

**QUININE SULPHATE 300 MG TABLETS
PL 17496/0023**

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**QUININE SULPHATE 300 MG TABLETS
PL 17496/0023**

LAY SUMMARY

On 2nd March 2011, the MHRA granted Dalkeith Laboratories Limited a Marketing Authorisation (licence) for Quinine Sulphate 300 mg Tablets (PL 17496/0023).

Quinine Sulphate 300 mg Tablets contain quinine sulphate which belongs to a group of medicines called anti-malarials.

Quinine Sulphate 300 mg Tablets are used in the treatment of a type of malaria known as falciparum malaria.

It is also used in the treatment of night leg cramps in adults and the elderly.

No new or unexpected safety concerns arose from this application and it was, therefore, judged that the benefits of taking Quinine Sulphate 300 mg Tablets outweigh the risks; hence a Marketing Authorisation has been granted.

**QUININE SULPHATE 300 MG TABLETS
PL 17496/0023**

SCIENTIFIC DISCUSSION

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INTRODUCTION

The MHRA granted a Marketing Authorisation for the medicinal product Quinine Sulphate 300 mg Tablets (PL 17496/0023) to Dalkeith Laboratories Limited on 2nd March 2011. This prescription only medicine is indicated for:

- The treatment of Plasmodium falciparum malaria.
- Treatment and prevention of nocturnal leg cramps in adults and the elderly, when cramps cause regular disruption of sleep.

This application for Quinine Sulphate 300 mg Tablets is submitted according to Article 10c of Directive 2001/83/EC, cross-referring to Quinine Sulphate Tablets BP 300 mg, which was originally approved and licensed to Dalkeith Laboratories Limited (PL 17496/0007) on 14th September 2000 and went through a change of ownership on 1st April 2001 to Bristol Laboratories Limited (PL 17907/0011).

It is considered that the pharmacovigilance system as described by the applicant fulfils the requirements and provides adequate evidence that the applicant has the services of a qualified person responsible for pharmacovigilance together with the necessary means for notification of any adverse reaction suspected of occurring.

The Marketing Authorisation Holder has provided adequate justification for not submitting a Risk Management Plan (RMP).

No new data were submitted nor were they necessary for this “simple” application, as the data are identical to that of the previously granted cross-reference product.

PHARMACEUTICAL ASSESSMENT

LICENCE NO: PL 17496/0023
PROPRIETARY NAME: Quinine Sulphate 300 mg Tablets
ACTIVE(S): Quinine sulphate
COMPANY NAME: Dalkeith Laboratories Limited
E.C. ARTICLE: Article 10c of Directive 2001/83/EC
LEGAL STATUS: POM

1. INTRODUCTION

This is a “simple” application for Quinine Sulphate 300 mg Tablets (PL 17496/0023) submitted under Article 10c of Directive 2001/83/EC. The proposed MA holder is Dalkeith Laboratories Limited, 2 Park Street, Woburn, Bedfordshire, MK17 9PG, United Kingdom.

This application cross-refers to Quinine Sulphate Tablets BP 300 mg, which was originally approved and licensed to Dalkeith Laboratories Limited (PL 17496/0007) on 14th September 2000 and went through a change of ownership on 1st April 2001 to Bristol Laboratories Limited (PL 17907/0011).

2. MARKETING AUTHORISATION APPLICATION FORM

2.1 NAME(S)

The proposed name of the product is Quinine Sulphate 300 mg Tablets. The product has been named in-line with current requirements.

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

Each tablet contains quinine sulphate 300 mg. The finished product is packaged in:

- High-density polypropylene (HDPP) tablet containers with low-density polyethylene (LDPE) caps.

- Blisters composed of aluminium and polyvinyl chloride (PVC) enclosed in an outer carton.

Pack sizes are:

Tablet containers: 500 tablets.

Blister packs: 28 and 56 tablets.

The proposed shelf-life is 3 years with storage conditions:

Polypropylene containers: Do not store above 25°C. Store in the original container. Keep the container tightly closed.

Blister packs: Do not store above 25°C. Store in the original package. Keep the blister in the outer carton.

This is consistent with the details registered for the cross-reference product.

2.3 Legal status

Prescription only medicine (POM).

2.4 Marketing authorisation holder/Contact Persons/Company

Dalkeith Laboratories Limited, 2 Park Street, Woburn, Bedfordshire, MK17 9PG, United Kingdom.

