

## Contact Dermatitis Allergens

by Alina Goldenberg, MD, MAS; Elise M. Herro, MD; and Sharon E. Jacob, MD



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| Category                                      | Allergen (Standardized concentrations)                             | A0Y  | NACDG Rank <sup>a</sup> | Common Sources   | Allergen TRUE Test | Clinical Pearls  |
|---|--|------|-------------------------|--|--------------------|--|
| Metals  | Nickel 2.5% pet.   | 2008 | 1                       | Jewelry, alloys, dentures, orthopedic devices, scissors, razors, eating utensils, electronics (phone, tablets, computers), metal buttons, belts, metals finishes | Y                  | #1 allergen in tested populations. Reactions can be local, ID, systemic. High point dietary nickel: legumes, chocolate, oat, dark green leafy vegetables. Dimethylglyoxime [DMG] test-pink indicator. Clear-coating option may help but prone to chipping.                   |
|   | Cobalt 1.0% pet.   |      | 14                      | Metals/finishes; vitamin B12; jewelry, cosmetics, cement   | Y                  | Co-sensitizer with nickel and gold due to frequency of use together; blue tattoos. Cobalt spot test: disodium-1-nitroso-2-naphthol-3,6-disulfonate   |
|   | Potassium dichromate 0.25% pet.                                    |      | 40                      | Metals/finishes  | Y                  | Used in leather tanning, green felt, green textiles, green tattoos, cement   |
|   | Gold sodium thiosulfate 0.5% pet.                                  | 2001 | -                       | Jewelry, electronics, glass frames, dental crowns  | Y                  | Direct sensitivity to gold containing items is rare, more common is concomitant contact between gold and titanium dioxide and zinc oxide (such as eyeglasses frames or jewelry with sunscreen)-- these harder metals abrade the gold and release sensitizing gold particles. |
| Fragrances                                    | Fragrance Mix I 8.0% pet.  | 2007 | 2                       | Personal hygiene products (PHP) perfumes, cinnamon, flavoring agents, soaps, detergents, paper products,, metal working fluids, incense, tobaccos                | Y                  | 8 fragrances: Geraniol, Hydroxycitronellal, a-Amylcinnamaldehyde, Eugenol (cloves), Cinnamaldehyde, Cinnamyl alcohol, Isoeugenol and Evernia prunastri (Oak moss).   |
|   | Balsam of Peru 25% pet. (Myroxylon.pereirae resin)                 |      | 3                       | PHP; diaper balm; wound salves   | Y                  | Tree sap from El Salvador; cross reacts with tomatoes because of cinnamic alcohol commonality; significant sources: chocolate, soda, artificial flavors and benzoates.   |
|   | Fragrance Mix II 14% pet.  |      | 8                       | PHP  | -                  | Fragrance [Citronellol, Hexyl cinnamal, Citral, Coumarin, Farnesol, Hydroxyisohexyl 3-cyclohexene carboxaldehyde (Lyrall) 2.5%]  |
|   | Cinnamic aldehyde 1% pet.  | -    | 13                      | Oral hygiene products/PHP  | Y^                 | Component of Fragrance Mix 1 and balsam of Peru  |
