



BEYOND SUN
PROTECTION
by CRYSTAL TOMATO®

***A brief summary of
the clinical trials***



CRYSTAL TOMATO®

Table of
CONTENTS

SPF	1
In Vivo	1
In Vitro	1
PFA	1
In Vivo PPD	1
In Vitro	1
Critical Wavelength	1
BLUE LIGHT PROTECTION	2
ANTI-POLLUTION	2
ANTIOXIDANT	3
NON-COMEDOGENIC	3
MOISTURISING	4
HYPOALLERGENIC	4
WHITENING	5
PRODUCT EXPERIENCE	6

SPF

In Vivo

The protocol used for the test is the ISO standard 24444:2010 on 10 human volunteers. All results were qualified, and the product mean SPF is 79.7 allowing claims like SPF 75+ or in some countries SPF 50+.

In Vitro

The protocol used for the test is the draft ISO standard 24445, the result of 9 repetitive scans of PMMA plates were qualified. The value is reported as > 70 confirming the in vivo test results.

PFA

In Vivo PPD

The protocol used for the test is the ISO standard 24442:2011 on 10 human volunteers, determining the Persistent Pigment Darkening (PPD). All results were qualified, and the product mean UVA-PF is 17.2 allowing claims like PPD 17+.

In Vitro

The protocol used for the test is the ISO standard 24443:2012, the result of 9 repetitive scans of PMMA plates were qualified. The value is reported as UVA-PF (post irradiation) 16.76 confirming the in vivo test results. Additionally, the results show a good product stability during irradiation.

Critical Wavelength

The critical wavelength refers to the wavelength at which 80% of the UV radiation is absorbed. To claim “broad spectrum” the critical wavelength must be >370nm. The results show that the critical wavelength is 380.6nm.

BLUE LIGHT PROTECTION

In Vivo

The study is done on 22 human volunteers measuring (with the Chromameter®) the pigmentation created by standardized blue light exposure comparing the exposed area to the non-exposed area 1 hour after exposure. The results show an effective protective efficacy against blue light induced pigmentation at 1 hour after exposure.

In Vitro

The test is performed similarly to the UVA in vitro (ISO 24443) test by measuring the absorption of the light through the product applied on PMMA plates. The blue light protection represents the percentage of blue light stopped by the product in the spectral range 380nm - 500nm. The blue light protection claim can be made if the percentage of protection is >35% and the blue light critical wavelength is >385nm.

The results show a blue light protection of 54.1% with a blue light critical wavelength of 393nm.

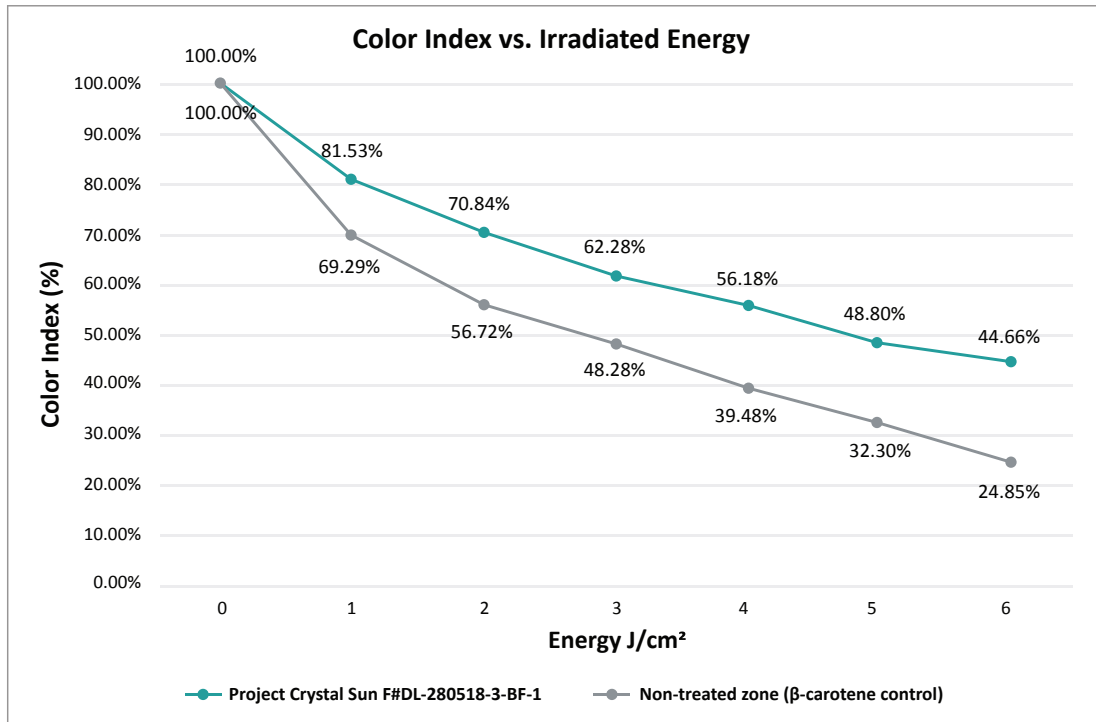
Both requirements are met, the claim “Blue Light Protection” can be made.

