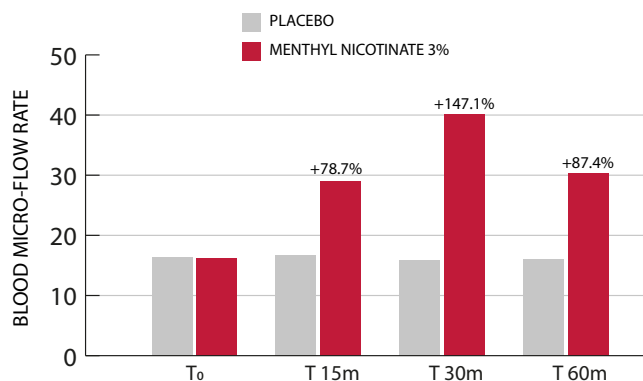


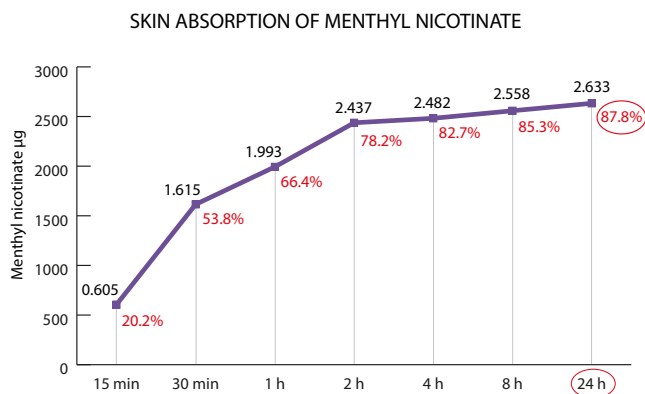
nicomenthyl[®]20

menthyl nicotinate

HIGH DELIVERY OF VITAMIN B3 WITH ANTI-AGE AND DETOX PERFORMANCE



A Doppler Laser Blood-flow Velocity Test has been carried out on twenty volunteers of both sexes, using a topical preparation containing 3% of Menthyl nicotinate, compared to a negative control (placebo). Increases in microcirculatory flow values reached remarkable levels, up to nearly 150% at 30 minutes and 90% at 60 minutes after application, without any irritating or sensitizing effects.



NICOMENTHYL[®]20 (menthyl nicotinate - CAS 40594-65-8) is a new cosmetic active, obtained at a high degree of purity (> 99%) through a patented proprietary process technology.

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

MENTHOL, widely used in personal care refreshing and soothing preparations.

NIACIN (Vitamin B3), optimizing skin microcirculation and enhancing skin barrier integrity.

Nicomenthyl20 can significantly activate the cutaneous microcirculation without causing any irritation or sensitization.

PROVEN EFFICACY

The effects of Menthyl nicotinate have been studied through in vitro testing on human keratinocyte cultures, in order to evaluate its antioxidant, detox, protective efficacy against four damaging agents (UV radiation, oxidizing agents, urban dust and synthetic smoke).

These tests have demonstrated Menthyl nicotinate's capability of rapidly penetrating through the skin barrier, vehiculating and releasing niacin in the underlying cutaneous layers and so activating the natural defence and repair mechanisms of skin. The study results indicate that Menthyl nicotinate significantly enhances cellular metabolism, protection and barrier function in skin against all four damaging agents, confirming menthyl nicotinate as the ideal active ingredient for all those cosmetic applications aiming at a SAFE, RAPID AND EFFECTIVE SKIN DETOX and ANTIOXIDANT PROTECTION.

MECHANISM OF ACTION

Once absorbed through the horny layer of the skin, Nicomenthyl20 is hydrolyzed by the enzyme esterase and split into its original components: niacin and menthol. Menthol is responsible of the cooling sensory effect, while niacin generates a kind of warming sensation and furthermore triggers the formation of prostaglandins which cause a mild vasodilation and thus a beneficial enhancement of skin microcirculation. The main benefits of such enhanced blood flow are : a) increased transport of oxygen, nutrients and glucose b) removal of cellular waste products.

All these simultaneous biochemical effects can be perceived as a kind of pleasant "fresh tingling" sensorial effect, usually starting a few minutes (3 to 5) after application, and lasting up to one hour or more. WITH NO IRRITATIONS AND NO SENSITIZATIONS.

SKIN CARE FUNCTIONS

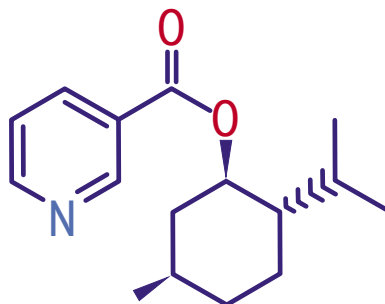
TOPICAL PROVITAMIN B3 - NAD BOOSTING - SKIN MICROCIRCULATION ENHANCER - SKIN BARRIER INTEGRITY
SKIN PROTECTING - ANTIOXIDANT - DETOXIFYING - ANTIAGING - HAIRFULLNESS ENHANCER

SAFETY

The following safety assessment tests were conducted on Menthyl nicotinate : in vitro cutaneous irritation testing on 3D reconstructed human epidermis; in vitro model testing to predict skin sensitization; in vitro test method on reconstructed epithelium for the prediction of the vaginal tolerability; in vitro assessment of the ocular irritancy potential; Ames test for evaluation of the genotoxic potential.

In all trials, Menthyl nicotinate exhibited an excellent tolerability and was proved to be not mutagenic, not irritant, not sensitizing on human skin.

No animal testing: it has never been tested on animals as per art. 18 of Regulation (CE) n.1223/2009.



MOLECULAR STRUCTURE OF MENTHYL NICOTINATE

TECHNICAL CHARACTERISTICS

Molecular weight	261.36
Molecular formula	C ₁₆ H ₂₃ NO ₂
CAS N.	40594-65-8
INCI	Menthyl Nicotinate
Appearance	Liquid
Color	White transparent colourless (Hazen ≤ 30)
Odor	Characteristic, nearly odorless
Purity (GC-MS)	> 99.00%
Relative density (at 20 °C)	1.01-1.04
Solubility	Insoluble in water; soluble in alcohol, polar oils, esters
Boiling point	292.23 °C
Melting/freezing point	< -20 °C
Refractive index	1.5074
Safety	Skin: non irritant, non sensitizing
Storage: shelf life > 36 months. Thermostable. No added preservatives or antioxidants are required nor any special condition for storage.	

APPLICATIONS AND RECOMMENDED DOSAGE

in **Face Products: 0.5 – 1%**
in **Body Products: 0.5 – 3%**
in **Special Products: 5%**

Particularly indicated for:

- Anti-age, skin protecting, detox and antioxidant treatments
- Sun care products
- Hair loss prevention treatments
- Cellulitis treatments
- Sport products
- Spa treatment products
- Refreshing tonic products for feet and legs
- Intimate hygiene products
- Cosmetic lip plumping treatments
- Deodorant/antiperspirants
- Body lotions

DID YOU KNOW THAT...

Nicomenthyl20 acts as a fixative, carrier and booster for other beneficial lipophilic actives such as vitamin E, vitamin F, EPA, DHA, essential oils. Furthermore, it modulates and/or enhances the sensorial strength and longevity of other sensates such as menthol, vanillyl butyl ether, menthyl lactate, isopulegol, etc.

Being an amphiphilic substance (i.e possessing both hydrophilic, *water-loving*, and lipophilic, *fat-loving*) properties, it has self-emulsifying properties, which may result in the formation of stable micro-emulsions: "LESS IS MORE" type of formulations.

**multi
chem**_{R&D}

MULTICHEM R&D SRL

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