

NITROFURANTOIN 50 AND 100 MG TABLETS

PL 08553/0087-8

UKPAR

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NITROFURANTOIN 50 AND 100 MG TABLETS

PL 08553/0087-8

LAY SUMMARY

On 14th March 2011, the MHRA granted Marketing Authorisations (licences) for the medicinal products Nitrofurantoin 50 and 100mg Tablets. These medicines are only available on prescription from your doctor.

Nitrofurantoin, the active ingredient is an antibiotic. It is used to prevent and treat infections of the bladder, kidney and other parts of the urinary tract.

No new or unexpected safety concerns arose from these applications and it was, therefore, judged that the benefits of taking Nitrofurantoin 50 and 100mg Tablets outweigh the risks; hence Marketing Authorisations have been granted.

NITROFURANTOIN 50 AND 100 TABLETS

PL 08553/0087-8

SCIENTIFIC DISCUSSION

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INTRODUCTION

MHRA granted marketing authorisations for medicinal products Nitrofurantoin 50 and 100mg Tablets (PL 08553/0087-8) to Dr Reddy's Laboratories (UK) Limited on the 14th March 2011. These are prescription only medicines (POM) used in the treatment of and prophylaxis against acute of recurrent, uncomplicated lower urinary tract infections or pyelitis either spontaneous or following surgical procedures. Nitrofurantoin is specifically indicated for the treatment of infections due to susceptible strains of *Escherichia coli*, *Enterococci*, *Staphylococci*, *Citrobacter*, *Klebsiella* and *Enterobacter*.

These applications were submitted as abridged applications according to Article 10.c of Directive 2001/83/EC, cross-referring to Nitrofurantoin 50mg and 100mg Tablets (Urantoin), held by DDSA Pharmaceuticals Ltd, which were granted marketing authorisations on 28th September 1990.

No new data were submitted nor were they necessary for these simple applications, as the data are identical to those of the previously granted cross-reference products. As the cross-reference products were granted prior to the introduction of current legislation, a public assessment report is not available for them.

Nitrofurantoin is a broad spectrum antibacterial agent, active against the majority of urinary pathogens.

A detailed description of the applicant's pharmacovigilance system has been provided with these applications and this is satisfactory.

No environmental risk assessment has been undertaken, as this is not considered necessary. This is justified as it is not anticipated that the grant of this new marketing authorisation will result in an increase in the environmental exposure of the drug.

The applicant's justification for absence of ERA is satisfactory.

PHARMACEUTICAL ASSESSMENT

LICENCE NO: PL 08553/0087-8

PROPRIETARY NAME: Nitrofurantoin 50 and 100mg Tablets

COMPANY NAME: Dr Reddy's Laboratories (UK) Limited

E.C. ARTICLE: Article 10.c of Directive 2001/83/EC

LEGAL STATUS: POM

1 INTRODUCTION

These are informed consent applications for Nitrofurantoin 50 and 100mg Tablets, submitted under Article 10.c of Directive 2001/83/EC. The applications cross-refer to Nitrofurantoin 50mg and 100mg Tablets (Urantoine), PL 00225/5046-7R, approved on 28th September 1990 to the marketing authorisation holder DDSA Pharmaceuticals Ltd. The current applications are considered valid.

2 MARKETING AUTHORISATION APPLICATION (MAA)

2.1 Name(s)

The proposed names of the products are Nitrofurantoin 50 and 100mg Tablets. The products have been named in line with current requirements.

2.2 Strength, pharmaceutical form, route of administration, container and pack sizes

The product contains the active ingredient nitrofurantoin.

The tablets are packed in high density polystyrene containers with polythene lids and/or polypropylene containers with polypropylene or polythene lids. The pack sizes are 28, 30, 50, 56, 60, 84, 100, 250, 500 and 1000.

Specification and Certificate of Analysis for all packaging components used have been provided and are satisfactory. The packaging and pack sizes are the same as those for the reference products.

The proposed shelf life is 36 months with a storage conditions of 'Do not store above 25°C', 'Store in the original package', and 'Keep blister in the outer carton/keep container tightly closed' are set. These are satisfactory.

