

Potassium Iodide (KI)

Recent terrorist events have many people concerned about potential future attacks using radioactive materials. Taking potassium iodide (KI) tablets after an incident involving radioactive materials may or may not limit the risk of damage to a person's thyroid gland from ionizing radiation. The Michigan Department of Community Health has prepared a fact sheet to further explain when KI might be appropriate and what people should consider before making a decision to take KI.

What is potassium iodide (KI)?

KI is a salt of iodine. It is one of several ingredients added to table salt to make it iodized. Classified as a drug approved for over-the-counter sale, KI has been determined by the U.S. Food and Drug Administration (FDA) to be a safe and effective method to block exposure to one product of a nuclear release — radioactive iodine. Radioactive iodine, either inhaled or ingested through contaminated food, milk, or water can increase the risk of developing thyroid cancer.

Will KI protect me against all types of radiation exposure?

The protection offered by KI is very site specific. It protects one organ (thyroid gland) from one type of radiation (radioactive iodine). KI will saturate the thyroid gland with iodine and help prevent it from absorbing radioactive iodine. KI will not protect other parts of the body from radioactive iodine and will not protect a person from other radioactive materials that may be released. Emergency directives such as evacuation, staying indoors, or restricting the use of contaminated food, milk, and water are designed to minimize human exposure to all types of harmful radiation that could be released in a nuclear emergency. **Taking KI is not a substitute for following emergency directives.**

How does KI work to protect the thyroid gland from radioactive iodine?

The main function of the thyroid is to create, store, and release thyroid hormones, which help regulate the body's metabolism. Most people get the iodine they need from foods like fish and iodized salt. The thyroid is designed to absorb and store iodine, but it can hold only so much, and will just as readily absorb non-radioactive KI as radioactive iodine. Because of this, one dose of KI, which is not harmful to the thyroid, works by filling the gland so it cannot take up any radioactive iodine.

Are there side effects to taking potassium iodide?

KI is a safe and medically effective drug if taken at the appropriate dosage, time, and radiation exposure conditions. Short-term use of KI at the proper dosage is safe for most people. Side effects are generally mild and may include gastrointestinal distress and rash.

Who should NOT take KI?

The high concentration of iodine in KI can be harmful to some people. People should **not** take KI if they:

- are allergic to iodine.
- have skin infections such as: dermatitis herpetiformis or hypocomplementemic vasculitis. (Both of these are extremely rare conditions, but could indicate hypersensitivity to iodine.)
- have multinodular goiter, Graves' disease, autoimmune thyroiditis, or if you are taking any thyroid medication, consult with your physician before consuming KI.
- are pregnant or could be pregnant, consult with your physician before taking KI. (Newborns or women who received KI while pregnant should seek a medical follow-up with their physician.)

I have heard some states are stockpiling KI for residents who live near nuclear power plants. What is the status of KI in Michigan?

Current policy in a nuclear power plant event includes evacuation and sheltering as public protective actions, with evacuation as the primary protective action of choice. However, Michigan does have procedures in place for using KI. For more information visit [Michigan Department of Environmental Quality -Potassium Iodide \(KI\) Issue.](#)

Should I go out and buy KI to keep on hand?

KI pills purchased over the Internet or from unknown companies are of unknown quality. If KI pills are needed, local officials will notify you of how and where you can obtain them.

Additional Information:

[CDC-What People Need to Know About Potassium Iodide \(KI\)](#)

[DEQ-Potassium Iodide \(KI\) Issue](#)

[Michigan.gov Home](#)[DEQ Home](#)[Online Services](#)[Permits](#)[Programs](#)[Site Map](#)[Contact DEQ](#)

WASTE

[> Groundwater Discharge](#)[> Hazardous Waste](#)[Hazardous & Liquid](#)[> Industrial Waste
Transportation](#)[> Medical Waste](#)[> Radiological
Protection](#)[Radioactive Material](#)[Radiation Monitoring &
Reporting](#)[Nuclear Facilities](#)[> Scrap Tires](#)[> Solid Waste](#)

About DEQ

Assistance & Support
Services

Information & News

Pollution Prevention

AIR

LAND

WATER



The Potassium Iodide (KI) Issue

"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 prevent thyroid cancers caused by exposure to radioactive iodine.

