



FACT SHEET

What is ricin?

Ricin is a poison that can be made from waste left over from processing castor beans. It can be in the form of a powder, a mist, or a pellet, or dissolved in water or weak acid.

Where is ricin found and how is it used?

Castor beans are processed throughout the world to make castor oil. Ricin has some medical uses, such as bone marrow transplants and cancer treatment (to kill cancer cells).

Ricin may have been used as a chemical warfare agent in the Iran-Iraq war during the 1980s. Reports also indicate that ricin has been found in Al Qaeda caves in Afghanistan.

How could people be exposed to ricin?

Unintentional exposure is highly unlikely. It would take a deliberate act to make ricin and use it to poison people. If that were done, people could be exposed by inhaling ricin mist or powder, or by eating food or drinking water that contains ricin. Ricin pellets, or ricin dissolved in a liquid, can also be injected into people's bodies. Ricin poisoning is not contagious—it cannot be spread from person to person through casual contact.

How would we know that people had been exposed?

A possible clue to an attack involving ricin inhalation would be that a number of people who had been close to each other suddenly developed fever, diarrhea, cough, and excess fluid in their lungs. These symptoms could be followed by severe breathing problems and possibly death.

There is no reliable test to confirm ricin exposure.

How does ricin hurt people?

Ricin works by getting inside the cells of a person's body and preventing the cells from making the proteins they need. Without the proteins, cells die, and eventually the whole body can shut down and die. Specific effects of ricin poisoning depend on whether ricin was inhaled, swallowed, or injected.

What are the signs and symptoms of ricin exposure?

- Ingestion: Swallowing a significant amount of ricin results in bleeding of the stomach and intestines, vomiting, and bloody diarrhea. Eventually, the liver, spleen, and kidneys stop working, and death may occur.
- Inhalation: Coughing, tightness in the chest, difficulty breathing, nausea, and aching muscles occur within a few hours of inhaling significant amounts of ricin. Within the next few hours, the body's airways (such as the lungs) become severely inflamed, excess fluid builds up in the lungs, and breathing becomes even more difficult. Excess fluid in the lungs can be diagnosed by X-ray or by listening to the chest with a stethoscope.
- Injection: Injection of a lethal amount of ricin causes the muscles and lymph nodes near the injection site to die. Eventually, the liver, kidneys, and spleen stop working, and massive bleeding occurs in the stomach and intestines. Death results from multiple organ failure.

Death from ricin poisoning could occur within 36 to 48 hours of exposure, whether by inhalation, ingestion, or injection. Exposed people who live longer than 5 days without complications will probably survive.

What are the long-term health effects of ricin exposure?

Long-term effects are unknown. No study has been completed on the long-term effects in either animals or humans.

What should people do if they think they've been exposed?

If you believe you have been exposed to ricin, call 911 and wait for emergency help to come. You can also contact the Poison Control Center at **1-800-222-1222**.

How is ricin poisoning treated?

There is no antidote. Ricin exposure is treated with supportive medical care, such as helping the person breathe, giving intravenous fluids, and giving medications to treat swelling.

Is there anything specific that Houstonians can do to prepare for a possible chemical terrorism event?

Emergency management officials recommend an "all-hazards" approach to emergency preparedness, which means that one plan can be used for several kinds of emergencies. Creating a household disaster plan, assembling an emergency supply kit, and putting together a bag of supplies you can grab on the go (a "go-bag") will provide you with the tools you need for almost any emergency, including a chemical release. For more information on developing family disaster plans or assembling emergency supply kits, visit **READYAmerica** (<http://www.ready.gov/america/index.html>).

The City of Houston Department of Health and Human Services, along with other government agencies and health institutions, will do everything possible to protect the health of all persons who live, work, or are visiting in Houston. During any public health emergency, health officials will provide instructions through TV and radio on how best to protect yourself and your loved ones. If a biological release does occur in Houston, stay tuned to the news media. Do NOT immediately rush to hospital emergency rooms. You may not be in immediate danger, and hospitals have to treat those who need immediate care. Furthermore, many treatments will be provided in non-hospital settings (emergency clinics) that would be established in multiple locations throughout the city.

What if fears about terrorism are having a serious impact on my family and work life?

After the events of September 11th, 2001, it is reasonable for individuals to feel anxious about their personal safety. However, if anxiety stops you from doing things that you would normally do, it might be helpful to speak with a professional counselor. Your healthcare provider can make a referral, or you can get help by calling Crisis Hotline at 713-HOTLINE (English) or 713-526-8088 (Spanish), or United Way Helpline at 211.



Houston Department of
Health and Human Services

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Additional information can be found at:

- **U.S. Centers for Disease Control and Prevention**
<http://www.bt.cdc.gov/agent/ricin>
- **Agency for Toxic Substances and Disease Registry**
<http://www.atsdr.cdc.gov/>

Adapted from U.S. Centers for Disease Control www.cdc.gov and New York City Department of Health and Mental Hygiene <http://www.nyc.gov/html/doh/html/pub/pub.shtml?t=aware>