The shelf-life and storage conditions are identical to those for the reference products and are satisfactory.

2.3 Legal status

These products are prescription only medicines (POM).

2.4 Marketing authorisation holder/Contact Persons/Company

The proposed Marketing Authorisation holder is Dr Reddy's Laboratories (UK) Limited, 6 Riverview Road, Beverley, East Yorkshire, HU17 0LD

2.5 Manufacturers

The proposed manufacturing sites are consistent with those registered for the cross referenced products and evidence of Good Manufacturing Practice (GMP) compliance has been provided.

2.6 Qualitative and quantitative composition

The proposed composition is consistent with the details registered for the cross reference products.

2.7 Manufacturing process

The proposed manufacturing process is consistent with the details registered for the cross referenced products and the maximum batch size is stated.

2.8 Finished product/shelf-life specifications

The proposed finished product and shelf-life specifications are in line with the details registered for the cross referenced products.

2.9 Drug substance specification

The proposed drug substance specifications conform to the current European Pharmacopoeia monograph for nitrofurantoin, and are in-line with those for the cross referenced products.

European Directorate for the Quality of Medicines (EDQM) certificates of suitability for nitrofurantoin has been provided. The active substance manufacturer is in line with those for the cross referenced products.

2.10 TSE Compliance

No materials of human or animal origin have been used in the manufacture of these products. This is consistent with the cross referenced products.

2.11 Bioequivalence

No bioequivalence data are required to support these informed consent applications, as the proposed products are manufactured to the same formula utilising the same process as the cross reference products Nitrofurantoin 50mg and 100mg Tablets (Urantoin), PL 00225/5046-7R.

3 EXPERT REPORT

The applicant has included detailed expert reports of the application. Signed declarations and copies of the experts' CVs are enclosed for the quality, non-clinical and clinical experts. All are considered to have sufficient experience for their responsibilities.

4. PRODUCT NAME & APPEARANCE

See 2.1 for details of the proposed product names. The appearance of the product is identical to those of the cross reference products.

5. SUMMARY OF PRODUCT CHARACTERISTICS (SmPC)

The proposed SmPCs are consistent with the details registered for the cross reference products.

6. PATIENT INFORMATION LEAFLET (PIL)/LABELLING

The applicant has submitted results of PIL user testing. The results indicate that the PIL is well-structured and organised, easy to understand and written in a comprehensive manner. The test shows that the patients/users are able to act upon the information that it contains.

The proposed artwork complies with the relevant statutory requirements. In line with current legislation the applicant has also included the name of the product in Braille on the outer packaging and has included sufficient space for a standard UK pharmacy dispensing label.

7. CONCLUSIONS

The data submitted with the applications are acceptable. The grant of marketing authorisations is recommended.

PRECLINICAL ASSESSMENT

No new preclinical data have been supplied with these applications and none are required for applications of this type.

CLINICAL ASSESSMENT

No new clinical data have been supplied with these applications and none are required for applications of this type.

OVERALL CONCLUSION AND RISK BENEFIT ASSESSMENT

QUALITY

The data for these applications are consistent with those previously assessed for the cross reference products and, as such, have been judged to be satisfactory.

PRECLINICAL

No new preclinical data were submitted and none are required for applications of this type.

EFFICACY

These applications are identical to the previously granted applications for Nitrofurantoin 50mg and 100mg Tablets (Urantoine), PL 00225/5046-7R, granted to DDSA Pharmaceuticals Ltd on 8th September 1990.

Pharmaceutical, preclinical and clinical expert statements have been provided, together with CVs showing the experts are appropriately qualified. The experts confirm that the products are identical in composition, manufacture and pharmaceutical characteristics to the respective cross reference products and that there are no toxicological or clinical issues.

No new or unexpected safety concerns arise from these applications.

The SmPC, PIL and labelling are satisfactory and consistent with those for the reference products.

