

Part 4 of a 4-part series

Miscellaneous Products: Trends and Alternatives in Deodorants, Antiperspirants, Sunblocks, Shaving Products, Powders, and Wipes Data from the American Contact Alternatives Group

^aANDREW SCHEMAN, MD; ^bSHARON JACOB, MD; ^cRAJANI KATTA, MD; ^dSUSAN NEDOROST, MD;
^eERIN WARSHAW, MD; ^fMATT ZIRWAS, MD; NICOLE SELBO, BS

^aNorthwestern University Medical Center, Chicago, Illinois; ^bUniversity of California San Diego, San Diego, California;

^cBaylor College of Medicine, Houston, Texas; ^dCase Western Reserve School of Medicine, Cleveland, Ohio;

^eUniversity of Minnesota Medical School; ^fOhio State University Medical School, Columbus, Ohio

Current data on the prevalence of known cosmetic allergens in cosmetic and skin care products is invaluable information for contact allergy specialists. Knowledge of current ingredient usage is instrumental in choosing relevant allergens for patch testing patients with suspected contact allergy to different types of topical products. In addition, knowledge of the most common potential allergens in each type of topical product allows the patch testing specialist to identify key alternative products that can be used by patients with proven contact allergy to skin, hair, and cosmetic products.

In this four-part series, the American Contact Alternatives Group (ACAG) provides data on the prevalence of cosmetic allergens on the American Contact Dermatitis Society core screening tray of 80 allergens in 5,416 skin, hair, and cosmetic products listed on the CVS website. From this data, suitable potential alternative products are listed for use by patients with proven contact allergy. Part 1 discusses facial cosmetic products, part 2 covers hair care products, part 3 discusses lip and oral care products, and part 4 covers miscellaneous categories of topical products. Two additional installments on moisturizers and cleansers will follow at a later date.

ABSTRACT

Objective: To provide updated data on the usage of ingredients that are common potential contact allergens in several categories of topical products. To identify useful alternative products with few or no common contact allergens. **Design:** In November 2009, the full ingredient lists of 5,416 skin, hair, and cosmetic products marketed by the CVS pharmacy chain were copied from CVS.com into Microsoft Word format for analysis. Computer searches were made in Microsoft Word using search/replace and sorting functions to accurately identify the presence of specific allergens in each website product. **Measurements:** Percentages of American Contact Dermatitis Society core series allergens (and other common preservatives and sunblocks) were calculated. **Results:** The usage of American Contact Dermatitis Society core series allergens (and other preservatives and sunblocks) in various miscellaneous categories of topical products is reported. **Conclusion:** Data on allergens and alternatives for ancillary skin care products are not widely published. This article reviews some of the common potential allergens in antiperspirants, deodorants, shaving products, sunblocks, powders, and wipes. Suitable available alternative products for patients with contact allergy are listed. (*J Clin Aesthet Dermatol.* 2011;4(10):35–39.)

In November 2009, the American Contact Alternatives Group (ACAG) collected data from the CVS website,¹ which contains the full ingredient lists for 5,416 skin, hair, and cosmetic products marketed by this pharmacy

chain. Evaluation of this data provides a large representative sample of the products currently being marketed in one major drugstore chain in the United States and provides an excellent overview of the ingredients being

DISCLOSURE: The authors report no relevant conflicts of interest.

ADDRESS CORRESPONDENCE TO: Andrew Scheman, MD; E-mail: ajs@scheman.com

used in products currently on the market. These types of data are important to help guide which allergens need to be tested in order to identify most cases of contact allergy to topical products. These data also allow easy identification of available alternative products for patients with contact allergy.

Finding alternative products free of specific allergens plays a crucial role in obtaining clinical improvement in patients with contact allergy. There have been several papers published previously that discussed contact allergy alternatives.²⁻⁵ Since the earliest articles only provided information for a small number of common allergens,²⁻⁴ information on contact allergy alternatives was sparse for most of the allergens on the North American Contact Dermatitis Group (NACDG) standard screening series. Therefore, ACAG was formed in order to provide periodically updated contact allergy alternatives for a wider array of contact allergens. ACAG has previously published alternatives information for all of the allergens on the 2007 NACDG standard screening tray.⁵

In 2010, the American Contact Dermatitis Society (ACDS) unveiled a recommended core screening tray of contact allergens that would identify a significant proportion of contact allergies.⁶ In this paper, ACAG will discuss the ACDS core screening tray allergens found in various types of miscellaneous products and give updated information on available products that can serve as alternatives for patients with contact allergy to cosmetic ingredients. Products were also screened for other preservatives and sunblock ingredients not on the ACDS core series and for decyl glucoside, which is on the NACDG standard screening tray but not the ACDS core series. When there was no alternative free of certain allergens in the CVS database, other suitable alternative products were identified.

