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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 07-062940- -00003-0000

Fecha: 2008-08-04 17:01:13 Dep. 2020 NUECREACIONI
Tra. 11 PATENTEIYII Eve: 378 FASENACIONALI
Act. 538 PETICION Folios: 3

Señores

**SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIVISION DE NUEVAS CREACIONES**

E. S. D.

REF.: Expediente No. 07 062.940 - Solicitud de Patente FASE NACIONAL

Corresp. a la Solicitud Internacional PCT/US2005/042164.

a nombre de: **COLGATE-PALMOLIVE COMPANY.**

Titulada: COMPOSICIÓN DE CUIDADO ORAL ANTICARIES CON UN AGENTE QUELANTE.

JUAN PABLO CADENA SARMIENTO, vecino de Bogotá, portador de la tarjeta profesional No. 57492 del Consejo Superior de la Judicatura, obrando como apoderado de la Sociedad **COLGATE-PALMOLIVE COMPANY**, según lo acredita el documento de poder presentado en esa División, de acuerdo con el Artículo 44 de la Decisión 486 de la Comisión de la Comunidad Andina, me permito solicitar que se examine si la invención contenida en la solicitud en referencia es patentable.

De acuerdo con lo anterior, me permito anexar los recibos oficiales de caja No. 08-48,474 y 08-48,475 por valor de \$420.000.

De la Señora Jefe atentamente,

JUAN PABLO CADENA SARMIENTO

C.C. No. 80.410.337 de Usaquén

T.P. No. 57492 del C.S.J.

Cra 7 No. 71-21 Torre B, Piso 4

Bogotá, 04 de agosto de 2008

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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 900176089-2

RECIBO OFICIAL DE CAJA : 08 - 48.474
FECHA : JUNIO 17 DE 2008

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 07-062940- -00003-0000

Fecha: 2008-08-04 17:01:13 Dep. 2020 NUECREACIONE
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***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
BRIGARD & CASTRO LTDA	CONSIGNACION	BANCO DE BOGOTA	062754387	3249606	16/06/2008	28,020,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01 SOLICITUDES	114 PTC CAP-II EXAMEN DE PATENTIBILID	210,000.00
		TOTAL :	\$ 210,000.00

SON: DOSCIENTOS DIEZ MIL PESOS

RESPONSABLE :

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

DIVISIÓN DE NUEVAS CREACIONES

RADICACIÓN EXPEDIENTE No. 07-62940

EL EXTRACTO DE LA PRESENTE SOLICITUD DE **PATENTE DE INVENCION**

FUE PUBLICADO EN LA GACETA DE PROPIEDAD INDUSTRIAL No **589** DE

FECHA **29 DE FEBRERO DE 2008** EL TÉRMINO HÁBIL SEÑALADO POR LA

LEY EXPIRA EL **03 DE JUNIO DE 2008**

NOTA: Dentro del plazo de los seis (6) meses siguientes a partir de la fecha de publicación en la gaceta de Propiedad Industrial, deberá solicitar y cancelar el examen de patentabilidad so pena de que la solicitud caiga en abandono, de acuerdo con lo establecido en el Artículo 44 de la Decisión 486/2000.

SE PRESENTARON OPOSICIONES POR PARTE DE TERCEROS.

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ble Company, 6110 Center Hill Rd., Cincinnati, OH 45224
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Declarations under Rule 4.17:

as to applicant's entitlement to apply for and be granted
a patent (Rule 4.17(ii)) for the following designations: AF,
AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI,
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— as to the applicant's entitlement to claim the priority of the
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For two-letter codes and other abbreviations, refer to the "Guid-
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ning of each regular issue of the PCT Gazette.

(54) Title: STABLE ORAL COMPOSITIONS COMPRISING CASEIN PHOSPHOPEPTIDE COMPLEXES AND FLOURIDE

(57) Abstract: The present invention relates to oral care compositions, especially toothpastes, comprising: a safe and effective amount of phosphopeptide-amorphous calcium phosphate complex ("PP-ACP"); a safe and effective amount of a fluoride ion source; a pharmaceutically-acceptable topical, oral carrier, and a safe and effective amount of a calcium chelator, wherein the composition has improved fluoride stability. This invention further relates to a method of maintaining the fluoride levels in an oral care composition comprising a safe and effective amount of PP-ACP, a safe and effective amount of a fluoride ion source, and a pharmaceutically-acceptable topical, oral carrier, by adding, to the composition, a safe and effective amount of a calcium chelator.