RISK BENEFIT ASSESSMENT

The quality of the product is acceptable and no new preclinical or clinical safety concerns have been identified. The applicant's products are identical to the cross reference products. Extensive clinical experience with nitrofurantoin is considered to have demonstrated the therapeutic values of the compounds. The risk benefit is, therefore, considered to be positive.

NITROFURANTOIN 50 AND 100 MG TABLETS**PL 08553/0087-8****STEPS TAKEN FOR ASSESSMENT**

1	The MHRA received the marketing authorisation applications on 10 th September 2003
2	Following standard checks and communication with the applicant the MHRA considered the applications are valid on 8 th April 2009
3	Following assessment of the applications the MHRA requested further information on 2 nd February 2010 and 28 th May 2010
4	The applicant responded to the MHRA's request, providing further information on 8 th April 2010 and 17 th December 2010
5	The applications were determined on 14 th March 2011

SUMMARY OF PRODUCT CHARACTERISTICS**1 NAME OF THE MEDICINAL PRODUCT**

Nitrofurantoin 50 mg Tablets

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Nitrofurantoin 50.00 mg

For excipients see 6.1.

3 PHARMACEUTICAL FORM

Tablet to be taken orally.

Flat yellow, bevelled and scored tablets.

4 CLINICAL PARTICULARS**4.1 Therapeutic indications**

For the treatment of and prophylaxis against acute of recurrent, uncomplicated lower urinary tract infections or pyelitis either spontaneous or following surgical procedures.

Nitrofurantoin is specifically indicated for the treatment of infections due to susceptible strains of *Escherichia coli*, *Enterococci*, *Staphylococci*, *Citrobacter*, *Klebsiella* and *Enterobacter*.

4.2 Posology and method of administration**Dosage****Adults**

Acute Uncomplicated Urinary Tract Infections: 50mg four times daily for seven days.

Severe Chronic Recurrence: 100mg four times daily for seven days.

Long Term Suppression: 50-100mg once a day.

Prophylaxis: 50mg four times daily for the duration of the procedure and for the 3 days thereafter.

Children and Infants over three months of age

Acute Urinary Tract Infections 3mg/kg/day in four divided doses for seven days.

Suppressive therapy: 1mg/kg/day once a day.

Elderly

Provided there is no significant renal impairment in which Nitrofurantoin is contraindicated, the dosage should be that for any normal adult. See precautions and risks to elderly patients associated with long term therapy (Section 4.8).

4.3 Contraindications

Patients suffering from renal dysfunction with creatinine clearance of less than 60ml/minute or elevated serum creatinine.

In infants under three months of age as well as pregnant patients at term (during labour and delivery) because of the theoretical possibility of haemolytic anaemia in the foetus or in the newborn infant due to immature erythrocyte enzyme systems.

Patients with known hypersensitivity to nitrofurantoin or other nitrofurans.

4.4 Special warnings and precautions for use

Nitrofurantoin is not effective for the treatment of parenchymal infections of unilaterally non-functioning kidney. A surgical cause for infection should be excluded in recurrent or severe cases.

Since pre-existing conditions may mask adverse reactions, Nitrofurantoin should be used with caution in patients with pulmonary disease, hepatic dysfunction, neurological disorders, and allergic diathesis.

Peripheral neuropathy and susceptibility to peripheral neuropathy, which may become severe or irreversible, has occurred and may be life threatening. Therefore, treatment should be stopped at the first signs of neural involvement (paraesthesiae).

Nitrofurantoin should be used in caution with patients with anaemia, diabetes mellitus, electrolyte imbalance, debilitating conditions and vitamin B (particularly folate) deficiency.

Acute, subacute and chronic pulmonary reactions have been observed in patients treated with Nitrofurantoin. If these reactions occur, nitrofurantoin should be discontinued immediately.

Chronic pulmonary reactions (including pulmonary fibrosis and diffuse interstitial pneumonitis) can develop insidiously, and may occur commonly in elderly patients. Close monitoring of pulmonary conditions of patients receiving long-term therapy is warranted (especially in the elderly).

Patients should be monitored closely for signs of hepatitis (particularly in long-term use). Urine may be coloured yellow or brown after taking Nitrofurantoin. Patients on Nitrofurantoin are susceptible to false positive urinary glucose (if tested for reducing substances).

