

# Summary of Product Characteristics

## 1 NAME OF THE MEDICINAL PRODUCT

Terbasil 250mg Tablets

## 2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each tablet contains 250mg Terbinafine (as Terbinafine hydrochloride)

For the full list of excipients, see section 6.1

## 3 PHARMACEUTICAL FORM

Tablet

White, round, scored, flat tablet marked T above and 1 below the score on one side.

The tablet can be divided into equal halves.

## 4 CLINICAL PARTICULARS

### 4.1 Therapeutic Indications

Fungal infections of the skin and nails caused by *Trichophyton* (e.g. *T. rubrum*, *T. mentagrophytes*, *T. verrucosum*, *T. violaceum*), *Microsporum canis* and *Epidermophyton floccosum*.

Oral terbinafine is indicated in the treatment of ringworm (tinea corporis, tinea cruris and tinea pedis) where oral therapy is considered appropriate due to the site, severity or extent of the infection.

Onychomycosis (nail infections) caused by dermatophyte fungi.

Complete resolution of the signs and symptoms of infection may not occur until several weeks after mycological cure.

### 4.2 Posology and method of administration

#### Posology

**Adults:** 250mg once daily.

The duration of treatment varies according to the indication and the severity of the infection.

#### Skin infections

Likely durations of treatment are as follows:

Tinea pedis (interdigital, plantar/moccasin type): 2 to 6 weeks

Tinea corporis: 4 weeks

Tinea cruris: 2 to 4 weeks

#### Onychomycosis

The duration of treatment for most patients is between 6 weeks and 3 months. Treatment periods of less than 3 months can be anticipated in patients with fingernail infection, toenail infection other than of the big toe, or patients of younger age. In the treatment of toenail infections, 3 months is usually sufficient although a few patients may require treatment of 6 months or longer. Poor nail outgrowth during the first weeks of treatment may enable identification of those patients in whom longer therapy is required.

Complete resolution of the signs and symptoms of infection may not occur until several weeks after mycological cure.

Special population*Hepatic impairment*

Terbinafine tablets are not recommended for patients with chronic or active hepatic disease (See section 4.3 Contraindication and 4.4 Special warnings and precautions for use).

*Renal impairment*

Use of terbinafine tablets has not been adequately studied in patients with renal impairment and is therefore not recommended in this population (see section 4.4 Special warnings and precautions for use and section 5.2 Pharmacokinetic properties).

*Children*

No data are available in children under two years of age (usually <12 kg).

|                   |             |        |                                 |
|-------------------|-------------|--------|---------------------------------|
| Children weighing | 20 to 40 kg | 125 mg | (one 125 mg tablet) once daily  |
| Children weighing | <40 kg      | 250 mg | (two 125 mg tablets) once daily |

*Elderly*

There is no evidence to suggest that elderly patients require different dosages or experience different side-effects than younger patients. When prescribing terbinafine tablets for patients in this age group, the possibility of pre-existing impairment of hepatic or kidney function should be considered (see section 4.4 Special warnings and precautions for use).

Method of administration

Terbasil Tablets are taken orally with water. They should preferably be taken at the same time each day and can be taken on an empty stomach or after a meal.

**4.3 Contraindications**

Known hypersensitivity to terbinafine or to any of the excipients listed in section 6.1.  
Chronic or active hepatic disease.

**4.4 Special warnings and precautions for use**Liver function

Terbinafine is not recommended for patients with chronic or active hepatic disease. Before prescribing terbinafine tablets, liver function test should be performed. Hepatotoxicity may occur in patients with and without pre-existing liver disease, therefore periodic monitoring (after 4-6 weeks of treatment) of liver function test is recommended. Terbinafine should be immediately discontinued in case of elevation of liver function test.

Very rare cases of serious hepatic failure (some with fatal outcome, or requiring liver transplant) have been reported in patients treated with terbinafine tablets. In the majority of liver failure cases the patients had serious underlying systemic conditions and a causal association with the intake of terbinafine tablets was uncertain (see sections 4.3 Contraindications and 4.8 Undesirable effects).

