



## South Carolina Department Of Health and Environmental Control

### Frequently Asked Questions

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## DHEC: Potassium Iodide (KI)

### Basic Information

Potassium Iodide (KI) is a dry salt-like tablet. Its chemical symbol is KI, which represents a compound of Potassium (K) and Iodine (I). Iodine is used by the thyroid gland to produce hormones. Iodine normally enters the bloodstream from the food we eat. The thyroid is designed to absorb and store Iodine.

KI is also added to table salt ("iodized salt") to provide a source of dietary Iodine.

The U.S. Food and Drug Administration (FDA) classifies KI as a nonprescription drug, approved for over-the-counter sale, as a safe and effective method to protect the thyroid gland from radioactive Iodine (radioiodine).

In the event of a radiation emergency or accident that involves a release of radioactive Iodine, KI may be used to help prevent the risk of thyroid cancer. Local and state officials may ask citizens to evacuate or shelter-in-place as the primary public safety measure and use. Potassium Iodide (KI) tablets as a **supplemental** protective measure in addition to evacuation or shelter-in-place).

### Frequently Asked Questions and Answers about KI

#### **What is KI?**

Potassium Iodide (KI) is available in tablet form for purchase over the counter, without a prescription. If taken when needed at the appropriate time and dosage, KI protects the thyroid gland from radioactive Iodine and can reduce the risk of thyroid cancer after a severe nuclear emergency event resulting in a release of radioactive Iodine.

#### **KI IS NOT AN "ANTI-RADIATION" TABLET.**

Taking KI is only an additional protective measure, secondary to evacuation or sheltering in place and it is only effective in protecting the thyroid gland. **Evacuation and sheltering-in- place remain the primary protective actions during a radiological emergency.**

#### **What does KI do?**

In the event of a threatened or actual nuclear power plant release, **evacuation remains the best course of action for protecting your health.** KI works as a "thyroid-blocking agent" by replacing radioactive Iodine with stable Iodine. The radioactive Iodine would pass through the body harmlessly rather than being absorbed. KI must be taken shortly before or shortly after exposure to radioactive Iodine, to protect the thyroid from being damaged by radioactive Iodine.

KI does not provide protection from full body exposure to radiation, nor does it protect the body from other radioactive elements that may result from a nuclear power plant release or other radiological emergencies. An actual nuclear release may contain other types of radiation.

**What is the benefit of taking KI during a radiological emergency?**

Radioiodines (or radioactive iodines) are one of the potential by-products of nuclear fission or nuclear power plant operations. An accident involving a nuclear reactor or nuclear weapon could result in a release of potentially harmful amounts of radioactive Iodine into the environment. Inhalation of (breathing in) radioiodine, or ingestion through (eating or consuming) contaminated food or milk increases the radiation dose to the thyroid gland and to the rest of the body.

Taking KI is a method of blocking the thyroid's absorption of radioiodine. KI provides stable Iodine that saturates the bloodstream. If an appropriate dose of KI is taken before exposure, or shortly after exposure, to radioactive Iodine absorption of radioiodine from the bloodstream will be limited and the risk of thyroid effects will be reduced.

**Who can take KI?**

Most people can take Potassium Iodide (KI) safely. A small number of people could have an adverse reaction. **Anyone with an existing thyroid gland condition or anyone allergic to Iodine or shellfish should NOT take KI without consulting a physician.** Consult your physician if unsure whether you should take KI.

**Recommended Doses of KI**

<u>Age Group</u>	<u>KI Dosage</u>	<u>Number of 130mg Tablets</u>	<u>Number of 65mg Tablets</u>
<b><u>Adults and Adolescents*</u></b> (Over 150 lbs.)	130mg	<b>1 tablet</b> ●	<b>2 tablets</b> ●●
<b><u>Children 3-18 yrs</u></b> (Under 150 lbs.)**	65mg	<b>1/2 tablet</b> ◐	<b>1 tablet</b> ●
<b><u>Infants</u></b> (1 month – 3 yrs)**	32mg	<b>1/4 tablet</b> ◑ <b>Liquid form preferred</b>	<b>1/2 tablet</b> ◐
<b><u>Infants</u></b> (Birth – 1 month)	16mg	<b>1/8 tablet</b> ◑ <b>Liquid form preferred</b>	<b>1/4 tablet</b> ◑ <b>Liquid form preferred</b>

\* Adolescents approaching adult size (150 pounds) should receive the adult dose (130mg).

\*\* KI tablets may be crushed to form a powder. Powdered KI or liquid KI may be mixed in milk, water, formula, or soft foods.

