

WHO-PQ RECOMMENDED PATIENT INFORMATION LEAFLET

*This patient information leaflet focuses on uses of the medicine covered by WHO's Prequalification Team - Medicines. The recommendations for use are based on WHO guidelines and on information from stringent regulatory authorities.**

The medicine may be authorised for additional or different uses by national medicines regulatory authorities

* https://extranet.who.int/pqweb/sites/default/files/documents/75%20SRA%20clarification_Feb2017_newtempl.pdf

Information for the patient

[TB173 trade name][†]

Isoniazid

*The warnings and instructions in this leaflet are intended for the person taking the medicine.
If you are a parent or carer responsible for giving the medicine to someone else such as a child,
you will need to apply the instructions accordingly.*

Read all of this leaflet carefully before you start taking this medicine because it contains important information for you.

- Keep this leaflet. You may need to read it again.
- If you have questions about the medicine, ask your health care provider.
- This medicine is for you only. Do not pass it on to others. It may harm them, even if their illness seems to be the same as yours.
- If you are concerned about any side effects, talk to your health care provider. This includes unwanted effects not listed in this leaflet. See section 4.

What is in this leaflet

1. What [TB173 trade name] is and what it is used for
2. What you need to know before you take [TB173 trade name]
3. How to take [TB173 trade name]
4. Possible side effects
5. How to store [TB173 trade name]
6. Contents of the pack and other information

1. What [TB173 trade name] is and what it is used for

[TB173 trade name] is a medicine used to treat tuberculosis (TB), an infection caused by bacteria called *Mycobacterium tuberculosis*. It is always given together with other medicines to treat tuberculosis. Your health care provider has chosen the combination that is right for your condition.

[TB173 trade name] is also used on its own or with other medicines to prevent TB if you are at high risk of infection.

[TB173 trade name] contains the active substance isoniazid, which is an antibiotic that kills the bacteria responsible for TB by preventing them from making their protective cell wall.

2. What you need to know before you take [TB173 trade name]

Do not take [TB173 trade name]:

- if you are allergic (hypersensitive) to isoniazid or any of the other ingredients of [TB173 trade name] listed at the end of this leaflet
- if you have any sort of acute liver disease
- if you have ever had liver problems after taking isoniazid or any other medicine
- if you had previously experienced other severe side effects with isoniazid, such as fever, chills or inflammation of the joints.

[†] Trade names are not prequalified by WHO. This is the national medicines regulatory agency's responsibility.

Warnings and precautions

Talk to your health care provider before taking [TB173 trade name]. Tell your health care provider before starting the medicine if you have one of the following illnesses or conditions:

- liver problems such as long-term liver disease
- kidney problems
- diabetes
- epilepsy
- mental problems (psychosis)
- existing damage to your nerves (peripheral neuropathy) that causes a sensation of tingling in the hands or feet
- HIV infection
- malnutrition

Also tell your health care provider if you are allergic to the medicines ethionamide, pyrazinamide, or niacin (nicotinic acid) – this may make it more likely that you will also be allergic to [TB173 trade name].

It is also important that you tell your health care provider if you are pregnant, or if you drink alcohol regularly or use injection drugs like heroin.

If any of these apply, your health care provider will discuss your treatment with you, and explain whether additional checks will be needed in case you get side effects.

When taking [TB173 trade name] your health care provider will test your blood regularly to check for any problems with your liver. Tell your health care provider straight away if you get signs or symptoms that could suggest liver damage. The symptoms to look out for include any of the following: unexplained lack of appetite, nausea, vomiting, dark urine, yellowing of the skin and the eyes (jaundice), rash, tingling in the hands and feet, persistent tiredness, weakness lasting longer than 3 days soreness or tenderness in your belly, especially on the right just under your ribs.

You may be at higher risk of liver problems if:

- you are older than 35 years
- you drink alcohol daily (see “Taking [TB173 trade name] with food and drink”)
- you have a long-term liver disease
- you are a user of injection drugs (e.g. heroin).

