Colonial Chemical

A New Deodorizing Active for Personal Care

Dennis Abbeduto, Care Chemicals Business Manager


HAND HYGIENE!
IMPORTANT AREAS TO MAKE SURE ARE WASHED PROPERLY
Areas often missed during hand washing
Very tops of fingers
Nail beds
Thumb
In-between fingers
Creases on palm
Most often missed
Often missed
Less often missed
Wash your hands properly for at least 20 seconds with soap and warm water. Scrub the backs of hands, palms, between your fingers, and under your nails with care.

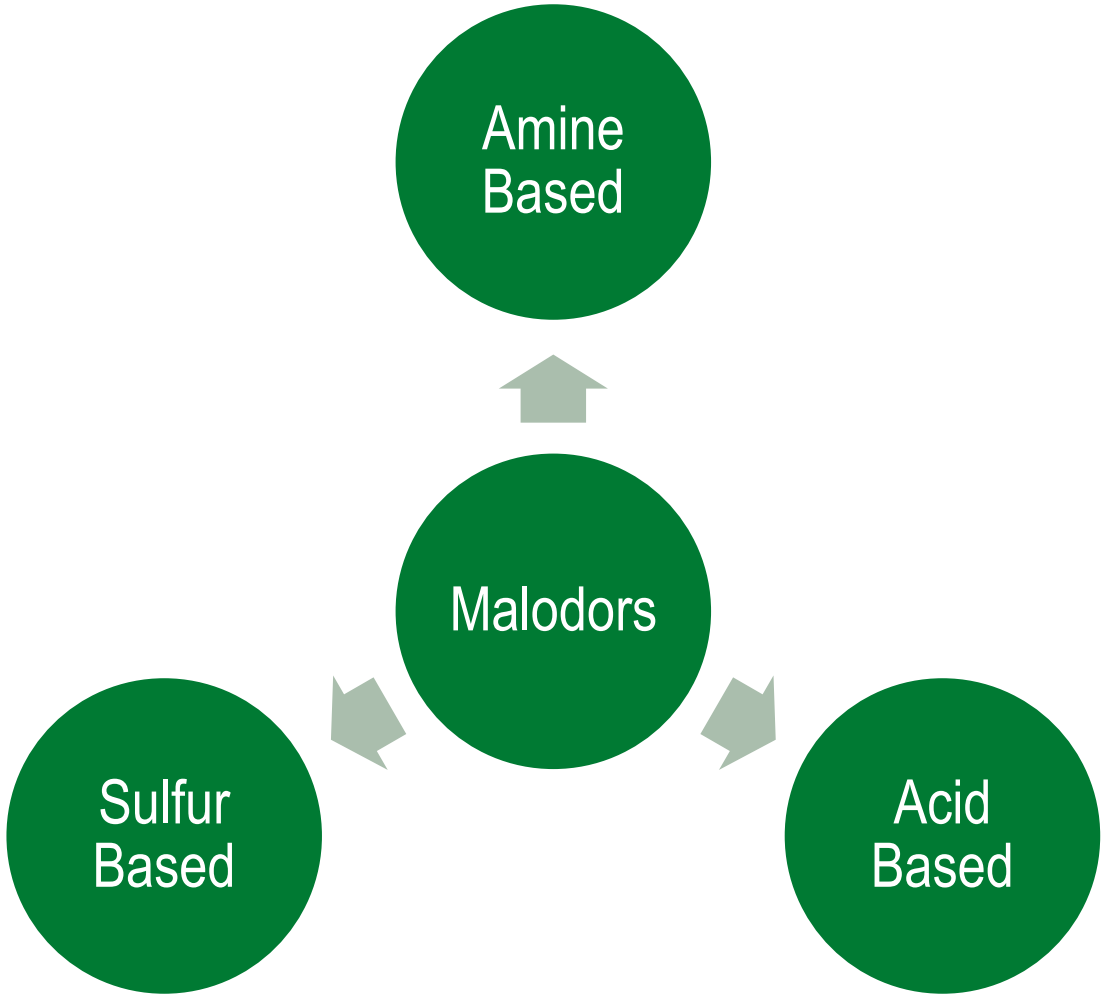
ColaQuat SME DG

Proven Efficacy, Broader Compatibility

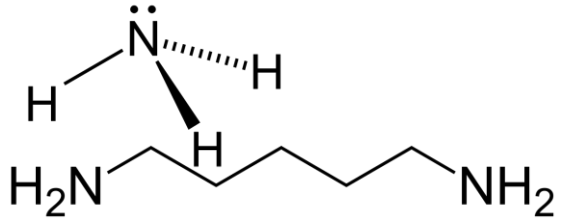




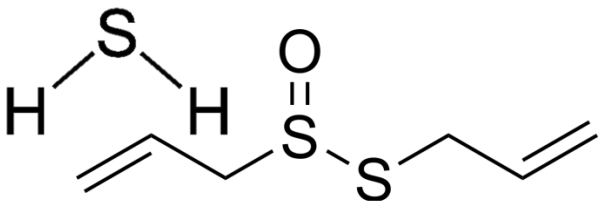

Deodorization



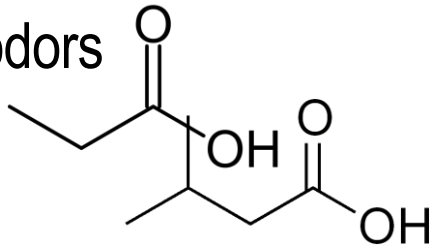
- Amine Based Malodors
  - Ammonia
  - Cadaverine



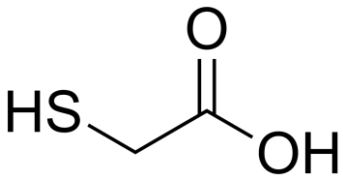
- Sulfur Based Malodors
  - Hydrogen Sulfide
  - Allicin



