

EASTMAN

Eastman GEM™ retinyl esters for antiaging

Effective | Gentle | High purity | Sustainable



Do antiaging products always irritate skin? How can you avoid the “retinol uglies”?

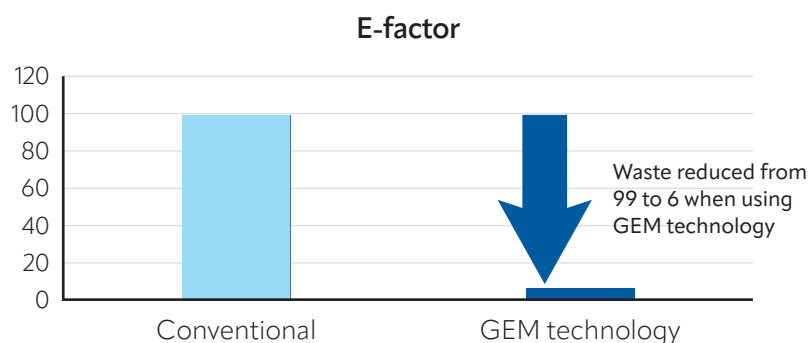
These common concerns deter new consumers from trying retinol antiaging products. Achieving a youthful look shouldn't be complicated.

Eastman GEM™ retinyl sunflowerate and Eastman GEM retinyl linoleate are high-quality antiaging ingredients that improve skin tone and texture by promoting cell renewal. These highly concentrated pro-retinol ingredients are gentle and effective and support the reduction of blemishes, fine lines and wrinkles.

Award-winning enzyme technology

Eastman GEM technology adheres to the 12 Principles of Green Chemistry from the U.S. Environmental Protection Agency. The EPA recognized GEM retinyl linoleate technology with the 2009 Presidential Green Chemistry Challenge Award for Greener Synthetic Pathways for a process that consumes less energy, uses less process water and generates less waste compared to conventional manufacturing processes. Plus, our technology creates no unwanted by-products.

In the field of green chemistry, one way to compare the relative sustainability of a process is by the environmental factor (E-factor). It translates the relationship between the tonnage of waste and the tonnage of the desired molecule produced in a chemical process. The lower this ratio, the less polluting the molecule. By switching from chemical esterification to GEM technology, the E-factor of retinyl ester production was reduced from 99 to 6.

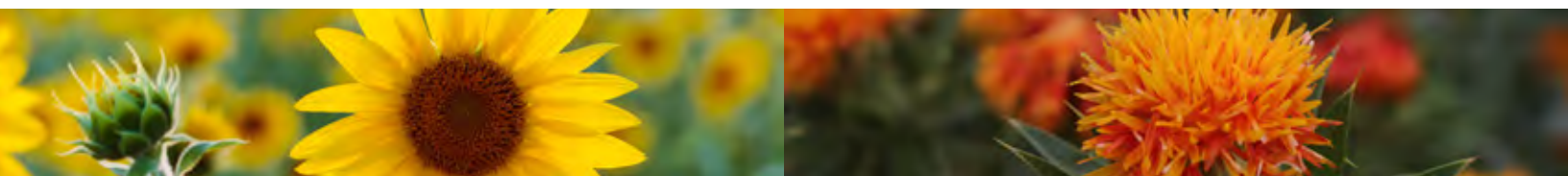


Product features

- Simplicity: supplied as a high-purity active ingredients with no carriers or antioxidants
- Stability: long shelf-life; ingredients do not crystallize in recommended storage conditions; easy to formulate
- Sustainability: made with award-winning enzyme-based technology
- Eastman GEM retinyl linoleate is approved in China.
- INCI name: retinyl sunflowerseedate
- INCI name: retinyl linoleate

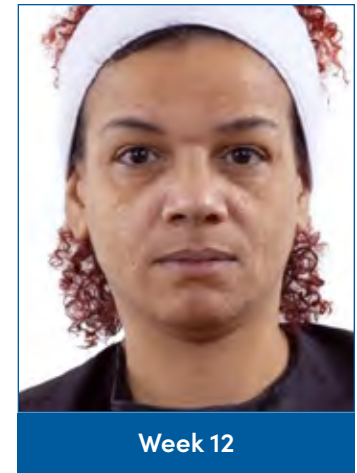
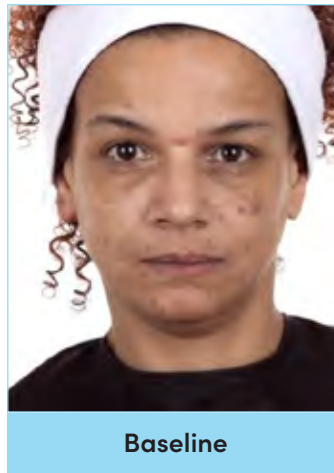