Patients prescribed terbinafine tablets should be warned to report immediately any signs and symptoms of unexplained persistent nausea, decreased appetite, fatigue, vomiting, right upper abdominal pain, or jaundice, dark urine or pale faeces. Patients with these symptoms should discontinue taking oral terbinafine and the patient's hepatic function should be immediately evaluated.

Dermatological effects

Serious skin reactions (e.g. Stevens-Johnson syndrome, toxic epidermal necrolysis, drug rash with eosinophilia and systemic symptoms) have been very rarely reported in patients taking terbinafine tablets. If progressive skin rash occurs, terbinafine tablets treatment should be discontinued.

Terbinafine should be used with caution in patients with pre-existing psoriasis or lupus erythematosus as precipitation and exacerbation of psoriasis and cutaneous and systemic lupus erythematosus have been reported in a postmarketing setting.

Haematological effects

Very rare cases of blood disorders (neutropenia, agranulocytosis, thrombocytopenia, pancytopenia) have been reported in patients treated with terbinafine tablets. Aetiology of any blood disorders that occur in patients treated with terbinafine tablets should be evaluated and consideration should be given for a possible change in medication regimen, including discontinuation of treatment with terbinafine tablets.

Renal function

In patients with renal impairment (creatinine clearance less than 50 ml/minute or serum creatinine of more than 300 micromol/l) the use of terbinafine tablets has not been adequately studied, and therefore, is not recommended (see section 5.2 Pharmacokinetic properties).

Complete resolution of signs and symptoms of infection may not occur until several weeks after mycological cure.

Patients on terbinafine who develop a high fever or sore throat should be examined concerning a possible haematological reaction.

**Interactions**

In vitro and in vivo studies have shown that terbinafine inhibits the CYP2D6 metabolism. Therefore, patients receiving concomitant treatment with drugs predominantly metabolised by this enzyme, e.g. certain members of the following drug classes, tricyclic antidepressants (TCA's), P-blockers, selective serotonin reuptake inhibitors (SSRIs), antiarrhythmics class C and monoamine oxidase inhibitors (MAO-Is) Type B, should be followed, if the co-administered drug has a narrow therapeutic window (see 4.5 Interaction with Other Medicaments and Other Forms of Interaction).

**4.5 Interaction with other medicinal products and other forms of interactions**Effect of other medicinal products on terbinafine:

The plasma clearance of terbinafine may be accelerated by medicinal products, which induce metabolism and may be inhibited by medicinal products, which inhibit cytochrome P450. Where co-administration of such agents is necessary, the dosage of terbinafine may need to be adjusted accordingly.

The following medicinal products may increase the effect or plasma concentration of terbinafine:

Cimetidine decreased the clearance of terbinafine by 33%.

Fluconazole increased the C<sub>max</sub> and AUC of terbinafine by 52% and 69% respectively, due to inhibition of both CYP2C9 and CYP3A4 enzymes. Similar increase in exposure may occur when other drugs which inhibit both CYP2C9 and CYP3A4 such as ketoconazole and amiodarone are concomitantly administered with terbinafine.

The following medicinal products may decrease the effect or plasma concentration of terbinafine:

Rifampicin increased the clearance of terbinafine by 100%.

Information on other drugs concomitantly used with Terbasil resulting in no or negligible interactions:

According to the results from studies undertaken *in vitro* and in healthy volunteers, terbinafine shows negligible potential for inhibiting or enhancing the clearance of most medicinal products that are metabolised via the cytochrome P450 system (e.g. terfenadine, triazolam, tolbutamide or oral contraceptives) with exception of those metabolised through CYP2D6 (see below).

Terbinafine does not interfere with the clearance of antipyrine or digoxin.

There was no effect of terbinafine on the pharmacokinetics of fluconazole. Further there was no clinically relevant interaction between terbinafine and the potential co-medications co-trimoxazole (trimethoprim and sulfamethoxazole), zidovudine or theophylline.

