CONDITION

Plastic casting resin poisoning

Plastic casting resin poisoning is harmful exposure to liquid resin, hardener, or solvent through swallowing, breathing, or skin and eye contact.

WHAT IT IS
Toxic injury from liquid casting resin chemicals

BODY SYSTEM
Skin, eyes, lungs, digestive tract, and nervous system

MAIN SYMPTOMS
Burning pain, vomiting, coughing, breathing trouble

WHAT CAUSES IT
Exposure to uncured resin, hardener, or solvent

HOW IT IS DIAGNOSED
Exposure history, examination, imaging, or endoscopy

MAIN TREATMENT
Decontamination, supportive care, and burn treatment

CAN IT BE CURED?
Sometimes - mild exposures can fully resolve

IS IT AN EMERGENCY?
Sometimes - breathing trouble, collapse, or swallowing resin

LONG-TERM OUTLOOK
Mild exposure often resolves; severe burns may cause lasting damage

Overview

Plastic casting resin is a liquid material that hardens into plastic. It is used for crafts, models, jewellery, flooring, coatings, moulds, repairs, and industrial products.

"Casting resin" is not one chemical. Products may contain epoxy, polyester, polyurethane, acrylic, or other resin systems. Many come in two parts: a resin and a hardener. They may also contain solvents, styrene, amines, or isocyanates. Each ingredient has different health effects.

Poisoning can happen when uncured resin or hardener is swallowed, breathed in, splashed into the eyes, or left on the skin. The greatest concerns are usually the liquid components and their vapours. Fully cured resin is generally less chemically reactive, although cutting or sanding it can release irritating dust.

The effects depend on the product, amount, route of exposure, and length of contact. A small skin splash may cause irritation. Swallowing a corrosive hardener or breathing concentrated vapour in a poorly ventilated space can cause much more serious injury.

If an exposure has just happened, use the product label and Safety Data Sheet if available. A poison centre can give advice based on the exact ingredients.

Symptoms

Symptoms often begin during the exposure or within several hours. Some skin reactions and breathing problems can appear later.

Skin exposure may cause:

Resin in the eyes may cause severe stinging, redness, watering, blurred vision, or light sensitivity. Corrosive products can injure the surface of the eye.

Breathing vapour, mist, or sanding dust may cause irritation of the nose and throat, coughing, headache, dizziness, nausea, chest tightness, or shortness of breath. Some polyurethane products contain isocyanates, which can trigger asthma-like symptoms. High solvent concentrations may cause confusion, poor coordination, extreme sleepiness, or loss of consciousness.

Swallowing liquid resin or hardener may cause burning in the mouth and throat, drooling, difficulty swallowing, vomiting, or abdominal pain. Corrosive ingredients can burn the food pipe, called the oesophagus, and the stomach. Vomit entering the lungs can cause chemical lung inflammation.

Severe exposure may cause low blood pressure, collapse, seizures, or serious breathing difficulty. These effects are uncommon after minor contact but require emergency care.

- Redness, itching, burning, swelling, or blisters
- A chemical burn after contact with a corrosive hardener
- An eczema-like rash, called contact dermatitis
- Increasing reactions after repeated exposures

Causes and risk factors

Plastic casting resin poisoning is caused by direct exposure to an uncured resin mixture or one of its separate components. The risks cannot be judged from the word "resin" alone.

Common exposure situations include spilling resin on bare skin, mixing it in a closed room, touching contaminated tools, transferring it into an unlabelled container, or accidentally swallowing it. Heating, spraying, or using large amounts may increase the level of vapour or mist in the air.

Risk may be higher when:

Sensitisation means the immune system has learned to react to a chemical. After this happens, even a smaller later exposure may trigger dermatitis or asthma symptoms. Sensitisation is especially associated with some epoxy ingredients and isocyanates.

