

REFERENCES

1. Shaath, NA.1986. The chemistry of sunscreens. Cosmet Toilet. 101 : 55 - 70.
2. Peachey, R. 1980 Factors influencing the response of skin to ultraviolet light. Soap. Perfume. Cosmet. 53 (7) : 391.
3. Robertson, DF., Groves, GA. 1972. The selection and use of topical sunscreens. Med. J. Aust. 2 : 1445 - 51.
4. Treffel, P., Gabard, B.1996 Skin penetration and sun protection factor of ultra violet filters from two vehicles. Pharm. Res. 13 (5) : 770 - 4.
5. Lazer, G.M., Baillet, A., Fructus A.E., et al.1996. Evaluation of in vitro percutaneous absorption of UV filters used in sunscreen formulations. DCI, 5 : 50 -60.
6. Murphy, E.G.1990. Regulatory aspects of sunscreens in the United States. In : Shaath, N.A., Lowe, N,J. (eds.) Sunscreens development evaluation and regulatory aspects pp.127 -36. New York : Marcel Dekker.
7. Cumpelik, B.M. 1972. Analytical procedures and evaluation of sunscreens. J. Soc. Cosmet. Chem. 23 ; 333 - 45.
8. Groves, G.A., Agin, P.P., Sayre, R.M.1979. In vitro and in vivo methods to define sunscreen protection. Aust. J. Dermatol. 20 : 112 - 9.
9. Diffey, B.L, Robson, J. A. 1989. New substrate to measure sunscreen protection factors throughout the ultraviolet spectrum. J. Soc. Cosmet. Chem. 40 : 127 - 33.

10. Sayre, R.M, Agin, P.P., Desrochers, D.L., Marlowe, E.1980 Sunscreen testing methods : In vitro predictions of effectiveness. J. Soc. Cosmet. Chem 31 : 133 - 43.
11. Billhimer, W.L., 1987. Human sunscreen evaluation : protection from sunburn. Cosmet. Toilet. 102 : 83-9.
12. Frederick, J.E., Snel, H.E., Haywood, E.K.,1989. Solar ultraviolet radiation at the earth's surface. Photochem. Photo. Biol. 1989 ; 50 (8) : 443 - 50.
13. Krep, S.I., Goldembery R.L.,1972. Suntan preparations. In : Balsam MS, Sagarin, E. (eds.) Cosmetics science and technology. pp.241-305. . New York : Wiley Interscience.
14. Simonsen, L.P.,1993. Sun exposure : The stakes are rising. Pharm. Times. 59 : 25 -31.
15. Summers, B., Summers, R.S.,1988 Sunscreen preparations and their use in the prevention of sun - induced skin damage. S. Afr. Pharm. J 55 : 369 - 76.
16. Bell, W.F.1987 The effect of light on the skin. Br. J. Derm 119 : 479 - 85.
17. Reiger, M.M.1987 Protective effect of sunscreens against skin pathologies. Cosmet. Toilet. 102 : 91 - 6.
18. Harber, L.C. 1981. Photosensitivity disease. In : Bickers, D.R. (eds.) Principles of diagnosis and treatment. Pp. 357-463. Philadelphia : W.B. Saunders.
19. Alexander, P.1984. Suntan preparation. Soap. Perfume. Cosmet. 57 (4) : 205 -7.
20. Kollias, N., Bager, A.H.1988 The role of human melanin in providing photoprotection from solar midultraviolet radiation. J. Soc. Cosmet. Chem. 39 : 347 -54.

21. Anglin, J.H. Urocanic acid and natural sunscreen. Cosmet. Toilet. 91 (3) : 47 - 9.
22. Jass, H.E.,1979. Sunscreen drug products. Cosmet. Toilet. 94 : 96 - 105.
23. Kligman, L.H., Kligman, A.M.1986. The nature of photoaging : its prevention and repair. Photodermatology. 3 : 215 -27.
24. Kligman, L.H., Akin F.J., Kligman, A.M.1982. Prevention of ultraviolet damage to the dermis of hairless mice by sunscreens. J. Invest. Dermatol. 78 (2) : 181 - 9.
25. Kligman, L.H., Akin, F.J., Kligman, A.M.1983. Sunscreens promote repair of ultraviolet radiation induced dermal damage. J. Invest. Dermatol. 81 (2) : 98 -102.
26. Young, A.R.1990. Senescence and sunscreens. Br. J. Dermatol. 122 : 111- 4.
27. Shaath, N.A.1987. Encyclopedia of UV absorbers for sunscreen products. Cosmet. Toilet. 102 : 21-36.
28. Jass, H.E. 1993. Regulatory review. Cosmet. Toilet. 1993 ; 108 : 35 - 7.
29. Klien, K. 1993. Three perspectives on the sunscreen tentative final monograph. Cosmet. Toilet. 108 : 38 - 40.
30. Sayre, R.M, Agin, P.P.1984. Comparison of human sun protection factors to predicted protection factors using different lamp spectra. J. Soc Cosmet. Chem. 35 : 439 - 45.
31. Brown, S., Diffey, B.L.1986. The effect of applied thickness on sunscreen protection : In vivo and in vitro studies. Photochem. Photobiol. 44 : 509 -13.
32. Dept of HEW, FDA.1978. Sunscreen drug products for over the counter human drugs. Rockville (MD) : FDA. Fed Regist 166.

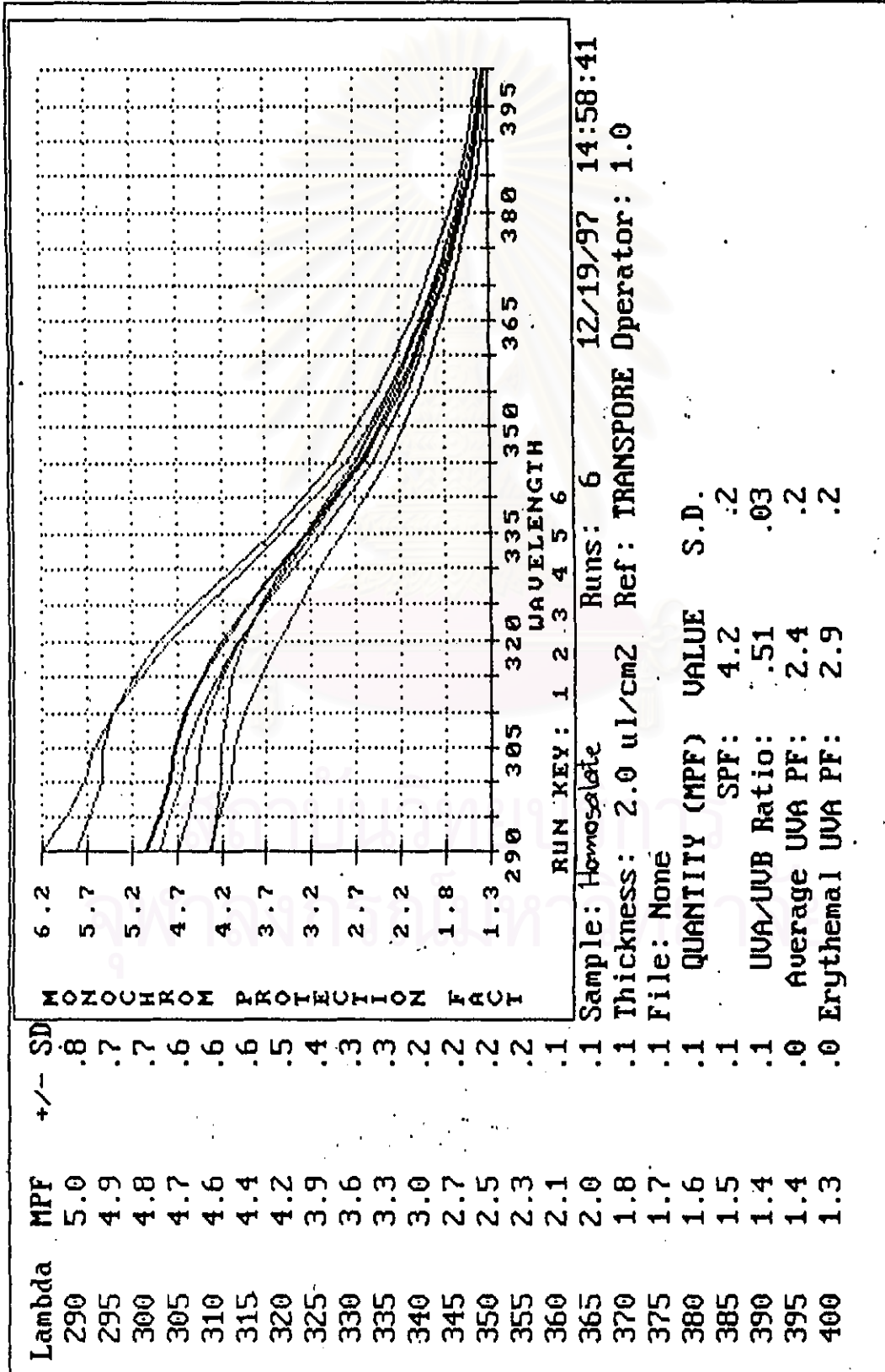
33. Lawson, J.B, Barker, D.J., Ellis. DJ, et al.1980 A theoretical and experimental study of light absorption and scattering by in vivo skin. Phys. Med. Biol. 25(4) : 695 - 709.
34. Edward, C.1995. Methods and instrumentation. In : Berardesca E., Elsner, P., Wilhelm, K.P., Maibach, H.I., (eds.) Bioengineering of the skin. pp. 127-9. London : CRC Press.
- 35.Kaidbey, K.H., Kligman, A.M.,1978 Laboratory methods for appraising the efficacy of sunscreens. J. Soc. Cosmet. Chem. 29 : 525 - 36.
36. Fukuda, M., Akiu, S., Yamazaki, M., Nakjima, K., Ohta, S.1982. New method for evaluating the effectiveness of sunscreen products. J. Soc. Cosmet Chem. 33 : 9 - 18.
37. Cumpelik, B.M.,1980 Sunscreens at skin apprication levels : Direct spectrophotometric evaluation. J. Soc. Cosmet. Chem. 31 : 361 - 6.
38. Sayre, R.M., Agin, P.P., Le Vee G.J., Marlowe, E.1979 A comparison of in vivo and in vitro testing of suncreening formulas. Photochem. Photobiol. 29 : 559 -66.
39. Pines, E. 1978. A new technique to assess sunscreen effectiveness. J. Soc. Cosmet. Chem.1978 ; 29 : 559 -64.
40. Hanpanitcharoen, M.1991. The studies on property and efficacy of sunscreen products in Thais [M.S. Thesis in Pharmaceutical Technology]. Bangkok : Faculty of Graduate Studies, Mahidol university.
41. Pearse, A.D., Edwards, C.1993. Human stratum corneum as a substrate for in vitro sunscreen testing . Int. J. Cosmet. Sci. 15 : 234 - 44.
42. Kelley, K.A., Laskar, P.A, Ewing, G.D., Dromgoole, S.H., Lichtin, J.L., Sakr, A.A.1993. In vitro sun protection factor evaluation of sunscreen products. J. Soc. Cosmet. Chem. 44 : 139 - 51.

43. Sellers, R.L., Carpenter F.G.1992 An instrument for in vitro determinations of SPF. Cosmet. Toilet.107 : 119 - 23.
44. Spruce, S.R., Hewitt, J.P.1995. In vitro SPF methodology and correlation with in vivo data. Tioxide Specialties Ltd., England. 14 - 20.



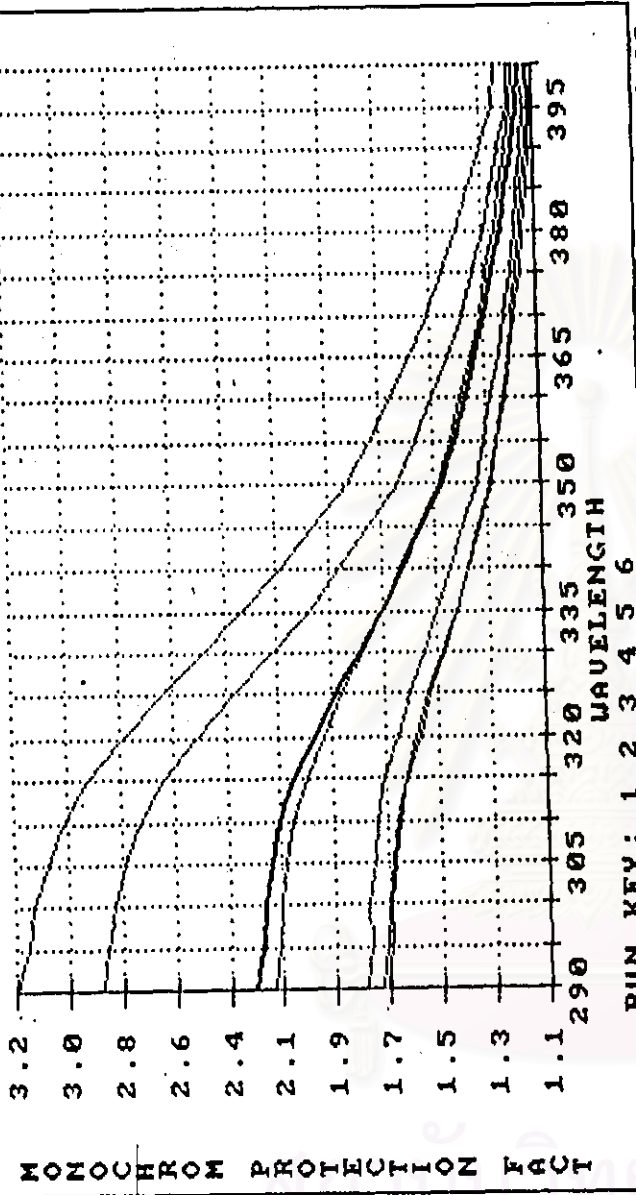
สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

Summary data plots of SPF 290s analyzer



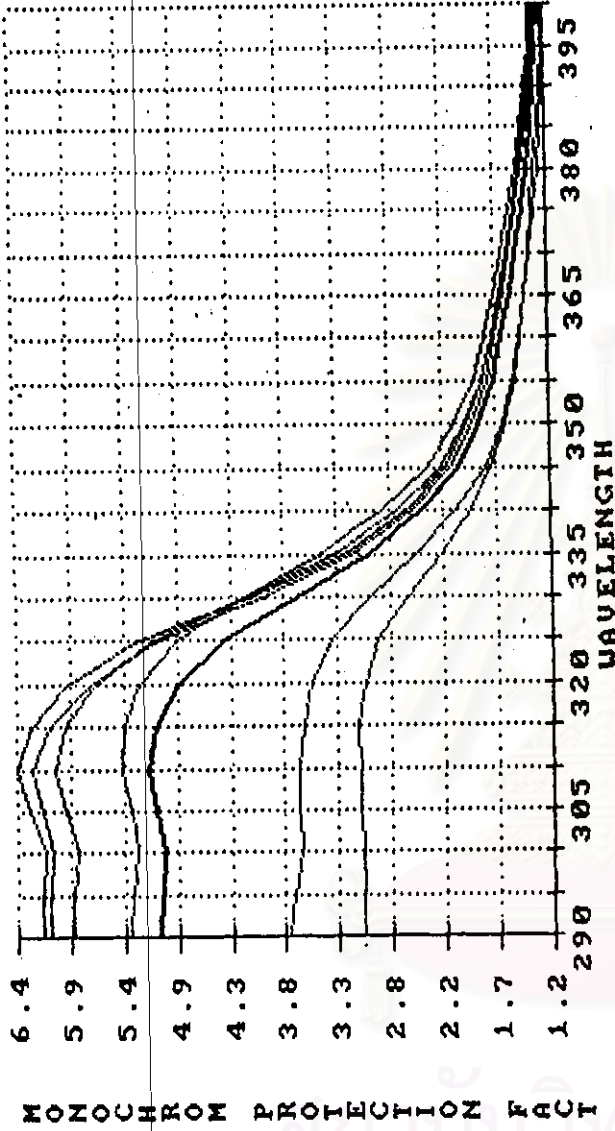
Erythral Action Spectrum

10. -- 10
40 NORTH 70 ZENITH



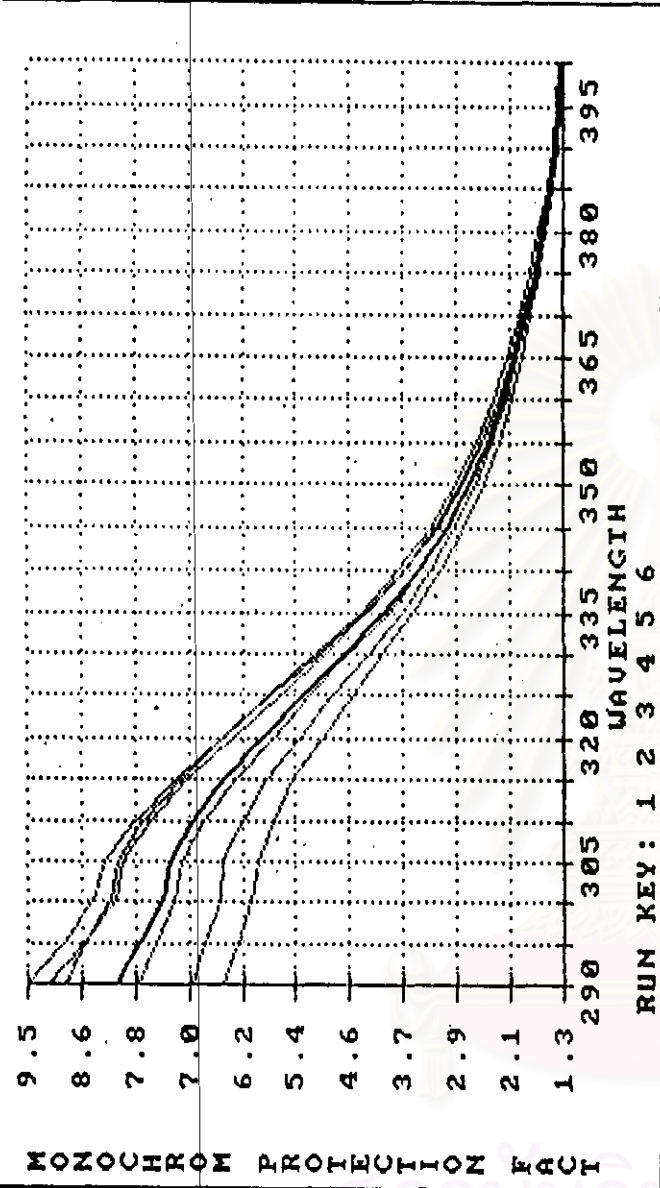
Lambda	MPF	+/- SD
290	2.3	.6
295	2.2	.6
300	2.2	.6
305	2.2	.6
310	2.2	.6
315	2.1	.5
320	2.0	.5
325	1.9	.5
330	1.8	.4
335	1.7	.4
340	1.6	.3
345	1.6	.3
350	1.5	.2
355	1.4	.2
360	1.4	.2
365	1.3	.2
370	1.3	.1
375	1.3	.1
380	1.2	.1
385	1.2	.1
390	1.2	.1
395	1.2	.1
400	1.1	.1