|   | Colophonium (rosin) 20% pet.                                       | -    | 29                      | Paper products, magazine gloss, toilet seats, make up, adhesives, paints, varnishes; chewing gum, violin bows, epilation wax                                     | Y                  | Abeitic acid – allergenic component in glues; pine (conifer) derivative; may cross react with BOP and propolis, contains coniferyl alcohol.  |
|   | Majantol 5% pet.   |      | 39                      | PHP  | -                  | Fragrance  |
|   | Ylang-ylang oil 2% pet.  | -    | 52                      | PHP  | -                  | Fragrance  |
|   | Limonene 2% pet.   | -    | 70                      | PHP; cleaning supplies   | -                  | Fragrance  |
| NON-FRP (Formaldehyde Releasing Preservative) | Eugenol 1% pet.  | -    | -                       | PHP; dental products; cloves   | Y^                 | Balsam of Peru derivative, Fragrance Mix 1 component   |
|   | MCI/MI 0.01% aq = 100 ppm aq (aka Kathon CG) <sup>b</sup> aq.      | 2013 | 4                       | Baby wipes, moist toilet tissue, leather couch wipes, shampoo, lotion, cosmetics, airborne associated with latex paint   | Y                  | 40% of MI allergy missed when only test with MCI/MI mix  |
|   | Iodopropyl butyl carbamate 0.1% pet.                               | -    | 12                      | Baby wipes, cosmetic products, PHP   | -                  | Under regulation in cosmetic products in New Zealand   |
|   | Methylidibromoglutaronitrile + Phenoxyethanol [Euxyl K400] 1% pet. | -    | 16                      | Preservative in paper products (paper towels), ultrasound gels, PHP  | Y#                 | Industrial exposures include: cutting oils, coolants and adhesives   |
|   | Paraben mix 12% pet.   | -    | 22                      | Preservative in creams, lotions, and foods   | Y                  | "paraben paradox" – aka only reactive on involved skin – patch test on normal skin (-)   |
|   | Quinoline mix 190 mcg/cm <sup>2</sup>                              | -    | -                       | Antifungals, antibacterials, topical antibiotic and antifungal creams, lotions, ointments, paste bandages  | Y                  | Clioquinol and Chlorquinaldol  |
| Antibiotics                                   | Thimerosal 7mg/cm <sup>2</sup> or 0.1% pet.                        | 2002 | -                       | Cosmetic preservative, vaccines, mercurial contact lens solution, tuberculin skin test   | Y                  | Mercurial preservatives, until recently was found in a number of vaccines. Significant # of irrelevant reactions (aka "non-allergen" of the year award). Cross-reacts with piroxicam.  |
|   | Propyl Gallate 0.5% pet.   | -    | -                       | PHP, lubricants, foods   | -                  |  |
|   | Bacitracin 20% pet.  | 2003 | 10                      | Component of triple antibiotic   | Y                  | Contact urticarial and DTH reported; CO-reacts (NOT cross-react) with neomycin.  |
|   | Neomycin 20% pet.  | 2010 | 17                      | Component of triple antibiotic; aminoglycoside   | Y                  | Cross reacts with gentamycin, tobramycin. CO-reacts with bacitracin.   |
|   | Chloroxylenol [4-chloro-3,5-xyleneol] 1% pet.                      | -    | 56                      | Carbolated Vaseline, Cooling fluids, PHP, Disinfectants, EKG paste, Surgical Scrubs  | -                  |  |

