

Non-adherence to Labeling Standards Can Misrepresent Safety of Ingredients in Cosmetic Cleansers

David A. Mays PharmD MBA,^a Adam J. Friedman MD FAAD,^b James Kennedy MSci,^c
James A. Yiannias MD,^d Jill A. Morgan PharmD BCPS BCPPS^e

^aScientific Engagement Strategies, LLC, Cary, NC

^bDepartment of Dermatology, George Washington Medical Faculty Associates, Washington, DC; Department of Dermatology, George Washington School of Medicine and Health Sciences, Washington, DC

^cSincerely Chemicals, Melbourne, Australia

^dMayo Clinic, Phoenix, AZ

^eUniversity of Maryland School of Pharmacy, Baltimore, MD

INTRODUCTION

US Labeling requirements for cosmetic products are established by the US Food and Drug Administration (USFDA) and detailed in the Code of Federal Regulations (21 CFR 701.3).¹ Over 16,000 cosmetic ingredients names have been documented and ingredient nomenclature resources are recommended by the USFDA for use by manufacturers and suppliers.² For cosmetics, ingredients included at > 1% are listed in descending order of concentration within the ingredient declaration section. Ingredients included at concentrations below 1% are generally listed randomly afterwards. Confusion can exist since chemical names are often hard to pronounce, scientific sounding, and technical in nature. As a result, a few non-governmental organizations (NGOs) and retail establishments attempt to help with verification programs and even publish avoidance lists for omitted, verified, or “clean cosmetics” programs.^{3,4} While this could be beneficial, some manufacturers choose to use more natural and relatable terms to describe ingredients to meet the expectations of these programs instead of conforming to ingredient names as listed in the most recent edition of the International Cosmetic Ingredient Dictionary (INCI), the resource most often used to identify and characterize chemical ingredients in cosmetics.² The INCI standardizes nomenclature on an international level regardless of language, helps ensure ingredient identification and transparency, and is even cited by some 3rd parties as a requirement of verification programs.⁵

To evaluate adherence to the INCI, “clean” cleansing products for infants and children were identified online and via an NGO verification program. Products making claims for eczema and atopic skin, claims of natural or organic, and those promoting avoidance of ingredients omitted in Europe were preferentially selected. Ingredient lists were obtained from company product web sites and package labeling then mapped to nomenclature established by the INCI. The addition of common names for botanical ingredients (eg, genus/species) was considered appropriate given ingredient labeling guidance outlined by some NGOs and the INCI standard.⁵ For those products also receiving a third-party verification, adherence to published standards for naming convention (eg, most recent edition of the INCI) was assessed.

This document contains proprietary information, images and marks of Journal of Drugs in Dermatology (JDD). No reproduction or use of any portion of the contents of these materials may be made without the express written consent of JDD. If you feel you have obtained this copy illegally, please contact JDD immediately at support@jddonline.com

A total of 11 cleansing products meeting criteria were available for purchase at the time of this study. Each ingredient used in the products included in this study was matched to the corresponding INCI. Of the products sampled, 64% failed to completely follow the INCI standard.² Some products were found to be in non-compliance with the INCI and secondary verification recommendations with the majority of products using a combination of INCI for some ingredients and common names for those more natural sounding. Terminology like “glacial and purified” to describe water, “vegetable,” “plant-based,” “food-grade,” “coconut-based,” and “organic” to describe sourcing of ingredients was found within the ingredient declaration section on packaging, a practice that is not recognized as industry standard. In addition, relatable words like “cold-pressed” were added to describe processing. A list of non-conforming labeled ingredients with corresponding preferred INCI and reported action of each ingredient can be found in Table 1.

Of the three products tested which promoted additional third-party verification (ie, EWG verified), two (66%) were found to be in noncompliance.⁵ An example of an ingredient declaration non-conformance with additional 3rd party verification seal can be found in Figure 1. This may be due to premature use of

FIGURE 1. Example of product with nonconforming INCI terminology despite 3rd party verification.