**What are the common side effects of taking KI?**

Side effects usually happen when people take more doses than advised. Possible minor side effects are skin rashes, swelling of the salivary glands, metallic taste, burning mouth, sore teeth/gums, stomach upset, diarrhea, or

headaches. Take only the amount indicated on the table (on page 2) for your weight and age group. Do not take KI for longer than is recommended by public health authorities. If you experience side effects or a severe allergic reaction, consult with a physician.

### **How should KI tablets be stored?**

KI tablets come in a sealed foil packet. **DO NOT OPEN THEM UNTIL INSTRUCTED TO TAKE THEM BY A PUBLIC HEALTH OFFICIAL.** Keep the sealed tablets in a cool, dry, safe place that is a readily available location in your home. Keep the tablets at room temperature. Keep them out of the reach of children.

KI tablets can be stored in your home for up to approximately five-to-six years. As with any other medication, be sure to regularly check the expiration date and discard any expired tablets.

### **Do I need a prescription for KI?**

KI tablets can be purchased over-the-counter at some local pharmacies without a doctor's prescription.

### **What are the limitations to taking KI during a radiological emergency?**

KI is not a "magic bullet." KI will not provide protection from any type of radiation exposure other than radioactive Iodine.

KI should not be taken simply because there is a public notification of a radiation emergency. DHEC public health officials will advise the public when it is appropriate to consume the drug; based on whether radioactive Iodine is being released.

Taking KI is ***not*** a substitute for evacuation or sheltering in place when state and local authorities recommend those actions. The most effective means of preventing unnecessary exposure is to follow the emergency recommendations broadcast by local officials.

### **What is South Carolina's KI policy?**

The State of South Carolina Department of Health and Environmental Control has taken advantage of an offer made by the U.S. Nuclear Regulatory Commission (USNRC or NRC) to receive a supply of Potassium Iodide (KI) tablets for free distribution to South Carolina residents living and or working within a 10-mile radius of the five (5) Nuclear Power Plant sites that affect areas near South Carolina residents.

Those counties include: Aiken, Allendale, Barnwell, Chesterfield, Darlington, Fairfield, Lee, Lexington, Newberry, Oconee, Pickens, Richland and York.

DHEC public health officials have stockpiled KI tablets in strategic locations for distribution to the general public. These locations are in close proximity to each of the state's nuclear power plants and would be used in the event of a radiological emergency where there is a risk of exposure to radioiodine. Individuals living or working within the 10-mile EPZ can receive a two-day supply of tablets to store in a convenient place. If a nuclear disaster occurs and a decision is made to distribute KI because of the event, distribution will occur at pre-designated shelters and reception centers that are located outside of the evacuated areas as part of local plans for nuclear power plant emergencies.

Residents and community members will be aided in evacuating contaminated areas through detailed emergency evacuation plans (such as lane reversals, etc.). Strategically stockpiling KI allows emergency officials the greatest

flexibility in distributing it to the populations at greatest risk of exposure to radioiodine. In the case of a radiological emergency, the locations of the centers can be found in the annual emergency calendars distributed to residents living and working in the 10-mile EPZ.

In the event of such an emergency, the public should listen to and follow all emergency alert messages where all protective action recommendations will be communicated.

### **When should KI be taken?**

**IN THE EVENT OF A NUCLEAR EMERGENCY, POTASSIUM IODIDE (KI) SHOULD ONLY BE TAKEN AFTER SPECIFIC INSTRUCTIONS TO DO SO BY A STATE PUBLIC HEALTH OFFICIAL.**

KI is most effective if taken within a few hours before, during, or immediately after inhalation or ingestion exposure to radioactive Iodine. If taken about four hours after exposure, its effectiveness is diminished to about 50%.

### **Is KI safe?**

KI is considered safe for most people but can cause minor side effects such as gastrointestinal disturbances (nausea, diarrhea, etc.) and rashes. Those who are allergic to Iodine or shellfish should not take KI. Anyone who is not sure if they can take KI should talk to their doctor in advance of a nuclear emergency. **Do not take KI unless and until, public health officials tell you to do so.**

### **Will KI protect me? What should I do if there is a radiological incident?**

In the event of a threatened or actual nuclear power plant release, evacuation remains the best course of action for protecting your health. **KI is not a replacement for evacuation or other protective action orders.**

### **When would I need to take KI?**

If KI is recommended because of a possible radiation release from the power plant, county emergency alert systems will instruct people in the threatened areas to take KI. When the emergency sirens sound, you should turn to an emergency radio station. You and your family will be told how and when to take KI. Remember that when possible evacuation, before any release, is the best protective action in a radiation emergency. However, if evacuation is not feasible or proper, you and your family will be instructed how and where to shelter safely. Be sure to take only the amount indicated on the table below and do not take it for longer than you are told.

