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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 07-062937- -00005-0000

Fecha: 2008-08-06 17:13:21 Dep. 2020 NUECREACION
Tra. 11 PATENTEIYII Eve: 378 FASENACIONALI
Act. 538 PETICION Folios: 2

AS. 104.411

Señores

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

E. S. D.

REF.: Expediente No. 07 062.937 - Solicitud de Patente FASE NACIONAL
Corresp. a la Solicitud Internacional PCT/US2005/042047.
a nombre de: **COLGATE-PALMOLIVE COMPANY**.
Titulada: COMPOSICIÓN CONTRA LA CARIES PARA EL CUIDADO ORAL CON
XILITOL.

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 el recibo oficial de caja No. 08-53,442 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, 06 de agosto de 2008

MEV/CAG/jpg

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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

RECIBO OFICIAL DE CAJA : 08 - 53,442
FECHA : JULIO 7 DE 2008

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 07-062937- -00005-0000

Fecha: 2008-08-06 17:13:21 Dep. 2020 NUECREACIONE
Tra. 11 PATENTEIYII Eve: 378 FASENACIONALI
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***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
BRIGARD & CASTRO LTDA	CONSIGNACION	BANCO DE BOGOTA	062754387	3249794	07/07/2008	17,750,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01 SOLICITUDES	B5 EXAMEN DE PATENTABILIDAD DE INVEN	420,000.00
		TOTAL :	\$ 420,000.00

SON: CUATROCIENTOS VEINTE MIL PESOS

RESPONSABLE :

RECIBO DE CAJA APLICADO AL EXPEDIENTE No.

DIVISIÓN DE NUEVAS CREACIONES

RADICACIÓN EXPEDIENTE No. 07-62937

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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COMPOSITION FOR ORAL CAVITY

Bibliographic data	Mosaics	Original document	INPADOC legal status
Publication number: JP11106322 (A) Publication date: 1993-04-20 Inventor(s): OSHINO KAZUSHI, SHINTANI TOSHIAKI, MASUKI KEIKO, YAMAZAKI HAJIME, OKAJIMA MIYUKI, KAMIYAMA HIROKI, MAEDA AKITSUGU + Applicant(s): KAO CORP. + Classification: International: A61K8/20; A61K8/27; A61K8/34; A61K8/38; A61K8/47; A61Q11/00; A61K8/19; A61K8/30; A61K8/36; A61Q11/00; (PC1-7); A61K7/18 European: Application number: JP19980008330 19980121 Priority number(s): JP19980008330 19980121, JP19970203010 19970804 View INPADOC patent family View list of citing documents Report a data error here			
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). Data supplied from the espacenet database — Worldwide			

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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

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dispersion effect of the above-mentioned sugar phosphate ester has the problem of disappearing nearly thoroughly.

[0006] Therefore, an object of this invention is to provide the constituent for the mouths which promotes the dental remineralization effect by controlling that calcium fluoride generates and precipitates from a fluorine ion and calcium ion, even when an anionic surface active agent exists.

[0007] [Means for solving problem] As a result of inquiring wholeheartedly that this invention persons should attain the above-mentioned purpose, the calcium ion supplying compound of a specific amount and the fluorine ion supplying compound of a specific amount are contained with a specific ratio, By containing the sugar-alcohol furthermore known as a sweetening agent, the precipitation of calcium fluoride was controlled, it found out that the remineralization could be promoted, and this invention was completed.

[0008] This invention a fluorine ion supplying compound by fluoride conversion Namely, 0.002 to 1 weight %, A calcium ion supplying compound by calcium conversion 0.001 to 0.5 weight %, And sugar-alcohol is contained five to 99 weight %, and the content (calcium conversion) (weight ratio) of a calcium ion supplying compound to the content (fluoride conversion) of a fluorine ion supplying compound provides the constituent for the mouths which is 1/2 or less.

[0009] [Mode for carrying out the invention] The fluorine ion supplying compounds used for this invention may be any of an inorganic compound and an organic compound. Specifically For example, sodium fluoride, potassium fluoride, stannous fluoride, Sodium silicofluoride, sodium monofluorophosphate, aluminum fluoride, silver fluoride, hydrofluoric acid hexylamine, hydrofluoric aciddecanol amine, hydrofluoric acid octadecenyl amine, etc. are mentioned. Among these, sodium monofluorophosphate and especially sodium fluoride are preferred from points, such as safety, solubility, and flavor. As for the loadings of the fluorine ion supplying compound in the constituent for the mouths, it is preferred that it is 0.002 to 1 weight %, and is 0.01 to 0.2 weight % in fluoride conversion. The effect of the remineralization can be raised without having an adverse effect on the flavor and physical properties of the constituent for the mouths by being 0.002 to 1 weight %.

