U.S.NRC
United States Nuclear Regulatory Commission
*Protecting People and the Environment*



# Frequently Asked Questions About Potassium Iodide

On this page:



TOP

### What is potassium iodide?

Potassium iodide is a salt, similar to table salt. Its chemical symbol is KI. It is routinely added to table salt to make it "iodized." Potassium iodide, if taken in time and at the appropriate dosage, blocks the thyroid gland's uptake of radioactive iodine and thus could reduce the risk of thyroid cancers and other diseases that might otherwise be caused by exposure to radioactive iodine that could be dispersed in a severe nuclear accident.

TOP

By requiring consideration of the use of potassium iodide, the Commission recognizes the important role of States and local governments in matters of emergency planning.

This rule applies to States and Tribal governments that have a nuclear power plant within their borders and populations within the 10-mile emergency planning zone and to local governments designated by States to request funding for potassium iodide.

TOP

**What does it mean for a State to consider the use of potassium iodide?**

A State considering the use of potassium iodide would at least review the regulation (66 FR 5427; January 19, 2001), the Federal Policy on the Use of Potassium Iodide, Food and Drug Administration (FDA) guidelines "Potassium Iodide as a Thyroid Blocking Agent in Radiation Emergencies," the FEMA guidelines, and the NRC disclaimer and would briefly deliberate the State's position on the use of potassium iodide by the general public in the unlikely event of a severe nuclear reactor accident.

In NRC's experience, States periodically review their emergency preparedness plans to ensure that the plans are up-to-date and account for the possibility of changed circumstances in any locality. NRC expects that States that routinely schedule periodic reviews of their emergency preparedness plans would consider use of potassium iodide during their first scheduled review. NRC expects that States that do not routinely conduct such reviews would consider the use of potassium iodide whenever they schedule periodic emergency preparedness exercises.

TOP

**What kinds of things should States consider in deciding whether to incorporate the use of potassium iodide in their emergency planning?**

Considerations to be evaluated by State and local authorities in deciding whether to institute a program for the use of potassium iodide by the general public include the following:

- Whether potassium iodide should be distributed to the general population before an accident occurs or as soon as possible after an accident occurs.
- Whether the risks of exposure to radioactivity will be lower if the evacuation of the general population is initiated (with or without the use of potassium iodide) or if the general population is sheltered and the administration of potassium iodide initiated.
- How potassium iodide will be distributed during an emergency.
- What assumptions should be made about its actual availability and use in the event of an incident if potassium iodide is predistributed?
- What medical assistance will be available for individuals who may have some adverse reaction to potassium iodide?
- How medical authorities will advise the population to take potassium iodide and under what circumstances this advice will be given (i.e., methods for public education, information, and instruction).
- How the authorities will provide potassium iodide to transient populations.

TOP

**What are the recommended dosages of potassium iodide?**

include the recommendation to take KI as a supplement to evacuation and/or sheltering. In the case of a dirty bomb, protective actions will be made according to the threat presented. If the bomb contained radioactive iodine, then the use of KI may be appropriate. However, radioactive iodine is not considered to be a viable component of a dirty bomb due to its relatively short half-life and the difficulties in obtaining significant quantities. More information on dirty bombs and response to terrorist activities can be found on the Nuclear Security and Safeguards Web page. Other information can be found at the Department of Homeland Security.

TOP

**Have other Federal agencies included potassium iodide in their emergency planning considerations?**

The Food and Drug Administration as well as the Centers for Disease Control and Prevention have posted KI information on their Web sites.

TOP

**What is the shelf life of KI tablets?**

As with all drug products, the manufacturer must specify an expiration date of the drug on either the package or the individually wrapped tablet. The NRC distributes two tablet strengths of potassium iodide, 130 and 65 mg tablets. The shelf life of IOSAT 130 mg tablets is 7 years and the shelf life of ThyroSafe 65 mg tablets is 6 years.

For States interested in extending the shelf life of KI, the FDA has published guidance on shelf life extension for the tablet form of potassium iodide. Extending the shelf life of KI tablets is possible due to the inherent stability of the chemical form. However, the tablets must be stored under the conditions specified by the manufacturer to be considered for shelf life extension. In addition, this guidance only is intended for Federal agencies and State and local governments that maintain KI stockpiles under the conditions specified by the manufacturer.

The liquid formulation of KI also has a shelf-life of 5 years. The extension guidance does not apply to this product form.

TOP

**Is it safe to take KI tablets with an expired shelf-life?**

Yes, potassium iodide tablets are inherently stable and do not lose their effectiveness over time. Manufacturers must label their products with a shelf-life to ensure that consumers purchase safe and useful products.

According to FDA guidance on Shelf-life Extension, studies over many years have confirmed that none of the components of KI tablets, including the active ingredient, has any significant potential for chemical degradation or interaction with other components or with components of the container closure system when stored according to labeled directions. To date, the only observed changes during stability (shelf-life) testing have been the failure of some batches of KI tablets to meet dissolution specifications. Some tablets tested required slightly longer than the specified time to achieve dissolution. *Even in the case of a failure of this sort, the product remains usable. In such cases, instructions can be provided to crush the tablets and mix them with a juice or other liquid prior to administration as suggested for emergency pediatric dosing.*

TOP