



FACT SHEET

Prussian blue

Facts About Prussian blue

Prussian blue can remove certain radioactive materials from people's bodies, but must be taken under the guidance of a doctor.

People may become internally contaminated (<http://www.bt.cdc.gov/radiation/contamination.asp>) (inside their bodies) with radioactive materials by accidentally ingesting (eating or drinking) or inhaling (breathing) them, or through direct contact (open wounds). The sooner these materials are removed from the body, the fewer and less severe the health effects of the contamination will be. Prussian blue is a substance that can help remove certain radioactive materials from people's bodies. However, small amounts of contamination may not require treatment. Doctors can prescribe Prussian blue if they determine that a person who is internally contaminated would benefit from treatment.

What Prussian blue is

Prussian blue was first produced as a blue dye in 1704 and has been used by artists and manufacturers ever since. It got its name from its use as a dye for Prussian military uniforms. Prussian blue dye and paint are still available today from art supply stores.

People **SHOULD NOT** take Prussian blue artist's dye in an attempt to treat themselves. This type of Prussian blue is not designed to treat radioactive contamination and is not made for that purpose. People who are concerned about the possibility of being contaminated with radioactive materials should go to their doctors for advice and treatment.

Use of Prussian blue to treat radioactive contamination

Since the 1960s, Prussian blue has been used to treat people who have been internally contaminated with radioactive cesium (mainly Cs-137) (<http://www.bt.cdc.gov/radiation/isotopes/cesium.asp>) and nonradioactive thallium (once an ingredient in rat poisons). Doctors can prescribe Prussian blue at any point after they have determined that a person who is internally contaminated would benefit from treatment. Prussian blue will help speed up the removal of cesium and thallium from the body.

How Prussian blue works

Prussian blue traps radioactive cesium and thallium (mainly TI-201) (<http://www.bt.cdc.gov/radiation/isotopes/thallium.asp>) in the intestines and keeps them from being reabsorbed by the body. The radioactive materials then move through the intestines and are excreted (passed) in bowel movements. Prussian blue reduces the biological half-life¹ (<http://www.bt.cdc.gov/radiation/glossary.asp#biologicalhalflife>) of cesium from about 110 days to about 30 days. Prussian blue reduces the biological half-life of thallium from about 8 days to about 3 days. Because Prussian blue reduces the time that radioactive cesium and thallium stay in the body, it helps limit the amount of time the body is exposed to radiation.

¹Biological half-life is the time that it takes a substance in the body to be reduced by $\frac{1}{2}$.

Radioisotope Brief: Iodine-131 (I-131)

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Who can take Prussian blue

The drug is safe for most adults, including pregnant women, and children (2-12 years). Dosing for infants (ages 0-2 years) has not been determined yet. Women who are breast feeding their babies should stop breast feeding if they think they are contaminated with radioactive materials and consult with their doctors. People who have had constipation, blockages in the intestines, or certain stomach problems should be sure to tell their doctors before taking Prussian blue. Before taking Prussian blue, people also should be sure to tell their doctors about any other medicine they are taking.

How Prussian blue is given

Prussian blue is given in 500-milligram capsules that can be swallowed whole. People who cannot swallow pills can take Prussian blue by breaking the capsules and mixing the contents in food or liquid. Breaking open the capsules will cause people's mouths and teeth to be blue during the time of treatment.

The dose of Prussian blue depends on the person's age and the amount of contamination in the body. Prussian blue usually is given 3 times a day for a minimum of 30 days, depending on the extent of the contamination.

Side effects of Prussian blue

The most common side effects of Prussian blue are upset stomach and constipation. These side effects can easily be treated with other medications. People may have blue feces (stool) during the time that they are taking Prussian blue.

Where you can get Prussian blue

Prussian blue is available only by prescription. The CDC has included Prussian blue in the Strategic National Stockpile (SNS), a special collection of drugs and medical supplies that CDC keeps to treat people in an emergency.

Where you can get more information

More detailed information on Prussian blue can be found at the U.S. Food and Drug Administration Web site. (http://www.fda.gov/cder/drug/infopage/prussian_blue/Q&A.htm#2)

You may also call the CDC Public Response line at 1-800-311-3435 or visit <http://www.cdc.gov/netinfo.htm> to request more information.

The Centers for Disease Control and Prevention (CDC) protects people's health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health issues; and promotes healthy living through strong partnerships with local, national, and international organizations.

For more information, visit www.bt.cdc.gov/radiation, or call the CDC public response hotline at (888) 246-2675 (English), (888) 246-2857 (Español), or (866) 874-2646 (TTY)