If any of these apply to you, your health care provider will test for liver problems more often. If serious liver problems develop your health care provider may recommend you to change your treatment and stop taking [TB173 trade name].

Peripheral neuropathy (tingling in the hands and feet) is the most common side effect of isoniazid (see “Possible side effects”). If you have kidney problems, you may be at increased risk of experiencing isoniazid side effects including peripheral neuropathy. You may also be more likely to get peripheral neuropathy if you are malnourished, have diabetes, are dependent on alcohol, have HIV infection, are an infant or teenager, or are pregnant or breastfeeding. Your health care provider will check on you regularly if any of these apply.

Your health care provider may recommend that you take vitamin B6 (pyridoxine) while you are being treated with [TB173 trade name], since it reduces the risk of developing peripheral neuropathy.

It is important that your health care provider knows about all your signs of illness even when you think they are not related to tuberculosis infection or your medicine.

Resistance

This medicine must always be taken with other TB medicines and in the way your health care provider recommends. Using the medicine alone or not following the recommended doses allows the disease to become resistant to the medicine, so your treatment may no longer work to cure you.

Other medicines and [TB173 trade name]

Tell your health care provider if you are taking or have recently taken any other medicines, including medicines obtained without a prescription. Make sure you mention herbal medicines you might have been taking. These may affect the action of [TB173 trade name], or [TB173 trade name] may affect their action. Side effects of either medicine may become worse and/or the medicines may become less effective.

Where possible, [TB173 trade name] should not be used together with other medicines that can cause damage to the liver or the nerves, since their side effects may add up and increase the risks. Your health care provider will be able to advise you about any changes that may be needed to your treatment.

[TB173 trade name] should not be given with antacids (medicines for indigestion) especially those that contain aluminium hydroxide, as they lower the dose of isoniazid that your body absorbs.

It is not known whether isoniazid interacts with medicines to treat hepatitis C infection (direct-acting antivirals, such as daclatasvir, elbasvir, glecaprevir, grazoprevir, ledipasvir, ombitasvir, paritaprevir, pibrentasvir, simeprevir, sofosbuvir, velpatasvir or voxilaprevir). However, since hepatitis C causes chronic liver disease, you will need to be very carefully monitored during treatment with isoniazid if you are also being treated with these medicines.

Taking [TB173 trade name] with other medicines

The active substance in [TB173 trade name] may also interact with the following medicines:

- medicines to treat epileptic seizures (e.g. phenytoin, carbamazepine, primidone)
- benzodiazepine medicines used to treat anxiety or help you sleep (e.g. diazepam, flurazepam, triazolam, midazolam, chlorzoxazone)
- stavudine, zalcitabine (used for the treatment of HIV)
- medicines used in surgery (narcotics, e.g. alfentanil; anaesthetics e.g. enflurane)
- levodopa (for the treatment of Parkinson's disease)
- theophylline (medicine for the treatment of asthma)
- procainamide (medicine for the treatment of cardiac arrhythmias)
- corticosteroids (e.g. prednisolone, medicines for the treatment of inflammation and other diseases, such as asthma or rheumatoid arthritis)
- disulfiram (medicine to treat dependence on alcohol).

Taking [TB173 trade name] with food and drink

[TB173 trade name] should be taken on an empty stomach (at least one hour before or two hours after a meal). This helps your body absorb isoniazid more easily.

Isoniazid may react with foods containing histamine or tyramine (e.g. matured cheeses, cured meat, some oily fish like tuna, salmon and mackerel, wine and beer), causing symptoms including headache, sweating, flushing, fast, uneven or forceful heartbeat (palpitations), dizziness, feeling lightheaded or faint (due to low blood pressure). These foods should be avoided if you are receiving isoniazid.

Do not drink alcohol while taking [TB173 trade name]. This increases your risk of liver damage.

Pregnancy and breast-feeding

If you become pregnant, or are planning to become pregnant, you must contact your health care provider to discuss the potential benefits and risks of your tuberculosis therapy for you and your child. Be sure to tell your health care provider immediately if you are or may be pregnant.

