



Sulfite sensitivity

Note: This document uses spelling according to the Australian Therapeutic Goods Administration (TGA) approved terminology for medicines (1999) in which the terms sulfur, sulfite, sulfate, and sulfonamide replace sulphur, sulphite, sulphate and sulphonamide.

Sulfites are preservatives used in some drinks, foods and occasionally medication. Sulfites can cause allergy like reactions (intolerances), most commonly asthma symptoms in those with underlying asthma, sometimes allergic rhinitis (hay fever) like reactions, occasionally urticaria (hives) and very rarely, anaphylaxis (severe allergic reaction). Wheezing is the most common reaction.

Sulfites are preservatives

Sulfites have been used since Roman times to preserve food flavour and colour, inhibit bacterial growth, reduce spoilage, stop fresh food from spotting and turning brown and help preserve medication and increase shelf life. Sulfites release sulfur dioxide, which is the active component that helps preserve food and medication.

Asthma is the most common adverse effect

The most common adverse reactions, including wheezing, chest tightness and coughing are estimated to affect 5 to 10% of people with asthma. Symptoms are more likely when asthma is poorly controlled. However, adverse reactions to sulfites can also occur when there is no preceding history of asthma. Reactions can be mild through to potentially life threatening.

Severe allergic reactions (anaphylaxis) are uncommon

Anaphylaxis has been described, but is very rare. Symptoms include flushing, fast heartbeat, wheezing, hives, dizziness, stomach upset and diarrhoea, collapse, tingling or difficulty swallowing.

Sensitivity to sulfites is a different condition from sulfonamide antibiotic allergy

Some patients will have allergic reactions to sulfonamide molecule-containing medication or sulfonamide antibiotics. This is a very different condition from sulfite sensitivity and is covered in a separate article: www.allergy.org.au/patients/medication-allergy

People who react to sulfites do not need to avoid sulfates or sulfur

Some drugs have a sulfate component (e.g. morphine sulfate) and most common soaps and shampoos contain compounds such as sodium lauryl sulfate; these are not allergenic and do not cause reactions in sulfite-sensitive individuals. Likewise, elemental sulfur (for example, as used in gardening) may cause respiratory irritation if inhaled but is not usually a specific problem for sulfite-sensitive individuals.

The mechanism by which reactions occur is unclear

- Sulfur dioxide gas (SO₂) is an irritant, and so reflex contraction of the airways from inhaling sulfur dioxide gas is one possible explanation. This mechanism may explain the rapid onset of symptoms when drinking liquids like beer or wine, when SO₂ gas is inhaled during the swallowing process.

ASCIA INFORMATION FOR PATIENTS, CONSUMERS AND CARERS

- Some people with asthma who react to sulfites have a partial deficiency of the enzyme sulfite oxidase which helps to break down sulphur dioxide.
- Some people (but not many) have positive skin allergy tests to sulfites, indicating true (IgE-mediated) allergy.

Diagnosis of suspected sulfite sensitivity

Most people with sulfite sensitivity do not have positive allergy tests and there is currently no reliable blood or skin allergy test to test for sulfite intolerances.

At times, it may be important to undertake a supervised food challenge with sulfites under medical supervision to confirm or exclude sensitivity. Further information on food intolerances is available on the ASCIA website: www.allergy.org.au/patients/food-other-adverse-reactions

Sulfites are present in many foods

Sulfites have a useful role to play in helping preserve many foods and beverages. The addition of sulfites to some foods like beer and wine is permitted in most countries. In many countries, it is illegal to add sulfites to foods like fresh salads or fruit salads, or to meats like minced meat or sausage meat. Unfortunately, these can be added from time to time illegally.

The following is a list of the most common sources of accidental exposure to sulfites.

	Common sources
Drinks	Cordials, some fruit juices, beer and wine, some soft drinks, instant tea.
Other liquids	Commercial preparations of lemon and lime juice, vinegar, grape juice.
Commercial foods	Dry potatoes, some gravies and sauces and fruit toppings, maraschino cherries, pickled onions, Maple syrup, jams, jellies, some biscuits and bread or pie or pizza dough.
Fruit	Dried apricots, and sometimes grapes will be transported with sachets of the sulfite containing preservative. Dried sultanas do not normally contain sulfites.
Salads and fruit salads	Sometimes restaurant salads and fruit salads will have sulfites added to preserve their colour.
Crustaceans	Sulphur powder is sometimes added over the top of crustaceans to stop them discolouring.
Meat	Sulfites are sometimes added illegally to mincemeat or sausage meat.
Other foods	Gelatin, coconut.

The presence of sulfites can be recognised on labelled food

By Australian law, the presence of sulfites must be indicated on the label by code numbers 220 to 228, or the word "sulfite":

Code number	Ingredient
220	Sulphur dioxide
221	Sodium sulfite
222	Sodium bisulfite
223	Sodium metabisulfite
224	Potassium metabisulfite
226	Calcium sulphite
227	Calcium bisulfite
228	Potassium bisulfite

Low or no sulfite wines and beers

Sulfites are generally found at higher levels in the cask wine than bottled wine, and are at much higher concentrations in white wine than red wine, which is preserved by natural tannins. Some wine makers in Australasia produce wines that state that they do not add sulfites into the wine. Some brewers produce beer and state that they do not add sulfites. There are various technical reasons related to wine making and brewing, which may mean that very low levels of sulfites are still present, even when not deliberately added.

Sulfites are also used in some medications

Method of medication administration	Medications
Topical medication	Some eye drops and creams
Oral medication	At the time of writing, no adverse reactions to sulfites have occurred from swallowed medication that might have been contaminated with sulfites.
Injectable medication	Adrenaline (epinephrine), isoprenaline, phenylephrine, dexamethasone and some other injectable corticosteroids, dopamine, local anaesthetics/dental anaesthetics containing adrenaline and aminoglycoside antibiotics are the most common potential sources of exposure. It should be noted that even in patients with serious sulfite sensitivity, the benefit of adrenaline is considered to outweigh any theoretical risk from sulfites in an emergency.

Management of sulfite sensitivity

Strategy	Effectiveness
Time	There is no evidence that sulfite sensitivity reduces with time
Avoidance	This is the mainstay of management. Commercial test strips to test food for the presence of sulfites are available in some other countries, but are not 100% reliable; these are not available in Australia at this time.
Switching of the sensitivity	There is no proven way of desensitisation or immunotherapy to reduce the severity of sulfite sensitivity.
Emergency action plan	Those with relatively mild reactions like mild wheezing should carry their asthma puffers when eating away from home. Those with more serious reactions are managed along the same lines as anyone else with

	anaphylaxis, with provision of an ASCIA Action Plan for Anaphylaxis and training in the use of their prescribed adrenaline autoinjector (EpiPen or Anapen).
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Content updated 2014