[0010] Calcium ion supplying compounds used for this invention may be any of an inorganic compound and an organic compound. Specifically, a calcium chloride, a calcium bromide, a calcium nitrate, calcium lactate, calcium gluconate, calcium acetate, etc. are mentioned. Among these, a calcium chloride and especially calcium lactate are preferred from points, such as safety, solubility, and flavor. As for loadings of a calcium ion supplying compound in a constituent for the mouths, it is preferred that it is 0.001 to 0.5 weight %, and is 0.005 to 0.1 weight % in calcium conversion. An effect of

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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

parahydroxybenzoate, benzethonium chloride, and isopropylmethyl phenol, an antiphlogistic, perfume, etc. can be added.

[0016]The constituent for the mouths of this invention can be obtained by adding in water, and agitating or mulling sugar-alcohol, a fluorine ion supplying compound, a calcium ion supplying compound, and other additive agents, when it contains water. When it does not contain water, it can obtain mixing a granular material or by mixing and dissolving in water, drying and drying a granular material. The constituent for the mouths of this invention can be used as powder dentifrices, tooth wet-powder, a toothpaste agent, a liquefied tooth paste, mouth wash, etc.

[0017] [Working example]Next, although an embodiment is shown and this invention is explained still in detail, this invention is not limited to the following embodiments.

[0018]The constituent for the mouths (mouthwash) was created by the combination shown in the one to Embodiments 1-2 and comparative example 5 table 1.

[0019]

[Table 1]

配合割合 (重量%)	実施例 1	実施例 2	比較例 1	比較例 2	比較例 3	比較例 4	比較例 5
フッ化ナトリウム	0.21	0.21	0.21	0.21	0.21	—	—
乳酸カルシウム	0.1	0.1	0.1	0.1	—	0.1	—
キシリトール	25	15	—	—	—	25	—
ソルビトール	—	15	—	—	—	—	—
グルコース1リン酸ナトリウム	—	—	—	10	—	—	—
ラウリル硫酸ナトリウム	0.1	0.1	0.1	0.1	0.1	0.1	—
香料	0.05	0.05	0.05	0.05	0.05	0.05	—
精製水	74.54	69.54	99.54	89.54	99.84	84.54	—
人工唾液*	—	—	—	—	—	—	100
合 計	100	100	100	100	100	100	100

* 人工唾液の組成: 20mM HEPES Buffer + 1.5mM CaCl_2 + 0.9mM K_2HPO_4 (pH7.0)

[0020]After dividing the cow tooth of 17 examples of an examination into two respectively and carrying out mirror polishing of the surface, it covered with oily nail polish except for the treatment side (5 mm x 5 mm), and the examination was presented. It was immersed in the lactic acid buffer solution (pH 4.5) thickened in HEC for 37 ** and five days, and bottom deliming of a surface was made to form. A remineralization processing group and another side were distributed for inner one side of the cow tooth section divided into two here as a control group (only deliming treatment), and the following remineralization treatment was performed about the remineralization processing group. Namely, it rinsed after the mouthwash treatment for 5 minutes, and was immersed in 37 ** artificial saliva (solution of 0.9 mM PO_4^{3-} of the 1.5mM $\text{Ca}^{2+} + \text{K}_2\text{HPO}_4$ origin of

pH 7.0 and 20 mM HEPES Buffer+CaCl₂ origin) for about 8 hours. Subsequently, this was rinsed, after the mouthwash treatment for 5 minutes, it rinsed again and remineralization treatment of about 16 more hours was performed. After performing this treatment of a series of 10 times (for ten days), it dried by drying using ethanol and acetone. And after carrying out embedding also to a remineralization processing group and a control group with polyester resin, it cut, the polish section about 100 micrometers thick was produced, and soft-X-ray photography was performed. Subsequently, while comparing and observing the soft-X-ray photograph of the remineralization processing group and the control group, image analysis was conducted and the rate of the remineralization was computed. A result is shown in Table 2. O and the thing which has become muddy were judged for the thing soluble [of a remineralization processing group], and transparent as x. A result is shown in Table 2.

