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- [0297] 1. PCT Application PCT/US08/075481 published as WO2009033088 (A1) entitled
- [0298] "Release of Antibiotic from Injectable, Biodegradable Polyurethane Scaffolds for Enhanced Bone Fracture Healing" filed Sep. 5, 2008. Inventors: Guelcher, Hafeman, Bing Li, K L Zienkiewicz
- [0299] ABSTRACT: A biodegradable polyurethane scaffold, comprising at least one polyisocyanate, polyisocyanate prepolymer, or both, at least one polyester polyol, at least one catalyst, wherein the density of said scaffold is from about 50 to about 250 kg m<sup>-3</sup> and the porosity of the scaffold is greater than about 70 (vol %) and at least 50% of the pores are interconnected with another pore, and wherein the scaffold incorporates at least one biologically active component in powder form.
- [0300] 2. PCT Application PCT/US08/075498 published as W02009033102 (A1) entitled
- [0301] "Polyurethane/Bone Composition and Methods" filed Sep. 5, 2008. Inventors: Guelcher, Dumas
- [0302] ABSTRACT: A flowable, injectable composite that comprises mineralized allograft bone; and at least one degradable polyurethane that has a quasi-prepolymer and a resin mix, the resin mix having a polyester polyol and a catalyst; wherein the composite has a compression strength of greater than about 10 MPa and a modulus of greater than about 1 GPa.
- [0303] 3. US2009/0130174 A1 entitled "Poly(Ester Urethane)Urea Foams with Enhanced Mechanical and Biological Properties" filed Aug. 20, 2008. PCT Application PCTUS08/073754 entitled Poly(Ester Urethane)Urea Foams with Enhanced Mechanical and Biological Properties" filed Aug. 20, 2008. Inventors: Guelcher, Hafeman.
- [0304] ABSTRACT: A biodegradable polyurethane scaffold that includes a HDI trimer polyisocyanate and at least one polyol; wherein the density of said scaffold is from about 50 to about 250 kg m<sup>-3</sup> and the porosity of the scaffold is greater than about 70 vol % and at least 50% of the pores are interconnected with another pore. The scaffolds of the present invention are injectable as polyurethane foams, and are useful in the field of tissue engineering.
- [0305] 4. U.S. Pat. No. 12/473,246 entitled "Injectable Bone/Polymer Composite Bone Void Fillers" filed May 27, 2009. Inventors: Guelcher, Hafeman.
- [0306] ABSTRACT: An embodiment of the present invention is a biocompatible and biodegradable polymer-bone composition. Particularly, embodiments of the present invention include biocompatible and biodegradable polymeric foams. In several embodiments, these foams are injectable. Related embodiments of the present invention include methods and compositions for their preparation and the use of these foams as scaffolds for bone tissue engineering.
- [0307] 5. PCT/US2009/062621 "Bone/Polyurethane Composites and Methods Thereof" filed Oct. 29, 2009. Inventors: Guelcher, Tanner, Zienkiewicz.
- [0308] ABSTRACT: The invention relates to injectable and/or moldable composites/compositions including at least bone particles and polyurethanes, methods of making such composites, methods of using such composites in orthopaedic applications and various related compositions. The present invention provides porous composites which, when implanted or injected, promote cellular infiltration from adjacent osseous tissues, thus accelerating the remodeling process. Inventive composites comprise bone particles and polymers, such as a biocompatible polyurethane, and may further comprise additional components. The present invention also provides compositions, methods and processes that can be used for the preparation of such composites. The invention also provides methods and kits for making and/or using such inventive porous materials.
- [0309] 6. VU0928 Invention Disclosure entitled "Allograft Bone/Polyurethane Composites Prepared from Triisocyanates and Prepolymers." Inventors: Guelcher, Dumas, Zienkiewicz, Prieto.
- [0310] ABSTRACT: A conformable, moldable composite that comprises mineralized allograft bone (greater than or equal to 50 vol %); and at least one degradable polyurethane that has a polyisocyanate, a polyester polyol, and a catalyst mix; wherein the composite has a compression strength of greater than about 5 MPa and a modulus of greater than about 200 MPa.