ANTI-POLLUTION

The test is done in vivo on 22 human volunteers. A zone of the back is exposed to standardized pollution material collected in the Washington, DC, USA, area over a period greater than 12 months, containing all the parameters of an urban pollution i.e., particulates, as well as, metal ions and oxidants. A zone in the back of the volunteers is exposed to the polluted air through a controlled pollution exposure system. Evaluations of the TEWL, skin pH and hydration are done instrumentally comparing the exposed protected zone to the exposed non-protected zone. Based on the results obtained the product protects the skin barrier, maintain the slightly acidic skin mantle, and protects the skin hydration.

ANTIOXIDANT

The test was done in vivo on 22 human volunteers. A solution of β -carotene is applied on the test areas. The areas are irradiated with increasing levels of UVA and the colour is determined using a spectrophotometer. Based on the results, the product protects the skin from oxidative stress: it presents an antioxidant and anti-free radical effect.

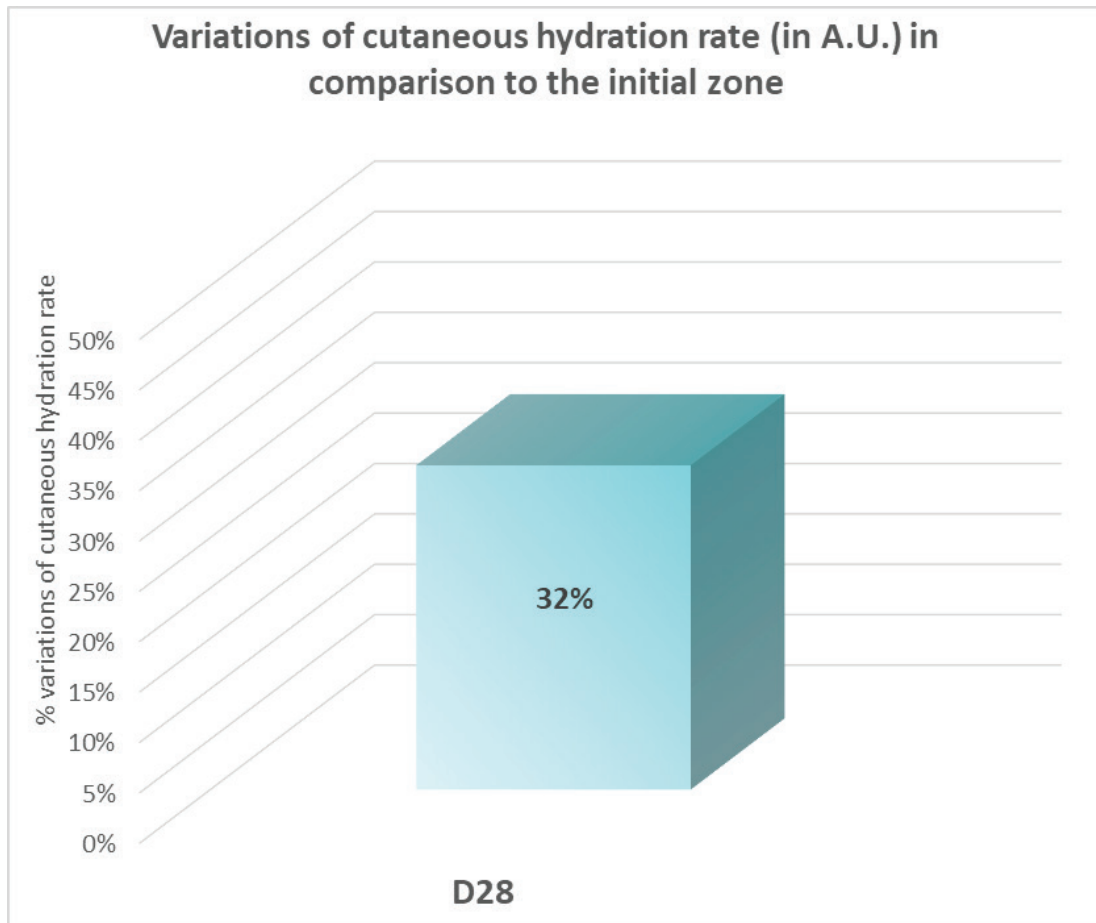


NON-COMEDOGENIC

The test was done in vivo on 20 human volunteers who applied the product for 28 days. The dermatologist evaluated the lesions, comedos and inflammation before and after the 28 days. The results show that the product is very well tolerated, non-comedogenic and non-acnegenic.

MOISTURISING

Test in vivo done on 31 human volunteers, product is applied daily for 28 days, skin moisturization is measured with the Corneometer® at day 0 and day 28. The results show an increase of the skin moisturization by an average of 32% with 100% of the subjects showing an improvement. Additionally, 87% of the subjects claimed that the product smoothens their wrinkles and fine lines.



HYPOALLERGENIC

A human repeated patch test (hRIPT) was done on 55 volunteers. The results show no erythema, during the induction phase and no erythema during the challenge phase. The hypoallergenic claim is supported.