[0021]

[Table

2]

	実施例 1	実施例 2	比較例 1	比較例 2	比較例 3	比較例 4	比較例 5
溶解性	○	○	×	×	○	○	○
再石灰化率 (%)	70	65	22	25	33	18	17

[0022]The result checked that Embodiments 1-2 containing sodium fluoride, calcium lactate, and sugar-alcohol had a high rate of the remineralization compared with the comparative examples 1-5.

[0023]an embodiment -- three - five -- and -- a comparative example -- six -- seven -- a table -- three -- being shown -- combination -- an embodiment -- four -- powder -- dentifrices -- others -- an embodiment -- and -- a comparative example -- tooth paste -- an agent -- preparing -- each -- a maxilla -- an anterior tooth -- deliming -- depending -- thinking -- having -- a facula -- having -- a test subject -- five -- a person -- every -- one -- a month -- between -- using it -- having made . As a result, the shrinking tendency of the facula part was accepted in Embodiments 3-5, and the effect was especially large in Embodiments 3 and 4. On the other hand, as for the comparative examples 6 and 7, change was not accepted at all.

[0024] [Table 3]

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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%)	1/7.8	1/14.6	1/2.6	1/0.26	0
歯の白斑部位の縮小者数	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 fluorine 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 fluorine 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 fluorine 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 fluorine 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.



US 20040047814A1

(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**(76) Inventors: Jin Xu, King of Prussia, PA (US);
Stephen W. Murphy, Rockaway, NJ
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KING OF PRUSSIA, PA 19406-0939 (US)(21) Appl. No.: **10/398,978**(22) PCT Filed: **Oct. 10, 2001**(86) PCT No.: **PCT/US01/31742**

(30) Foreign Application Priority Data

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

Publication Classification(51) Int. Cl.⁷ **A61K 7/16**(52) U.S. Cl. **424/49**(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.

ANHYDROUS DENTRIFICE FORMULATIONS FOR THE DELIVERY OF INCOMPATIBLE INGREDIENTS

FIELD OF THE INVENTION

[0001] The invention relates to compositions for the treatment of dentinal hypersensitivity and methods for the treatment of dentinal hypersensitivity using a precipitate forming in situ as the desensitizing/remineralizing agent.

BACKGROUND OF THE INVENTION

[0002] Dentinal hypersensitivity is a temporary induced pain sensation produced when hypersensitive teeth are subjected to changes in temperature, pressure or chemical action. Hypersensitivity may occur whenever the dentin or cementum of a tooth is exposed by attrition or abrasion, or when the tooth's finer root surface is exposed by periodontal disease. Dentin generally contains channels, called tubules, that allow material and energy transport between the exterior of the dentin and the interior of the tooth where the nerve is located.

[0003] One approach to control dentinal hypersensitivity involves the use of "nerve agents" or "nerve desensitizing agents" in commercial dentifrices comprising strontium ions, fluoride ions, or potassium salts such as potassium bicarbonate, potassium nitrate, potassium chloride, and the like.

[0004] Another approach to control dentinal hypersensitivity is to use "tubule blocking agents" to fully or partially occlude tubules. Examples of tubule blocking agents include polystyrene beads, apatite, synthetic or mineral hectorite clay to seal dentinal tubules, polyacrylic acid and water-soluble or water-swellaible polyelectrolytes or the salts thereof.

[0005] Yet a third approach to control dentinal hypersensitivity is through the mineralization of tubules in dentin thereby counteracting the hypersensitivity problem. U.S. Pat. No. 4,183,915 discloses a one-part stable aqueous solution comprising calcium ions and phosphate ions for the remineralization of dental enamel. The solution also employs an antinucleating agent to maintain the solubility of the calcium phosphate in the presence of fluoride sources. U.S. Pat. No. 4,083,955 discloses a process of remineralizing by consecutive treatment of the tooth surface with separate solutions containing calcium ions and phosphate ions. The fluoride ions may be present in the phosphate solutions. By sequentially and separately applying calcium and phosphate ions, high concentrations of the ions penetrate into the tubules whereby they precipitate as calcium phosphate salts.