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|------------------------------|---|------|-------------------------|---|--------------------|--|
| <b>Formaldehyde and FRPs</b> | Quaternium-15 2% pet.   | -    | 5                       | FRP latex paints, topics meds, adhesives  | Y                  | #1 cause hand dermatitis<br>Not allergic patients have a cross-reactivity with formaldehyde  |
|                              | Formaldehyde 1% aq.   | 2015 | 7                       | Embalming/preserving fluid, aspartame, pressed wood, industrial metal working fluids and coolants, glues, inks, toners, paints, cleaning agents, waxes and polishes, cosmetics, PHP, durable press (wrinkle-resistant) fabrics, cleaning products, tobacco and cigarette smoke, smoke from wood, coal, kerosene, or charcoal fires. | Y                  | Reactions can be local, ID, systemic. Aspartame may trigger systemic response  |
|                              | Diazolidinyl urea 1% pet.   | -    | 20                      | FRP   | Y                  | Cosmetics; lotions   |
|                              | DMDM hydantoin 1% pet.  | -    | 23                      | FRP   | Y                  | Hand soaps; lotions  |
|                              | Bronopol [2-Bromo-2-nitropropane-1,3-diol] 0.5% pet.  | -    | 26                      | FRP   | Y                  | Baby wipes   |
|                              | Imidazolidinyl urea 2% pet.   | -    | 28                      | Cleansers,PHP, cosmetics, burn remedies   | Y                  | #1 FRP in medicaments; used in cosmetics   |
| <b>Hair Care</b>             | Paraphenylenediamine (PPD) 1% pet.  | 2006 | 6                       | Antioxidant – used as hair dye -inks, photodeveloping solutions, textile dyes, henna tattoos  | Y                  | PABA-back bone, may cross react with disperse dyes, hydrochlorothiazide, ester anesthetics, sulfonamides, azo and aniline dyes, sulfonamides, para-aminosalicylic acid |
|                              | Glyceryl thioglycolate (GTG) 1% pet.  | -    | -                       | Permanent wave solutions  | -                  | "Acid" permanent waves solution  |
|                              | Ammonium persulfate 2.5% pet.   | -    | -                       | Hair bleach, western blot   | -                  | Oxidizing agent  |
|                              | Ammonium thioglycolate 1% aq.   | -    | -                       | Perm salt used in perm-ing hair   | -                  | 'Allergy often assumed, but rarely if ever, proven'. Cross- reaction with GTG rare. May cause ICD.   |
| <b>Rubber Additives</b>      | Carba mix 3% [ includes: zinc diethyldithiocarbamate, zinc dibutyldithiocarbamate, Diphenylguanidine) pet.                                      | -    | 11                      | Rubber accelerator (eg: vulcanizes liquid latex to solid rubbery product, through sulfide bonds)  | Y                  | "Thio" in name indicates the sulfa bonds to vulcanize. Used in underpants – "do not bleach" due to bleached rubber syndrome.   |
|                              | Thiuram mix 1% pet.   | -    | 18                      | Rubber accelerator -prevents degradation in rubber products, latex, adhesives, pesticides, medications -condoms, diaphragms, repellents   | Y                  | Significant glove-hand dermatitis association  |
|                              | BRM (includes: N-phenyl-N' isopropyl p-phenylenediamine, N-phenyl-N' cyclohexyl-phenylenediamine, and N,N' diphenyl-phenylenediamine) 0.6% pet. | -    | 45                      | Aka black rubber mix, antioxidant used in rubber materials  | Y                  | PABA-back bone, may cross react with disperse dyes, hydrochlorothiazide, ester anesthetics, sulfonamides; hair dressers at risk  |
|                              | Mixed dialkyl thioureas 1% pet.   | 2009 | 48                      | Rubber accelerator, one of the neoprene cement allergens  | -                  | Neoprene is Thiourea + PTBFR   |
|                              | 2-Mercaptobenzothiazole 1% pet.   | -    | 58                      | Rubber accelerator  | Y                  | Significant cause of shoe-foot dermatitis  |
|                              | Mercapto mix 1% [4-morpholinyl-2-benzothiazyl disulfide, N-cyclohexyl-2-benzothiazolesulfenamide, 2,2-benzothiazyl disulfide] pet.              | -    | 61                      | Rubber accelerator  | Y                  | Surgeons, nurses, dentists, hairdressers at risk for occupational exposure   |