METHODS

In November 2009, the full ingredient lists of 5,416 skin, hair, and cosmetic products marketed by the CVS pharmacy chain were copied from CVS.com into Microsoft Office Word 2003 format for analysis. Comparison of CVS website data versus actual product labels showed an occasional discrepancy; however, the vast majority of the information is correct and provides an accurate analysis of ingredient usage in products found in CVS stores within a small margin of error. The authors chose to analyze the website data “as is” to avoid researcher bias. However, since there were occasional errors in the CVS website data, all alternative products recommended in this article were rechecked for accuracy using the ingredient lists on the actual product label.

When writing about contact allergen alternatives or designing contact alternative databases,⁷ it is always difficult to decide which additional ingredients to consider as possible cross-reactants. That is, the usefulness of alternatives information is only as good as the definitions that are programmed into the computer. The exact cross-reactant definitions used have not been stated in previously

published articles on contact allergy alternatives.^{2-5,7} Unfortunately, there are limited data on allergen cross-reactants, and therefore decisions regarding what to consider as potential cross-reactants are made using the best available information.

In this article, fragrance was defined as the presence of “fragrance,” “perfume,” any of the components of fragrance mix I or II (Chemotechnique, Malmö, Sweden), or any of the 26 fragrances required to be listed by name in Europe on product labels. In this article, fragrance also included essential oils, which were defined as any plant extract that is described in Wikipedia as having a fragrant odor that might qualify as a “natural” fragrance ingredient. Lanolin components (lanolin acid, lanolin oil), “lanolates,” and wool wax derivatives were included as lanolin. For propylene glycol, any ingredients containing the exact words “propylene glycol” or “PG” were included as possible cross-reactants. Potassium sorbate was included as sorbic acid. Cosmetic-grade beeswax often contains propolis as an impurity and will be included as “propolis” in this discussion. The authors defined potential cross-reactants of sorbitan sesquioleate to include sorbic acid, sorbates, sorbitol, sorbitans, and polysorbates. The possible cross-reactants for cetylstearyl alcohol were the most problematic. The authors included cetyl alcohol, cetearyl alcohol, ingredients with the words “ceteth” or “cetareth,” stearyl alcohol, stearic acid, and stearyl ingredients as possible cross-reactants, but not all stearates. Decyl glucoside was defined as the presence of any glucosides. The authors included all benzoates in the definition of benzoic acid.

Using the above definitions and known synonyms for individual allergens, computer searches were made in Microsoft Word using search/replace and sorting functions to accurately identify the presence of specific allergens in each website product. Recommended alternatives were chosen that had few ACDS core allergens. These were specifically checked for accuracy by the authors who reviewed the product ingredient labels.

ANTIPERSPIRANTS AND DEODORANTS

A total of 195 products were evaluated. Since antiperspirants are intrinsically antibacterial, very few of these products contained preservatives. The ACDS core tray allergens found in these products were fragrance (91%), cetylstearyl alcohol derivatives (49%), propylene glycol (29%), butylated hydroxytoluene (BHT, 18%), triclosan (5%), phenoxyethanol (3%), sorbitan sesquioleate derivatives (3%), and vitamin E (1%). Other preservatives not on the ACDS core series included benzoic acid (16%) and sodium benzoate (found in 1 product).

The most difficult alternatives to find for patients with contact allergy to antiperspirants and deodorants are fragrance-free products. Allergens found in evaluated products are listed in Table 1, and suitable alternative products for patients with contact allergy are listed in Table 2.