[0006] U.S. Pat. No. 5,833,957 discloses an improvement with a two-part system in which calcium and phosphate are kept separate, wherein the two compounds when dispensed are mixed and immediately applied to the teeth being treated without the requirement of successive treatments. The two-part system is necessary to prevent the reaction of the calcium, phosphate and/or fluoride salts whereby an insoluble calcium phosphate or hydroxyapatite is formed during storage, leading to the unavailability of calcium ions when the dentifrice is in use. U.S. Pat. No. 5,866,102 offers yet an improved formulation with a water soluble calcium salt, a phosphate salt, and optionally a fluoride-releasing

agent. To prevent the reaction of the calcium, phosphate and/or fluoride salts, it is necessary for this system to: a) employ a stabilizing desiccating agent; or b) encapsulate or coat the salts with an oleophilic or polymeric material which prevents a reaction among the active materials.

[0007] The inventors have surprisingly formulated dentifrice compositions which control dentinal hypersensitivity through the mineralization of tubules in dentin without the need for stabilizing desiccating agents or coating/encapsulating materials.

SUMMARY OF THE INVENTION

[0008] The invention provides a dentifrice composition comprising a desensitizing amount of a desensitizing/remineralizing agent in a non-aqueous carrier, wherein the desensitizing/remineralizing agent consists essentially of a water soluble calcium salt and an incompatible ingredient which would otherwise react with the calcium salt in an aqueous carrier.

[0009] The invention further provides a method for desensitizing hypersensitive teeth by applying thereto an oral composition comprising a desensitizing amount of a desensitizing/remineralizing agent in a non-aqueous carrier, wherein the desensitizing/remineralizing agent consists essentially of a water soluble calcium salt and an incompatible ingredient which would otherwise react with the calcium salt in an aqueous carrier.

[0010] In one embodiment of the invention, the incompatible ingredient is selected from the group consisting of water-soluble silicates, water-soluble phosphate salts, and water-soluble fluoride salts, or mixtures thereof. In another embodiment, the incompatible ingredient is a water-soluble silicate.

DETAILED DESCRIPTION OF THE INVENTION

[0011] By "dentifrice composition," as used herein, means a toothpaste, tooth powder, prophylaxis paste, lozenge, gum, or oral gel.

[0012] By the term "desensitizing amount" as used herein, means considering the method of delivery and the formulation, an amount that is sufficient to aid in desensitizing.

[0013] By the term "water-soluble," as used herein, means a compound having a property that at least 0.25 gram thereof dissolves in 100 ml of water at 20° C.

[0014] The inventors have found that the anhydrous desensitizing composition of the present invention employing a calcium compound and an incompatible ingredient thereof, upon application to the oral cavity with saliva and depending on the incompatible material used, simultaneously forms "desensitizing/remineralizing" agents in situ in the mouth. The resulting "desensitizing/remineralizing" agents include calcium silicate, hydroxyapatite $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$, 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-based compounds that are beneficial for the treatment of hypersensitive teeth and remineralization of tubules. The dentifrice composition of the present invention, without the need for any stabilizing/desiccating/encapsulating/coating materials, surprisingly keeps one or more of the calcium,

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 $\text{Ca}_{10}(\text{PO}_4)_2$ 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

fluoride, sodium monofluorophosphate, zinc ammonium fluoride, tin ammonium fluoride, calcium fluoride and cobalt ammonium fluoride may be included for delivering anti-carries benefit. Fluoride ions are typically provided at a level of from 0 to 1500 ppm, preferably 50 to 1500 ppm, although higher levels up to about 3000 ppm may be used.

[0030] Surfactants, such as a soap, anionic, nonionic, cationic, amphoteric and/or zwitterionic, may be present within the range of 0 to 15%, preferably 0.1 to 15%, more preferably 0.25 to 10% by weight. Anionic and/or nonionic surfactants are most preferred, and include for example, sodium lauryl sulfate, sodium lauroyl sarcosinate and sodium dodecylbenzene sulfonate. Flavors are usually included in low amounts, such as from 0.01 to about 5% by weight, especially from 0.1% to 5%.

[0031] Antibacterial agents include for example phenolics and salicylamides, and sources of certain metal ions such as zinc, copper, silver and stannous (e.g., zinc, copper and stannous chloride, and silver nitrate) may also be, and preferably are, included.