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|--------------------------------------|--|------|---|--|----------------------|--|
| Vehicle and PHP/cosmetic ingredients | Lanolin alcohol 50% (wool wax alcohols) pet.                       | -    | 9   | Emollients, cosmetics, adhesives, topical medications, polishes, soaps, printing inks, and textiles.       | Y                    | From sheep sebum; allergenic component amerchol; biologic variability may get "lanolin paradox" – aka only reactive on involved skin – patch test on normal skin (-) --common allergen in leg ulcers |
|                                      | Propylene glycol 30% aq.   | -    | 15  | Solvent, emulsifier, preservative, vehicle, humectant and/or penetration enhancer, medicaments, foods      | -                    | May also be an irritant; systemic reaction due to oral medication or food ingestion reported   |
|                                      | Oleamidopropyl betaine 1% pet.                                     | -    | 21  | PHP  | -                    |  |
|                                      | Cocamidopropyl betaine (CAPB) 1% aq.                               | 2004 | 24  | Surfactant chemical – used in no more tear ingredient  | -                    | Amido amine, 3-(dimethylamino) propylamine (DMAPA) may be the true allergens   |
|                                      | Dimethylaminopropylamine (DMAPA) 1% pet.                           | -    | 27  | CAPB-component   | -                    | Manufacturing component for CAPB – may be a contaminant allergen post production   |
|                                      | Shellac 20% pet.   | -    | 31  | Cosmetics, polishes, coating for medications, fruit, candies and dental varnish                            | -                    | From secretions of Laccifer lacca (formerly Coccus lacca), which feeds on certain trees in southern Asia.  |
|                                      | Amidoamine (stearamidopropyl dimethylamine) 0.01% <sup>b</sup> aq. | -    | 33  | CAPB component found in: body washes; conditioners; cosmetics; hair detanglers; hair dyes; shampoos; soaps | -                    | Manufacturing component for CAPB – may be a contaminant allergen post production   |
|                                      | DL alpha tocopherol 100%   | -    | 36  | Vitamin E  | -                    | #2 allergen in sunscreen; used in PHP  |
|                                      | Cocamide DEA (coconut diethanolamide) 0.5% pet                     | -    | 37  | PHP, especially shampoos, hand-washing liquids and body washes.  | -                    |  |
|                                      | Decyl glucoside 5% pet.  | -    | 44  | PHP  | -                    | Surfactant   |
|                                      | Carvone 5% pet.  | -    | 50  | Spearmint oil; toothpaste, chewing gum; mandarin orange peels  | -                    |  |
|                                      | Benzyl alcohol 10% pet.  | -    | 57  | Preservative used in PHP and medicaments   | -                    | Balsam of Peru-derivative – used in fragrance free products as a preservative; cross reacts with   |
|                                      | Ethylenediamine dihydrochloride 1% pet.                            | -    | 59  | Stabilizer, emulsifier and preservative, used in some mycology formulations                                | Y                    | X-reacts with piperazine antihistamines aminophylline & hydroxyzine  |
| Benzalkonium chloride 0,1% pet.      | -  | -    | Preservative, used in hand wipes, hand sanitizers, Spermicidal creams | -  | In toilettes (wipes) |  |
| Corticosteroids                      | Tixocortol-21-pivalate 1% pet.                                     | -    | 19  | Group A  | Y                    | Screening agent for hydrocortisone type (OTC) steroids; prednisone group   |
|                                      | Budesonide 0.1% pet.   | -    | 42  | Group B  | Y                    | Triamcinolone and Budesonide often used for screening of group B, because budesonide specifically can cross react with D2 steroids   |
|                                      | Clobetasol-17-propionate 1% pet.                                   | 2005 | 65  | Group D1   | -                    |  |
|                                      | Hydrocortisone-17-butyrate 1% pet.                                 | -    | 68  | Group D2   | Y                    | Cross-reacts with Group A  |
|                                      | Desoximetasone 1% pet.   | -    | 69  | Group C  | -                    | Do not cross-react with each other, thus considered more "hypoallergenic"  |
| Plastics and Glues                   | 2-Hydroxyethyl methacrylate (HEMA) 2% pet.                         | 2012 | 30  | Artificial nails, dental work  | -                    |  |
|                                      | Bisphenol A epoxy resin 1% pet.                                    | -    | 35  | Glues, coating for steel, cars, electrical insulation, some plastics, vinyl                                | Y                    |  |
|                                      | Methyl methacrylate 2% pet.  | -    | 46  | Exterior latex house paint, dental restorations, adhesive cements and surgical bone implants.              | -                    | Dental technicians, artificial nails   |
|                                      | Ethyl acrylate 0.1% pet.   | -    | 51  | Resins, plastics, rubber, and denture material   | -                    |  |
|                                      | p-tertbutyl formaldehyde resin (PTBFR) 1% pet.                     | -    | 62  | Adhesive in leather/rubber products and neoprene   | Y                    | Neoprene cement chemical; cross-reacts with formaldehyde; may cause depigmentation   |
|                                      | Ethyl-2-cyanoacrylate 10% pet.                                     | -    | 66  | Liquid bandages & for suture-less surgery  | -                    |  |
|                                      | Tosylamide/formaldehyde resin 10% pet.                             | -    | 47  | Nail polish  | -                    | Tosylamide (toluene sulfonamide is the main allergen over the formaldehyde resin)  |

