COMPOSITIONS COMPRISING UNSATURATED CRYSTALLINE POLYESTER FOR 3D PRINTING

Applicants:
XEROX CORP

Publication:
EP3569633A1

Inventors:
Farrugia Valerie M., Sacripante Guerino G., Sriskandha Shivanthi E., Zwartz Edward G.

ABSTRACT:
A composition for use in 3D printing includes an unsaturated polyester resin including an ethylenically unsaturated monomer, a first diol monomer and a second diol monomer.

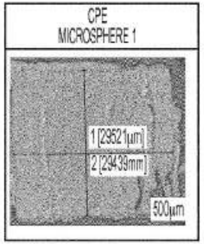


FIG. 5A

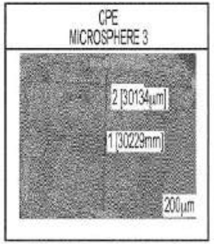


FIG. 5C

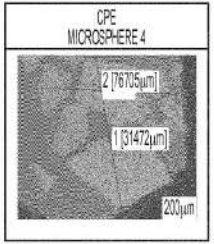


FIG. 5E

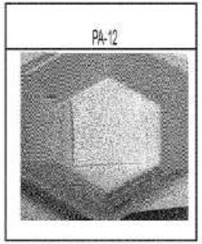


FIG. 5G

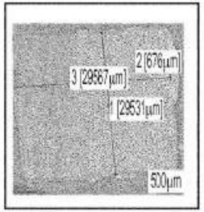


FIG. 5B

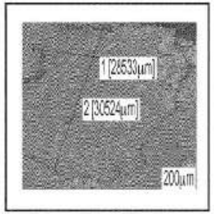


FIG. 5D

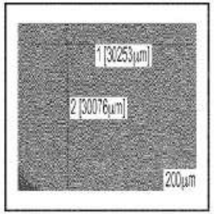


FIG. 5F

FIG. 5H

PRECIPITATION PROCESS FOR PREPARING POLYSTYRENE MICROPARTICLES

Applicants:
XEROX CORP

Publication:
US2020102427A1

Inventors:
Farrugia Valerie M., Gardner Sandra J., Zwartz Edward G.

ABSTRACT:
A process including combining polystyrene and a first solvent to form a polystyrene solution; heating the polystyrene solution; adding a second solvent to the polystyrene solution with optional stirring whereby polystyrene microparticles are formed via microprecipitation; optionally, cooling the formed polystyrene microparticles in solution; and optionally, removing the first solvent and second solvent. A polystyrene microparticle formed by a microprecipitation process, wherein the polystyrene particle has a spherical morphology, a particle diameter of greater than about 10 micrometers, and a weight average molecular weight of from about 38,000 to about 200,000 Daltons. A method of selective laser sintering including providing polystyrene microparticles formed by a microprecipitation process; and exposing the microparticles to a laser to fuse the microparticles.