[0032] Dyes/colorants suitable for oral health care compositions, i.e. FD & C Blue #1, FD & C Yellow #10, FD & C Red #40, etc., may be employed. Various other optional ingredients may be included in the compositions of the invention such as preservatives, vitamins such as vitamin C and E, other anti-plaque agents such as stannous salts, copper salts, strontium salts and magnesium salts. Also included may be pH adjusting agents; anti-carries agents such as calcium glycerophosphate, sodium trimetaphosphate; anti-staining compounds such as silicone polymers, plant extracts and mixtures thereof. Additionally, polymers, particularly anionic polymers, such as polycarboxylates or polysulfonates, or polymers containing both a carboxylate and a sulfonate moiety, phosphonate polymers or polyphosphates may be included.

[0033] The dentifrice compositions of the present invention are typically in the form of toothpastes or dentifrices to be brushed on the teeth. However, other delivery systems may also be used including tooth powder, mouthwash, lozenge, buccal adhesive patch, oral spray, coatings or chewing gum, and the like.

[0034] The composition of this invention are prepared by conventional methods of making oral health care formulations by mixing the ingredients in an order that is convenient to achieve the desired effects. For instance, forming a gel with gelling agents and then adding other ingredients in toothpaste and gel dentifrice embodiments.

[0035] In dentifrice form, the composition may be packaged in a conventional plastic laminate or metal tube or a dispenser. It may be applied to dental surfaces by any physical means, such as a toothbrush, fingertip or by an applicator directly to the sensitive area. Solid dosage forms examples include pastilles, lozenges, chewing gums, tablets, mouthstrips, balms, and the like.

EXAMPLES

[0036] The instant invention will be exemplified by the following non-limiting examples. In all examples, all temperatures are in degrees centigrade and all parts and percentages are by weight, unless otherwise indicated.

[0037] In Examples 1-3, all ingredients except for the flavor and synthetic amorphous silica are mixed together under mechanical agitation until well-mixed. The amorphous silica is then added and the mixing continues under vacuum for 5 minutes. Lastly, flavor is added and the mixing continues for another 10 minutes under vacuum.

TABLE 1

Ingredients in wt. %	Example 1	Example 2	Example 3
Flavor	1.000	1.000	1.000
Glycerin	48.000	48.000	42.000
PEG 600	13.366	13.366	13.366
Precipitated silica	9.000	—	—
PEG 3350	2.500	2.500	2.500
Potassium Nitrate	5.000	5.000	5.000
Sodium monofluorophosphate	0.834	0.834	0.834
Sodium saccharin USP	0.300	0.300	0.300
Titanium dioxide USP	0.500	0.500	0.500
Potassium silicate	—	14.500	14.500
Calcium nitrate tetrahydrate	—	—	9.500
Disodium hydrogen phosphate	5.000	—	—
Calcium chloride	1.500	4.500	—
Sodium Lauryl Sulfate	3.000	1.500	1.500
Citric Acid	5.000	3.000	—
Synthetic Amorphous Precipitated silica	5.000	5.000	9.000

[0038] In vitro tests demonstrating desensitizing effect. The formulations from Examples 1-3 were tested using the method described by Pashley, (J. Periodontology, vol. 55, no. 9, p. 522, September 1994), which is also described in U.S. Pat. No. 5,270,031. In this method, intact human molars free from caries and restorations are sectioned perpendicularly to the long axis of the tooth with a metallurgical saw into thin sections of about 0.4 to about 0.6 mm thick. Sections containing dentin and free of enamel are obtained for testing and are then etched with an ethylenediamine tetraacetic acid solution to remove the smear layer. The disc is mounted into the split-chambered device described by Pashley which is a special leak-proof chamber connected to a pressurized fluid reservoir containing a tissue culture fluid. By using a mixture of pressurized nitrogen and carbon dioxide gas, the fluid can be made at physiological pH. To further ensure accuracy, the discs are wetted with human saliva to approximate the intra-oral condition. The apparatus includes a gas capillary tube mounted on a ruler or other measuring instrument and an air bubble as a function of time, with which fluid flow through the dentin disc can be measured.

