

Gallates

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GALLATES are chemical compounds used as antioxidant preservatives. They are commonly found in food products such as margarine, peanut butter, and processed foods. The permitted amounts of gallates in food products have been established at 0.01 to 0.2% of the final food product,¹ and the Joint Food and Agriculture Organization of the United Nations World Health Organization Expert Committee on Food Additives has set the maximum acceptable daily intake for total gallates in humans at 0.2 mg/kg of body weight, based on the metabolism, toxicity, and mutagenic properties of these compounds in animal and human studies.²

Since 1947, the use of gallates in cosmetics has increased. This has warranted the US Food and Drug Administration's limitations on the concentrations of gallates in cosmetic and topical medicaments (from 0.001 to 0.1%) because of possible deleterious effects on the skin.³ As the use of these preservatives increases, it is likely that the incidence of gallate-related contact allergies will also increase, suggesting a need for increased product awareness and surveillance through patch testing.

The exact prevalence of gallate allergy in the United States, however, is not known because screening for gallate sensitivity is not done routinely. These chemicals are not included in the North American Contact Dermatitis Group standard screen nor in the Thin-Layer Rapid Use Epicutaneous (T.R.U.E.) Test (Allerderm, Phoenix, Arizona). Testing may be done with expanded panels (ie, vehicle, stomatitis trays) and is performed at a number of tertiary care contact dermatitis referral centers.

Through a modern intradermal injection sensitization procedure, Hausen and Beyer determined that the gallate with the most sensitizing potential is dodecyl gallate.¹ They also observed a positive correlation between the length of the gallate side chain and its sensitization capacity. Supporting this are the cases of occupation-related

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Allergen Avoidance provides clinicians with high-quality up-to-date practical information to supply to patients about specific contact allergens.

dermatitis from dodecyl and octyl gallate in bakers who handle foodstuffs treated with these antioxidants. Because of its more frequent inclusion in cosmetic products, propyl gallate is now emerging as a significant sensitizer in women presenting with cheilitis and in consumers of creams and topical medicaments that contain these chemicals. Finally, it is important to note that because of the similarity of the base compounds, cross-reactions between gallates can occur.¹

References

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GALLATES

What are they?

Gallates (propyl gallate, octyl gallate, and dodecyl gallate) are antioxidants that are added to food or cosmetic products to prevent spoilage and rancidity due to the oxidation of fats and oils.

Where are they found?

Gallates are primarily found in waxy or oily cosmetics and in oily, greasy, or high-fat foods. The following is a list of products that may contain gallates.

Propyl gallate	Octyl gallate	Dodecyl gallate
• Lip gloss, lip balm, lip liner • Moisturizers, creams, lotions, and oils • Eyeliner, brow liner • Eye shadow, mascara • Concealer, compact powder • Bar soap, facial cleanser • Sunscreen, sunblock, tanning oil • Shaving cream • Hair-loss treatment • Skin-fading cream, skin-lightening cream • Antiperspirant, deodorant • Perfume • Foods, as follow: • Vegetable oil/shortening • Meat products • Potato sticks • Chicken soup base • Chewing gum • Dry breakfast cereals	• Foods, as follow: • Margarine • Peanut butter • Beer • Edible oils • Fats, lard, shortening • Mayonnaise • Canned fruits • Salad dressings • Cereals • Dairy products • Snack foods • Processed meats/fish • Some cosmetics • Paints, varnishes • Boot polishes • Plastics • Emulsion waxes • Transformer oils	•Foods, as follow: • Margarine • Mayonnaise • Peanut butter • Cheese

How can they be avoided?

Identification of the specific gallate compound to which the patient has been sensitized can aid in the avoidance of products and foodstuffs that contain it. If there are gallates in the product, they should be indicated on the ingredient list.

If the patient is tested with only one gallate and has a positive reaction, he or she should avoid all gallates because gallates can cross-react. If the patient is tested with all three gallates and reacts to only one of them, the patient needs to avoid only the specific gallate to which he or she reacted.