WO 03/059304 A1

with other ingredients to form oral care composition such as dentifrices or mouthrinses. In particular, certain incompatibilities may arise with respect to the addition of PP-ACP with other components such as fluoride, rendering reduced fluoride ions levels within the oral care formulation. The present invention minimizes this instability of the combination of fluoride ions and PP-ACP through the addition of a calcium chelator at specific levels.

SUMMARY OF THE INVENTION

The present invention relates to oral care compositions, including therapeutic rinses, especially mouth rinses, as well as toothpastes or dentifrices, tooth gels, tooth powders, non-abrasive gels, and mouth sprays, comprising:

- (a) a safe and effective amount of phosphopeptide-amorphous calcium phosphate complex (herein "PP-ACP");
 - (b) a safe and effective amount of a fluoride ion source;
 - (c) a safe and effective amount of a calcium chelator; in another embodiment the calcium chelator is selected from the group consisting of tartaric acid and salts thereof, citric acid and salts thereof, pyrophosphate ion source, polyphosphate, diphosphonates, and mixtures thereof;
 - (d) pharmaceutically-acceptable topical, oral carrier;
- wherein the level of fluoride ion is maintained.

This invention further relates to a method of maintaining fluoride levels in an oral care composition comprising a safe and effective amount of PP-ACP, a safe and effective amount of a fluoride ion source, and a pharmaceutically-acceptable topical, oral carrier, by adding, to the composition, a safe and effective amount of a calcium chelator.

All levels herein are by weight of the composition unless otherwise indicated.

DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to oral care compositions, including therapeutic rinses, especially mouth rinses, as well as toothpastes or dentifrices, tooth gels, tooth powders, non-abrasive gels, and mouth sprays, comprising:

- (a) a safe and effective amount of PP-ACP, in another embodiment at a level of from about 0.01% to about 25%, in another embodiment at a level of

- from about 0.1% to about 10%; in even another embodiment at a level of from about 0.2% to about 2%, by weight of the composition;
- (b) a safe and effective amount of a fluoride ion source, in another embodiment at a level of from about 50 ppm to about 3500 ppm, in even another embodiment at a level of from about 200 ppm to about 3000 ppm; in yet another embodiment at a level of from about 500 ppm to about 2,800 ppm; and in even another embodiment from about 850 ppm to about 1,100 ppm;
 - (c) a safe and effective amount of a calcium chelator; in another embodiment the calcium chelator is at a level of from about 0.001% to about 20%, by weight of the composition; in another embodiment the calcium chelator is selected from the group consisting of tartaric acid and salts thereof, citric acid and salts thereof, pyrophosphate ion source, polyphosphate, diphosphonates, and mixtures thereof; in another embodiment the calcium chelator is a pyrophosphates ion source;
 - (d) pharmaceutically-acceptable topical, oral carrier;
- wherein the fluoride ion levels are maintained.

This invention further relates to a method of maintaining fluoride levels in an oral care composition comprising a safe and effective amount of PP-ACP, a safe and effective amount of a fluoride ion source, and a pharmaceutically-acceptable topical, oral carrier, by adding, to the composition, a safe and effective amount of a calcium chelator.

By "safe and effective amount" as used herein is meant an amount of a component, high enough to significantly (positively) modify the condition to be treated or to effect the desired anticaries result, but low enough to avoid serious side effects (at a reasonable benefit/risk ratio), within the scope of sound medical/dental judgment. The safe and effective amount of a component, will vary with the particular condition (e.g., to effect anticaries activity or remineralization effect) being treated, the age and physical condition of the patient being treated, the severity of the condition, the duration of treatment, the nature of concurrent therapy, the specific form employed, and the particular vehicle from which the component is applied.

fluoride for fresh product; in another embodiment the fluoride level of aged product is only from about 2.5% to about 15%, or from about 5% to about 10% lower than the level of fluoride of fresh product.