[0039] Following measurement of the baseline fluid flow in the dentin disc, an experimental dentifrice is applied to the external surface with a nylon brush. After a defined period of brushing, the experimental material is rinsed off, and the post-application hydraulic conductance is measured. In addition, measurements on the same disc are taken after an excessive back pressure (in terms of physiological conditions) is applied. This is used as a measure of the tenacity of the plug. In this fashion, the ability of various experimental materials both alone and as components of dentifrice systems can be tested for their ability to obstruct fluid flow in the dentinal tubules. In tests comparing the percent flow reduction induced by brushing the dentifrice formulations of Examples 1-3 with placebo dentifrices (without the desensitizing/remineralizing agent formed in situ of the present invention), it was found that the percent flow reduction of

the compositions of the present invention range between 80-100%, and the percent flow reduction for the placebo dentifrices was in the range of 0-30%.

[0040] Test Demonstrating Stability Effect. Analytical tests on Examples 1-3 measuring the amount of sodium monofluorophosphate before and after formulation showed that the sodium monofluorophosphate is stable in the formulations of the present invention, i.e., no measurable reduction in the amount added to the formulation and no measurable reaction with the incompatible calcium compounds, thus leaving the calcium ions and the fluoride ions free for the protection of the teeth against decay and hypersensitivity.

What is claimed is:

1. A composition for reducing dentinal hypersensitivity and remineralizing exposed dentinal surface and open dentinal tubules, comprising a desensitizing amount of a desensitizing/remineralizing agent in a non-aqueous carrier which is formed in situ upon contact with saliva when applied to an oral cavity,

wherein said desensitizing/remineralizing agent consists essentially of a water soluble calcium salt and an incompatible ingredient which would otherwise react with the calcium salt in an aqueous carrier, and

wherein said calcium salt reacts with said incompatible ingredient upon contact with the saliva forming said desensitizing/remineralizing agent in situ for remineralizing exposed dentinal surface and open dentinal tubules.

2. The composition of claim 1, wherein said incompatible agent is selected from the group consisting of, water-soluble silicates, water-soluble phosphate salts, and water-soluble fluoride salts, or mixtures thereof.

3. The composition of claim 2, wherein said incompatible agent is a water-soluble silicate.

4. The composition of claim 1, further comprising a desensitizing agent selected from the group consisting of potassium bicarbonate, potassium citrate, potassium chloride, potassium nitrate, strontium chloride, strontium acetate, strontium nitrate, and potassium or strontium salts of other similar conjugate acids, or mixtures thereof.

5. The composition of claim 1, wherein said water soluble calcium salt is present in an amount of from about 0.05 to 35 wt. %, and said incompatible ingredient for reaction with

said water soluble calcium salt in situ is present in an amount of from about 0.05 to 35 wt. %.

6. The composition of claim 5, wherein said water soluble calcium salt is present in an amount of from about 2 to 15 wt. %, and said incompatible ingredient for reacting with said water soluble calcium salt in situ forming a desensitizing/remineralizing agent is present in an amount of from about 1 to 20 wt. %.

7. A method for reducing dentinal hypersensitivity and remineralizing exposed dentinal surface and open dentinal tubules in a tooth comprising the steps of administering to the tooth a composition comprising a desensitizing amount of a desensitizing/remineralizing agent in a non-aqueous carrier, said desensitizing/remineralizing agent is formed in situ upon contact with saliva and the tooth,

wherein said desensitizing/remineralizing agent consists essentially of a water soluble calcium salt and an incompatible ingredient which would otherwise react with the calcium salt, and

wherein said calcium salt reacts with said incompatible ingredient upon contact with saliva and the tooth forming said desensitizing/remineralizing agent in situ for remineralizing exposed dentinal surface and open dentinal tubules in the tooth.

8. The method of claim 7, wherein said incompatible ingredient is selected from the group consisting of water-soluble silicates, water-soluble phosphate salts, and water-soluble fluoride salts, or mixtures thereof.

9. The method of claim 7, wherein said incompatible ingredient is a water-soluble silicate.

10. The method of claim 7, wherein said water soluble calcium salt is present in an amount of from about 0.05 to 35 wt. %, and said incompatible ingredient for reaction with said water soluble calcium salt in situ is present in an amount of from about 0.05 to 35 wt. %.

11. The method of claim 7, wherein said composition further comprises a desensitizing agent selected from the group consisting of potassium bicarbonate, potassium citrate, potassium chloride, potassium nitrate, strontium chloride, strontium acetate, strontium nitrate, and potassium or strontium salts of other similar conjugate acids, or mixtures thereof.