- Organic Acid Based Malodors
  - Propionic Acid
  - Isovaleric Acid



- Combination
  - Thioglycolic Acid

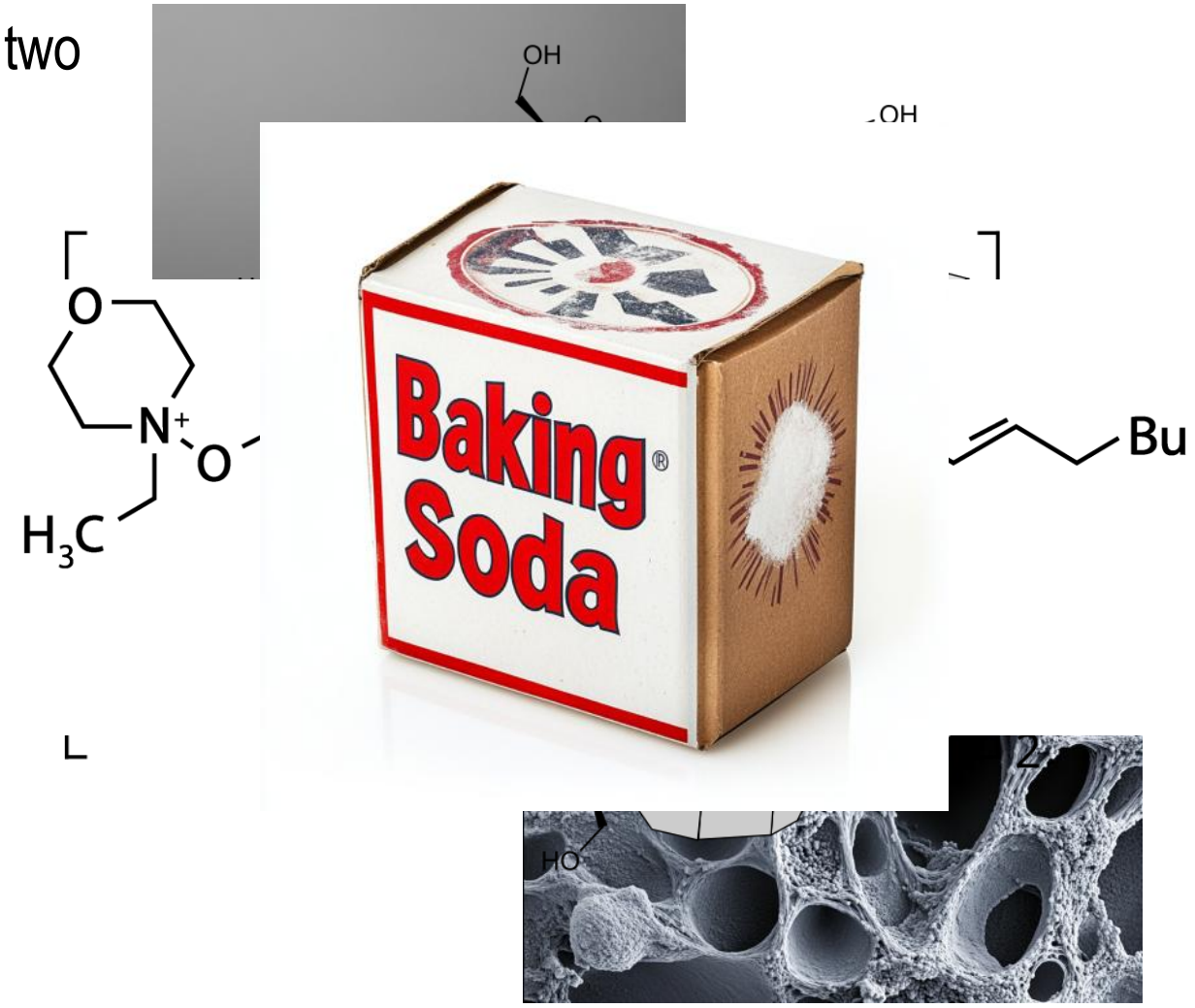


Deodorization

- Most deodorizing ingredients function by one of two mechanisms:

- Physically trap odors
  - Activated carbon
  - Cyclodextrin
  - Zeolite

- Chemically interact with odors
  - Sodium Bicarbonate (baking soda)
  - Zinc Ricinoleate
  - Soyethyl Morpholinium Ethosulfate



How Does Cola®Quat SME DG Work?

