

★★★ <第24回知的財産翻訳検定試験【第13回和文英訳】> ★★★

≪ 1 級課題-化学- ≫

【問 1】

[Claim 1]

A dental implant comprising:

a jawbone-embedded section that has compatibility with a jawbone; and

a gum-contacting section continuously formed with the jawbone-embedded section and configured to be inserted into the gum, wherein a gum-contacting region of the gum-contacting section is coated with a cell adhesive layer containing a polypeptide or a protein so as not to impede the compatibility of the jawbone-embedded section with respect to the jawbone.

[Claim 2]

The dental implant according to claim 1, wherein an outer surface of the cell adhesive layer has an arithmetic mean roughness Ra of 2 micrometers or less.

[Claim 3]

The dental implant according to claim 1 or 2, wherein the outer surface of the jawbone-embedded section for contact with the jawbone is coated with an apatite layer or is subjected to alkali and heat treatment.

【問 2】

[Background of the Invention]

[0006]

In conventional electric double layer capacitors, since the capacity of the positive electrode is small, there is a problem that the capacitance of the capacitor does not increase even if the capacity of the negative electrode is increased. That is, when aluminum foil is adopted as a current collector of the positive electrode, if activated carbon is thickly applied in order to increase the capacity of the positive electrode, the utilization efficiency decreases or the activated carbon peels off, with the result that the capacitance cannot be increased. For this reason, the capacity of the positive electrode is small in relation to that of a carbon-based negative electrode that allows Li ions to move in and out, and the energy density of the cell cannot be increased.

[0007]

Also, since the electric potential of activated carbon is 3 V (vs Li / Li +), the cell voltage can only be raised to about 2.5 V in view of the withstand voltage properties of an electrolytic solution. For this reason, there are problems in that the voltage is low,

and the energy density and output power density are low.

【問 3】

For efficient oxidation treatment, it is preferred that, after copper smelting slag is charged into a slag treatment furnace, a jet of a gas mixture formed of a fuel gas, such as natural gas and/or propane gas, and oxygen gas be created and blown through a lance into the slag. This may be performed by blowing a gas mixture containing excess oxygen with respect to the gas composition for complete combustion, which allows oxygen gas at an extremely high temperature to be supplied to the slag. For example, the combustion gas produced by the combustion of natural gas and oxygen gas in the ratio for complete combustion reaches a temperature of about 2,400 °C. Thus, the use of a gas mixture containing excess oxygen provides oxygen gas at a high temperature of around 2,000 °C. This treatment increases the slag temperature and almost completely converts sulfides into oxides.

【問 4】

Surface Energy of Imprint Mold

The contact angle was first measured with a CA-S150 contact angle meter available from Kyowa Interface Science Co., Ltd. Specifically, an imprint mold was set on a horizontal measurement stage. Droplets of polar and nonpolar solvents with diameters of not more than 2 mm were dispensed with a droplet dispenser onto a flat portion of the surface of the surface layer of the imprint mold where no master fine pattern was transferred. The polar solvent used was deionized water, whereas the nonpolar solvent used was n-decane. Each deposited droplet was then viewed along the surface of the surface layer, and the angle θ made by the surface of the surface layer and a straight line connecting the contact point between the leftmost (or rightmost) end of the droplet and the surface of the surface layer with the apex of the droplet was measured. The angle θ was measured a total of five times, and these measurements were averaged to determine the contact angle. The contact angle was used to calculate the surface (free) energy from Fowkes' equation and Young's equation.