Isoniazid passes into breast milk in small amounts, but these are not enough to protect your child from TB or treat any TB infection they may get. No harmful effects have been reported in breast-fed infants whose mothers were receiving isoniazid. However, your health care provider may recommend that you and your baby take vitamin B6 (pyridoxine) to reduce any risks.

Driving and using machines

[TB173 trade name] may cause dizziness and other side effects to the nervous system that can impair your ability to drive and use machines. If you have any of these side effects, do not drive or use any tools or machines.

[TB173 trade name] and lactose

Each tablet contains 10 mg lactose monohydrate. Lactose is a source of glucose and galactose. If you have one of the rare genetic disorders galactosaemia, or glucose-galactose intolerance or congenital lactase deficiency you must talk to your health care provider before taking this medicine.

The small amount of lactose in each dose is unlikely to cause symptoms of lactose intolerance.

[TB173 trade name] and castor oil

This medicine contains hydrogenated castor oil, which may cause stomach upset and diarrhoea.

3. How to take [TB173 trade name]

Your health care provider will decide on the right doses and combination of medicines to treat your TB, based on your age, weight and condition, including whether your TB is resistant to standard treatments.

For the treatment of TB, [TB173 trade name]) must be used with other medicines.

Always take [TB173 trade name] exactly as your health care provider has told you. Check with your health care provider if you are not sure.

Do not change the dose unless your health care provider tells you to. Your treatment may need to go on for many months, but it is important to take the full course of treatment recommended by your health care provider, even if you feel better.

Swallow [TB173 trade name] whole with water or another drink.

The tablets should be taken on an empty stomach (at least one hour before or two hours after a meal).

For information on how to take the other medicines you need for your TB treatment, discuss with your health care provider and see the leaflets that come with those medicines as well.

Treatment of tuberculosis

If [TB173 trade name] is added to other TB medicines to manage TB resistant to standard medicines, the dose of isoniazid selected depends on your weight. Your health care provider will work out the right dose for you.

In younger children another product that can be dissolved in water is usually preferred, since it is easier to take. If your health care provider decides that [TB173 trade name] should be used, the following doses have been recommended:

Patient's weight	Number of tablets of [TB173 trade name] daily
3 to less than 5 kg	0.5
5 to less than 7 kg	1
7 to less than 10 kg	1.5
10 to less than 16 kg	2
16 to less than 24 kg	3 [†]
24 to less than 36 kg	4
36 to less than 46 kg	4.5 [†]

[†]Products containing higher amounts of isoniazid may be preferred to reduce the number of tablets taken

For **TB that responds to standard medicines**, products containing a combination of all the necessary medicines in one tablet are usually given. If your health care provider decides to use [TB173 trade name] with other medicines given separately, he or she will work out the right dose for you based on your age and weight. Always take the medicine as recommended by your health care provider.

Prevention of tuberculosis

When isoniazid is used to prevent tuberculosis in individuals at risk, it can be used alone, as well as with other TB medicines (usually the medicines rifampicin or rifapentine). The dose of [TB173 trade name] depends on whether other medicines are used as well, and on the weight of the person taking the medicine. For adults and older children, another product containing higher amounts of isoniazid is usually preferred where possible.

If [TB173 trade name] is used on its own, then the following daily doses have been recommended in those under 10 years of age:

Patient's weight	Number of tablets of [TB173 trade name] daily
4 to less than 8 kg	0.5
8 to less than 12 kg	1
12 to less than 16 kg	1.5
16 to less than 25 kg	2
25 kg or more	3*

*A product supplying 300 mg isoniazid may be preferred, to reduce the number of tablets taken.

Taking pyridoxine with [TB173 trade name]

Your health care provider will often recommend that you also take a supplement containing pyridoxine (vitamin B6). Pyridoxine can help reduce the chance of getting peripheral neuropathy, a side effect affecting the nerves that causes tingling, pricking or numbness, especially of your hands and feet. This is especially advisable if you are pregnant or breastfeeding, have HIV infection, malnutrition, alcohol dependence, kidney problems or diabetes. It is also recommended in children and adolescents or if you are taking high doses of isoniazid.

