



FACT SHEET

Prussian Blue

Facts About Prussian Blue

Prussian blue can remove select radioactive materials from people's bodies, but must be taken under the guidance of the Radiation Emergency Assistance Center/Training Site (REAC/TS) of the Oak Ridge Institute.

People may become internally contaminated (inside their bodies) with radioactive materials by accidentally ingesting (eating or drinking) or inhaling (breathing) them. The sooner that 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, Prussian blue currently is available only when doctors have determined that a person is internally contaminated.

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.

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) or thallium (mainly Tl-201). Prussian blue can be given at any point after doctors have determined that a person is internally contaminated. Prussian blue will help speed up the removal of cesium and thallium from the body.

How Prussian blue works

Radioactive cesium and thallium, whether ingested or inhaled, will end up in the intestines. Prussian blue traps these materials in the intestines and keeps them from being absorbed by the body. The radioactive materials then move through the intestines and are excreted in bowel movements. Prussian blue reduces the biological half-life¹ of cesium in the body from about 115 days to about 40 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.

Who can take Prussian blue

People may be prescribed Prussian blue during an emergency when cesium or thallium has entered their bodies. Because Prussian blue is only approved for limited use it must be taken under the guidance of REAC/TS. The drug is safe for all adults, children, and infants, including pregnant women and women who are breast-feeding their babies. Prussian blue may not be recommended for people who have had constipation or blockages in the intestines.

¹**Biological half-life** is the time that it takes a substance in the body to be reduced by ½.

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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 will have blue feces during the time that they are taking Prussian blue.

Where you can get Prussian blue

Prussian blue is not routinely available. When approved for use by REAC/TS it is supplied in 500-milligram capsules that can be swallowed whole or mixed in liquid for children to drink. The amount to be taken depends on how badly a person is contaminated. Prussian blue must be taken 3-4 times a day for up to 150 days, depending on the extent of the contamination, under the supervision of a doctor.

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 manufactured in a germ-free area. People who are concerned about the possibility of being contaminated with radioactive cesium or thallium should go to their doctors for advice and treatment.

Where you can get more information

More detailed information on Prussian blue can be found at the [REAC/TS web site \(http://www.orau.gov/reacts/prussian.htm\)](http://www.orau.gov/reacts/prussian.htm), at the [National Institutes of Health web site \(http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202737.html\)](http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202737.html), or at the [U.S. Food and Drug Administration web site \(http://www.fda.gov/cder/drug/infopage/prussian_blue/Q&A.htm#2\)](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)

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