PP-ACP

The PP-ACP is a stable calcium phosphate complex, comprising amorphous calcium phosphate (ACP) or a derivative thereof, stabilized by a phosphopeptide, wherein said phosphopeptide comprises the sequence Ser(P)-Ser(P)-Ser(P)-Glu-Glu- (herein called "Ser(P) cluster sequence motif". The amorphous calcium phosphate (ACP) is preferably of the formula $[\text{Ca}_3(\text{PO}_4)_{1.87}(\text{HPO}_4)_{0.2} \times \text{H}_2\text{O}]$ wherein $x \geq 1$. The Ser(P) cluster sequence motif has the ability to stabilize its own weight in ACP, as taught in WO 98/40406, published, September 17, 1998, The University of Melbourne, the Victorian Dairy Industry Authority, Reynolds, which is herein incorporated by reference in its entirety.

The phosphopeptides of the present invention are preferably in substantially pure form. The phosphopeptide may be made synthetically by chemical synthesis or genetic engineering or can be extracted from naturally occurring materials. For example, the phosphopeptide (PP) may be from any source; it may be obtained by hydrolyzing or digesting (either chemical or proteolytic) a protein or by tryptic digestion of casein or other phospho-acid rich proteins such as phosphitin, or by chemical or recombinant synthesis, provided that it comprises the core sequence -Ser(P)-Ser(P)-Ser(P)-Glu-Glu-. It is preferred to digest casein with trypsin, pepsin, chymotrypsin, papain, thermolysin or pronase, preferably trypsin. It is currently more economic to extract the phosphopeptide from casein and in particular from alpha-s casein or beta-casein. Further, phosphoproteins in cereals, nuts and vegetables particularly in bran husks or sheaths (rice, wheat, oat, barley or rye brans) may be used to produce the peptide above. Soybean and meat contain phosphoproteins which may be of use in obtaining the peptide above. US 5,834,427, issued Nov. 10, 1998, Han et al., assigned to Sang Kee Han, also discloses methods of making phosphopeptides and casein phosphopeptides. This reference is herein incorporated by reference in its entirety.

FLUORIDE ION SOURCE

The present invention also includes a fluoride ion source, with free fluoride ions. In one embodiment the free fluoride ions can be provided by sodium fluoride, stannous fluoride, indium fluoride, and sodium monofluorophosphate. Sodium fluoride is the free fluoride ion in another embodiment. Norris et al., U.S. Patent 2,946,725, issued July 26, 1960, and Widder et al., U.S. Patent 3,678,154 issued July 18, 1972, disclose such salts as well as others. These patents are incorporated herein by reference in their entirety.

The present composition may contain from about 50 ppm to about 3500 ppm, in another embodiment from about 200 ppm to about 3000 ppm, and in another embodiment from about 500 ppm to about 2,800 ppm, and in even another embodiment from about 850 ppm to about 1,100 ppm, of free fluoride ions.

CALCIUM CHELATING AGENT

The compositions and methods of the present invention comprise a safe and effective amount of a calcium chelator; in another embodiment the calcium chelator is from about 0.001% to about 20%, and in another embodiment is less than about 5%, in another embodiment is from about 0.1% to about 5%, in even another embodiment is from about 0.5% to about 3%, by weight of the composition.

Suitable calcium chelators for use in the present invention are selected from the group consisting of tartaric acid and pharmaceutically acceptable salts thereof; citric acid and salts thereof such as alkali metal citrates; pyrophosphate ion source; polyphosphates (e.g., tripolyphosphate, hexametaphosphate); diphosphonates (e.g., EHDP; AHP); and mixtures thereof.

In another embodiment the calcium chelator is selected from the group consisting of sodium citrate, potassium citrate, disodium tartrate, dipotassium tartrate, pyrophosphate ion source, sodium potassium tartrate, disodium hydrogen tartrate, potassium hydrogen tartrate, disodium dihydrogen pyrophosphate, tetrasodium pyrophosphate, tetrapotassium pyrophosphate, and mixtures thereof.

Pyrophosphate/Polyphosphate

WHAT IS CLAIMED IS:

1. An oral care composition comprising:

- (a) a safe and effective amount of PP-ACP;
- (b) a safe and effective amount of a fluoride ion source;
- (c) a safe and effective amount of a calcium chelator;
- (d) pharmaceutically-acceptable topical, oral carrier;

wherein the fluoride level is maintained.

