

## THE FACTS ABOUT RICIN

### **What is ricin?**

Ricin (rye-sin) is a chemical poison present in castor beans. As a terrorism agent, ricin can be used as a powder, a mist, a pellet, or can be dissolved in water or weak acid. It is a stable substance and does not break down easily in typical indoor or outdoor temperatures.

### **Where is ricin found, and how is it used?**

Castor beans are grown and processed throughout the world to make castor oil. Ricin is part of the waste “mash” produced when castor oil is made. Ricin has some potential medical uses in treating cancer.

### **How can people be exposed to ricin?**

Accidental exposure to ricin is highly unlikely. It would take a deliberate act to use it as a poison. People can be poisoned by breathing in ricin mist or powder. People can also be poisoned by swallowing ricin-contaminated food or water. Ricin may enter the body through the skin when combined with certain chemicals or if the skin is damaged. Pellets of ricin, or ricin dissolved in a liquid, can also be injected into people’s bodies. Depending on the route of exposure (such as injection), the amount of ricin that would fit on the head of a pin could be enough to kill an adult.

Because ricin is a chemical poison, the illness it causes cannot be spread from person-to-person. However, contact with ricin-contaminated surfaces or people may transfer this poison and cause illness.

### **How does ricin affect the body?**

Ricin kills the cells in a person’s body by preventing the cells from making the proteins they need.

### **What are the signs and symptoms of ricin exposure?**

Specific effects of ricin poisoning depend on whether ricin was inhaled, swallowed, touched or injected.

**Inhalation:** Within a few hours of inhaling significant amounts of ricin, the likely symptoms would be respiratory distress (difficulty breathing), fever, cough, nausea, and tightness in the chest. Heavy sweating may follow, as well as fluid building up in the lungs (pulmonary edema). This would make breathing even more difficult, and the skin might turn blue. Finally, low blood pressure and respiratory failure may occur, leading to death.

**Ingestion:** If someone swallows a significant amount of ricin, he or she would develop vomiting and diarrhea that may become bloody. Severe dehydration may result, followed by low blood pressure. Other signs or symptoms may include hallucinations, seizures, and blood in the urine. Within several days, the person’s liver, spleen, and kidneys might stop working, and the person could die.

**Skin and Eye Contact:** Ricin in powdered or mist form can cause redness and pain of the skin and of the eyes.

**Injection:** Injection of a lethal amount of ricin first causes the muscles and lymph nodes near the injection site to fail. Eventually, the liver, kidneys and spleen stop working and there is massive bleeding from the stomach and intestines, resulting in death from multiple organ failure.

Death from ricin poisoning could take place within 36 to 72 hours of exposure. However, death from ricin poisoning will probably not occur if the victim lives longer than 5 days without complications.

### **What can you do if you think you may have been exposed to ricin?**

Ricin poisoning is highly unlikely. No widely available test exists to confirm that a person has ricin in their body. If you suspect that you have been exposed to ricin, take the following steps:

- Quickly move away from the area where you think you were exposed.
  - If you are near a release of ricin, emergency coordinators may tell you to either evacuate the area or to “shelter in place” inside a building to avoid being exposed to the chemical. For more information on evacuation during a chemical emergency, see *Facts About Evacuation* (<http://www.bt.cdc.gov/planning/evacuationfacts.asp>). For more information on sheltering in place during a chemical emergency, see *Facts About Sheltering in Place* (<http://www.bt.cdc.gov/planning/Shelteringfacts.asp>).
- Take off any clothing that may have ricin on it.
  - Clothing that is removed over the head (like t-shirts and sweaters) should be cut off the body instead, to prevent further exposure.
- Wash any ricin from your skin with large amounts of soap and water.
  - Remove contact lenses and put them with the contaminated clothing. Do not put the contacts back in your eyes (even if they are not disposable contacts). Eyeglasses can be worn after you wash them with soap and water.
  - Do not use bleach on your skin.
- Place your clothing inside a plastic bag and seal the bag.
  - Disposing of your clothing in this way will help protect you and other people from any chemicals that might be on your clothes.
  - Do not handle the plastic bags yourself. Wait for instructions on who to contact for disposal of the plastic bags.
- Seek medical attention right away. Dial 911 and explain what has happened.

### **How is ricin poisoning treated?**

No antidote exists for ricin. Prompt medical care is critical. Ricin poisoning is treated by giving the victim supportive care to minimize the effects of the poisoning. Care could include such measures as helping the victim breathe, and giving intravenous fluids and medications to treat seizures and low blood pressure.

### **How can you get more information about ricin?**

Contact one of the following:

Regional Poison Control Center (1-800-222-1222)

Centers for Disease Control and Prevention Public Response Hotline (CDC)

English (888) 246-2675

Español (888) 246-2857

TTY (866) 874-2546

Agency for Toxic Substances and Disease Registry (ATSDR)

1-888-422-8737

Source: Adapted from Centers for Disease Control and Prevention *Facts About Ricin* (<http://www.bt.cdc.gov/agent/ricin/facts.asp>), October 2003.

This fact sheet is based on the most current information. It may be updated as new information becomes available.