MONOCHROM PROTECTION FACT
 RUN KEY: 1 2 3 4 5 6
 Sample: Formula 1
 Thickness: 2.0 ul/cm2
 File: None
 Runs: 6
 Ref: TRANSPORE Operator: 1.0
 Date: 12/18/97 Time: 15:15:03
 QUANTITY (MPF) VALUE S.D.
 SPF: 2.1 .2
 UVA/UVB Ratio: .46 .03
 Average UVA PF: 1.5 .2
 Erythral UVA PF: 1.7 .3



RUN KEY: 1 2 3 4 5 6 Runs: 6 12/18/97 16:34:23
 Sample: Formulex 2 Ref: TRANSPORE Operator: 1.0
 Thickness: 2.0 ul/cm2

Lambda	MPF	+/- SD	QUANTITY (MPF)	VALUE	S.D.
290	5.1	1.3	SPF:	4.3	.4
295	5.0	1.3	UVA/UVB Ratio:	.41	.02
300	5.0	1.3	Average UVA PF:	2.2	.3
305	5.1	1.4	Erythemat UVA PF:	2.7	.4
310	5.1	1.4			
315	5.1	1.4			
320	4.8	1.2			
325	4.4	1.0			
330	3.7	.7			
335	3.0	.5			
340	2.4	.3			
345	2.1	.3			
350	1.9	.2			
355	1.7	.2			
360	1.6	.2			
365	1.6	.1			
370	1.5	.1			
375	1.4	.1			
380	1.4	.1			
385	1.3	.1			
390	1.3	.1			
395	1.3	.1			
400	1.3	.1			



MONOCHROM PROTECTION FACT
 RUN KEY: 1 2 3 4 5 6
 Runs: 6 12/19/97 15:16:17
 Sample: Formular 3
 Thickness: 2.0 u/cm2 Ref: TRANSPORE Operator: 1.0
 File: None
 QUANTITY (MPF) VALUE S.D.
 SPF: 5.9 .3
 UVA/UVB Ratio: .45 .01
 Average UVA PF: 2.8 .2
 Erythmal UVA PF: 3.5 .2

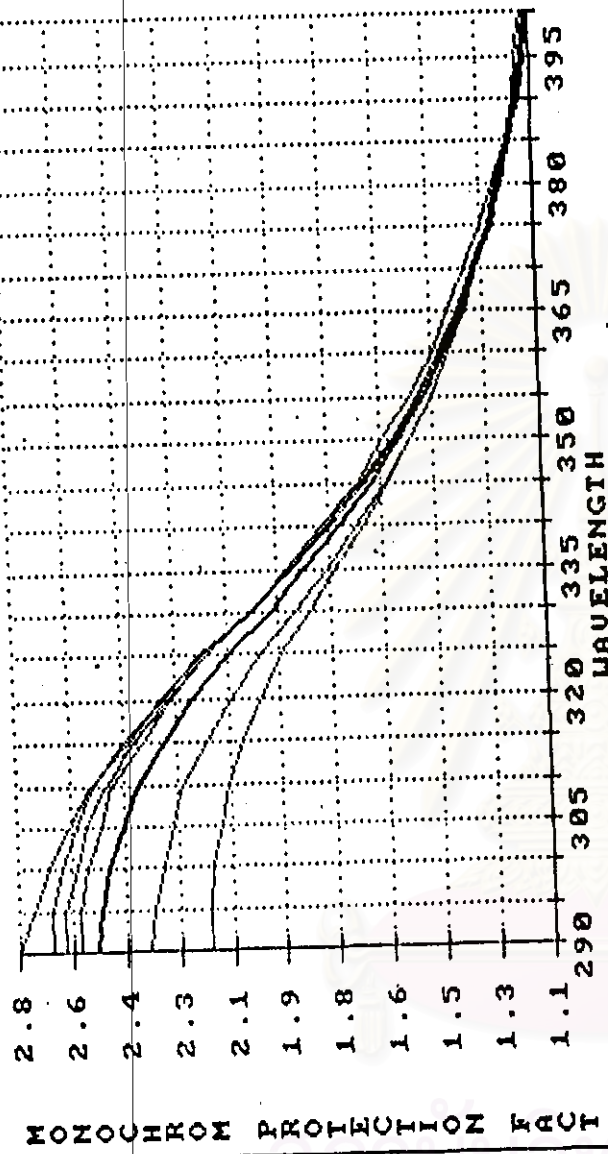
Lambda	MPF	+/- SD
290	8.1	1.2
295	7.8	1.1
300	7.4	1.0
305	7.3	1.0
310	7.0	.9
315	6.5	.7
320	5.9	.7
325	5.3	.5
330	4.6	.4
335	4.1	.3
340	3.5	.3
345	3.1	.2
350	2.7	.2
355	2.5	.1
360	2.2	.1
365	2.0	.1
370	1.9	.1
375	1.7	.0
380	1.6	.0
385	1.5	.0
390	1.4	.0
395	1.4	.0
400	1.3	.0

10 -- 10

40 NORTH 20 ZENITH

Erythmal Action Spectrum

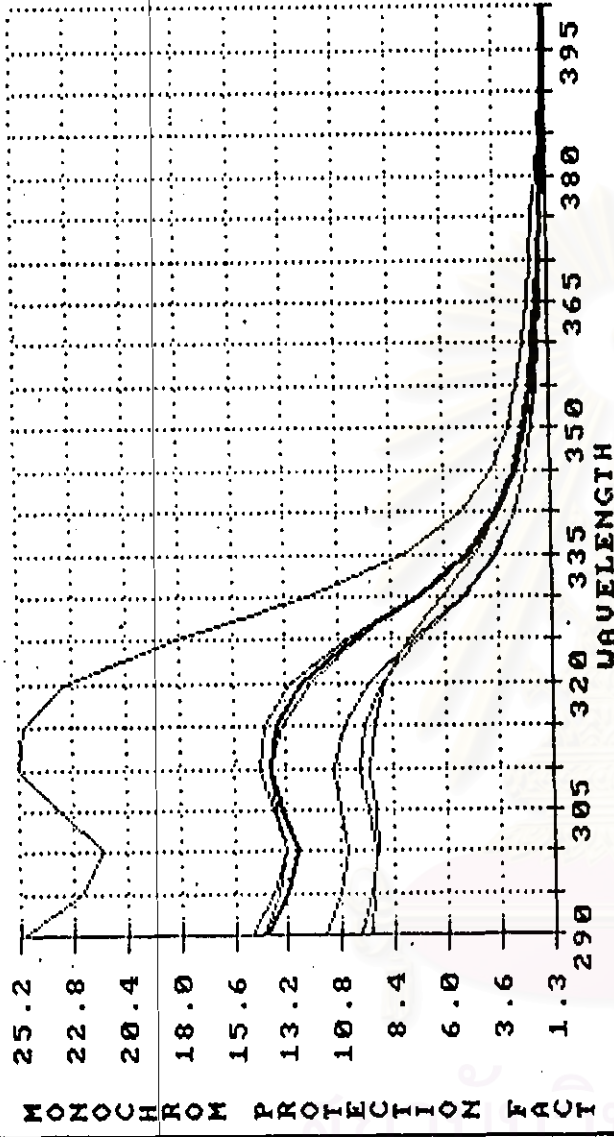
SPF 290 Analyzer by The Optometrics Group



Lambda	MPF	+/- SD
290	2.5	.2
295	2.5	.2
300	2.5	.2
305	2.4	.2
310	2.4	.2
315	2.3	.2
320	2.2	.1
325	2.1	.1
330	2.0	.1
335	1.9	.1
340	1.8	.1
345	1.7	.0
350	1.6	.0
355	1.5	.0
360	1.4	.0
365	1.4	.0
370	1.3	.0
375	1.3	.0
380	1.2	.0
385	1.2	.0
390	1.2	.0
395	1.2	.0
400	1.1	.0

RUN KEY: 1 2 3 4 5 6
 Runs: 6
 Sample: Formula 4
 Thickness: 2.0 ul/cm2
 Ref: TRANSPORE Operator: 1.0
 Date: 12/18/97 Time: 15:20:44
 File: None
 QUANTITY (MPF) VALUE S.D.
 SPF: 2.3 .1
 UVA/UVB Ratio: .45 .03
 Average UVA PF: 1.5 .0
 Erythemat UVA PF: 1.8 .1

10 — 10
 40 NORTH 20 ZENITH
 Erythemat Action Spectrum



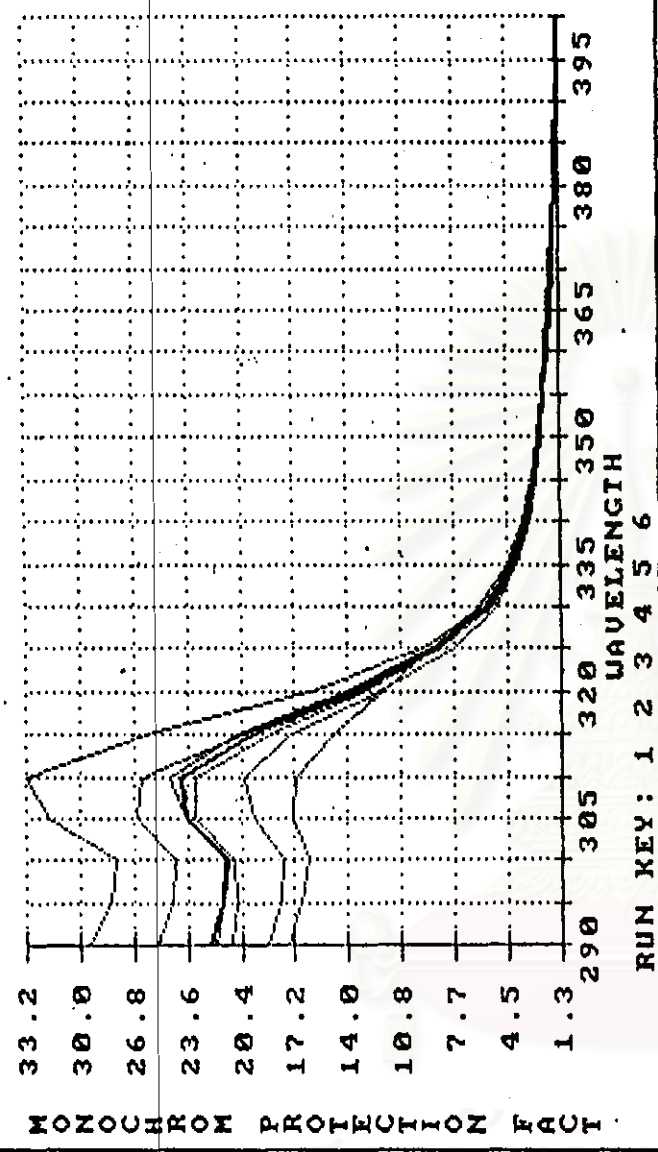
RUN KEY: 1 2 3 4 5 6
 Runs: 6
 12/19/97 15:56:54
 .2 Sample: Formula 5
 .2 Thickness: 2.0 ul/cm2 Ref: TRANSPORE Operator: 1.0
 .1 File: None
 .1 QUANTITY (MPF) VALUE S.D.
 SPF: 9.1 1.0
 .1 UVA/UVB Ratio: .36 .02
 .1 Average UVA PF: 3.5 1.0
 .1 Erythemal UVA PF: 4.0 .7

Lambda	MPF	+/- SD
290	14.2	5.7
295	13.3	4.9
300	12.8	4.6
305	13.5	5.2
310	14.0	5.8
315	13.7	5.9
320	12.6	5.5
325	10.1	4.1
330	7.2	2.6
335	5.0	1.5
340	3.6	.9
345	2.9	.6
350	2.4	.4
355	2.1	.3
360	2.0	.2
365	1.8	
370	1.7	
375	1.6	
380	1.5	
385	1.4	
390	1.4	
395	1.3	
400	1.3	

10 -- 10
 40 NORTH 20 ZENITH

Erythemal Action Spectrum

SPF 290 Analyzer by The Optometrics Group



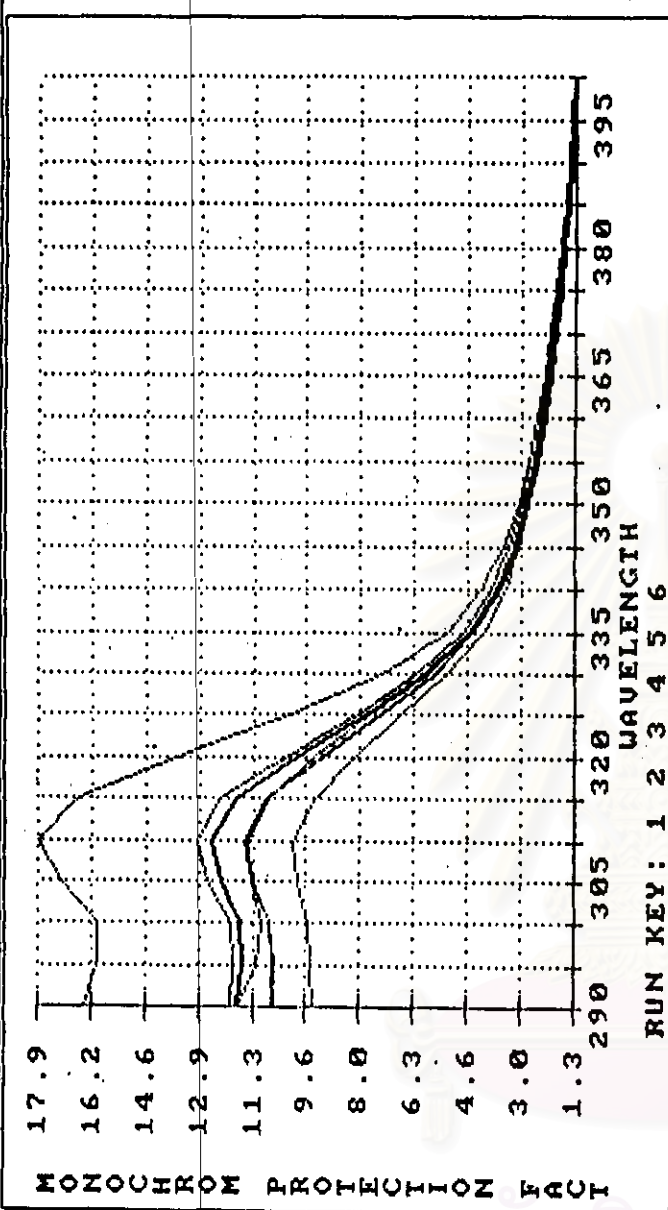
Lambda	MPF	+/-	SD
290	22.3	4.4	
295	21.6	4.2	
300	21.4	4.2	
305	23.7	5.1	
310	24.1	5.5	
315	19.7	3.8	
320	13.5	1.6	
325	8.7	.6	
330	5.7	.4	
335	4.1	.3	
340	3.3	.2	
345	2.8	.2	
350	2.5	.1	
355	2.3	.1	
360	2.1	.1	
365	1.9	.1	
370	1.8	.1	
375	1.7	.1	
380	1.6	.0	
385	1.5	.0	
390	1.4	.0	
395	1.3	.0	
400	1.3	.0	

RUN KEY: 1 2 3 4 5 6
 Runs: 6
 12/19/97 15:37:41
 Sample: Formylar b
 Ref: TRANSPORE Operator: 1.0
 Thickness: 2.0 ul/cm2
 File: None
 QUANTITY (MPF) VALUE S.D.
 SPF: 11.6 .5
 UVA/UVB Ratio: .30 .02
 Average UVA PF: 3.4 .2
 Erythemat UVA PF: 3.9 .2

10 -- 10
 40 NORTH 20 ZENITH

Erythemat Action Spectrum

SPF 290 Analyzer by The Optometrics Group



MONOCHROM PROTECTION FACT

WAVELENGTH

RUN KEY: 1 2 3 4 5 6

Sample: Formulation 7 Runs: 6 12/19/97 15:27:43

Thickness: 2.0 ul/cm2 Ref: TRANSPORE Operator: 1.0

File: None

QUANTITY (MPF)	VALUE	S.D.
SPF:	8.8	.6
UVA/UVB Ratio:	.41	.01
Average UVA PF:	3.4	.3
Erythema UVA PF:	4.1	.3