- 2. The composition of claim 1 wherein the level of PP-ACP is 0.1% to 10% by weight of the composition, preferably from 0.2% to 2% by weight of the composition.
- 3. The composition of claim 2 wherein the calcium chelator is selected from the group consisting of tartaric acid and salts thereof, citric acid and salts thereof, pyrophosphate ion source, polyphosphate, diphosphonates, and mixtures thereof.
- 4. The composition of claim 3 wherein the calcium chelator is selected from the group consisting of sodium citrate, potassium citrate, disodium tartrate, dipotassium tartrate, sodium potassium tartrate, disodium hydrogen tartrate, potassium hydrogen tartrate, pyrophosphate ion source, disodium dihydrogen pyrophosphate, tetrasodium pyrophosphate, tetrapotassium pyrophosphate, and mixtures thereof, preferably the calcium chelator is a pyrophosphate ion source.
- 5. The composition of claim 3 wherein the level of calcium chelator is from 0.1% to 5% by weight of the composition.
- 6. The composition of claim 1 wherein the fluoride ion source provides free fluoride at a level of from 850 ppm to 1150 ppm of free fluoride ions.
- 7. The composition of claim 1 wherein the PP-ACP contains the core sequence - Ser(P)-Ser(P)-Ser(P)-Glu-Glu-.
- 8. The composition of claim 7 wherein PP includes the amino acid sequence selected from the group consisting of:



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120(19) **United States**(12) **Patent Application Publication**
Xu et al.(10) **Pub. No.: US 2004/0047814 A1**(43) **Pub. Date: Mar. 11, 2004**(54) **ANHYDROUS DENTRIFICE
FORMULATIONS FOR THE DELIVERY OF
INCOMPATIBLE INGREDIENTS**(30) **Foreign Application Priority Data**

Oct. 13, 2000 (US)..... 09687784

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Michael E. Trama, River Vale, NJ
(US)**Publication Classification**(51) **Int. Cl.⁷** **A61K 7/16**(52) **U.S. Cl.** **424/49****Correspondence Address:****SMITHKLINE BEECHAM CORPORATION**
CORPORATE INTELLECTUAL
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KING OF PRUSSIA, PA 19406-0939 (US)(57) **ABSTRACT**

A composition for reducing dentinal hypersensitivity and remineralizing exposed dentinal surface and open dentinal tubules, comprising a non-aqueous carrier and a desensitizing amount of a desensitizing/remineralizing agent which consists essentially of a water soluble calcium salt and an incompatible ingredient which would otherwise react with the calcium salt. Upon contact with saliva when applied to an oral cavity, the desensitizing/remineralizing is then formed in situ by the reaction between the calcium salt and the incompatible ingredient, thereby remineralizing exposed dentinal surface and open dentinal tubules.

(21) Appl. No.: **10/398,978**(22) PCT Filed: **Oct. 10, 2001**(86) PCT No.: **PCT/US01/31742**

silicate, phosphate, and/or fluoride salts stable during storage in a closed container prior to application to the oral cavity. The results being sufficient calcium phosphate, calcium silicate, and/or fluoride ions are formed in situ and released to hypersensitive teeth where they are needed the most.

[0015] The first component of the desensitizing/remineralizing agent is a water soluble calcium salt for the formation of calcium phosphate (hydroxyapatite), calcium silicate, and the like, that are necessary for the desensitizing/remineralization of the dentin tubules.

[0016] Suitable water-soluble calcium compounds include, for example, calcium chloride, calcium nitrate, calcium acetate, calcium citrate, calcium gluconate, calcium benzoate, calcium glycerophosphate, calcium formate, calcium fumarate, calcium lactate, calcium butyrate and calcium isobutyrate, calcium malate, calcium maleate, calcium propionate, calcium valerate or mixtures of water-soluble calcium compounds. In a preferred embodiment, calcium chloride is used.

[0017] Concentration of water-soluble calcium compounds are from about 0.05 to 35%. In a preferred embodiment, the concentration is about 2 to 15 wt. %.

[0018] The second component of the desensitizing/remineralizing agent of the present invention is one that reacts with the calcium ions to form a precipitate in situ when applied to the oral cavity upon contact with saliva. The second component is selected from the group consisting of alkali metal silicates, water-soluble phosphate salts, fluoride salts, or mixtures thereof.

[0019] The second component is present in an amount sufficient to react with the calcium compounds in situ to give an amount effective for desensitizing/remineralizing purposes. Suitably, the second component is present in an amount from about 0.05 to 35 wt. %. In a preferred embodiment, the concentration of the second embodiment is about 1 to 20 wt. %.