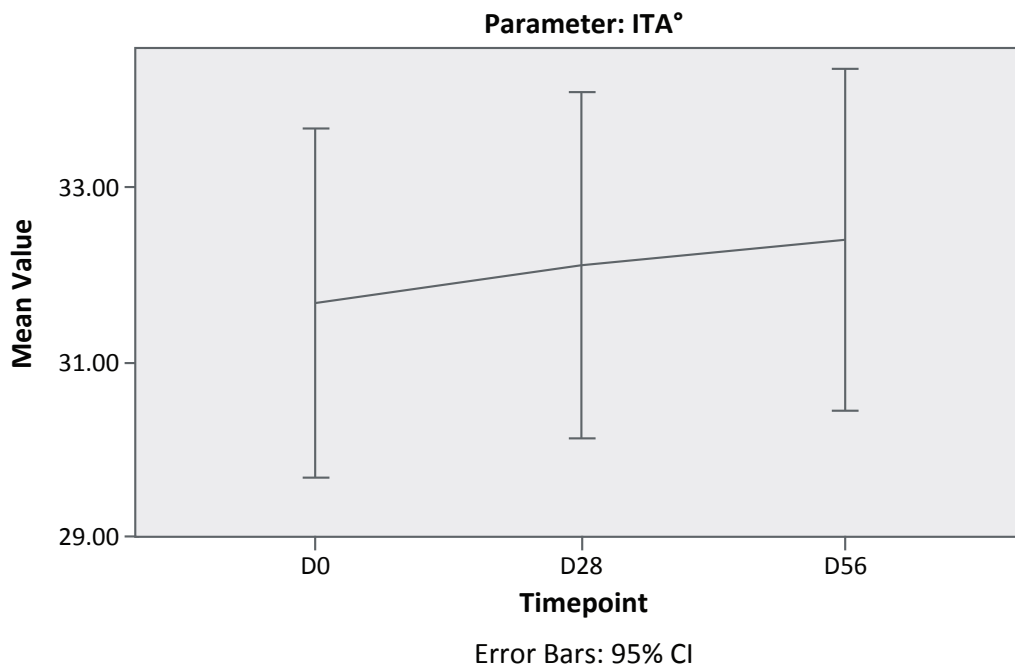
WHITENING

The study is done on 31 human volunteers measuring (with the Chromameter®) L* (luminosity), b* values (melanisation) and ITA° (Individual Typological Angle) at D0, D28 and D56. Subjective perception and evaluation of acceptability of the product is done through a questionnaire.

Results:

ITA° parameter:

The mean value of the ITA° parameter was found to be **significantly** higher at all time points compared to D0 indicating a fairer skin. There is a **significant** increase in skin whitening.



L* parameter:

The mean value of the L* parameter was found to be **significantly** higher at all time points compared to D0 indicating that the skin appears more luminous. There is a **significant** increase in skin brightening.

b* parameter:

The mean value of b* parameter was found to be **significantly** higher at D28, characterizing a shift in melanization from blue to yellow i.e., an improvement in pigmentation after 28 days of use. There is a **significant** improvement in skin pigmentation.

PRODUCT EXPERIENCE

Questionnaire:

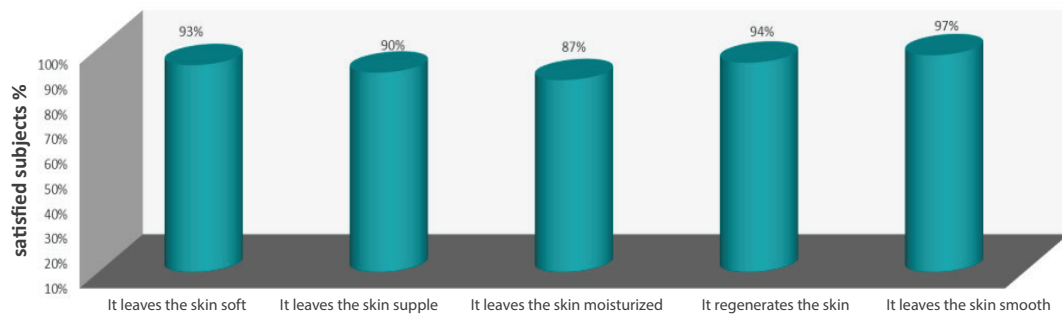
Overall, the product provides **significant** whitening: 84%

Do you think the product has improved the appearance of your skin? 84%

Do you think that the product makes your skin tone more uniform? 80%

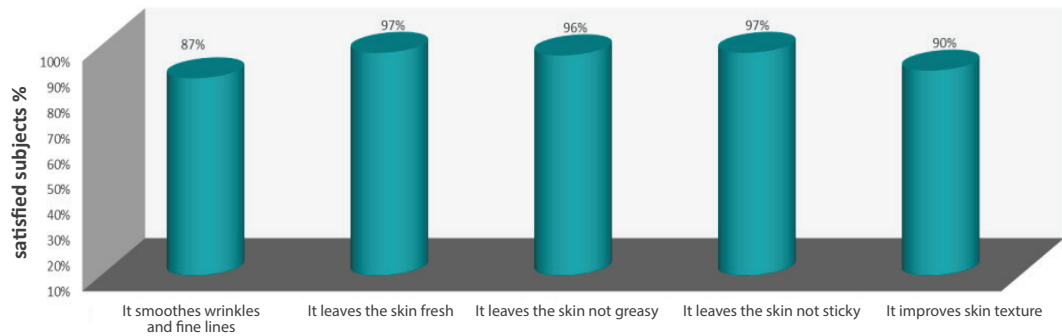
Purchase intention: 80%

PRODUCT'S EFFICACY



■ Product: Project Crystal Sun F# DL280518-3-BF-1

PRODUCT'S EFFICACY



■ Product: Project Crystal Sun F# DL280518-3-BF-1