

## **1. NAME OF THE MEDICINAL PRODUCT**

Lamisil 1% cutaneous solution.

## **2. QUALITATIVE AND QUANTITATIVE COMPOSITION**

Active substance: 10 mg terbinafine hydrochloride per 1 g solution (1% w/w).

Excipient(s) with known effect: ethanol 96% (250mg/g) and propylene glycol (E1520) (50mg/g).

For the full list of excipients, see section 6.1.

## **3. PHARMACEUTICAL FORM**

Cutaneous solution.

Clear, colourless to faintly yellow liquid.

## **4. CLINICAL PARTICULARS**

### **4.1 Therapeutic indications**

Lamisil solution is indicated in the treatment of fungal infections of the skin caused by dermatophytes and pityriasis (tinea) versicolor in adults (see section 4.4)

### **4.2 Posology and method of administration**

Cutaneous use only.

#### **Posology**

##### Adults only.

Lamisil solution is applied once or twice daily, depending on the indication.

##### Duration and frequency of treatment.

|                                |                        |
|--------------------------------|------------------------|
| Interdigital type tinea pedis: | Once a day for 1 week  |
| Tinea corporis, cruris:        | Once a day for 1 week  |
| Pityriasis versicolor:         | Twice a day for 1 week |

Clinical symptoms usually start to improve within a few days. Irregular use or premature discontinuation of treatment carries the risk of recurrence.

If there are no signs of improvement within one week after completed treatment, patients should contact a pharmacist to verify that the product is correctly used or see a doctor to verify diagnosis.

#### **Method of administration**

The affected area should be cleaned and dried thoroughly before the application of Lamisil Solution. A sufficient amount of product should be applied to wet the treatment area(s) thoroughly, and to cover the affected skin and surrounding area.

In the case of intertriginous infection (submammary interdigital, intergluteal, inguinal), the application may be covered with gauze, especially at night.

### **Dosing in special populations:**

#### **Pediatric population**

Lamisil solution is not recommended for use in children due to insufficient data on safety and efficacy.

#### **Elderly patients**

There is no evidence to suggest that elderly patients require different dosages or experience side effects different from those in younger patients.

### **4.3 Contraindications**

Hypersensitivity to the active substance or to any of the excipients listed in section 6.1.

### **4.4 Special warnings and precautions for use**

Lamisil solution should be used with caution in patients with lesions where alcohol could be irritating. It should not be used on the face.

Lamisil solution is for external use only. It may be irritating to the eyes. In case of accidental contact with the eyes, rinse eyes thoroughly with running water.

Lamisil solution should be kept out of the sight and reach of children.

### **Information concerning excipients**

This medicine contains 250 mg/g of 96% ethanol.  
It may cause burning sensation on damaged skin.

This medicine contains 50mg/g of propylene glycol

### **4.5 Interaction with other medicinal products and other forms of interaction**

No drug interactions are known with Lamisil solution.

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

#### **Pregnancy**

There are no available data from the use of terbinafine in pregnant women. Animal studies do not indicate any harmful effects with respect to pregnancy or the health of the foetus (see section 5.3). Lamisil solution should not be used during pregnancy unless clearly necessary.

### **Breast-feeding**

Terbinafine is excreted into breast-milk. After topical use only a low systemic exposure is expected. Terbinafine should only be used in a nursing mother if the expected benefit justifies the risk to the infant. In addition, infants must not be allowed to come into contact with any treated skin, including the breast.

### **Fertility**

No effect of terbinafine on fertility have been seen in animal studies (see section 5.3).

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

Lamisil solution has no or negligible influence on the ability to drive and use machines.

## **4.8 Undesirable effects**

### **Summary of the safety profile**

Local symptoms such as pruritus, skin exfoliation, application site pain, application site irritation, pigmentation disorder, skin burning sensation, erythema, scab, etc. may occur at the site of application. These harmless symptoms must be distinguished from hypersensitivity reactions incl. rash, which are reported in sporadic cases and require discontinuation of therapy. In case of accidental contact with the eyes terbinafine may be irritating to the eyes. In rare cases the underlying fungal infection may be aggravated.

Adverse reactions identified during post-marketing use are reported voluntarily from a population of uncertain size, the frequency of these reactions is 'not known' but likely to be rare or very rare.

