【Technical Data】	YAMAGUCHI MICA CO., LTD.				
Title	Effect of UV-Shielding Mica UP Series in Formulation System ② –Loose Powder, W/O Cream Foundation–				
Category	Cosmetics	By	H. Asano	Date	July.18.2025

(Summary) Following the previous report, the SPF and PFA values of formulations (loose powder and W/O cream foundation) containing the new mica brand "UV-shielding mica UP series" were measured using an SPF analyzer. As a result, each value obtained suggested the UV shielding effect of the UP series as well as the results of the powder foundation.

(Key Words) Mica, UV Shielding, SPF Analyzer

(Introduction)

In a previous report, the UV protection function of the UP series of powder foundations was evaluated using an SPF analyzer. In this report, we investigated loose powder and W/O cream foundations to see if other formulations also had the same enhanced UV protection effect.

(Implemented Activities)

1. Preparations of loose powder and W/O cream foundation

Loose powder formulation

No.	Component	amount（weight%）	
		Formula	Comparison
1	UP-20WA3（UP-20 Treated with Amodimethicone）	23.02	
2	Y-2300		23.02
3	ADMOLITE IM-25Red（Mica coated with Iron dioxide(CI77491)）	0.30	0.30
4	PSG-05WA5（Spherical Silica Treated with Amodimethicone）	13.42	13.42
5	Y-1800		9.41
6	UP-10WA3（UP-10 Treated with Amodimethicone）	9.41	
7	Fine Titanium Dioxide Treated with Dimethicone, Stearic Acid and Aluminum Hydroxide	10.01	10.01
8	Fine Zinc oxide Treated with Dimethicone	5.01	5.01
9	Sericite Treaed with Titanium Dioxde	10.01	10.01
10	Methylparaben	0.30	0.30
11	BG	0.10	0.10
12	Ethylhexyl Methoxycinnamate	3.40	3.40
13	Diethylamino Hydroxybenzoyl Hexyl Benzoate	1.00	1.00
14	GFA-50（Large Gloss Mica）	24.02	24.02
Total		100.00	100.00

W/O Cream Foundation

No.	Component	amount（weight%）	
		Formula	Comparison
1	Iron dioxide(CI77491) Treated with Triethoxycaprylylsilane	0.23	0.23
2	Iron dioxide(CI77492) Treated with Triethoxycaprylylsilane	1.14	1.14
3	Iron dioxide(CI77499) Treated with Triethoxycaprylylsilane	0.03	0.03
4	Methyl Trimethicone	1.16	1.16
5	Titanium Dioxide Treated with Triethoxycaprylylsilane and Aluminum Hydroxide	5.24	5.24
6	PHOTOLITE PK-SSC31（Titanium Dioxide and Iron Oxide Treated with Hydrogen Dimethicone (photochromic pigment)）	5.24	5.24
7	Fine Titanium Dioxide Treated with Dimethicone, Stearic Acid and Aluminum Hydroxi	5.24	5.24
8	Triethylhexanoin	4.66	4.66
9	Isononyl Isononan	5.24	5.24
10	UP-10WA3（UP-10 Treated with Amodimethicone）	10.25	
11	Y-1800WA3（Y-1800 Treated with Amodimethicone）		10.25
12	PSG-05WA5H（Spherical Silica Treated with Amodimethicone）	3.49	3.49
13	Methylparaben	0.34	0.34
14	BG	4.56	4.56
15	Xanthan Gum	0.38	0.38
16	Magnesium Sulfate	0.06	0.06
17	Water	23.64	23.64
18	Alcohol	2.33	2.33
19	Ethylhexyl Methoxycinnamate	5.82	5.82
20	Diethylamino Hydroxybenzoyl Hexyl Benzoate	1.16	1.16
21	Diphenylsiloxy Phenyl Trimethicone	4.66	4.66
22	Methyl Trimethicone	4.07	4.07
23	Dimethicone	2.33	2.33
24	Lauryl PEG-9 Polydimethylsiloxyethyl Dimethicone	1.16	1.16
25	Trimethylsiloxysilicate、Dimethicone	1.75	1.75
26	PEG-10 Dimethicone, Dimethicone, Distteardimoonium Hectorite, Lauryl PEG-9 Polydimethylsiloxyethyl Dimethicone, Tocopherol	5.82	5.82
Total		100.00	100.00

2. Preparation of Samples for Measurements of SPF and PFA

Loose Powder:

0.015g of Vaseline was applied evenly to a PMMA plate with a fingertip for 90 to 120 seconds, and then 0.023g of loose powder was applied in the same manner. Then, at least 15 minutes after application, the SPF and PFA were measured using the Labsphere UV-2000S SPF analyzer with at least 4 measurement samples at 5 locations on each plate.

W/O Cream Foundation:

0.023 g of cream foundation was placed on a PMMA plate and spread evenly with a fingertip over a period of 90 to 120 seconds.

(Results)

The loose powder had a lower SPF value than the expected value due to its low adhesion to the PMMA plate, but both formulations containing UP series showed superior UV blocking ability.

	Loose Powder		W/O Cream Foundation	
	Formula	Comparison	Formula	Comparison
SPF	15	12	61	53
PFA	6.80	5.88	11.07	9.74

(Conclusion)

For loose powder and W/O cream foundation, the SPF and PFA values were found to be enhanced by using the UP series.