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|--|--|-----|-------------------------|---|--------------------|--|
| Compositae                                   | Propolis 10% pet.  | -   | 32                      | 'Organic' cosmetics; gummy vitamins   | -                  | Pro-before, Polis- the city; Lines the channels into the beehive (combination of beeswax, plant extracts and bee saliva).  |
|  | Compositae mix 6% pet.   | -   | 34                      | PHP, Teas, Group of plants; leaf/stem/flower ( <i>Tanacetum vulgare</i> , <i>Arnica montana</i> , <i>Parthenolide</i> , <i>Chamomilla romana</i> , and <i>Achillea millefolium</i> ). | -                  | The Compositae family refers to plants in which the flower heads are a composite of individual flowers. (Asteraceae: flowerheads are star-shaped (aster is Greek for star)--20,000 species of flowers, herbs, weeds and vegetables (including asters, daisies and sunflowers) account for 10% of all flowering plants. (Chrysanthemum, daisy, echineacea, thistle, feverfew, ragweed, artichoke, tansy, endive). |
|  | Sesquiterpene lactone mix (SQL) 0.1% pet.  | -   | 55                      | PHP<br>Compositae plants: oleoresin fraction of leaf, stem, flower and possibly in the pollen   | -                  | Alantolactone, dehydroxosus lactone, costunolide<br>Florists and gardeners; cross-reactors: parthenolide, compositae mix, propolis.  |
|  | Parthenolide 3 mcg/cm <sup>2</sup>   | -   | -                       | Natural remedies and supplements  | Y                  | Used on the commercially available patch test device in lieu of SQL.<br>Naturally found in the flowers and fruit of the plant, feverfew ( <i>Tanacetum parthenium</i> ); relief of migraines and blood clots; anti-inflammatory for the relief of arthritis and as a digestive aid.  |
| Anesthetics                                  | Lidocaine hydrochloride 15% pet.   | -   | 49                      | Amide anesthetic  | -                  | Paraben preservative reported to cause allergy in association with this medication.  |
|  | Benzocaine 5% pet.   | -   | 54                      | Ester anesthetics   | Y <sup>^</sup>     | PABA-derivative, basis for ester anesthetics cross-reactions; caine mix includes: benzocaine, tetracaine, and dibucaine. Dibucaine is an amide.  |
|  | Dibucaine (cinchocaine-Hcl) 2.5% pet.  | -   | 63                      | Amide anesthetic  | Y <sup>^</sup>     |  |
|  | Tetracaine 2% pet. or 630 mcg/cm <sup>2</sup>  | -   | -                       | Ester anesthetic  | Y <sup>^</sup>     |  |
| Uroshiol (Toxicodendron genus Anacardiaceae) | Poison ivy ( <i>toxicodendron radican</i> )  | -   | -                       | Leaves of 3+ let them be  | -                  | Highly sensitizing resin oil/black dot dermatitis (black lacquer-like substance forms on skin after exposure of resin to air).   |
|  | Poison sumac ( <i>toxicodendron vernix</i> )   | -   | -                       |   | -                  | -  |
|  | Poison oak ( <i>toxicodendron quercifolium</i> and <i>toxicodendron diversilobum</i> ) | -   | -                       |   | -                  | -  |
|  | Mango ( <i>Mangifera indica</i> )  | -   | -                       | Leaves, bark, stems and skin of mango contain uroshiol  | -                  | -  |
|  | Japanese Lacquer tree ( <i>Toxicodendron verniciflua</i> )                             | -   | -                       | Viscous bark sap used for varnishing furniture, floors, wooden toilets, ornaments   | -                  | Varnish; stays allergenic for >100 years!  |
|  | Ginkgo biloba* ( <i>Ginkgoaceae</i> ) (maidenhair tree)                                | -   | -                       | Pulp and seed kernel  | -                  | Cross-reacts with poison ivy and poison oak. Oldest tree known (fossils date 200 million years old).   |
|  | Indian Marking nut ( <i>Semecarpus anacardium</i> ) (bhilawa tree)                     | -   | -                       | Black juice of the tree is mixed with alum to mark laundry in India   | -                  | Dhobie Mark dermatitis (Indian laundry workers are dhobies).   |
|  | Cashew ( <i>Anacardium occidentale</i> )   | -   | -                       | Shell oil contains cardol   | -                  | The oil is an occupational sensitizer mechanics; urushiol, containing cardol and ancardic acid, is found in cashew nut shell oil; resorcinol cardol is both an irritant and an allergen.   |
|  | Florida Holly/Brazilian Pepper Tree ( <i>Schinus terebinthifolius</i> )                | -   | -                       | Tree bark and berries   | -                  | Common cause of ACD in southern Florida  |
|  | Pistachio ( <i>Pistacia vera</i> )   | -   | -                       |   | -                  | Cross-reacts to cashew nut   |
| Pepeo tree ( <i>Mauria puberula</i> )        | -  | -   |                         | -   | ACD and ICD        |  |

