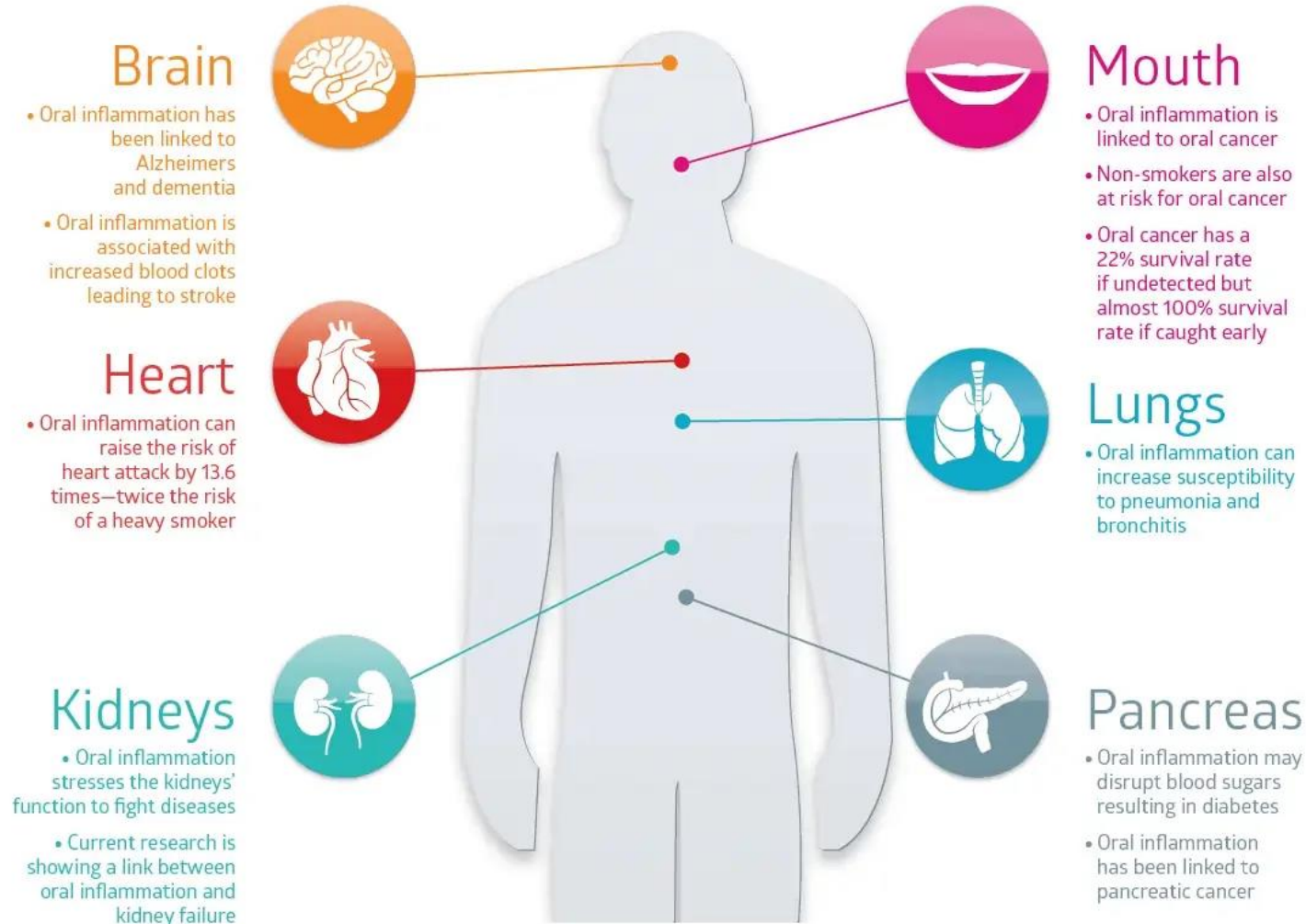


Innovative Ingredients for Oral Care Products

Dennis Abbeduto, Personal Care Business Manager



Risks Associated with Poor Oral Hygiene



<https://dentistsatpymble.com.au/the-link-between-oral-health-and-general-health/>

Oral Care as Cosmetics

- Oral care products are regulated as cosmetics unless specific claims are made
 - Antimicrobial
 - Antigingivitis/Antiplaque
 - Oral Antiseptic
 - Toothache Relief, Tooth Desensitizer
- Limited number of detergents used in the past
 - SLS
 - Betaine
- These ingredients typically are sourced as special grades
 - Lower impurities
 - Better flavor profile



Change is Happening in Oral Care

- The long-stagnant field of oral care is rapidly changing
 - Oral care now an extension of wellness

- New brands
 - Huppy
 - Spotlight Oral Care
 - Twice

- New product forms
 - Tablets (paste and mouthwash)

- New ingredient approaches
 - “Clean” ingredients (sulfate-free)
 - High natural ingredients



Suga[®] and Poly Suga[®]

