

## TECHNICAL DATA SHEET

### General Description

Commercial name:	EnhanceU-T-rich
Producer:	Advanced Dispersed Particles S.L
Chemical formula:	TiO <sub>2</sub> -FeOOH- Fe <sub>2</sub> O <sub>3</sub> - FeO.Fe <sub>2</sub> O <sub>3</sub> - SiO <sub>2</sub> (mixture)
INCI:	Titanium Dioxide, CI-77492, CI-77491, CI-77499, Silica
CAS No.:	113463-67-7, 51274-00-1, 1309-37-1, 1317-61-9, 7631-86-9
Colour and Form:	Brownish Powder
Type of product:	Mineral UV filter for cosmetics
Other properties:	Colouring of cosmetics

### Technical Data – Typical Values

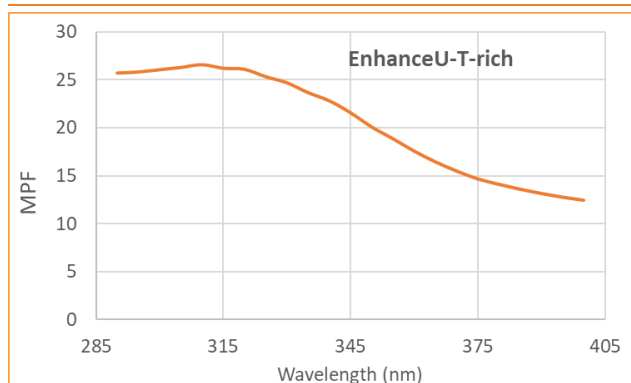
Titanium dioxide	61-71wt. % (X-Ray Fluorescence Analysis)
Iron oxides	24-34wt. % (X-Ray Fluorescence Analysis)
Silicon dioxide	1-5wt. % (X-Ray Fluorescence Analysis)

Metals	Units	Max.	Method
As (Arsenic)	mg/Kg	1	ICP-MS or AA
Cd (Cadmium)	mg/Kg	1	ICP-MS or AA
Hg (Mercury)	mg/Kg	1	ICP-MS or AA
Pb (Lead)	mg/Kg	10	ICP-MS or AA
Sb (Antimonium)	mg/Kg	2	ICP-MS or AA
Zn (Zinc)	mg/Kg	50	ICP-MS or AA
Loss on drying	%	3	Gravimetry
Loss on ignition	%	10	Gravimetry
Solubility in water	%	5	Gravimetry
Solubility in HCl	%	10	Gravimetry

This product is in compliance with Regulation (CE) 1223/2009 on cosmetic products. Traces' metals obey limits for E172 and E171 included in Commission Regulation (EU) No 231/2012 and Spanish Real Decreto No 1465/2009, as well as FDA 21.CFR.73.1200, 21.CFR.73.2250, FDA 21.CFR.73.1575, 21.73.575. Internal specifications are set for loss of water, loss in ignition, and solubility due to the nature of the product (the product is not a pure substance but a mixture).

This product is commercialized based on CSIC License. The manufacturing process is based on a patented technology which is exclusively licensed to Advanced Dispersed Particles, S.L. (ADParticles).

### UV Absorption Spectrum



Solar Light SPF-290AS Spectrophotometer.

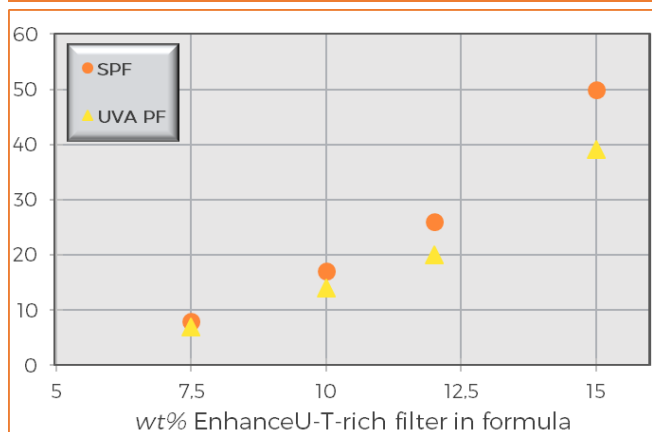
In vitro measurement after sample irradiation.

Standard formula. Filter concentration: 12wt.%

SPF	UVA PF	UVA/UVB ratio	CW (nm)
25	20	0,89	387

INCI: Aqua, titanium dioxide, octyldodecyl myristate, isopropyl myristate, paraffinum liquidum, glyceryl stearate, stearic acid, cetyl alcohol. CI-77492, triethanolamine, preservative, CI-77491, CI-77499, silica,

### In vitro SPF and UVA evaluation. Photostability evaluation.



EnhanceU-T-rich filter was included in standard formula at 7.5, 10, 12 or 15% (w/w).

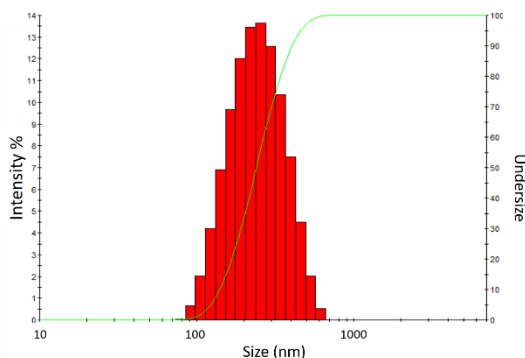
SPF and UVA PF values were obtained from the UV absorption spectra.

Photostability tests were performed to evaluate the protection properties both before and after irradiation of the sample with UV light. After 2 irradiation sessions of 5 and 11 min, the photostability value was higher than 80% and thus the sample considered to be photostable.

### Particle size distribution

Average particle size >0.1µm (DLS, Dynamic light scattering; SEM Microscopy)

DLS, water dispersion



Dispersion: 0.01g/10 mL H<sub>2</sub>O,  
15min ultrasound bath  
Result: Z average: 243nm  
(PDI: 0.2)  
-batch 02190303J-

Completed and approved by:

Blanca Motos Pérez, Technical Manager

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