Typical recommended doses of pyridoxine are:

- 12.5 mg once daily in children aged under 5 years or weighing less than 25 kg
- 25 mg once daily in those 5 years and older or weighing more than 25 kg.

Your health care provider may recommend higher doses of pyridoxine if you are at greater risk or symptoms of peripheral neuropathy begin to develop.

If you take more [TB173 trade name] than you should

If you accidentally take too many [TB173 trade name], contact your health care provider or nearest emergency department for advice. Take the medicine with you so that you can easily describe what you have taken.

If you forget to take [TB173 trade name]

It is important not to miss a dose of [TB173 trade name]. If you realise you have missed a dose of this medicine:

- if it is *6 or more hours until your next dose is due*, take the missed dose as soon as you can, and then take your next dose at its regular time.
- *if your next dose is due within 6 hours*, do not take the missed dose. Wait and just take the next dose at the usual time.

Do not take a double dose to make up for a forgotten tablet.

If you vomit less than 1 hour after taking [TB173 trade name], take another tablet. You do not need to take another tablet if you were sick more than 1 hour after taking this medicine.

If you stop taking [TB173 trade name]

Don't stop taking [TB173 trade name] without your health care provider's advice. Talk to your health care provider before you stop taking [TB173 trade name] for any reason, particularly if you are experiencing any side effects or have another illness.

If you have stopped your treatment with [TB173 trade name] for any reason, speak to your health care provider before you start taking [TB173 trade name] again.

If you have any further questions on the use of this product, ask your health care provider.

4. Possible side effects

Like all medicines, this medicine can cause side effects, although not everybody gets them. When treating tuberculosis, it is not always possible to distinguish between unwanted effects caused by [TB173 trade name] and those caused by any other medicines you may be taking at the same time.

For this reason, it is important that you inform your health care provider of any change in your health.

If you experience any of the following side effects, contact your health care giver as soon as possible:

- yellowing of the skin or whites of the eyes, or urine getting darker and stools paler, tiredness, weakness, malaise, loss of appetite, nausea or vomiting caused by liver problems (hepatitis)
- severe pain in the abdomen and back which can be signs of inflammation of the pancreas
- severe extensive skin damage and blistering, often with flu-like symptoms (toxic epidermal necrolysis or TEN)
- a drug reaction that causes rash, fever, inflammation of internal organs, blood abnormalities and general illness (DRESS syndrome).

The following side effects have been reported in patients treated with isoniazid.

Very common side effects (*may affect more than 1 in 10 people*)

- sensations of tingling, pricking, or numbness of the skin, especially in the feet and hands (peripheral neuropathy).
- increases of liver enzymes as measured in blood samples. Usually, these enzyme increases return to normal within 3 months despite continued treatment. When the values rise above a certain level your health care provider may decide to stop treatment with [TB173 trade name].

Uncommon side effects (*may affect up to 1 in 100 people*)

- inflammation of the liver (hepatitis), which is seen in yellowing of the skin or whites of the eyes, or urine getting darker and stools paler, fatigue, weakness
- epileptic fits (seizures)
- inflammation of the brain
- mental disturbances including psychotic reactions such as hallucinations and delusions
- memory problems.
- eye problems such as visual disturbances and eye pain

Rare side effects (*may affect up to 1 in 1 000 people*)

- A drug reaction that causes rash, fever, inflammation of internal organs, haematologic abnormalities and systemic illness (DRESS syndrome)
- Severe extensive skin damage (blistering on the skin and in body openings such as the mouth and nose): toxic epidermal necrolysis (life-threatening reaction with flu-like effects and blistering in the skin, mouth, eyes and genitals)

The frequency of the following side effects is **not known**.

