Claims

What is claimed is:

1. A free-flowing biocompatible polymeric powder for three-dimensional printing, comprising cryogenically ground polymeric particles having a D50 in the range of 1-150 µm and a flow aid, wherein the flow aid is a spherical free-flowing biocompatible powder, comprising polymeric particles having a D50 of 0.1 to 10 µm and whereby the D50 is determined via laser scattering.

2. A polymeric powder of milled nature, wherein the powder further comprises a flow aid, wherein the flow aid is a bioceramic, and wherein the bioceramic is in a partially amorphous biocompatible form has a D50 of 0.1 to 10 µm, whereby the D50 is determined via laser scattering.

3. Use of the polymeric powder according to claim 2 for three-dimensional printing.

4. Use according to claim 3, characterized in that the polymer is selected from the group consisting of polyarylketones, polymethacrylates, polycarbonates, polyacetals, polyethylenes, polypropylenes, polylactides, polydioxanones, polycaprolactones, polyesteramide, polyurethane, polytrimethyl carbonates, polyglycolide, poly(amio acid) and copolymers of the respective monomers like poly(lactide-co-glycolide), poly(lactide-co-caprolactone), poly(lactide-co-trimethly carbonate), poly(lactide-co-polyethylene-glycol), poly(orthoester), a poly(phosphazene), a poly(hydroxybutyrate) a copolymer containing a poly(hydroxybutarate), a poly(lactide-co-caprolactone), a polyanhydride, a poly(dioxanone), a poly(alkylene alkylate), a copolymer of polyethylene glycol and a polyorthoester, a biodegradable polyurethane, a polyamide, a polyetherester, a polyacetal, a polycyanoacrylate, a poly(oxyethylene)/poly(oxypropylene) copolymer, polyketals, polyphosphoesters, polyhydroxyvalerates or a copolymer containing a polyhydroxyvalerate, polyalkylene oxalates, polyalkylene succinates, poly(maleic acid), and copolymers, terpolymers, combinations thereof.

5. Use according to claim 3, characterized in that the polymer is selected from the group consisting of polylactides, polydioxanones, polyesteramide, polycaprolactone, polyurethane, polytrimethyl carbonate, polyglycolide, poly(amio acid) and copolymers of the respective monomers like poly(lactide-co-glycolide), poly(lactide-co-caprolactone), poly(lactide-co-trimethly carbonate), poly(lactide-co-polyethylene-glycol), poly(orthoester), a poly(phosphazene), a poly(hydroxybutyrate) a copolymer containing a poly(hydroxybutarate), a polyanhydride, a poly(alkylene alkylate), a copolymer of

polyethylene glycol and a polyorthoester, a biodegradable polyurethane and it copolymers and blends thereof.

6. A composition with improved flowability for use in powder processing technologies comprising:
(a) cryogenically ground polymeric powder particle;
(b) flow aid having a D50 of 0.1 to 10 μm, wherein the flow aid is a polymeric powder that is different from the polymeric particle in (a); and
wherein the polymeric powder particle comprises a biocompatible polymer or a biodegradable polymer, whereby the D50 is determined via laser scattering.

7. A composition with improved flowability for use in powder processing technologies comprising: (a) cryogenically ground polymeric powder particle; (b) flow aid having a D50 of 0.1 to 10 μm; wherein the flow aid comprises amorphous, un-sintered calcium phosphate, and wherein the polymeric powder particle comprises a biocompatible polymer or a biodegradable polymer, whereby the D50 is determined via laser scattering.