Winner of the
**2009 Presidential
Green Chemistry
Challenge Award**



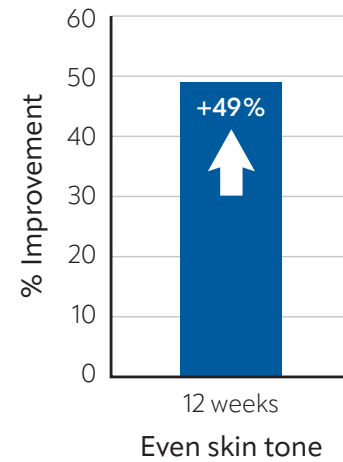
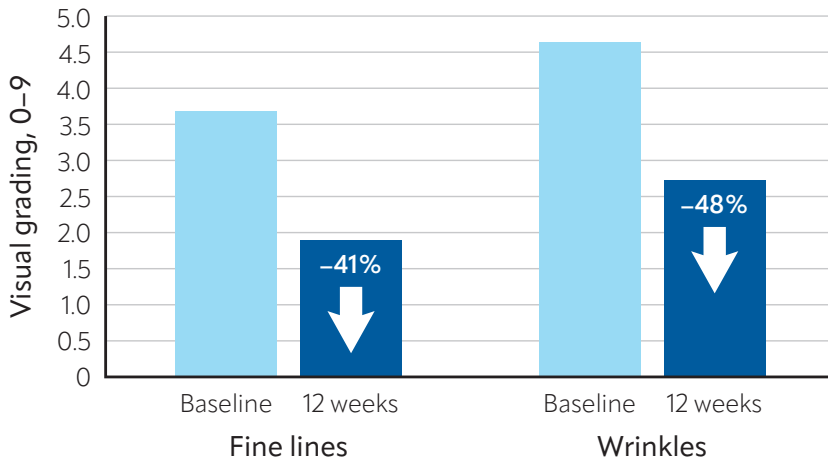
Proven performance

GEM retinyl sunflowerate and GEM retinyl linoleate were developed in close cooperation with experts in the cosmetics industry. Clinical 12-week studies of subjects with various skin types showed positive results with Eastman ingredients. GEM retinyl esters were shown to reduce fine lines and wrinkles while promoting even skin tone, increasing radiance and reducing hyperpigmentation.



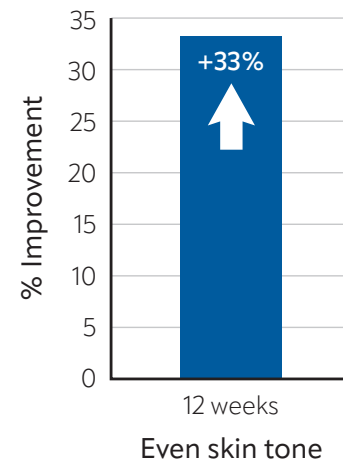
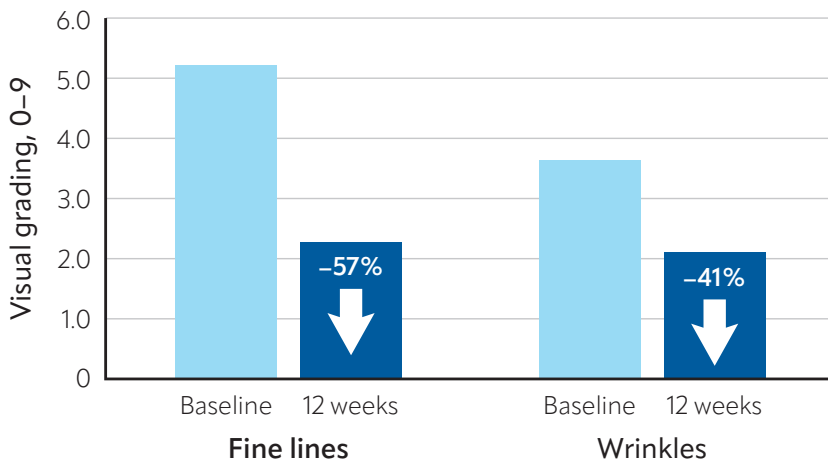
Expert visual grading of retinyl linoleate after 12 weeks

Scale 0 (mild) to 9 (severe)



Expert visual grading of retinyl sunflowerate after 12 weeks

Scale 0 (mild) to 9 (severe)

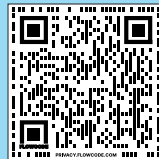


Clinical data was performed at 0.1% of retinyl level.

Your partner in antiaging ingredients

When you formulate with Eastman GEM retinyl esters, you give consumers what they want — sustainably produced, nonirritating ingredients. Our naturally derived pro-retinols promote antiaging in skin care and color cosmetics.

Get the expertise and collaboration you need. Contact an Eastman representative for more information.



EASTMAN

Eastman Corporate Headquarters

P.O. Box 431
Kingsport, TN 37662-5280 U.S.A.

U.S.A. and Canada, 800-EASTMAN (800-327-8626)
Other locations, +(1) 423-229-2000

eastman.com/locations

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