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

2020
Bogotá, D.C.,

Abogado: **JUAN PABLO CADENA SARMIENTO**

ASUNTO: Radicación No. 07-62937
 Trámite 002
 Evento 001
 Actuación 430
 Oficio
 Folios 16481

Patente de Invención ☒

Vía Nacional ☐

Vía PCT (fase nacional) ☒

Cap. I ☒

Cap. II ☐

No. Solicitud Internacional: PCT/US2005/042047

Fecha de Presentación Internacional: 2005-11-18

Como resultado del Examen de Fondo, realizado con fundamento en el artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se comunica:

Documentos estudiados:

Descripción: Folios 53 a 74 como se radicó inicialmente.

Reivindicaciones: Folios 75 a 77 como se radicó inicialmente.

Prioridad: US 200411020010 (2004-12-21)

Objeto de la Invención

Titulo de la invención: Composición contra las caries para el cuidado oral con xilitol.

Problema Técnico Planteado: necesidad de composiciones que permitan la remineralización de las superficies dentales desmineralizadas y la prevención de la formación de caries.

Solución: Composición que contiene xilitol, una sal soluble de calcio y un agente proveedor de fluoruro que permite la remineralización de las superficies dentales desmineralizadas y la prevención de la formación de caries.

IPC: A61K8/19; A61K8/21; A61K8/34; A61Q11/00

Excepciones a la Patentabilidad (Art 20 D 486 literal (d))

Las reivindicaciones 20 a 25 reivindican un método para prevenir o tratar las caries dentales en un sujeto humano, teniendo en cuenta que dichas reivindicaciones hacen referencia a un método de tratamiento, estas no son patentables.

Análisis de la Solicitud de Patente

Reivindicaciones (Art 30 D 486, Art 22 PCT)

El capítulo reivindicatorio carece de claridad y concisión en cuanto a que:

La reivindicación 15 hace referencia a una composición para el cuidado oral que contiene un agente proveedor de fluoruro en donde dicho agente está presente en una cantidad suficiente para "proveer desde alrededor de 200ppm hasta alrededor de 3000 ppm de iones fluoruro" debido a que la anterior expresión corresponde a un resultado a alcanzar la reivindicación no es válida y se sugiere modificarla o retirarla del capítulo reivindicatorio.

Las reivindicaciones 18 y 19 reivindican una composición que comprende al menos un componente adicional que se selecciona de distintas posibilidades, dado que la forma que se reivindica abarca muchos y variados compuestos de diferente naturaleza se sugiere restringir a una razonable generalización de los agentes descritos en los ejemplos.

Las reivindicaciones 1, 2, 6 a 12 y 16 contienen las expresiones "de por lo menos", "alrededor de", las cuales no definen de manera concisa la invención, son imprecisas y no permiten hacer comparación con el estado de la técnica; por tal razón se deben modificar dichas expresiones para así restringir el objeto de invención de mejor manera.

La reivindicación 17 establece una composición es seleccionada a partir de un grupo de formas farmacéuticas variadas (enjuague bucal, dentífricos, gomas, pastas, etc.), dicha reivindicación es muy amplia por tal razón se sugiere restringir a una razonable generalización de las formas farmacéuticas descritas en los ejemplos

Determinación del Estado de la Técnica

El Estado de la Técnica se determinó con base en la fecha de la solicitud prioritaria 2004-12-21 y se encontraron los siguientes documentos que anticipan el objeto de esta solicitud:

Item	Documento	Título	Fecha de Publicación
D1	JP11106322	<i>Composition for oral cavity</i>	1999-04-20
D2	US20040047814	<i>Anhydrous dentrifice formulations for the delivery of incompatible ingredients</i>	2004-03-11

D1 - Composición para la cavidad bucal que contiene un compuesto que provee ion flúor en una cantidad de 0.002-1 %p/p calculados en términos de flúor, un compuesto que provee ion calcio en una cantidad de 0.001-0.5 %p/p calculados en términos de calcio y un carbohidrato en una cantidad de 55-99 %p/p.

D2- Una composición para reducir hipersensibilidad dentinal y remineralización de la superficie dental expuesta que comprende un portador no acuoso y una cantidad de de un agente de desensibilización/remineralización que consista esencialmente en una sal soluble de calcio y un ingrediente incompatible que reaccionarían de otra manera con la sal del calcio.