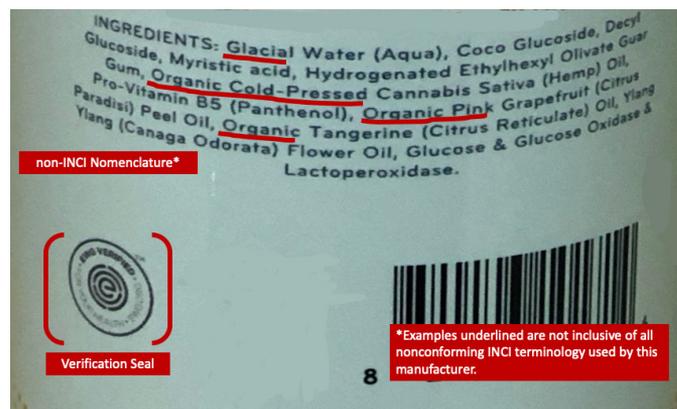


TABLE 1.

Non-Conforming Ingredient Nomenclature With INCIDecoder [®] Description of Action			
INCI Mapping	Listed on Package Label	Identical (Y/N)	INCIDecoder Description
Calendula Officinalis (Marigold) Flower Extract	Calendula Officinalis (Calendula) Flower Extract	N	Soothing, antioxidant
Caprylhydroxamic Acid	Caprylhydroxamic Acid (Coconut-Based Preservative)	N	chelating
Caprylyl Glycol	Caprylyl Glycol (Coconut-Based Preservative)	N	moisturizer/humectant, emollient
Citric Acid	Citric Acid (Plant-Based Preservative)	N	Exfoliant, buffering
Citrus Tangerina (Tangerine) Peel Oil	Citrus Tangerina (Tangerine) Oil	N	perfuming
Cocamidopropyl Hydroxysultaine	Cocamidopropyl Hydroxysultaine (Coconut-Based Cleanser)	N	surfactant/cleansing, viscosity controlling
Coco-Glucoside	Coco-Glucoside (Coconut-Based Cleanser)	N	surfactant/cleansing
Cocamidopropyl Betaine	Cocoamidopropyl betaine (coconut)	N	surfactant/cleansing
Aloe Barbadensis Leaf Juice	Decolorized Aloe Barbadensis (Aloe Vera) Leaf Juice	N	Soothing, moisturizer/humectant
Decyl Glucoside	Decyl Glucoside (sugar)	N	surfactant/cleansing
Disodium Cocoamphodiacetate	Disodium Cocoamphodiacetate (coconut)	N	surfactant/cleansing
Ethylhexylglycerin	Ethylhexylglycerin (Biodegradable Preservative)	N	preservative
Fragrance	Fragrance (Essential Oil Blend)	N	perfuming
Water (Aqua)	Glacial Water (Aqua)	N	solvent
Gluconolactone	Gluconolactone (Food-Grade Preservative)	N	Exfoliant, chelating
Glycerin	Glycerin (Vegetable)	N	Skin-identical ingredient, Moisturizer/humectant
Glyceryl Oleate	Glyceryl Oleate (Plant-Based Skin Softener)	N	Emollient, emulsifying
Hydroxypropyl Guar	Guar Gum	N	surfactant/cleansing, viscosity controlling
Lauryl Glucoside	Lauryl Glucoside (Coconut Oil-Based Cleanser)	N	surfactant/cleansing
Lavandula Angustifolia (Lavender) Flower Oil	Lavandula Angustifolia Herb Oil	N	antimicrobial/antibacterial, perfuming
Lavandula Hybrida Oil	Lavandula Hybrida (Lavadin) Oil	N	emollient
Limonene	Limonene (components of pure essential oils)	N	Perfuming, solvent
Linalool	Linalool (components of pure essential oils)	N	perfuming
Fragrance	Natural Fragrance	N	perfuming
Sea Salt	Natural Sea Salt	N	viscosity controlling
Persea Gratissima (Avocado) Oil	Organic avocado oil	N	Antioxidant, emollient
Chamomilla Recutita Flower Extract	Organic Chamomile Extract	N	Soothing, antioxidant
Cannabis Sativa Seed Oil	Organic Cold-Pressed Cannabis Sativa (Hemp) Oil	N	emollient
Oenothera Biennis (Evening Primrose) Oil	Organic Evening Primrose Oil	N	Soothing, emollient
Citrus Paradisi (Grapefruit) Seed Oil	Organic Pink Grapefruit (Citrus Paradisi) Peel Oil	N	perfuming
Citrus Aurantium Dulcis Peel Extract	Organic Sweet Orange	N	Perfuming, viscosity controlling
Chamomilla Recutita Flower Extract	Organic Chamomile	N	Soothing, antioxidant
Citrus Tangerina (Tangerine) Peel Oil	Organic Tangerine (Citrus Reticulate) Oil	N	perfuming
Panthenol	Panthenol (pro-vitamin b5)	N	Soothing, moisturizer/humectant
Phenoxyethanol	Phenoxyethanol (amino acid)	N	preservative

