

STUDY REPORT

In Vitro Determination of Sun Protection Factor

According to ISO 23675:2024

Implementation: **Institut Dr. Schrader Creachem GmbH**
Max-Planck-Straße 6
37603 HOLZMINDEN
GERMANY

Order-No: **1085-TSH-26-142-26-0471**
Project-No: **TSH-26-0471a**
Date of Report: 12.05.2026

Sponsor: **Brunchtime Global Co., Ltd.**
Ananya Mind
3/38 Moo 7, Nadee, Muang-Samutsakorn
74000 SAMUTSAKORN
THAILAND

Test Product: **MOLECULOGY Starter Sunscreen SPF50+ / Batch: 25H006**

In Vitro Determination of Sun Protection Factor

ISO 23675:2024

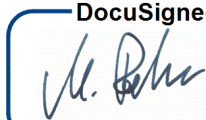
Declaration of Quality / Responsibilities

Study performance, data analysis, and study report are based on the Quality Management System DIN EN ISO 9001:2015. In accordance with TÜV CERT, a management system is certified.

This study report represents a correct description of the values measured and results recorded during the study. To the best of its knowledge, Normec Schrader Institute ensures the absence of significant deviations from the study protocol affecting the quality/integrity of this study.

Study performance, data analysis, and study report are realized approximating the main principles of GCP.

DocuSigned by:



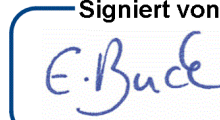
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Signer Name: Dr. Mathias Rohr

Function: Director Testing Skin and Hair (COO)

Signing Date: Mai-12-2026

Signiert von:



0EDD066E2A8748C...

Signer Name: Dr. Elke Buck

Function: Head of Skin Technology

Signing Date: May-12-2026

Note:

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***In Vitro* Determination of Sun Protection Factor**

ISO 23675:2024

Summary / Results

Test Product: MOLECULOLOGY Starter Sunscreen SPF50+

Batch: 25H006

Study Objective: *In vitro* determination of sun protection factor (SPF), using two different types of PMMA-plates.

The study is performed according to ISO 23675:2024.

Test Period: 08.05.2026

Instrumentations: weneos SPREADMASTER
Bentham Spectrometer SSUV300
Newport SOL-UV-6

Mean UV Irradiance: 14.2 MED

Coefficient of Calibration: 1.00 - Radiometer vs. Spectroradiometer

Substrates: Moulded PMMA Plates (HD6), HelioScreen Cosmetic Science

Batch: H00014

Receipt: 23.04.2026

Sandblasted PMMA Plates (SB6), HelioScreen Cosmetic Science

Batch: 707

Receipt: 18.11.2025

Reference: Glycerin coated plates

Number of Samples: 4 plate pairs (5 measurements per plate)

Applied Amount: HD6: 1.3 mg/cm² SB6: 1.2 mg/cm²

Deviation from Protocol: While the demands of the guideline are met for standard P5 and standard P8, results of standard P2 are reproducibly lower than the predefined limit.

Results documented in this report are based on the protocol attached in Annex 2.

Demands of the guideline are met for standard P8 and for standard P5.

Product	Final SPF	Standard Deviation	CI [%]	17 % Interval of mean
MOLECULOGY Starter Sunscreen SPF50+	63.6	2.2	5.6	52.8 - 74.4

ANNEX 1

Data - Statistics

In Vitro Determination of Sun Protection Factor (SPF)
ISO 23675:2024

Summary and Statistics

Normec Schrader Institute
12.05.2026

Sponsor: Brunchtime Global Co., Ltd. / Project-No.: TSH-26-0471a

MOLECULOGY Starter Sunscreen SPF50+ / Batch: 25H006					
Moulded Plates			Sandblasted Plates		
C	0.225		C	0.800	
Technician T8	Product Quantity * [mg/cm²]	Temperature of Plate [°C]		Product Quantity * [mg/cm²]	Temperature of Plate [°C]
Plate 1	0.46	29	Plate 1	0.44	28
Plate 2	0.42	29	Plate 2	0.44	28
Plate 3	0.45	29	Plate 3	0.47	29
Plate 4	0.45	29	Plate 4	0.45	29
Number	4	4	Number	4	4
Mean	0.44	29.2	Mean	0.45	28.7
Standard Deviation	0.02	0.15	Standard Deviation	0.012	0.43
Plate Pairs	SPF _{in vitro} Before UV-Exposure	Irradiation Dose [MED]	UV Irradiance [MED/hr]	SPF _{in vitro}	
Pair 1 st & 1 st	59.1	14.8	18.1	65.7	
Pair 2 nd & 2 nd	59.8	15.0	18.3	65.4	
Pair 3 rd & 3 rd	50.5	12.6	16.1	61.2	
Pair 4 th & 4 th	57.4	14.4	17.2	62.3	
Number	4	4	4	4	
Mean	56.7	14.2	17.4	63.6	
Standard Deviation	4.25	1.06	0.99	2.24	
95 % CI				60 - 67.2	
CI [%]				5.61	
17 % Interval of mean				52.8 - 74.4	

* after Equilibration

Plate Transmission Tests

Batch: H00014 Receipt: 23.04.2026		290nm	300nm	320nm
	Limits	> 60 %	> 69 %	> 81%
	Plate [%]	62.8	73.4	81.3
		Pass	Pass	Pass
Batch: 707 Receipt: 18.11.2025		290nm	300nm	320nm
	Limits	> 60 %	> 69 %	> 81%
	Plate [%]	61.5	74.0	81.5
		Pass	Pass	Pass

In Vitro Determination of Sun Protection Factor (SPF)

ISO 23675:2024

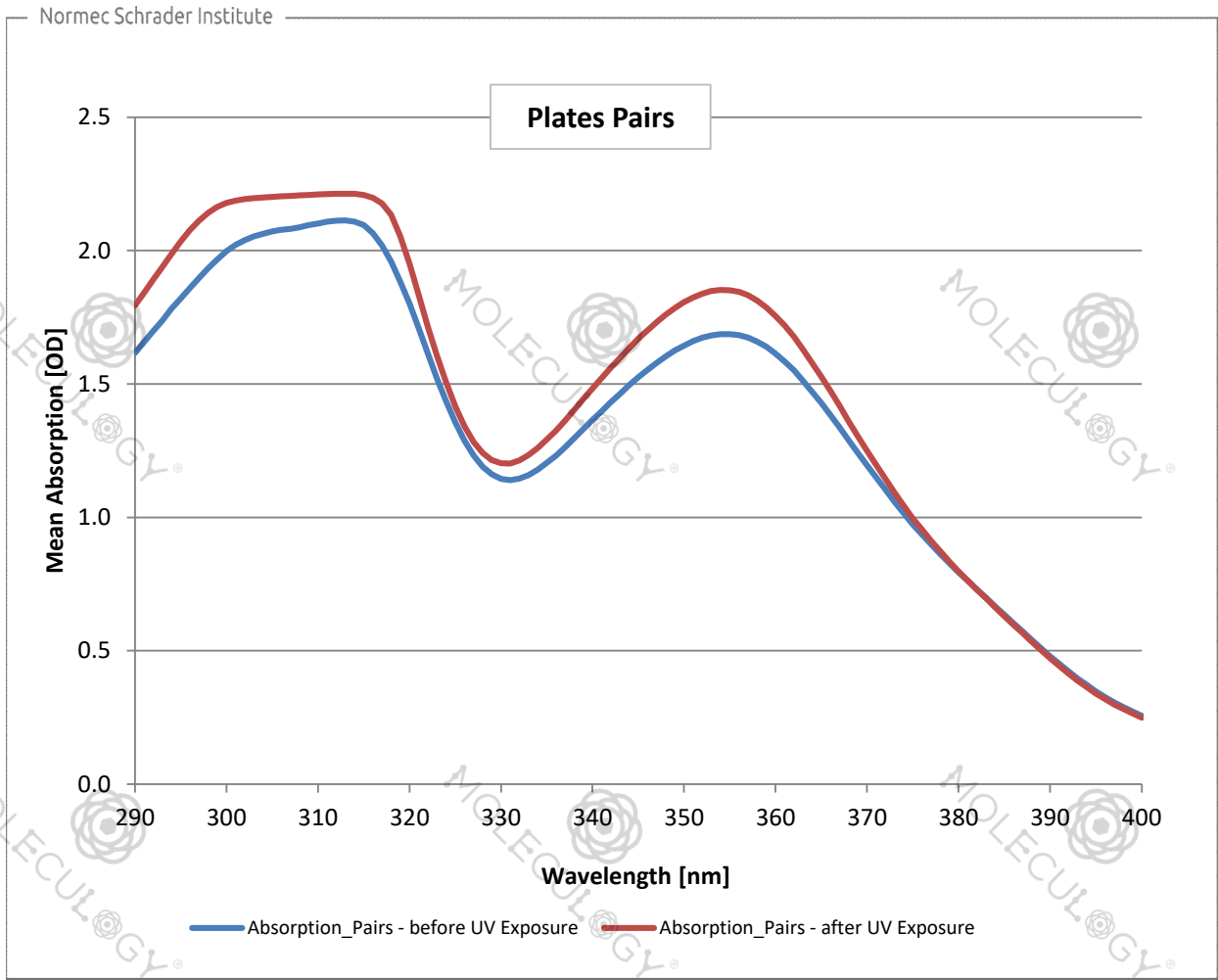
Absorption Spectra

Normec Schrader Institute

12.05.2026

Sponsor: Brunchtime Global Co., Ltd. / Project-No.: TSH-26-0471a

Product: MOLECULOGY Starter Sunscreen SPF50+ / Batch: 25H006



In Vitro Determination of Sun Protection Factor (SPF)

ISO 23675:2024

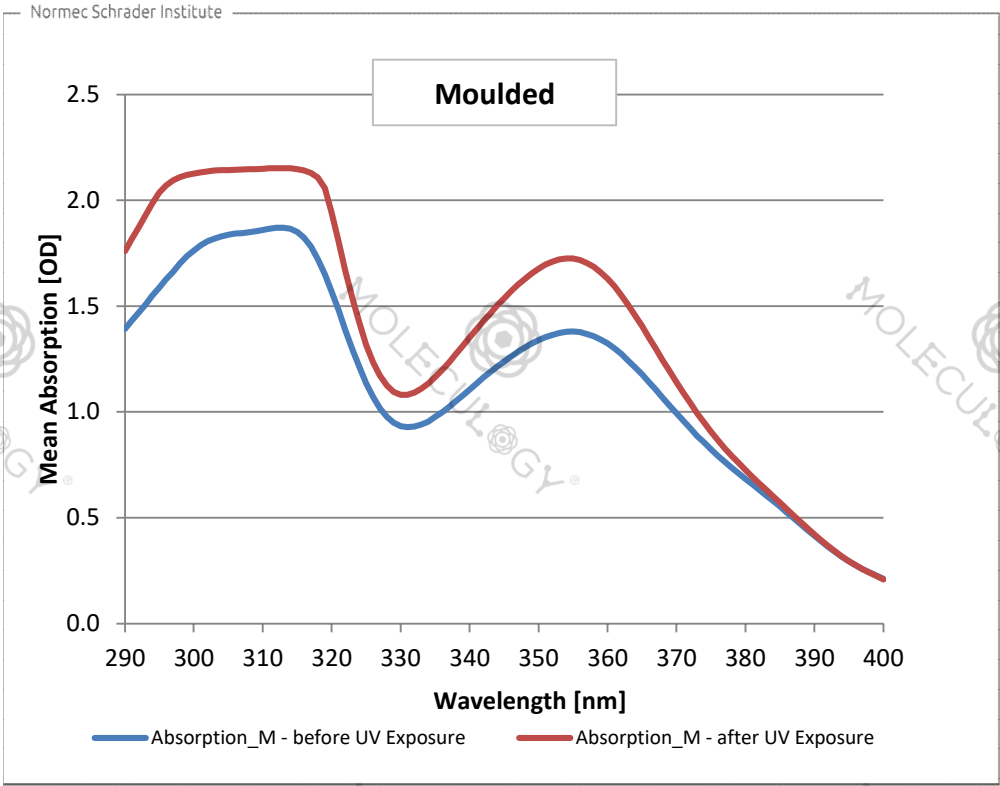
Absorption Spectra

Normec Schrader Institute

12.05.2026

Sponsor: Brunchtime Global Co., Ltd. / Project-No.: TSH-26-0471a

Product: MOLECULOGY Starter Sunscreen SPF50+ / Batch: 25H006



In Vitro Determination of Sun Protection Factor (SPF)
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Normec Schrader Institute
12.05.2026