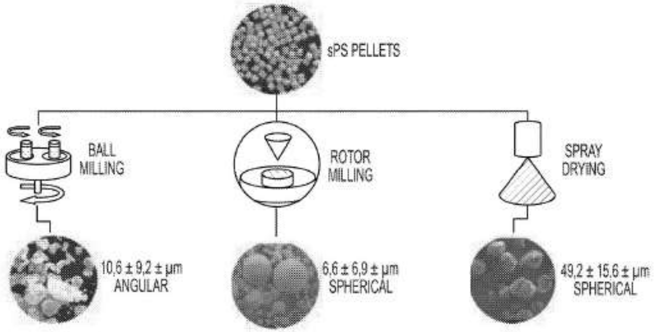


FIG. 2

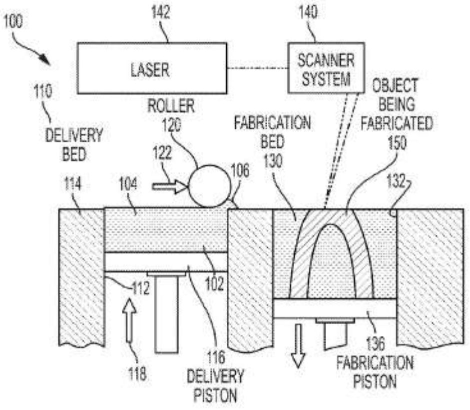


FIG. 5

SNOWWHITE²

THERMOPLASTIC POLYESTER PARTICLES AND METHODS OF PRODUCTION AND USES THEREOF

Applicants:
XEROX CORP

Publication:
US2021070954A1

Inventors:
Farrugia Valerie M., Jamali Hojjat Seyed

ABSTRACT:
A method of producing thermoplastic particles may comprise: mixing a melt emulsion comprising (a) a continuous phase that comprises a carrier fluid having a polarity Hansen solubility parameter (dP) of about 7 MPa0.5 or less, (b) a dispersed phase that comprises a dispersing fluid having a dP of about 8 MPa0.5 or more, and (c) an inner phase that comprises a thermoplastic polyester at a temperature greater than a melting point or softening temperature of the thermoplastic polyester and at a shear rate sufficiently high to disperse the thermoplastic polyester in the dispersed phase; and cooling the melt emulsion to below the melting point or softening temperature of the thermoplastic polyester to form solidified particles comprising the thermoplastic polyester.

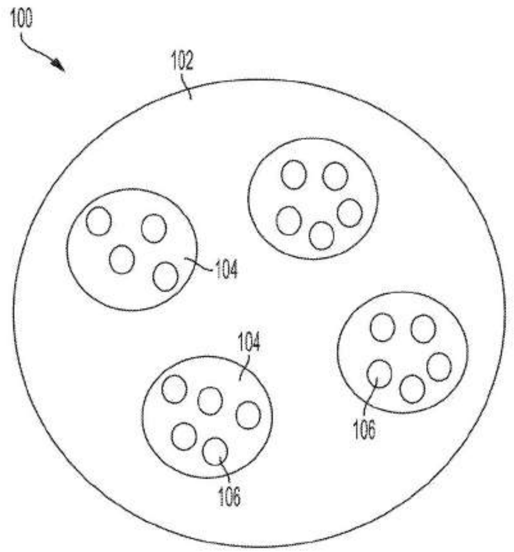


FIG. 1

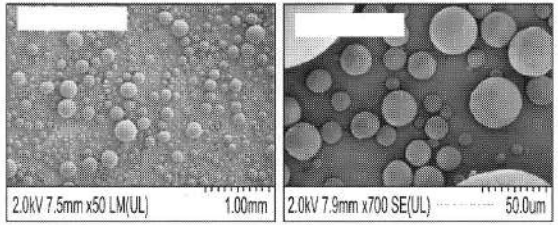


FIG. 12A FIG. 12B

SNOWWHITE²

NANOPARTICLE-COATED ELASTOMERIC PARTICULATES AND SURFACTANT-PROMOTED METHODS FOR PRODUCTION AND USE THEREOF

Applicants:
XEROX CORP

Publication:
EP3789443A1

Inventors:
Claridge Robert, Farrugia Valerie M., Resetco Cristina, Sriskandha Shivanthi Easwari, Zwartz Edward G.

ABSTRACT:
Melt emulsification may be employed to form elastomeric particulates in a narrow size range when nanoparticles and a sulfonate surfactant are included as emulsion stabilizers. Such processes may comprise combining a polyurethane polymer, a sulfonate surfactant, and nanoparticles with a carrier fluid at a heating temperature at or above a melting point or softening temperature of the polyurethane polymer, applying sufficient shear to disperse the polyurethane polymer as liquefied droplets in the presence of the nanoparticles in the carrier fluid at the heating temperature, cooling the carrier fluid at least until elastomeric particulates in a solidified state form, and separating the elastomeric particulates from the carrier fluid. The polyurethane polymer defines a core and an outer surface of the elastomeric particulates, and the nanoparticles are associated with the outer surface. The elastomeric particulates may have a span of about 0.9 or less.