The QP responsible for pharmacovigilance is stated and his CV is included.

2.5 Manufacturers

The manufacturing sites are consistent with those registered for the cross-reference product and evidence of GMP compliance has been provided.

2.6 Qualitative and quantitative composition

The composition is consistent with the details registered for the cross-reference product.

2.7 Manufacturing process

The manufacturing process is consistent with the details registered for the cross-reference product and the maximum batch size for each product is stated.

2.8 Finished product/shelf-life specification

The finished product specification is in-line with the details registered for the cross-reference product.

2.9 Drug substance specification

The drug substance specification is consistent with the details registered for the cross-reference product.

2.10 TSE Compliance

None of the excipients used contain material of animal or human origin. This is confirmed by a statement from the Quality Expert. The supplier of magnesium stearate has confirmed that it is of vegetable origin. The applicant has provided a declaration that milk used in the production of lactose monohydrate is sourced from healthy animals under the same conditions as those intended for human consumption.

The applicant has provided a statement confirming that the gelatin in the product is of pig-skin origin and therefore does not constitute a TSE risk.

This information is consistent with the cross-reference product.

3. EXPERT REPORTS

The applicant has included detailed expert reports in Module 2 of the application. Signed declarations and copies of the experts' CVs are enclosed in Module 1.4 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 name. The appearance of the product is identical to the cross-reference product.

5. SUMMARY OF PRODUCT CHARACTERISTICS

The summary is consistent with the details registered for the cross-reference product.

6. PATIENT INFORMATION LEAFLET/CARTON

PIL

The patient information leaflet has been prepared in-line with the details registered for the cross-reference product. User testing results have been submitted for the reference product, Quinine Sulphate Tablets BP 300 mg (PL 17907/0011), authorised in the UK to Bristol

Laboratories Limited on 1st April 2001. This is because the PIL is identical to the PIL for the reference product.

The results of consultations with target patient groups ("user testing") are in accordance with Article 59 of Council Directive 2001/83/EC. The results indicate that the package leaflet 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 they contain.

Labelling

The artwork is comparable to the artwork registered for the cross-reference product and complies with statutory requirements. In-line with current legislation, the applicant has included the name of the product in Braille on the packaging and has included sufficient space for a standard UK pharmacy dispensing label.

7. CONCLUSIONS

The data submitted with the application are acceptable. The grant of a Marketing Authorisation is recommended.

NON-CLINICAL ASSESSMENT

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

An Environmental Risk Assessment has been submitted for this application and concludes that the environmental impact of this product Quinine Sulphate 300 mg Tablets is negligible. This is satisfactory.

CLINICAL ASSESSMENT

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

OVERALL CONCLUSION AND RISK BENEFIT ASSESSMENT

QUALITY

The data for this application are consistent with those previously approved for the cross-reference product and, as such, has been judged to be satisfactory.

NON-CLINICAL

No new non-clinical data were submitted and none are required for applications of this type.

EFFICACY

This application is identical to the previously granted application, Quinine Sulphate Tablets BP 300 mg, which was originally approved and licensed to Dalkeith Laboratories Limited (PL 17496/0007) on 14th September 2000. This went through a change of ownership on 1st April 2001 to Bristol Laboratories Limited (PL 17907/0011).

No new or unexpected safety concerns arise from this application.

The SmPC, PIL and labelling are satisfactory and consistent with that for the cross-reference product.

RISK BENEFIT ASSESSMENT

The quality of the product is acceptable and no new non-clinical or clinical safety concerns have been identified. The applicant's product is identical to the cross-reference product. Extensive clinical experience with quinine sulphate is considered to have demonstrated the therapeutic value of the compounds. The risk:benefit is, therefore, considered to be positive.

QUININE SULPHATE 300 MG TABLETS
PL 17496/0023

STEPS TAKEN FOR ASSESMENT

1	The MHRA received the Marketing Authorisation Application on 27 th October 2008.
2	Following standard checks and communication with the applicant the MHRA considered the application valid on 29 th October 2008.
3	Following assessment of the application further information was requested regarding the quality section of the dossier on 13 th October 2009.
4	The applicant responded to the MHRA's requests, providing further information on 14 th January 2011 for the quality section.
5	The application was determined on 2 nd March 2011.