Absorption - Plate Pairs

Sponsor: Brunchtime Global Co., Ltd. / Project-No.: TSH-26-0471a

Wavelength [nm]	MOLECULOGY Starter Sunscreen SPF50+ / Batch: 25H006									
	Absorption [OD] - before UV Exposure					Absorption [OD] - after UV Exposure				
	Pair 1st & 1st	Pair 2nd & 2nd	Pair 3rd & 3rd	Pair 4th & 4th	Mean Value	Pair 1st & 1st	Pair 2nd & 2nd	Pair 3rd & 3rd	Pair 4th & 4th	Mean Value
290	1.63E+00	1.65E+00	1.56E+00	1.63E+00	1.62E+00	1.85E+00	1.82E+00	1.74E+00	1.77E+00	1.79E+00
291	1.68E+00	1.69E+00	1.60E+00	1.66E+00	1.66E+00	1.89E+00	1.87E+00	1.79E+00	1.82E+00	1.84E+00
292	1.71E+00	1.73E+00	1.65E+00	1.71E+00	1.70E+00	1.95E+00	1.91E+00	1.84E+00	1.86E+00	1.89E+00
293	1.75E+00	1.77E+00	1.68E+00	1.74E+00	1.74E+00	1.99E+00	1.96E+00	1.89E+00	1.91E+00	1.94E+00
294	1.80E+00	1.81E+00	1.73E+00	1.79E+00	1.78E+00	2.04E+00	2.01E+00	1.94E+00	1.96E+00	1.99E+00
295	1.84E+00	1.85E+00	1.76E+00	1.83E+00	1.82E+00	2.09E+00	2.06E+00	1.98E+00	2.01E+00	2.03E+00
296	1.87E+00	1.89E+00	1.80E+00	1.87E+00	1.86E+00	2.13E+00	2.10E+00	2.02E+00	2.05E+00	2.08E+00
297	1.91E+00	1.93E+00	1.84E+00	1.91E+00	1.90E+00	2.16E+00	2.15E+00	2.05E+00	2.09E+00	2.11E+00
298	1.95E+00	1.97E+00	1.87E+00	1.95E+00	1.93E+00	2.18E+00	2.18E+00	2.09E+00	2.12E+00	2.14E+00
299	1.98E+00	2.00E+00	1.91E+00	1.98E+00	1.97E+00	2.18E+00	2.20E+00	2.12E+00	2.15E+00	2.16E+00
300	2.01E+00	2.03E+00	1.93E+00	2.01E+00	2.00E+00	2.19E+00	2.21E+00	2.14E+00	2.17E+00	2.18E+00
301	2.04E+00	2.05E+00	1.96E+00	2.04E+00	2.02E+00	2.19E+00	2.22E+00	2.16E+00	2.18E+00	2.19E+00
302	2.05E+00	2.07E+00	1.97E+00	2.06E+00	2.04E+00	2.20E+00	2.22E+00	2.17E+00	2.18E+00	2.19E+00
303	2.07E+00	2.08E+00	1.99E+00	2.07E+00	2.05E+00	2.20E+00	2.22E+00	2.18E+00	2.18E+00	2.20E+00
304	2.08E+00	2.09E+00	2.00E+00	2.08E+00	2.06E+00	2.20E+00	2.22E+00	2.18E+00	2.19E+00	2.20E+00
305	2.09E+00	2.10E+00	2.01E+00	2.09E+00	2.07E+00	2.21E+00	2.23E+00	2.19E+00	2.19E+00	2.20E+00
306	2.09E+00	2.11E+00	2.01E+00	2.09E+00	2.08E+00	2.21E+00	2.23E+00	2.19E+00	2.19E+00	2.20E+00
307	2.10E+00	2.11E+00	2.02E+00	2.09E+00	2.08E+00	2.21E+00	2.23E+00	2.19E+00	2.19E+00	2.20E+00
308	2.10E+00	2.12E+00	2.02E+00	2.10E+00	2.09E+00	2.21E+00	2.23E+00	2.20E+00	2.19E+00	2.21E+00
309	2.11E+00	2.13E+00	2.03E+00	2.11E+00	2.10E+00	2.21E+00	2.23E+00	2.20E+00	2.19E+00	2.21E+00
310	2.12E+00	2.13E+00	2.04E+00	2.12E+00	2.10E+00	2.21E+00	2.23E+00	2.20E+00	2.19E+00	2.21E+00
311	2.13E+00	2.14E+00	2.04E+00	2.12E+00	2.11E+00	2.21E+00	2.23E+00	2.20E+00	2.20E+00	2.21E+00
312	2.13E+00	2.15E+00	2.05E+00	2.13E+00	2.11E+00	2.21E+00	2.24E+00	2.20E+00	2.20E+00	2.21E+00
313	2.13E+00	2.15E+00	2.05E+00	2.13E+00	2.11E+00	2.21E+00	2.24E+00	2.20E+00	2.20E+00	2.21E+00
314	2.12E+00	2.14E+00	2.05E+00	2.12E+00	2.11E+00	2.21E+00	2.24E+00	2.20E+00	2.20E+00	2.21E+00
315	2.11E+00	2.13E+00	2.03E+00	2.11E+00	2.10E+00	2.21E+00	2.23E+00	2.20E+00	2.19E+00	2.21E+00
316	2.08E+00	2.10E+00	2.00E+00	2.08E+00	2.07E+00	2.20E+00	2.22E+00	2.18E+00	2.18E+00	2.20E+00
317	2.04E+00	2.05E+00	1.95E+00	2.03E+00	2.02E+00	2.19E+00	2.21E+00	2.14E+00	2.17E+00	2.18E+00
318	1.98E+00	1.99E+00	1.90E+00	1.97E+00	1.96E+00	2.18E+00	2.17E+00	2.08E+00	2.11E+00	2.13E+00
319	1.91E+00	1.91E+00	1.82E+00	1.89E+00	1.88E+00	2.11E+00	2.08E+00	2.00E+00	2.03E+00	2.05E+00
320	1.82E+00	1.83E+00	1.74E+00	1.81E+00	1.80E+00	2.01E+00	1.97E+00	1.89E+00	1.93E+00	1.95E+00
321	1.73E+00	1.74E+00	1.65E+00	1.71E+00	1.71E+00	1.89E+00	1.85E+00	1.78E+00	1.81E+00	1.83E+00
322	1.64E+00	1.64E+00	1.56E+00	1.62E+00	1.61E+00	1.77E+00	1.74E+00	1.66E+00	1.69E+00	1.72E+00
323	1.55E+00	1.55E+00	1.47E+00	1.52E+00	1.52E+00	1.66E+00	1.63E+00	1.56E+00	1.58E+00	1.61E+00
324	1.46E+00	1.46E+00	1.39E+00	1.44E+00	1.44E+00	1.56E+00	1.53E+00	1.46E+00	1.49E+00	1.51E+00
325	1.38E+00	1.38E+00	1.31E+00	1.36E+00	1.36E+00	1.46E+00	1.43E+00	1.37E+00	1.40E+00	1.42E+00
326	1.31E+00	1.31E+00	1.24E+00	1.29E+00	1.29E+00	1.39E+00	1.36E+00	1.30E+00	1.32E+00	1.34E+00
327	1.25E+00	1.25E+00	1.19E+00	1.23E+00	1.23E+00	1.33E+00	1.30E+00	1.24E+00	1.26E+00	1.28E+00
328	1.21E+00	1.21E+00	1.14E+00	1.19E+00	1.19E+00	1.28E+00	1.26E+00	1.20E+00	1.22E+00	1.24E+00
329	1.18E+00	1.18E+00	1.12E+00	1.16E+00	1.16E+00	1.25E+00	1.23E+00	1.17E+00	1.20E+00	1.21E+00
330	1.17E+00	1.17E+00	1.10E+00	1.15E+00	1.14E+00	1.24E+00	1.22E+00	1.16E+00	1.18E+00	1.20E+00
331	1.16E+00	1.16E+00	1.09E+00	1.14E+00	1.14E+00	1.24E+00	1.22E+00	1.16E+00	1.18E+00	1.20E+00
332	1.17E+00	1.17E+00	1.10E+00	1.15E+00	1.15E+00	1.25E+00	1.23E+00	1.17E+00	1.19E+00	1.21E+00
333	1.18E+00	1.18E+00	1.11E+00	1.16E+00	1.16E+00	1.27E+00	1.25E+00	1.19E+00	1.21E+00	1.23E+00
334	1.20E+00	1.20E+00	1.13E+00	1.18E+00	1.18E+00	1.30E+00	1.28E+00	1.22E+00	1.24E+00	1.26E+00
335	1.22E+00	1.23E+00	1.16E+00	1.21E+00	1.20E+00	1.33E+00	1.31E+00	1.25E+00	1.27E+00	1.29E+00
336	1.25E+00	1.25E+00	1.18E+00	1.24E+00	1.23E+00	1.37E+00	1.35E+00	1.28E+00	1.30E+00	1.32E+00
337	1.28E+00	1.29E+00	1.21E+00	1.27E+00	1.26E+00	1.41E+00	1.39E+00	1.32E+00	1.34E+00	1.36E+00
338	1.32E+00	1.32E+00	1.25E+00	1.30E+00	1.30E+00	1.45E+00	1.43E+00	1.35E+00	1.38E+00	1.40E+00
339	1.35E+00	1.36E+00	1.28E+00	1.34E+00	1.33E+00	1.49E+00	1.47E+00	1.39E+00	1.42E+00	1.44E+00
340	1.38E+00	1.39E+00	1.31E+00	1.37E+00	1.36E+00	1.53E+00	1.51E+00	1.43E+00	1.46E+00	1.48E+00
341	1.42E+00	1.42E+00	1.34E+00	1.41E+00	1.40E+00	1.57E+00	1.55E+00	1.47E+00	1.50E+00	1.52E+00
342	1.45E+00	1.46E+00	1.38E+00	1.44E+00	1.43E+00	1.61E+00	1.59E+00	1.51E+00	1.54E+00	1.56E+00
343	1.48E+00	1.49E+00	1.41E+00	1.47E+00	1.46E+00	1.65E+00	1.62E+00	1.54E+00	1.57E+00	1.60E+00
344	1.51E+00	1.52E+00	1.44E+00	1.50E+00	1.49E+00	1.69E+00	1.66E+00	1.58E+00	1.61E+00	1.63E+00
345	1.54E+00	1.55E+00	1.47E+00	1.54E+00	1.52E+00	1.73E+00	1.70E+00	1.61E+00	1.64E+00	1.67E+00
346	1.57E+00	1.58E+00	1.49E+00	1.56E+00	1.55E+00	1.76E+00	1.73E+00	1.64E+00	1.67E+00	1.70E+00
347	1.60E+00	1.61E+00	1.52E+00	1.59E+00	1.58E+00	1.79E+00	1.76E+00	1.67E+00	1.70E+00	1.73E+00
348	1.62E+00	1.63E+00	1.54E+00	1.61E+00	1.60E+00	1.82E+00	1.79E+00	1.70E+00	1.73E+00	1.76E+00
349	1.64E+00	1.66E+00	1.56E+00	1.64E+00	1.63E+00	1.85E+00	1.81E+00	1.72E+00	1.75E+00	1.78E+00
350	1.66E+00	1.67E+00	1.58E+00	1.66E+00	1.64E+00	1.87E+00	1.84E+00	1.74E+00	1.78E+00	1.81E+00
351	1.68E+00	1.69E+00	1.60E+00	1.67E+00	1.66E+00	1.89E+00	1.85E+00	1.76E+00	1.79E+00	1.82E+00
352	1.69E+00	1.71E+00	1.61E+00	1.69E+00	1.67E+00	1.90E+00	1.87E+00	1.78E+00	1.81E+00	1.84E+00
353	1.70E+00	1.71E+00	1.62E+00	1.69E+00	1.68E+00	1.91E+00	1.88E+00	1.79E+00	1.82E+00	1.85E+00
354	1.71E+00	1.72E+00	1.62E+00	1.70E+00	1.69E+00	1.92E+00	1.88E+00	1.79E+00	1.82E+00	1.85E+00
355	1.71E+00	1.72E+00	1.62E+00	1.70E+00	1.69E+00	1.91E+00	1.88E+00	1.79E+00	1.82E+00	1.85E+00
356	1.70E+00	1.71E+00	1.62E+00	1.69E+00	1.68E+00	1.91E+00	1.87E+00	1.78E+00	1.81E+00	1.84E+00
357	1.69E+00	1.70E+00	1.61E+00	1.69E+00	1.67E+00	1.90E+00	1.86E+00	1.77E+00	1.80E+00	1.83E+00
358	1.68E+00	1.69E+00	1.60E+00	1.67E+00						

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Normec Schrader Institute
12.05.2026