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|--|---|------|--|--|--|---|
| Other plants                                 | <i>Melaleuca alternifolia</i> (tea tree leaf oil) oxidized  | -    | 41                                     | Used as an anti-inflammatory in PHP  | -  | Co-reactions/cross-reactions to d-limonene (a fragrance) and turpentine have been reported.   |
|  | <i>Lavandula angustifolia</i> oil (lavender oil) 2%   | -    | 60                                     | Used as an anti-inflammatory in PHP  | -  | Massage therapists at risk  |
|  | <i>Jasminum officinale</i> oil ( <i>J. grandiflorum</i> ) 2% pet.   | -    | 64                                     | PHP, massage oils, aromatherapy  | -  |   |
|  | <i>M. piperita</i> oil (peppermint oil) 2% pet.   | -    | 67                                     | PHP, aromatherapy  | -  |   |
|  | Lichen [d-usnic acid, evenic acid]  | -    | -                                      | Cosmetics, PHP   | -  |   |
|  | Furocoumarin  | -    | -                                      | Celery, dill, fig, lime, bergamot orange (berloque dermatitis) parsley, parsnip, meadow grass, hogweed (strimmer dermatitis) | -  | Phytophotodermatitis (Apiaceae, Rutaceae, Moraceae, Leguminosae; psoralens)   |
|  | St. John's wort   | -    | -                                      |  | -  | Hypericaceae Family   |
|  | Daffodil ( <i>Narcissus</i> spp, Amaryllidaceae)  | -    | -                                      | Sap contains calcium oxalate crystals  | -  | "daffodil itch" is an irritant contact dermatitis seen in flower pickers, packers, florists and gardeners; similar chemical found in "dumb cane".   |
|  | Allyl isothiocyanate Brassicaceae   | -    | -                                      | Mustard, radish  | -  | Bakers with hand dermatitis; Thiocyanate is an irritant.  |
|  | Diallyl disulfide   | -    | -                                      | Onions, garlic, leeks, chives (bulbs)  | -  | Alliaceae Family  |
|  | Peruvian Lily (Tulipalin A, tuliposide A) [ <i>Alstromeriaceae</i> ] and Tulip (Tulipalin A/B) [ <i>Liliaceae</i> ] | -    | -                                      | Peruvian lily stem and tulip bulb respectively   | -  | Liliaceae has tulipalin A/B (ACD) and calcium oxalate (ICD) – leads to combined ACD and ICD called "tulip fingers".   |
| Primula obconica ( <i>Primulaceae</i> )      | -   | -    | Primin on leaves, stems, flowers       | -  | May be direct contact, indirect or airborne dermatitis. Primin-free <i>Primula obconica</i> has been developed |   |
| Castor Oil Plant ( <i>Ricinus communis</i> ) |   |      | PHP<br>Seeds contain ricin (poisonous) | -  | Castor oil is contact irritant   |   |
| Sunscreens                                   | Oxybenzone 10% pet. (benzophenone-3 & 2-hydroxy-4-methoxybenzophenone)  | 2014 | 38                                     | Sunscreen ingredient   | -  | Photocontact dermatitis; low prevalent allergen; risk of hormone disruption reported in animal studies; most common sunscreen agent to cause photoallergic contact dermatitis; cross-reacts with other aminoglycosides often co-reacts with bacitracin. |
|  | Padimate O (PABA) 5% pet.   | -    | -                                      | Sunscreen  | -  | Cross reacts with paraphenylene diamine, ester anesthetics, disperse dyes.  |
|  | Sulisobenzene/benzophenone -4 10% pet.  | -    | -                                      | Sunscreen  | -  |   |
| Other  | Carmine 2.5% pet.   | -    | 25                                     | Food dye   | -  |   |
|  | Disperse blue mix 124/106 1% pet.   | 2000 | 43                                     | Clothing dyes used on synthetics (nylon, polyesters, blends)   | Y#   | Cross-reacts with PABA based chemicals (paraphenylene diamine), only disperse blue 106 on TRUE  |
|  | Glutaraldehyde (Glutaral) 1% pet.   | -    | 53                                     | Cold sterilizer  | -  | Cross-reacts with formaldehyde  |
|  | Benzoyl peroxide 1% pet.  | -    | -                                      | Bleaching agent in flour, acne medication  | -  |   |
|  | Dimethyl fumarate 0.001% pet.   | 2011 | -                                      | Anti-yeast/bacterial agent used in sachets to prevent molding of wares during shipping                                       | -  | Shoes, sofas, and garments  |