- There appear to be multiple modes of action

  - Charge neutralization

  - Morpholine interaction

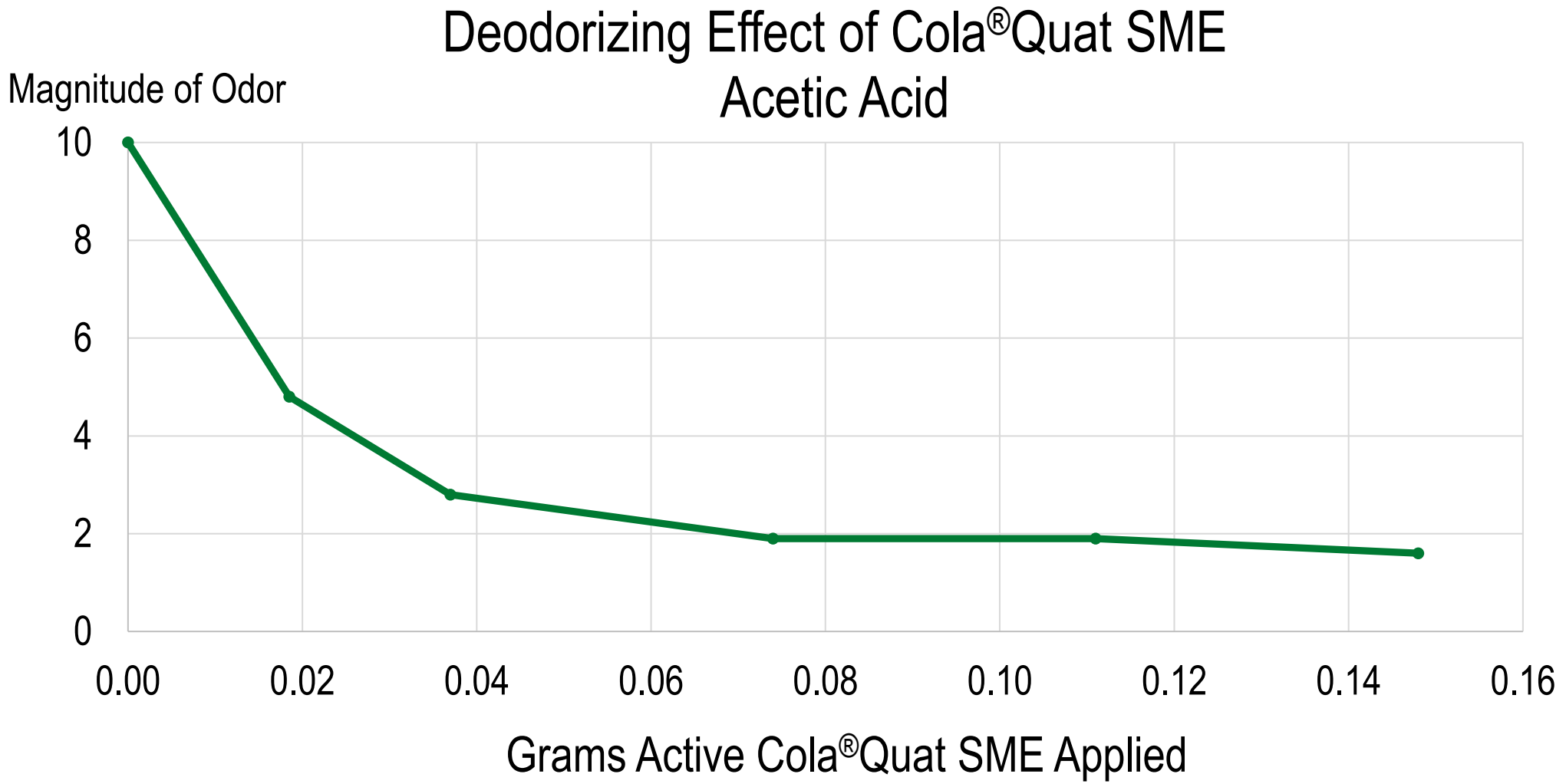
  - Pi orbital sharing from double bond

- Structures common to malodors are not present in most fragrance components (EO or synthetic)