[0020] Alkali metal silicates include lithium silicate, sodium silicate, potassium silicate, ammonium silicate, and the like. In one embodiment, potassium silicate is used. In another embodiment, the alkali silicate is a mixture of or a mixture of sodium silicate and potassium silicate.

[0021] Fluoride sources include sodium fluoride, zinc fluoride, alkali metal difluorophosphates, polyfluorophosphate, and monofluorophosphates such as sodium monofluorophosphate, lithium monofluorophosphate, ammonium monofluorophosphate, aluminum monofluorophosphate, and potassium monofluorophosphate, or mixtures thereof. In one embodiment, the fluoride salt is sodium monofluorophosphate. In another embodiment, sodium fluoride is employed.

[0022] The phosphate compounds for use in this invention include alkali metal (e.g., sodium and potassium), ammonium, magnesium, barium and strontium orthophosphates and acid orthophosphates, metaphosphates, pyrophosphates, as well as glycerophosphates, fructose-6-phosphate, sorbitol-6-phosphate, glucose-1-phosphate, glucose-6-phosphate, and the like. Mixtures of such phosphate sources with each other or with calcium phosphate may be employed. If desired, a water-soluble salt yielding both calcium and

phosphate ion, such as tricalcium phosphate and monobasic calcium orthophosphate can also be employed. In one embodiment, the phosphate compound is disodium hydrogen phosphate.

[0023] The inventors have surprisingly found that the first component calcium salts, without the need for a desiccating agent or encapsulating agent to keep separate from the phosphate salts, co-exist with the phosphate salts in storage and are available for reaction in situ upon contact with saliva in the mouth, thus forming calcium phosphate based compounds, in particular hydroxyapatite represented by $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$. In addition to the hydroxyapatite already mentioned, fluoroapatite $\text{Ca}_{10}(\text{PO}_4)_6\text{F}_2$, tricalcium phosphate $\text{Ca}_3(\text{PO}_4)_2$ and various other kinds of known calcium phosphate-based compounds can be formed depending on the types of "incompatible ingredients" used as the second component for the formation of the desensitizing/remineralizing agent.

[0024] Optional anti-hypersensitivity agents or nerve desensitizing agents commonly used in the dentifrice art, i.e., agents that are neuroactive, ions or salts which have a pain reducing or analgesic activity, may also be included in the composition of the present invention. Examples of nerve agents include, but not limited to, potassium or strontium salts, including potassium bicarbonate, potassium citrate, potassium chloride, potassium nitrate, strontium chloride, strontium acetate, strontium nitrate, and potassium or strontium salts of other similar conjugate acids, and mixtures thereof.

[0025] Ingredients typically included in oral health care compositions may be used in the compositions in accordance with the invention including abrasive polishing materials, sudsing agents, flavoring agents, humectants, binders, sweetening agents, and the like. Abrasives which may optionally be used in the compositions of the invention include alumina and hydrates thereof, such as alpha alumina trihydrate, magnesium carbonate, calcined aluminum silicate and aluminum silicate, calcium carbonate, zirconium silicate, polymethylmethacrylate, powdered polyethylene, silica xerogels, hydrogels and aerogels, and the like. Depending on the form that the dentifrice composition is to take and whether the substrate is an abrasive-based material, the abrasive may be present in an amount of from 0 to 50% by weight.

[0026] The anhydrous carrier for the dentifrice composition of the present invention is a single, or a combination of, water-free organic solvents including mineral oils, glycerol, polyol, sorbitol, polyethylene glycol, propylene glycol, copolymers of ethylene oxide and propylene oxide, petrolatum, triacetin, and the like. The carrier is present in an amount of about 10 to 90% by weight for toothpastes.

[0027] Binders suitable for use in the compositions of the invention include hydroxyethyl cellulose, and hydroxypropyl cellulose, as well as xanthan gums, Iris moss and gum tragacanth. Binders may be present in the amount from 0.01 to 20%.

[0028] Sweeteners suitable for use may be present at levels of about 0.1% to 10% and include saccharin and xylitol.