**ABBREVIATIONS:**

ACD: allergic contact dermatitis; aq: aqueous; AOY: "Allergen of the Year" is an ACDS "award" reviewed annually in *Dermatitis*; ICD: irritant contact dermatitis; FRP: formaldehyde releasing preservative; MCI/MI: Methylchloroisothiazolinone; PABA: para-aminobenzoic acid; pet: petrolatum; PHP: personal hygiene products; SQL: Sesquiterpene lactone.

**ANNOTATIONS:**

[a] Based on Table 8 Significance-Prevalence Index Number from Warshaw et al. *Dermatitis*, 2015; 26:56-57. *Dermatitis*, 2015; 26: 56-57; [h] also in category of "Hair Care"; [Y#] included in a mix; [Y#] MDBGN on TRUE, PE is not; Disperse blue 106 on TRUE, not 124.

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- Jacob SE, Herro EM. Practical Patch Testing and Chemical Allergens in Contact Dermatitis. London, England: Springer-Verlag; 2013.
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**AFFILIATIONS:**

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**DISCLOSURE:**

SEJ is a member of the ACDS Education Committee. This committee has developed a lecture series for the ACDS aimed at practical knowledge and boards review. Available at [www.contactderm.org](http://www.contactderm.org). EH and AG have nothing to declare.

Table Reviewed by the Executive Committee of the American Contact Dermatitis Society June 5, 2015.