REMARKS

By the foregoing amendment, claim 1 has been amended and claim 18 has been added. Applicants note that no new matter has been added and support for new claim 18 can be found throughout the specification. For example, support for claim 18 can be found in paragraphs [0044] and [0046] of the specification. Claims 1-18 are pending in the application, while claims 13-17 have been withdrawn.

Formal Matters

Applicants note with appreciation that the Examiner has considered the documents submitted in the Information Disclosure Statements filed November 15, 2006; January 12, 2007; and June 19, 2007 and indicated such consideration by returning signed and initial copies of the forms PTO-1449.

Applicants further note that the Office Action indicates acknowledgment of the claim of priority and that all certified copies of the priority documents have been received.

Applicants also acknowledge with appreciation that the Examiner has accepted the drawings that were submitted on August 9, 2006.

Restriction Requirement

Applicants acknowledge that the Examiner has made the Restriction Requirement final.

Claim Rejections under 35 U.S.C. § 102(b)

The Office Action rejects claims 1-12 under 35 U.S.C. § 102(b) as allegedly being anticipated by Bouyer et al., "Suspension Plasma Spraying for Hydroxyapatite Powder Preparation by RF Plasma," IEEE Transactions on Plasma Science, vol. 25, no. 5, pp. 1066-1072. The Office asserts that Bouyer et al. discloses a method of producing hydroxyapatite particles having a particle diameter between 15 and 21 microns, via mixing phosphorus and calcium fed into a heated area and being atomized. Bouyer et al. further allegedly discloses that a suspension is gas atomized and the product is crystallized. In conclusion, the Office rejects claims 1-12 for being anticipated by Bouyer et al. Applicants respectfully disagree.

Applicants respectfully traverse the rejection. Applicants respectfully submit that Bouyer et al. fails to disclose:

> A method for producing particles, comprising:
> mixing a first substance containing phosphorus and a second substance containing calcium;
> feeding droplets of a liquid containing an amorphous reaction product obtained from a reaction between the first substance and the second substance in a heated atmosphere to bring the amorphous reaction product into a gaseous state; and
> crystallizing the amorphous reaction product in the gaseous state to obtain particles mainly composed of a calcium phosphate-based compound.

In particular, Applicants note that Bouyer does not disclose "an amorphous reaction product" as recited in present claim 1.

Applicants respectfully submit that Bouyer et al. discloses Suspension Plasma Spraying for Hydroxyapatite Powder Preparation. In Bouyer et al., an aqueous hydroxyapatite suspension is synthesized, and then, the resulting hydroxyapatite suspension is sprayed (gas atomized) via the RF plasma, thereby forming the hydroxyapatite powders. The hydroxyapatite suspension is prepared according to the reaction:

$$10\ Ca(OH)_2 + 6\ H_3PO_4 \longrightarrow Ca_{10}(PO_4)_6(OH)_2 + 18\ H_2O \qquad (1)$$

Contrary to the recited amorphous product, Bouyer et al. discloses a crystalline product. Applicants respectfully direct the Examiner's attention to Figure 5 in Bouyer et al. displaying the XRD pattern of dried hydroxyapatite prepared according to Bouyer et al. Furthermore, Bouyer et al. discusses the crystalline hydroxyapatite product on page 1069, left column, lines, first, second and third full paragraph.

Because Bouyer et al. does not disclose the prepared hydroxyapatite in an amorphous state, Bouyer et al. cannot anticipate the present invention as claimed in claim 1 or any claims dependent therefrom. Accordingly, Applicants respectfully request withdrawal of the rejection.

Applicants further note that the reaction of formula (1) is applied in Comparative Examples 1 and 2 of the instant application. Applicants note that the reaction products of Comparative Examples 1 and 2, i.e., hydroxyapatite $Ca_{10}(PO_4)_6(OH)_2$, are crystalline as shown in

"Structure of Reaction Product" in Table 1 of the instant Application. Therefore, Applicants respectfully submit that Bouyer et al. does not disclose the presently claimed invention.

In order to further illustrate the advantages of the presently claimed invention, Applicants direct the Examiner's attention to Table 1 in the instant specification. Applicants note that where the reaction product is in an amorphous state (see in Examples 1-10), the resulting particles have an Average Particle Diameter of less than 100 nm with a spherical shape as shown by the Average Roundness coefficient C. Particles prepared according to the present method exhibit excellent dispersibility in a dispersion medium. For example, the particles can be uniformly dispersed in a liquid sample containing materials to be captured, such as proteins, nucleic acids, or cells. Thus, particles made by the presently claimed method may be used as carriers capable of efficiently adsorbing materials (see [0078] in the instant specification).

Furthermore, the presently claimed method ensures uniformly crystallized particles of consistent grain size from the amorphous reaction product which prevents the occurrence of variations in crystal growth rate. These properties result in particles of high density and strength (see [0073] of the present specification).

In contrast, Bouyer et al. does not disclose fine particles that show such properties. For example, the average diameter of the collected powder according to Bouyer is 20 microns (see Bouyer, page 1070), which would result in properties inconsistent with the features of the presently claimed invention.

Double Patenting Rejection

The Office provisionally rejects claims 1, 6, 11, and 12 as being in conflict with claims 1, 2, 12, and 13 of copending U.S. Application No. 11/541,526.

Applicants respectfully request that the Examiner holds this rejection in abeyance until allowable subject matter in either case has been identified.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants submit that all of the claims are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue. Favorable consideration with early allowance of all of the pending claims is most earnestly requested.

If there should be any questions, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,
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