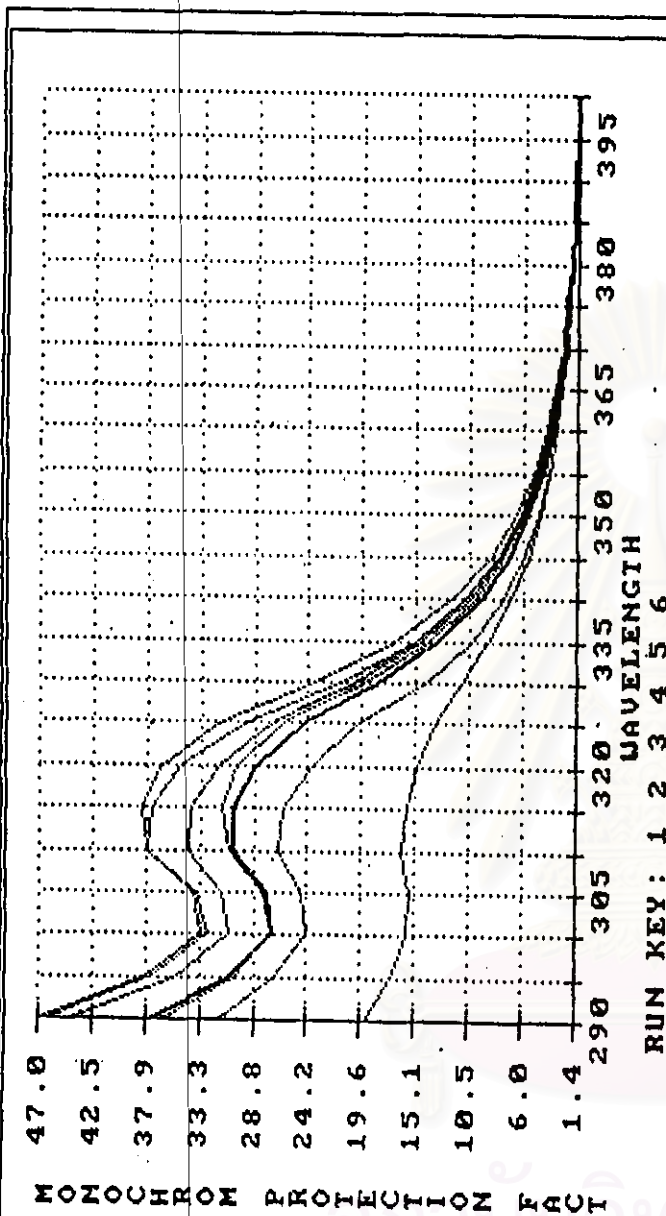
Lambda	MPF	+/- SD
290	11.8	2.5
295	11.6	2.3
300	11.7	2.3
305	12.3	2.6
310	12.5	2.8
315	11.8	2.6
320	10.0	1.9
325	7.8	1.2
330	6.0	.7
335	4.6	.4
340	3.8	.3
345	3.2	.2
350	2.9	.2
355	2.6	.1
360	2.4	.1
365	2.2	.1
370	2.0	.1
375	1.9	.1
380	1.7	.1
385	1.6	.1
390	1.5	.0
395	1.4	.0
400	1.4	.0

10 -- 10

40 NORTH 20 ZENITH

Erythema Action Spectrum

SPF 290 Analyzer by The Optometrics Group



Lambda	MPF	+/- SD
290	37.6	10.8
295	31.0	8.0
300	27.3	6.6
305	27.9	7.0
310	30.6	8.3
315	30.6	8.4
320	28.8	8.1
325	24.6	6.7
330	18.4	4.7
335	13.3	3.1
340	9.7	2.0
345	7.3	1.3
350	5.7	.9
355	4.5	.6
360	3.6	.4
365	3.0	.3
370	2.5	.2
375	2.2	.2
380	2.0	.1
385	1.8	.1
390	1.6	.1
395	1.5	.1
400	1.5	.1

Sample: Formulas & Runs: 6 12/18/97 17:37:43
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 File: None

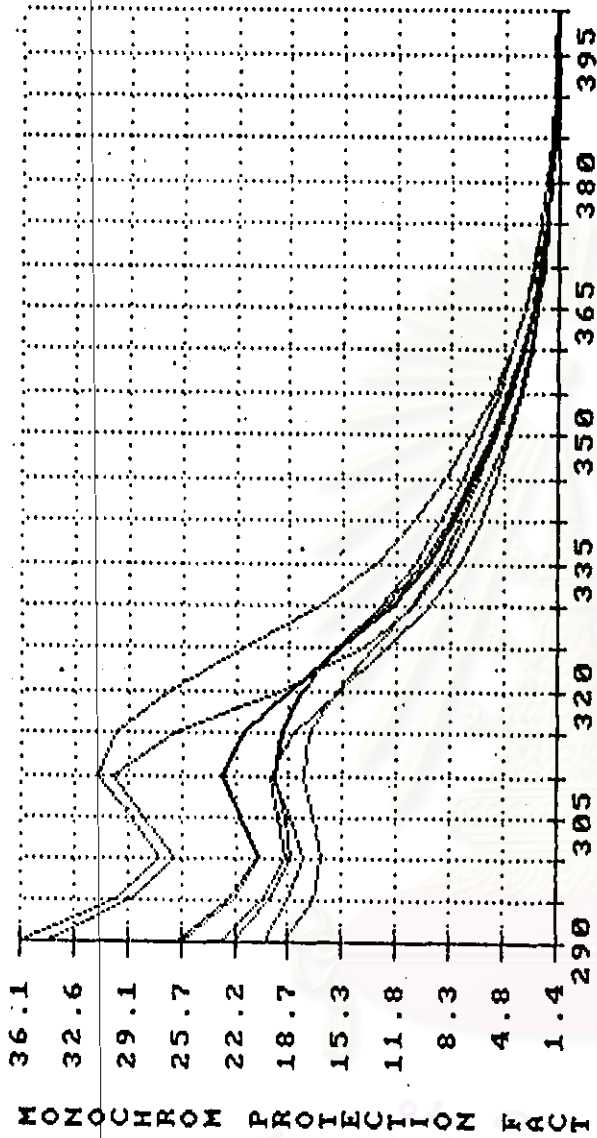
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SPF:	18.1	1.2
UVA/UVB Ratio:	.45	.02
Average UVA PF:	7.8	1.7
Erythema UVA PF:	7.2	1.0

10 -- 10
 40 NORTH 20 ZENITH

Erythema Action Spectrum

SPF 290 Analyzer by The Optometrics Group

Lambda	MPF	+/- SD
290	25.9	7.4
295	22.5	5.5
300	20.9	4.5
305	21.9	5.2
310	23.0	5.9
315	21.7	5.1
320	18.8	4.1
325	15.4	3.3
330	12.2	2.5
335	9.9	1.9
340	8.2	1.5
345	6.8	1.2
350	5.6	.9
355	4.5	.7
360	3.7	.5
365	3.1	.4
370	2.6	.3
375	2.2	.2
380	2.0	.2
385	1.8	.1
390	1.6	.1
395	1.5	.1
400	1.4	.1



RUN KEY: 1 2 3 4 5 6

Runs: 6

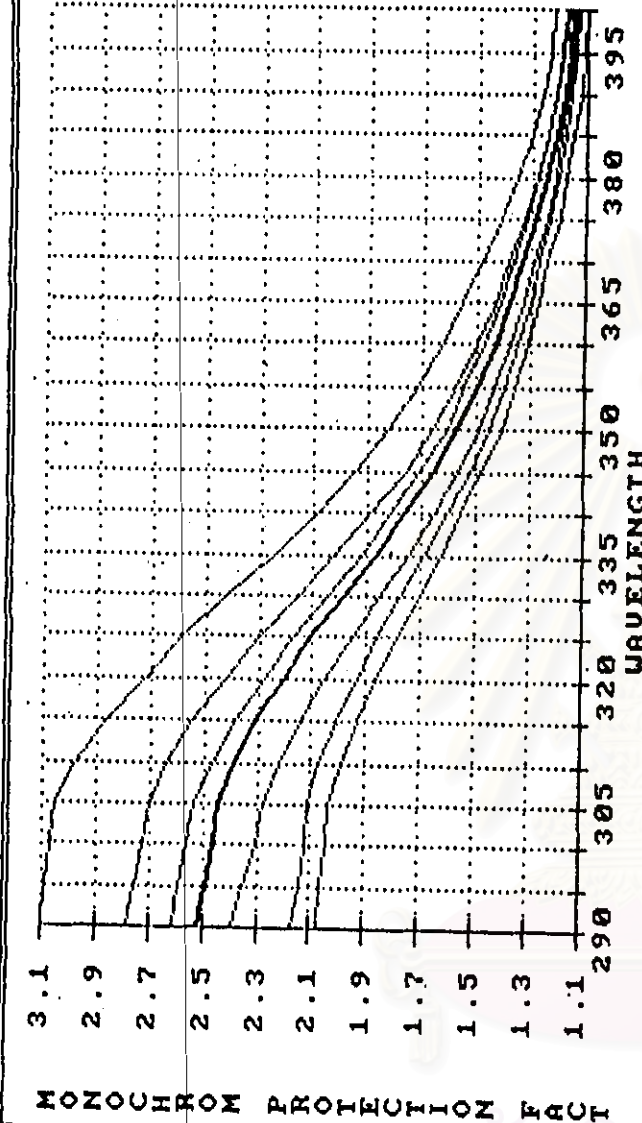
Sample: Formulor 9

Thickness: 2.0 u/cm2

Ref: TRANSPORE Operator: 1.0

File: None

QUANTITY (MPF)	VALUE	S.D.
SPF:	14.8	1.0
UVA/UVB Ratio:	.46	.04
Average UVA PF:	6.0	1.0
Erythemat UVA PF:	6.5	.8



RUN KEY: 1 2 3 4 5 6
 Sample: formula 70
 Thickness: 2.0 ul/cm2
 Ref: TRANSPORE Operator: 1.0
 Runs: 6
 Date: 12/18/97
 Time: 15:26:07

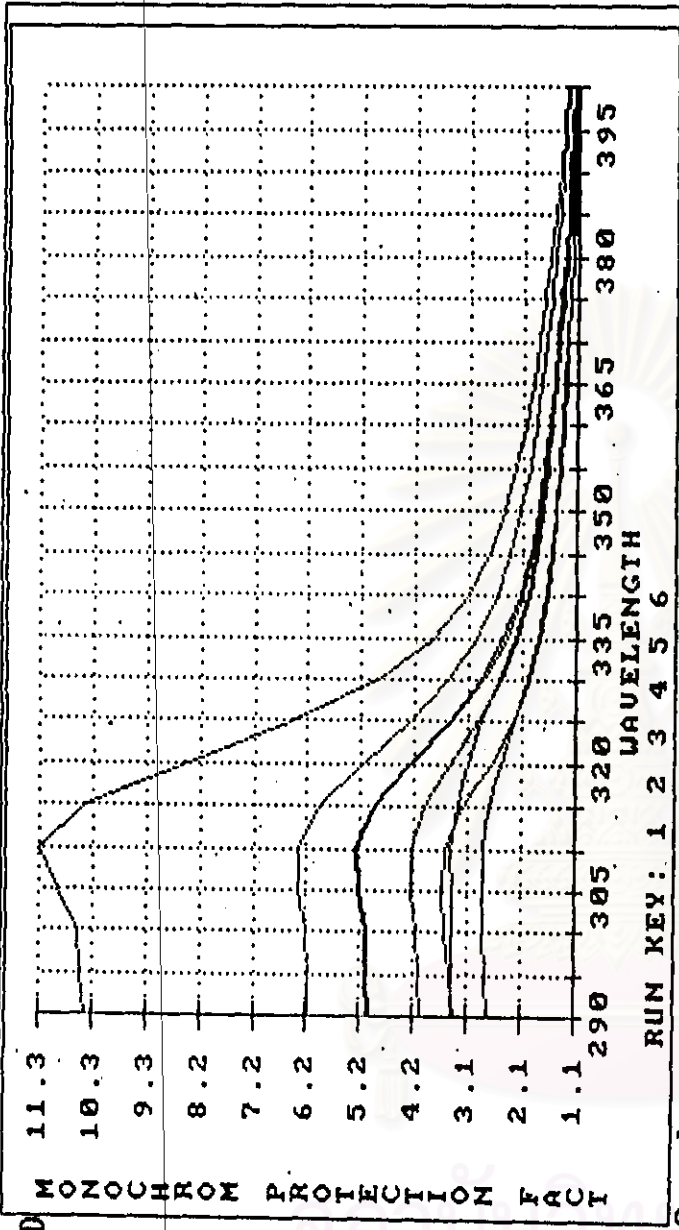
QUANTITY (MPF)	VALUE	S.D.
SPF:	2.3	.1
UVA/UVB Ratio:	.46	.02
Average UVA PF:	1.6	.1
Erythemat UVA PF:	1.8	.2

Lambda	MPF	+/-	SD
290	2.5	.4	.1
295	2.5	.4	.1
300	2.5	.4	.1
305	2.5	.4	.1
310	2.4	.4	.1
315	2.3	.4	.1
320	2.2	.3	.1
325	2.1	.3	.1
330	2.0	.3	.1
335	1.9	.2	.1
340	1.8	.2	.1
345	1.7	.2	.1
350	1.6	.2	.1
355	1.5	.1	.1
360	1.5	.1	.1
365	1.4	.1	.1
370	1.4	.1	.1
375	1.3	.1	.1
380	1.3	.1	.1
385	1.2	.1	.1
390	1.2	.0	.1
395	1.2	.0	.1
400	1.2	.0	.1

10 -- 10
 40 NORTH 20 ZENITH

Erythemat Action Spectrum

SPF 290 Analyzer by The Optometrics Group



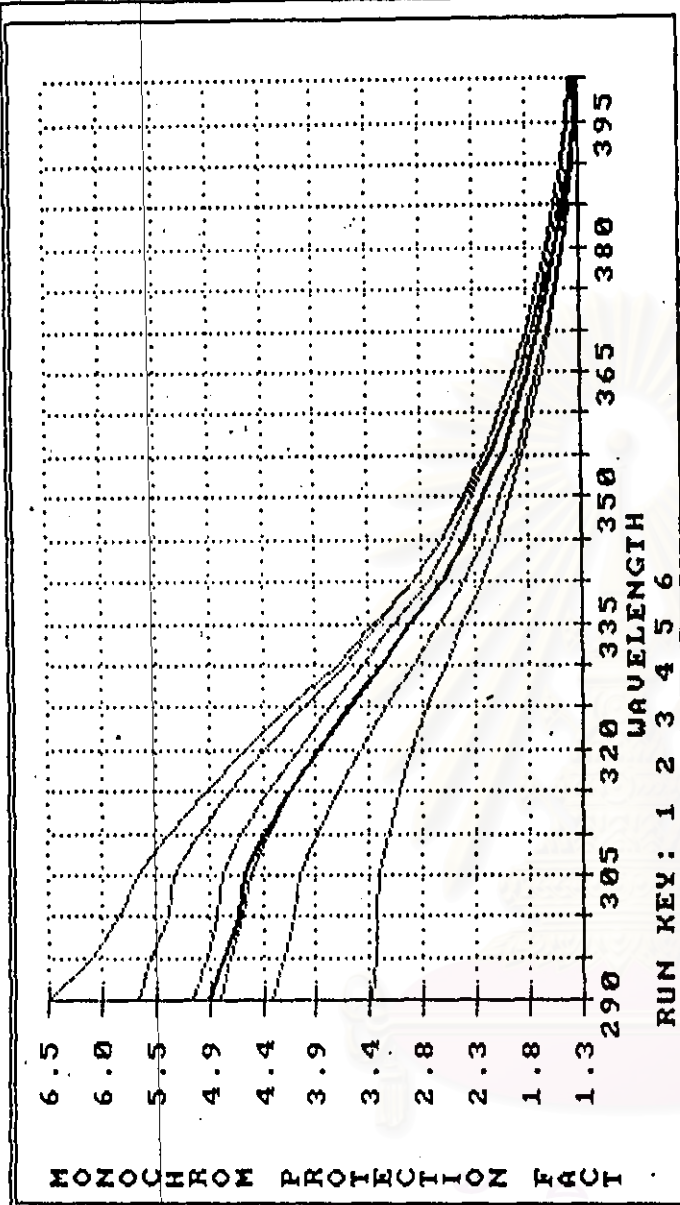
RUN KEY: 1 2 3 4 5 6
 Sample: Formulax.M. Runs: 6 12/18/97 15:31:39
 Thickness: 2.0 ul/cm2 Ref: TRANSPORE Operator: 1.0
 File: None

QUANTITY (MPF)	VALUE	S.D.
SPF:	4.2	.8
UVA/UVB Ratio:	.37	.04
Average UVA PF:	2.0	.5
Erythema UVA PF:	2.4	.7

Lambda	MPF	+/- SD
290	5.0	2.9
295	5.1	2.9
300	5.1	2.9
305	5.2	3.0
310	5.3	3.2
315	5.0	2.9
320	4.3	2.3
325	3.5	1.6
330	2.9	1.1
335	2.5	.8
340	2.2	.6
345	2.0	.5
350	1.8	.4
355	1.7	.3
360	1.6	.3
365	1.6	.3
370	1.5	.3
375	1.4	.3
380	1.4	.3
385	1.3	.1
390	1.3	.1
395	1.2	.1
400	1.2	.1

10 -- 10
 40 NORTH 20 ZENITH

Erythema Action Spectrum



RUN KEY: 1 2 3 4 5 6
 Runs: 6
 12/19/97 15:11:05
 Sample: Formular 12
 Thickness: 2.0 ul/cm2 Ref: TRANSPORE Operator: 1.0
 File: None

QUANTITY (MPF)	VALUE	S.D.
SPF:	4.0	.3
UVA/UVB Ratio:	.47	.02
Average UVA PF:	2.2	.2
Erythema UVA PF:	2.7	.3