Absorption - Moulded Plates

Sponsor: Brunchtime Global Co., Ltd. / Project-No.: TSH-26-0471a

Wavelength [nm]	MOLECULOGY Starter Sunscreen SPF50+ / Batch: 25H006									
	Absorption [OD] - before UV Exposure					Absorption [OD] - after UV Exposure				
	Plate 1	Plate 2	Plate 3	Plate 4	Mean Value	Plate 1	Plate 2	Plate 3	Plate 4	Mean Value
290	1.36E+00	1.40E+00	1.41E+00	1.40E+00	1.39E+00	1.77E+00	1.72E+00	1.82E+00	1.73E+00	1.76E+00
291	1.40E+00	1.44E+00	1.45E+00	1.44E+00	1.43E+00	1.83E+00	1.77E+00	1.88E+00	1.79E+00	1.82E+00
292	1.44E+00	1.47E+00	1.49E+00	1.47E+00	1.47E+00	1.88E+00	1.82E+00	1.93E+00	1.84E+00	1.87E+00
293	1.48E+00	1.51E+00	1.52E+00	1.51E+00	1.51E+00	1.94E+00	1.89E+00	1.99E+00	1.90E+00	1.93E+00
294	1.52E+00	1.55E+00	1.57E+00	1.56E+00	1.55E+00	1.99E+00	1.94E+00	2.05E+00	1.96E+00	1.99E+00
295	1.55E+00	1.59E+00	1.61E+00	1.60E+00	1.59E+00	2.04E+00	1.99E+00	2.11E+00	2.01E+00	2.04E+00
296	1.59E+00	1.64E+00	1.64E+00	1.64E+00	1.63E+00	2.07E+00	2.03E+00	2.13E+00	2.04E+00	2.07E+00
297	1.63E+00	1.67E+00	1.68E+00	1.67E+00	1.66E+00	2.09E+00	2.06E+00	2.15E+00	2.07E+00	2.09E+00
298	1.66E+00	1.71E+00	1.72E+00	1.72E+00	1.70E+00	2.10E+00	2.08E+00	2.16E+00	2.09E+00	2.11E+00
299	1.69E+00	1.75E+00	1.75E+00	1.75E+00	1.73E+00	2.10E+00	2.10E+00	2.17E+00	2.10E+00	2.12E+00
300	1.72E+00	1.77E+00	1.78E+00	1.78E+00	1.76E+00	2.11E+00	2.11E+00	2.18E+00	2.10E+00	2.13E+00
301	1.74E+00	1.80E+00	1.80E+00	1.80E+00	1.79E+00	2.12E+00	2.12E+00	2.19E+00	2.11E+00	2.13E+00
302	1.77E+00	1.82E+00	1.82E+00	1.82E+00	1.81E+00	2.12E+00	2.12E+00	2.19E+00	2.11E+00	2.14E+00
303	1.78E+00	1.84E+00	1.83E+00	1.84E+00	1.82E+00	2.13E+00	2.12E+00	2.19E+00	2.12E+00	2.14E+00
304	1.79E+00	1.84E+00	1.84E+00	1.84E+00	1.83E+00	2.13E+00	2.12E+00	2.20E+00	2.12E+00	2.14E+00
305	1.79E+00	1.85E+00	1.85E+00	1.85E+00	1.84E+00	2.13E+00	2.13E+00	2.20E+00	2.12E+00	2.14E+00
306	1.80E+00	1.86E+00	1.85E+00	1.86E+00	1.84E+00	2.13E+00	2.13E+00	2.20E+00	2.12E+00	2.14E+00
307	1.80E+00	1.86E+00	1.86E+00	1.86E+00	1.84E+00	2.13E+00	2.13E+00	2.20E+00	2.12E+00	2.15E+00
308	1.80E+00	1.87E+00	1.86E+00	1.87E+00	1.85E+00	2.13E+00	2.13E+00	2.20E+00	2.12E+00	2.15E+00
309	1.81E+00	1.87E+00	1.86E+00	1.87E+00	1.85E+00	2.13E+00	2.13E+00	2.20E+00	2.13E+00	2.15E+00
310	1.81E+00	1.88E+00	1.87E+00	1.88E+00	1.86E+00	2.13E+00	2.13E+00	2.20E+00	2.13E+00	2.15E+00
311	1.82E+00	1.88E+00	1.88E+00	1.88E+00	1.87E+00	2.14E+00	2.14E+00	2.20E+00	2.13E+00	2.15E+00
312	1.82E+00	1.89E+00	1.88E+00	1.89E+00	1.87E+00	2.14E+00	2.14E+00	2.20E+00	2.13E+00	2.15E+00
313	1.82E+00	1.89E+00	1.88E+00	1.89E+00	1.87E+00	2.14E+00	2.14E+00	2.20E+00	2.13E+00	2.15E+00
314	1.82E+00	1.88E+00	1.88E+00	1.88E+00	1.87E+00	2.14E+00	2.14E+00	2.20E+00	2.13E+00	2.15E+00
315	1.81E+00	1.86E+00	1.86E+00	1.87E+00	1.85E+00	2.13E+00	2.13E+00	2.20E+00	2.13E+00	2.15E+00
316	1.78E+00	1.84E+00	1.83E+00	1.84E+00	1.82E+00	2.13E+00	2.12E+00	2.19E+00	2.12E+00	2.14E+00
317	1.74E+00	1.79E+00	1.79E+00	1.80E+00	1.78E+00	2.11E+00	2.11E+00	2.18E+00	2.11E+00	2.13E+00
318	1.68E+00	1.73E+00	1.73E+00	1.72E+00	1.70E+00	2.10E+00	2.08E+00	2.16E+00	2.09E+00	2.11E+00
319	1.62E+00	1.66E+00	1.66E+00	1.66E+00	1.65E+00	2.06E+00	2.02E+00	2.12E+00	2.03E+00	2.06E+00
320	1.54E+00	1.57E+00	1.59E+00	1.58E+00	1.57E+00	1.97E+00	1.89E+00	1.99E+00	1.91E+00	1.94E+00
321	1.46E+00	1.48E+00	1.50E+00	1.49E+00	1.48E+00	1.83E+00	1.76E+00	1.86E+00	1.78E+00	1.81E+00
322	1.36E+00	1.39E+00	1.41E+00	1.39E+00	1.39E+00	1.69E+00	1.62E+00	1.72E+00	1.64E+00	1.67E+00
323	1.28E+00	1.29E+00	1.31E+00	1.30E+00	1.30E+00	1.56E+00	1.50E+00	1.58E+00	1.51E+00	1.54E+00
324	1.19E+00	1.21E+00	1.23E+00	1.21E+00	1.21E+00	1.44E+00	1.38E+00	1.47E+00	1.40E+00	1.42E+00
325	1.12E+00	1.13E+00	1.16E+00	1.14E+00	1.13E+00	1.33E+00	1.28E+00	1.36E+00	1.30E+00	1.32E+00
326	1.06E+00	1.06E+00	1.09E+00	1.07E+00	1.07E+00	1.25E+00	1.20E+00	1.27E+00	1.22E+00	1.23E+00
327	1.00E+00	1.01E+00	1.04E+00	1.02E+00	1.02E+00	1.18E+00	1.14E+00	1.21E+00	1.15E+00	1.17E+00
328	9.60E-01	9.73E-01	9.96E-01	9.79E-01	9.77E-01	1.13E+00	1.10E+00	1.16E+00	1.11E+00	1.13E+00
329	9.32E-01	9.46E-01	9.67E-01	9.51E-01	9.49E-01	1.10E+00	1.07E+00	1.13E+00	1.08E+00	1.09E+00
330	9.16E-01	9.31E-01	9.51E-01	9.36E-01	9.33E-01	1.09E+00	1.05E+00	1.12E+00	1.07E+00	1.08E+00
331	9.11E-01	9.25E-01	9.44E-01	9.31E-01	9.27E-01	1.08E+00	1.05E+00	1.12E+00	1.06E+00	1.08E+00
332	9.13E-01	9.30E-01	9.46E-01	9.34E-01	9.31E-01	1.09E+00	1.07E+00	1.13E+00	1.08E+00	1.09E+00
333	9.20E-01	9.40E-01	9.56E-01	9.44E-01	9.40E-01	1.11E+00	1.08E+00	1.15E+00	1.09E+00	1.11E+00
334	9.33E-01	9.56E-01	9.72E-01	9.58E-01	9.54E-01	1.14E+00	1.11E+00	1.17E+00	1.12E+00	1.13E+00
335	9.54E-01	9.77E-01	9.92E-01	9.80E-01	9.76E-01	1.17E+00	1.14E+00	1.21E+00	1.15E+00	1.16E+00
336	9.76E-01	1.00E+00	1.01E+00	1.00E+00	9.98E-01	1.20E+00	1.17E+00	1.24E+00	1.18E+00	1.20E+00
337	9.99E-01	1.03E+00	1.04E+00	1.03E+00	1.02E+00	1.23E+00	1.21E+00	1.28E+00	1.22E+00	1.23E+00
338	1.02E+00	1.06E+00	1.07E+00	1.06E+00	1.05E+00	1.27E+00	1.24E+00	1.32E+00	1.26E+00	1.27E+00
339	1.05E+00	1.08E+00	1.09E+00	1.08E+00	1.08E+00	1.31E+00	1.28E+00	1.36E+00	1.29E+00	1.31E+00
340	1.08E+00	1.11E+00	1.12E+00	1.11E+00	1.11E+00	1.35E+00	1.32E+00	1.40E+00	1.34E+00	1.35E+00
341	1.11E+00	1.14E+00	1.15E+00	1.14E+00	1.13E+00	1.39E+00	1.36E+00	1.44E+00	1.37E+00	1.39E+00
342	1.13E+00	1.17E+00	1.18E+00	1.17E+00	1.16E+00	1.43E+00	1.40E+00	1.48E+00	1.41E+00	1.43E+00
343	1.15E+00	1.20E+00	1.20E+00	1.20E+00	1.19E+00	1.47E+00	1.43E+00	1.51E+00	1.45E+00	1.47E+00
344	1.18E+00	1.22E+00	1.23E+00	1.22E+00	1.21E+00	1.50E+00	1.47E+00	1.55E+00	1.49E+00	1.50E+00
345	1.20E+00	1.25E+00	1.25E+00	1.25E+00	1.24E+00	1.54E+00	1.50E+00	1.59E+00	1.52E+00	1.54E+00
346	1.23E+00	1.27E+00	1.27E+00	1.27E+00	1.26E+00	1.57E+00	1.53E+00	1.62E+00	1.55E+00	1.57E+00
347	1.25E+00	1.30E+00	1.30E+00	1.29E+00	1.28E+00	1.60E+00	1.56E+00	1.65E+00	1.58E+00	1.60E+00
348	1.27E+00	1.32E+00	1.32E+00	1.32E+00	1.30E+00	1.63E+00	1.59E+00	1.68E+00	1.61E+00	1.63E+00
349	1.28E+00	1.33E+00	1.34E+00	1.34E+00	1.32E+00	1.66E+00	1.62E+00	1.71E+00	1.64E+00	1.65E+00
350	1.30E+00	1.35E+00	1.35E+00	1.35E+00	1.34E+00	1.68E+00	1.64E+00	1.73E+00	1.66E+00	1.68E+00
351	1.31E+00	1.37E+00	1.37E+00	1.37E+00	1.35E+00	1.70E+00	1.66E+00	1.75E+00	1.68E+00	1.70E+00
352	1.32E+00	1.38E+00	1.38E+00	1.38E+00	1.36E+00	1.71E+00	1.67E+00	1.76E+00	1.69E+00	1.71E+00
353	1.33E+00	1.39E+00	1.39E+00	1.38E+00	1.37E+00	1.73E+00	1.68E+00	1.77E+00	1.70E+00	1.72E+00
354	1.34E+00	1.39E+00	1.39E+00	1.39E+00	1.38E+00	1.73E+00	1.68E+00	1.78E+00	1.71E+00	1.72E+00
355	1.34E+00	1.39E+00	1.39E+00	1.39E+00	1.38E+00	1.73E+00	1.68E+00	1.78E+00	1.71E+00	1.72E+00
356	1.34E+00	1.39E+00	1.39E+00	1.39E+00	1.38E+00	1.72E+00	1.68E+00	1.77E+00	1.70E+00	1.72E+00
357	1.33E+00	1.38E+00	1.38E+00	1.38E+00	1.37E+00	1.71E+00	1.67E+00	1.76E+00	1	

