



MacDerma™ FA

Photoprotection
Anti-Oxidant

McKinley
resources, inc.

MacDerma™ FA

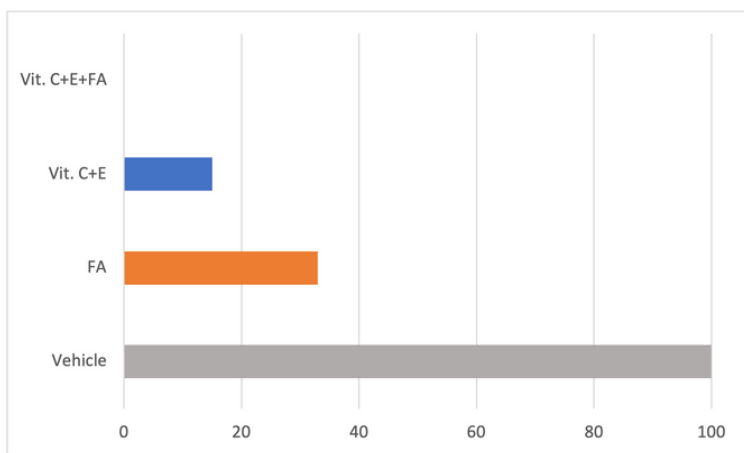
MacDerma™ FA (Ferulic Acid) is an antioxidant which makes it especially useful in the formulation of anti-aging cosmetics. It can destroy several different types of free radicals such as superoxide, hydroxyl radical and nitric oxide. Ferulic Acid can also stabilize other anti-oxidants.

EFFICACY TESTING

Ferulic Acid Augments Vitamin C+E Photoprotection¹

Exposure to UV light can cause thymine dimer formation in DNA which increases the risk of incorrect DNA repair and mutations, leading to cellular dysfunction.

Photoprotection ability (as assessed by reduction of thymine dimer formation) was measured on skin pretreated with vehicle, 0.5% Ferulic Acid (FA), 15% vitamin C + 1% vitamin E, or 15% vitamin C + 1% vitamin E + 0.5% FA and exposed to solar-simulated irradiation.



Percent Fluorescent Tissue at 8 x MED*
Indicates presence of thymers dimers

*Representation of results as described in Fu Hsuing Lin, et al. Fig. 4

RESULT

In addition to its own photoprotection ability, Ferulic Acid significantly enhances the photoprotection efficacy of vitamin C+E.

REFERENCE:

1. Fu Hsuing Lin, et al. "Ferulic Acid Stabilizes a Solution of Vitamin C and E and Doubles its Photoprotection of Skin" The Journal of Investigative (2005)

TYPICAL PROPERTIES

TEST	SPECIFICATION
Appearance	Yellowish crystalline powder
Assay	≥ 99.0%
Melting Point	170 - 175°C

BENEFITS & FEATURES

- Photoprotection
- Anti-Oxidant
- Stabilization of other anti-oxidants

FORMULATION GUIDELINES

SOLUBILITY:

Soluble in organic solvents (e.g. ethanol, propylene glycol); slightly soluble in water

STABILITY:

Optimal pH for final formula ~3.5

RECOMMENDED USE LEVEL:
0.5% - 1.0%



APPLICATIONS

Sunscreens
Cosmetics

Base for Fragrances
Anti-Aging Creams