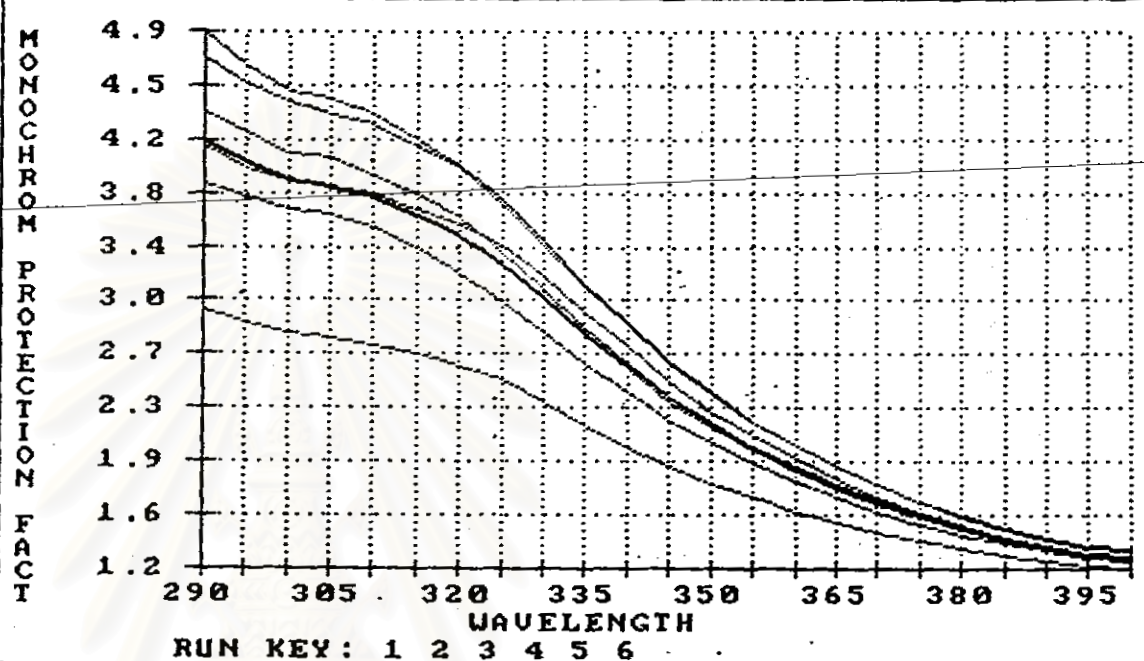
Lambda	MPF	+/- SD
290	5.0	1.1
295	4.8	1.0
300	4.7	.9
305	4.6	.8
310	4.4	.8
315	4.2	.7
320	3.9	.6
325	3.6	.5
330	3.2	.4
335	3.0	.3
340	2.7	.3
345	2.4	.2
350	2.2	.2
355	2.1	.2
360	1.9	.1
365	1.8	.1
370	1.7	.1
375	1.6	.1
380	1.5	.1
385	1.4	.1
390	1.4	.0
395	1.3	.0
400	1.3	.0

10 -- 10

10 NORTH 20 7FNITH

Erythema Action Spectrum

Lambda	MPF	+/-	SD
290	4.1	.7	
295	4.0	.6	
300	3.9	.6	
305	3.8	.6	
310	3.8	.6	
315	3.6	.5	
320	3.5	.5	
325	3.3	.5	
330	3.1	.4	
335	2.8	.4	
340	2.6	.3	
345	2.4	.3	
350	2.2	.2	
355	2.0	.2	
360	1.9	.2	
365	1.8	.1	
370	1.6	.1	
375	1.5	.1	
380	1.5	.1	
385	1.4	.1	
390	1.3	.1	
395	1.3	.1	
400	1.3	.0	



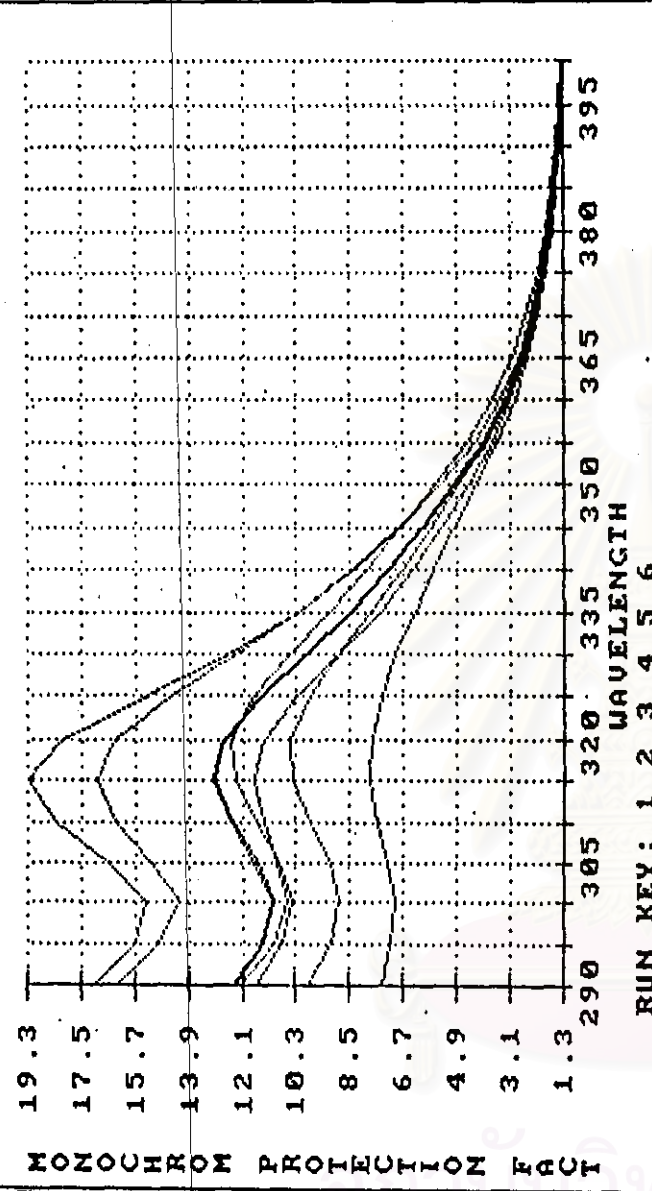
.1 Sample: *Formular 13* Runs: 6 12/18/97 14:52:5
.1 Thickness: 2.0 ul/cm2 Ref: TRANSPORE Operator: 1.0
.1 File: None

QUANTITY (MPF)	VALUE	S.D.
SPF:	3.5	.2
UVA/UVB Ratio:	.50	.02
Average UVA PF:	2.1	.2
Erythemat UVA PF:	2.6	.3

10 — 10
40 NORTH 20 ZENITH

Erythemat Action Spectrum

SPF 290 Analyzer by The Optometrics Group



Lambda	MPF	+/- SD
290	12.4	3.7
295	11.4	3.3
300	11.1	3.1
305	11.7	3.6
310	12.5	4.0
315	13.1	4.2
320	12.8	3.8
325	11.5	2.9
330	10.0	2.2
335	8.6	1.6
340	7.3	1.2
345	6.1	.8
350	5.0	.6
355	4.1	.4
360	3.3	.3
365	2.8	
370	2.4	
375	2.1	
380	1.8	
385	1.7	
390	1.5	
395	1.4	
400	1.4	

RUN KEY: 1 2 3 4 5 6
 Sample: Formulax 4 Runs: 6 12/19/97 16:27:05
 Thickness: 2.0 ul/cm2 Ref: TRANSPORE Operator: 1.0
 File: None

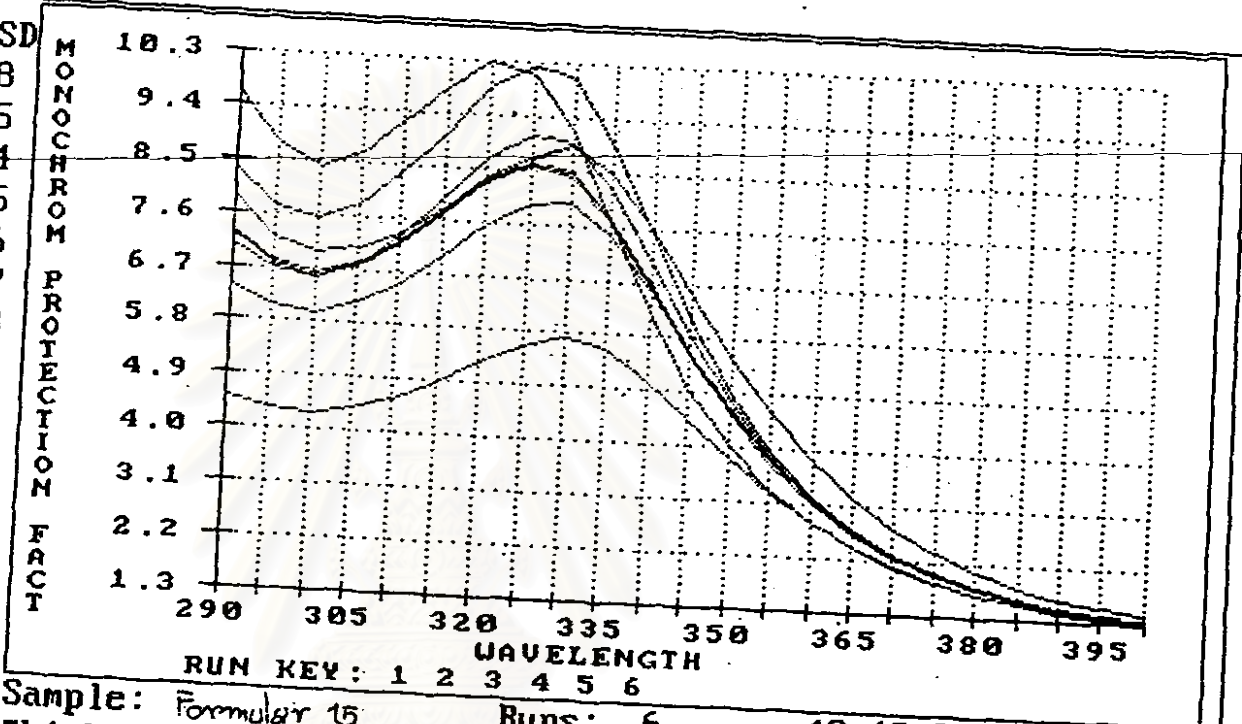
QUANTITY (MPF)	VALUE	S.D.
SPF:	9.7	1.0
UVA/UVB Ratio:	.53	.03
Average UVA PF:	4.9	.8
Erythemat UVA PF:	5.6	.7

10 -- 10
 40 NORTH 20 ZENITH

Erythemat Action Spectrum

SPF 290 Analyzer by The Optometrics Group

Lambda	MPF	+/- SD
290	7.3	1.8
295	6.8	1.5
300	6.6	1.4
305	6.8	1.5
310	7.2	1.6
315	7.8	1.7
320	8.3	1.8
325	8.6	1.7
330	8.5	1.5
335	7.7	1.2
340	6.7	1.0
345	5.6	.8
350	4.6	.6
355	3.8	.5
360	3.2	.4
365	2.7	.3
370	2.3	.2
375	2.0	.2
380	1.8	.1
385	1.6	.1
390	1.5	.1
395	1.4	.1
400	1.4	.1

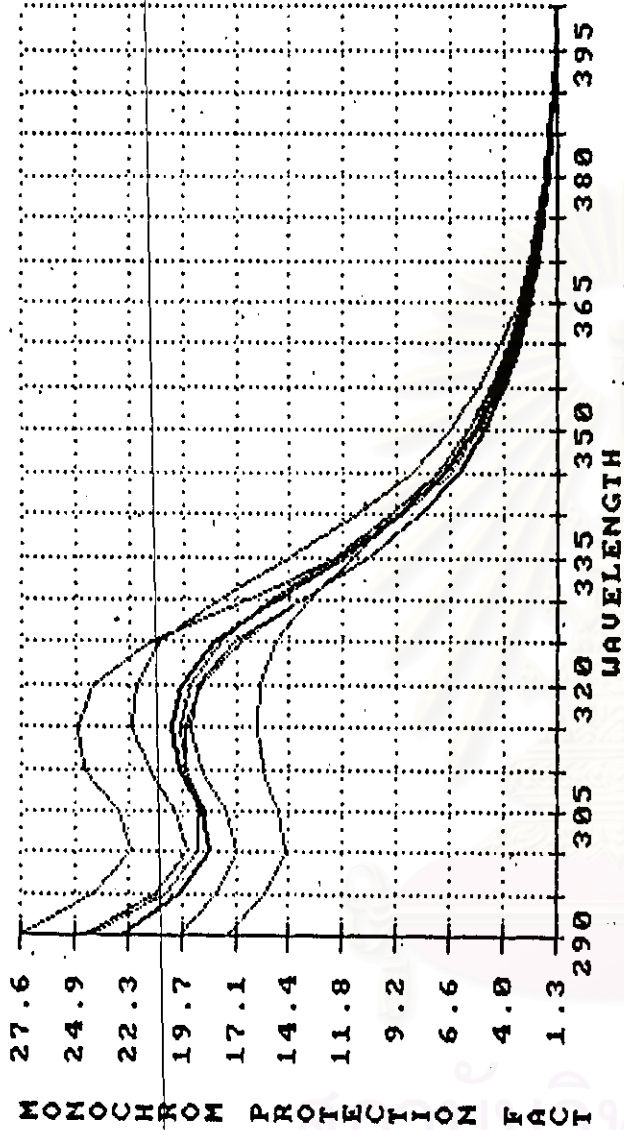


RUN KEY: 1 2 3 4 5 6
 .3 Sample: Formulair 15 Runs: 6 12/18/97 17:20:19
 .2 Thickness: 2.0 ul/cm2 Ref: TRANSPORE Operator: 1.0
 .2 File: None
 .1 QUANTITY (MPF) VALUE S.D.
 .1 SPF: 6.5 .5
 .1 UVA/UVB Ratio: .63 .06
 .1 Average UVA PF: 4.2 .5
 .1 Erythemat UVA PF: 4.9 .6

10 — 10
 40 NORTH 20 ZENITH

Erythemat Action Spectrum

Lambda	MPF	+/- SD
290	22.7	3.6
295	19.9	2.8
300	18.4	2.5
305	18.8	2.6
310	19.9	2.9
315	20.3	3.0
320	19.8	2.8
325	18.1	2.4
330	15.1	1.8
335	11.9	1.4
340	9.1	1.1
345	7.0	.9
350	5.5	.7
355	4.4	.5
360	3.5	.4
365	2.9	.3
370	2.4	.2
375	2.1	.1
380	1.9	.1
385	1.7	.1
390	1.5	.1
395	1.4	.0
400	1.4	.0



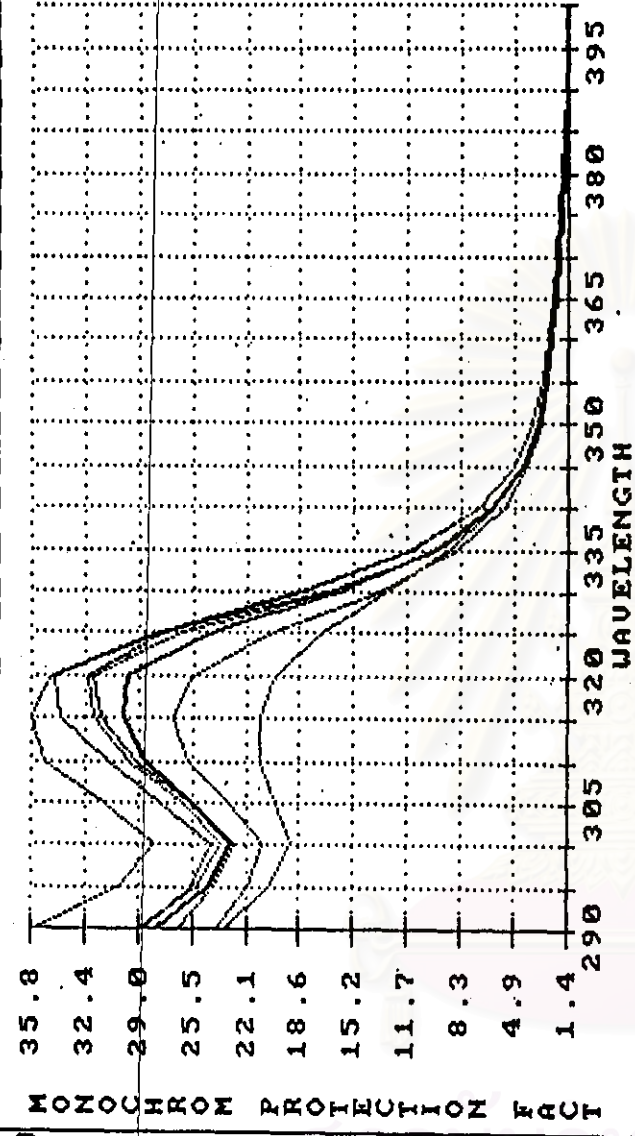
RUN KEY: 1 2 3 4 5 6
 Sample: Formular 16
 Thickness: 2.0 ul/cm2
 Ref: TRANSPORE Operator: 1.0
 Runs: 6
 Date: 12/18/97 17:43:03

QUANTITY (MPF)	VALUE	S.D.
SPF	13.9	.6
UVA/UVB Ratio	.48	.03
Average UVA PF	6.4	.6
Erythemat UVA PF	6.5	.5