Nitrofurantoin should be discontinued at any sign of haemolysis in those with suspected glucose-6-phosphate dehydrogenase deficiency.

Gastrointestinal reactions may be minimised by taking the drug with food or milk, or by adjustment of dosage.

For long-term treatment, monitor patients closely for evidence of hepatitis or pulmonary symptoms or other evidence of toxicity.

Discontinue treatment with Nitrofurantoin if otherwise unexplained pulmonary, hepatic, haematological or neurological syndromes occur.

4.5 Interaction with other medicinal products and other forms of interaction

Increased absorption with food or agents delaying gastric emptying.

Decreased absorption with magnesium trisilicate.

Decreased renal excretion of Nitrofurantoin by probenecid and sulphinpyrazene.

Decreased anti-bacterial activity by carbonic anhydrase inhibitors and urine alkalinisation.

Anti-bacterial antagonism by quinolone anti-infectives.

Interference with some tests for glucose in urine.

4.6 Pregnancy and lactation

Animal studies with nitrofurantoin have shown no teratogenic effects. Nitrofurantoin has been in extensive clinical use since 1952 and its suitability in human pregnancy has been well documented. However as with all drugs, the maternal side effects may adversely affect the course of pregnancy. The drug should be used at the lowest dose appropriate for the specific indication, only after careful assessment.

Nitrofurantoin is however contraindicated in infants under three months of age and in pregnant women during labour and delivery, because of the possible risk of haemolysis of the infants immature red cells. Caution should be exercised while breast-feeding an infant known or suspected to have an erythrocyte enzyme deficiency, since Nitrofurantoin is detected in trace amounts in breast milk.

4.7 Effects on ability to drive and use machines

Nitrofurantoin may cause dizziness and drowsiness and the patient should not drive or operate machinery if affected this way.

4.8 Undesirable effects

Respiratory

If any of the following respiratory reactions occur the drug should be discontinued.

Acute pulmonary reactions usually occur within the first week of treatment and are reversible with cessation of therapy. Acute pulmonary reactions are commonly manifested by fever, chills, cough, chest pain, dyspnoea, pulmonary infiltration with consolidation or pleural effusion on chest x-ray, and eosinophilia. In subacute pulmonary reactions, fever and eosinophilia occur less often than in the acute form.

Chronic pulmonary reactions occur rarely in patients who have received continuous therapy for six months or longer and are more common in elderly patients. Changes in ECG have occurred, associated with pulmonary reactions.

Minor symptoms such as fever, chills, cough and dyspnoea may be significant. Collapse and cyanosis have been reported rarely. The severity of chronic pulmonary reactions and their degree of resolution appear to be related to the duration of therapy after the first clinical signs appear. It is important to recognise symptoms as early as possible. Pulmonary function may be impaired permanently, even after cessation of therapy.

Hepatic

Hepatic reactions including cholestatic jaundice and chronic active hepatitis occur rarely. Fatalities have been reported. Cholestatic jaundice is generally associated with short-term therapy (usually up to two weeks). Chronic active hepatitis, occasionally leading to hepatic necrosis is generally associated with long-term therapy (usually after six months). The onset may be insidious. Treatment should be stopped at the first sign of hepatotoxicity.

Neurological

Peripheral neuropathy (including optical neuritis) with symptoms of sensory as well as motor involvement, which may become severe or irreversible, has been reported infrequently. Less frequent reactions of unknown causal relationship are depression, euphoria, confusion, psychotic reactions, nystagmus, vertigo, dizziness, asthenia, headache and drowsiness. Treatment should be stopped at the first sign of neurological involvement.

Gastrointestinal

Nausea and anorexia have been reported. Emesis, abdominal pain and diarrhoea are less common gastrointestinal reactions.

Haematological

Agranulocytosis, leucopenia, granulocytopenia, haemolytic anaemia, thrombocytopenia, megaloblastic anaemia, glucose-6-phosphate dehydrogenase deficiency anaemia, and eosinophilia have been reported. Aplastic anaemia has been reported rarely. Cessation of therapy has generally returned the blood picture to normal.