QUININE SULPHATE 300 MG TABLETS
PL 17496/0023

STEPS TAKEN AFTER ASSESSMENT

Date submitted	Application type	Scope	Outcome

SUMMARY OF PRODUCT CHARACTERISTICS

1 NAME OF THE MEDICINAL PRODUCT
Quinine Sulphate 300 mg Tablets

2 QUALITATIVE AND QUANTITATIVE COMPOSITION
Each tablet contains Quinine Sulphate 300 mg.
For excipients see 6.1

3 PHARMACEUTICAL FORM
Coated tablet.
White biconvex sugar coated tablets.

4 CLINICAL PARTICULARS**4.1 THERAPEUTIC INDICATIONS**

For the treatment of Plasmodium falciparum malaria.

Treatment and prevention of nocturnal leg cramps in adults and the elderly, when cramps cause regular disruption of sleep (see section 4.2 and section 4.4)

4.2 POSOLOGY AND METHOD OF ADMINISTRATION

For oral administration. Swallow the tablets with a drink of water.

For the treatment of malaria

Adults, the elderly and children over 12 years of age: Two tablets to be taken every 8 hours for a period of 7 days.

Children under 12 years of age: Dosage is dependent on bodyweight as follows – 10 mg/kg to be taken every 8 hours for a period of 7 days.

For the treatment and prevention of nocturnal leg cramps

Adults (including the elderly):

The recommended dose is 200mg at bedtime. The maximum dose is 300mg.

A reduction in frequency of leg cramps may take up to 4 weeks to become apparent. Patients should be monitored closely during the early stages of treatment for adverse effects. After an initial trial of 4 weeks, treatment should be stopped if there is no benefit. Treatment should be interrupted at approximately three monthly intervals to reassess the benefit of treatment.

4.3 CONTRAINDICATIONS

Known hypersensitivity to quinine or any of the excipients in the tablet.

Contraindicated in those with myasthenia gravis, optic neuritis, tinnitus or haemoglobinuria.

Quinine may cause severe respiratory distress and dysphagia in these patients.

4.4 SPECIAL WARNINGS AND PRECAUTIONS FOR USE

Administration of quinine may give rise to cinchonism, which is generally more severe in overdose, but may also occur in normal therapeutic doses. Patients should be warned not to exceed the prescribed dose, because of the possibility of serious, irreversible side effects in overdose. Treatment for night cramps should be stopped if symptoms of cinchonism emerge. Such symptoms include tinnitus, impaired hearing, headache, nausea, and disturbed vision (see sections 4.8 and 4.9).

Hypersensitivity to quinine may also occur with symptoms of cinchonism together with urticaria, flushing, pruritis, rash, fever, angioedema, dyspnoea and asthma.

Caution is required if administered to patients with atrial fibrillation or other serious heart disease. It may cause hypoprothrombinaemia.

Quinine may cause severe respiratory distress and dysphagia in patients with myasthenia gravis and should not be used in such patients.

Patients with glucose-6-phosphate dehydrogenase (G6PD) deficiency may develop acute haemolytic anaemia. Glucose-6-phosphate dehydrogenase deficient patients with malaria are at increased risk of haemolysis during quinine therapy.

Treatment with quinine should be monitored in all patients in case signs of resistance develop.

Before use for nocturnal leg cramps, the risks, which include significant adverse effects and interactions (see sections 4.5 and 4.8), should be carefully considered relative to the potential benefits. These risks are likely to be of particular concern in the elderly. Quinine should only be considered when cramps are very painful or frequent, when other treatable causes of cramp have been ruled out, and when non-pharmacological measures have not worked. Quinine sulphate should not be used for this indication during pregnancy (see Section 4.6).

Quinine may cause unpredictable serious and life-threatening thrombocytopenia, which is thought to be an idiosyncratic hypersensitivity reaction. Quinine should not be prescribed or administered to patients who have previously experienced any adverse reaction to quinine, including that in tonic water or other beverages. Patients should be instructed to stop treatment and consult a physician if signs of thrombocytopenia such as unexplained bruising or bleeding occur.

Patients with rare hereditary problems of galactose or fructose intolerance, the Lapp lactase deficiency, glucose-galactose malabsorption or sucrase-isomaltase insufficiency should not take this medicine.