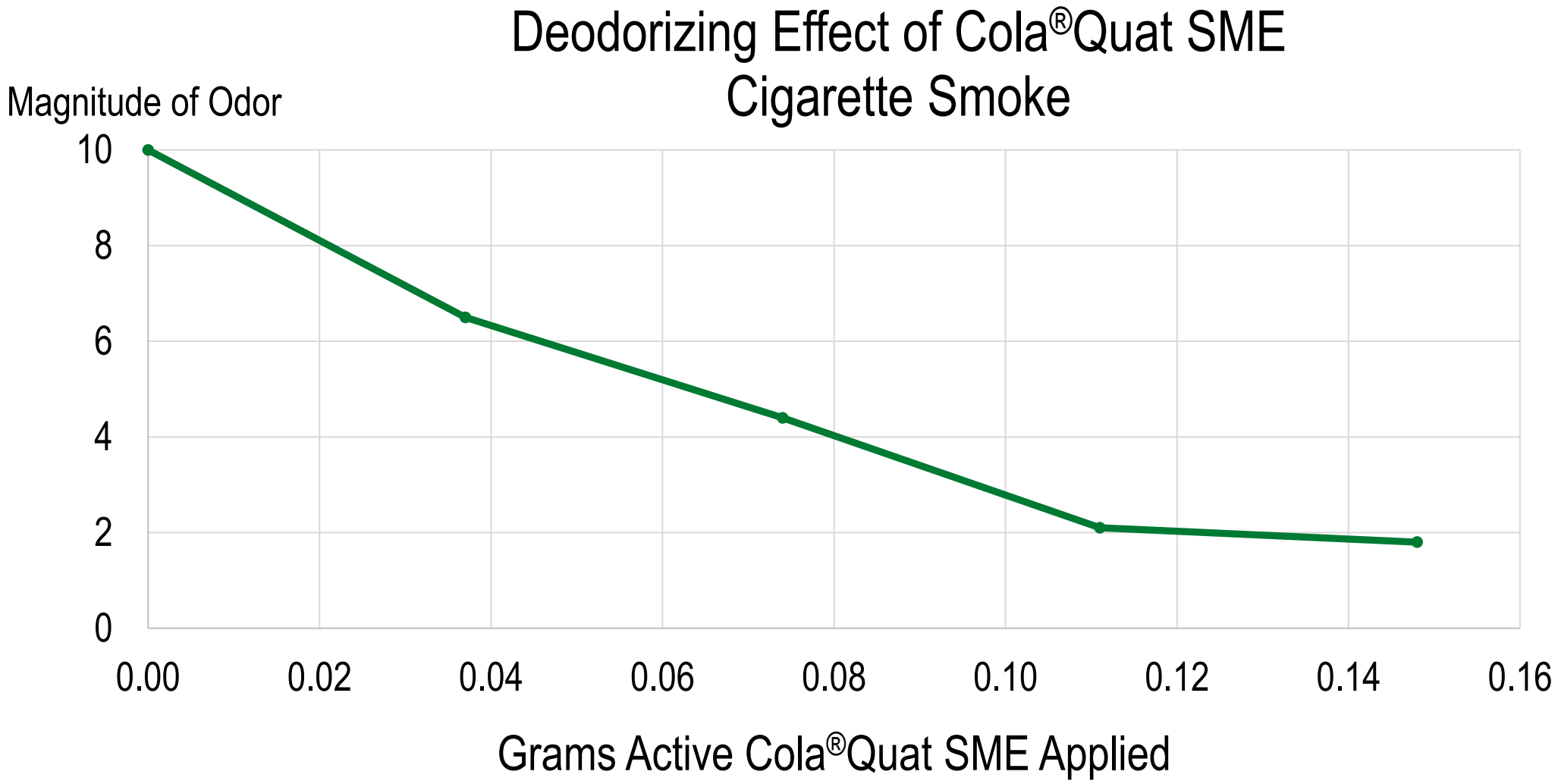
Sensory testing

- Fixed amounts of odorants were applied to cotton cloths and the cloths were sealed in Ziploc® bags to absorb odors:
  - 30mL cigarette smoke
  - 0.06 g acetic acid
- After 24 hours, cloths were treated with varying amounts of Cola®Quat SME by evenly spraying the cloths with the appropriate amount of a deodorizing spray formulation.
  - One cloth from each source of odor was left untreated.
- 10 panelists were asked to smell the cloths and rate the degree of odor on a scale of 0 to 10.
- In each case, the panelists were first asked to smell the cloth that had not been treated with Cola®Quat SME and consider it to represent a 10 on the odor scale for strong odor.
- They were then asked to smell the cloths treated with Cola®Quat SME and rate them using the odor scale

Cola®Quat SME Performance



Cola®Quat SME Performance



Deodorizing Hair Oil

Formulation No. 1077

DESCRIPTION: This deodorizing hair oil is a lightweight, multifunctional treatment that nourishes and smooths to tame frizz and enhance shine while also neutralizing unwanted odors from smoke, sweat, and environmental pollutants. Hair is left feeling fresh and polished.

FORMULATION

INCI NAME	TRADE NAME	WT. %	FUNCTION