- 100% or close to 100% naturally-derived
- Very mild to eyes and skin contact, over harsh sulfates, alkoxyates, coco DEA
- No GHS warning labels for some products
- Stable in wide range of pH
- Stable in hard water and electrolyte solution without hydrotropes
- Great environmental profiles (readily biodegradable, low aqua toxicity, direct release)
- Broad regulation approval (EPA Safer Choice, USDA Biobased, EU Detergent Directive)
- Compatible with majority of surfactants
- Variety of chemistries that meet different formulation and performance demands
- ***Superior Performance Over Traditional Surfactants***



Suga[®]Nate 160NC

100% Biobased Anionic APG Sulfonate

INCI Name	Sodium Laurylglucosides Hydroxypropylsulfonate
Global Clearances	Global (except China)
Physical Form	Clear Liquid
Key Features	<p>Zero Irritation surfactant for a wide variety of applications</p> <p>Biodegradable</p> <p>Reduces irritation of other primary surfactants</p> <p>Improves viscosity response of other primary surfactants</p> <p>Peroxide stable</p> <p>No added preservatives</p>
Suggested Applications	<p>Gentle cleansing for face, babies, sensitive skin</p> <p>Oral care</p> <p>Improved aesthetics in sulfate-free formulations</p>
Certifications	ISO 16128 (1.0); USDA Certified 100% Biobased; EPA Cleangredients: Safe for Direct Release; NSF ANSI 305:2012; 2008 P2 (Pollution Prevention) Recognition Project Awardee

Suga[®]Nate 160NC Human Safety

Oral Irritation

- MatTek EpiGingival
 - 4% as supplied (1.6% solids):
 - ET50 could not be determined (>18 hours/1080 min)
 - 100% as supplied (40% solids)
 - ET50 could not be determined (>18 hours/1080 min)
 - Benchmark SLS (0.6% solids)
 - ET50 418.2min

- MatTek EpiOral
 - 4% as supplied (1.6% solids)
 - ET50 could not be determined (>120 min)
 - 100% as supplied (40% solids)
 - ET50 could not be determined (>120 min)



Poly Suga[®]Nate 160P NC

100% Biobased Anionic Poly-APG Sulfonate

INCI Name	Sodium Hydroxypropylsulfonate Laurylglucoside Crosspolymer
Global Clearances	Global (including China)
Physical Form	Clear Liquid
Key Features	<p>Low Irritation surfactant for a wide variety of applications</p> <p>Biodegradable</p> <p>Reduces irritation of other primary surfactants</p> <p>Improves viscosity response of other primary surfactants</p> <p>No added preservatives</p>
Suggested Applications	<p>Facial cleansers</p> <p>Hand and body washes</p> <p>Oral Care (toothpaste, mouthwash, tablets)</p> <p>Bar products</p> <p>Library of “SugaNate equivalent” formulation</p>
Certifications	ISO 16128 (1.0)

Suga[®]Nate 160 Dry

100% Biobased Dry Powder Surfactant

INCI Name	Sodium Laurylglucosides Hydroxypropyl Sulfonate (and) Silica
Global Clearances	Global (Except China)
Physical Form	White powder
Key Features	<p>Dry powder surfactant for waterless cleansers</p> <p>RSPO natural palm feedstock</p> <p>Low irritation potential in formulation</p> <p>Good foam performance when appropriately used</p> <p>Disperses easily in water for optimal performance</p>
Suggested Applications	<p>Syndet bars</p> <p>Powder to foam cleansers</p> <p>Pressed solid cleansers</p> <p>Anhydrous “pod” cleansers</p>
Certifications	ISO 16128 (1.0)

Suga[®]Citrate L1C

100% Biobased Anionic Surfactant for “Clean Beauty”

INCI Name	Disodium Laurylglucosides Hydroxypropyl Citrate
Global Clearances	US TSCA Exempt, similar global exemptions
Physical Form	Clear Liquid, 40% solid matter
Key Features	<p>Completely bio-renewable</p> <p>Biodegradable</p> <p>Reduces irritation of other primary surfactants</p> <p>Improves viscosity response of other primary surfactants</p> <p>No added preservatives</p> <p>Acceptable for all “clean beauty” guidelines</p>
Suggested Applications	<p>Facial cleansers</p> <p>Hand and body washes</p> <p>Shampoos</p> <p>Bar products</p>
Certifications	ISO 16128 (1.0), USDA Biopreferred Certified 100% Biobased

Natural Betaine (Trimethylglycine)

- Not to be confused with surfactant betaine
 - Not a surfactant
 - Completely natural in origin – byproduct of sugar beet processing
 - Functionally unique

- Known benefits
 - L Rigano, G Dell'Acqua and R Leporatti, “Benefits of Trimethylglycine (Betaine) in Personal-Care Formulations,” *Cosmetics and Toiletries*, December 2000.
 - Humectant
 - Skin plumping
 - Mitigates irritation of anionic surfactants
 - Improves efficacy of AHA/BHAs
 - Increases swell rate for hydrophilic polymers
 - **Reduces dry mouth in oral care**