10 -- 10
 40 NORTH 20 ZENITH

Erythemat Action Spectrum

SPF 290 Analyzer by The Optometrics Group

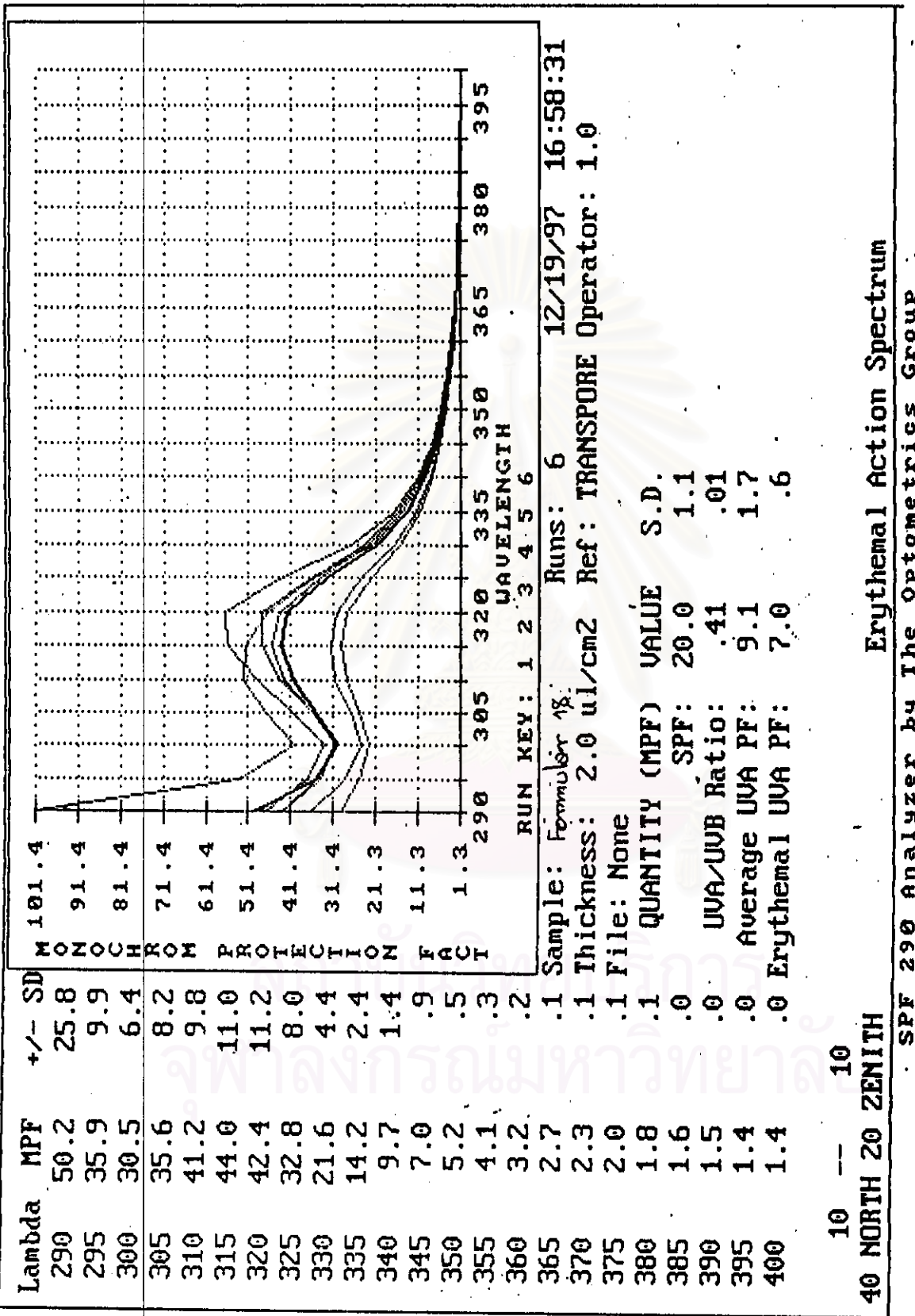


Lambda	MPF	+/- SD
290	27.9	4.4
295	24.7	3.3
300	23.2	3.0
305	25.7	3.8
310	28.6	4.7
315	30.2	5.4
320	29.8	5.7
325	24.4	4.5
330	16.2	2.4
335	10.1	1.2
340	6.4	.6
345	4.4	.3
350	3.4	.2
355	2.9	.1
360	2.5	.1
365	2.3	.1
370	2.1	.1
375	1.9	.1
380	1.8	.0
385	1.6	.0
390	1.6	.0
395	1.5	.0
400	1.5	.0

MONOCHROM PROTECTION FACT
 RUN KEY: 1 2 3 4 5 6
 Sample: Formular 17
 Runs: 6
 Thickness: 2.0 ul/cm2
 Ref: TRANSPORE Operator: 1.0
 File: None
 QUANTITY (MPF) VALUE S.D.
 SPF: 15.6 .6
 UVA/UVB Ratio: .40 .01
 Average UVA PF: 6.7 .9
 Erythmal UVA PF: 5.8 .4

10 -- 10
 40 NORTH 20 ZENITH

Erythmal Action Spectrum
 SPF 290 Analyzer by The Optometrics Group



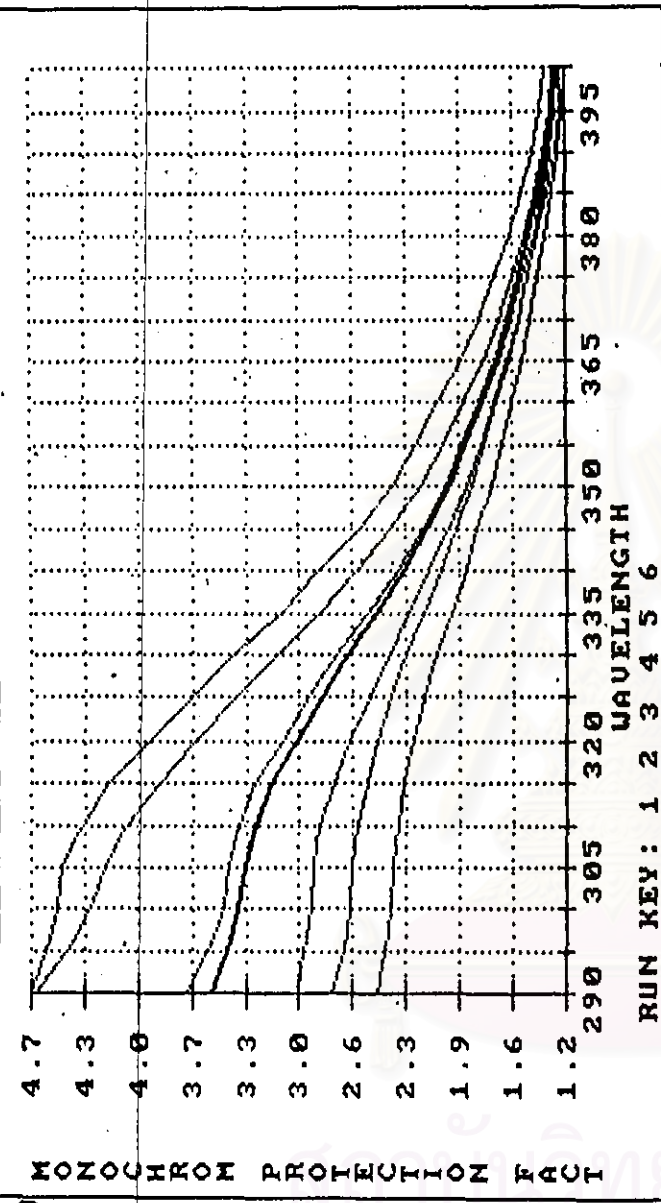
Lambda	MPF	+/- SD	MONOCHROM PROTECTION FACT
290	50.2	25.8	101.4
295	35.9	9.9	91.4
300	30.5	6.4	81.4
305	35.6	8.2	71.4
310	41.2	9.8	61.4
315	44.0	11.0	51.4
320	42.4	11.2	41.4
325	32.8	8.0	31.4
330	21.6	4.4	21.3
335	14.2	2.4	11.3
340	9.7	1.4	1.3
345	7.0	.9	
350	5.2	.5	
355	4.1	.3	
360	3.2	.2	
365	2.7	.1	
370	2.3	.1	
375	2.0	.1	
380	1.8	.1	
385	1.6	.0	
390	1.5	.0	
395	1.4	.0	
400	1.4	.0	

Sample: Formular 18
 Thickness: 2.0 ul/cm2
 File: None
 Runs: 6
 Ref: TRANSPORE Operator: 1.0
 Date: 12/19/97 Time: 16:58:31

QUANTITY (MPF)	VALUE	S.D.
SPF	20.0	1.1
UVA/UVB Ratio	.41	.01
Average UVA PF	9.1	1.7
Erythral UVA PF	7.0	.6

10 -- 10
 40 NORTH 20 ZENITH

Erythral Action Spectrum
 SPF 290 Analyzer by The Optometrics Group



MONOCHROM PROTECTION FACT

WAVELENGTH

RUN KEY: 1 2 3 4 5 6

Runs: 6

Sample: Formula 19

12/18/97 15:00:37

Thickness: 2.0 ul/cm2

Ref: TRANSPORE Operator: 1.0

File: None

QUANTITY (MPF) VALUE S.D.

SPF: 3.0 .3

UVA/UVB Ratio: .52 .03

Average UVA PF: 1.9 .2

Erythema UVA PF: 2.3 .4

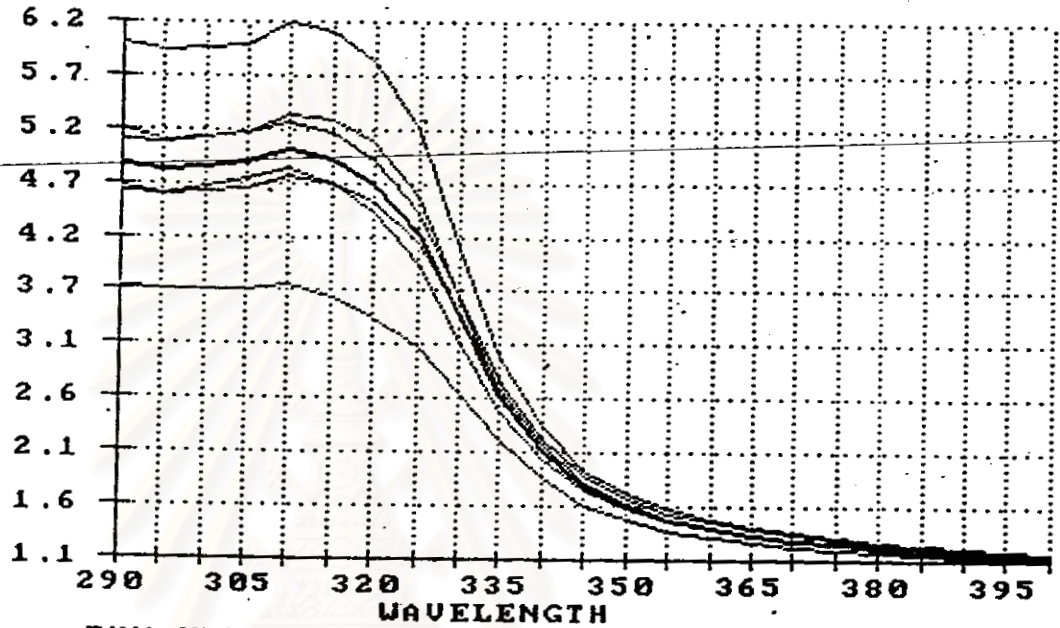
Lambda	MPF	+/- SD
290	3.5	1.0
295	3.4	.9
300	3.4	.9
305	3.3	.9
310	3.2	.8
315	3.1	.8
320	3.0	.7
325	2.8	.6
330	2.6	.5
335	2.5	.4
340	2.3	.4
345	2.1	.3
350	2.0	.2
355	1.9	.2
360	1.8	.2
365	1.7	.1
370	1.6	.1
375	1.5	.1
380	1.4	.1
385	1.4	.1
390	1.3	.1
395	1.3	.1
400	1.3	.0

10 -- 10
40 NORTH 20 ZENITH

Erythema Action Spectrum

Lambda	MPF	+/-	SD
290	4.9	.8	
295	4.8	.7	
300	4.8	.8	
305	4.9	.8	
310	5.0	.8	
315	4.9	.8	
320	4.7	.8	
325	4.2	.7	
330	3.4	.5	
335	2.7	.3	
340	2.2	.2	
345	1.8	.1	
350	1.6	.1	
355	1.5	.1	
360	1.4	.1	
365	1.4	.1	
370	1.3	.0	
375	1.3	.0	
380	1.2	.0	
385	1.2	.0	
390	1.2	.0	
395	1.2	.0	
400	1.2	.0	

MONOCHROM PROTECTION FACT



RUN KEY: 1 2 3 4 5 6

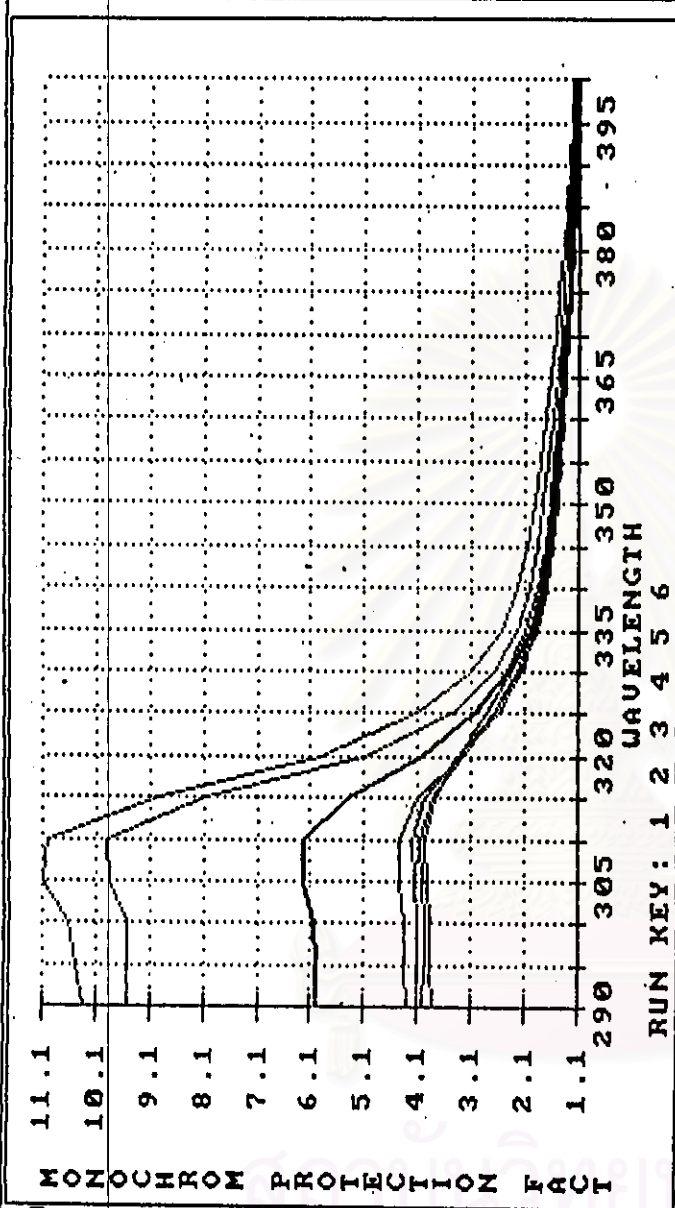
Sample: Formular 20 Runs: 6 12/18/97 16:07:54
 Thickness: 2.0 ul/cm2 Ref: TRANSPORE Operator: 1.0
 File: None

QUANTITY (MPF)	VALUE	S.D.
SPF:	4.1	.2
UVA/UVB Ratio:	.35	.01
Average UVA PF:	2.0	.2
Erythemat UVA PF:	2.5	.2

10 — 10
 40 NORTH 20 ZENITH

Erythemat Action Spectrum

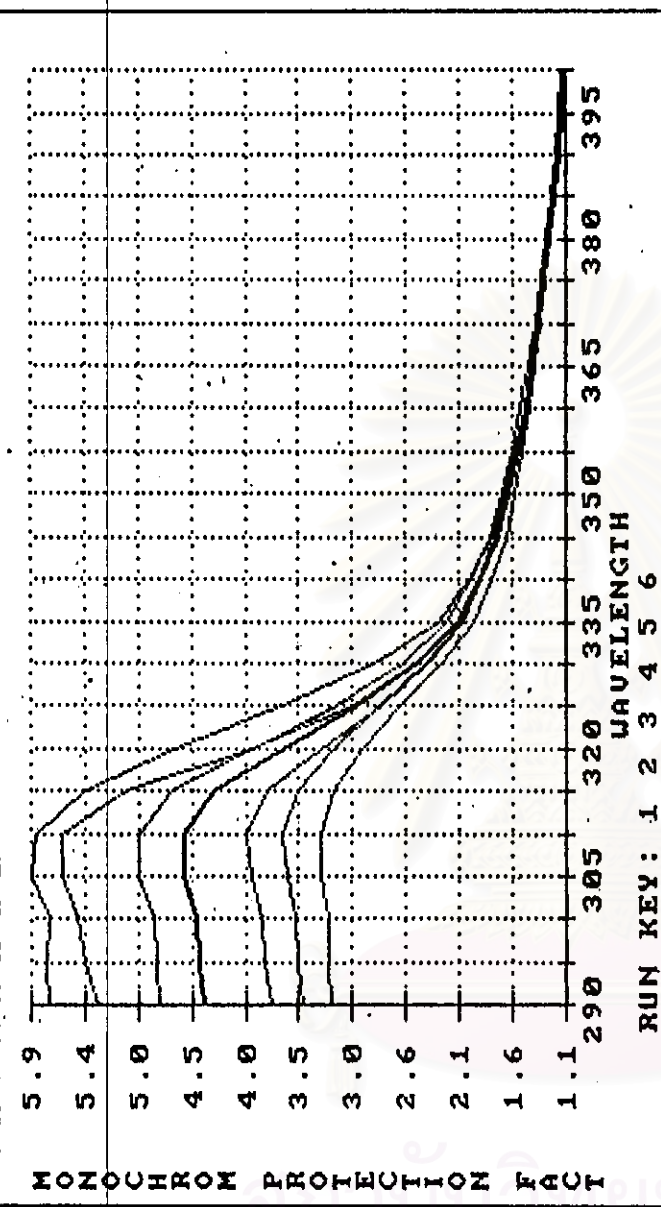
SPF 290 Analyzer by The Optometric Group