Undecane (and) Tridecane	Cetiol® Ultimate [1]	60.00	Ultra-Fast Spreading Emollient
Coco-Caprylate	Cetiol® C 5 [1]	22.30	Fast Spreading Emollient
Coco-Glycerides	Myritol® 331N [1]	15.00	Medium Spreading Emollient
Soyethyl Morpholinium Ethosulfate (and) Dipropylene Glycol	**Cola®Quat SME DG**	1.50	Deodorizer
Argania Spinosa Kernel Oil	Argan Oil [2]	1.00	Nourishing Oil
Rosmarinus Officinalis Leaf Oil	Rosemary Oil [3]	0.20	Fragrance

[1]BASF, [2]Jan Dekker, [3]Orchidia Fragrances

TYPICAL PROPERTIES	SPECIFICATION
Appearance	Clear Liquid
pH (1%)	3.5 – 4.5
Viscosity (LV1, 50 rpm)	< 50 cP

Cola®Quat SME DG

Soy-Derived Deodorizing Active	
INCI Name	Soyethyl Morpholinium Ethosulfate, Dipropylene Glycol
Global Clearances	Globally approved
Physical Form	Amber Liquid
Key Features	**Effective deodorizer** for a wide variety of applications **Complexes odors**, lowering their vapor pressure **Easy to use anhydrous** liquid form **Freely soluble** in both polar and nonpolar solvents (water, oil) **Low irritation** (slight irritation potential at typical use level)
Suggested Applications	Household: • Deodorizing hard surface sprays, mists • Odor capture gel • Fragrance additive Personal Care: • Deodorants • Hair Oils Typical use level: 0.5-2%