TABLE 1. ACDS core allergens in miscellaneous products	
ANTIPERSPIRANTS/ DEODORANTS	Fragrance (91%)
	Cetylstearyl alcohol derivatives (49%)
	Propylene glycol (29%)
	Butylated hydroxytoluene (18%)
	*Benzoic acid (16%)
	Triclosan (5%)
	Phenoxyethanol (3%)
	Sorbitan sesquioleate derivatives (3%)
	Vitamin E (1%)
	*Sodium benzoate (found in 1 product)
POWDERS	Fragrance (90%)
	Butylated hydroxytoluene (5%)
	Cetylstearyl alcohol derivatives (5%)
	Sorbitan sesquioleate derivatives (5%)
	Triclosan (found in 1 product)
	Triethanolamine (found in 1 product)
SHAVING PRODUCTS	Fragrance (95%)
	Cetylstearyl alcohol derivatives (48%)
	Triethanolamine (41%)
	Sorbitan sesquioleate derivatives (36%)
	Butylated hydroxytoluene (17%)
	Benzophenone-4 (7%)
	Diazolidinyl urea (5%)
	Imidazolidinyl urea (2%)
	Quaternium 15 (found in 1 product)
SUNBLOCKS	Oxybenzone (68%)
	Fragrance (63%)
	*Avobenzone (53%)
	Vitamin E (53%)
	Parabens (30%)
	Cetylstearyl alcohol derivatives (27%)
	Triethanolamine (27%)
	Sorbitan sesquioleate derivatives (18%)
	Butylated hydroxytoluene (16%)
	*Benzoic acid (13%)
	Phenoxyethanol (13%)
	Propolis (13%)
	Methylisothiazolinone/methylchloroisothiazolinone (9%)
	Diazolidinyl urea (7%)
	DMDM hydantoin (2%)
	Iodopropynyl butylcarbamate (2%)
	*PABA and derivatives (2%)
	Imidazolidinyl urea (1%)
	Methyldibromoglutaronitrile (found in 1 product)
	Quaternium 15 (found in 1 product)
	Sorbic acid (found in 1 product)
*Not on ACDS core series	

TABLE 1 cont'd. ACDS core allergens in misc. products	
WIPES	Vitamin E (79%)
	Sorbitan sesquioleate derivatives (75%)
	Fragrance (74%)
	Iodopropynyl butylcarbamate (60%)
	Propylene glycol (47%)
	DMDM hydantoin (28%)
	Lanolin (28%)
	2-bromo-2-nitropropane-1,3-diol (26%)
	Parabens (23%)
	Phenoxyethanol (19%)
	Methylisothiazolinone/ methylchloroisothiazolinone (13%)
	*Decyl glucoside (9%)
	Sorbic acid (7%)
	Cetylstearyl alcohol derivatives (4%)
	Quaternium 15 (4%)
	Benzalkonium chloride (found in 1 product)
	*Sodium benzoate (found in 1 product)
	Triethanolamine (found in 1 product)
*Not on ACDS core series	

POWDERS

The most difficult part of finding alternative products for patients allergic to powders is finding ones without fragrance, which was in 90 percent of 41 evaluated products. Other ACDS core allergens in these products included cetylstearyl alcohol derivatives, sorbitan sesquioleate derivatives, and BHT, each found in five percent of evaluated products. Triclosan and triethanolamine were each found in one product. Allergens found in evaluated products are listed in Table 1. Alternative powders free of fragrance are shown in Table 2.

SHAVING PRODUCTS

A total of 167 shaving products were evaluated. Fragrance was by far the most common potential allergen and was found in 95 percent of products. A few products had formaldehyde releasers, including diazolidinyl urea (5%) and imidazolidinyl urea (2%), and one product had quaternium 15. Of the evaluated products, other ACDS core allergens found include cetylstearyl alcohol derivatives (48%), triethanolamine (41%), sorbitan sesquioleate derivatives (36%), BHT (17%), and benzophenone-4 (7%). Allergens found in evaluated products are listed in Table 1. Shaving products free of fragrance and other ACDS core allergens are listed in Table 2.

SUNBLOCKS

A total of 201 products were evaluated. The most common ACDS core allergens found in these products

TABLE 2. Alternative miscellaneous products

	PRODUCT	ACDS CORE ALLERGENS	OTHER ALLERGENS
ANTIPERSPIRANTS/ DEODORANTS	Almay Anti-Perspirant Deodorant Clear Gel Fragrance-Free	PG	—
	Certain Dri Anti-Perspirant Roll-On	—	—
	Crystal Body Deodorant Stick	—	—
	Crystal Roll-On Body Deodorant	—	—
	Dove Ultimate Sensitive Care Stick	CO, CSA	Almond oil
POWDERS	Magick Botanicals Baby Powder	—	—
SHAVING PRODUCTS	Edge Advanced Gel Ultra Sensitive (Note: BAL is sole fragrance)	BAL, CO, CSA, F, SS, TCS, TEA	—
	Vanicream Shave Cream	CSA	—
	Williams Mug Shaving Soap	F	—
SUNBLOCKS	Aveeno Baby Sunblock SPF 55	BHT, P, PH	—
	Neutrogena Sensitive Skin Sunblock SPF 30	BHT, CSA, P, PH, TEA, VE	BA
	Vanicream Sunscreen SPF 30	CSA, VE	BA
	Vanicream Sunscreen SPF 60	CSA, VE	BA
	Vanicream Sunscreen Sport SPF 35	VE	—
WIPES	Pampers One-Ups Wipes Aloe	BAL, F, IBC	—
	Sani-Hands Instant Hand Sanitizing Wipes	PG, VE	—
	Sani-Hands Kids Instant Hand Sanitizing Wipes	PG, VE	—
	Seventh Generation Chlorine Free Baby Wipes	SA, VE	BA, SB