Lambda	MPF	+/- SD
290	6.0	3.0
295	6.1	3.1
300	6.1	3.1
305	6.3	3.3
310	6.3	3.3
315	5.4	2.4
320	4.1	1.2
325	3.1	.6
330	2.5	.4
335	2.1	.3
340	1.9	.2
345	1.7	.2
350	1.6	.2
355	1.6	.1
360	1.5	.1
365	1.4	.1
370	1.4	.1
375	1.3	.1
380	1.3	.1
385	1.2	.1
390	1.2	.0
395	1.2	.0
400	1.2	.0

Sample: Formular 21 Runs: 6 12/18/97 16:00:27
 Thickness: 2.0 ul/cm2 Ref: TRANSPORE Operator: 1.0
 File: None

QUANTITY (MPF)	VALUE	S.D.
SPF:	4.4	.7
UVA/UVB Ratio:	.29	.03
Average UVA PF:	1.8	.2
Erythema1 UVA PF:	2.2	.3



Lambda	MPF	+/- SD
290	4.4	1.0
295	4.4	1.0
300	4.5	1.0
305	4.6	1.1
310	4.6	1.1
315	4.3	.9
320	3.7	.6
325	3.0	.4
330	2.5	.2
335	2.1	.1
340	1.9	.1
345	1.8	.1
350	1.7	.0
355	1.6	.0
360	1.5	.0
365	1.4	.0
370	1.4	.0
375	1.3	.0
380	1.3	.0
385	1.3	.0
390	1.2	.0
395	1.2	.0
400	1.2	.0

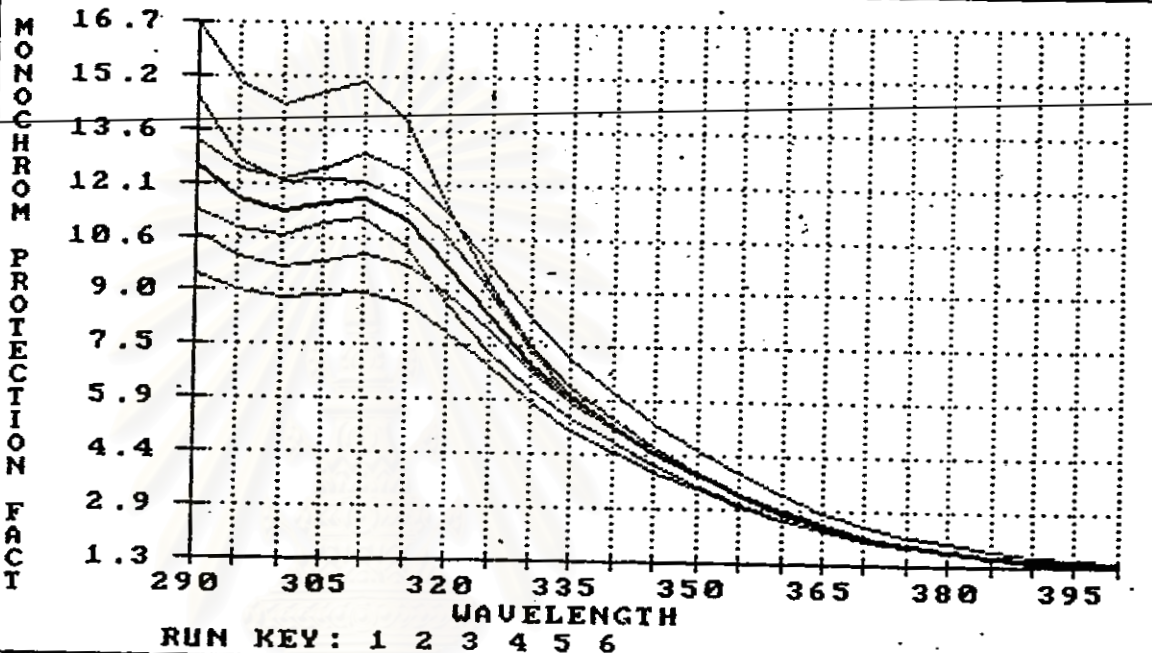
Sample: *Formula 22* Runs: 6 12/18/97 15:54:37
 Thickness: 2.0 ul/cm2 Ref: TRANSPORE Operator: 1.0
 File: None

QUANTITY (MPF)	VALUE	S.D.
SPF:	3.7	.3
UVA/UVB Ratio:	.34	.04
Average UVA PF:	1.8	.1
Erythemat UVA PF:	2.2	.1

10 --- 10
 40 NORTH 20 ZENITH

Erythemat Action Spectrum

Lambda	MPF	+/- SD
290	12.7	2.7
295	11.7	2.2
300	11.3	2.0
305	11.5	2.1
310	11.7	2.1
315	11.1	1.9
320	9.8	1.5
325	8.4	1.2
330	7.0	.9
335	6.0	.7
340	5.2	.6
345	4.5	.5
350	3.9	.4
355	3.3	.3
360	2.8	.3
365	2.4	.2
370	2.1	.2
375	1.9	.1
380	1.7	.1
385	1.6	.1
390	1.5	.1
395	1.4	.1
400	1.4	.1

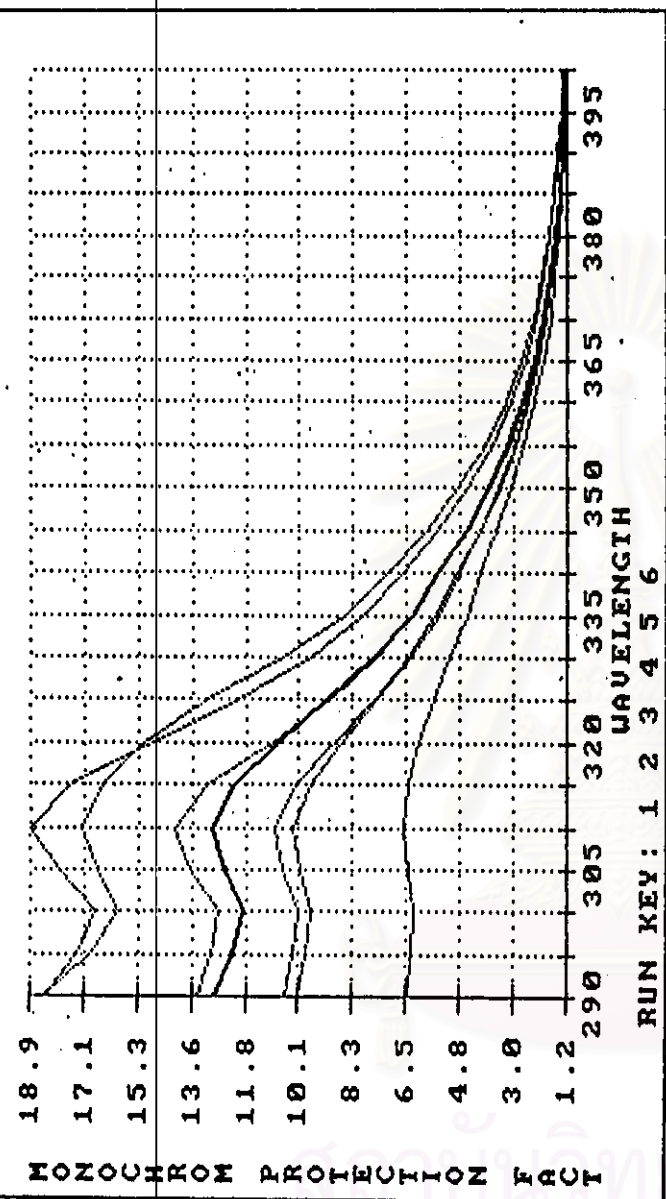


.2 Sample: *Formular 23* Runs: 6 12/18/97 16:54:59
 .2 Thickness: 2.0 μ l/cm² Ref: TRANSPORE Operator: 1.0
 .1 File: None
 .1 QUANTITY (MPF) VALUE S.D.
 SPF: 8.9 .5
 UVA/UVB Ratio: .46 .03
 Average UVA PF: 3.8 .4
 .1 Erythemal UVA PF: 4.6 .4

10 -- 10
40 NORTH 20 ZENITH

Erythemal Action Spectrum

SPF 290 Analyzer by The Optomat



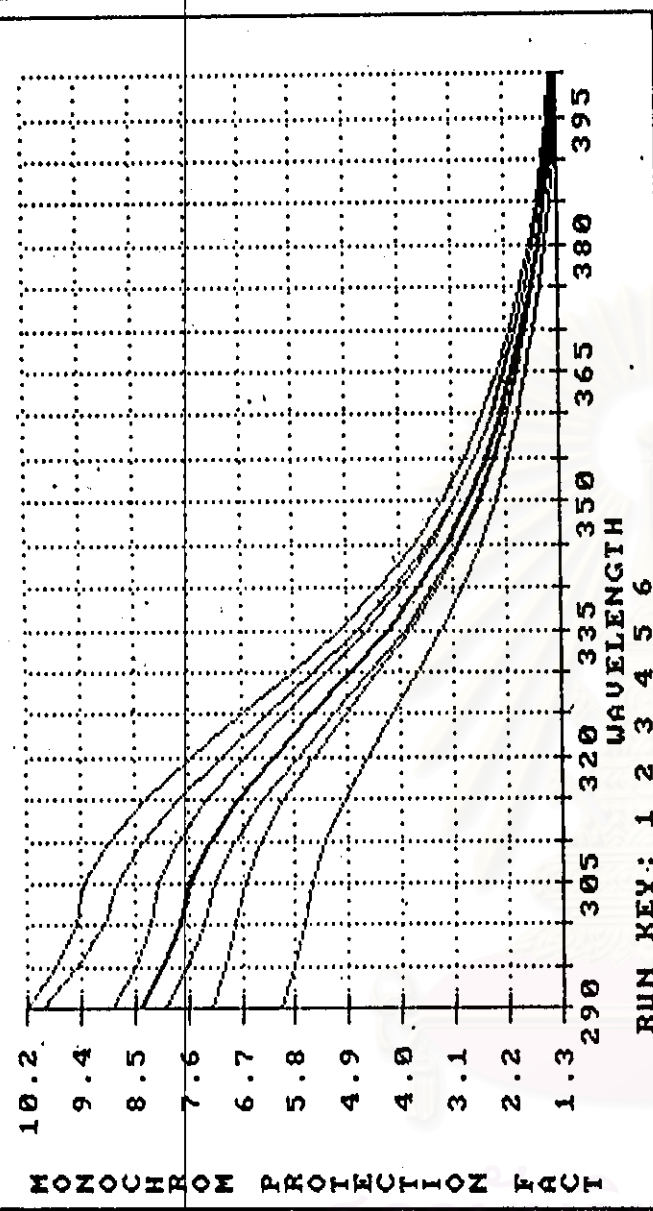
Sample: Formular 94
 Thickness: 2.0 ul/cm2
 Ref: TRANSPORE Operator: 1.0
 Runs: 6
 Date: 12/19/97 16:07:51
 File: None

QUANTITY (MPF)	VALUE	S.D.
SPF:	9.3	1.0
UVA/UVB Ratio:	.45	.02
Average UVA PF:	4.0	.9
Erythema UVA PF:	4.7	.8

Lambda	MPF	+/- SD
290	12.9	4.8
295	12.3	4.3
300	11.9	4.0
305	12.6	4.3
310	13.0	4.6
315	12.2	4.3
320	10.8	3.6
325	9.1	2.9
330	7.6	2.1
335	6.4	1.6
340	5.5	1.2
345	4.6	.9
350	3.9	.7
355	3.2	.5
360	2.7	.4
365	2.3	.3
370	2.0	.2
375	1.8	.1
380	1.6	.1
385	1.5	.1
390	1.4	.1
395	1.4	.1
400	1.3	.1

10 -- 10
 40 NORTH 20 ZENITH

Erythema Action Spectrum
 SPF 290 Analyzer by The Optometrics Group



Lambda	MPF	+/-	SD
290	8.4	1.7	
295	8.0	1.5	
300	7.7	1.4	
305	7.6	1.4	
310	7.2	1.3	
315	6.8	1.2	
320	6.1	1.1	
325	5.5	.9	
330	4.9	.8	
335	4.2	.6	
340	3.7	.5	
345	3.2	.4	
350	2.9	.3	
355	2.5	.3	
360	2.3	.2	
365	2.1	.2	
370	1.9	.2	
375	1.8	.1	
380	1.7	.1	
385	1.5	.1	
390	1.5	.1	
395	1.4	.1	
400	1.4	.1	

Sample: Formuler 25 Runs: 6 12/19/97 15:23:01

Thickness: 2.0 u/cm2 Ref: TRANSPORE Operator: 1.0

File: None

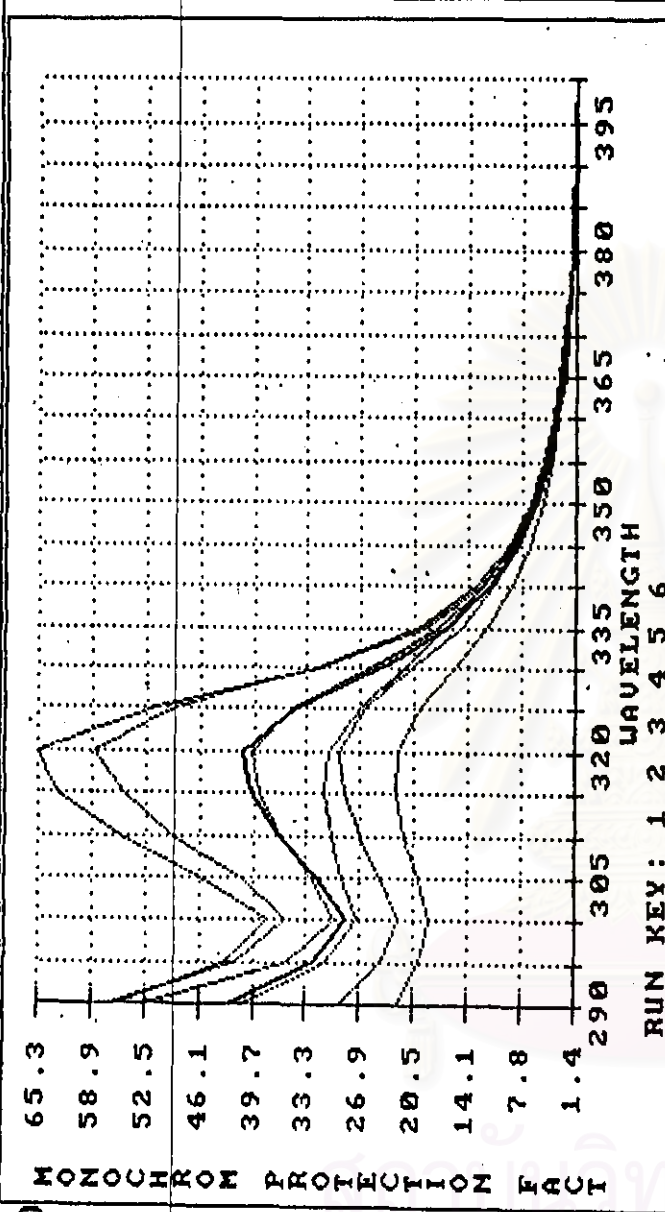
QUANTITY (MPF)	VALUE	S.D.
SPF:	6.1	.4
UVA/UVB Ratio:	.46	.01
Average UVA PF:	2.9	.4
Erythmal UVA PF:	3.6	.4

10 -- 10

40 NORTH 20 ZENITH

Erythmal Action Spectrum

SPF 290 Analyzer by The Optometrics Group



Sample: Formula 24 Runs: 6 12/19/97 16:46:14

Thickness: 2.0 u/cm2 Ref: TRANSPORE Operator: 1.0

File: None

QUANTITY (MPF)	VALUE	S.D.
SPF:	20.0	1.6
UVA/UVB Ratio:	.46	.02
Average UVA PF:	9.9	2.4
Erythemat UVA PF:	7.7	.6

Lambda	MPF	+/- SD
290	43.0	14.5
295	32.8	9.4
300	28.8	7.6
305	32.3	9.8
310	36.8	13.1
315	40.1	15.9
320	41.0	17.2
325	34.8	12.8
330	24.7	6.4
335	16.9	3.0
340	11.9	1.6
345	8.6	.9
350	6.3	.6
355	4.8	.4
360	3.7	.3
365	3.0	.2
370	2.5	.1
375	2.2	.1
380	1.9	.1
385	1.7	.1
390	1.6	.0
395	1.5	.0
400	1.4	.0

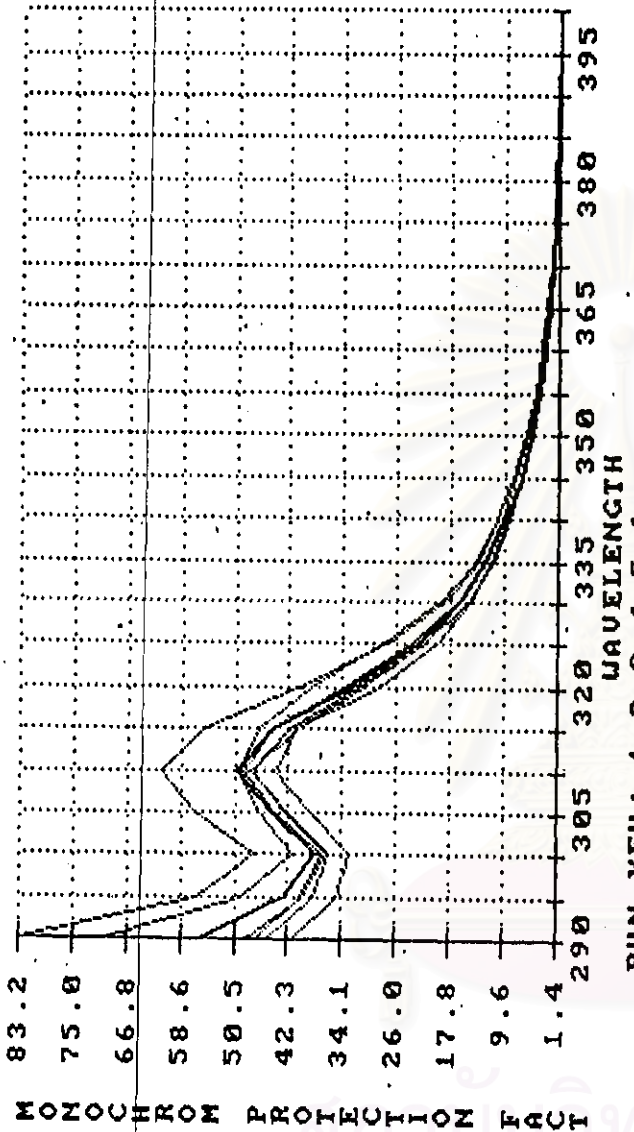
10 -- 10

40 NORTH 20 ZENITH

Erythemat Action Spectrum

SPF 290 Analyzer by The Optometrics Group

Lambda	MPF	+/- SD
290	56.1	16.6
295	43.4	8.0
300	38.7	5.1
305	45.3	6.0
310	50.2	6.0
315	45.0	5.4
320	34.0	4.8
325	23.5	3.4
330	16.7	1.9
335	12.7	1.1
340	10.0	.8
345	7.8	.6
350	6.0	.4
355	4.6	.3
360	3.7	.2
365	3.0	.1
370	2.5	.1
375	2.2	.1
380	1.9	.1
385	1.7	.0
390	1.6	.0
395	1.5	.0
400	1.5	.0