Hypersensitivity

Allergic skin reactions manifesting as angioneurotic oedema, maculopapular, erythematous or eczematous eruptions, urticaria, rash, and pruritus have occurred.

Lupus-like syndrome associated with pulmonary reaction to nitrofurantoin has been reported.

Exfoliative dermatitis and erythema multiforme (including Stevens-Johnson Syndrome) have been reported rarely.

Other hypersensitivity reactions include anaphylaxis, sialadenitis, pancreatitis, drug fever, and arthralgia.

Miscellaneous

Transient alopecia and benign intracranial hypertension.

As with other antimicrobial agents, superinfections by fungi or resistant organisms such as *Pseudomonas* may occur.

However, these are limited to the genito-urinary tract because suppression of normal bacterial flora does not occur elsewhere in the body.

4.9 Overdose

Symptoms and signs of overdosage include gastric irritation, nausea and vomiting. There is no known specific antidote. Nitrofurantoin can be haemodialysed. Standard treatment is by induction of emesis or by gastric lavage in cases of recent ingestion. Monitoring of full blood count, liver function tests and pulmonary function, are recommended. A high fluid intake should be maintained to promote urinary excretion of the drug.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Nitrofurantoin is a broad spectrum antibacterial agent, active against the majority of urinary pathogens. The wide range of organisms sensitive to the bactericidal activity include:

Escherichia coli

Enterococcus Faecalis

Klebsiella Species

Enterobacter Species

Staphylococcus Species e.g. S. Aureus, S. Saprophyticus, S. Epidermidis

Citrobacter Species

Clinically most common urinary pathogens are sensitive to nitrofurantoin. Most strains of *Proteus* and *Serratia* are resistant. All *Pseudomonas* strains are resistant.

5.2 Pharmacokinetic properties

Orally administered nitrofurantoin is readily absorbed in the upper gastrointestinal tract and is rapidly excreted in the urine. Blood concentrations at therapeutic dosages are usually low with an elimination half-life of about 30 minutes.

Maximum urinary excretion usually occurs 2-4 hours after administration of nitrofurantoin. Urinary drug dose recoveries of about 40-45% are obtained.

5.3 Preclinical safety data

Carcinogenic effect of nitrofurantoin in animal studies was observed. However, human data and extensive use of nitrofurantoin over 50 years do not support such suggestion.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Lactose

Maize starch

Pregelatinised maize starch

Sodium starch glycollate

Magnesium stearate

Purified water

6.2 Incompatibilities

None stated.

6.3 Shelf life

36 months

6.4 Special precautions for storage

Do not store above 25°C. Store in the original package. Keep blister in the outer carton/keep container tightly closed.

6.5 Nature and contents of container

High density polystyrene containers with polythene lids and/or polypropylene containers with polypropylene or polythene lids.

Pack sizes: 28, 30, 50, 56, 60, 84, 100, 250, 500 & 1000

250 micron, pharmaceutical grade, green rigid PVC

20 micron, hard-tempered aluminium foil, coated on the dull side with 6-7 gsm heat-seal lacquer and printed on the bright side.

Pack sizes: 28, 30, 50, 56, 60, 84, 100, 250, 500 & 1000

6.6 Special precautions for disposal
None

7 MARKETING AUTHORISATION HOLDER
Dr Reddy's Laboratories (UK) Limited,
6 Riverview Road,
Beverley,
East Yorkshire,
HU17 0LD

8 MARKETING AUTHORISATION NUMBER(S)
08553/0087

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION
14/03/2011

10 DATE OF REVISION OF THE TEXT
14/03/2011

1 NAME OF THE MEDICINAL PRODUCT

Nitrofurantoin 100 mg Tablets

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Nitrofurantoin 100.00 mg

For list of excipients, see 6.1.

3 PHARMACEUTICAL FORM

Tablet to be taken orally.

Flat yellow bevelled and scored tablets.

