

# Your quick guide to: Sulphites and Airway Symptoms

## What are sulphites?

Sulphites are preservatives used to prevent spoilage, discolouration and bacterial growth. They are commonly added in the production of foods, drinks and some medicines. The Romans first discovered that adding certain substances (which we now know contain sulphites) to foods makes them last longer and helps preserve their colour and flavour.

## What is Sulphite allergy, intolerance or sensitivity?

True (IgE mediated) sulphite allergy is very rare. An IgE mediated allergy is an immune system response. Most people affected have a sulphite sensitivity or intolerance, which can still cause significant and sometimes severe symptoms.

- Sulphite reactions are not the same as sulphur or sulphate allergy.
- Sulphur is a natural chemical element found in many foods and the body
- Sulphates (e.g. in medicines or toiletries) do not usually cause sulphite reactions.

## How do sulphites cause symptoms?

Sulphites work as food preservatives by releasing sulphur dioxide, a gas. Sulphur dioxide is an irritant gas that can cause the airway to become irritated and constricted. It is thought that in most people sensitive to sulphites, the gas is released when sulphite containing foods interact with acid in the stomach. The gas disperses into the stomach but also back up and into the airway, causing symptoms.

## Who is most affected?

Sulphite reactions are more common in:

- People with asthma (especially those with steroid dependant asthma)
- People with severe atopy or multiple allergies
- People with previous unexplained reactions to wine or processed foods.

## Symptoms of sulphite reaction

Symptoms can occur quickly after ingestion

(from a few minutes to an hour)

### Mild to moderate symptoms:

- Headache
- Flushing
- Runny or blocked nose
- Cough
- Abdominal pain, nausea, diarrhoea
- Skin itching or mild rash

### Respiratory symptoms:

- Wheezing
- Chest tightness/ Shortness of breath
- Asthma attack (worsening of asthma/ exacerbation).

### Severe symptoms (medical emergency):

- Severe breathing difficulty
- Swelling of lips, tongue or throat
- Collapse or loss of consciousness (anaphylaxis is very rare, but possible)

The incidence of sulphite sensitivity in the general population is thought to be less than 2%, but this rises to between 5 and 13% in asthmatics.

## Foods and drinks that commonly contain sulphites

Sulphites must be declared on food labels in the UK and EU when present at >10mg/kg or >10mg/L (or if one of its ingredients contains it). Bear in mind that non-pre-packaged foods (e.g. 'loose' foods or foods prepared on the premises, including takeaways and restaurant food) are also covered by this labelling requirement, but if in doubt, it is always wise to ask.

### High risk foods

- Sulphites are used in the production of most wines, as they stop the fermentation process, which would otherwise make the wine turn sour.
- Beer and cider
- Pickled foods and vinegar
- Dried fruit e.g. dried apricots, prunes, raisins etc
- Maraschino cherries

## Key facts:

True (IgE mediated) sulphite allergy is **very rare**. Most people affected have a sulphite **sensitivity or intolerance**.

Symptoms can occur quickly after ingestion from a **few minutes to an hour**.

Sulphites are sometimes used in **medicines, as a preservative**.

Keeping a **food diary** to show to your healthcare professional **helps make a diagnosis**.

## Allergy UK Helpline

Mon-Fri, 9am-5pm:

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- Tinned coconut milk
- Vegetable juices
- Prawns and some processed seafood
- Grape juice
- Bottled lemon juice and lime juice
- Gravy, sauces, soups (especially powdered or ready-made)
- Guacamole
- Dehydrated, pre-cut or processed potatoes (e.g. chips, mash)
- Pre-cut or packaged salads
- Processed meat products

The following food additives contain sulphites; the same chemicals may be found in medications or cosmetics:

- E220 Sulphur dioxide
- E221 Sodium sulphite
- E222 Sodium hydrogen sulphite
- E223 Sodium metabisulphite
- E224 Potassium metabisulphite
- E226 Calcium sulphite
- E227 Calcium hydrogen sulphite
- E228 Potassium hydrogen sulphite
- E150b Caustic sulphite caramel
- E150d Sulphite ammonia caramel

## Do medicines contain sulphites?

Sulphites are sometimes used in medicines, as a preservative. These include topical creams and eye drops. However, since most people only react to sulphites when the substance comes into contact with acid in the stomach, it is very rare for these medicines to cause any adverse effects.

Some injection drugs (especially local anaesthetics) contain sulphites (generally sodium metabisulphite) as a preservative. If you are sulphite sensitive, ask your doctor/ pharmacist to check that your medicine is sulphite-free. Check the ingredients on the patient information leaflet for any medicines you are given, including those that you buy yourself over the counter.

Some adrenaline injections and auto-injectors contain sulphites but there is no evidence that this causes problems, and adrenaline should always be given as prescribed in an emergency.

Note that sensitivity to sulphites is different from allergy to sulphonamide-containing antibiotics. Sulphonamide is a different substance from sulphite and used to be commonly found in antibiotics. However, due to allergies to this compound, the use of antibiotics containing sulphonamides has decreased, as alternatives are often available. You should discuss this with your healthcare professional if concerned.

## Sulphites in cosmetics

Sulphites may be present in hair colours or bleaches, skin lighteners, fake tanning lotions, body lotions, shampoos and shower washes, moisturisers etc.

## How is sulphite sensitivity diagnosed?

There is no reliable blood or skin test for sulphite sensitivity. Most people with sensitivity to sulphites will not have a positive allergy test if this is done.

Diagnosis is usually based on:

- Detailed clinical history
- Symptom pattern linked to sulphite

exposure

- Improvement with avoidance.

Keeping a food diary to show to your healthcare professional helps make the diagnosis. Sometimes, your health professional may recommend an elimination diet of foods containing sulphites. This may be followed by a food challenge, but this should only happen under medical supervision.

## Management and treatment

Once the diagnosis has been made, treatment consists of:

- Avoidance of sulphite-containing foods, medicines and cosmetics. The degree to which this must be done depends on how sensitive the individual is. Some people who suffer mild sensitivity will only need to avoid foods containing the highest sulphite content; others with more severe sensitivity will need to be scrupulous in avoiding even trace amounts in foods, medicines and cosmetics.
- Inform healthcare professionals, caterers, schools and workplaces
- People with asthma should ensure optimal asthma control (your asthma is well controlled)
- Carry prescribed rescue inhaler
- Those with severe reactions may be prescribed an adrenaline autoinjector.

Symptoms arising from exposure to sulphites are treated according to the symptoms (e.g. antihistamines or steroids for rashes, inhalers for asthma. These will be guided and advised by your healthcare professional).

## Clinical contributions:

### Allergy UK Clinical Team

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