In Vitro Determination of Sun Protection Factor (SPF)
ISO 23675:2024

Normec Schrader Institute
12.05.2026

Absorption - Sandblasted Plates

Sponsor: Brunchtime Global Co., Ltd. / Project-No.: TSH-26-0471a

Wavelength [nm]	MOLECULOGY Starter Sunscreen SPF50+ / Batch: 25H006									
	Absorption [OD] - before UV Exposure					Absorption [OD] - after UV Exposure				
	Plate 1	Plate 2	Plate 3	Plate 4	Mean Value	Plate 1	Plate 2	Plate 3	Plate 4	Mean Value
290	1.66E+00	1.67E+00	1.56E+00	1.64E+00	1.63E+00	1.81E+00	1.79E+00	1.67E+00	1.73E+00	1.75E+00
291	1.70E+00	1.68E+00	1.60E+00	1.68E+00	1.67E+00	1.85E+00	1.84E+00	1.71E+00	1.77E+00	1.79E+00
292	1.74E+00	1.75E+00	1.64E+00	1.72E+00	1.71E+00	1.90E+00	1.88E+00	1.76E+00	1.81E+00	1.84E+00
293	1.78E+00	1.79E+00	1.67E+00	1.75E+00	1.75E+00	1.94E+00	1.92E+00	1.80E+00	1.85E+00	1.88E+00
294	1.82E+00	1.83E+00	1.72E+00	1.80E+00	1.79E+00	1.99E+00	1.97E+00	1.84E+00	1.90E+00	1.92E+00
295	1.86E+00	1.86E+00	1.75E+00	1.84E+00	1.83E+00	2.04E+00	2.02E+00	1.88E+00	1.94E+00	1.97E+00
296	1.90E+00	1.90E+00	1.79E+00	1.88E+00	1.87E+00	2.09E+00	2.06E+00	1.93E+00	1.98E+00	2.01E+00
297	1.93E+00	1.94E+00	1.83E+00	1.91E+00	1.90E+00	2.11E+00	2.10E+00	1.96E+00	2.02E+00	2.05E+00
298	1.97E+00	1.98E+00	1.86E+00	1.95E+00	1.94E+00	2.13E+00	2.14E+00	2.00E+00	2.06E+00	2.08E+00
299	2.00E+00	2.01E+00	1.89E+00	1.98E+00	1.97E+00	2.14E+00	2.16E+00	2.04E+00	2.10E+00	2.11E+00
300	2.03E+00	2.04E+00	1.92E+00	2.01E+00	2.00E+00	2.14E+00	2.17E+00	2.07E+00	2.12E+00	2.12E+00
301	2.05E+00	2.06E+00	1.94E+00	2.04E+00	2.02E+00	2.15E+00	2.18E+00	2.09E+00	2.13E+00	2.13E+00
302	2.07E+00	2.08E+00	1.95E+00	2.06E+00	2.04E+00	2.15E+00	2.18E+00	2.10E+00	2.13E+00	2.14E+00
303	2.09E+00	2.09E+00	1.97E+00	2.07E+00	2.05E+00	2.15E+00	2.18E+00	2.10E+00	2.13E+00	2.14E+00
304	2.10E+00	2.10E+00	1.98E+00	2.08E+00	2.06E+00	2.16E+00	2.18E+00	2.11E+00	2.14E+00	2.15E+00
305	2.10E+00	2.11E+00	1.99E+00	2.09E+00	2.07E+00	2.16E+00	2.18E+00	2.12E+00	2.14E+00	2.15E+00
306	2.11E+00	2.12E+00	1.99E+00	2.10E+00	2.08E+00	2.16E+00	2.19E+00	2.12E+00	2.14E+00	2.15E+00
307	2.11E+00	2.12E+00	2.00E+00	2.09E+00	2.08E+00	2.16E+00	2.19E+00	2.12E+00	2.14E+00	2.15E+00
308	2.12E+00	2.13E+00	2.01E+00	2.10E+00	2.09E+00	2.16E+00	2.19E+00	2.13E+00	2.14E+00	2.15E+00
309	2.13E+00	2.13E+00	2.02E+00	2.11E+00	2.10E+00	2.16E+00	2.19E+00	2.13E+00	2.14E+00	2.16E+00
310	2.14E+00	2.14E+00	2.02E+00	2.12E+00	2.10E+00	2.16E+00	2.19E+00	2.13E+00	2.14E+00	2.16E+00
311	2.15E+00	2.14E+00	2.03E+00	2.12E+00	2.11E+00	2.17E+00	2.19E+00	2.13E+00	2.15E+00	2.16E+00
312	2.14E+00	2.15E+00	2.03E+00	2.13E+00	2.11E+00	2.17E+00	2.20E+00	2.13E+00	2.15E+00	2.16E+00
313	2.15E+00	2.15E+00	2.04E+00	2.13E+00	2.12E+00	2.17E+00	2.20E+00	2.13E+00	2.15E+00	2.16E+00
314	2.14E+00	2.15E+00	2.03E+00	2.12E+00	2.11E+00	2.17E+00	2.19E+00	2.13E+00	2.15E+00	2.16E+00
315	2.13E+00	2.14E+00	2.02E+00	2.11E+00	2.10E+00	2.16E+00	2.19E+00	2.13E+00	2.14E+00	2.16E+00
316	2.10E+00	2.11E+00	1.98E+00	2.08E+00	2.07E+00	2.15E+00	2.18E+00	2.11E+00	2.13E+00	2.15E+00
317	2.06E+00	2.06E+00	1.94E+00	2.04E+00	2.02E+00	2.14E+00	2.17E+00	2.06E+00	2.12E+00	2.12E+00
318	2.00E+00	2.00E+00	1.88E+00	1.98E+00	1.96E+00	2.13E+00	2.13E+00	1.99E+00	2.05E+00	2.07E+00
319	1.93E+00	1.93E+00	1.81E+00	1.90E+00	1.89E+00	2.06E+00	2.03E+00	1.90E+00	1.97E+00	1.99E+00
320	1.85E+00	1.85E+00	1.73E+00	1.82E+00	1.81E+00	1.96E+00	1.93E+00	1.80E+00	1.87E+00	1.89E+00
321	1.76E+00	1.75E+00	1.64E+00	1.72E+00	1.72E+00	1.85E+00	1.82E+00	1.70E+00	1.76E+00	1.78E+00
322	1.67E+00	1.66E+00	1.55E+00	1.63E+00	1.63E+00	1.74E+00	1.71E+00	1.60E+00	1.65E+00	1.68E+00
323	1.57E+00	1.57E+00	1.47E+00	1.54E+00	1.54E+00	1.64E+00	1.61E+00	1.50E+00	1.55E+00	1.58E+00
324	1.49E+00	1.48E+00	1.39E+00	1.46E+00	1.45E+00	1.54E+00	1.52E+00	1.41E+00	1.46E+00	1.49E+00
325	1.41E+00	1.41E+00	1.31E+00	1.38E+00	1.38E+00	1.45E+00	1.43E+00	1.33E+00	1.38E+00	1.40E+00
326	1.34E+00	1.34E+00	1.24E+00	1.31E+00	1.31E+00	1.38E+00	1.36E+00	1.26E+00	1.31E+00	1.33E+00
327	1.29E+00	1.28E+00	1.19E+00	1.26E+00	1.25E+00	1.33E+00	1.31E+00	1.21E+00	1.25E+00	1.27E+00
328	1.25E+00	1.24E+00	1.15E+00	1.21E+00	1.21E+00	1.28E+00	1.27E+00	1.17E+00	1.22E+00	1.24E+00
329	1.22E+00	1.21E+00	1.12E+00	1.19E+00	1.19E+00	1.26E+00	1.24E+00	1.15E+00	1.19E+00	1.21E+00
330	1.20E+00	1.20E+00	1.11E+00	1.17E+00	1.17E+00	1.25E+00	1.23E+00	1.14E+00	1.18E+00	1.20E+00
331	1.19E+00	1.19E+00	1.10E+00	1.17E+00	1.16E+00	1.25E+00	1.23E+00	1.14E+00	1.18E+00	1.20E+00
332	1.20E+00	1.20E+00	1.11E+00	1.17E+00	1.17E+00	1.26E+00	1.24E+00	1.15E+00	1.19E+00	1.21E+00
333	1.21E+00	1.21E+00	1.12E+00	1.19E+00	1.18E+00	1.28E+00	1.26E+00	1.17E+00	1.21E+00	1.23E+00
334	1.24E+00	1.23E+00	1.14E+00	1.21E+00	1.20E+00	1.31E+00	1.29E+00	1.19E+00	1.23E+00	1.25E+00
335	1.26E+00	1.26E+00	1.17E+00	1.23E+00	1.23E+00	1.34E+00	1.32E+00	1.22E+00	1.26E+00	1.29E+00
336	1.29E+00	1.29E+00	1.19E+00	1.26E+00	1.26E+00	1.37E+00	1.35E+00	1.25E+00	1.30E+00	1.32E+00
337	1.32E+00	1.32E+00	1.23E+00	1.30E+00	1.29E+00	1.41E+00	1.39E+00	1.28E+00	1.33E+00	1.36E+00
338	1.36E+00	1.36E+00	1.26E+00	1.33E+00	1.32E+00	1.45E+00	1.43E+00	1.32E+00	1.37E+00	1.39E+00
339	1.39E+00	1.39E+00	1.29E+00	1.37E+00	1.36E+00	1.50E+00	1.47E+00	1.36E+00	1.41E+00	1.44E+00
340	1.43E+00	1.43E+00	1.32E+00	1.40E+00	1.40E+00	1.53E+00	1.51E+00	1.40E+00	1.45E+00	1.47E+00
341	1.46E+00	1.46E+00	1.36E+00	1.44E+00	1.43E+00	1.58E+00	1.55E+00	1.44E+00	1.48E+00	1.51E+00
342	1.49E+00	1.50E+00	1.39E+00	1.47E+00	1.46E+00	1.61E+00	1.59E+00	1.47E+00	1.52E+00	1.55E+00
343	1.53E+00	1.53E+00	1.42E+00	1.50E+00	1.49E+00	1.65E+00	1.63E+00	1.50E+00	1.56E+00	1.58E+00
344	1.56E+00	1.56E+00	1.45E+00	1.54E+00	1.53E+00	1.69E+00	1.67E+00	1.54E+00	1.59E+00	1.62E+00
345	1.59E+00	1.59E+00	1.48E+00	1.57E+00	1.56E+00	1.72E+00	1.70E+00	1.57E+00	1.62E+00	1.65E+00
346	1.62E+00	1.62E+00	1.51E+00	1.60E+00	1.59E+00	1.76E+00	1.73E+00	1.60E+00	1.65E+00	1.68E+00
347	1.65E+00	1.65E+00	1.53E+00	1.62E+00	1.61E+00	1.79E+00	1.76E+00	1.63E+00	1.68E+00	1.71E+00
348	1.67E+00	1.67E+00	1.56E+00	1.65E+00	1.64E+00	1.82E+00	1.79E+00	1.65E+00	1.71E+00	1.74E+00
349	1.69E+00	1.69E+00	1.58E+00	1.67E+00	1.66E+00	1.84E+00	1.81E+00	1.68E+00	1.73E+00	1.77E+00
350	1.71E+00	1.71E+00	1.60E+00	1.69E+00	1.68E+00	1.86E+00	1.84E+00	1.70E+00	1.75E+00	1.79E+00
351	1.73E+00	1.73E+00	1.61E+00	1.71E+00	1.69E+00	1.88E+00	1.85E+00	1.71E+00	1.77E+00	1.80E+00
352	1.74E+00	1.74E+00	1.63E+00	1.72E+00	1.71E+00	1.89E+00	1.86E+00	1.73E+00	1.79E+00	1.82E+00
353	1.75E+00	1.75E+00	1.64E+00	1.73E+00	1.72E+00	1.90E+00	1.87E+00	1.74E+00	1.79E+00	1.83E+00
354	1.76E+00	1.76E+00	1.64E+00	1.73E+00	1.72E+00	1.91E+00	1.88E+00	1.74E+00	1.80E+00	1.83E+00
355	1.76E+00	1.76E+00	1.64E+00	1.73E+00	1.72E+00	1.91E+00	1.88E+00	1.74E+00	1.80E+00	1.83E+00
356	1.75E+00	1.75E+00	1.64E+00	1.73E+00	1.72E+00	1.90E+00	1.87E+00	1.73E+00	1.79E+00	1.82E+00
357	1.74E+00	1.74E+00	1.63E+00	1.72E+00	1.71E+00	1.89				

In Vitro Determination of Sun Protection Factor (SPF)
ISO 23675:2024

Summary and Statistics

Normec Schrader Institute
12.05.2026

Sponsor: Brunchtime Global Co., Ltd. / Project-No.: TSH-26-0471a

P8 Reference Standard Rez.-Nr. 441/277/001 16-12-2025					
Measurement from 10.04.2026					
Moulded Plates			Sandblasted Plates		
C	0.225		C	0.800	
Technician T3	Product Quantity * [mg/cm²]	Temperature of Plate [°C]		Product Quantity * [mg/cm²]	Temperature of Plate [°C]
Plate 1	0.38	29	Plate 1	0.48	29
Plate 2	0.41	29	Plate 2	0.46	29
Plate 3	0.04	29	Plate 3	0.44	29
Plate 4	0.38	29	Plate 4	0.43	28
Number	4	4	Number	4	4
Mean	0.30	29.2	Mean	29.20	28.9
Standard Deviation	0.18	0.18	Standard Deviation	0.183	0.60
Plate Pairs	SPF _{in vitro} Before UV-Exposure	Irradiation Dose [MED]	UV Irradiance [MED/hr]	SPF _{in vitro}	
Pair 1 st & 1 st	117.7	29.4	19.1	81.8	
Pair 2 nd & 2 nd	112.8	28.2	17.5	80.1	
Pair 3 rd & 3 rd	114.0	28.5	17.9	81.5	
Pair 4 th & 4 th	120.1	30.0	19.2	78.9	
Number	4	4	4	4	
Mean	116.2	29.0	18.4	80.5	
Standard Deviation	3.36	0.84	0.87	1.34	
95 % CI				78.4 - 82.6	
CI [%]				2.65	
17 % Interval of mean				66.8 - 94.2	

* after Equilibration

Plate Transmission Tests

Batch: 1372 Receipt: 18.11.2025		290nm	300nm	320nm
	Limits	> 60 %	> 69 %	> 81%
	Plate [%]	74.6	78.1	82.2
		Pass	Pass	Pass
Batch: 707 Receipt: 18.11.2025		290nm	300nm	320nm
	Limits	> 60 %	> 69 %	> 81%
	Plate [%]	61.5	74.0	81.5
		Pass	Pass	Pass

In Vitro Determination of Sun Protection Factor (SPF)

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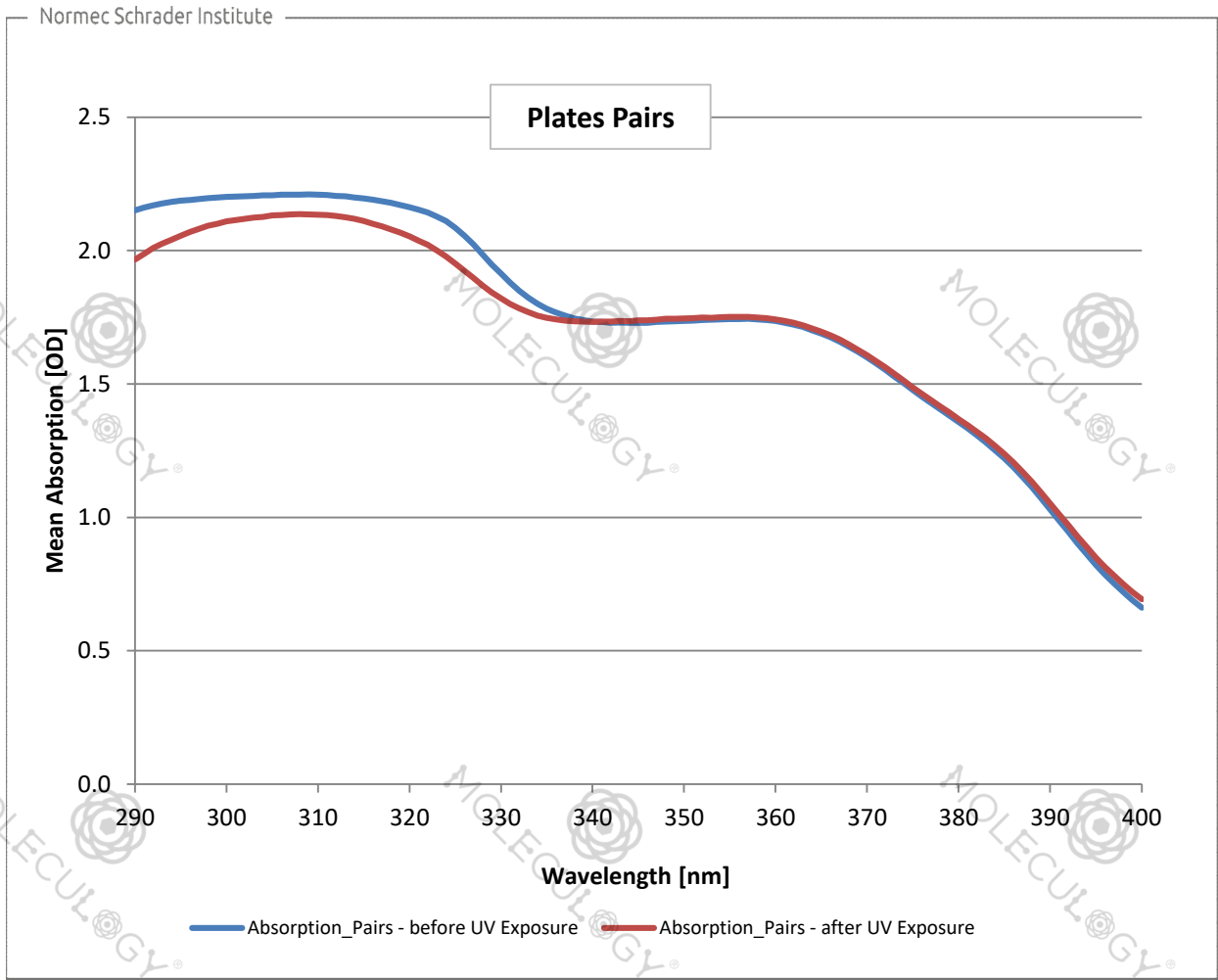
Absorption Spectra