4 CLINICAL PARTICULARS**4.1 Therapeutic indications**

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Gastrointestinal reactions may be minimised by taking the drug with food or milk, or by adjustment of dosage.

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Exfoliative dermatitis and erythema multiforme (including Stevens-Johnson Syndrome) have been reported rarely.

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Miscellaneous

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5 PHARMACOLOGICAL PROPERTIES**5.1 Pharmacodynamic properties**

Nitrofurantoin is a broad spectrum antibacterial agent, active against the majority of urinary pathogens. The wide range of organisms sensitive to the bactericidal activity include:

Escherichia coli

Enterococcus Faecalis

Klebsiella Species

Enterobacter Species

Staphylococcus Species e.g. S. Aureus, S. Saprophyticus, S. Epidermidis

Citrobacter Species

Clinically most common urinary pathogens are sensitive to Nitrofurantoin. Most strains of *Proteus* and *Serratia* are resistant. All *Pseudomonas* strains are resistant.

5.2 Pharmacokinetic properties

Orally administered Nitrofurantoin is readily absorbed in the upper gastrointestinal tract and is rapidly excreted in the urine. Blood concentrations at therapeutic dosages are usually low with an elimination half-life of about 30 minutes.

Maximum urinary excretion usually occurs 2-4 hours after administration of Nitrofurantoin. Urinary drug dose recoveries of about 40-45% are obtained.

5.3 Preclinical safety data

Carcinogenic effect of Nitrofurantoin in animal studies was observed. However, human data and extensive use of Nitrofurantoin over 50 years do not support such suggestion.

6 PHARMACEUTICAL PARTICULARS**6.1 List of excipients**

Lactose

Maize starch

Pregelatinised maize starch

Sodium starch glycollate

Magnesium stearate

Purified water

6.2 Incompatibilities

None stated.

6.3 Shelf life

36 months

6.4 Special precautions for storage

Do not store above 25°C. Store in the original package. Keep blister in the outer carton/keep container tightly closed.

6.5 Nature and contents of container

High density polystyrene containers with polythene lids and/or polypropylene containers with polypropylene or polythene lids.

Pack sizes: 28, 30, 50, 56, 60, 84, 100, 250, 500 & 1000

250 micron, pharmaceutical grade, green rigid PVC

20 micron, hard-tempered aluminium foil, coated on the dull side with 6-7 gsm heat-seal lacquer and printed on the bright side.

Pack sizes: 28, 30, 50, 56, 60, 84, 100, 250, 500 & 1000

6.6 Special precautions for disposal
None

7 MARKETING AUTHORISATION HOLDER

Dr Reddy's Laboratories (UK) Limited,
6 Riverview Road,
Beverley,
East Yorkshire,
HU17 0LD

8 MARKETING AUTHORISATION NUMBER(S)
08553/0088

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION
14/03/2011

10 DATE OF REVISION OF THE TEXT
14/03/2011

PATIENT INFORMATION LEAFLET

PACKAGE LEAFLET: INFORMATION FOR THE USER Nitrofurantoin 50mg & 100mg Tablets

Read all of this leaflet carefully before you start taking this medicine, even if this is a repeat prescription.

- Keep this leaflet. You may need to read it again.
- If you have any further questions, ask your doctor or pharmacist.
- This medicine has been prescribed for you. Do not pass it on to others. It may harm them, even if their symptoms are the same as yours.

In this leaflet

1. What Nitrofurantoin Tablets are and what they are used for
2. Before you take Nitrofurantoin Tablets
3. How to take
4. Possible side effects
5. How to store
6. Further information

1. What Nitrofurantoin Tablets are and what they are used for

Nitrofurantoin (the active ingredient) is an antibiotic.

It is used to prevent and treat infections of the bladder, kidney and other parts of the urinary tract.

2. Before you take Nitrofurantoin Tablets

Do not take Nitrofurantoin Tablets if:

- you are allergic (causing itching, reddening of the skin or difficulty breathing) to nitrofurantoin or any of the other ingredients (listed in Section 6 at the end of the leaflet) other medicines containing nitrofurantoin.
 - you have a disease of the kidneys which is severely affecting the way they work (ask your doctor if you are not sure)
 - you are in the final stages of pregnancy (labour or delivery) as there is a risk that it might affect the baby.
- Tell your doctor if you are not sure about any of the above.