TABLE 1. (CONTINUED)

Non-Conforming Ingredient Nomenclature With INCIDecoder [®] Description of Action			
INCI Mapping	Listed on Package Label	Identical (Y/N)	INCIDecoder Description
Citrus Paradisi (Grapefruit) Seed Oil	Pink Grapefruit Essential Oil	N	perfuming
Potassium Sorbate	Potassium Sorbate (Natural Preservative)	N	preservative
Panthenol	Pro-Vitamin B5 (Panthenol)	N	Soothing, moisturizer/ humectant
Propanediol	Propanediol (Plant-Based Preservative)	N	Solvent, moisturizer/ humectant
Lavandula Angustifolia (Lavender) Flower Oil	Pure Essential Oils of Organic Lavender	N	perfuming
Water (Aqua)	Purified Water	N	solvent
Sodium Benzoate	Sodium Benzoate (Food-Grade Preservative)	N	preservative
Sodium Cocoyl Glycinate	Sodium Cocoyl Glycinate (Coconut-Based Cleanser)	N	surfactant/cleansing
Sodium Hydroxymethylglycinate	Sodium Hydroxymethylglycinate (amino acid)	N	preservative
Sodium Lauroamphoacetate	Sodium Lauroamphoacetate (Coconut-Based Cleanser)	N	surfactant/cleansing
Sodium Methyl Cocoyl Taurate	Sodium Methyl Cocoyl Taurate (Coconut-Based Cleanser)	N	surfactant/cleansing
Spiraea Ulmaria Flower Extract	Spiraea Ulmaris (Meadowsweet) Flower Extract	N	perfuming
Tetrasodium Glutamate Diacetate	Tetrasodium Glutamate Diacetate (Plant-Based Cleanser)	N	chelating
Glycerin	Vegetable Glycerin	N	skin-identical ingredient. moisturizer/humectant
Glycerin	Vegetable Glycerin (Plant-Based Skin Softener)	N	skin-identical ingredient, moisturizer/humectant
Cananga Odorata (Ylang Ylang) Flower Oil	Ylang Ylang (Cananga Odorata) Flower Oil	N	perfuming

verification seals, use of seals on products not approved, or failure of the organization to follow up and verify compliance with verification standards. Methodologies described for third party verification programs are often based on documentation only and do not cite independent clinical or laboratory research. As a result, misleading or incorrect statements made on company packaging or websites are often replicated without interpretation.

Adherence to standardized labeling practices within the ingredient declaration section for cosmetic package labeling is one of the only ways to ensure that contents of a cosmetic product can be fully assessed by professionals for risks and benefits of individual chemical ingredients. While not entirely consumer-friendly, this standardized methodology also helps to ensure users of the products can identify ingredients that they seek to avoid. Failure of companies to comply with recommendations and governmental standards has the potential to not only confuse and mislead both professionals and patients, but also place the latter at risk for severe allergic-type reactions.

DISCLOSURES

The authors have no conflicts of interest to declare.

REFERENCES

- Code of Federal Regulations Sections for Cosmetic Labeling, 21 C.F.R. § 701 (2017).
- Nikitakis J, Lange B. *International Cosmetic Ingredient Dictionary and Handbook*. 16th ed. Washington, D.C: Personal Care Products Council. 2015.
- Sephora. What is clean at Sephora? Clean at Sephora: Excluded Ingredients. Available at: <https://www.sephora.com/beauty/clean-beauty-products>. Published 2019. Accessed October 11, 2019.
- EWG's Unacceptable List: Personal Care Products. Environmental Working Group. Available at: https://static.ewg.org/ewgverified/docs/EWG_License_Unacceptable_List_C01.pdf. Accessed October 14, 2019.
- EWG's Licensing Criteria: Personal Care Products. Available at: <https://static.ewg.org/ewgverified/docs/EWGVERIFIEDcriteria.pdf>. Published 2015. Accessed October 14, 2019.
- INCIDecoder. Available at: <https://incidecoder.com>. Accessed October 14, 2019.

AUTHOR CORRESPONDENCE

David A. Mays PharmD MBA

E-mail:..... David.Mays@sciengages.com