4.5 INTERACTION WITH OTHER MEDICINAL PRODUCTS AND OTHER FORMS OF INTERACTION

Effect of other drugs on quinine

Quinine is metabolised via hepatic oxidative cytochrome P450 pathways, predominantly by CYP3A4. There is the potential for increased quinine toxicity with concurrent use of potent CYP3A4 inhibitors, which include azole antifungal drugs and HIV protease inhibitors.

Sub-optimal quinine serum levels may result from concomitant use of CYP3A4 inducers, which include rifampicin, barbiturates, carbamazepine and phenytoin.

Care should be taken when quinine is used in combination with other CYP3A4 substrates, especially those causing prolongation of the QT interval.

Effect of quinine on other drugs

The plasma concentration of flecainide, digoxin and mefloquine may be increased.

Quinine can decrease plasma concentrations of ciclosporin.

Other drug interactions

There is an increased risk of ventricular arrhythmias with other drugs which prolong the QT interval, including amiodarone, moxifloxacin, pimozide, thioridazine and halofantrine.

Concurrent use with oral hypoglycaemics may increase the risk of hypoglycaemia.

Quinine may cause hypoprothrombinaemia and enhance the effects of anticoagulants.

Quinine enhances the neuromuscular effects of suxamethonium.

Concomitant use of quinidine may increase the possibility of cinchonism.

Chloroquine and quinine appear to be antagonistic when given together for P falciparum malaria.

4.6 PREGNANCY AND LACTATION

Quinine may cause congenital abnormalities of the CNS and extremities. Following administration of large doses during pregnancy, phototoxicity and deafness have been reported in neonates.

Quinine sulphate should not be used during pregnancy unless the benefits outweigh the risks.

Treatment of chloroquine-resistant strains of falciparum malaria.

Pregnancy in a patient with malaria is not generally regarded as a contraindication to the use of quinine. As malaria infection is potentially serious during pregnancy and poses a threat to the mother and foetus, there appears to be little justification in withholding treatment in the absence of a suitable alternative.

Prophylaxis of nocturnal leg cramps

Quinine sulphate should not be used during pregnancy to treat cramps.

Lactation

Quinine sulphate is excreted in breast milk, but no problems in humans have been reported. However, quinine sulphate should not be given to nursing mothers unless the benefits outweigh the risks.

4.7 EFFECTS ON ABILITY TO DRIVE AND USE MACHINES

Quinine may cause visual disturbances and vertigo, hence patients should be advised that if affected they should not drive or operate machinery.

4.8 UNDESIRABLE EFFECTS

MedDRA system organ class	Adverse reaction
Blood and lymphatic system disorders	Thrombocytopenia, intravascular coagulation, hypoprothrombinaemia, haemoglobinuria, oliguria, haemolytic-uremic syndrome, pancytopenia, haemolysis, agranulocytosis, thrombocytopenic purpura
Immune system disorders	Generalised hypersensitivity reactions including angioneurotic oedema and fever
Metabolism and nutrition disorders	Hypoglycaemia
Psychiatric disorders	Agitation, confusion
Nervous system disorders	Headache, vertigo
Eye disorders	Blurred vision, defective colour perception, visual field constriction
Ear and labyrinth disorders	Tinnitus, impaired hearing
Cardiac disorders	Atrioventricular conduction disturbances, hypotension, prolongation of the QT interval, widening of the QRS complex and T wave flattening.
Respiratory, thoracic and mediastinal disorders	Bronchospasm
Gastrointestinal disorders	Nausea, vomiting, diarrhoea, abdominal pain
Skin and subcutaneous tissue disorders	Flushing, rash, urticaria, eczematous dermatitis, oedema, erythema, lichen planus, pruritis, photosensitivity
Musculoskeletal and connective tissue disorders	Muscle weakness, aggravation of myasthenia gravis
Renal and urinary disorders	Renal insufficiency, acute renal failure

4.9 OVERDOSE

Symptoms

Quinine overdosage may lead to serious side effects including irreversible visual loss, and can be fatal.

Symptoms include vomiting, tinnitus, deafness, headache and visual disturbance.

Features of a significant overdose include convulsions, impairment of consciousness, respiratory depression, QT prolongation, ventricular arrhythmia, cardiogenic shock and renal failure. High doses of quinine are teratogenic and may cause miscarriage. Hypokalaemia and hypoglycaemia may also occur.

Treatment

Children (< 5 years) who have ingested any amount should be referred to hospital. Older children and adults should be referred to hospital if more than 30 mg/kg of quinine base has been taken.