Normec Schrader Institute

12.05.2026

Sponsor: Brunchtime Global Co., Ltd. / Project-No.: TSH-26-0471a

Product: P8 Reference Standard Rez.-Nr. 441/277/001 16-12-2025



In Vitro Determination of Sun Protection Factor (SPF)
ISO 23675:2024

Normec Schrader Institute
12.05.2026

Absorption - Plate Pairs

Sponsor: Brunchtime Global Co., Ltd. / Project-No.: TSH-26-0471a

Wavelength [nm]	Absorption [OD] - before UV Exposure					Absorption [OD] - after UV Exposure				
	Pair 1st & 1st	Pair 2nd & 2nd	Pair 3rd & 3rd	Pair 4th & 4th	Mean Value	Pair 1st & 1st	Pair 2nd & 2nd	Pair 3rd & 3rd	Pair 4th & 4th	Mean Value
290	2.16E+00	2.13E+00	2.15E+00	2.16E+00	2.15E+00	1.98E+00	1.99E+00	1.96E+00	1.93E+00	1.97E+00
291	2.16E+00	2.14E+00	2.16E+00	2.18E+00	2.16E+00	2.00E+00	2.00E+00	1.99E+00	1.95E+00	1.99E+00
292	2.17E+00	2.15E+00	2.17E+00	2.19E+00	2.17E+00	2.02E+00	2.02E+00	2.01E+00	1.98E+00	2.01E+00
293	2.17E+00	2.16E+00	2.18E+00	2.20E+00	2.18E+00	2.04E+00	2.04E+00	2.03E+00	2.00E+00	2.03E+00
294	2.18E+00	2.16E+00	2.18E+00	2.21E+00	2.18E+00	2.05E+00	2.05E+00	2.05E+00	2.01E+00	2.04E+00
295	2.18E+00	2.17E+00	2.18E+00	2.22E+00	2.19E+00	2.07E+00	2.06E+00	2.06E+00	2.03E+00	2.06E+00
296	2.18E+00	2.17E+00	2.18E+00	2.22E+00	2.19E+00	2.08E+00	2.08E+00	2.08E+00	2.05E+00	2.07E+00
297	2.18E+00	2.17E+00	2.19E+00	2.22E+00	2.19E+00	2.09E+00	2.09E+00	2.09E+00	2.06E+00	2.08E+00
298	2.19E+00	2.18E+00	2.19E+00	2.23E+00	2.20E+00	2.10E+00	2.09E+00	2.11E+00	2.07E+00	2.09E+00
299	2.19E+00	2.18E+00	2.19E+00	2.23E+00	2.20E+00	2.10E+00	2.10E+00	2.11E+00	2.08E+00	2.10E+00
300	2.19E+00	2.19E+00	2.19E+00	2.23E+00	2.20E+00	2.11E+00	2.10E+00	2.13E+00	2.09E+00	2.11E+00
301	2.19E+00	2.19E+00	2.20E+00	2.23E+00	2.20E+00	2.12E+00	2.11E+00	2.13E+00	2.10E+00	2.11E+00
302	2.19E+00	2.19E+00	2.20E+00	2.23E+00	2.20E+00	2.12E+00	2.12E+00	2.13E+00	2.11E+00	2.12E+00
303	2.19E+00	2.19E+00	2.20E+00	2.23E+00	2.20E+00	2.13E+00	2.12E+00	2.14E+00	2.11E+00	2.12E+00
304	2.20E+00	2.19E+00	2.20E+00	2.24E+00	2.21E+00	2.13E+00	2.12E+00	2.14E+00	2.12E+00	2.13E+00
305	2.20E+00	2.20E+00	2.20E+00	2.24E+00	2.21E+00	2.13E+00	2.12E+00	2.15E+00	2.12E+00	2.13E+00
306	2.20E+00	2.20E+00	2.20E+00	2.24E+00	2.21E+00	2.14E+00	2.13E+00	2.15E+00	2.12E+00	2.13E+00
307	2.20E+00	2.20E+00	2.20E+00	2.24E+00	2.21E+00	2.14E+00	2.13E+00	2.15E+00	2.13E+00	2.14E+00
308	2.20E+00	2.20E+00	2.20E+00	2.24E+00	2.21E+00	2.14E+00	2.13E+00	2.15E+00	2.13E+00	2.14E+00
309	2.20E+00	2.20E+00	2.20E+00	2.24E+00	2.21E+00	2.14E+00	2.13E+00	2.15E+00	2.13E+00	2.14E+00
310	2.20E+00	2.20E+00	2.20E+00	2.24E+00	2.21E+00	2.13E+00	2.13E+00	2.15E+00	2.12E+00	2.13E+00
311	2.20E+00	2.20E+00	2.20E+00	2.24E+00	2.21E+00	2.14E+00	2.12E+00	2.15E+00	2.12E+00	2.13E+00
312	2.20E+00	2.19E+00	2.20E+00	2.23E+00	2.20E+00	2.13E+00	2.12E+00	2.14E+00	2.12E+00	2.13E+00
313	2.20E+00	2.19E+00	2.20E+00	2.23E+00	2.20E+00	2.13E+00	2.12E+00	2.14E+00	2.11E+00	2.12E+00
314	2.19E+00	2.18E+00	2.19E+00	2.23E+00	2.20E+00	2.12E+00	2.12E+00	2.13E+00	2.11E+00	2.12E+00
315	2.19E+00	2.18E+00	2.19E+00	2.22E+00	2.20E+00	2.11E+00	2.11E+00	2.12E+00	2.10E+00	2.11E+00
316	2.18E+00	2.17E+00	2.19E+00	2.22E+00	2.19E+00	2.11E+00	2.10E+00	2.11E+00	2.08E+00	2.10E+00
317	2.18E+00	2.16E+00	2.18E+00	2.22E+00	2.18E+00	2.10E+00	2.09E+00	2.10E+00	2.07E+00	2.09E+00
318	2.18E+00	2.16E+00	2.18E+00	2.20E+00	2.18E+00	2.09E+00	2.08E+00	2.09E+00	2.06E+00	2.08E+00
319	2.17E+00	2.15E+00	2.17E+00	2.19E+00	2.17E+00	2.08E+00	2.07E+00	2.07E+00	2.04E+00	2.07E+00
320	2.17E+00	2.14E+00	2.16E+00	2.18E+00	2.16E+00	2.06E+00	2.06E+00	2.06E+00	2.03E+00	2.05E+00
321	2.16E+00	2.13E+00	2.15E+00	2.17E+00	2.15E+00	2.05E+00	2.05E+00	2.04E+00	2.01E+00	2.04E+00
322	2.15E+00	2.12E+00	2.14E+00	2.15E+00	2.14E+00	2.03E+00	2.03E+00	2.03E+00	1.99E+00	2.02E+00
323	2.13E+00	2.11E+00	2.13E+00	2.13E+00	2.13E+00	2.01E+00	2.01E+00	2.00E+00	1.97E+00	2.00E+00
324	2.12E+00	2.09E+00	2.11E+00	2.12E+00	2.11E+00	1.99E+00	1.99E+00	1.98E+00	1.95E+00	1.98E+00
325	2.10E+00	2.07E+00	2.08E+00	2.09E+00	2.09E+00	1.97E+00	1.96E+00	1.95E+00	1.92E+00	1.95E+00
326	2.07E+00	2.05E+00	2.05E+00	2.05E+00	2.05E+00	1.94E+00	1.93E+00	1.92E+00	1.90E+00	1.92E+00
327	2.04E+00	2.02E+00	2.02E+00	2.02E+00	2.02E+00	1.92E+00	1.91E+00	1.89E+00	1.87E+00	1.90E+00
328	2.00E+00	1.98E+00	1.98E+00	1.98E+00	1.98E+00	1.89E+00	1.88E+00	1.87E+00	1.84E+00	1.87E+00
329	1.97E+00	1.94E+00	1.94E+00	1.94E+00	1.95E+00	1.87E+00	1.85E+00	1.84E+00	1.82E+00	1.84E+00
330	1.94E+00	1.90E+00	1.90E+00	1.91E+00	1.91E+00	1.84E+00	1.82E+00	1.82E+00	1.79E+00	1.82E+00
331	1.91E+00	1.87E+00	1.87E+00	1.88E+00	1.88E+00	1.82E+00	1.80E+00	1.80E+00	1.78E+00	1.80E+00
332	1.88E+00	1.84E+00	1.84E+00	1.84E+00	1.85E+00	1.80E+00	1.79E+00	1.78E+00	1.76E+00	1.78E+00
333	1.85E+00	1.81E+00	1.81E+00	1.82E+00	1.82E+00	1.79E+00	1.77E+00	1.77E+00	1.74E+00	1.77E+00
334	1.83E+00	1.79E+00	1.79E+00	1.79E+00	1.80E+00	1.78E+00	1.76E+00	1.76E+00	1.73E+00	1.76E+00
335	1.81E+00	1.77E+00	1.77E+00	1.78E+00	1.78E+00	1.77E+00	1.75E+00	1.75E+00	1.72E+00	1.75E+00
336	1.80E+00	1.76E+00	1.76E+00	1.76E+00	1.77E+00	1.77E+00	1.74E+00	1.74E+00	1.72E+00	1.74E+00
337	1.79E+00	1.75E+00	1.74E+00	1.75E+00	1.76E+00	1.76E+00	1.74E+00	1.74E+00	1.71E+00	1.74E+00
338	1.77E+00	1.74E+00	1.74E+00	1.74E+00	1.75E+00	1.76E+00	1.73E+00	1.73E+00	1.71E+00	1.74E+00
339	1.77E+00	1.73E+00	1.73E+00	1.73E+00	1.74E+00	1.76E+00	1.73E+00	1.73E+00	1.71E+00	1.73E+00
340	1.76E+00	1.72E+00	1.72E+00	1.72E+00	1.73E+00	1.76E+00	1.73E+00	1.73E+00	1.71E+00	1.73E+00
341	1.76E+00	1.72E+00	1.72E+00	1.72E+00	1.73E+00	1.76E+00	1.73E+00	1.73E+00	1.71E+00	1.73E+00
342	1.76E+00	1.72E+00	1.72E+00	1.72E+00	1.73E+00	1.76E+00	1.73E+00	1.73E+00	1.71E+00	1.73E+00
343	1.76E+00	1.72E+00	1.72E+00	1.72E+00	1.73E+00	1.76E+00	1.73E+00	1.74E+00	1.71E+00	1.74E+00
344	1.76E+00	1.72E+00	1.72E+00	1.72E+00	1.73E+00	1.76E+00	1.73E+00	1.73E+00	1.71E+00	1.74E+00
345	1.76E+00	1.72E+00	1.72E+00	1.72E+00	1.73E+00	1.77E+00	1.74E+00	1.74E+00	1.71E+00	1.74E+00
346	1.76E+00	1.72E+00	1.72E+00	1.72E+00	1.73E+00	1.77E+00	1.74E+00	1.74E+00	1.71E+00	1.74E+00
347	1.76E+00	1.72E+00	1.72E+00	1.72E+00	1.73E+00	1.77E+00	1.74E+00	1.74E+00	1.72E+00	1.74E+00
348	1.76E+00	1.73E+00	1.72E+00	1.72E+00	1.73E+00	1.77E+00	1.74E+00	1.74E+00	1.72E+00	1.74E+00
349	1.77E+00	1.73E+00	1.72E+00	1.72E+00	1.73E+00	1.77E+00	1.74E+00	1.74E+00	1.72E+00	1.74E+00
350	1.77E+00	1.73E+00	1.72E+00	1.73E+00	1.74E+00	1.77E+00	1.74E+00	1.75E+00	1.72E+00	1.75E+00
351	1.77E+00	1.73E+00	1.73E+00	1.73E+00	1.74E+00	1.77E+00	1.75E+00	1.75E+00	1.72E+00	1.75E+00
352	1.77E+00	1.73E+00	1.73E+00	1.73E+00	1.74E+00	1.78E+00	1.75E+00	1.75E+00	1.72E+00	1.75E+00
353	1.77E+00	1.73E+00	1.73E+00	1.73E+00	1.74E+00	1.78E+00	1.74E+00	1.75E+00	1.72E+00	1.75E+00
354	1.77E+00	1.73E+00	1.73E+00	1.73E+00	1.74E+00	1.78E+00	1.75E+00	1.75E+00	1.73E+00	1.75E+00
355	1.78E+00	1.74E+00	1.73E+00	1.73E+00	1.74E+00	1.78E+00	1.75E+00	1.75E+00	1.73E+00	1.75E+00
356	1.78E+00	1.73E+00	1.73E+00	1.73E+00	1.74E+00	1.78E+00	1.75E+00	1.75E+00	1.73E+00	1.75E+00
357	1.78E+00	1.74E+00	1.73E+00	1.73E+00	1.74E+00	1.78E+00	1.75E+00	1.75E+00	1.73E+00	1.75E+00
358	1.78E+00	1.73E+00	1.73E+00	1.73E+00	1.74E+00	1.78E+00	1.74E+00	1.75E+00	1.72E+00	1.75E+00
359	1.77E+00	1.73E+00	1.73E+00	1.73E+00	1.74E+00	1.78E+00	1.74E+00	1.74E+00	1.72E+00	1.75E+00
360</										

In Vitro Determination of Sun Protection Factor (SPF)
ISO 23675:2024

Normec Schrader Institute
12.05.2026

Summary and Statistics

Sponsor: Brunchtime Global Co., Ltd. / Project-No.: TSH-26-0471a

P5 Reference Standard Rez.-Nr. 441/272/001 04-02-2026					
Measurement from 10.04.2026					
Moulded Plates			Sandblasted Plates		
C	0.225		C	0.800	
Technician T3	Product Quantity * [mg/cm²]	Temperature of Plate [°C]		Product Quantity * [mg/cm²]	Temperature of Plate [°C]
Plate 1	0.46	28	Plate 1	0.57	29
Plate 2	0.40	28	Plate 2	0.59	28
Plate 3	0.44	29	Plate 3	0.54	29
Plate 4	0.40	28	Plate 4	0.53	28
Number	4	4	Number	4	4
Mean	0.43	28.4	Mean	28.38	28.5
Standard Deviation	0.03	0.31	Standard Deviation	0.310	0.34
Plate Pairs	SPF _{in vitro} Before UV-Exposure	Irradiation Dose [MED]	UV Irradiance [MED/hr]	SPF _{in vitro}	
Pair 1 st & 1 st	19.0	4.8	17.9	29.3	
Pair 2 nd & 2 nd	20.5	5.1	19.2	29.8	
Pair 3 rd & 3 rd	19.0	4.8	19.1	28.3	
Pair 4 th & 4 th	18.7	4.7	17.5	27.7	
Number	4	4	4	4	
Mean	19.3	4.8	18.4	28.7	
Standard Deviation	0.81	0.20	0.87	0.95	
95 % CI				27.2 - 30.2	
CI [%]				5.27	
17 % Interval of mean				23.8 - 33.6	

* after Equilibration

Plate Transmission Tests

Batch: 1372 Receipt: 18.11.2025		290nm	300nm	320nm
	Limits	> 60 %	> 69 %	> 81%
	Plate [%]	74.6	78.1	82.2
		Pass	Pass	Pass
Batch: 707 Receipt: 18.11.2025		290nm	300nm	320nm
	Limits	> 60 %	> 69 %	> 81%
	Plate [%]	61.5	74.0	81.5
		Pass	Pass	Pass

In Vitro Determination of Sun Protection Factor (SPF)