[0029] Optional fluoride sources commonly used in oral health care compositions such as sodium fluoride, stannous

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COMPOSITION FOR ORAL CAVITY

Bibliographic data

Mosaics

Original document

INPADOC legal status

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Also published as: ☐ JP3364096 (B2)

Publication date: 1999-04-20

Inventor(s): OSHINO KAZUSHI; SHINTANI TOSHIAKI; MASUKI KEIKO; YAMAZAKI HAJIME; OKAJIMA MIYUKI; KAMIYAMA HIROKI; MAEDA AKITSUGU +

Applicant(s): KAO CORP +

Classification:

International: A61K8/20; A61K8/21; A61K8/34; A61K8/58; A61K8/97; A61Q11/00; A61K8/19; A61K8/30; A61K8/96; A61Q11/00; (IPC1-7): A61K7/18

European:

Application number: JP19980009330 19980121

Priority number(s): JP19980009330 19980121; JP19970209010 19970804

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Abstract of JP 11106322 (A)

Translate this text

PROBLEM TO BE SOLVED To obtain a composition for oral cavity which inhibits the precipitation formation of calcium fluoride by the reaction of fluorine ions with calcium ions even in the presence of anionic surfactants and promotes the recalcification effect on teeth. SOLUTION This composition for oral cavity contains a fluorine ion-supplying compound in an amount of 0.002-1 wt.% calculated in terms of the fluorine, a calcium ion-supplying compound in an amount of 0.001-0.5 wt.% calculated in terms of the calcium and a sugar alcohol in an amount of 55-99 wt.%, and the content (calculated in terms of the calcium) of the calcium ion-supplying compound to the content (calculated in terms of the fluorine) of the fluorine ion-supplying compound is 1/2 or less (weight ratio).

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JP11106322

1999-04-20

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001] [Field of the Invention] This invention relates to the constituent for the mouths, and the constituent for the mouths which promoted the remineralization operation of a gear tooth in more detail, and was excellent in stability.

[0002] [Description of the Prior Art] The main ingredients of dentine are hydroxyapatite ($\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$), and an equilibrium situation usually has elution (deliming) of phosphoric acid ion or calcium ion, and crystallization (remineralization) to calcium phosphate or hydroxyapatite in inner mouth. It is known that the acid which the organism of a cavity produces here will promote deliming. Namely, a cavity produces the organic acid with which bacteria, such as Streptococcus mutans (Streptococcus mutans) which constitutes a dental plaque, disassemble sucrose etc., and are mainly concerned with lactic acid, and when this reduces pH and elutes calcium etc., it produces it. By the way, in the early stages of a cavity, although a facula (white spot) arises in usually transparent enamel, when a fluorine ion and calcium ion promote the remineralization, this facula is vanished and carrying out the re-rarefaction of the enamel is known.

[0003] However, if a fluorine ion and calcium ion are made to live together, a precipitate of calcium fluoride can be produced and a facula cannot be vanished. For this reason, the following technology is known in order to solve this problem.

[0004] Fluorine ion solution and calcium ion solution are held in another container, 2 agents which are mixed suitably and used when using it -- the constituent for the mouths (JP,H3-72415,A) which makes colloid distribute calcium fluoride by a system oral hygiene article (JP,S52-61236,A, JP,S58-219107,A) and sugar phosphate ester, and promotes the remineralization.

[0005] [Problem to be solved by the invention] However, in the technology of JP,S52-61236,A and JP,S58-219107,A, a manufacturing process becomes complicated, and also 2 liquid had to be mixed when using it and there was a problem in respect of simple nature. In the technology of JP,H3-72415,A. If anionic surface active agents which are generally easily used for the tooth paste as for making colloid distribute comparatively high-concentration calcium fluoride, such as alkyl-sulfuric-acid ester salt and N-acylamino acid, exist, The

remineralization can be raised without having an adverse effect on flavor and physical properties of a constituent for the mouths by being 0.001 to 0.5 weight %.

[0011]Content (calcium conversion) (weight ratio) of a calcium ion supplying compound to content (fluoride conversion) of a fluorine ion supplying compound is $1/2$ or less, and it is preferred that it is $1/100 - 1/3$. If it is $1/2$ or less, generation of calcium fluoride is controlled and remineralization can be promoted.

[0012]Sugar-alcohol has an effect which promotes remineralization while controlling generation of calcium fluoride. As sugar-alcohol, for example, a RAKUCHI toll, isomaltitol, a malto TORII toll, An isomalt TORII toll, PANITORU, isomaltotetraitol, erythritol, arabitol, ribitol, xylitol, sorbitol, mannitol, maltitol, etc. are mentioned. This sugar-alcohol may be any of D object and L object, and may be the mixture. Among these, xylitol has an effect which controls growth of a cavity organism in a dental plaque, and controls a pH decrease of a dental plaque. Therefore, in this invention, it is preferred to make content (weight ratio) of xylitol in sugar-alcohol or more into $1/2$, and especially a thing to do to $2/3$ or more is preferred.