Some cases of menstrual irregularities have been reported in patients taking terbinafine concomitantly with oral contraceptives, although the incidence of these disorders remains within the background incidence of patients taking oral contraceptives alone.

Terbinafine may increase the effect or plasma concentration of the following medicinal products:

### Caffeine

Terbinafine decreased the clearance of caffeine administered intravenously by 19%.

### Compounds predominantly metabolised by CYP2D6

*In vitro* and *in vivo* studies have shown that terbinafine inhibits the CYP2D6-mediated metabolism. This finding may be of clinical relevance for compounds predominantly metabolised CYP2D6, e.g. certain members of the following drug classes, tricyclic antidepressants (TCAs), betablockers, selective serotonin reuptake inhibitors (SSRIs), antiarrhythmics (including class 1A, 1B and 1C) and monoamine oxidase inhibitors (MAO-Is) Type B, especially if they also have a narrow therapeutic window (see 4.4 Special warnings and precautions for use).

Terbinafine decreased the clearance of desipramine by 82%.

In studies in healthy subjects characterized as extensive metabolisers of dextromethorphan (antitussive drug and CYP2D6 probe substrate), terbinafine increased the dextromethorphan/dextrorphan metabolic ratio in urine by 16- to 97-fold on average. Thus, terbinafine may convert extensive CYP2D6 metabolisers to poor metaboliser status.

### Terbinafine may decrease the effect or plasma concentration of the following medicinal products:

Terbinafine increased the clearance of ciclosporin by 15%.

## **4.6 Fertility, pregnancy and lactation**

### Women of child-bearing potential

Some cases of menstrual irregularities have been reported in patients taking Lamisil tablets concomitantly with oral contraceptives, although the incidence of these disorders remains within the background incidence of patients taking oral contraceptives alone.

There are no data to support special recommendations for women of child-bearing potential.

### Pregnancy

Foetal toxicity and fertility studies in animals suggest no adverse effects. Since clinical experience in pregnant women is very limited, terbinafine tablets should not be used during pregnancy unless clinical condition of the woman requires treatment with oral terbinafine and the potential benefits for the mother outweigh any potential risks for the foetus.

### Lactation

Terbinafine is excreted in breast milk; mothers receiving oral treatment with terbinafine should therefore not breast-feed.

### Fertility

There is no relevant information from human experience. Fertility studies in rats indicated no adverse findings in fertility or reproductive performance.

## **4.7 Effects on ability to drive and use machines**

No studies on the effects of terbinafine tablets treatment on the ability to drive and use machines have been performed. Patients who experience dizziness as an undesirable effect should avoid driving vehicles or using machines.

## **4.8 Undesirable effects**

In general, Terbasil tablets are well tolerated. Side effects are generally mild to moderate, and transient.

The following adverse reactions have been observed in the clinical trials or during post marketing experience.

Adverse drug reactions from clinical trials or post-marketing experience (Table 1) are listed by MedDRA system organ class. Within each system organ class, the adverse drug reactions are ranked by frequency, with the most frequent reactions first. Within each frequency grouping, adverse drug reactions are presented in order of decreasing seriousness. In addition, the corresponding frequency category for each adverse drug reaction is based on the following convention

(CIOMS III): Very common(<: 1110); common(<: 11100, <1110); uncommon(<: 111,000, < 11100); rare(<: 1110,000, < 111,000); very rare(< 1110,000).

