20211PF.

AC Dermal Respiratory Factor PF

BIOFERMENTS

Active Concepts

VEGAN

IN VITRO

CHINA

ISO 16128

THE FEATURES.

AC Dermal Respiratory Factor PF is an ingredient developed by Active Concepts designed to infuse cosmetic and personal care formulations with a multitude of potent benefits. At the heart of this ingredient lies *Saccharomyces* lysate extract, renowned for its remarkable capabilities in skincare enhancement. From promoting skin homoeostasis, to scavenging oxidative stress and soothing inflammation, its versatile nature results in a complexion that exudes radiance and vitality. Embracing the power of *Saccharomyces* lysate extract unlocks a wealth of possibilities, ensuring that every application fosters a sense of rejuvenation and luminosity for a truly age-defying aesthetic.

Water & Saccharomyces Lysate Extract

Actions

Anti-Aging
Nourishing
Revitalizing
Rejuvenating

TECHNICAL DATA SHEET.

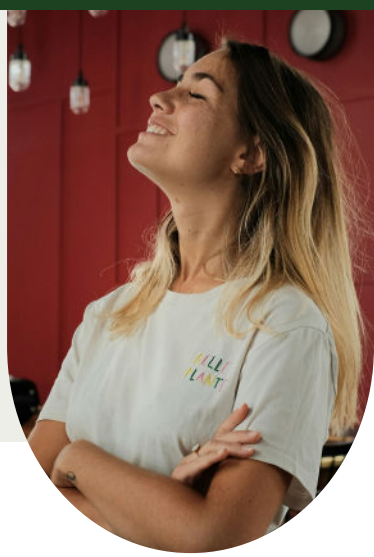
AC Dermal Respiratory Factor PF

THE REGULATION.

INCI. Water & Saccharomyces Lysate Extract
CAS. 7732-18-5 & 8013-01-2
EINECS. 231-791-2 & 232-387-9
EUROPE. Compliant
USA. Compliant
CHINA. Compliant

THE SPECIFICATION.

Origin. Botanical/Yeast/Bacteria
Natural Antimicrobial. Leuconostoc/Radish Root Ferment Filtrate*
Preservatives. None
Solvents Used. Water
Soluble/Miscible. Water Soluble
Appearance. Clear Liquid
Use Level. 0.50- 1 %



** Please note this product contains Leuconostoc/Radish Root Ferment Filtrate (Tradename: M15008-Leucidal® Liquid) - produced by Active Micro Technologies, LLC - containing 18.0–22.0% Phenolics (tested as Salicylic Acid). Please refer Leucidal® Liquid product literature for additional information.*

THE STORY.

Saccharomyces lysate extract sourced from live yeast cell derivatives (LYCD) represents a modern skincare revolution, rooted in the latest advancements in biotechnology and dermatological research. Stemming from ground-breaking studies in the mid-20th century, scientists uncovered the incredible potential of yeast fermentation for skin health. Since then, these extracts have become coveted ingredients in the realm of anti-aging skincare, admired for their multifaceted benefits.

Commercially, live yeast cell derivatives (LYCD) have been used for several distinct purposes, pointing to the overall utility of this material in relationship to the treatment of living organisms.[1] The first widespread use of LYCD began far from the cosmetic arena. Legend has it that some adventurous fashion models brought about the crossover into cosmetics. Having begun to manifest one of the most visible symptoms of sleep deprivation, the models began to dab LYCD-containing creams on the bags under their eyes. As would be expected, the swelling subsided, the practice spread by word of mouth, and a core cosmetic raw material was born.[2]

Over 600 species of yeast exist with the most well-known yeast being *Saccharomyces cerevisiae*. *Saccharomyces cerevisiae,* better known as baker's or brewer's yeast, is cherished for its fermentation abilities. Within the past 30-40 years the wonders of yeast have finally been recognized. Since yeast cells are very similar to human cells in composition and structure, they make for a perfect palate for research scientists. Like a human cell, a yeast cell is a true eukaryote.[3] It has a nucleus that contains the nucleoli and chromosomes, which are separated from the cytoplasm by a nuclear membrane. Yeast cells have 17 chromosomes, while human cells have 23 chromosomes, but their structures are very similar. Yeast also has two genders and reproduces with cells that are similar to humans' means of fertilization. In 1996, the yeast cell became the first living organism to have a completely mapped genome.[3] In 1896, German chemist Eduard Büchner discovered that the fermentation enzymes found in yeast cells would remain active even after extraction from the cells as long as they were not boiled. This discovery soon paved way for the biochemical process of fermentation as well as the rising of bread in the food industry.[3]

THE SCIENCE.