- allergic reactions, including:

- skin reactions, such as rash (exanthema, erythema) and/or itching (pruritus), but also severe forms with fever, blisters and involvement of the mucous membranes (e.g. erythema multiforme, Stevens-Johnson syndrome)
 - inflammation of blood vessels (vasculitis)
 - swollen and/or painful lymph nodes (lymphadenopathy)
 - painful disorder affecting joints, muscles, tendons (rheumatic syndrome)
 - connective tissue disorders such as lupus syndrome which can affect the skin and kidneys (symptoms may include a butterfly-shaped rash over the cheeks and nose, tiredness, a high temperature, feeling or being sick, joint pain and weight loss)
 - fever
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- vertigo (spinning sensation and loss of balance)
 - elevated mood, personality changes
 - inflammation of the lungs (pneumonitis), scarring of the lungs (interstitial lung disease)
 - build-up of acid in the body (metabolic acidosis); increased blood levels of glucose; a vitamin B3 deficiency syndrome called pellagra (with symptoms such as dementia, loose stools and skin inflammation); vitamin B6 deficiency (irritability, difficulty sleeping, weak muscles, cracks at the corner of the mouth and weight loss)
 - nausea, vomiting, loss of appetite, dry mouth, constipation, abdominal pain
 - difficulty in passing urine
 - changes in the white blood cell counts (leucopenia, neutropenia, eosinophilia, agranulocytosis), possibly resulting in an increased risk of infection
 - decreased red blood cell counts (anaemia), possibly leading to tiredness, weakness and shortness of breath
 - decreased platelet count, possibly resulting in an increased risk of bruising and bleeding
 - inflammation of the joints (arthritis)
 - muscle weakness, overactive reflexes
 - increased size of breasts in men (gynaecomastia)
 - loss of hearing and ringing in your ears may occur if you have severe problems with your kidneys
 - inflammation of the pancreas, which causes severe pain in the abdomen and back
 - a positive test result for antibodies against your body's tissues
 - withdrawal symptoms, which may occur after you stop taking [TB173 trade name], include headache, insomnia, excessive dreaming, irritability and nervousness.

Side effects with this medicine are more common in people aged over 35 and in people who break down isoniazid more slowly. The risk of having side effects increases with high doses of [TB173 trade name].

If you notice any of the side effects listed above or if any of the side effects get serious, talk to your health care provider.

Reporting of side effects

If you get a side effect, talk to your health care provider. This includes side effects not listed in this leaflet. You may also be able to report such effects directly to your national reporting system if one is available. By reporting side effects, you can help to improve the available information on this medicine.

5. How to store [TB173 trade name]

Keep this medicine out of the sight and reach of children.

Do not store above 30°C, store in dry condition, protect from light.

Do not use this medicine after the expiry date stated on the label after EXP. The expiry date refers to the last day of that month.

Do not throw away any medicines in wastewater or household waste. Ask your health care provider how to throw away medicines you no longer use. These measures will help protect the environment.

6. Contents of the pack and other information

What [TB173 trade name] contains

- The active ingredient is isoniazid.
The other ingredients of [TB173 trade name] are colloidal silicon dioxide, hydrogenated castor oil, lactose monohydrate and microcrystalline cellulose.

What [TB173 trade name] looks like and contents of the pack

White to off-white, flat, circular, bevelled edge, uncoated tablets with break line on one surface. The tablets can be divided into equal halves.

[TB173 trade name] is available in:

- HDPE bottles: The tablets are packed in a semi-transparent polyethylene bag which is heat-sealed and packed together with a silica gel sachet in a white round HDPE bottle. The bottle is sealed with aluminium tagger and closed with a white HDPE screw cap. Pack size: 1000 tablets.
- Alu-PVC/EVOH/Aclar blisters:
 - Each blister contains 10 tablets. Such 10 blisters are packed in one outer carton.
 - Each strip contains 28 tablets. Such 24 strips are packed in one outer carton.

Supplier and Manufacturer

Supplier

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For any information about this medicine, contact the local representative of the supplier.

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Detailed information on this medicine is available on the World Health Organization (WHO) website:
<https://extranet.who.int/pqweb/medicines>