New Efficacy Data






Colonial BetaNat

Natural Betaine Humectant	
INCI Name	Betaine
Global Clearances	Globally approved, REACH registered
Physical Form	Crystalline solid, high purity
Key Features	**Natural multifunctional** with many benefits • Humectant • Irritation reduction • Formulation aid **Purified byproduct** of sugar beet processing **Non-GMO** origin
Suggested Applications	Skin care – lotions, tonics, toners, cleansers, micellar waters Oral care - Mouthwash Hair care – Conditioners, scalp care Typical use: 0.5 – 2.0%
Certifications	ISO 16128 1.0, USDA Biopreferred 100%, COSMOS Approved

Previous Publications

- L Rigano, G Dell'Acqua and R Leporatti, “Benefits of Trimethylglycine (Betaine) in Personal-Care Formulations,” Cosmetics and Toiletries, December 2000.
- I. Nicander, I. Rantanen, B.L. Rozell, et al. “The ability of betaine to reduce the irritating effects of detergents assessed visually, histologically and by bioengineering methods” Ski Res Technol, 9 (1) (2003), pp. 50-58
- Rantanen I, Tenovuo J, Pienihäkkinen K, Söderling E. “Effects of a betaine-containing toothpaste on subjective symptoms of dry mouth: a randomized clinical trial.” J Contemp Dent Pract. 2003 May 15;4(2):11-23.
- El-Chami, C., Haslam, I.S., Steward, M.C. et al. “Organic osmolytes preserve the function of the developing tight junction in ultraviolet B-irradiated rat epidermal keratinocytes.” Sci Rep 8, 5167 (2018).
- Zhao G, He F, Wu C, et al. “Betaine in Inflammation: Mechanistic Aspects and Applications. Frontiers in Immunology.” 2018 ;9:1070.
- Warskulat U, Reinen A, Grether-Beck S, Krutmann J, Häussinger D. (2004): “The osmolyte strategy of normal human keratinocytes in maintaining cell homeostasis.” Invest Dermatol.;123(3):516-21.

New Data – Clinical Study

- **Purpose and Method**
  - Determination of skin hydration after a single application of 2% and 4% PuraBeet.
  - Measured with Corneometer MPA 5 CPU (Courage & Khazaka GmbH, Cologne).
  - 30 females between 18 and 62 years of age
  - Single application to volar forearm with:
    - Lotion vehicle
    - Vehicle + 2% Betaine
    - Vehicle + 4% Betaine
    - Untreated
  - Skin measured at 4, 8, 24h after application
- **Results**
  - All treatment sites significantly increased skin hydration
  - Vehicle +4% Betaine produced a statistically significant increase compared to vehicle alone at 4, 8, 24h.

New Data – Consumer Study

- **Purpose and Method**
  - Comparative subjective evaluation of sensory properties of a test product
  - 50 females between 36 and 64 years of age
  - Test articles:
    - Lotion vehicle
    - Vehicle + 2% Betaine
  - Half-face application of each treatment for 7 days, twice daily
  - Questionnaire at day 7
- **Results**
  - Subjects much preferred the lotion with active
  - “Skin feels softer immediately after application” – 3x chose lotion with Betaine
  - “Lotion leaves skin feeling soft” – 6.5x chose lotion with Betaine
  - “Lotion leaves skin feeling supple” – 7x chose lotion with Betaine

New Data – Hair Study

- **Purpose and Method**
  - Compare impact of shampoo with and without Betaine on dyed hair
  - Virgin European natural human hair, medium blonde, 2 g of free hair, 21 cm length.
  - Per treatment code, 10 tresses were used.
  - Dyed per box instructions using Wella Koleston Perfect 06/34 (red)
  - The shampoo treatments with the test products were performed as follows:
    - Application of 0.2 ml shampoo product per gram hair
    - Massaging into the hair for 1 minute, wait 30 seconds, rinse for 90 seconds then air dry
  - Color measured using Chromameter CR 400, Minolta, Langenhagen, Germany at 0, 1, 5, 10 washes
- **Results**
  - After 10 washes the shampoo with Betaine demonstrated 20% less color change (ΔE*) than the vehicle control (statistically significant - 99.6% confidence)

Thank you!

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