Use of Potassium Iodide (KI) in the State of Michigan

The Michigan State Police, Emergency Management Division (MSP/EMD) is the lead state agency for managing the state KI supply for nuclear power plant emergencies pursuant to the Michigan Emergency Management Plan. The State maintains a stockpile of about 3200 bottles (fourteen 130 mg tablets in each) that is distributed among the EMD office, the Department of Environmental Quality/Radiological Protection Section (DEQ/RPS) office, and five counties in the vicinity of our operating nuclear power plants (Wayne, Monroe, Berrien, Van Buren, and Allegan). The EMD routinely replenishes supplies to maintain a valid expiration date. Should an accidental release of radioactive iodine ever occur from a nuclear power plant, this KI would be used by responding DEQ field teams and other state and county emergency workers. In addition, KI would be provided to homebound individuals for whom evacuation is not a practical option should the radioiodine release be a significant public health risk. A detailed KI information sheet accompanies each bottle of KI, (including directions, warnings, and explanations) and the State of Michigan provides thorough guidance to all impacted persons as the situation warrants. For the public at large, the primary protective action of choice is evacuation without the use of KI. Prompt evacuation precludes the need for KI.

The State plans to review any new federal guidance or national recommendations concerning an expansion of the use of KI by the general public. However, until this information is made available and addresses all logistical, technical, and medical concerns, the State of Michigan remains unconvinced to change its current policy.

Potassium Iodide Issue: Status Update - January 2002

The US Nuclear Regulatory Commission (NRC) on April 19, 2001 required all states to reconsider policy on the use of KI for the general public during severe nuclear reactor accidents, referencing factors influencing the effects of radioiodine releases from the Chernobyl accident. The FDA issued guidance to state and local governments and has concluded recently that KI is a safe and effective means, under certain specific conditions, of reducing thyroid dose across populations at risk for radioiodine exposure. While most of the Chernobyl thyroid dose appears to be from ingestion, no US thyroid ingestion dose will occur due to early and efficient agricultural product embargo plans. US reactor design and an efficient evacuation approach further minimizes the likelihood of significant thyroid doses, if any were to occur, from inhalation.

Personalize Michigan.gov
click here to see how...

Related Content

[> Michigan's Nuclear
Power Plants](#)[> Nuclear Facilities
Emergency Response
Procedures\(NFERP\)](#)

Therefore the state population at risk, for a radioiodine exposure significant enough to warrant use of KI, appears questionable at this stage. For potentially sensitive populations, under worst case scenarios, there may exist a much more efficient approach to this problem than a state managed approach. The State of Michigan continues to diligently assess questions raised relative to any new benefit of expanding the use of KI and to the need to change existing policy on the use of KI for the general public. We currently remain unconvinced to alter our current policy involving protective actions for the public. We remain committed to providing the best protective action policy consistent with the needs of this state, which continues to be a policy that relies on immediate evacuation as the primary protective action of choice.

We plan to carefully and thoroughly review any new federal guidance on this issue. We are aware that the National Council on Radiation Protection and Measurements (NCRP) plans to review current relevant information, including data associated with the Chernobyl accident, and issue recommendations this Spring specific to the health risk posed by exposure of the thyroid to radioiodine. The recommendations of the NCRP may be pivotal to any reconsideration of the State of Michigan policy on the use of KI by the general public during radiological emergencies.

Chronology

- 7/82 FDA issues final recommendation and NRC issues policy on use of KI in nuclear plant emergencies (provide KI to emergency workers and those who cannot be evacuated)
- 9/95 Peter Crane Submits Original Petition to NRC to Require Use of KI for the Public
- 12/97 NRC Requests Comment on Revised Petition
- 6/98 NRC Decides to Grant Revised Petition for Rulemaking
- 6/99 Proposed Rule Issued for Comment
- 12/00 FDA Issues Draft Guidance on Use of KI
- 1/01 NRC Issues Final Rule on KI
- 4/01 Final Rule on KI Effective
- 4/01 FEMA Issues Correspondence Citing NRC Requirement to Consider Including KI for General Public (No Date Specified for Response)
- 11/01 FDA Issues Final Guidance (current thinking) on Use of KI
- 12/01 NRC Letter to States About NRC Funding for KI and Related Information
- 1/02 FEMA Issues Revised Policy on KI