### **How soon after a nuclear emergency should KI be taken?**

KI should be taken as soon as possible **after** public health officials tell you to do so. The effectiveness of KI as a thyroid-blocking agent depends on when it is consumed. Ideally, it should be taken no more than four hours *before* exposure occurs so there is time for the drug to be absorbed into the bloodstream. The drug's effectiveness is diminished once radioiodine has been ingested (eaten) or inhaled (breathed in), but significant benefits are obtained even if KI is taken several hours after radioiodine exposure occurs.

You should take one dose per day. Taking more will not help you because the thyroid can only "hold" or process small amounts of Iodine. When ordered to do so, make sure to take only the appropriate recommended dose. Taking more than the recommended doses will not increase the tablet's effectiveness and may increase the risk of side effects.

KI should ***not*** be taken simply because there is a public notification of a radiological emergency. State and local authorities will advise the public when it is appropriate to consume the drug based on whether a radioiodine hazard exists.

Do not substitute other sources of Iodine (such as Iodine tablets for water purification, etc.) for KI. These products contain a different form of Iodine that can be poisonous if misused.

Those who have a known allergy to Iodine, such as those who must avoid certain seafood and other foods with high natural Iodine content, should *not* consume KI. Severe allergic reactions could result. Those suffering certain thyroid disorders or taking thyroid medications, as well as pregnant women, nursing mothers and individuals taking certain heart medications or antipsychotic drugs should consult their doctors before deciding to use KI.

Those who consume KI, particularly for prolonged periods or in larger than recommended doses, may encounter side effects. Side effects may include: skin rashes, swollen neck glands, stomach upset, or diarrhea. More serious allergic reactions may produce fever, joint pain, facial swelling or shortness of breath. Should any adverse reaction occur, stop taking the drug and seek immediate medical attention.

As with any medication, you should consult your doctor to determine if KI is safe for you. Keep KI and all drugs out of the ready reach of children.

### **Do I have to take KI? Is it mandatory?**

No. Anyone taking KI would do so on a volunteer basis. No one is required to accept it or use it.

### **How do I know how much to take and to give to my children?**

Your family or your office will be provided a two-day supply of tablets for each person (family member or worker); living or working within the 10-mile Emergency Planning Zone. Use the table (on page 2) to determine the daily dose for each person in the family. Use a sharp knife, or a pill-cutter, to break the tablets for small children. Children might be more willing to take KI if it is crushed and put in some food or drink they like.

### **Can everyone take KI?**

**People who are allergic to Iodine should NOT take KI.** If you are allergic to shellfish or have certain thyroid conditions then you should talk with your doctor first.

If you are taking medicine for thyroid problems and you have questions about using KI, talk with your doctor before obtaining the KI tablets. Do not take KI if you have the rare disorders of dermatitis herpetiformis or hypocomplementemic vasculitis.

Women who are pregnant or breast-feeding can take KI but should have their thyroid function monitored after the first dose is taken. KI can also be given safely in the doses recommended to babies and children.

### **Doesn't my doctor have to determine whether I take the KI tablet?**

As with any medication, you should discuss this with your physician. KI is used in small amounts in iodized salt. The FDA has determined that most people can safely take KI at the doses listed in the table shown on the previous page.

**What if I am allergic to Iodine?**

If you are allergic to Iodine, or if you have either of two rare disorders associated with allergy to Iodine (dermatitis herpetiformis and hypocomplementemic vasculitis), you should not take KI.

**What if I am pregnant?**

Pregnant women and newborns should not receive more than one dose of KI before being checked by a doctor to make sure thyroid function remains normal. Monitoring should take place as soon as possible.

**I have a chronic medical condition, cancer or am receiving chemotherapy, should I take KI?**

Those persons with -any- chronic illnesses should check with their physician before deciding to take any medications other than what is ordered by their doctor.

**I am on a low salt diet. Will it hurt me to take it?**

Potassium Iodine does not contain sodium. A low salt diet is used to reduce the amount of sodium.

**How will I know when to take KI?**

In the event of a release of radioactive material from a nuclear power plant, you will be advised through the Emergency Alert System and the media (radio and TV) of the protective actions you should be taking. These instructions could include: evacuate the area, shelter-in-place (stay inside, turn off all machines and/or close all vents that pull air in from the outside), take KI and/or other possible protective actions. Any recommendation to take KI will be made by public health officials. ***Do not take KI before you are advised to do so by public health officials.***

**Where do I go to get my supply of KI to keep on-hand for a radiological emergency?**

In non-emergency (day-to-day) instances – people, who live or work within the designated 10- mile Emergency Planning Zones (EPZs) of each nuclear power plant, can visit their local DHEC Public Health Department. Those residents will receive a two-day supply for each member of their family to keep on-hand in the event of a nuclear incident.

**Reminder: DO NOT TAKE THE KI WHEN YOU RECEIVE IT.** The tablets should be stored in a cool, dry area and not consumed until, or unless, residents are advised to take them.