[0013]the constituent for the mouths of this invention does not contain water -- it may be powdered and water is contained -- it may be [that it is paste state or] liquefied. When it contains water, the content does not have restriction in particular, but it is preferred that it is 1 to 90 weight %. When it contains water, as for the content to the water of sugar-alcohol, it is preferred that it is 25 weight % or more, and it is preferred that it is especially 35 to 300 weight %. If the content to the water of sugar-alcohol is 25 weight % or more, the precipitation of calcium fluoride will be controlled and the wettability of the constituent for the mouths will also improve further. To the constituent for the mouths, 15 weight % or more is preferred, and especially 30 weight % or more is preferred.

[0014]In this invention, N-acylamino acid salts, such as alkyl-sulfuric-acid ester salt, such as the anionic surface active agent generally used as a constituent for the mouths, for example, sodium lauryl sulfate etc., and an N-acylsarcosinate salt, etc. may be contained. In particular, even when the content (weight ratio) of sodium lauryl sulfate in an anionic surface active agent is $1/2$ or more, the effect of this invention is not spoiled.

[0015]. In this invention, are a range which does not injure the effect of this invention, and, generally are used as a constituent for the mouths. Abrasive soap, such as a silicic acid anhydride, calcium hydrogen phosphate, and calcium carbonate, glycerin, Wetting agents, such as a polyethylene glycol, a foaming agent, carboxymethylcellulose sodium, Germicides, such as preservatives, such as sweetening agents, such as binders, such as a carrageenan, and saccharin sodium, colorant, and methyl

配合割合（重量％）	実施例 3	実施例 4	実施例 5	比較例 6	比較例 7
フッ化ナトリウム	0.21	0.21	—	0.21	—
モノフルオロリン酸ナトリウム	—	—	0.7	—	0.7
乳酸カルシウム	0.1	0.05	—	—	—
塩化カルシウム	—	—	0.1	1	—
キシリトール	25	40	20	—	—
ソルビトール	5	21.84	—	4	4
グリセリン	—	—	—	26	26
カラギーナン	0.5	—	0.5	0.5	0.5
キサンタンガム	0.3	0.2	0.5	0.3	—
カルボキシメチルセルロースナトリウム	0.3	—	0.7	0.3	0.7
無水ケイ酸	26	30	22	26	22
ポリエチレングリコール 600	5	5	7	5	7
パラオキシ安息香酸メチル	0.1	0.1	0.1	0.1	0.1
ラウリル硫酸ナトリウム	1.4	1.6	1.2	1.4	1.2
香料	1	1	1	1	1
精製水	適量	—	適量	適量	適量
合 計	100	100	100	100	100
Ca含有量/F含有量（重量％）	1/7.3	1/14.6	1/2.6	1/0.26	0
歯の白斑部位の縮小率	4/5	3/5	2/5	0/5	0/5

[0025]

[Effect of the Invention] Even when an anionic surface active agent exists, the constituent for the mouths of this invention controls the precipitation of calcium fluoride by a fluoride ion and calcium ion, and its dental remineralization facilitatory effect is high.

CLAIMS

[Claim 1] A calcium ion supplying compound by calcium conversion 0.002 to 1 weight % by fluoride conversion for a fluoride ion supplying compound 0.001 to 0.5 weight %, And a constituent for the mouths whose content [as opposed to / contain sugar-alcohol five to 99 weight %, and / content (fluoride conversion) of a fluoride ion supplying compound] (calcium conversion) (weight ratio) of a calcium ion supplying compound is 1/2 or less.

[Claim 2] The constituent for the mouths according to claim 1 whose content (calcium conversion) (weight ratio) of a calcium ion supplying compound to content (fluoride conversion) of a fluoride ion supplying compound is 1 / 100 - 1/3.

[Claim 3] The constituent for the mouths according to claim 1 or 2 1/2 (weight ratio) or more [of sugar-alcohol / whose] is xylitol.

[Claim 4] A constituent for the mouths of Claims 1-3 which are what furthermore contains water given in any 1 clause.

[Claim 5] The constituent for the mouths according to claim 4 whose content to water of sugar-alcohol is 25 weight % or more.