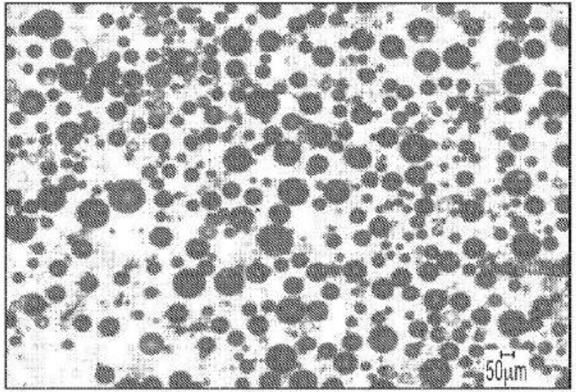


FIG. 4

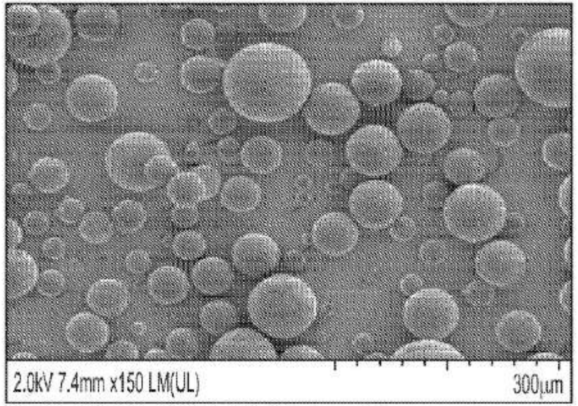


FIG. 5A

SNOWWHITE²

NANOPARTICLE-COATED ELASTOMERIC PARTICULATES AND METHODS FOR PRODUCTION AND USE THEREOF

Applicants:
XEROX CORP

Publication:
EP3789442A1

Inventors:
Farrugia Valerie M., Hawkins Michael S., Resetco Cristina, Sriskandha Shivanthi Easwari, Zwartz Edward G.

ABSTRACT:
Melt emulsification may be employed to form elastomeric particulates in a narrow size range when nanoparticles are included as an emulsion stabilizer. Such processes may comprise combining a polyurethane polymer and nanoparticles with a carrier fluid at a heating temperature at or above a melting point or a softening temperature of the polyurethane polymer, applying sufficient shear to disperse the polyurethane polymer as liquefied droplets in the presence of the nanoparticles in the carrier fluid at the heating temperature, cooling the carrier fluid at least until elastomeric particulates in a solidified state form, and separating the elastomeric particulates from the carrier fluid. In the elastomeric particulates, the polyurethane polymer defines a core and an outer surface of the elastomeric particulates and the nanoparticles are associated with the outer surface. The elastomeric particulates may have a D50 of about 1 μm to about 1,000 μm.

