CONDITION

Sodium carbonate poisoning

Sodium carbonate poisoning is harmful exposure to an alkaline chemical that can irritate or burn body tissues.

WHAT IT IS
Harmful exposure to an alkaline cleaning or industrial chemical

BODY SYSTEM
Digestive system, eyes, skin, and lungs

MAIN SYMPTOMS
Burning pain, vomiting, coughing, difficulty swallowing

WHAT CAUSES IT
Swallowing, inhaling, or touching sodium carbonate

HOW IT IS DIAGNOSED
Exposure history, examination, and targeted tests

MAIN TREATMENT
Decontamination, supportive care, and treatment of chemical burns

CAN IT BE CURED?
Sometimes - recovery reflects the depth of injury

IS IT AN EMERGENCY?
Sometimes - swallowing, breathing trouble, severe pain, or eye burns

LONG-TERM OUTLOOK
Most recover; deep burns may cause lasting narrowing

Overview

Sodium carbonate is an alkaline chemical used in washing soda, some dishwasher and cleaning products, water treatment, glassmaking, and industrial processes. It is also called soda ash. It is not the same as sodium bicarbonate, commonly known as baking soda.

Sodium carbonate poisoning happens when enough of the chemical is swallowed, breathed in, or allowed to contact the eyes or skin. Because it is alkaline, it can damage tissue through a chemical burn. Powders can also irritate the nose, throat, and lungs.

The seriousness of an exposure is affected by the product's concentration, the amount involved, where it touched the body, and how long contact lasted. A brief touch of a dilute solution may cause irritation, while swallowing a concentrated product can injure the throat, food pipe, or stomach.

A suspected swallowing exposure needs prompt advice from a poison centre, even if symptoms are mild at first. Serious injury can sometimes be present without obvious burns around the mouth.

Symptoms

Symptoms usually begin soon after exposure, but some injuries become clearer over the next several hours.

After swallowing sodium carbonate, possible symptoms include:

Breathing sodium carbonate dust may cause a dry or sore throat, coughing, chest discomfort, wheezing, or shortness of breath. People with sensitive airways may notice more irritation.

Eye contact can cause immediate pain, redness, tearing, blurred vision, and difficulty keeping the eye open. Concentrated material or delayed rinsing may damage the eye surface.

Skin contact may cause dryness, redness, pain, or a chemical burn. Damp powder trapped under clothing or gloves can remain against the skin and continue causing injury.

Severe poisoning may lead to breathing problems, low blood pressure, confusion, collapse, or a hole in the food pipe or stomach. These effects are uncommon but require emergency treatment.

- Burning or pain in the mouth, throat, chest, or abdomen
- Drooling or difficulty swallowing
- Nausea, retching, or vomiting
- Coughing, hoarseness, or noisy breathing
- Swelling in the mouth or throat
- Blood in vomit or saliva after a significant burn

Causes and risk factors

Poisoning is caused by direct exposure to sodium carbonate. Common situations include accidentally swallowing a cleaning product, mistaking stored powder for food, inhaling dust during handling, or splashing a solution into the eyes.

The risk of a more serious injury is higher with:

Children may explore or taste an unsecured product. Adults can be exposed when chemicals are transferred into food or drink containers, mixed without checking labels, or handled

without suitable workplace controls.

Sodium carbonate should not be confused with sodium hydroxide, also called lye or caustic soda. Sodium hydroxide is generally more corrosive. However, sodium carbonate can still cause important injury, especially when concentrated or swallowed in quantity.

- Concentrated industrial or cleaning products
- A larger swallowed amount
- Prolonged eye or skin contact
- Delayed rinsing after an external exposure
- Vomiting after swallowing, which exposes tissues again
- Breathing dust in an enclosed or poorly ventilated space

Diagnosis

There is no single blood test that confirms sodium carbonate poisoning. Diagnosis usually starts with the exposure history and a physical examination. The product container, label, or safety data sheet can help identify the chemical and its concentration.