TAKE SPECIAL CARE with Nitrofurantoin Tablets and speak to your doctor or pharmacist before taking the tablets if:

- you have diabetes;
- you are suffering from any illness causing severe weakness;
- you have anaemia (a decrease in red blood cells causing pale skin, weakness and breathlessness); or a lack of vitamin B (particularly folate) or abnormal levels of salts in your blood (your doctor will be able to advise you).
- you have a history of allergic reactions.
- The above conditions may increase the chances of developing a side effect which results in damage to the nerves, causes altered sense of feeling and pins and needles.
- you lack of an enzyme (body chemical) called glucose-6-phosphate dehydrogenase which causes your red blood cells to become more easily damaged (this is more common in black people and people of Mediterranean, Middle Eastern or Asian origin. Your doctor will know).
- you have any disease of the lungs, liver or nervous system. If you need to take Nitrofurantoin Tablets for a number of months, your doctor may want to regularly check how your lungs and liver are working.

Taking other medicines

Please tell your doctor or pharmacist if you are taking or have recently taken any other medicines, including medicines obtained without a prescription. If they are taken with Nitrofurantoin Tablets their effect or the effect of Nitrofurantoin tablets may be changed:

- Antacids for indigestion (e.g. magnesium trisilicate);
- Medicines for gout (e.g. probenecid or sulfinpyrazone);
- Medicines which slow the passage of food through the stomach (e.g. atropine, hyoscine);
- Medicines for raised pressure in the eye (glaucoma) such as carbonic anhydrase inhibitors (e.g. acetazolamide);
- Medicines which make the urine less acid (e.g. potassium citrate mixture);
- Medicines for infections known as quinolones.

If you are in doubt about any of these medicines ask your doctor or pharmacist.

Nitrofurantoin may interfere with the results of some tests for glucose in the urine.

Taking Nitrofurantoin Tablets with food and drink

Nitrofurantoin tablets should be taken at meal times with food or milk. This will help to avoid stomach upset and also help the absorption.

Pregnancy and breast-feeding

Ask your doctor or pharmacist for advice before taking any medicine. As far as is known Nitrofurantoin Tablets may be used in pregnancy. However, it should not be used during labour or delivery because there is a possibility that use at this stage may affect the baby. If you want to breast feed, please consult your doctor first.

Driving and using machines

Nitrofurantoin may cause dizziness and drowsiness. You should not drive or operate machinery if you are affected this way until such symptoms go away.

Continued over page

Important information about lactose

This medicine contains lactose. If you have been told by your doctor that you are intolerant to some sugars and have to avoid them, contact your doctor before taking this medicine.

3. How to take

Follow your doctor's instructions exactly and **complete the course of treatment even if you feel better**. You should check with your doctor or pharmacist if you are not sure.

Do not forget to take your medicine.

Tablets should be swallowed whole.

Adults:

The normal dosage depends on the type of infection you have and instructions should be written on the label provided by the pharmacist. Consult your pharmacist or doctor if these instructions are not clear. The usual doses are:

- For treatment of infections: Either one 50mg tablet or one 100mg tablet four times a day for seven days.
- For prevention of further infections: Either one 50mg tablet or one 100mg tablet at bedtime.
- For prevention of infections during surgery: One 50mg tablet four times a day on the day of the operation and three days thereafter.

Children over three months of age:

The dose depends on the weight of the child and will be provided by your doctor. Follow your doctor's instructions exactly.

Children below 3 months of age should not take Nitrofurantoin Tablets

Medical checks

Your doctor will watch carefully for any effects on the liver, lungs, blood or nervous system. Nitrofurantoin Tablets may interfere with the results of some tests for glucose in the urine.

If you TAKE MORE Nitrofurantoin Tablets than you should

Consult your doctor or pharmacist immediately or go to the emergency department of the nearest hospital. Always take any leftover tablets with you, as well as the container and label, so that the medical staff know what you have taken.

