TIOlisina Complex 30
A new way to balance from head to toe

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**TIOLISINA® COMPLEX 30**

**Combination of sulfated amino acid derivatives with sebostatic efficacy**

**INCI NAME**
- Lysine Carboxymethyl Cysteinate, (and)
- Lysine Thiazolidine Carboxylate

**N°CAS**
- 444-27-9 (Lysine Thiazolidine Carboxylate)
- 78458-68-7 (Lysine Carboxymethyl Cysteinate)

**N°EINECS**
- 207-104-6 (Lysine Thiazolidine Carboxylate)
- 279-164-2 (Lysine Carboxymethyl Cysteinate)

**PHYSICO-CHEMICAL DATA**
- Aspect: clear liquid
- Color: from colorless to amber yellow
- Odor: characteristic
- pH: 6.5 - 7.5
- Dry residue (105°C±1): 27 - 33
- Refraction index (20°C ± 1): 1.378 - 1.398
- Density (25°C ± 1): 1.05 - 1.15

**Properties and cosmetic applications**

For about ten years, the use of sulfur - precipitated or solubilized - in the treatment of hair, skin, and nails has gradually been replaced by treatment with organic thioderivatives which are less toxic and above all more effective. In particular, sulfur-based treatments were divided into two categories. On one hand, the application of sulfated products with a clear antimicrobial action (selenium sulphide, sulfoprolamine, zinc pyrithione, etc.) was oriented towards skin cleansing and dandruff removal treatments. On the other hand, the use of preparations containing derivatives of cystine, cysteine, cysteamine, methionine, thiazolidine, thiohydantoin, alkyl thiocethers, etc. was oriented towards the treatment of excessive and copious sebaceous secretions (seborrhea capitis, oily skin).

This second group of products has no specific antimicrobial activity, but functions normalizing the sebum excretion. The tendency to develop effects that are not typically antimicrobial even on phenomena which are usually treated with antiseptics, such as acne and dandruff, is manifested at the same time through the use of polybasic amino acids, such as lysine, arginine, and histidine.
Synthesis of TIOLISINA® COMPLEX 30

For many years and even today, mineral sulfur has been widely used in both its colloidal state and in its more complex forms. Thioaminolysinic esters, derived from cysteine, were synthesized combining in a single preparation the antiseborrheal functions of carboxymethylcysteine and thiazolidinecarboxylic acid with the skin properties of amino acidic residuals.

The ratio between the lysine carboxymethylcysteine and lysine thiazolidinecarboxylic acid has been modified, using a higher percentage of carboxymethylcysteine compounds as compared to the thiazolidinecarboxylic compounds. The product obtained in bulk form is a fine white powder, with a melting point of ca. 182°C ± 1°C. Because it is somewhat costly and tedious to obtain the pure product, TIOLISINA® COMPLEX 30 is supplied as a 30% concentrated water solution. It represents an easy-to-use functional cosmetic ingredient for skin and hair treatment. TIOLISINA is easily mixable in anionic and amphoteric surfactants, in hydrolytes and alcoholytes (up to 30%), in monophase gels and biphasic systems such as O/W and W/O emulsions, without any interference or specific incompatibility. Add in the aqueous phase or in the emulsification process at value not more than 40°C.
Efficacy of TIOLISINA® COMPLEX 30

In vitro evaluation of antiaging activity on keratinocytes after exposure to UVA

Tiolisina® Complex 30 is 3 times more efficient when compared to Vitamin C. It promotes a higher oxygen intake.

Shampoos show a significant decrease (p<0.01) in sebometry evaluations.

In vivo evaluation of desquamation on the scalp

Tiolisina® Complex 30 strongly reduces the ROS percentage (30%) produced by cultured human keratinocytes after UVA induced oxidative stress.

Significant changes (p<0.006) have been recorded in the desquamation index.
In vivo evaluation of antiacne activity

Thanks to its sulfur bonds, TIO-LISINA® COMPLEX 30 links to amino acids moieties of skin glycoproteins, helping to normalize sebum spreading. Due to this particular property, TIO-LISINA® COMPLEX 30 is considered as a skin sebormalizer. Patients’ self assessments showed a significant improvement in the overall spectrum of acne lesions with very good clinical results and patients’ satisfaction. In vivo results have confirmed the sebostatic effects of TIO-LISINA® with an evident reduction of sebum levels and of desquamation of the scalp, and significant improvement of acne-prone skin.