Healthcare professionals may examine the mouth, eyes, skin, breathing, and abdomen. Normal-looking lips or mouth do not always rule out a deeper injury in the food pipe.

Tests are chosen according to the exposure and symptoms. They may include blood tests to check salts, kidney function, and the body's acid-base balance. A chest X-ray or CT scan may be used if there are breathing symptoms or concern about a deep internal burn.

After a significant ingestion, a specialist may perform an upper endoscopy. This involves passing a flexible camera through the mouth to examine the food pipe and stomach. It helps show the location and depth of internal burns. It is not needed for every minor exposure, and the medical team decides when it is safe and useful.

An eye specialist may examine the eye surface and vision after a significant splash or ongoing symptoms.

Treatment and management

The first step is to stop contact with the chemical and get case-specific advice. In the United States, Poison Control can be reached at 1-800-222-1222. Elsewhere, contact the local poison information service. Have the product container available if this can be done safely.

Do not make someone vomit after swallowing sodium carbonate. Vomiting can expose the throat and food pipe to the chemical again. Do not try to neutralize it with vinegar, lemon juice, or another acid. The chemical reaction may produce heat and worsen injury. Activated charcoal does not reliably bind corrosive chemicals and should not be given unless a poison specialist directs it.

For a swallowed exposure, poison specialists may recommend rinsing the mouth and, if the person is fully awake and swallowing normally, taking a small amount of water. Do not give anything by mouth to someone who is drowsy, vomiting repeatedly, having a seizure, or struggling to swallow or breathe.

For an eye splash, begin rinsing immediately with plenty of room-temperature water. Remove contact lenses if they come out easily, and continue rinsing for at least 15 to 20 minutes. Prompt poison-centre or medical assessment is important if pain, redness, or vision changes continue.

For skin exposure, remove contaminated clothing and brush away dry powder without spreading it. Rinse the skin thoroughly with running water. Do not scrub injured skin or apply another chemical to neutralize it.

After dust inhalation, move into fresh air without entering an unsafe area. Persistent coughing, wheezing, chest tightness, or shortness of breath needs medical assessment.

Hospital treatment is supportive, meaning it protects breathing and circulation while injured tissue heals. Care may include pain relief, intravenous fluids, oxygen, airway support, and treatment for eye or skin burns. A person with a deep digestive-tract injury may temporarily need nutrition that does not pass through the injured area. Surgery may be necessary if there is a perforation or severely damaged tissue.

Complications

Most brief or low-level exposures cause temporary irritation. Complications are more likely after a concentrated exposure or a deep chemical burn.

Swelling of the throat can interfere with breathing. Lung injury may occur if powder is inhaled or if vomit containing the chemical enters the lungs.

Deep burns of the food pipe or stomach can cause bleeding, infection, or perforation. A perforation is a hole through the wall of an organ and requires emergency care.

As a food-pipe burn heals, scar tissue may tighten the passage. This is called an esophageal stricture. It can develop over weeks or months and cause food to stick, painful swallowing, weight loss, or repeated regurgitation. Treatment may involve procedures that gradually widen

the narrowed area.

Severe caustic injury to the food pipe is also linked with an increased risk of cancer many years later. This concern mainly applies to people with a documented deep burn, not to every minor sodium carbonate exposure. Their long-term follow-up plan may include specialist monitoring.

Prevention

Not every accidental exposure can be prevented, but safe storage and handling reduce the risk.

Keep sodium carbonate in its original, labelled container. Never place it in a cup, drink bottle, food jar, or unmarked bag. Store household products out of children's sight and reach, ideally in a secured cupboard.

Read the label before use. Avoid creating airborne dust, and use the ventilation and protective equipment listed on the product label or workplace safety data sheet. Do not mix cleaning products unless the manufacturer specifically states that it is safe.

Wash your hands after handling the chemical. Remove contaminated work clothing before entering living areas, especially where children may come into contact with it.