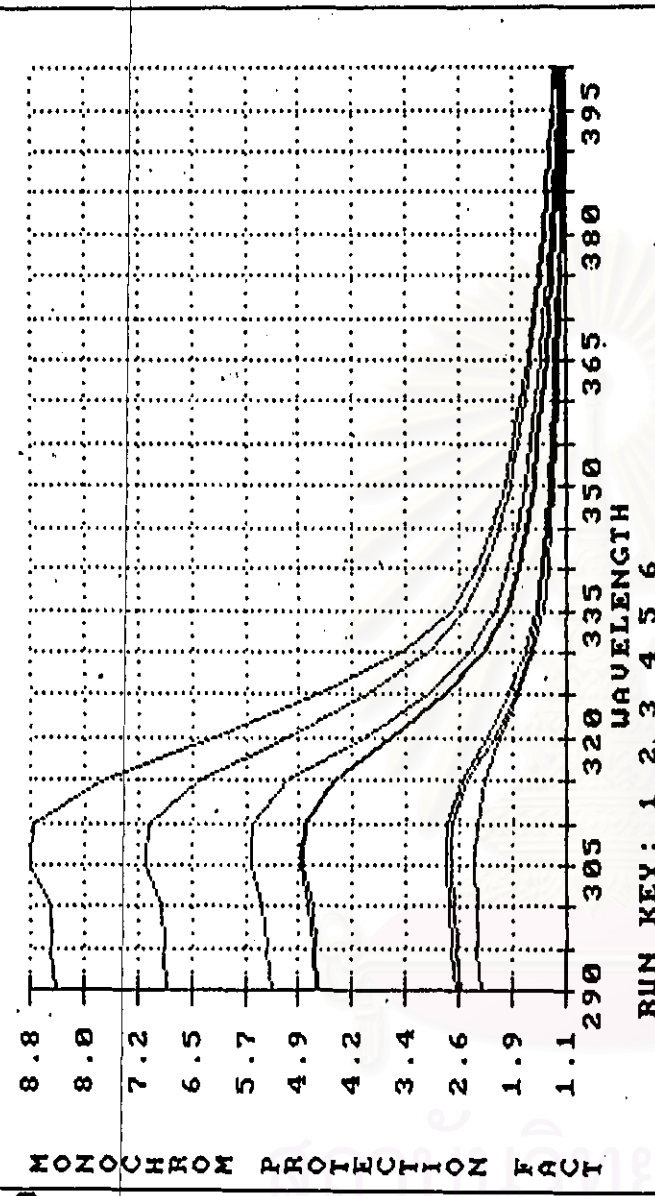


RUN KEY: 1 2 3 4 5 6
 Sample: Formula 27 Runs: 6 12/19/97 16:36:40
 Thickness: 2.0/u1/cm2 Ref: TRANSPORE Operator: 1.0
 File: None
 QUANTITY (MPF) VALUE S.D.
 SPF: 22.3 .6
 UVA/UVB Ratio: .40 .01
 Average UVA PF: 7.9 .8
 Erythemat UVA PF: 7.3 .4

10 -- 10
 40 NORTH 20 ZENITH

Erythemat Action Spectrum

SPF 290 Analyzer by The Optometrics Group

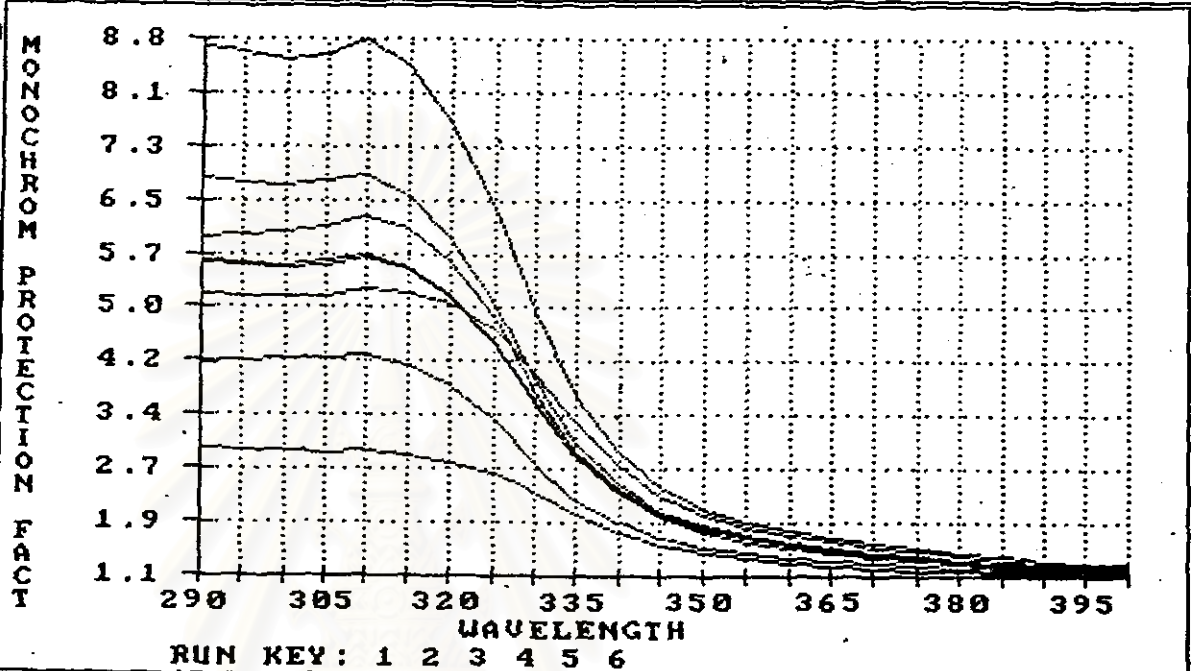


RUN KEY: 1 2 3 4 5 6
 Sample: *Formular 28* Runs: 6 12/18/97 15:49:25
 Thickness: 2.0 ul/cm2 Ref: TRANSPORE Operator: 1.0
 File: None
 QUANTITY (MPF) VALUE S.D.
 SPF: 3.8 .7
 UVA/UVB Ratio: .30 .02
 Average UVA PF: 1.7 .4
 Erythemat UVA PF: 2.1 .6

Lambda	MPF	+/- SD
290	4.7	2.6
295	4.7	2.6
300	4.8	2.6
305	4.9	2.7
310	4.9	2.7
315	4.4	2.3
320	3.6	1.8
325	2.9	1.2
330	2.3	.8
335	2.0	.6
340	1.8	.4
345	1.7	.4
350	1.6	.3
355	1.5	.3
360	1.4	.2
365	1.4	.2
370	1.3	.2
375	1.3	.1
380	1.3	.1
385	1.2	.1
390	1.2	.1
395	1.2	.1
400	1.2	.1

10 --- 10
 40 NORTH 20 ZENITH
 Erythemat Action Spectrum

Lambda	MPF	+/- SD
290	5.7	2.0
295	5.6	2.0
300	5.6	2.0
305	5.6	2.0
310	5.7	2.1
315	5.5	1.9
320	5.1	1.7
325	4.5	1.4
330	3.6	1.0
335	2.9	.7
340	2.3	.5
345	2.0	.3
350	1.8	.3
355	1.7	.2
360	1.6	.2
365	1.5	.2
370	1.4	.1
375	1.4	.1
380	1.3	.1
385	1.3	.1
390	1.2	.1
395	1.2	.1
400	1.2	.1



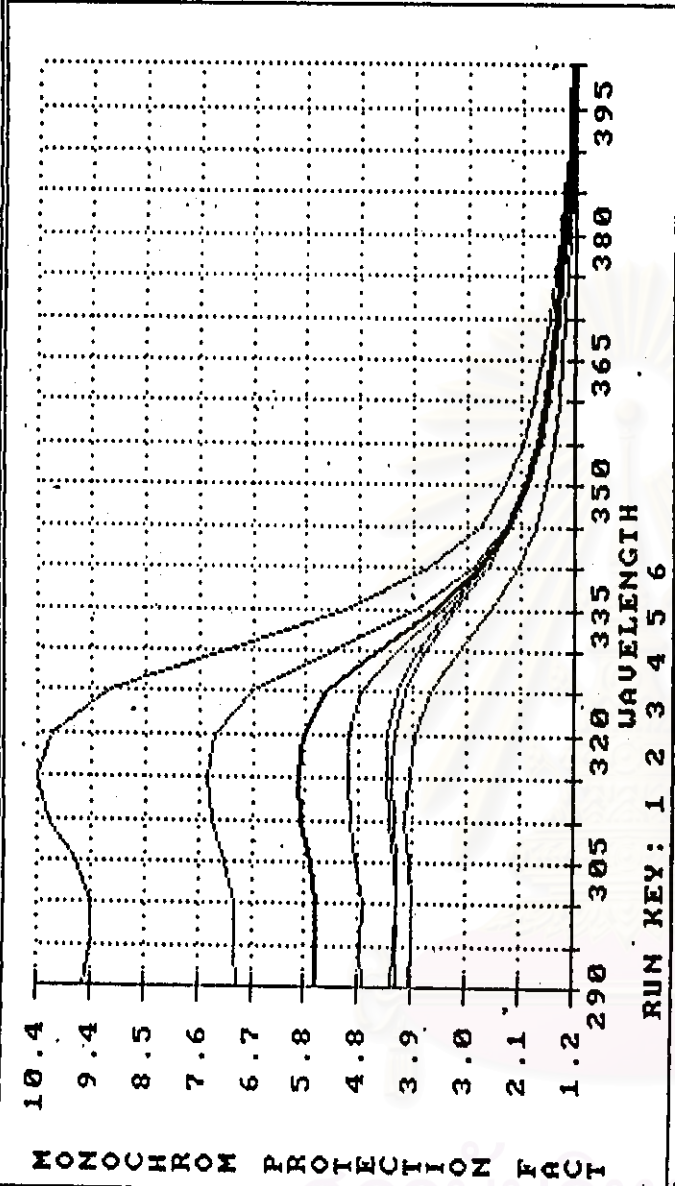
RUN KEY: 1 2 3 4 5 6
 Sample: Formulax 29 Runs: 6 12/18/97 16:29:27
 Thickness: 2.0 ul/cm2 Ref: TRANSPORE Operator: 1.0
 File: None

QUANTITY (MPF)	VALUE	S.D.
SPF:	4.6	.6
UVA/UVB Ratio:	.36	.03
Average UVA PF:	2.1	.4
Erythema UVA PF:	2.6	.5

10 -- 10
40 NORTH 20 ZENITH

Erythemal Action Spectrum

SPF 290 Analyzer by The Sun



Lambda	MPF	+/- SD
290	5.6	2.2
295	5.6	2.2
300	5.6	2.2
305	5.7	2.3
310	5.9	2.4
315	5.9	2.5
320	5.8	2.4
325	5.4	2.1
330	4.5	1.4
335	3.6	.8
340	2.8	.5
345	2.3	.3
350	2.0	.2
355	1.8	.2
360	1.7	.1
365	1.6	.1
370	1.5	.1
375	1.4	.1
380	1.4	.1
385	1.3	.1
390	1.3	.0
395	1.2	.0
400	1.2	.0

RUN KEY: 1 2 3 4 5 6
 Sample: - Formula 30 Runs: 6 12/18/97 16:18:51
 Thickness: 2.0 ul/cm2 Ref: TRANSPORE Operator: 1.0
 File: None

QUANTITY (MPF) VALUE S.D.
 SPF: 4.8 .7
 UVA/UVB Ratio: .42 .03
 Average UVA PF: 2.4 .5
 Erythemat UVA PF: 2.9 .5

Formula 30

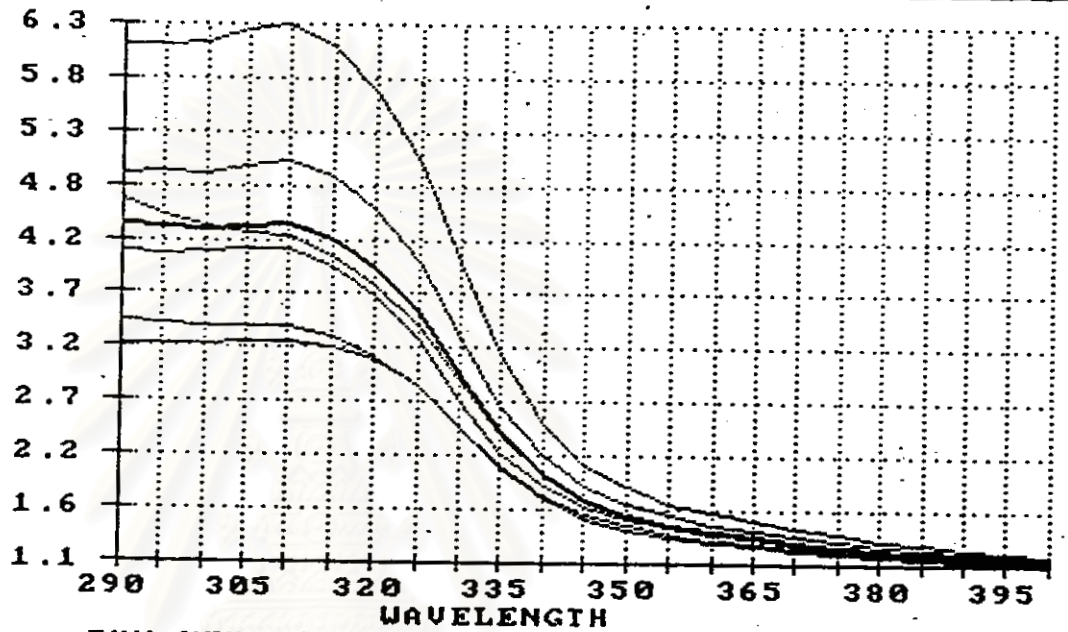
10 -- 10
 40 NORTH 20 ZENITH

Erythemat Action Spectrum

SPF 290 Analyzer by The Optometric Group

Lambda	MPF	+/-	SD
290	4.4	1.1	
295	4.4	1.1	
300	4.4	1.1	
305	4.4	1.1	
310	4.4	1.1	
315	4.3	1.1	
320	4.0	1.0	
325	3.6	.8	
330	3.0	.6	
335	2.4	.4	
340	2.0	.3	
345	1.7	.2	
350	1.6	.2	
355	1.5	.1	
360	1.4	.1	
365	1.4	.1	
370	1.3	.1	
375	1.3	.1	
380	1.3	.1	
385	1.2	.1	
390	1.2	.0	
395	1.2	.0	
400	1.2	.0	

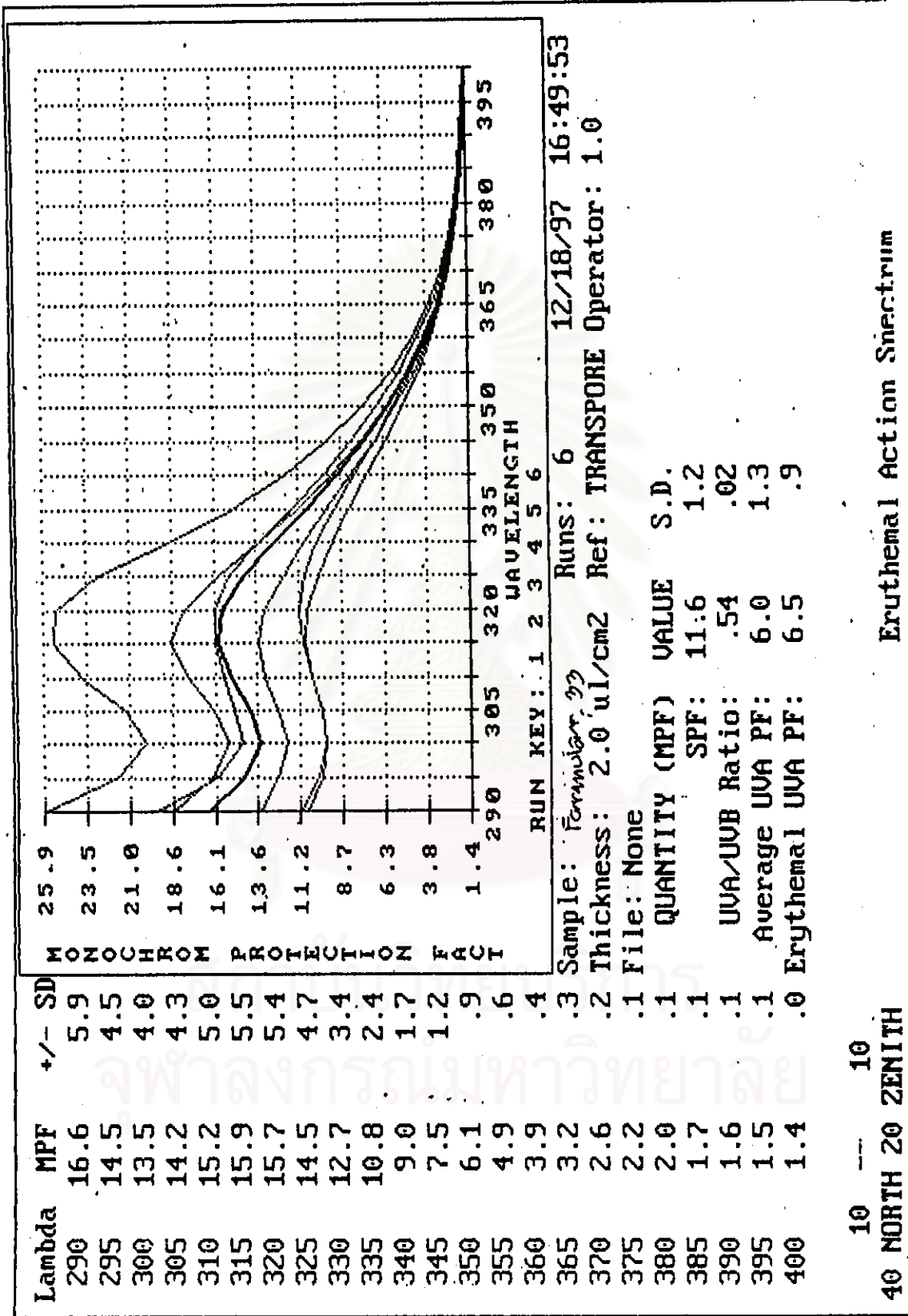
MONOCHROM PROTECTION FACT



.1 Sample: *Formular #1* Runs: 6 12/18/97 16:24:16
 .1 Thickness: 2.0 ul/cm2 Ref: TRANSPORE Operator: 1.0
 .1 File: None
 .1 QUANTITY (MPF) VALUE S.D.
 .1 SPF: 3.7 .3
 .0 UVA/UVB Ratio: .35 .01
 .0 Average UVA PF: 1.8 .2
 .0 Erythema UVA PF: 2.3 .3