LYCD is produced when live yeast cells are exposed to an insult, such as UV radiation.[4] This substance is known to stimulate oxygen consumption and promote wound healing. The rationale behind increasing oxygen consumption allows for an increase in energy production, and, therefore, improving cellular efficiency.[4] Another benefit to increasing oxygen consumption is when cells consume oxygen, there is less oxygen available to form reactive oxygen species (ROS). These free radicals are understood to be the primary cause of intracellular damage, which can accelerate aging.

Additionally, research has shown that LYCD contains heat shock proteins (HSPs), where these proteins are normally produced by the body as a bioprotective response to environmental stressors, such as UV exposure.[4] Apart from minimizing irritation and increasing would healing, HSPs also enhance the production of structural proteins, such as collagen and elastin. These proteins are integral for maintaining the skin's youthful tone and resiliency while also simultaneously combating wrinkle formation.[5]

The following efficacy studies from Active Concepts helps exemplify the ability of AC Dermal Respiratory Factor PF to help maintain skin homeostasis and oxidative stress scavenging, while incorporating anti-inflammatory attributes. Help your skin breathe easy and reap the benefits of a glowing, youthful aesthetic.

AC Dermal Respiratory Factor PF

THE BENEFITS.

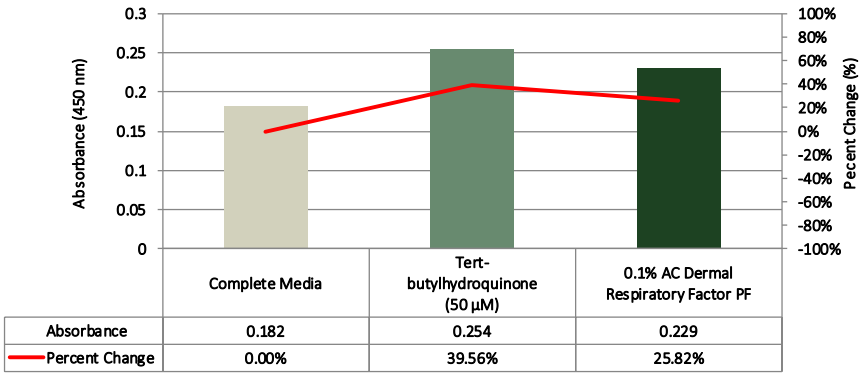
Skin

Anti-Aging *Nrf2 Transcription Factor Assay Analysis*

THE EFFICACY.

Nrf2 Transcription Factor Assay Analysis

A Nrf2 Transcription Factor Assay was conducted to assess the changes in Nrf2 levels in AC Dermal Respiratory Factor PF-treated *in vitro* cultured NHD-Fibroblasts. Normal human dermal fibroblasts were seeded into T75 culture flasks and grown until 80-90% confluent. When confluency was reached, the cells were treated with 0.1% AC Dermal Respiratory Factor PF for 3 days. 50 µM of tert-butylhydroquinone was used as the positive control due to its known capacity for inducing Nrf2 activity. AC Dermal Respiratory Factor PF was able to increase Nrf2 transcription factor activity. This activation of Nrf2 indicates a reduced oxidative and inflammatory environment which can decrease the signs of aging. For these reasons, we can assume AC Dermal Respiratory Factor PF is suitable for cosmetic applications designed to provide anti-aging and anti-inflammatory properties.



	Complete Media	Tert-butylhydroquinone (50 µM)	0.1% AC Dermal Respiratory Factor PF
Absorbance	0.182	0.254	0.229
Percent Change	0.00%	39.56%	25.82%

Increased Nrf2 Transcription Factor Activity
(Tested at 0.1%)

Anti-Aging.

Reduced Oxidative
&
Inflammatory Environment

References:
1. Meeker, Timothy J. Live Yeast Cell Derivative leads to rapid phosphorylation of Epidermal Growth Factor Receptor. MS thesis. University of Cincinnati, 2012.
2. Hartwell, Leland H. "Saccharomyces cerevisiae cell cycle." Bacteriological reviews 38.2 (1974): 164-198.
3. Crowe, Maria J., et al. "Topical application of yeast extract accelerates the wound healing of diabetic mice." Journal of Burn Care and Rehabilitation 20.2 (1999): 155-163.
4. Matsuda, Minoru, et al. "Suppression of UV-Induced Wrinkle Formation by Induction of HSP70 Expression in Mice." Journal of Investigative Dermatology 133 (2013): 919-928.
5. Hwang, Young Ji, et al. "Treatment of Acne Scars and Wrinkles in Asian Patients Using Carbon-Dioxide Fractional Laser Resurfacing: Its Effects on Skin Biophysical Profiles." Ann Dermatol Vol 25.4 (2013).

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