### **Tabulated list of adverse reactions**

Adverse reactions are listed below by system organ class and frequency. Frequencies are defined as: *very common* ( $\geq 1/10$ ); *common* ( $\geq 1/100$  to  $< 1/10$ ); *uncommon* ( $\geq 1/1,000$  to  $< 1/100$ ); *rare* ( $\geq 1/10,000$  to  $< 1/1,000$ ); *very rare* ( $< 1/10,000$ ), or *not known* (can not to be estimated from available data). Within each frequency grouping, adverse reactions are presented in order of decreasing seriousness.

| <b>System Organ Class (SOC)</b> | <b>Adverse Reaction</b> |
|---------------------------------|-------------------------|
| <b>Frequency</b>                |                         |
| <b>Immune system disorders</b>  |                         |

| <b>System Organ Class (SOC)<br/>Frequency</b>                   | <b>Adverse Reaction</b>                                                                         |
|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Not known                                                       | Hypersensitivity                                                                                |
| <b>Eye disorders</b>                                            |                                                                                                 |
| Rare                                                            | Eye irritation                                                                                  |
| <b>Skin and subcutaneous tissue disorders</b>                   |                                                                                                 |
| Common                                                          | Skin exfoliation, pruritus                                                                      |
| Uncommon                                                        | Skin lesion, scab, skin disorder,<br>pigmentation disorder, erythema, skin<br>burning sensation |
| Rare                                                            | Dry skin, dermatitis contact, eczema                                                            |
| Unknown                                                         | Rash                                                                                            |
| <b>General disorders and administration site<br/>conditions</b> |                                                                                                 |
| Uncommon                                                        | Pain, application site pain, application site<br>irritation                                     |
| Rare                                                            | Condition aggravated                                                                            |

#### 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 the national reporting system listed in Appendix V.

## **4.9 Overdose**

The low systemic absorption of topical terbinafine solution renders overdosage extremely unlikely.

Accidental ingestion of the contents of one 30 ml bottle of Lamisil solution, which contains 300 mg terbinafine hydrochloride, is comparable to ingestion of one Lamisil 250 mg tablet (adult oral unit dose).

Should a larger amount of Lamisil solution be inadvertently ingested, adverse effects similar to those observed with an overdosage of Lamisil tablets are to be expected. These include headache, nausea, epigastric pain and dizziness.

In case of accidental oral ingestion, the alcohol content (28.87% v/v) of Lamisil solution has to be considered.

### **Treatment of overdose**

If accidentally ingested, the recommended treatment of overdosage consists of eliminating the active substance, primarily by the administration of activated charcoal, and giving symptomatic supportive therapy if needed.

## 5. PHARMACOLOGICAL PROPERTIES

### 5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Antifungal for topical use (ATC code D01A E15).

Terbinafine is an allylamine which has a broad spectrum of antifungal activity in fungal infections of the skin caused by dermatophytes such as *Trichophyton* (e.g. *T. rubrum*, *T. mentagrophytes*, *T. verrucosum*, *T. violaceum*), *Microsporum canis* and *Epidermophyton floccosum*. At low concentrations terbinafine is fungicidal against dermatophytes and moulds. The activity against yeasts is fungicidal (e.g. *Pityrosporum orbiculare* or *Malassezia furfur*) 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. Terbinafine does not influence the metabolism of hormones or other substances.

### 5.2 Pharmacokinetic properties

Less than 5% of the dose is absorbed after topical application to humans; systemic exposure is thus very slight.

### 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 100 mg/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 at the highest dose level, 69 mg/kg a day, an increased incidence of liver tumours was observed in males. 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 or in other studies in mice, dogs or monkeys.

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

A standard battery of *in vitro* and *in vivo* genotoxicity tests revealed no evidence of a mutagenic or clastogenic potential for the drug.

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**

Purified water  
Ethanol 96%  
Propylene glycol (E1520)  
Macrogol cetostearyl ether

### **6.2 Incompatibilities**

Not applicable.

### **6.3 Shelf life**

3 years.  
12 weeks after first opening.

### **6.4 Special precautions for storage**

Do not store above 30°C. Do not refrigerate or freeze.

### **6.5 Nature and contents of container**

Lamisil solution is available in 30 ml, white oval high-density polyethylene (HDPE) squeeze bottles with a low density polyethylene dropper insert and HDPE screw closure.

### **6.6 Special precautions for disposal and other handling**

No special requirements.

## **7. MARKETING AUTHORISATION HOLDER**

<[To be completed nationally]>

## **8. MARKETING AUTHORISATION NUMBER(S)**

<[To be completed nationally]>

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

Date of first authorisation: <{DD/MM/YYYY}> <{DD month YYYY}>

Date of last renewal: 9 May 2007

<[To be completed nationally]>

## **10. DATE OF REVISION OF THE TEXT**

8 February 2021