Each 300 mg tablet is equivalent to 248 mg quinine base.
Consider activated charcoal (50 g for adults; 1 g/kg for children) if the patient presents within 1 hour of ingestion of more than 30 mg/kg quinine base or any amount in a child under 5 years. Multiple dose activated charcoal will enhance quinine elimination.
Observe patients for at least 12 hours after ingestion. Monitor cardiac conduction and rhythm, serum electrolytes, blood glucose and visual acuity.

Other treatment is symptomatic to maintain blood pressure, respiration, renal function and to treat arrhythmia, convulsions, hypoglycaemia and acidosis.

5 PHARMACOLOGICAL PROPERTIES

5.1 PHARMACODYNAMIC PROPERTIES

P01BC01 – Methanolquinolines

Quinine is a cinchona alkaloid and a 4-methanol-quinolone antimalarial agent which is a rapidly acting blood schizontocide with activity against *Plasmodium falciparum*, *P. vivax*, *P. ovale*, and *P. malariae*. It is active against the gametocytes of *P. malariae* and *P. vivax* but not against mature gametocytes of *P. falciparum*. The precise mechanism of action of quinine is unclear but it may interfere with lysosome function or nucleic acid synthesis in the malaria parasite. Since it has no activity against exoerythrocytic forms, quinine does not produce a radical cure in vivax or ovale malarias.

The increasing spread of resistance to chloroquine has been responsible for the re-emergence of quinine as an important agent in the treatment of falciparum malaria and it is currently the treatment of choice in infections due to chloroquine-resistant or multidrug-resistant strains. Quinine is not generally used for malaria prophylaxis.

5.2 PHARMACOKINETIC PROPERTIES

The pharmacokinetics of quinine are altered significantly by malaria infection, the major effects being reduction in both its apparent volume of distribution and its clearance.

Quinine is rapidly and almost completely absorbed from the gastrointestinal tract and peak concentrations in the circulation are attained about 1 to 3 hours after oral administration of the sulphate. Plasma protein binding is about 70% in healthy subjects and rises to 90% or more in patients with malaria. Quinine is widely distributed throughout the body. Concentrations attained in the CSF of patients with cerebral malaria have been reported to be about 2 to 7% of those in the plasma.

Quinine is extensively metabolised in the liver and rapidly excreted mainly in the urine. Estimates of the proportion of unchanged quinine excreted in the urine vary from less than 5% to 20%. Excretion is increased in acid urine. The elimination half-life is about 11 hours in healthy subjects but may be prolonged in patients with malaria. Small amounts of quinine also appear in the bile and saliva.

Quinine crosses the placenta and is excreted in breast milk.

5.3 PRECLINICAL SAFETY DATA

No data of relevance to the prescriber which is additional to that already included in other sections of the SPC.

6 PHARMACEUTICAL PARTICULARS

6.1 LIST OF EXCIPIENTS

Lactose
Colloidal Anhydrous Silica
Potato Starch
Magnesium Stearate
Sodium Starch Glycollate (Type A)
Sodium Laurilsulfate
Talc
Gelatin
Sucrose
Titanium Dioxide (E171)

Carnauba wax

6.2 INCOMPATIBILITIES

None known.

6.3 SHELF LIFE

3 years.

6.4 SPECIAL PRECAUTIONS FOR STORAGE

Tablet containers: Do not store above 25°C. Store in the original container. Keep the container tightly closed.

Blister: Do not store above 25°C. Store in the original package. Keep the blister in the outer carton.

6.5 NATURE AND CONTENTS OF CONTAINER

HDPP tablet containers with LDPE caps of 500 tablets.

Al/PVC blisters enclosed in an outer carton, pack sizes of 28 and 56 tablets.

Not all pack sizes may be marketed.

6.6 SPECIAL PRECAUTIONS FOR DISPOSAL

Not applicable.

7 MARKETING AUTHORISATION HOLDER

Dalkeith Laboratories Limited

2 Park Street

Woburn

Bedfordshire

MK17 9PG

United Kingdom

8 MARKETING AUTHORISATION NUMBER(S)

PL 17496/0023

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

02/03/2011

10 DATE OF REVISION OF THE TEXT

02/03/2011

PACKAGE INFORMATION LEAFLET: INFORMATION FOR THE USER

QUININE SULPHATE 300 mg TABLETS

Active ingredient: Quinine Sulphate

Please read the entire leaflet before you start taking this medicine.