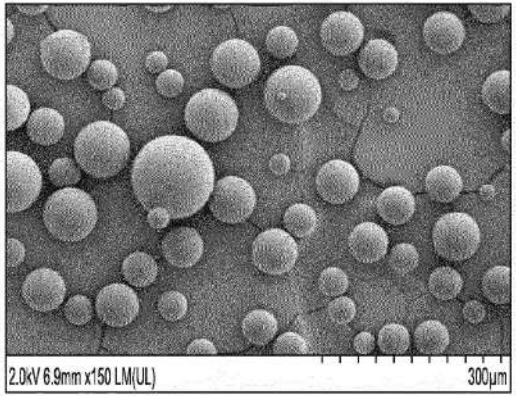


FIG. 16A

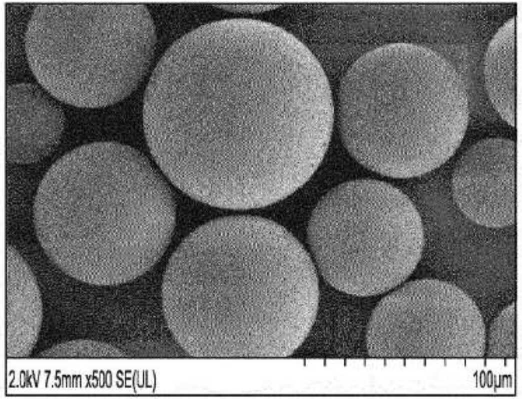


FIG. 16B

SNOWWHITE²

THERMOPLASTIC POLYESTER PARTICLES AND METHODS OF PRODUCTION AND USES THEREOF

Applicants:
XEROX CORP

Publication:
US2021070993A1

Inventors:
Claridge Robert, Farrugia Valerie M., Hawkins Michael S., Moorlag Carolyn Patricia, Resetco Cristina, Sriskandha Shivanthi Easwari

ABSTRACT:
Thermoplastic polymer particles can be produced that comprise a thermoplastic polymer and an emulsion stabilizer (e.g., nanoparticles and/or surfactant) associated with an outer surface of the particles. The nanoparticles may be embedded in the outer surface of the particles. Melt emulsification can be used to produce said particles. For example, a method may include: mixing a mixture comprising a thermoplastic polymer, an carrier fluid that is immiscible with the thermoplastic polymer, and the emulsion stabilizer at a temperature greater than a melting point or softening temperature of the thermoplastic polymer and at a shear rate sufficiently high to disperse the thermoplastic polymer in the carrier fluid; cooling the mixture to below the melting point or softening temperature of the thermoplastic polymer to form the thermoplastic polymer particles; and separating the thermoplastic polymer particles from the carrier fluid.

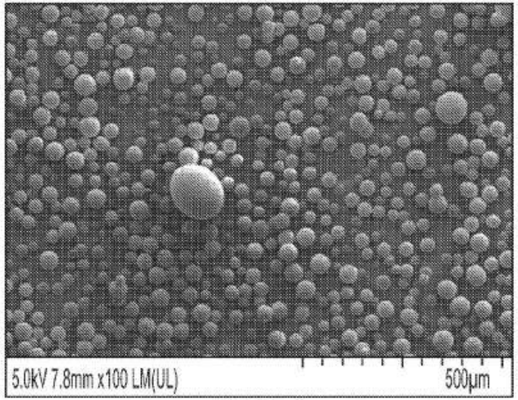


FIG. 4

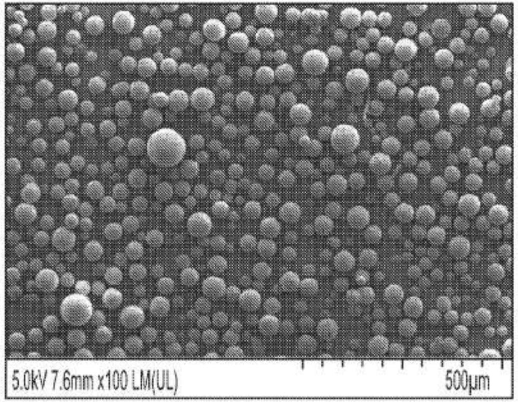


FIG. 5

SNOWWHITE²

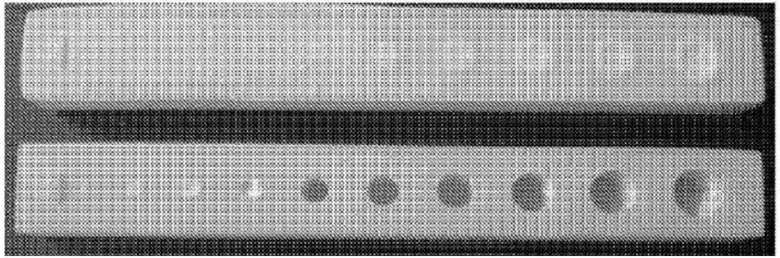
PARTICLES OF POLYAMIDE POWDERS AND USE THEREOF IN POWDER AGGLOMERATION PROCESSES