ISO 23675:2024

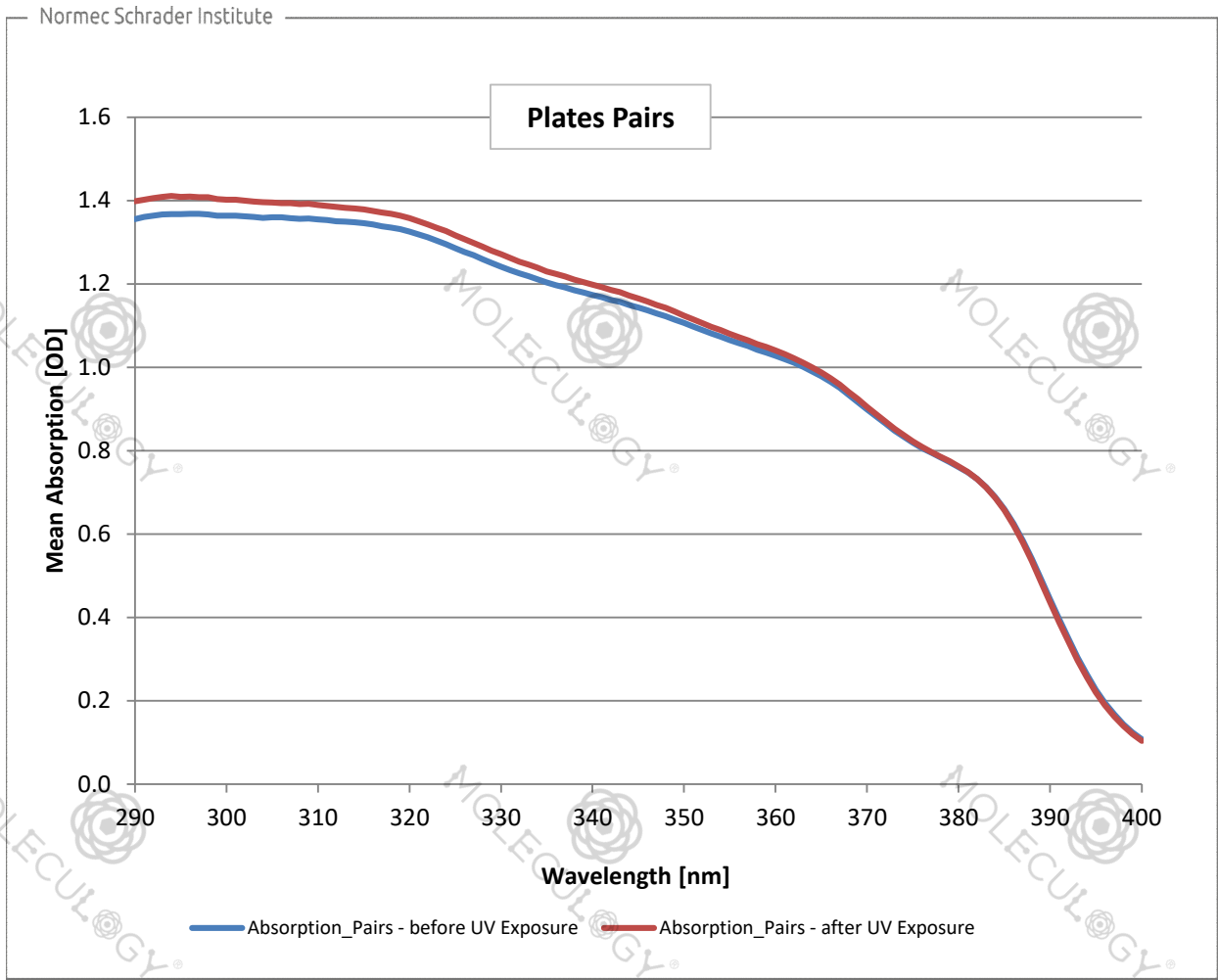
Absorption Spectra

Normec Schrader Institute

12.05.2026

Sponsor: Brunchtime Global Co., Ltd. / Project-No.: TSH-26-0471a

Product: P5 Reference Standard Rez.-Nr. 441/272/001 04-02-2026



In Vitro Determination of Sun Protection Factor (SPF)
ISO 23675:2024

Normec Schrader Institute
12.05.2026

Absorption - Plate Pairs

Sponsor: Brunchtime Global Co., Ltd. / Project-No.: TSH-26-0471a

Wavelength [nm]	Absorption [OD] - before UV Exposure					Absorption [OD] - after UV Exposure				
	Pair 1st & 1st	Pair 2nd & 2nd	Pair 3rd & 3rd	Pair 4th & 4th	Mean Value	Pair 1st & 1st	Pair 2nd & 2nd	Pair 3rd & 3rd	Pair 4th & 4th	Mean Value
290	1.35E+00	1.38E+00	1.35E+00	1.34E+00	1.36E+00	1.41E+00	1.42E+00	1.39E+00	1.38E+00	1.40E+00
291	1.35E+00	1.39E+00	1.35E+00	1.35E+00	1.36E+00	1.39E+00	1.42E+00	1.39E+00	1.38E+00	1.40E+00
292	1.36E+00	1.39E+00	1.36E+00	1.35E+00	1.36E+00	1.42E+00	1.43E+00	1.40E+00	1.38E+00	1.41E+00
293	1.36E+00	1.39E+00	1.36E+00	1.35E+00	1.37E+00	1.42E+00	1.43E+00	1.40E+00	1.39E+00	1.41E+00
294	1.36E+00	1.39E+00	1.36E+00	1.35E+00	1.37E+00	1.43E+00	1.43E+00	1.40E+00	1.39E+00	1.41E+00
295	1.36E+00	1.39E+00	1.36E+00	1.35E+00	1.37E+00	1.42E+00	1.43E+00	1.40E+00	1.38E+00	1.41E+00
296	1.36E+00	1.39E+00	1.36E+00	1.36E+00	1.37E+00	1.42E+00	1.43E+00	1.40E+00	1.39E+00	1.41E+00
297	1.36E+00	1.39E+00	1.36E+00	1.36E+00	1.37E+00	1.42E+00	1.43E+00	1.40E+00	1.38E+00	1.41E+00
298	1.36E+00	1.39E+00	1.36E+00	1.35E+00	1.37E+00	1.42E+00	1.43E+00	1.40E+00	1.39E+00	1.41E+00
299	1.35E+00	1.39E+00	1.36E+00	1.35E+00	1.36E+00	1.42E+00	1.42E+00	1.39E+00	1.38E+00	1.40E+00
300	1.36E+00	1.39E+00	1.36E+00	1.35E+00	1.36E+00	1.41E+00	1.42E+00	1.39E+00	1.38E+00	1.40E+00
301	1.35E+00	1.39E+00	1.36E+00	1.35E+00	1.36E+00	1.41E+00	1.42E+00	1.39E+00	1.38E+00	1.40E+00
302	1.35E+00	1.39E+00	1.36E+00	1.35E+00	1.36E+00	1.41E+00	1.42E+00	1.39E+00	1.38E+00	1.40E+00
303	1.35E+00	1.39E+00	1.35E+00	1.35E+00	1.36E+00	1.41E+00	1.42E+00	1.39E+00	1.37E+00	1.40E+00
304	1.35E+00	1.39E+00	1.35E+00	1.34E+00	1.36E+00	1.41E+00	1.42E+00	1.39E+00	1.37E+00	1.40E+00
305	1.35E+00	1.39E+00	1.35E+00	1.35E+00	1.36E+00	1.41E+00	1.42E+00	1.39E+00	1.37E+00	1.40E+00
306	1.35E+00	1.39E+00	1.35E+00	1.35E+00	1.36E+00	1.41E+00	1.42E+00	1.38E+00	1.37E+00	1.39E+00
307	1.35E+00	1.39E+00	1.35E+00	1.35E+00	1.36E+00	1.40E+00	1.42E+00	1.38E+00	1.37E+00	1.39E+00
308	1.35E+00	1.38E+00	1.35E+00	1.34E+00	1.36E+00	1.40E+00	1.41E+00	1.38E+00	1.37E+00	1.39E+00
309	1.35E+00	1.38E+00	1.35E+00	1.34E+00	1.36E+00	1.40E+00	1.41E+00	1.38E+00	1.37E+00	1.39E+00
310	1.35E+00	1.38E+00	1.35E+00	1.34E+00	1.35E+00	1.40E+00	1.41E+00	1.38E+00	1.37E+00	1.39E+00
311	1.34E+00	1.38E+00	1.35E+00	1.34E+00	1.35E+00	1.40E+00	1.41E+00	1.38E+00	1.36E+00	1.39E+00
312	1.34E+00	1.38E+00	1.34E+00	1.34E+00	1.35E+00	1.40E+00	1.41E+00	1.37E+00	1.36E+00	1.38E+00
313	1.34E+00	1.38E+00	1.34E+00	1.34E+00	1.35E+00	1.39E+00	1.40E+00	1.37E+00	1.36E+00	1.38E+00
314	1.34E+00	1.38E+00	1.34E+00	1.33E+00	1.35E+00	1.39E+00	1.40E+00	1.37E+00	1.36E+00	1.38E+00
315	1.34E+00	1.37E+00	1.34E+00	1.33E+00	1.35E+00	1.39E+00	1.40E+00	1.37E+00	1.36E+00	1.38E+00
316	1.33E+00	1.37E+00	1.34E+00	1.33E+00	1.34E+00	1.39E+00	1.40E+00	1.37E+00	1.35E+00	1.37E+00
317	1.33E+00	1.37E+00	1.33E+00	1.32E+00	1.34E+00	1.38E+00	1.39E+00	1.36E+00	1.35E+00	1.37E+00
318	1.33E+00	1.36E+00	1.33E+00	1.32E+00	1.34E+00	1.38E+00	1.39E+00	1.36E+00	1.35E+00	1.37E+00
319	1.32E+00	1.36E+00	1.33E+00	1.32E+00	1.33E+00	1.37E+00	1.39E+00	1.35E+00	1.34E+00	1.36E+00
320	1.32E+00	1.35E+00	1.32E+00	1.31E+00	1.33E+00	1.37E+00	1.38E+00	1.35E+00	1.34E+00	1.36E+00
321	1.31E+00	1.35E+00	1.31E+00	1.30E+00	1.32E+00	1.36E+00	1.37E+00	1.34E+00	1.33E+00	1.35E+00
322	1.30E+00	1.34E+00	1.31E+00	1.30E+00	1.31E+00	1.35E+00	1.37E+00	1.33E+00	1.32E+00	1.34E+00
323	1.30E+00	1.33E+00	1.30E+00	1.29E+00	1.30E+00	1.35E+00	1.36E+00	1.33E+00	1.31E+00	1.33E+00
324	1.29E+00	1.32E+00	1.29E+00	1.28E+00	1.30E+00	1.34E+00	1.35E+00	1.32E+00	1.30E+00	1.33E+00
325	1.28E+00	1.31E+00	1.28E+00	1.27E+00	1.29E+00	1.33E+00	1.34E+00	1.31E+00	1.29E+00	1.32E+00
326	1.27E+00	1.30E+00	1.27E+00	1.26E+00	1.28E+00	1.32E+00	1.33E+00	1.30E+00	1.28E+00	1.31E+00
327	1.26E+00	1.30E+00	1.26E+00	1.25E+00	1.27E+00	1.31E+00	1.32E+00	1.29E+00	1.27E+00	1.30E+00
328	1.25E+00	1.29E+00	1.25E+00	1.25E+00	1.26E+00	1.30E+00	1.31E+00	1.28E+00	1.27E+00	1.29E+00
329	1.24E+00	1.28E+00	1.24E+00	1.24E+00	1.25E+00	1.29E+00	1.30E+00	1.27E+00	1.26E+00	1.28E+00
330	1.23E+00	1.27E+00	1.24E+00	1.23E+00	1.24E+00	1.28E+00	1.29E+00	1.26E+00	1.25E+00	1.27E+00
331	1.23E+00	1.26E+00	1.23E+00	1.22E+00	1.23E+00	1.27E+00	1.28E+00	1.25E+00	1.24E+00	1.26E+00
332	1.22E+00	1.25E+00	1.22E+00	1.21E+00	1.23E+00	1.27E+00	1.27E+00	1.24E+00	1.23E+00	1.25E+00
333	1.21E+00	1.25E+00	1.21E+00	1.20E+00	1.22E+00	1.26E+00	1.27E+00	1.24E+00	1.22E+00	1.25E+00
334	1.20E+00	1.24E+00	1.21E+00	1.20E+00	1.21E+00	1.25E+00	1.26E+00	1.23E+00	1.21E+00	1.24E+00
335	1.20E+00	1.23E+00	1.20E+00	1.19E+00	1.20E+00	1.24E+00	1.25E+00	1.22E+00	1.21E+00	1.23E+00
336	1.19E+00	1.22E+00	1.19E+00	1.18E+00	1.20E+00	1.24E+00	1.25E+00	1.21E+00	1.20E+00	1.22E+00
337	1.19E+00	1.22E+00	1.19E+00	1.18E+00	1.19E+00	1.23E+00	1.24E+00	1.21E+00	1.19E+00	1.22E+00
338	1.18E+00	1.21E+00	1.18E+00	1.17E+00	1.18E+00	1.22E+00	1.23E+00	1.20E+00	1.19E+00	1.21E+00
339	1.17E+00	1.21E+00	1.17E+00	1.16E+00	1.18E+00	1.22E+00	1.23E+00	1.19E+00	1.18E+00	1.20E+00
340	1.17E+00	1.20E+00	1.17E+00	1.16E+00	1.17E+00	1.21E+00	1.22E+00	1.19E+00	1.17E+00	1.20E+00
341	1.16E+00	1.20E+00	1.16E+00	1.15E+00	1.17E+00	1.20E+00	1.21E+00	1.18E+00	1.17E+00	1.19E+00
342	1.16E+00	1.19E+00	1.15E+00	1.15E+00	1.16E+00	1.20E+00	1.21E+00	1.18E+00	1.16E+00	1.19E+00
343	1.15E+00	1.18E+00	1.15E+00	1.14E+00	1.16E+00	1.19E+00	1.20E+00	1.17E+00	1.16E+00	1.18E+00
344	1.14E+00	1.18E+00	1.14E+00	1.13E+00	1.15E+00	1.18E+00	1.20E+00	1.16E+00	1.15E+00	1.17E+00
345	1.14E+00	1.17E+00	1.14E+00	1.13E+00	1.14E+00	1.18E+00	1.19E+00	1.16E+00	1.14E+00	1.17E+00
346	1.13E+00	1.16E+00	1.13E+00	1.12E+00	1.14E+00	1.17E+00	1.18E+00	1.15E+00	1.13E+00	1.16E+00
347	1.12E+00	1.16E+00	1.12E+00	1.11E+00	1.13E+00	1.16E+00	1.17E+00	1.14E+00	1.13E+00	1.15E+00
348	1.12E+00	1.15E+00	1.12E+00	1.11E+00	1.12E+00	1.15E+00	1.16E+00	1.13E+00	1.12E+00	1.14E+00
349	1.11E+00	1.14E+00	1.11E+00	1.10E+00	1.11E+00	1.14E+00	1.16E+00	1.12E+00	1.11E+00	1.13E+00
350	1.10E+00	1.13E+00	1.10E+00	1.09E+00	1.11E+00	1.13E+00	1.15E+00	1.11E+00	1.10E+00	1.12E+00
351	1.09E+00	1.12E+00	1.09E+00	1.08E+00	1.10E+00	1.13E+00	1.14E+00	1.11E+00	1.09E+00	1.11E+00
352	1.08E+00	1.12E+00	1.08E+00	1.07E+00	1.09E+00	1.12E+00	1.13E+00	1.10E+00	1.08E+00	1.11E+00
353	1.08E+00	1.11E+00	1.07E+00	1.07E+00	1.08E+00	1.11E+00	1.12E+00	1.09E+00	1.07E+00	1.10E+00
354	1.07E+00	1.10E+00	1.07E+00	1.06E+00	1.07E+00	1.10E+00	1.11E+00	1.08E+00	1.07E+00	1.09E+00
355	1.06E+00	1.09E+00	1.06E+00	1.05E+00	1.07E+00	1.09E+00	1.10E+00	1.07E+00	1.06E+00	1.08E+00
356	1.05E+00	1.08E+00	1.05E+00	1.04E+00	1.06E+00	1.08E+00	1.09E+00	1.06E+00	1.05E+00	1.07E+00
357	1.05E+00	1.08E+00	1.04E+00	1.04E+00	1.05E+00	1.07E+00	1.09E+00	1.06E+00	1.04E+00	1.06E+00
358	1.04E+00	1.07E+00	1.04E+00	1.03E+00	1.04E+00	1.06E+00	1.08E+00	1.05E+00	1.03E+00	1.06E+00
359	1.03E+00	1.06E+00	1.03E+00	1.02E+00	1.03E+00	1.06E+00	1.07E+00	1.04E+00	1.03E+00	1.05E+00
360	1.02E									