Table 1

| <b>General disorders</b>                                     |   |
|--|---|
| Uncommon   | Pyrexia   |
| Common   | Fatigue   |
| <b>Blood and the lymphatic system disorders</b>              |   |
| Uncommon   | Anaemia   |
| Very rare  | Neutropenia, agranulocytosis, thrombocytopenia, pancytopenia.   |
| <b>Psychiatric disorders</b>                                 |   |
| Common   | Depression  |
| Uncommon   | Anxiety   |
| <b>Immune system disorders</b>                               |   |
| Very rare  | Anaphylactoid reactions (including angioedema, cutaneous and systemic lupus erythematosus.)   |
| <b>Nervous system and psychiatric disorders</b>              |   |
| Very common  | Headache  |
| Common   | Dysgeusia* including ageusia*, dizziness  |
| Uncommon   | Paraesthesia and hypoaesthesia  |
| Not known  |   |
| <b>Eye disorders</b>   |   |
| Common   | Visual impairment   |
| <b>Ear and labyrinth disorders</b>                           |   |
| Uncommon   | Tinnitus  |
| <b>Hepato-biliary disorders</b>                              |   |
| Rare   | Hepatic failure, hepatitis, jaundice, cholestasis, hepatic enzyme increased (see section 4.4 Warnings and precautions for use).   |
| <b>Gastrointestinal disorders</b>                            |   |
| Very common  | Gastrointestinal symptoms (abdominal distension, decreased appetite, dyspepsia, nausea, mild abdominal pain, diarrhoea).  |
| <b>Skin and subcutaneous tissue disorders</b>                |   |
| Very common  | Rash, urticaria.  |
| Uncommon   | Photosensitivity reaction.  |
| Very rare  | Stevens-Johnson syndrome, toxic epidermal necrolysis, acute generalized exanthematous pustulosis*, erythema multiforme, toxic skin eruption, dermatitis exfoliative, dermatitis bullous. Psoriasiform eruptions or exacerbation of psoriasis. Alopecia. |
| <b>Investigations</b>  |   |
| Uncommon   | Weight decreased**  |
| <b>Musculoskeletal, connective tissue and bone disorders</b> |   |
| Very common  | Musculoskeletal reactions (arthralgia, myalgia).  |

\*Hypogeusia, including ageusia, which usually recover within several weeks after discontinuation of the drug. Isolated cases of prolonged hypogeusia have been reported.

\*\* Weight decreased secondary to dysgeusia.

Adverse drug reactions from spontaneous reports and literature cases (frequency not known)

The following adverse drug reactions have been derived from post-marketing experience with Lamisil via spontaneous case reports and literature cases. Because these reactions are reported voluntarily from a population of uncertain size, it is not possible to reliably estimate their frequency which is therefore categorized as not known. Adverse drug reactions are listed according to system organ classes in MedDRA. Within each system organ class, ADRs are presented in order of decreasing seriousness.

Table 2 Adverse drug reactions from spontaneous reports and literature (frequency not known)

#### **Immune system disorders**

Anaphylactic reaction, serum sickness-like reaction.

#### **Nervous system disorders**

Anosmia including permanent anosmia, hyposmia.

**Eye disorders**

Vision blurred, visual acuity reduced.

**Ear and labyrinth disorders**

Hypoacusis, impaired hearing.

**Vascular disorders**

Vasculitis.

**Gastrointestinal disorders**

Pancreatitis.

**Skin and subcutaneous tissue disorders**

Drug rash with eosinophilia and systemic symptoms.

**Musculoskeletal and connective tissue disorders**

Rhabdomyolysis.

**General disorders and administration site conditions**

Influenza-like illness.

**Investigations**

Blood creatine phosphokinase increased.

Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions via HPRC Pharmacovigilance, Earlsfort Terrace, IRL - Dublin 2; Tel: +353 1 6764971; Fax: +353 1 6762517.

Website: [www.hpra.ie](http://www.hpra.ie); E-mail: [medsafety@hpra.ie](mailto:medsafety@hpra.ie)

**4.9 Overdose**

Based on the observed adverse effects in man, the main symptoms of an acute overdosage are likely to be gastrointestinal, e.g. nausea or vomiting. Gastric lavage and/or symptomatic supportive treatment may be required.

**5 PHARMACOLOGICAL PROPERTIES****5.1 Pharmacodynamic properties**

Pharmacotherapeutic Group: oral antifungal agent (ATC Code D01B A02).

Terbinafine is an allylamine which has a broad spectrum of antifungal activity. At low concentrations terbinafine is fungicidal against dermatophytes, moulds and certain dimorphic fungi. The activity versus yeasts is fungicidal or fungistatic depending on the species.

