SUMMARY OF PRODUCT CHARACTERISTICS

1 NAME OF THE MEDICINAL PRODUCT

Lamisil AT 1% Gel

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Terbinafine 1.0% w/w

Excipients with known effect
Each gram of Lamisil AT Gel contains 100 mg ethanol and 5 mg benzyl alcohol

For the full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Gel

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

The treatment of tinea pedis (athlete's foot), tinea cruris (dhobie (jock) itch) and tinea corporis (ringworm) caused by Trichophyton (e.g. T. rubrum, T. mentagrophytes, T. verrucosum, T. violaceum) and Epidermophyton floccosum.

4.2 Posology and method of administration

Adults

Lamisil AT 1% Gel is applied once daily for all indications.

Duration and frequency of treatment

Tinea corporis, tinea cruris	1 week once a day
Tinea pedis (interdigital type)	1 week once a day

Relief of clinical symptoms usually occurs within a few days. Irregular use or premature discontinuation of treatment carries the risk of recurrence. If there are no signs of improvement after two weeks, the diagnosis should be verified by a physician.

Dosing in special populations

Paediatric populations

Not to be used in children under 16 years of age. Experience with Lamisil AT 1% Gel in children is limited and its use cannot therefore be recommended.

Elderly patients

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

Method of Administration

For cutaneous use.

Cleanse and dry the affected areas thoroughly before applying Lamisil AT 1% Gel. The gel should be rubbed in lightly to the affected skin and surrounding area. In the case of intertriginous infection (submammary, interdigital, intergluteal, inguinal) the application may be covered with a light gauze, especially at night.

4.3 Contraindications

Known hypersensitivity to terbinafine or any of the excipients contained in the gel
(see section 6.1 List of Excipients).

4.4 Special warnings and precautions for use

Lamisil AT 1% Gel contains 207.36 mg alcohol (ethanol) in each daily dose which is equivalent to 100 mg/ g of 96% ethanol. Lamisil AT 1% Gel should be used with caution in patients with lesions where alcohol could be irritating, such as lesions which are markedly inflamed or on sensitive areas of the body such as the face.

Lamisil AT 1% Gel 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 AT 1% Gel contains butylhydroxytoluene (E321), which may cause local skin reactions (e.g. contact dermatitis), or irritation to the eyes and mucous membranes.

Lamisil AT 1% Gel contains 10.8 mg benzyl alcohol in each daily dosage which is equivalent to 5 mg/g. Benzyl alcohol may cause mild local irritation.

4.5 Interaction with other medicinal products and other forms of interaction

No drug interactions are known with Lamisil AT 1% Gel, however as a precaution it is recommended that other medicinal products are not applied on the treated areas.

4.6 Fertility, Pregnancy and lactation

Pregnancy
Animal studies did not reveal any teratogenic or embryofoetotoxic potential of terbinafine.

No cases of malformation in humans have been reported with terbinafine to date. There is limited clinical experience in pregnant women, Lamisil AT 1% Gel should not be used during pregnancy unless clearly indicated.

Lactation
Terbinafine is excreted in breast milk. Therefore, mothers should not use Lamisil AT 1% Gel whilst breastfeeding. 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 AT 1% Gel has no influence on the ability to drive and use machines

4.8 Undesirable effects

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

Immune system disorders
Not known: Hypersensitivity

Eye disorders
Rare: Eye irritation

Skin and subcutaneous tissue disorders
Common: Skin exfoliation, pruritus
Uncommon: Skin lesion, scab, skin disorder, pigmentation disorder, erythema, skin burning sensation
Rare: Dry skin, dermatitis contact, eczema
Not known: Rash

General disorders and administration site conditions
Uncommon: Pain, application site pain, application site 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 Yellow Card Scheme at: www.mhra.gov.uk/yellowcard.

4.9 Overdose

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

Accidental ingestion of one 30 g tube of Lamisil 1% Gel, which contains 300 mg terbinafine base, is comparable to ingestion of one Lamisil 250 mg tablet (adult oral unit dose).

Should a larger amount of Lamisil AT 1% Gel 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 has to be considered:
Lamisil AT 1% Gel contains 9.4% w/w alcohol.

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. *Pityosporum 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 drugs.

Terbinafine has a long lasting action in athlete's foot. A clinical study of topical application of Lamisil AT 1% Gel in athlete's foot has shown a low percentage of patients with mycological evidence of relapse or reinfection after 7 weeks following cessation of treatment.

5.2 Pharmacokinetic properties

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

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/day. At high oral doses, the liver and possible also the kidneys were identified as potential target organs.

In a two year 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/day. In a two year oral carcinogenicity study in rats at the highest dose level, 69 mg/kg/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 oral 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.
In a 4-week dermal toxicity study in rabbits, Lamisil AT 1% Gel was tolerated and devoid of systemic toxicity. Signs of mild skin irritation caused by the gel vehicle were reversible on cessation of dosing.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Purified water
Ethanol
Isopropyl myristate
Polysorbate 20
Carbomer 974P
Sorbitan laurate
Benzyl alcohol
Sodium hydroxide
Butylated hydroxytoluene.

6.2 Incompatibilities

Not applicable

6.3 Shelf life

3 years.
Shelf life after opening: 1 month

6.4 Special precautions for storage

Do not store above 30°C.

6.5 Nature and contents of container

Lamisil AT 1% Gel is available in aluminium tubes with sealing membrane, coated internally with an epoxyphenol resin lacquer. The tube is closed with a polypropylene screw cap, incorporating a point to pierce the aluminium sealing membrane before first use.

Or

Laminated tube (low density polyethylene, aluminium, low density polyethylene) with a shoulder made of high density polyethylene. The tube is sealed with a peel-off made of an aluminium/ethylene multilayer copolymer and closes with a polypropylene cap (the cap could present a built-in point to pierce the peel-off).

Available in tube sizes 5g, 7.5g, 15g and 30g.

Not all pack sizes may be marketed.

6.6 Special precautions for disposal

See 4.2 Posology and Method of Administration and 4.4 Special Warnings and Precautions for Use.

Before first use, the sealing membrane of the tube must be pierced using the point incorporated into the screw cap.

7 MARKETING AUTHORISATION HOLDER

Karo Healthcare AB
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8 MARKETING AUTHORISATION NUMBER(S)

PL 50567/0017

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

18 June 2003

10 DATE OF REVISION OF THE TEXT

29/02/2024