If you FORGET TO TAKE Nitrofurantoin Tablets

Do not worry. If you remember later on that day, take that day's dose as usual. If you miss a whole day's dose take the normal dose on the next day. Do not take a double dose to make up for a forgotten tablet. If you are not sure ask your doctor or pharmacist.

If you STOP TAKING Nitrofurantoin Tablets

Your doctor will tell you how long to take the treatment. Do not stop earlier than you are told, even if you feel better.

If you have any further questions on the use of this product, ask your doctor or pharmacist.

4. Possible side effects

Like all medicines, Nitrofurantoin Tablets can cause side effects, although not everybody gets them. Most of them are mild and disappear when you stop taking Nitrofurantoin Tablets.

All medicines can cause allergic reactions although serious allergic reactions are rare. If you notice any sudden wheeziness, difficulty in breathing, swelling of the eyelids, face or lips, rash or itching (especially affecting your whole body) STOP TAKING your medicine and go to a doctor immediately. If you experience any of the side effects detailed below stop taking Nitrofurantoin Tablets and consult your doctor.

- Your lungs may react to Nitrofurantoin Tablets. This may develop quickly, within a week of starting treatment or very slowly, especially in elderly patients. This may produce fever, chills, cough and shortness of breath.
- Jaundice (inflammation of the liver causing yellowing of the skin or whites of the eyes).
- The nerves outside of the spinal cord may be affected causing changes to the sense of feeling and the use of muscles. In addition headache, extreme changes of mood or mental state, confusion, weakness, blurred vision may occur. These effects may be severe and in some instances permanent.
- Raised pressure in the skull (causing severe headaches).

Please note that while taking Nitrofurantoin Tablets your urine may become coloured dark yellow or brown. This is quite normal and not a reason to stop taking the medicine.

Other side effects include:

- Feeling sick (nausea) and headache.
- Diarrhoea
- Loss of appetite, stomach ache and being sick (vomiting)
- Dizziness, drowsiness.
- Blood cells have been affected in some patients. This may result in bruising, delayed clotting of the blood, sore throat, fever, anaemia and a susceptibility to colds or persistent cold.
- A variety of skin rashes or reactions have occurred in some patients. These may appear as flaking skin, a red rash or fever accompanied by rapid heart rate and severe rash with blistering. Other reactions may include inflammation of salivary glands (causing facial pains), inflammation of the pancreas gland (causing severe abdominal pain) and joint pains.
- Short-term hair loss.
- Urinary infections by germs that are not sensitive to Nitrofurantoin Tablets.

If any of the side effects become serious, or if you notice any side effects not listed in this leaflet, please tell your doctor or pharmacist.

Remember:

This medicine is only for you. Only a doctor can prescribe it for you. never give this medicine to someone else. It could harm them, even if their symptoms seem the same as yours.

5. How to store

Keep out of the reach and sight of children. Do not store above 25°C.

Do not open the container until you are ready to begin taking the course of treatment.

Do not use after the expiry date which is stated on the bottle/label after 'Exp (MM/YY)'. The expiry date refers to the last day of that month. Medicines should not be disposed of via wastewater or household waste. Ask your pharmacist how to dispose of medicines no longer required. These measures will help to protect the environment.

6. Further information**What Nitrofurantoin Tablets contain**

The active substance (which makes the medicine work) is Nitrofurantoin. Each tablet contains either 50mg or 100mg of nitrofurantoin. The tablets also contain: lactose, maize starch, pregelatinised maize starch, sodium starch glycolate and magnesium stearate.

What Nitrofurantoin Tablets look like and contents of the pack

Nitrofurantoin Tablets are flat, round bevelled, yellow scored tablets. Both 50 mg and 100 mg strengths are available in containers and blister packs of 28, 30, 50, 56, 60, 84, 100, 250, 500 and 1,000 tablets.

Marketing Authorisation Holder and Manufacturer
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Nitrofurantoin 50mg Tablets PL 08553/0087
Nitrofurantoin 100mg Tablets PL 08553/0088

LABELLING