In emergency situations, the KI stored at each DHEC public health department will be taken from the DHEC Public Health Departments and moved to the shelters and relocation centers. **In an emergency, do not attempt to go to your DHEC county public health departments to obtain KI.** Those supplies of KI will be transferred to the pre-designated shelter and reception areas for distribution.

**Why am I not getting KI? I live 12 miles from the site. Who determined only those living within 10-miles of the nuclear power plants get KI free?**

The state has been supplied KI for those living and working within the 10-mile Emergency Planning Zones (EPZs) of the five (5) Nuclear Power Plant sites that affect South Carolina residents. This KI was provided through a



grant from the United States Nuclear Regulatory Commission (USNRC or NRC) specifically for residents living within the 10-mile EPZs.

These tablets can be re-distributed throughout the state, as needed, in the event of a nuclear disaster involving the release of radioiodines (radioactive Iodine). If you live outside of the 10-mile EPZ and wish to obtain KI, you can purchase it without a prescription at most local pharmacies or local drugstores. If the tablets are not sold there you can request the store order some tablets for you to purchase. Most drugstores can accommodate this request.

### **If I can't find my KI when the event occurs, where should I go to get it?**

If a nuclear incident occurs, your first concern should be to follow the additional emergency orders (such as shelter-in-place or evacuation). If you don't have your KI on-hand, you will be able to get it at shelters and relocation centers upon evacuation if it is being recommended.

### **How long is KI good? Where should I keep it so that it will still be safe to take?**

KI has a shelf life of approximately five-to-seven years. It should not be kept in the car, the bathroom or kitchen due to the changing temperatures and humidity levels, since all drugs react to intense heat and cold. You do not need to keep it refrigerated. It **is** important to keep it somewhere it will not get wet. Water, or liquid, can dilute the medication if it were to come in contact with the tablet itself.

### **Is there an alternative to taking KI tablets?**

The absolute best protection is to not get exposed to unnecessary radiation. The primary and most effective protective actions are evacuation and sheltering. KI is a **supplemental** action that should only be taken when warranted. If advised by DHEC public health officials to evacuate or shelter, this should be done immediately.

### **Should my animals take KI?**

KI will NOT be distributed to animals. The state KI stockpile is intended for humans only. KI is not considered harmful to pets if ingested but may not have the same protection for them that it has for humans. If you are concerned about what to do to protect your pets, check with your veterinarian.

### **What age group has the highest risk from exposure to radioactive Iodine?**

Young children and infants have the highest risk.

### **Does KI work in all radiation emergencies?**

KI will only protect you from radioactive Iodine. It does not protect you from other kinds of radioactive material.

### **If KI has been stored for a while, is it still OK to use?**

If you keep it in a dry, dark and cool place, it should last for many years. Refer to the printed expiration date on the foil package or consult public health officials if you have any questions.

## **Can KI be purchased at local pharmacies?**

Yes, though it may not widely available in drugstores near you. If you live within 10-miles of a nuclear power plant you can pick up a two-day supply of KI at the 13 DHEC Public Health Departments that provide it. DHEC Public Health Department offices are open between 8:30 a.m. and 5:00 p.m. – Monday through Friday.

## **Where can I get more information?**

The following links provide additional information on KI:

### **Federal Emergency Management Agency (FEMA):**

“Federal Policy on the Use of Potassium Iodide”

<https://www.fda.gov/Drugs/EmergencyPreparedness/BioterrorismandDrugPreparedness/ucm072265.htm#What%20potassium>

**Health Physics Society:** “HPS Fact Sheet – Potassium Iodide” <http://hps.org/documents/kifactsheetdetail.pdf>

### **Health Physics Society:**

“Is Potassium Iodide a “Magic Bullet” for Radiation Exposure?”

<https://hps.org/publicinformation/ate/faqs/ki.html>

### **U.S. Food and Drug Administration:**

Frequently Asked Questions on Potassium Iodide (KI)

<https://www.fda.gov/Drugs/EmergencyPreparedness/BioterrorismandDrugPreparedness/ucm072265.htm#What%20potassium>

**U.S. Centers for Disease Control and Prevention:** Emergency Preparedness and Response – Potassium Iodide

<https://emergency.cdc.gov/radiation/ki.asp>

### **U.S. Nuclear Regulatory Commission:**

“Consideration of Potassium Iodide in Emergency Planning”

<https://www.nrc.gov/about-nrc/emerg-preparedness/about-emerg-preparedness/potassium-iodide.html>

### **U.S. Nuclear Regulatory Commission:**

“Frequently Asked Questions About Potassium Iodide”

<https://www.nrc.gov/about-nrc/emerg-preparedness/about-emerg-preparedness/potassium-iodide/ki-faq.html>

For more information on DHEC’s response to radiological and nuclear emergencies, contact:

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