- Ventilation is poor
- Gloves or eye protection are unsuitable
- The product is used differently from its instructions
- Food or drinks are present in the work area
- Resin is stored in a food or drink container
- A person already has asthma or has become sensitised to an ingredient
- Children or pets can reach the product

Diagnosis

There is no single test that confirms every type of casting resin poisoning. Diagnosis is based mainly on what happened, the symptoms, and the product's ingredients.

Useful information includes the product name, manufacturer, resin type, exposure time, estimated amount, and whether it was swallowed, inhaled, or splashed. Bring the container or Safety Data Sheet to medical care if this can be done safely. Do not bring a leaking container into an enclosed vehicle or healthcare setting.

A clinician may examine the skin, eyes, mouth, breathing, heart rate, blood pressure, and alertness. Blood tests may be used to check organ function or the effects of a significant exposure, but routine blood tests do not identify most resin ingredients directly.

A chest X-ray or other imaging may be needed if vapour or vomit may have entered the lungs. After a concerning corrosive ingestion, a flexible camera examination called endoscopy may be used to look for burns in the oesophagus and stomach.

Eye exposure may require testing by an eye specialist, especially when pain or vision changes continue after rinsing.

Treatment and management

Immediate decontamination limits further contact. The correct next step depends on how the exposure happened.

For skin contact, remove contaminated clothing, shoes, and jewellery. Rinse the skin thoroughly with running water and wash gently with soap. Do not scrub hard or use paint thinner, acetone, alcohol, or another solvent to clean the skin. These can worsen irritation and may increase absorption.

For eye exposure, remove contact lenses if they come out easily and rinse the eye continuously with clean, lukewarm water for at least 15 to 20 minutes. Do not put neutralising chemicals, resin remover, or eye drops into the eye unless a healthcare professional advises it.

After inhalation, move into fresh air without entering an unsafe enclosed space. Loosen tight clothing and rest. Anyone with ongoing coughing, wheezing, chest tightness, confusion, or breathing difficulty needs prompt assessment.

If resin or hardener has been swallowed, do not make the person vomit. Vomiting can expose the throat again and allow the chemical to enter the lungs. Do not give food, drink, activated charcoal, or a neutralising substance unless a poison specialist or clinician recommends it for that exact product.

In the United States, Poison Control can be reached at 1-800-222-1222. Elsewhere, contact the local poison centre or emergency service.

Hospital treatment is based on the injury rather than on a universal antidote. It may include oxygen, breathing support, intravenous fluids, pain relief, eye treatment, wound care, or treatment for bronchospasm, which is tightening of the breathing tubes. Serious chemical burns may need specialist care. Most casting resins do not have a specific antidote.

Complications

Possible complications depend on the ingredients and route of exposure.

A deep skin burn can damage tissue and may leave scarring. Repeated contact can lead to long-lasting allergic dermatitis. Once sensitisation develops, further exposure may cause a reaction even when the amount seems small.

Eye burns can damage the clear front surface of the eye and affect vision. Fast, thorough rinsing helps reduce this risk.

Inhaled chemicals may cause persistent airway irritation or occupational asthma. Isocyanate

sensitisation can make future exposure unsafe. Solvent vapours at high concentrations can also affect the brain and nervous system.

Swallowed corrosive chemicals may cause deep burns, bleeding, or a hole in the oesophagus or stomach. As an oesophageal burn heals, scar tissue may narrow the passage. This is called a stricture and can cause swallowing problems weeks or months later.

If liquid or vomit enters the lungs, chemical pneumonitis may develop. This is inflammation caused by the chemical rather than an infection. Symptoms can include worsening cough, chest pain, fever, or shortness of breath.

Prevention

Most casting resin exposures can be prevented. Prevention depends on knowing the exact product and following its label and Safety Data Sheet.

Mix and cure resin where there is appropriate ventilation. Avoid using large quantities in a small, closed room. General room ventilation may not be enough for spraying, heating, or industrial use.