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

In this leaflet:

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

1. What Quinine Sulphate tablets are and what they are used for

Quinine Sulphate belongs to a group of medicines called anti-malarials. It is used in the treatment of a type of malaria known as falciparum malaria. It is also used in the treatment of night leg cramps in adults and the elderly.

2. Before you take Quinine Sulphate tablets

Do not take Quinine Sulphate tablets if you:

- are allergic to quinine or any other of the ingredients used in the tablets (these are listed in section 6. Further Information)
- suffer from myasthenia gravis (symptoms are abnormal muscle fatigue)
- suffer from optic neuritis (inflammation of the optic nerve which may result in partial loss of vision and pain)
- suffer from the blood disorder haemoglobinuria (symptoms are dark red or brown urine)
- suffer from tinnitus (ringing or buzzing sound in the ears)
- are pregnant or breastfeeding (unless considered absolutely essential by a doctor).

Take special care with Quinine Sulphate tablets if you:

- suffer from an irregular heartbeat (atrial fibrillation)
- have heart disease
- suffer from severe glucose-6-phosphate dehydrogenase deficiency (G6PD), this can cause episodes of anaemia after eating certain foods such as fava beans (favism) or certain drugs including drugs to prevent malaria and dapsons
- have had malaria for a long time
- you should not take more than the prescribed dose as a condition called 'cinchonism' may occur even with normal doses. Please see section 4, 'Possible side effects' for symptoms of cinchonism and tell your doctor if you experience any of them.

Taking other medicines:

Please tell your doctor or pharmacist if you are taking or have recently taken any of the following medicines or any medicines obtained without a prescription, especially:

- anticoagulants such as Warfarin (used to stop your blood clotting)
- chloroquine, mefloquine or halofantrine (used to treat malaria)
- flecainide, digoxin, quinidine or amiodarone (used to treat heart conditions)
- pimozone or thioridazine (used to treat some mental disorders)
- rifampicin or moxifloxacin (antibiotics)
- barbiturates, carbamazepine or phenytoin (medicines to treat epilepsy)
- drugs to treat diabetes
- ciclosporin (used following transplant surgery and to treat various inflammatory diseases)
- drugs to treat HIV infection such as ritonavir
- suxamethonium (a muscle relaxant used in surgery, tell the anaesthetist you are taking quinine tablets)
- drugs to treat fungal infections such as ketoconazole.

If you see another doctor or go into hospital, let them know what medicines you are taking.

Pregnancy and Breastfeeding

- You should not take Quinine Sulphate tablets if you are pregnant or breastfeeding.
- Tell your doctor as soon as possible if you think you have

become pregnant whilst taking Quinine Sulphate Tablets or if you intend to become pregnant.

- Quinine Sulphate tablets should not be used for night cramps during pregnancy.
- Ask your doctor or pharmacist for advice before taking any medicine.

Driving and using machines

Do not drive or operate machinery if you experience any problems with your vision while you are taking this medicine.

Important information about some of the ingredients in Quinine Sulphate tablets

The tablets contain lactose and sucrose. If you have been told that you have an intolerance to some sugars, please check with your doctor before taking these tablets.

3. How to take Quinine Sulphate tablets

- Always take Quinine Sulphate tablets exactly as your doctor has told you.
- The dose your doctor has prescribed may be slightly different from the usual doses stated below.
- You should check with your doctor or pharmacist if you are not sure.
- The tablets should be swallowed with a drink of water.

Dosage**For the treatment of malaria**

Adults, the elderly and children over 12 years: The usual dose is 2 tablets every eight hours for 7 days.

Children under 12 years of age: The dosage will be determined by your doctor according to the bodyweight of the child; this dosage should be taken every eight hours for 7 days.

For the treatment of night cramps

Adults and the elderly: Take 1 tablet at night.

If you take more tablets than you should:

Emergency help is required as an overdose is very dangerous. Contact your doctor or nearest A & E department immediately, as further medical treatment is essential.

Take your medicine in its original packaging with you in order to enable the doctor to identify your medication easily. **Signs of overdose** include convulsions, sickness, nausea, headache, ringing in the ears, deafness, effects on eyesight, rashes, abdominal pain and confusion.

If you forget to take Quinine Sulphate tablets:

If you forget to take a dose, take another dose as soon as you remember. If it is almost time for your next dose then do not take the missed dose. Never double the dose to make up for the missed dose.