Applicants:
ARKEMA FRANCE

Publication:
WO2020212662A1

Inventors:
Cammage Geoffroy, Lemaitre Arnaud, Soares Latour Emilie-Marie

ABSTRACT:
The invention relates to a seeded particle (PA) of polyamide powder, consisting of: - a polyamide core with a d50 value ranging from 15 to 60 µm, and - a polyamide shell, characterised in that the shell has a higher inherent viscosity in solution and a higher melting point than the core.



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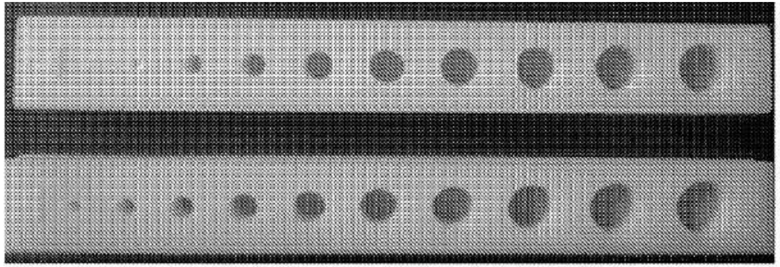

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SNOWWHITE²

DIMENSIONS	1500 X 600 X 520 mm
WEIGHT	ca. 120 Kg
PRINTING VOLUME	100 X 100 X 100 mm
Z RESOLUTION	50 Micron
XY RESOLUTION	100 Micron
LASER	CO_2 – 14 Watt
SPOT DIMENSION	0.2 mm
SPEED (Z-AXIS)	35 mm/h
SCAN SPEED	up to 3500 mm/s
HEATED BUILD CHAMBER / MAX T°	up to 190°C
CONNECTIVITY	Ethernet- Sharebox

SHAREBOT

SNOWWHITE^2

DIMENSIONS	59 X 23.6 X 20.5 in
WEIGHT	approx. 264.55 lb
PRINTING VOLUME	3.93 X 3.93 X 3.93 in
Z RESOLUTION	50 Micron (0.002 in)
XY RESOLUTION	100 Micron (0.004 in)
LASER	CO_2 – 14 Watt
SPOT DIMENSION	20 Micron (0.0008 in)
SPEED (Z-AXIS)	35 mm/h (1.37 in/h)
SCAN SPEED	up to 3500 mm/s (11.48 ✎/s)
HEATED BUILD CHAMBER / MAX T°	up to 190°C (374 °F)
CONNECTIVITY	Ethernet- Sharebox