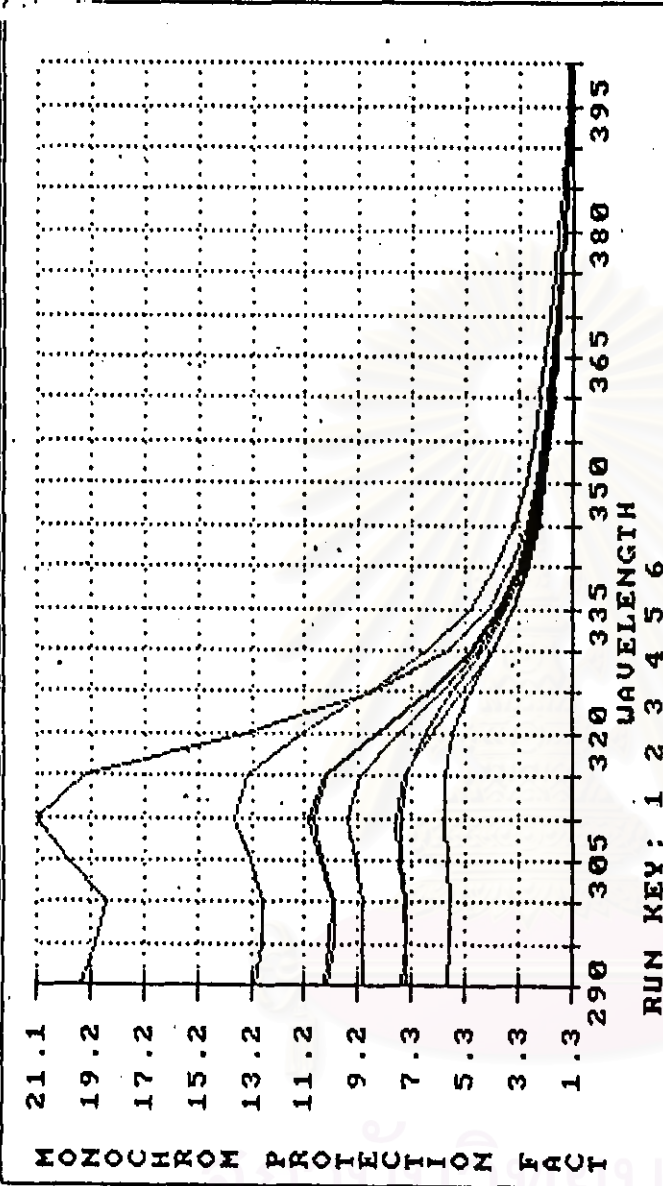
10 — 10
40 NORTH 20 ZENITH

Erythema Action Spectrum



10 -- 10
40 NORTH 20 ZENITH

Erythemat Action Spectrum



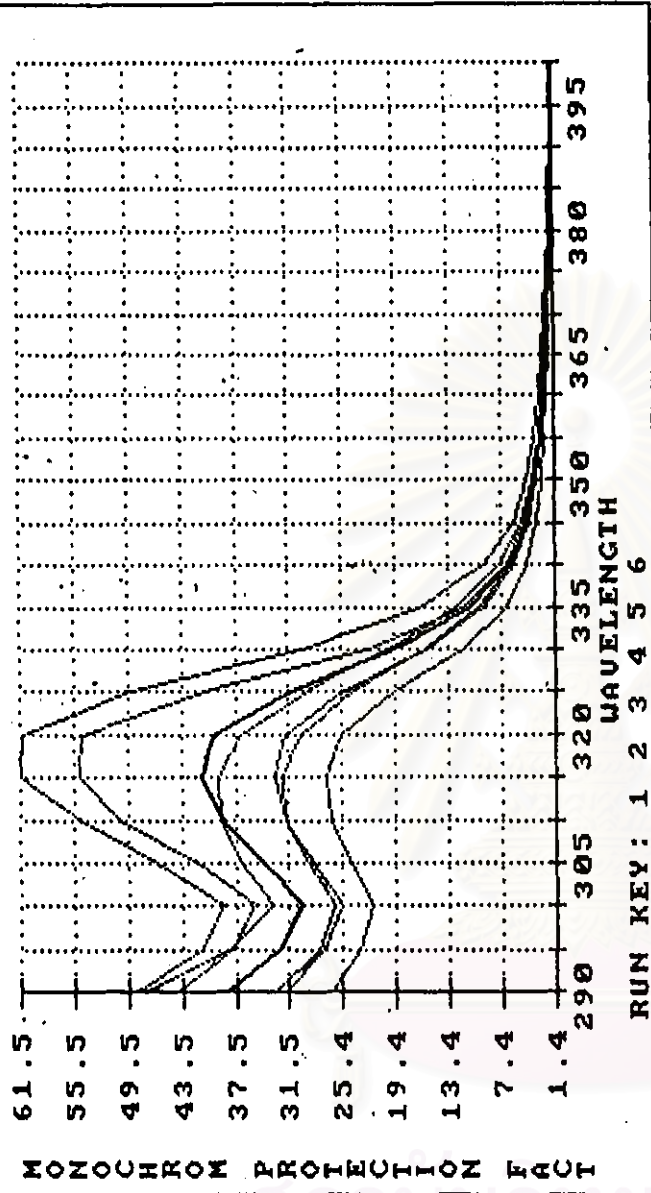
Sample: *Erinolsin 94* Runs: 6 12/18/97 15:37:46
 Thickness: 2.0 ul/cm2 Ref: TRANSPORE Operator: 1.0
 File: None
 QUANTITY (MPF) VALUE S.D.
 SPF: 7.6 1.1
 UVA/UVB Ratio: .40 .04
 Average UVA PF: 3.0 .5
 Erythmal UVA PF: 3.7 .5

Lambda	MPF	+/-	SD
290	10.5	5.1	
295	10.3	4.8	
300	10.2	4.7	
305	10.7	5.2	
310	11.0	5.6	
315	10.5	5.0	
320	8.6	3.1	
325	6.6	1.7	
330	5.1	1.0	
335	4.0	.6	
340	3.3	.4	
345	2.9	.3	
350	2.6	.3	
355	2.3	.2	
360	2.2	.2	
365	2.0	.2	
370	1.9	.1	
375	1.7	.1	
380	1.6	.1	
385	1.5	.1	
390	1.5	.1	
395	1.4	.1	
400	1.4	.1	

10 -- 10
 40 NORTH 20 ZENITH

Erythmal Action Spectrum

Lambda	MPF	+/- SD
290	38.6	9.3
295	32.8	7.3
300	30.2	6.5
305	34.5	8.5
310	39.1	11.2
315	41.3	13.8
320	40.0	14.4
325	31.3	11.3
330	19.4	6.4
335	11.1	3.3
340	6.8	1.7
345	4.6	.9
350	3.5	.6
355	3.0	.4
360	2.6	.3
365	2.3	.2
370	2.1	.2
375	2.0	.1
380	1.8	.1
385	1.7	.1
390	1.6	.1
395	1.5	.1
400	1.5	.1



RUN KEY: 1 2 3 4 5 6
 Sample: Formular 25
 Runs: 6
 Thickness: 2.0 ul/cm2
 Ref: TRANSPORE Operator: 1.0
 File: None
 Date: 12/19/97 15:52:07

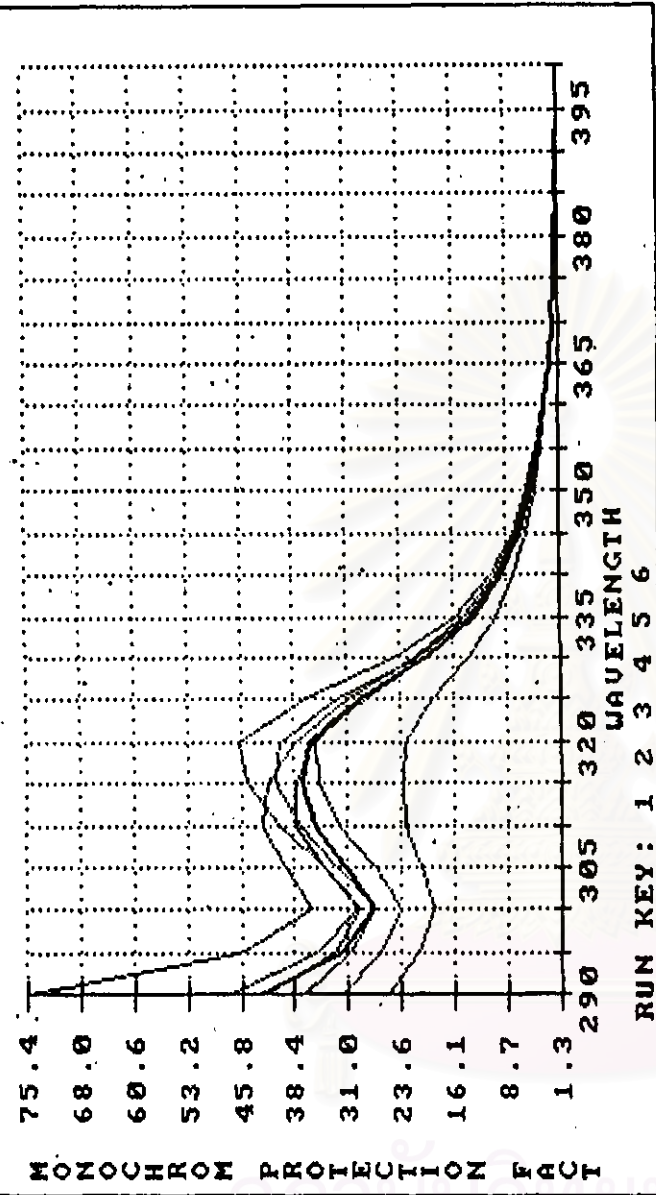
QUANTITY (MPF)	VALUE	S.D.
SPF:	18.3	1.1
UVA/UVB Ratio:	.38	.02
Average UVA PF:	8.1	2.3
Erythemat UVA PF:	6.1	.9

10 -- 10

40 NORTH 20 ZENITH

Erythemat Action Spectrum

SPF 290 Analyzer by The Optometrics Group



Lambda	MPF	+/- SD
290	43.2	17.6
295	32.1	8.4
300	27.5	5.7
305	31.4	6.6
310	35.7	7.2
315	37.5	7.7
320	36.4	7.7
325	29.3	5.9
330	20.0	3.4
335	13.5	1.9
340	9.5	1.1
345	7.0	.7
350	5.3	.4
355	4.1	.2
360	3.2	.1
365	2.7	.1
370	2.3	.1
375	2.0	.1
380	1.8	.0
385	1.6	.0
390	1.5	.0
395	1.4	.0
400	1.4	.0

RUN KEY: 1 2 3 4 5 6
 Sample: Formula 26 Runs: 6 12/19/97 16:52:20
 Thickness: 2.0 u/cm2 Ref: TRANSPORE Operator: 1.0
 File: None
 QUANTITY (MPF) VALUE S.D.
 SPF: 18.7 .9
 UVA/UVB Ratio: .42 .01
 Average UVA PF: 8.4 1.3
 Erythemat UVA PF: 6.9 .4

Report Form of Sun Protection Factor Determination

Sun Protection Factor Determination Protocol

Case no _____ Name _____ Age _____ Y. _____

Date of testing _____ / _____ /199_____ Skin type _____

Fitzpatrick Skin type	Sunburn (covered area)	Tanning (covered area)	Skin color (covered area)	note
1	always	never	white	
2	always	minimally	white	
3	minimally	gradually	light brown	
4	minimally	always tan	moderate	
5	rarely	profusely	dark brown	
6	rarely	profusely	black	

Sunscreen $2\mu\text{l}/\text{cm}^2 = 0.1 \text{ cc}/50 \text{ cm}^2$ Applied before irradiation 15 min.

Testing site Upper back Total time consuming (minute) = Expected SPF

Value Increment 25%

Mapping

Basic MED value x _____ min.

(3) (4)
(2) (5)
(1) (6)

Reading : Erythema at 24 h. (Value = basic MED)

Channel	Unprotect	1	2	3	4	Control
1						
2						
3						
4						
5						
6						

Conclusion

SPF of 1. _____ = _____ bMED / _____ bMED = _____

SPF of 2. _____ = _____ bMED / _____ bMED = _____

SPF of 3. _____ = _____ bMED / _____ bMED = _____

SPF of 4. _____ = _____ bMED / _____ bMED = _____

SPF of Control _____ = _____ bMED / _____ bMED = _____

Report by _____ Date _____ / _____ / 199 _____

Somsak Tanrattanakorn, Phototherapy Unit, Division of Dermatology,

Ramathibodi Hospital :

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

ใบยินยอมให้ทำการวิจัยในคน

การวิจัยเรื่อง.....
วันที่ให้คำยินยอม วันที่.....เดือน.....พ.ศ.....
ข้าพเจ้า (นาย/นาง/นางสาว).....นามสกุล.....อายุ.....ปี
ที่อยู่บ้านเลขที่.....แขวง/ตำบล.....
เขต/อำเภอ.....จังหวัด.....

ก่อนที่จะลงนามในใบยินยอมให้ทำการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยถึงวัตถุประสงค์ของการวิจัย วิธีการวิจัย อันตรายหรืออาการที่อาจเกิดขึ้นจากการวิจัยหรือจากยาที่ใช้ รวมทั้งประโยชน์ที่จะเกิดขึ้นจากการวิจัยอย่างละเอียดและมีความเข้าใจดีแล้ว

ผู้วิจัยรับรองว่าจะตอบคำถามต่าง ๆ ที่ข้าพเจ้าสงสัยด้วยความเต็มใจ ไม่ปิดบังซ่อนเร้นจนข้าพเจ้าพอใจ

ข้าพเจ้าเข้าร่วมโครงการวิจัยนี้โดยสมัครใจ และมีสิทธิที่จะบอกเลิกการเข้าร่วมในโครงการวิจัยนี้เมื่อใดก็ได้ การบอกเลิกการเข้าร่วมการวิจัยนี้จะไม่ผลต่อการรักษาโรคที่ข้าพเจ้าจะได้รับต่อไป

ผู้วิจัยรับรองว่าจะเก็บข้อมูลเฉพาะเกี่ยวกับตัวข้าพเจ้าเป็นความลับและจะเปิดเผยได้เฉพาะในรูปแบบที่เป็นสรุปผลการวิจัย

(หรือข้าพเจ้าอนุญาตให้ผู้วิจัยเปิดเผยข้อมูลเกี่ยวกับตัวข้าพเจ้าต่อหน่วยงานต่าง ๆ ที่เกี่ยวข้องได้ตามที่ผู้วิจัยเห็นสมควร ข้อความนี้ถ้าไม่ต้องการให้ขีดออก)

ผู้วิจัยรับรองว่า จะดำเนินการด้วยความระมัดระวังอย่างดีที่สุด และรับรองว่าหากเกิดมีอันตรายใด ๆ จากการวิจัยดังกล่าวข้าพเจ้าจะได้รับการรักษาพยาบาลโดยไม่คิดมูลค่า

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้วและมีความเข้าใจดีทุกประการ และได้ลงนามในใบยินยอมนี้ด้วยความเต็มใจ

ลงนาม.....(ผู้ยินยอม)

ลงนาม.....(ผู้รับผิดชอบในการวิจัย)

ลงนาม.....(พยาน)

ลงนาม.....(พยาน)



VITA

Miss Supattra Boonserm was born in January 27, 1971 in Samutsakhon, Thailand. She has received her Bachelor degree of Science in Pharmacy from the Faculty of Pharmaceutical Sciences, Silpakorn University, Nakhon Pathom, Thailand since 1993. After graduation, She had been worked as a pharmacist in the pharmacy department in Loei Hospital, Loei province from 1993 to 1995. In 1995 - 1996, she worked at Hua - chiew Hospital, Bangkok before entering the Master's Degree programme in Pharmacy at Chulalongkorn University.



สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย