



Sulfite Sensitivity

Sulfites are preservatives used in some drinks, foods and medications. Sulfites can cause allergy like reactions (intolerances), with symptoms such as wheezing in people with asthma, allergic rhinitis (hay fever), and urticaria (hives). In rare cases they can cause anaphylaxis, the most severe type of allergic reaction.

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

Sulfites have been used since Roman times to preserve food flavour and colour, inhibit bacterial growth, reduce food spoilage, and help preserve medication. Sulfites release sulfur dioxide gas (SO₂), which is the active component that helps preserve drinks, foods and medication.

Asthma symptoms are the most common adverse reactions

Wheezing, chest tightness and coughing are estimated to affect 5 - 10% of people with asthma. Symptoms are more likely when asthma is poorly controlled. Adverse reactions to sulfites can also occur when there is no preceding history of asthma.

Anaphylaxis to sulfites is uncommon

Anaphylaxis to sulfites 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 people will have allergic reactions to sulfonamide containing medications such as sulfonamide antibiotics. This is a very different condition from sulfite sensitivity and is covered in a separate ASCIA article.

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

Some medications have a sulfate component (such as morphine sulfate), and most soaps and shampoos contain compounds such as sodium lauryl sulfate. These are not allergenic and do not cause reactions in sulfite-sensitive people. Elemental sulfur which is used in gardening may cause difficulty breathing if inhaled, but is not usually a specific problem for sulfite-sensitive people.

The mechanisms for adverse reactions can vary

- Inhaling SO₂ may cause reflex contraction of the airways. This mechanism may explain the rapid onset of symptoms when drinking liquids like beer or wine, when SO₂ is inhaled during the swallowing process.
- 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 have positive allergy tests to sulfites, indicating 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 for sulfite intolerances. A food challenge under supervision of a clinical immunology/allergy specialist may confirm or exclude sensitivity.

Sulfites are present in many drinks and foods

Sulfites preserve many drinks and foods. 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.

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The addition of sulfites to beer and wine is permitted in most countries.

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

	Common sources
Drinks	Cordials, fruit juices, beer, wine, soft drinks, instant tea.
Other liquids	Commercial preparations of lemon and lime juice, vinegar, grape juice.
Commercial foods	Dry potatoes, gravies, sauces, fruit toppings, maraschino cherries, pickled onions, Maple syrup, jams, jellies, biscuits, bread, pies, 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	Restaurant may add sulfites to preserve the colour of salads and fruit salads.
Crustaceans	Sulfur powder may be added on 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 as shown in the following table.

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 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 and brewers in Australasia produce wines and beers that state that they do not add sulfites. However, there are many 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

Administration method	Medications
Topical medication	Some eye drops and creams.
Oral medication	No adverse reactions to sulfites have been reported 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. Even in people 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 over time
Avoidance	Sulfite avoidance is safest. Test strips to test food for the presence of sulfites are available in some countries, but are not 100% reliable.
Switching off the sensitivity	There is no proven way of desensitisation or immunotherapy to reduce the severity of sulfite sensitivity.
Emergency action plan	People with relatively mild reactions such as wheezing should carry asthma puffers when eating away from home. People with more serious reactions should have an ASCIA Action Plan for Anaphylaxis, and carry a prescribed adrenaline autoinjector.

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