NICOMENTHYL® is composed of pure MENTHYL NICOTINATE, obtained through a new and exclusive industrial synthesis process (patent pending proprietary technology) developed over 20 years of research at Multichem R&D Laboratories. 100% Made in Italy. NICOMENTHYL® represents a new and revolutionary substance for cosmetic use that can significantly activate the cutaneous microcirculation without causing bothersome hyperaemia or irritations. It generates on the contrary a pleasant hot-cold sensation in the area of application.

It is derived from the chemical reaction between two natural components:

- Menthol, obtained from the essential oil of mint, has a refreshing and soothing effect on the skin.
- Niacin or Vitamin B3 or Vitamin PP (Pellagra-Preventing), helps break down and assimilate proteins, fats and glucosides. It plays a fundamental role in the formation of erythrocytes, in optimizing microcirculation and in providing oxygen to the cells. Its properties are used in topical applications for oxygenating and nourishing the skin, enhancing epidermal renewal and skin barrier integrity, accelerating cellular differentiation and wound healing, as well as for its anti-inflammatory and skin detoxifying effects.

**Applications**

General Activator of the cutaneous microcirculation, particularly indicated for:
- Cellulitis treatment
- Hair loss prevention treatment
- Anti-age formulations (inhibits the slowdown of cutaneous microcirculation associated with ageing or slackening of the tissues)
- Sport massage products
- Refreshing products for feet and legs
- Intimate hygiene products / stimulant personal lubricants
- Cosmetic lip plumping treatments
- Spa treatment products
- Deodorant/antiperspirants
- Pre/after shave products
- Body lotions
- Adjuvant in the treatment of gingivitis and sensitive gums

**Origin**

Obtained by a synthesis process from natural components

**INCI name**

Menthyl nicotinate

**Formulation guidelines**

Liposoluble. Can be processed either hot or cold. The sensorial effect of NICOMENTHYL® is optimized by all those carriers having a good lipophilicity and a high spreading value such as: Butylene glycol, Hexylene glycol, Pentylene glycol, Dipropylene glycol, Dicapryl ether, Dicaprylyl carbonate, Ethanol, etc. Furthermore, the effect is enhanced when NICOMENTHYL® is included in water based formulations (such as O/W emulsions or aqueous gels) or solubilized in microemulsions with Polysorbates, PEG-40 Hydrogenated castor oil or other hydrophilic solubilizers, while it is reduced in anhydrous formulations or W/O emulsions.

**Recommended dosage**

0.5 - 3%
**Mechanism of action**

Menthyl nicotinate is easily absorbed by the skin and hydrolyzed into its primary components: menthol and niacin. Since menthol is a vasoconstrictor and niacin is a vasodilator, they generate simultaneously, a few minutes following the application, a **sensation of freshness** (due to the menthyl moiety of the molecule) and a **sensation of tingling warmth** (due to the niacin moiety). The result is an **absolutely unique sensorial effect**, a mild and pleasant sensation of cellular turgor or “cool tingling”, a kind of hot-cold subcutaneous micromassage (indicating a beneficial increase of microcirculation), that can even last up to one hour after application. These sensorial effects are totally different from those caused by formulations containing free menthol and the common methyl, ethyl or benzyl nicotinates or other menthol esters, which may occasionally cause unpleasant flush, irritation or sensitization.

**Properties and technical specifications**

NICOMENTHYL® (IUPAC Name: 5-methyl-2-(isopropyl)cyclohexyl nicotinate; CAS 40594-65-8; EINECS 254-991-1) is the product resulting from the reaction of nicotinic acid (niacin) with menthol. The technical characteristics of NICOMENTHYL® are found in Table 1.

**Safety**

The following assessment tests were conducted on NICOMENTHYL®: in vitro cutaneous irritation testing on 3D reconstructed human epidermis; in vitro model testing to predict skin sensitization through assessment of the stimulating potential on the immune cellular response mediated by monocyte/macrophage cells; in vitro test method for the prediction of the vaginal tolerability on reconstructed epithelium; in vitro assessment of the ocular irritancy potential through cytotoxicity assay Neutral Red Uptake on cell culture and in vitro Het Cam testing on fertilized chicken eggs. All tests have confirmed the absence of irritative and/or sensitizing effects. The Ames test (evaluation of the genotoxic potential) did not show any evidence of mutagenicity.

**Efficacy**

**In vivo studies**

**Doppler Laser Blood-flow Velocity Meter Test** on twenty volunteers of both sexes with an average age of 44.9 years, using a topical preparation containing 3% NICOMENTHYL®, compared to a placebo. The results obtained displayed a statistically significant enhancement of the microcirculatory flow values after 15 minutes (+78.7%) and 30 minutes (+147.1%). The effect persisted up to 60 minutes after application (+87.4% with respect to the value of T0), without causing any irritating and/or sensitizing effects (Cfr. Figure 1). All studies conducted have confirmed NICOMENTHYL® as a safe and effective **Multi-functional Sensorial Active**.

**Additional information**

NICOMENTHYL® promotes a high transdermal delivery of vitamin B3 and therefore is beneficial to and through the skin. It acts as a fixative, carrier and booster for other beneficial lipophilic actives such as vitamin E, menthol, essential oils, or other sensorial agents such as vanillyl butyl ether, menthyl lactate, isopulegol, etc. Having self-emulsifying properties makes it ideal for “Less is More” type of formulations.