Statistically significant changes are measured for inflammation, papules and pustules (p<0.05).

A significant reduction (p< 0.002) in skin erythema is recorded in comparison to placebo.

Efficacy of TIO-LISINA® COMPLEX 30

Conclusions

Tolerability

Skin irritation  Non irritating
Eye irritation  Non irritating
Skin Sensitisation  Non sensitising
### Formulas

#### ANTIDANDRUFF SHAMPOO

**Composition:** %W/W

- ZETESOL LES 2 30,00
- SODIUM LAURETH SULFATE 2,00
- ARLYPON F 5,00
- COCCOLIPIDPE DI SOIA 2,00
- UNDECILYNYL SOY POLYPEPTIDE 2,50
- TRITON CG-110 3,00
- OCTOPIROX 0,50
- VESEQUAT 2,50
- TIO LISINA® COMPLEX 30 2,50
- PHYTOPROTEIN 0,50
- PARFUM 0,50
- WATER to 100

#### SHAMPOO FOR GREASY HAIR

**Composition:** %W/W

- AMPHOTENSID B4 15,00
- TEXAPON SB3 5,00
- TRITON CG-110 2,50
- AMPHOTENSID GB2009 10,00
- ABIE TOIL SOY POLYPEPTIDE 2,50
- TIO LISINA® COMPLEX 30 5,00
- FENOSISPARABEN 0,50
- PARFUM 0,50
- WATER to 100

### HAIR LOTION

**Composition:** %W/W

- TIO LISINA® COMPLEX 30 3,00
- PHYTOPROTEIN 0,50
- FENOSISPARABEN 0,80
- ABIE TOIL SOY POLYPEPTIDE 0,50
- ETHYL ALCOHOL 30,00
- WATER to 100

### AFTER SHAMPOO CONDITIONER

**Composition:** %W/W

- TIO LISINA® COMPLEX 30 3,00
- CETEARYL ALCOHOL 5,00
- CETRIMONIUM CHLORIDE 1,00
- EUTANOL G 0,10
- PROPYLEN GLYCOL 1,00
- GRAM 1 0,50
- MCI-MI 0,50
- EDTA DISODIUM 0,10
- PROPYLEN GLYCOL 1,00
- PARFUM 0,50
- WATER to 100

### ALCOHOL-FREE CLEANSING LOTION

**Composition:** %W/W

- WATER to 100
- HAMAMELIS DISTILLED WATER 15,00
- MCI-MI 0,50
- TIO LISINA® COMPLEX 30 5,00
- PARFUM 0,10
- WATER to 100
**HYDROALCOHOLIC ASTRINGENT TONIC**

Composition: %W/W

- WATER AQUA to 100
- HAMAMELIS DISTILLED WATER AQUA, HAMAMELIS VIRGINIANA 15,00
- GRAMBEN® IOLISINA
- MCI-MI METHYLCHLOROSOOTHIAZOLIDINE - METHYLISOTHIAZOLINONE 0,05 SINERGA
- ANTIOXIDANTS
- ASTRINGOL ALUMINUM TAMARITE 1,00
- LEMON EXTRACT CITRUS MEDICA FRUIT EXTRACT 2,50
- CUCUMBER EXTRACT CUCUMIS SATIVUS FRUIT EXTRACT 2,50
- ETHANOL ETHYL ALCOHOL 10,00
- SOLUBILISANT LRI PG 40 HYDROGLYCERIN CASTOR OIL - PPG-26-BUTETH-26 0,40
- FRAGRANCE EDT GRAMBEN® CARBOPOL CARBOPOL WET 0,10
- TOLISINA® COMPLEX 30 LYSINE CARBOXYMETHYL CYSTENATE LYSINE THAZOLIDINE CARBOXYLATE 3,00 SINERGA