Análisis de Patentabilidad (Art 14 D486)

Nivel Inventivo (Art18 D486)

Respecto a la solicitud de estudio:

La **reivindicación 1** dice: "Una composición para el cuidado oral, que comprende **xilitol** y una **sal de calcio soluble en agua**, en la que el mencionado xilitol y la mencionada sal de calcio se encuentran presentes en una proporción por peso de por lo menos alrededor de 10:01".

Estado de la Técnica más cercano es **D1** que reivindica una composición para la cavidad bucal que contiene un compuesto que provee ion calcio (sales solubles dentro de las que se encuentran lactato de calcio, bromuro de calcio, gluconato de calcio, etc.) en una cantidad preferida entre 0.001 y 0.5% con respecto al peso total de la composición (párrafo 0010 reivindicación 1), xilitol en una cantidad de menos de 99% en peso con respecto al peso total de la composición (párrafo 0012, reivindicaciones 1 y 3), un compuesto que provee ion flúor (monofluorofosfato de sodio) (párrafo 0009, reivindicación 1).

La solicitud se diferencia de D1 en que no contiene un compuesto que provee iones fluoruro dentro de la composición.

El Efecto Técnico que logra la diferencia es la remineralización de las superficies dentales desmineralizadas y la prevención de la formación de caries en la cavidad bucal.

El Problema Técnico Objetivo de esta solicitud es obtener una composición que permita la remineralización de las superficies dentales desmineralizadas y la prevención de la formación de caries.

A partir del estado de la técnica que proporciona una solución al problema técnico en donde es utilizada una proporción adecuada de iones calcio (sales solubles) y xilitol para promover la remineralización de las superficies dentales y donde puede o no agregarse otros componentes como los iones fluoruro para generar un efecto de remineralizarían mayor; se dan sugerencias para proporcionar composiciones orales que tuvieran xilitol y sales solubles de calcio que permiten la remineralización de las superficie dental. De aquí se concluye que la materia objeto de la reivindicación 1 es obvia y, por lo tanto **no tiene nivel inventivo**.

Respecto a la solicitud de estudio:

La **reivindicación 4** dice: una composición oral de acuerdo con la reivindicación 2, en la que la mencionada sal de calcio soluble en agua es glicerofosfato de calcio.

Estado de la Técnica más cercano es **D1** que reivindica una composición para la cavidad bucal que contiene un compuesto que provee ion calcio como sales solubles dentro de las que se encuentran lactato de calcio, bromuro de calcio, gluconato de calcio, etc. (párrafo 0010 reivindicación 1).

La solicitud se diferencia de D1 en que la sal soluble en agua es glicerofosfato de calcio.

El Efecto Técnico que logra la diferencia es la remineralización de las superficies dentales desmineralizadas y la prevención de la formación de caries en la cavidad bucal.

Por su parte D2 da a conocer composiciones orales anticaries que contienen como primer componente que proporciona remineralización una sal soluble de calcio en

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donde dicha sal puede ser el glicerofosfato de calcio (párrafo 0016).

Por lo tanto, para un experto medio en la materia, que pretenda obtener una composición para el cuidado oral que tenga un efecto de remineralización de la superficie dental, así mismo que conozca el estado de la técnica, sería obvio combinar composición propuesta en D1, con la sal insoluble glicerofosfato de calcio de D2, llegando de esta manera al contenido de las reivindicación 4 por lo cual el objeto reivindicado **no tiene nivel inventivo**.

De igual manera las reivindicaciones dependientes 2 a 19 no proporcionan componentes que generen un efecto inesperado en la composición por lo cual también carecen de nivel inventivo.

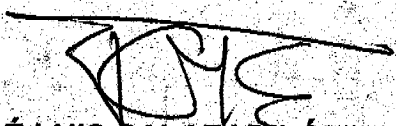
Conclusión

Los requisitos de Patentabilidad de la presente Solicitud se encuentran afectados así:

N°	Documento	Reivindicaciones afectadas	Requisito que afecta
D1	JP11106322	1-19	Nivel Inventivo
D2	US20040047814	1, 4	Nivel Inventivo

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de 60 días contados a partir de la fecha de notificación de la presente comunicación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única N° 10 de 2001.


JOSÉ LUIS SALAZAR LÓPEZ
Director de Nuevas Creaciones (E)

El anterior requerimiento fue notificado por fijación en lista, de fecha

23 DIC. 2010

CONCEPTO TECNICO NUMERO: 3859	EXAMINADOR TÉCNICO Código:202093
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