4. Possible Side Effects

Like all medicines Quinine Sulphate tablets can cause side effects, although not everybody gets them.

Stop taking the tablets straightaway and contact your doctor at once if you:

- experience an itchy skin rash, wheezing, generalised swelling or swelling of the lips, face or tongue. These are signs of an allergic reaction to quinine
- are bruising easily, have frequent nose bleeds or other unusual bleeding, notice a reddish or brown discolouration of your urine, appear paler than usual or feel weak, or have more sore throats and infections than usual. Your doctor may want to take a blood test

If you are particularly sensitive to quinine you may experience any of the following symptoms. Consult your doctor if these effects are troublesome or continue:

- ringing in the ears
- deafness
- headache
- dizziness
- feeling sick or being sick
- visual disturbances
- abdominal pain
- feeling confused or agitated
- diarrhoea
- fever
- flushed skin

Other side effects include:

- low blood pressure
- low blood glucose levels
- muscle weakness
- a reduction in the function of the kidneys

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

5. How to store Quinine Sulphate tablets

Keep out of the reach and sight of children.

Tablet Containers: Do not store above 25°C. Store in the original container. Keep the container tightly closed.

Blister cartons: Do not store above 25°C. Store in the original package. Keep the blister in the outer carton.

Do not use the tablets after the expiry date shown on the label or carton.

Do not keep any tablets that you no longer need. Take them back to your pharmacist.

6. Further Information

What Quinine Sulphate tablets contain

- The active substance is Quinine Sulphate 300 mg.
- The other ingredients are Lactose, Colloidal Anhydrous Silica, Potato Starch, Magnesium Stearate, Sodium Starch Glycollate (Type A), Sodium Laurilsulfate, Gelatin, Talc, Sucrose and Titanium Dioxide (E171) and Carnauba Wax.

What Quinine Sulphate tablets look like and the contents of the pack

- The tablets are bi-convex, white and sugar coated.
- The tablets are supplied to your pharmacist in packs containing 28, 56 or 500 tablets, who will then provide you with the required number of tablets as prescribed by your doctor. (Not all packs may be marketed).

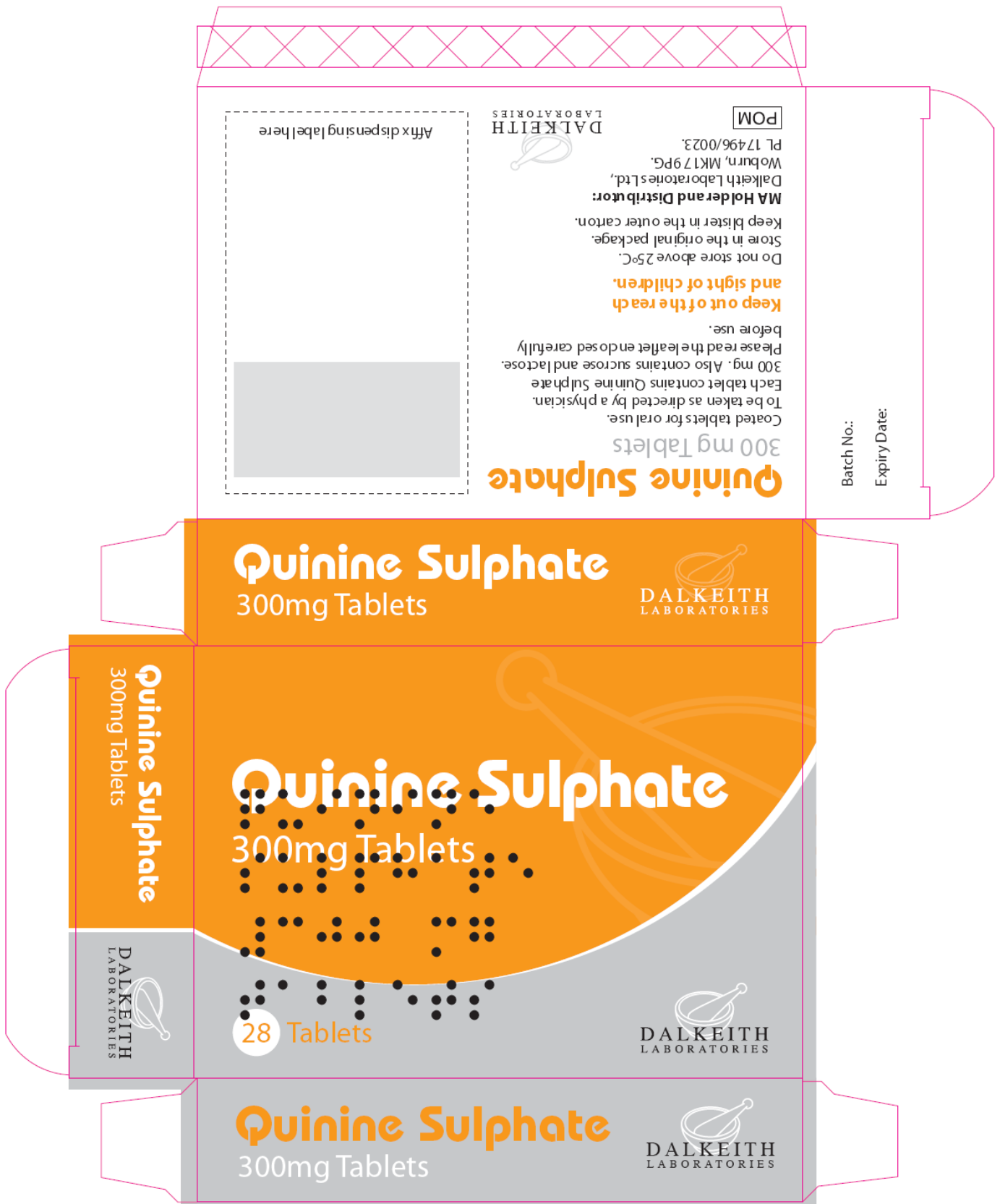
The Marketing Authorisation Holder is:

Dalkeith Laboratories Ltd., 2 Park Street, Woburn, Bedfordshire, MK17 9PG.

The Manufacturer is:

Bristol Laboratories Ltd., Unit 3, Canalside, Northbridge Road, Berkhamsted, Herts, HP4 1EG.

Leaflet prepared December 2010.



Quinine Sulphate 300 mg Tablets
PL Holder: Dalkeith Laboratories Ltd

Quinine Sulphate 300 mg Tablets
PL Holder: Dalkeith Laboratories Ltd

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Quinine Sulphate 300 mg Tablets
PL Holder: Dalkeith Laboratories Ltd

Quinine Sulphate 300 mg Tablets
PL Holder: Dalkeith Laboratories Ltd

PROPOSED CARTON TEXT FOR BLISTER PACK (56 TABLETS)**QUININE SULPHATE
300 MG TABLETS**

56 tablets

Dalkeith Laboratories

Coated tablets for oral use.

To be taken as directed by a physician.

Each tablet contains Quinine Sulphate 300 mg.

Also contains sucrose and lactose.

Please read the leaflet enclosed carefully before use.

Each tablet contains Quinine Sulphate 300 mg.

KEEP OUT OF THE REACH AND SIGHT OF CHILDREN

Do not store above 25°C.

Store in the original package.

Keep blister in the outer carton.

PL 17496/0023

MA Holder and Distributor: Dalkeith Laboratories Ltd., Woburn, MK17 9PG, UK

POM

BN: } To be

EXP: } overprinted

Braille – Indicate in a box in text format the product name which will appear in Braille and its intended position (need appear once only). This does not have to be in an area clear of normal text, as long as the Braille does not interfere with the clarity of the normal text.

Dispensing label – Indicate print free area for application of dispensing label

PROPOSED LABEL TEXT FOR DISPENSARY PACK

<p>QUININE SULPHATE 300 MG TABLETS</p> <p>500 tablets</p> <p>Dalkeith Laboratories</p>	<p>Each tablet contains Quinine Sulphate 300 mg.</p> <p>Also contains sucrose and lactose.</p> <p>Coated tablets for oral use.</p> <p>To be taken as directed by a physician.</p> <p>Please read the leaflet provided carefully before use.</p> <p>KEEP OUT OF THE REACH AND SIGHT OF CHILDREN.</p> <p>Do not store above 25°C. Store in the original container. Keep the container tightly closed.</p> <p>PL 17496/0023. PL Holder: Dalkeith Laboratories Ltd., Woburn, MK17 9PG, UK</p> <p style="text-align: right;">POM</p> <p>BN: } To be EXP: } overprinted</p>
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