Terbinafine interferes specifically with fungal sterol biosynthesis at an early step. This leads to a deficiency in ergosterol and to an intracellular accumulation of squalene, resulting in fungal cell death. Terbinafine acts by inhibition of squalene epoxidase in the fungal cell membrane.

The enzyme squalene epoxidase is not linked to the cytochrome P450 system. Efficacy in tinea capitis has not been established. Oral terbinafine is not effective in *Pityriasis versicolor*.

**Onychomycosis**

The efficacy of Lamisil Tablets in the treatment of onychomycosis is illustrated by the response of patients with toenail and/or fingernail infections who participated in three US/Canadian placebo-controlled clinical trials (SFD301, SF5 and SF1508).

Results of the first toenail study, as assessed at week 48 (12 weeks of treatment with 36 weeks follow-up after completion of therapy), demonstrated mycological cure, defined as simultaneous occurrence of negative KOH plus negative culture, in 70% of patients. Fifty-nine percent (59%) of patients experienced effective treatment (mycological cure plus 0% nail involvement or > 5mm of new unaffected nail growth); 38% of patients demonstrated mycological cure plus clinical cure (0% nail involvement).

In a second toenail study of dermatophytic onychomycosis, in which non-dermatophytes were also cultured, similar efficacy against the dermatophytes was demonstrated. The pathogenic role of the non-dermatophytes cultured in the presence of dermatophytic onychomycosis has not been established. The clinical significance of this association is unknown.

Results of the fingernail study, as assessed at week 24 (6 weeks of treatment with 18 weeks follow-up after completion of therapy), demonstrated mycological cure in 79% of patients, effective treatment in 75% of the patients, and mycological cure plus clinical cure in 59% of the patients.

The mean time to treatment success for onychomycosis was approximately 10 months for the first toenail study and 4 months for the fingernail study. In the first toenail study, for patients evaluated at least six months after achieving clinical cure and at least one year after completing Lamisil therapy, the clinical relapse rate was approximately 15%.

**Fungal infections of the skin (Tinea corporis, Tinea cruris, Tinea pedis) and yeast infections of the skin caused by the genus Candida (e.g. Candida albicans) where oral therapy is generally considered appropriate owing to the site, severity or extent of the infection**

Three controlled, double blind, randomised, multicenter studies 50R (4 week study), 6-70R (4 week study) and II-210R (6 week study), evaluated efficacy and safety of Lamisil tablets in the treatment of Tinea corporis and cruris.

Two double blind, placebo controlled studies (50R, 6-70R) evaluated the efficacy of Lamisil 125mg b.i.d. in patients diagnosed with Tinea corporis/cruris. The studies included a total of 46 patients randomised to Lamisil and 49 on placebo. There was no significant difference in terms of demographic and anamnestic data within groups. Efficacy, demonstrated by negative mycology tests and a reduction in clinical symptomatology, was evaluated at 4 weeks and at the follow-up examination. In both studies, minimal efficacy was demonstrated in patients treated with placebo compared to the efficacy of orally administered Lamisil at the end of therapy and at follow up.

The third study (II-210R), a 6 weeks, double blind, randomised, multicenter study compared efficacy and safety of Lamisil 125mg b.i.d. to griseofulvin 250mg b.i.d. One hundred twenty six (126) patients in each group were included in the efficacy analysis. This study showed high rate of mycological cure, reduction in signs and symptoms in the Lamisil treated study arm and significantly better (93-94%) overall efficacy at the end of therapy and at follow up of Lamisil 125mg b.i.d. compared to 86-87% overall efficacy of comparator.

In summary, Lamisil 125mg b.i.d. administered for the period of 4-6 weeks demonstrated statistically superior efficacy compared to placebo and marketed drug griseofulvin in the treatment of Tinea corporis/cruris in the above major efficacy studies.