In Vitro Determination of Sun Protection Factor (SPF)
ISO 23675:2024

Summary and Statistics

Normec Schrader Institute
12.05.2026

Sponsor: Brunchtime Global Co., Ltd. / Project-No.: TSH-26-0471a

P2 Reference Standard Rez.-Nr. 441/205/005 11-12-2025					
Measurement from 10.04.2026					
Moulded Plates			Sandblasted Plates		
C	0.225		C	0.800	
Technician T3	Product Quantity * [mg/cm²]	Temperature of Plate [°C]		Product Quantity * [mg/cm²]	Temperature of Plate [°C]
Plate 1	0.25	29	Plate 1	0.29	29
Plate 2	0.26	29	Plate 2	0.28	28
Plate 3	0.24	29	Plate 3	0.25	29
Plate 4	0.26	29	Plate 4	0.29	28
Number	4	4	Number	4	4
Mean	0.25	28.9	Mean	28.93	28.8
Standard Deviation	0.01	0.32	Standard Deviation	0.320	0.54
Plate Pairs	SPF _{in vitro} Before UV-Exposure	Irradiation Dose [MED]	UV Irradiance [MED/hr]	SPF _{in vitro}	
Pair 1 st & 1 st	8.8	2.2	19.2	14.4	
Pair 2 nd & 2 nd	8.0	2.0	19.1	13.3	
Pair 3 rd & 3 rd	7.6	1.9	17.5	12.6	
Pair 4 th & 4 th	7.6	1.9	17.9	12.6	
Number	4	4	4	4	
Mean	8.0	2.0	18.4	13.2	
Standard Deviation	0.57	0.14	0.87	0.85	
95 % CI				11.8 - 14.6	
CI [%]				10.25	
17 % Interval of mean				11 - 15.4	

* after Equilibration

Plate Transmission Tests

Batch: 1372 Receipt: 18.11.2025		290nm	300nm	320nm
	Limits	> 60 %	> 69 %	> 81%
	Plate [%]	74.6	78.1	82.2
		Pass	Pass	Pass
Batch: 707 Receipt: 18.11.2025		290nm	300nm	320nm
	Limits	> 60 %	> 69 %	> 81%
	Plate [%]	61.5	74.0	81.5
		Pass	Pass	Pass

In Vitro Determination of Sun Protection Factor (SPF)

ISO 23675:2024

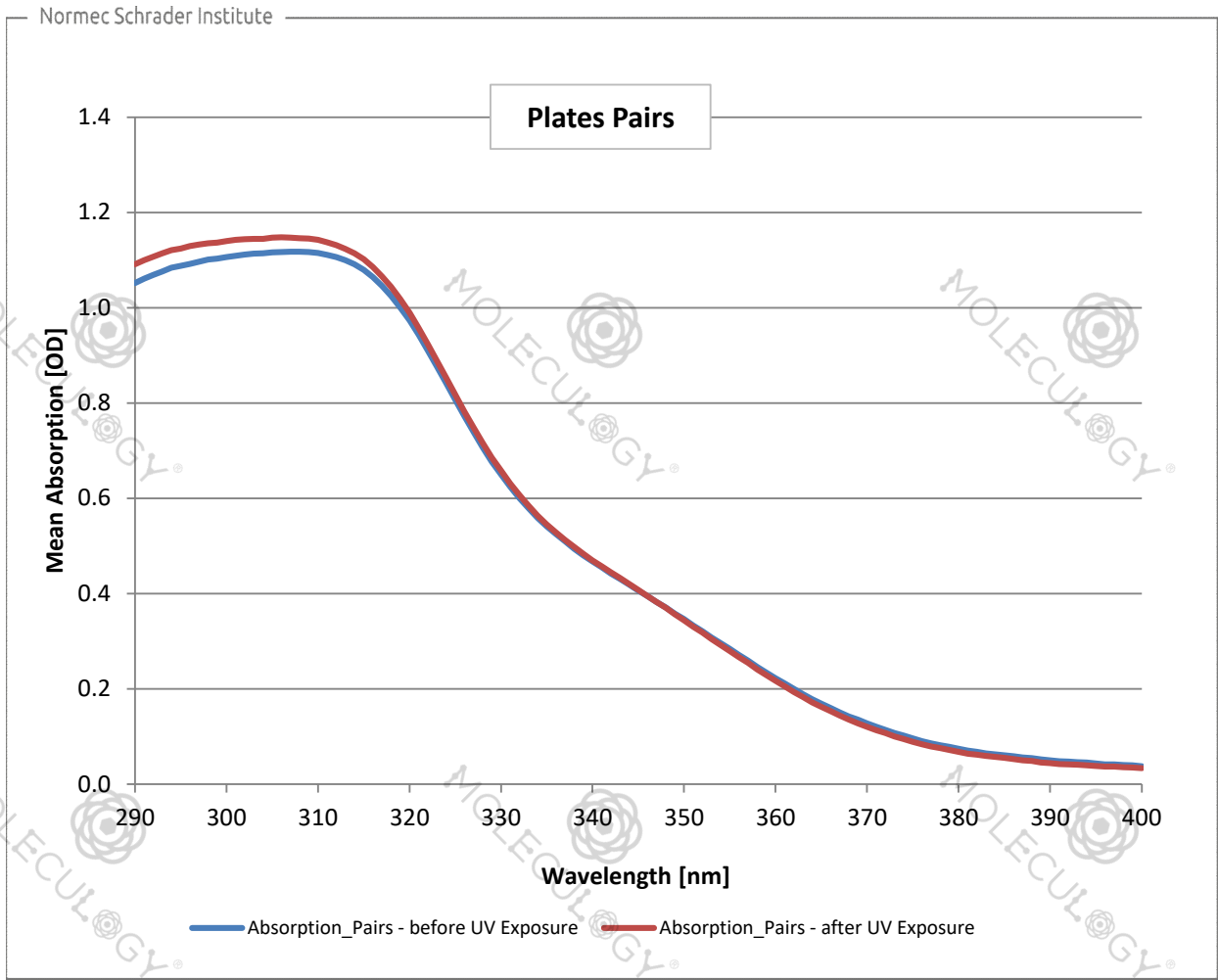
Absorption Spectra

Sponsor: Brunchtime Global Co., Ltd. / Project-No.: TSH-26-0471a

Product: P2 Reference Standard Rez.-Nr. 441/205/005 11-12-2025

Normec Schrader Institute

12.05.2026



In Vitro Determination of Sun Protection Factor (SPF)
ISO 23675:2024

Normec Schrader Institute
12.05.2026

Absorption - Plate Pairs

Sponsor: Brunchtime Global Co., Ltd. / Project-No.: TSH-26-0471a

Wavelength [nm]	P2 Reference Standard Rez.-Nr. 441/205/005 11-12-2025									
	Absorption [OD] - before UV Exposure					Absorption [OD] - after UV Exposure				
	Pair 1st & 1st	Pair 2nd & 2nd	Pair 3rd & 3rd	Pair 4th & 4th	Mean Value	Pair 1st & 1st	Pair 2nd & 2nd	Pair 3rd & 3rd	Pair 4th & 4th	Mean Value
290	1.12E+00	1.05E+00	1.02E+00	1.02E+00	1.05E+00	1.14E+00	1.09E+00	1.06E+00	1.07E+00	1.09E+00
291	1.12E+00	1.06E+00	1.03E+00	1.03E+00	1.06E+00	1.15E+00	1.10E+00	1.07E+00	1.07E+00	1.10E+00
292	1.13E+00	1.06E+00	1.04E+00	1.04E+00	1.07E+00	1.16E+00	1.11E+00	1.08E+00	1.08E+00	1.11E+00
293	1.14E+00	1.07E+00	1.05E+00	1.05E+00	1.08E+00	1.17E+00	1.12E+00	1.09E+00	1.09E+00	1.11E+00
294	1.15E+00	1.08E+00	1.05E+00	1.05E+00	1.08E+00	1.17E+00	1.12E+00	1.09E+00	1.09E+00	1.12E+00
295	1.15E+00	1.09E+00	1.06E+00	1.06E+00	1.09E+00	1.18E+00	1.13E+00	1.10E+00	1.10E+00	1.12E+00
296	1.16E+00	1.09E+00	1.06E+00	1.06E+00	1.09E+00	1.18E+00	1.13E+00	1.10E+00	1.10E+00	1.13E+00
297	1.16E+00	1.09E+00	1.07E+00	1.07E+00	1.10E+00	1.19E+00	1.14E+00	1.10E+00	1.11E+00	1.13E+00
298	1.17E+00	1.10E+00	1.07E+00	1.07E+00	1.10E+00	1.19E+00	1.14E+00	1.11E+00	1.11E+00	1.14E+00
299	1.17E+00	1.10E+00	1.07E+00	1.07E+00	1.10E+00	1.19E+00	1.14E+00	1.11E+00	1.11E+00	1.14E+00
300	1.17E+00	1.10E+00	1.08E+00	1.08E+00	1.11E+00	1.19E+00	1.14E+00	1.11E+00	1.11E+00	1.14E+00
301	1.17E+00	1.10E+00	1.08E+00	1.08E+00	1.11E+00	1.20E+00	1.15E+00	1.11E+00	1.12E+00	1.14E+00
302	1.18E+00	1.11E+00	1.08E+00	1.08E+00	1.11E+00	1.20E+00	1.15E+00	1.11E+00	1.12E+00	1.14E+00
303	1.18E+00	1.11E+00	1.08E+00	1.08E+00	1.11E+00	1.20E+00	1.15E+00	1.11E+00	1.12E+00	1.14E+00
304	1.18E+00	1.11E+00	1.08E+00	1.08E+00	1.11E+00	1.20E+00	1.15E+00	1.11E+00	1.12E+00	1.14E+00
305	1.18E+00	1.11E+00	1.08E+00	1.09E+00	1.12E+00	1.20E+00	1.15E+00	1.12E+00	1.12E+00	1.15E+00
306	1.18E+00	1.11E+00	1.09E+00	1.09E+00	1.12E+00	1.20E+00	1.15E+00	1.12E+00	1.12E+00	1.15E+00
307	1.18E+00	1.11E+00	1.09E+00	1.09E+00	1.12E+00	1.20E+00	1.15E+00	1.12E+00	1.12E+00	1.15E+00
308	1.18E+00	1.11E+00	1.09E+00	1.09E+00	1.12E+00	1.20E+00	1.15E+00	1.12E+00	1.12E+00	1.15E+00
309	1.18E+00	1.11E+00	1.09E+00	1.09E+00	1.12E+00	1.20E+00	1.15E+00	1.12E+00	1.12E+00	1.15E+00
310	1.18E+00	1.11E+00	1.08E+00	1.08E+00	1.12E+00	1.20E+00	1.15E+00	1.11E+00	1.11E+00	1.14E+00
311	1.18E+00	1.11E+00	1.08E+00	1.08E+00	1.11E+00	1.19E+00	1.14E+00	1.11E+00	1.11E+00	1.14E+00
312	1.17E+00	1.10E+00	1.08E+00	1.08E+00	1.11E+00	1.19E+00	1.13E+00	1.10E+00	1.10E+00	1.13E+00
313	1.17E+00	1.10E+00	1.07E+00	1.07E+00	1.10E+00	1.18E+00	1.13E+00	1.09E+00	1.09E+00	1.12E+00
314	1.16E+00	1.09E+00	1.06E+00	1.06E+00	1.09E+00	1.17E+00	1.12E+00	1.09E+00	1.09E+00	1.11E+00
315	1.14E+00	1.08E+00	1.05E+00	1.05E+00	1.08E+00	1.16E+00	1.10E+00	1.07E+00	1.07E+00	1.10E+00
316	1.13E+00	1.06E+00	1.03E+00	1.03E+00	1.06E+00	1.14E+00	1.09E+00	1.06E+00	1.06E+00	1.09E+00
317	1.11E+00	1.04E+00	1.02E+00	1.02E+00	1.05E+00	1.12E+00	1.07E+00	1.04E+00	1.04E+00	1.07E+00
318	1.09E+00	1.02E+00	9.96E-01	9.95E-01	1.03E+00	1.10E+00	1.05E+00	1.02E+00	1.02E+00	1.04E+00
319	1.06E+00	9.99E-01	9.73E-01	9.71E-01	1.00E+00	1.07E+00	1.02E+00	9.90E-01	9.91E-01	1.02E+00
320	1.03E+00	9.73E-01	9.46E-01	9.44E-01	9.73E-01	1.04E+00	9.94E-01	9.62E-01	9.62E-01	9.89E-01
321	9.99E-01	9.43E-01	9.17E-01	9.14E-01	9.43E-01	1.01E+00	9.61E-01	9.30E-01	9.29E-01	9.57E-01
322	9.64E-01	9.11E-01	8.85E-01	8.82E-01	9.11E-01	9.72E-01	9.28E-01	8.97E-01	8.96E-01	9.23E-01
323	9.27E-01	8.78E-01	8.52E-01	8.49E-01	8.77E-01	9.34E-01	8.94E-01	8.63E-01	8.62E-01	8.88E-01
324	8.91E-01	8.46E-01	8.18E-01	8.16E-01	8.43E-01	8.98E-01	8.59E-01	8.29E-01	8.28E-01	8.54E-01
325	8.52E-01	8.10E-01	7.83E-01	7.79E-01	8.06E-01	8.60E-01	8.22E-01	7.93E-01	7.92E-01	8.17E-01
326	8.18E-01	7.75E-01	7.50E-01	7.45E-01	7.72E-01	8.23E-01	7.88E-01	7.59E-01	7.57E-01	7.82E-01
327	7.82E-01	7.44E-01	7.19E-01	7.13E-01	7.40E-01	7.88E-01	7.54E-01	7.27E-01	7.25E-01	7.49E-01
328	7.47E-01	7.13E-01	6.87E-01	6.82E-01	7.07E-01	7.54E-01	7.22E-01	6.95E-01	6.93E-01	7.16E-01
329	7.14E-01	6.83E-01	6.57E-01	6.54E-01	6.77E-01	7.21E-01	6.92E-01	6.66E-01	6.63E-01	6.85E-01
330	6.85E-01	6.56E-01	6.33E-01	6.27E-01	6.50E-01	6.91E-01	6.64E-01	6.38E-01	6.37E-01	6.58E-01
331	6.58E-01	6.30E-01	6.07E-01	6.01E-01	6.24E-01	6.63E-01	6.37E-01	6.12E-01	6.11E-01	6.31E-01
332	6.32E-01	6.07E-01	5.85E-01	5.78E-01	6.00E-01	6.37E-01	6.13E-01	5.89E-01	5.87E-01	6.07E-01
333	6.09E-01	5.87E-01	5.63E-01	5.59E-01	5.80E-01	6.14E-01	5.91E-01	5.68E-01	5.66E-01	5.85E-01
334	5.86E-01	5.67E-01	5.43E-01	5.39E-01	5.59E-01	5.93E-01	5.70E-01	5.48E-01	5.45E-01	5.64E-01
335	5.68E-01	5.48E-01	5.26E-01	5.23E-01	5.41E-01	5.72E-01	5.52E-01	5.29E-01	5.28E-01	5.45E-01
336	5.51E-01	5.31E-01	5.11E-01	5.06E-01	5.25E-01	5.53E-01	5.34E-01	5.13E-01	5.13E-01	5.28E-01
337	5.34E-01	5.16E-01	4.96E-01	4.91E-01	5.09E-01	5.36E-01	5.19E-01	4.98E-01	4.97E-01	5.13E-01
338	5.16E-01	5.01E-01	4.82E-01	4.77E-01	4.94E-01	5.21E-01	5.03E-01	4.85E-01	4.82E-01	4.98E-01
339	5.02E-01	4.88E-01	4.68E-01	4.64E-01	4.80E-01	5.06E-01	4.89E-01	4.70E-01	4.68E-01	4.83E-01
340	4.88E-01	4.75E-01	4.55E-01	4.51E-01	4.67E-01	4.91E-01	4.76E-01	4.56E-01	4.55E-01	4.70E-01
341	4.75E-01	4.62E-01	4.44E-01	4.39E-01	4.55E-01	4.78E-01	4.63E-01	4.44E-01	4.44E-01	4.57E-01
342	4.61E-01	4.50E-01	4.31E-01	4.27E-01	4.42E-01	4.65E-01	4.50E-01	4.33E-01	4.31E-01	4.45E-01
343	4.49E-01	4.38E-01	4.20E-01	4.16E-01	4.31E-01	4.52E-01	4.38E-01	4.21E-01	4.19E-01	4.33E-01
344	4.37E-01	4.26E-01	4.09E-01	4.04E-01	4.19E-01	4.48E-01	4.26E-01	4.09E-01	4.07E-01	4.20E-01
345	4.24E-01	4.13E-01	3.98E-01	3.93E-01	4.07E-01	4.26E-01	4.13E-01	3.96E-01	3.95E-01	4.07E-01
346	4.10E-01	4.01E-01	3.86E-01	3.82E-01	3.95E-01	4.12E-01	4.00E-01	3.84E-01	3.82E-01	3.95E-01
347	3.97E-01	3.89E-01	3.74E-01	3.70E-01	3.82E-01	3.99E-01	3.87E-01	3.72E-01	3.71E-01	3.82E-01
348	3.84E-01	3.78E-01	3.62E-01	3.58E-01	3.71E-01	3.86E-01	3.76E-01	3.61E-01	3.59E-01	3.70E-01
349	3.70E-01	3.65E-01	3.50E-01	3.45E-01	3.58E-01	3.71E-01	3.62E-01	3.48E-01	3.45E-01	3.56E-01
350	3.58E-01	3.54E-01	3.38E-01	3.35E-01	3.46E-01	3.58E-01	3.49E-01	3.35E-01	3.33E-01	3.44E-01
351	3.44E-01	3.40E-01	3.25E-01	3.23E-01	3.33E-01	3.43E-01	3.36E-01	3.21E-01	3.20E-01	3.30E-01
352	3.31E-01	3.28E-01	3.14E-01	3.11E-01	3.21E-01	3.30E-01	3.23E-01	3.11E-01	3.09E-01	3.18E-01
353	3.17E-01	3.14E-01	3.02E-01	2.97E-01	3.08E-01	3.16E-01	3.09E-01	2.98E-01	2.96E-01	3.05E-01
354	3.05E-01	3.03E-01	2.90E-01	2.87E-01	2.96E-01	3.03E-01	2.97E-01	2.86E-01	2.84E-01	2.92E-01
355	2.92E-01	2.91E-01	2.78E-01	2.75E-01	2.84E-01	2.89E-01	2.85E-01	2.73E-01	2	

ANNEX 2

Protocol

In vitro Determination of Sun Protection Factor (SPF)

ISO 23675:2024

1 In vitro Determination of Sun Protection Factor (Double Plate Method)

This protocol describes the *in vitro* determination of sun protection factor (SPF) of sunscreen products in the form of an emulsion or alcoholic one-phase formulation according to ISO 23675¹. The test is based on the assessment of UV-transmittance through thin films of a sunscreen sample, spread on two different types of PMMA plates, namely moulded and sandblasted. Absorption spectra of both plate types are measured before and after a controlled UV exposure. The results are combined into an absorption spectrum of plate pairs, from which the *in vitro* SPF is calculated (double plate method).

2 Transmission Measurements

For the investigation, a Bentham spectrometer system (SSUV300) is used. It allows measurements up to an optical density of 6 units. The detection unit for the transmitted light consists of an integrating sphere and a double monochromator with an additional photomultiplier. The arrangement allows to minimize the influence of scattered light and has a favourable effect on the results. The wavelength-selective excitation of the test product is achieved by a xenon arc lamp with a continuous spectrum in the UV range. In order to ensure a high reproducibility of the measurements, the wavelength accuracy is checked monthly using a holmium oxide filter.

Transmission measurements are carried out in the range from 290 nm to 400 nm. The incremental wavelength step is 1 nm. A glycerine-coated plate, not containing any light-absorbing or scattering compounds, is used as a reference. Transmission values of the treated sample and the reference serve as calculation bases for the absorption of the test product.

Each sample is placed directly at the integration sphere entrance and is measured at 5 incidentally selected points. At least three moulded and three sandblasted PMMA plates are prepared per test product. Thus, at least 30 spectra are measured before and after UV irradiation for every test product.

3 Product Application

Moulded and sandblasted PMMA plates, named HD6 and SB6 from WENEOS (ex HelioScreen / France), are used as substrates. Before study conduction, all plates are stored in the dark at 27 °C (± 2 °C) for at least 12 h.

For reference, blank plates are prepared for both, moulded and sandblasted plates by spotting a few microliters (using a micro-pipette) of glycerine and spreading it evenly across the surface of the plates.

Liquid and semi-liquid test products are shaken well directly before use. Aerosol samples are degassed 24 h before application.

The defined amount of test product, i.e., 1.3 mg/cm² (± 1.6 %) for moulded PMMA plates and 1.2 mg/cm² (± 1.5 %) for sandblasted PMMA plates, is applied in a well-defined way¹ on the plate surface and is spread by using the WENEOS Spreadmaster. After product application, the plates are equilibrated at 27 °C (± 2 °C) in the dark for at least 30 min (but ≤ 60 min) before the measurement. The applied amount of test product is determined by an analytical balance. The product amount after equilibration time is given in Annex 1 of the report for each plate. The plate types used with the amount of application as well as the reference are given on page 3 of the report.

4 Evaluation

4.1 Determination of Initial Absorbance

The initial absorbance values of each plate type, i.e., moulded and sandblasted PMMA plate, are paired by combining the 1st moulded plate with the 1st sandblasted plate, the 2nd moulded plate with the 2nd sandblasted plate, and 3rd moulded plate with the 3rd sandblasted plate. This order remains the same for the whole protocol. If the absorbance of the measurement at any plate location and wavelength exceeds values above 2.2, the absorbance is capped at 2.2. Thus, the combined initial absorbance data $A_{initial,i}$ for each pair is calculated as follows:

$$A_{initial,i}(\lambda) = c_{moulded} * \min\{2.2; A_{moulded,i}^{pre-irradiation}(\lambda)\} + c_{sandblasted} * \min\{2.2; A_{sandblasted,i}^{pre-irradiation}(\lambda)\}$$

where

$A_{moulded,i}^{pre-irradiation}(\lambda)$	is the absorbance of sunscreen on the moulded plate before UV exposure;
$c_{moulded}$	is 0.225 for emulsion and 0.000 for alcoholic one-phase formulation;
$A_{sandblasted,i}^{pre-irradiation}(\lambda)$	is the absorbance of sunscreen on the sandblasted plate before UV exposure;
$c_{sandblasted}$	is 0.800 for emulsion and 0.800 for alcoholic one-phase formulation.

4.2 Determination of Pre-Irradiation *in vitro* SPF_i

The pre-irradiation *in vitro* SPF_i is determined for each pair of plates from $A_{initial,i}$ by the following equation:

$$SPF_{in\ vitro, pre-irradiation,i} = \frac{\int_{290nm}^{400nm} E(\lambda) I_{sol}(\lambda) d\lambda}{\int_{290nm}^{400nm} E(\lambda) I_{sol}(\lambda) 10^{-A_{initial,i}(\lambda)} d\lambda}$$

where

$E(\lambda)$	is the CIE erythral action spectrum;
$I_{sol}(\lambda)$	is the reference solar spectrum;
$A_{initial,i}(\lambda)$	is the mean monochromatic absorbance of the test product layer before UV exposure;
$d\lambda$	is the wavelength step (1 nm).

¹ INTERNATIONAL STANDARD ISO 23675, Cosmetics – Sun protection test methods – In vitro determination of sun protection factor (SPF), ISO 23675 First edition 2024-12

In vitro Determination of Sun Protection Factor (SPF)

ISO 23675:2024

4.3 Determination of Irradiation Dose

A Newport SOL-UV-6 is used as the source for the sun spectrum. The external certificate of spectral conformity with the guideline is available on request. The sunscreen sample is exposed to an irradiation dose Dx individually calculated for each pre-irradiation in vitro SPF_i plate pair, expressed in J m⁻² eff.:

$$Dx = 0.25 \times SPF_{in\ vitro, pre-irradiation, i} \times 210$$

A temperature of 27°C (± 2°C) during the irradiation is ensured. All plates are placed on a black background to reduce the risk of back exposure.

4.4 Determination of Post-Irradiation Absorbance

After UV exposure of all plate pairs, the post-irradiation absorbance $A_{final, i}$ of each pair is calculated in the same predefined order. If the absorbance of the measurement at any plate location and wavelength exceeds values above 2.2, the absorbance is capped at 2.2. Thus, the combined initial absorbance data $A_{final, i}$ for each pair is calculated as follows:

$$A_{final, i}(\lambda) = c_{moulded} * \min\{2.2; A_{moulded, i}^{post-irradiation}(\lambda)\} + c_{sandblasted} * \min\{2.2; A_{sandblasted, i}^{post-irradiation}(\lambda)\}$$

where

$A_{moulded, i}^{post-irradiation}(\lambda)$ is the absorbance of sunscreen on the moulded plate after UV exposure;
 $c_{moulded}$ is 0.225 for emulsion and 0.000 for alcoholic one-phase formulation;
 $A_{sandblasted, i}^{post-irradiation}(\lambda)$ is the absorbance of sunscreen on the sandblasted plate after UV exposure;
 $c_{sandblasted}$ is 0.800 for emulsion and 0.800 for alcoholic one-phase formulation.

4.5 Determination of Post-Irradiation in vitro SPF_i

The post-irradiation in vitro SPF_i is determined for each pair of plates from $A_{final, i}$ by the following equation:

$$SPF_{in\ vitro, post-irradiation, i} = \frac{\int_{290nm}^{400nm} E(\lambda) I_{sol}(\lambda) d\lambda}{\int_{290nm}^{400nm} E(\lambda) I_{sol}(\lambda) 10^{-A_{final, i}(\lambda)} d\lambda}$$

where

$E(\lambda)$ is the CIE erythral action spectrum;
 $I_{sol}(\lambda)$ is the reference solar spectrum;
 $A_{final, i}(\lambda)$ is the mean monochromatic absorbance of the test product layer after UV exposure;
 $d\lambda$ is the wavelength step (1 nm).

4.6 Determination of Final in vitro SPF_i of each Plate Pair

The final in vitro SPF_i of each plate pair is determined by the following equations:

$$\text{If } SPF_{in\ vitro, post-irradiation, i} \geq 3.5: SPF_{in\ vitro, post-irradiation, final, i} = \frac{\sqrt{SPF_{in\ vitro, post-irradiation, i} - 1.457}}{0.107}$$

or

$$\text{if } SPF_{in\ vitro, post-irradiation, i} < 3.5: SPF_{in\ vitro, post-irradiation, final, i} = SPF_{in\ vitro, post-irradiation, i}$$

4.7 Determination of Final in vitro SPF

The final in vitro SPF is defined as the arithmetical mean of the individual plate pairs calculated by the following equation:

$$SPF_{in\ vitro, final} = \frac{\sum SPF_{in\ vitro, final, i}}{n}$$

where

n is the total number of measured plate pairs.

The validation of the final in vitro SPF is confirmed if the 95 % confidence interval of the calculated final in vitro SPF value is lower than 17 % of the mean.