

UVA Assay Method

Product Name: Solar Shade SPF 45 Batch #: 1479
Active Ingredients: Titanium Dioxide Date: October 13, 99
Absorptivity: 8.70 A/g/L Source: Cardre/98130
Test Solvent: Isopropanol 70% Sp.Gr. 0.873 g/cc.

Ultrasonic

Test Results

Tested

SPF 48.62 Waterproof
CONTROL STD.

Test Samples

CONCENTRATION:

Syringe & Samp	3336.5	3336.5	3336.5mg.	550.0 mg.
- Syringe	3135.4	3135.4	3135.4mg.	20.0 mg.
= Sample	201.1	201.1	201.1 mg.	530.0 mg.
Solvent Weight	80.0	80.0	80.0 g	78.6
Solvent Volume	91.6	91.6	91.6 ml.	90.0 ml.
Sample Concentration	2.195	2.195	2.195 g/L	5.887 g/L
Second Dilution:	3.00%	3.00%	3.00% v/v	2.00% v/v
Final Concentration:	0.066	0.066	0.066 g/L	0.118 g/L

Ultrasonic 10 min

ABSORBANCE: at 400 nm. Covers all UVA (most companies do only 350 - 380nm.)

Cuvette & Sample	0.073	0.072	0.073	0.086
- Cuvette & Solvent	0.040	0.039	0.038	0.044
= Sample Absorbance	0.033	0.033	0.035 A.	0.042 A.
Sample Absorptivity:	0.501	0.501	0.532 A/g/L	0.357 A/g/L
Equivalent TiO ₂ % =	5.76%	5.76%	6.11%	4.10%
Percent Active:	140.5%	140.5%	149.0%%	100.0%%

STATISTICAL EVALUATION:

=====	ABS	% ACTIVE	LABEL SPF= 45.00
Mean =	0.511	143.35%%	% LABEL CLAIM
STD.DEV.	0.018	+/- 3.43%	154.88% of Standard
			=====

PRECISION:

	LOW	HIGH	
95% Confid.Range =	0.48	to 0.55	
99% Confid.Range =	0.47	to 0.56	

95% Precision = + or - 6.86%
99% Precision = + or - 8.6%

90.44 % UVA BLOCKING
*Please Note there is no FDA
Approved Label Claim for
UVA Blocking (No SPF
Equivalent). There is no USP
Spec. for Micronized TiO₂.
And no USP Standard

October 13, 1999

Assayed By:

Sue Porter

Date:

10/13/99

Results Reviewed By:

Date:

[Signature]
10/14/99