If sodium carbonate is used at work, follow workplace training and spill procedures. Know where running water, eyewash facilities, and the product safety data sheet are located.

Living with it and what to expect

People with mild eye, skin, or airway irritation often improve after the chemical is removed and the area is thoroughly rinsed. Symptoms may settle over hours to a few days, although eye symptoms need reassessment if they continue.

Recovery after swallowing sodium carbonate depends on whether a chemical burn occurred and how deep it was. Someone with no internal injury may need observation and symptom care only. A deeper burn can require hospital treatment and follow-up over several months.

During healing, swallowing may temporarily be uncomfortable. If scarring narrows the food pipe, difficulty swallowing may begin or worsen several weeks later. Some people need repeated procedures to widen the passage. Nutrition support may be needed while swallowing is limited.

After a documented severe burn, follow-up may continue for years. The plan is based on the location and depth of injury, swallowing function, and any complications. A minor exposure that

caused no burn does not usually become a chronic illness.

When to get medical help

Contact a poison centre promptly after any suspected swallowing of sodium carbonate. Do not wait for symptoms to appear. Poison specialists can assess the product, amount, route of exposure, and current symptoms.

Seek urgent medical assessment for ongoing eye pain, blurred vision, persistent vomiting, painful swallowing, increasing abdominal or chest pain, wheezing, or a cough that does not settle.

Call emergency services now if there is:

Routine follow-up is different from emergency care. After a significant internal burn, attend planned appointments even if symptoms improve. New or increasing difficulty swallowing, food sticking, repeated vomiting, or unintended weight loss should be reported promptly because these can suggest developing scar tissue.

- Difficulty breathing or noisy breathing
- Severe throat, chest, or abdominal pain
- Inability to swallow saliva
- Vomiting blood
- Confusion, collapse, or a seizure
- Sudden severe abdominal pain or a rigid abdomen

Common questions

Is sodium carbonate the same as baking soda?

No. Sodium carbonate is washing soda or soda ash. Baking soda is sodium bicarbonate, a different and generally less alkaline chemical. Product names can be confusing, so check the ingredient label rather than relying on appearance.

What should I do if I swallowed washing soda?

Rinse your mouth, do not induce vomiting, and contact a poison centre immediately for instructions. Do not use vinegar or another acid to neutralize it. Call emergency services for trouble breathing, severe pain, collapse, or inability to swallow.

Can a small taste cause poisoning?

A small taste may cause only irritation, but the risk cannot be judged from taste alone. Products differ in concentration, and symptoms may not show the full extent of an internal injury. A poison centre can assess the specific product and circumstances.

Can sodium carbonate burn my eyes or skin?

Yes. It can irritate or chemically burn tissue, particularly when concentrated or left in contact with the body. Immediate, prolonged rinsing reduces contact time. Ongoing eye pain or vision changes need urgent assessment.

How long do symptoms last?

Minor irritation may improve within hours or days. Deeper digestive-tract burns take longer to heal, and scar-related swallowing problems may appear weeks or months later. The expected course is based on the examination and any endoscopy or imaging results.

Can sodium carbonate poisoning cause permanent damage?

It can, but permanent injury is not expected after every exposure. Deep burns may leave eye damage, lung problems, or narrowing of the food pipe. Prompt decontamination and medical assessment help identify and manage these risks.

Sources

- U.S. National Library of Medicine. MedlinePlus Medical Encyclopedia. "Sodium carbonate poisoning."
- National Capital Poison Center. Poison Control. "First aid for poisonings."
- National Center for Biotechnology Information. PubChem Compound Summary for CID 10340, Sodium Carbonate.
- Merck Manual Professional Edition. "Caustic Ingestion."
- Royal Children's Hospital Melbourne. Clinical Practice Guideline: "Corrosives - Caustic Poisoning."
- Chirica M, Kelly MD, Siboni S, and colleagues. "Esophageal emergencies: WSES guidelines." World Journal of Emergency Surgery . 2019;14:26.