In a double blind, placebo controlled 4 weeks study SF 00438, Lamisil 125 b.i.d was compared to placebo in patients with cutaneous candidiasis. Twenty two patients were randomised to each treatment arm, of which 19 were evaluated respectively. Of those, 29% of patients in the treatment arm and 17% of patients on placebo demonstrated mycological cure at the end of treatment and 67% of Lamisil treated patients had negative mycological results at the end of follow up. Given the above response rates, 2 weeks therapy of Lamisil should be the minimum duration of treatment period and approximately half of the patients would require 3-4 weeks of treatment to achieve cure.

Two double blind, controlled studies compared Lamisil 125mg b.i.d. to placebo (39- 400R) and to griseofulvin 250mg b.i.d. (200R) in the treatment of Tinea pedis. Both studies recruited patients with chronic, recurrent disease. In the study 39-400R, 65% of patients on Lamisil reported mycological cure at follow up whereas none of the placebo treated patients responded. In the study 200R, Lamisil was shown to be highly effective with 88% of cure at follow up after 6 weeks therapy compared to 45% of patients on griseofulvin. These patients when observed after 10 months reported 94% cure rate, compared to 30% efficacy of griseofulvin in the same patient population.

Table 12-1 Major efficacy studies- Tinea corporis/cruris, Tinea pedis, Candida infections

| Study | Type | Drug | No. of evaluable patients | Dropouts | Mycological results % negative | Clinical results |
|-------|------|------|---------------------------|----------|--------------------------------|------------------|
|-------|------|------|---------------------------|----------|--------------------------------|------------------|

|       |                  |                       |     |    | End Rx | F/up | End Rx | F/up |
|-------|------------------|-----------------------|-----|----|--------|------|--------|------|
| 50R   | 4wkDB-           | Lamisil I25           | 13  | 4  | 64     | 89   | 54     | 62   |
|       | placebo          | b.i.d Placebo         | 15  | 2  | 0      | 0    | 0      | 0    |
| 6-70R | 4wkDB-           | Lamisil I25           | 33  | 8  | 97     | 97   | 85     | 91   |
|       | placebo          | b.i.d Placebo         | 34  | 6  | 29     | 36   | 12     | 12   |
| 11-   | 6wk 125 b.i.d.   | Lamisil I25           | 126 | 13 | 95     | 100  | 93     | 94   |
| 210R  | DB- Griseofulvin | b.i.d<br>Griseofulvin | 126 | 16 | 88     | 94   | 87     | 86   |
|       |                  | 250 b.i.d             |     |    |        |      |        |      |
| SF    | 2wkDB-           | Lamisil I25           | 19  | 3  | 29     | 67   | 11     | 47   |
| 00438 | placebo          | b.i.d Placebo         | 19  | 3  | 17     | 47   | 11     | 11   |
| 39-   | 6wk 125 b.i.d.   | Lamisil I25           | 23  | 3  | 68     | 77   | 59     | 65   |
| 400R  | DB-placebo       | b.i.d Placebo         | 18  | 6  | 13     | 0    | 0      | 0    |
| 200R  | 6wk 125 b.i.d.   | Lamisil I25           | 16  | 2  | 94     | 100  | 75     | 88   |
|       | DB-              | b.i.d                 | 12  | 6  | 27     | 55   | 27     | 45   |
|       | Griseofulvin     | Griseofulvin          |     |    |        |      |        |      |
|       |                  | 250 b.i.d             |     |    |        |      |        |      |

## 5.2 Pharmacokinetic properties

### Absorption

Following oral administration, terbinafine is well absorbed (>70%) and the absolute bioavailability of terbinafine from Terbasil tablets as a result of first-pass metabolism is approximately 50%. A single oral dose of 250mg terbinafine results in mean peak plasma concentrations of 1.3microgram/ml within 1.5 hours after administration.

At steady-state, in comparison to a single dose, peak concentration of terbinafine was on average 25% higher and plasma AUC increased by a factor of 2.3. From the increase in plasma AUC an effective half-life of ~30 hours can be calculated. The bioavailability of terbinafine is moderately affected by food (increase in the AUC of less than 20%), but not sufficiently to require dose adjustments. When given orally, the medicinal product concentrates in skin and nails at levels associated with fungicidal activity.

### Distribution

Terbinafine binds strongly to plasma proteins (99%). It rapidly diffuses through the dermis and concentrates in the lipophilic stratum corneum. Terbinafine is also secreted in sebum, thus achieving high concentrations in hair follicles, hair and sebum rich skins. There is also evidence that terbinafine is distributed into the nail plate within the first few weeks of commencing therapy.

### Biotransformation

Terbinafine is metabolised rapidly and extensively by at least seven CYP isoenzymes with major contributions from CYP2C9, CYP1A2, CYP3A4, CYP2C8 and CYP2C19. Biotransformation results in metabolites with no antifungal activity, which are excreted predominantly in the urine. No clinically relevant age-dependent changes in pharmacokinetics have been observed. Multiple dose administration followed by extended blood sampling revealed a triphasic elimination with a terminal half-life of approximately 16.5 days.

Single dose pharmacokinetics studies in patients with renal impairment (creatinine clearance < 50 mL/min) or with pre-existing liver disease have shown that the clearance of Lamisil tablets may be reduced by about 50%.

### Elimination

The elimination rate may be reduced by 50% in patients with renal impairment (creatinine clearance <50mL/min) or hepatic impairment resulting in higher blood levels of terbinafine.



### 5.3 Preclinical safety data

In long-term studies (up to 1 year) in rats and dogs no marked toxic effects were seen in either species up to oral doses of about 100mg/kg a day. At high oral doses, the liver and possibly also the kidneys were identified as potential target organs.

In a two-year oral carcinogenicity study in mice, no neoplastic or other abnormal findings attributable to treatment were made up to doses of 130 (males) and 156 (females) mg/kg a day. In a two-year oral carcinogenicity study in rats, an increased incidence of liver tumours was observed in males at the highest dosage level of 69mg/kg a day. The changes which may be associated with peroxisome proliferation have been shown to be species-specific since they were not seen in the carcinogenicity study in mice, dogs or monkeys.

During high-dose studies in monkeys, refractile irregularities were observed in the retina at the higher doses (non-toxic effect level 50mg/kg). These irregularities were associated with the presence of a terbinafine metabolite in ocular tissue and disappeared after discontinuation of the medicinal product. They were not associated with histological changes.

An 8-week oral study in juvenile rats provided a no-toxic-effect level (NTEL) of close to 100 mg/kg/day, with the only finding being slightly increased liver weights, while in maturing dogs at 2100 mg/kg/day (AUC values about 13 x (m) and 6x (f) those children), signs of central nervous system (CNS) disturbance including single episodes of convulsions in individual animals were observed. Similar findings have been observed at high systemic exposure upon intravenous administration of terbinafine to adult rats or monkeys.

A standard battery of *in vitro* and *in vivo* genotoxicity tests revealed no evidence of mutagenic or clastogenic potential. No adverse effects on fertility or other reproduction parameters were observed in studies in rats or rabbits.

## 6 PHARMACEUTICAL PARTICULARS

### 6.1 List of excipients

Microcrystalline cellulose  
Croscarmellose sodium  
Silica, colloidal anhydrous  
Hypromellose  
Magnesium stearate

### 6.2 Incompatibilities

Not applicable.

### 6.3 Shelf life

3 years.

### 6.4 Special precautions for storage

This medicinal product does not require any special conditions storage conditions.

### 6.5 Nature and contents of container

Al/PVC/PVdC strip or HDPE Tablet Container with LDPE Cap  
Pack sizes: 7, 14, 21, 28, 30, 42, 50, 60, 84, 100 or 500 tablets  
Not all pack size may be marketed

### 6.6 Special precautions for disposal of a used medicinal product or waste materials derived from such medicinal product and other handling of the product

No special requirements

**7 MARKETING AUTHORISATION HOLDER**

Accord Healthcare Ireland Ltd.  
Euro House  
Euro Business Park  
Little Island  
Cork T45 K857  
Ireland

**8 MARKETING AUTHORISATION NUMBER**

PA2315/099/001

**9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION**

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