Wear the eye protection, clothing, and chemical-resistant gloves recommended for the product. Not every glove material protects against every resin or solvent. Replace contaminated or damaged gloves rather than continuing to use them.

A paper dust mask does not protect against chemical vapours. Work that requires a respirator needs the correct type, proper fit, and a suitable cartridge selected for the chemical.

Keep resin and hardener in their original, labelled containers. Never store them in cups, drink bottles, or food containers. Keep them away from children, pets, food, and open flames.

Clean spills using the manufacturer's instructions. Avoid touching contaminated handles, phones, or tools with dirty gloves. Wash your hands before eating or leaving the work area.

When sanding cured resin, control dust and use suitable eye and breathing protection. "Cured" does not mean that dust is safe to breathe.

Living with it and what to expect

A brief, minor skin or vapour exposure often improves after the chemical is removed and the area is rinsed or ventilated. Irritation may settle over hours to several days. Persistent pain, rash, cough, or eye symptoms need follow-up.

Chemical burns can take weeks to heal. Follow-up may involve wound care, eye care, lung

testing, or evaluation of swallowing. A person with a serious ingestion may need monitoring for later oesophageal narrowing, even after the first symptoms improve.

Allergic contact dermatitis or chemical-related asthma may last longer than the original exposure. Symptoms can return with later contact. An occupational health or allergy assessment may help identify the trigger and whether changes at work or in hobbies are needed.

Most people with a mild exposure do not develop permanent problems. The outlook after a severe exposure is shaped by the depth of any burns, whether the lungs were affected, and how quickly decontamination and supportive care began.

When to get medical help

Contact a poison centre promptly after swallowing any amount of uncured resin or hardener. Also seek advice after a significant inhalation, an eye splash, or skin contact with a corrosive product. Do not wait for symptoms before calling.

Arrange routine medical follow-up if a rash, cough, wheeze, eye discomfort, or swallowing problem continues after initial first aid. Follow-up is also important if symptoms repeatedly return during resin work.

Call emergency services now if there is:

Do not enter a room with concentrated fumes to rescue someone unless it is safe and you have appropriate protective equipment.

- Trouble breathing, severe wheezing, or blue or grey lips
- Collapse, seizure, confusion, or difficulty waking
- Severe chest or abdominal pain
- Drooling or inability to swallow
- Vomiting blood
- Sudden or continuing loss of vision
- A large or deep chemical burn
- Exposure in a confined space with more than one affected person

Common questions

Is cured casting resin still poisonous?

Fully cured resin is usually less reactive than its liquid ingredients. It should not be assumed to be food-safe or suitable for skin contact unless the manufacturer specifically confirms that use. Cutting, drilling, or sanding cured resin can release irritating dust.

What should I do if resin gets on my hands?

Remove contaminated items and wash the skin promptly with running water and soap. Do not clean your hands with acetone, paint thinner, or other solvents. Get medical advice if burning, blistering, swelling, or a spreading rash develops.

Can resin fumes make me sick?

Yes. Vapours may irritate the eyes and airways or cause headache, dizziness, and nausea. Some products can trigger asthma. Move to fresh air and seek prompt help for persistent coughing, wheezing, confusion, or shortness of breath.

What happens if I accidentally swallow a small amount?

The risk depends on the exact ingredients, and even a small amount may contain a corrosive hardener or solvent. Do not induce vomiting. Rinse the mouth, then contact a poison centre immediately for product-specific instructions.

Can one exposure cause a resin allergy?

Sensitisation is more often linked with repeated or substantial exposure, but it is not possible to predict exactly who will develop it. A recurring rash, wheeze, or chest tightness during resin use should be medically assessed before further exposure.

Will resin poisoning cause permanent damage?

Minor irritation often heals fully. Permanent effects are more likely after deep skin or eye burns, severe lung injury, corrosive ingestion, or chemical sensitisation. Ongoing symptoms need follow-up even if the initial exposure has passed.

Sources

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- Caustic Substance Poisoning , Merck Manual Consumer Version