**SEBUM NORMALIZING CREAM-GEL SKIN CLEANSER**

Composition: %W/W

- WATER AQUA to 100
- CARBOPOL 2020 ACRLATES/C10-30 ALKYL ACRYLATE CROSSPOLYMER 0,25
- CARBOPOL ULTREZ 10 CARBOMER 0,50
- GRAMBEN® IOLISINA 0,30 SINERGA
- MCI-MI METHYLCHLOROSOOTHIAZOLIDINE - METHYLISOTHIAZOLINONE 0,05 SINERGA
- EDT DISODIUM DISODIUM EDTA 0,15
- CETOL® OLE DICAPRYL ETHER 10,00
- FRAGRANCE PARFUM 0,40
- SF 18-350 DIMETHICONE 1,00 SINERGA
- GLYCERIN Glycerin 2,50
- TOLISINA® COMPLEX 30 LYSINE CARBOXYMETHYL CYSTENATE LYSINE THAZOLIDINE CARBOXYLATE 0,20 SINERGA
- AMP 100 AMINOMETHYL PROPANOL 0,60

**DAY CREAM**

Composition: %W/W

- PHYTOCREAM 2000 PROLISSO PALMISTRY HYDROLYZED WHEAT PROTEIN; PALMISTRY, STEARATE, CETETH15, ALCOHOL 10,00 SINERGA
- AVOCADO OIL BLASSUS CHIRONIS 2,00
- TOCOPHERYL ACETATE 0,30
- ANTIODANTS o.b.
- FENOSISPARABEN PHENOXYETHANOL, METHYL PARABEN, ETHYL PARABEN, PROPYL PARABEN 0,50 SINERGA
- TOLISINA® COMPLEX 30 LYSINE CARBOXYMETHYL CYSTENATE LYSINE THAZOLIDINE CARBOXYLATE 5,00 SINERGA
- GRAM 1 IMIDAZOLINYL UREA 0,30 SINERGA

**O/W EMULSION FOR OILY SKIN**

Composition: %W/W

- TWEEN 60 POLYGLYCERYLESTE 3,50
- APLACEL 60 SORBITAN STEARATE 1,50
- LAMETTE O CETETH 20 ALCOHOL 2,50
- DERMOIL 89 ETHYLHEXYL ISONONANATE 10,00
- STEARIN STEARIC ACID 7,50
- WATER AQUA to 100
- GRAM 1 IMIDAZOLOXYL UREA 0,30 SINERGA
- EDT DISODIUM DISODIUM EDTA 0,15
- MCI-MI METHYLCHLOROSOOTHIAZOLIDINE - METHYLISOTHIAZOLINONE 0,05 SINERGA
- FENOSISPARABEN PHENOXYETHANOL, METHYL PARABEN, ETHYL PARABEN, PROPYL PARABEN, BUTYL PARABEN 0,50 SINERGA
- TOLISINA® COMPLEX 30 LYSINE CARBOXYMETHYL CYSTENATE LYSINE THAZOLIDINE CARBOXYLATE 5,00 SINERGA
- Glycerin Glycerin 3,50
- FRAGRANCE PARFUM 0,50

**HYPERFLUID NANOEMULSION FOR SKIN IMPURITIES**

Composition: %W/W

- NANOCREAM POTASSIUM LAUROYL WHEAT AMINO ACIDS, PALM GLYCERYL, CAPRYL ICYL GLYCINE 6,00 SINERGA
- CETOL® OLE DICAPRYL ETHER 3,50
- DERMOL 89 ETHYLHEXYL ISONONANATE 1,00
- α-BISABOLOL 0,40
- FENOSISPARABEN PHENOXYETHANOL, METHYL PARABEN, ETHYL PARABEN, PROPYL PARABEN, BUTYL PARABEN 0,50 SINERGA
- AZELOGLICINIC POTASSIUM AZELOYL DIGLUCONATE 4,00 SINERGA
- TOLISINA® COMPLEX 30 LYSINE CARBOXYMETHYL CYSTENATE LYSINE THAZOLIDINE CARBOXYLATE 5,00 SINERGA
- ZINC GLUCONATE 0,80
- EDT DISODIUM DISODIUM EDTA 0,15
- 1,2-PROPANEDIOL 0,20
- WATER AQUA to 100

**Non warranty:**

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