SHAREBOT

SNOWWHITE²

MAIN FEATURES

Watch Video

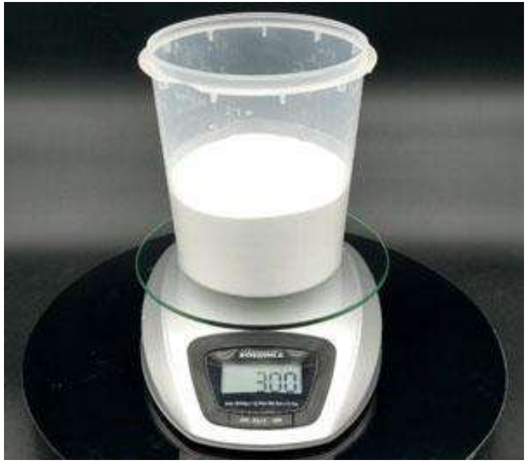
Watch Video

Watch Video

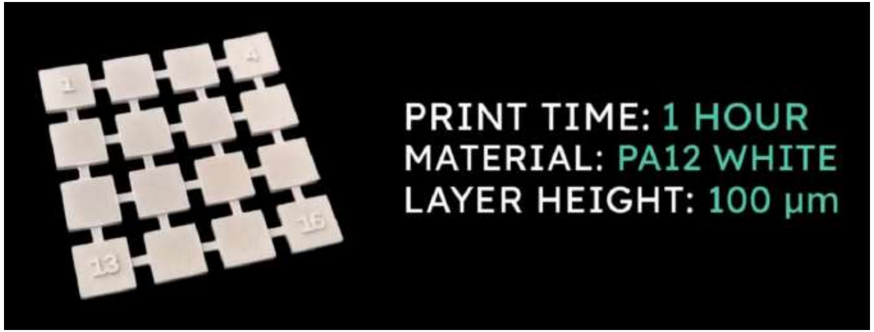
SHAREBOT

SNOWWHITE²

SNOWWHITE^2

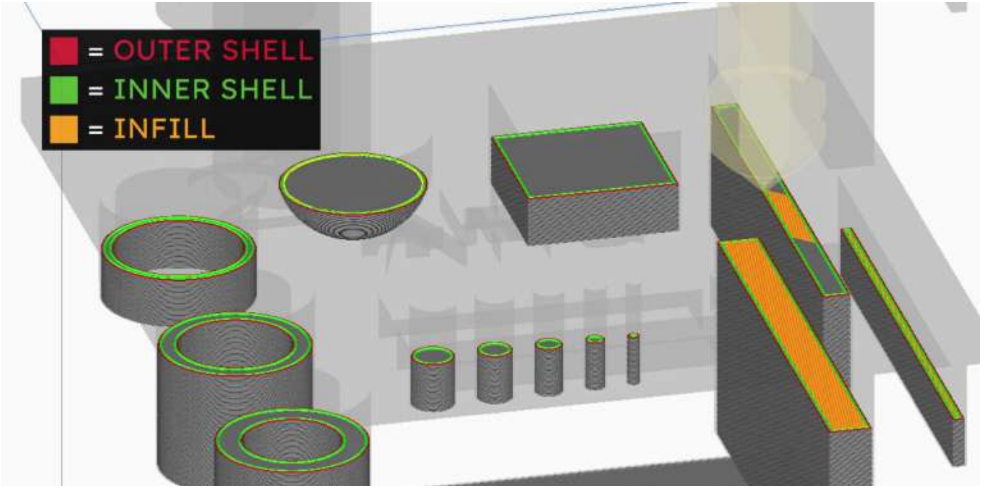


DO YOU HAVE
YOUR OWN POWDER?
USE SNOWWHITE^2



SNOWWHITE^2

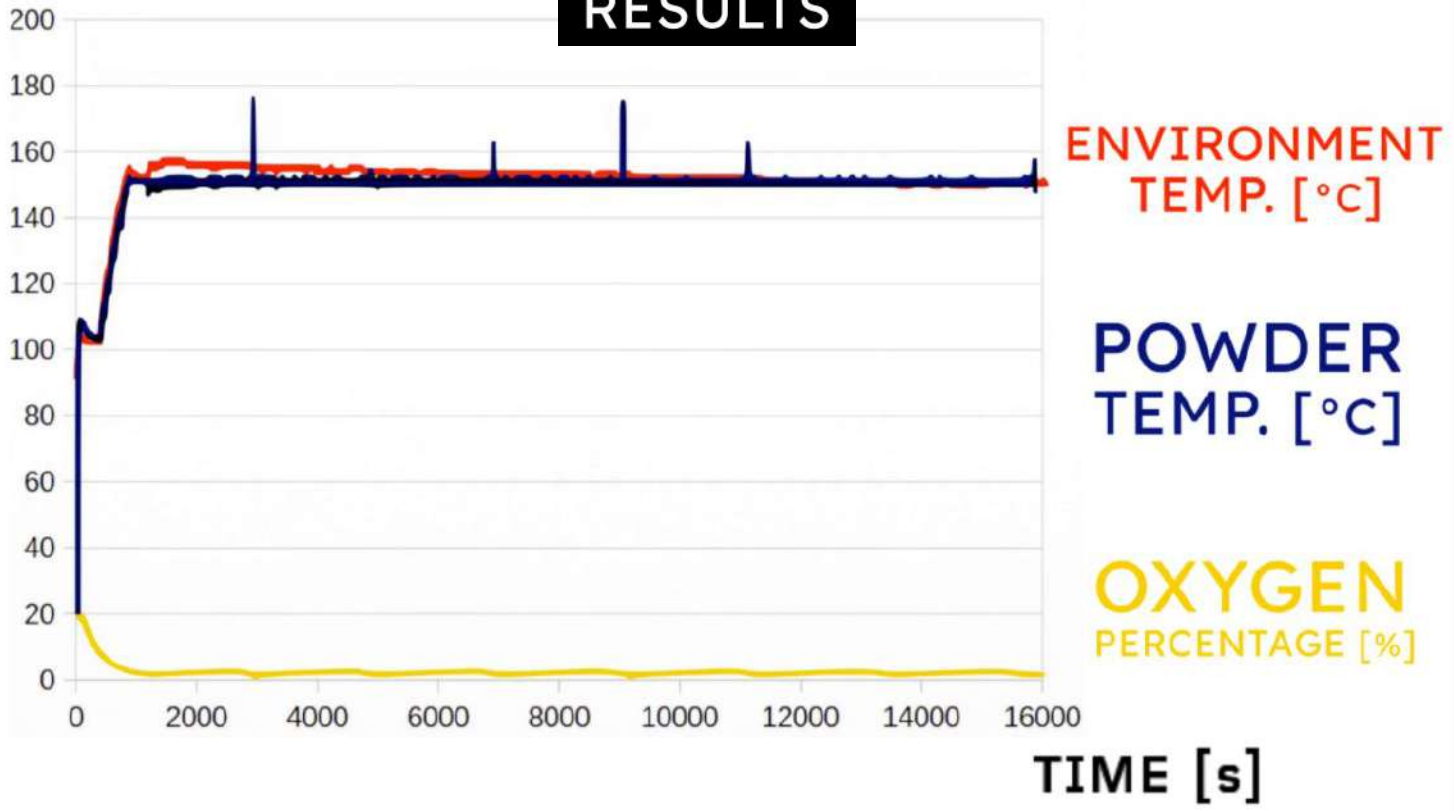
CONTROL
LASER
PATHS



LOOKING FOR
AN OPEN SYSTEM?
USE SNOWWHITE^2

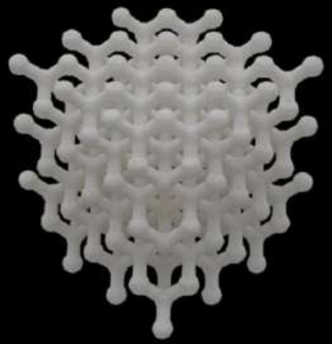
SNOWWHITE²

REPEATABLE RESULTS

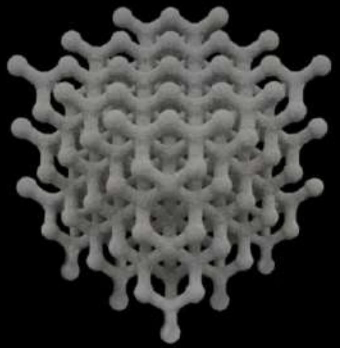


SNOWWHITE^2

DIFFERENT MATERIALS



PRINT TIME: 4 HOURS
MATERIAL: TPU WHITE
LAYER HEIGHT: 100 µm



PRINT TIME: 4 HOURS
MATERIAL: ALUMIDE
LAYER HEIGHT: 100 µm

SNOWWHITE²

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WE ARE FROM ITALY

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