Colonial BetaNat

Natural Betaine Humectant

INCI Name	Betaine
Global Clearances	Globally approved, REACH registered
Physical Form	Crystalline solid, high purity
Key Features	<p>Natural multifunctional with many benefits</p> <ul style="list-style-type: none"> • Humectant • Irritation reduction • Formulation aid <p>Purified byproduct of sugar beet processing</p> <p>Non-GMO origin</p>
Suggested Applications	<p>Skin care – lotions, tonics, toners, cleansers, micellar waters</p> <p>Oral care - Mouthwash</p> <p>Hair care – Conditioners, scalp care</p> <p>Typical use: 0.5 – 2.0%</p>
Certifications	ISO 16128 1.0, USDA Certified 100% Biobased, COSMOS pending

Oral Care Prototype Kit



Prototype Kit – Oral Care

Natural Gentle Toothpaste

#4051

INCI Name	Trade Name	%	Function
Calcium Carbonate	Omyacare® S95-OG ²	35.00	Abrasive
Sorbitol	Sorbitol 70%	25.00	Humectant
Water	Water	17.25	Diluent
Glycerin	Glycerin	10.00	Humectant
Calcium Carbonate	Omyadent® 100-OG ²	5.00	Remineralization
Sodium Laurylglucosides Hydroxypropylsulfonate	Suga®Nate 160NC	4.00	Surfactant
Cellulose Gum	Aqualon™ CMC-7MF ¹	1.25	Thickener
Betaine	Colonial BetaNat	1.00	Dry mouth relief
Flavor	Nat. Mint Extract ³	1.00	Flavor
Stevia Rebaudiana Extract	Stevia Extract	0.50	Sweetener

¹Ashland, ²Omya, ³Flavorchem

TYPICAL PROPERTIES

Appearance:
pH (10%):

Opaque, White Paste
7.0 – 9.0

Prototype Kit – Oral Care

Refresh Gel Toothpaste

#4052

INCI Name	Trade Name	%	Function
Sorbitol	Sorbitol 70%	52.00	Humectant
Water	Water	14.30	Diluent
Hydrated Silica	Zeodent® 113 ²	10.00	Abrasive
Hydrated Silica	Zeodent® 165 ²	8.00	Thickener
Sodium Laurylglucosides Hydroxypropylsulfonate	Suga®Nate 160NC	6.00	Surfactant
Glycerin	Glycerin	5.00	Humectant
Betaine	Colonial BetaNat	2.00	Dry mouth relief
Cellulose Gum	Aqualon™ CMC-7MF ³	1.00	Thickener
Flavor	Nat. Mint Extract ¹	1.00	Flavor
Stevia	Stevia	0.50	Sweetener
FD&C Blue #1	FD&C Blue #1 (2.0% solution)	0.20	Dye

³Flavorchem, ²Glenn, ³Ashland

TYPICAL PROPERTIES

Appearance: **Translucent, Blue Gel**
 pH (10%): **8.0 – 9.0**

Prototype Kit – Oral Care

Gentle Mint Mouthwash

#4050

INCI Name	Trade Name	%	Function
Water	Water	77.80	Diluent
Ethanol	Ethanol	10.00	Alcohol
Sorbitol	Sorbitol 70%	10.00	Sweetener
Betaine	Colonial BetaNat	1.00	Dry mouth relief
Sodium Laurylglucosides Hydroxypropylsulfonate	Suga[®]Nate 160NC	0.50	Surfactant, solubilizer
Peppermint Oil	Nat. Mint Extract ¹	0.20	Flavor
Sodium Benzoate	Sodium Benzoate	0.20	Preservative
Stevia	Stevia	0.15	Sweetener
FD&C Blue #1	FD&C Blue #1 (2.0% solution)	0.15	Dye

¹Flavorchem

TYPICAL PROPERTIES

Appearance: **Clear Liquid**
 pH: **6.5 – 7.5**
 Viscosity: **< 100 cP**

Prototype Kit – Oral Care

Brightening Tooth Powder

#4054

<i>INCI Name</i>	<i>Trade Name</i>	<i>%</i>	<i>Function</i>
Calcium Carbonate	Omyacare® S95-OG ¹	56.00	Abrasive
Mannitol	Mannitol	25.00	Sweetener, anti-caking
Hydroxyapatite, Calcium Carbonate	Omyadent® 100-OG ¹	7.00	Remineralization
Sodium Laurylglucosides Hydroxypropylsulfonate	Suga®Nate 160 Dry	5.00	Surfactant
Peppermint Oil	Nat. Mint Extract ²	3.00	Flavor
Betaine	Colonial BetaNat	1.50	Dry mouth relief
Charcoal Powder	Charcoal Powder	1.50	Detoxifying
Stevia	Stevia	1.00	Sweetener

¹Omya, ²Flavorchem

TYPICAL PROPERTIES

Appearance: **Gray, Loose Powder**
 pH (10%): **8.0 – 9.0**

Thank you!

Dennis Abbeduto: dennis@colonialchem.com

Product TDS/SDS/Formulations: <https://www.colonialchem.com>

Formula Girls Podcast: <https://apple.co/3dUq5fh>