BA=benzoic acid; BAL=benzyl alcohol; BHT=butylhydroxytoluene; CO=compositae; CSA=cetylstearyl alcohol; F=fragrance; IBC=iodopropynyl butylcarbamate; P=parabens; PG=propylene glycol; PH=phenoxyethanol; SA=sorbic acid; SB=sodium benzoate; SS=sorbitan sesquioleate; TCS=triclosan; TEA=triethanolamine; VE=vitamin E

were oxybenzone (68%), fragrance (63%), and vitamin E (53%). ACDS core and noncore preservatives found were parabens (30%), benzoic acid (13%), phenoxyethanol (13%), methylisothiazolinone/methylchlorisothiazolinone (9%), diazolidinyl urea (7%), DMDM hydantoin (2%), iodopropynyl butylcarbamate (2%), and imidazolidinyl urea (1%). Quaternium 15, sorbic acid, and methylidibromo-glutaronitrile were each found in three separate products. Other potential ACDS core allergens found in these products were cetylstearyl alcohol derivatives (27%), triethanolamine (27%), sorbitan sesquioleate derivatives (18%), BHT (16%), and propolis (13%). Two noncore sunblock allergens found were avobenzone and PABA. Avobenzone was in 53 percent of products, but PABA and its derivatives are now uncommon and were found in only two percent of products. Allergens found in these products are listed in Table 1, and suitable alternative sunblocks with relatively few potential allergens are listed in Table 2.

WIPES

In 53 evaluated wipes, the ACDS core allergens found in more than two percent were vitamin E (79%), sorbitan sesquioleate derivatives (75%), fragrance (74%), iodopropynyl butylcarbamate (60%), propylene glycol (47%), DMDM hydantoin (28%), lanolin (28%), 2-bromo-2-nitropropane-1,3-diol (26%), parabens (23%), phenoxyethanol (19%), methylisothiazolinone/methylchlorisothiazolinone (13%), sorbic acid (7%), cetylstearyl alcohol derivatives (4%), and quaternium 15 (4%). Another potential allergen was decyl glucoside, which was found in nine percent of products. Sodium benzoate, triethanolamine, and benzalkonium chloride were each found in one product. The most notable allergen percentage above is the high prevalence of 2-bromo-2-nitropropane-1/3-diol, which is not found commonly in other skin care products in the United States. Allergens found in wipes are listed in Table 1, and suitable alternative wipes with relatively few potential allergens are listed in Table 2.

SUMMARY

Data on allergens and alternatives for ancillary skin care products are not widely published. This article reviews some of the common potential allergens in antiperspirants, deodorants, shaving products, sunblocks, powders, and wipes. Suitable available alternative products for patients with contact allergy are listed. One limitation of this study is that the data are specific to CVS stores and that the exact percentage of a particular ingredient in a given product type may be different in other stores with a different inventory.

REFERENCES

1. <http://www.cvs.com>. 1999-2011.
2. Adams RM, Fisher AA. Contact allergen alternatives: 1986. *J Amer Acad Dermatol*. 1986;14:951-969.
3. Scheman A. Contact allergy testing alternatives: 1996. *Cutis*. 1996;57:235-240.
4. Scheman A, Katta R. Contact dermatitis alternatives: 2003. *Advances in Dermatology*. 2003;19:113-138.
5. Scheman A, Jacob S, Zirwas M, Warshaw E, et al. Contact allergy: alternatives for the 2007 North American Contact Dermatitis Group (NACDG) standard screening tray. *Disease-a-Month*. 2008;54:1-156.
6. Warshaw E, Powell D, Pratt M, Scheinman P, et al. ACDS Core Allergen Series Breakfast Symposium. 21st Annual Meeting of American Contact Dermatitis Society; March 4, 2010; Miami Beach, FL.
7. Yiannias JA, Miller R, Kist JM. Creation, history, and future of the Contact Allergen Replacement Database (CARD). *Dermatitis*. 2009;20:322-326. ●