Asahi Kasei Chemicals Corporation

Imaging Products Marketing & Sales Department

Topics of the month: How should be the optimal exposure conditions determined?

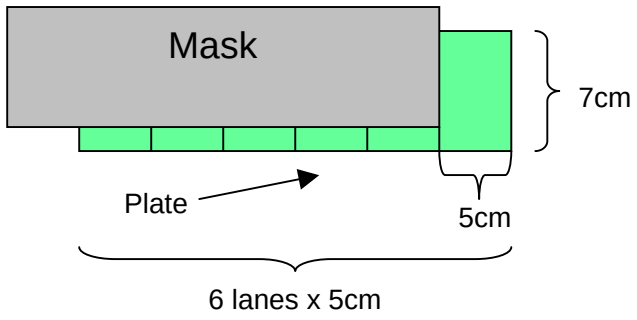
In order to obtain/maintain good exposure conditions, “Back exposure test” and “Face exposure test” should be done from time to time. AFP plates have constant sensitivity to the UV light, but plate reproduction comes under the influence of other technical factors such as power of UV lamps, type of negative films, transparency of vacuum sheets and so on. Therefore, to define the best exposure condition, please carry out the exposure test, referring to following information.

=Procedures=

1. Back exposure test

   1) Prepare an unexposed plate.

   An unexposed plate large enough to cover the continuous 6 lanes of 5cm x 7cm space should be used to obtain an accurate thickness.



   2) Give same back exposure to each step. Appropriate back exposure time for each thickness is indicated as below:

Plate thickness (mm)	Back exposure time (seconds)
1.14 to 2.28	10 to 30
2.54 to 3.18	30 to 60
3.94 to 6.35	60 to 90

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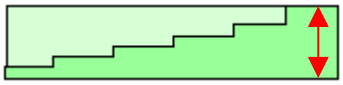
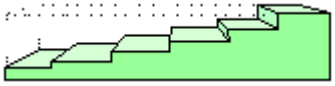
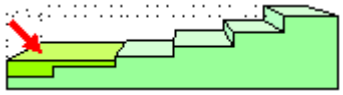
*It depends on an intensity of the UV lamps.

3) Last step must be hardened completely.

This step will be a reference for the total plate thickness.



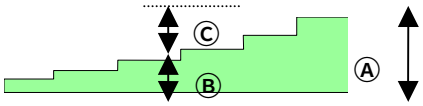
4) Wash out the plate until all portion of the unexposed polymer is completely removed, since remained polymer would bring faulty results.

OK  NG 

5) Record the plate thickness of each step.

6) Calculate the relief depth of each step.

Relief depth (C) = Total thickness (A) – Floor layer thickness (B)



7) Make a back exposure curve, plotting the results. Necessary back exposure time for requested relief depth would be obtained from this curve.

2. Face exposure test

1) Give a certain amount of back exposure lead by the result of back exposure test and recommended relief depth shown in the below list.

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Recommendation for relief depth by plate thickness

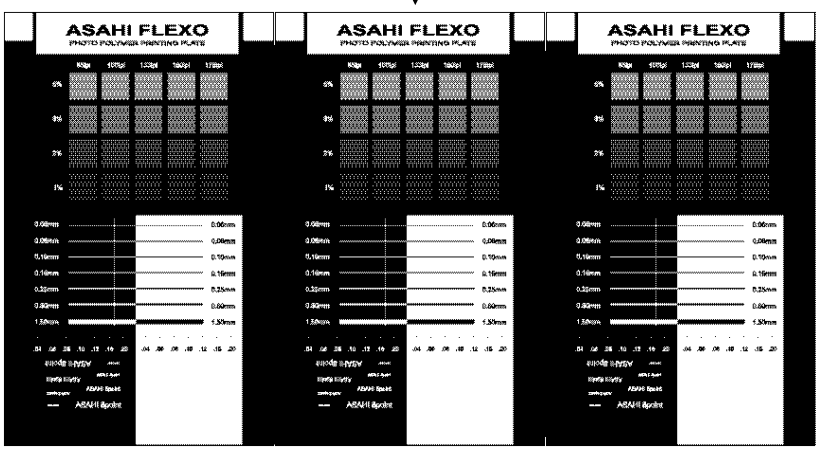
Plate thickness (mm)	Reproduction (mm)			
	Line work	3%/85lpi	3%/120lpi	1%/150lpi
1.14	0.7	0.6	0.6	0.5
1.70	0.7	0.7	0.7	0.6
2.28	0.8	0.7	0.7	0.6
2.54	1.0	0.9 / 1.0	0.8	0.6 / 0.7
2.84	1.2	0.9 / 1.0	0.8	0.6 / 0.7
3.18	1.8	0.9 / 1.0	0.8	0.6 / 0.7
3.94	2.0	1.0 / 1.2	N/A	N/A
4.70	2.0	1.0 / 1.2	N/A	N/A
5.00	2.0	1.0 / 1.2	N/A	N/A
6.00	2.0	1.0 / 1.2	N/A	N/A
6.35	2.0	1.0 / 1.2	N/A	N/A

*It depends on an intensity of the UV lamps.

2) Provide the face exposure to unexposed plate, using Asahi test negative chart. Two types of test charts are available from Asahi:

Type 1: For label, flexible packaging and beverage carton

Type 2: For corrugated board and paper bag



A B C

Face exposure time for each step should be set in accordance with the guidance

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shown in the next page.

A: 30% shorter than standard face exposure time

B: Standard face exposure time

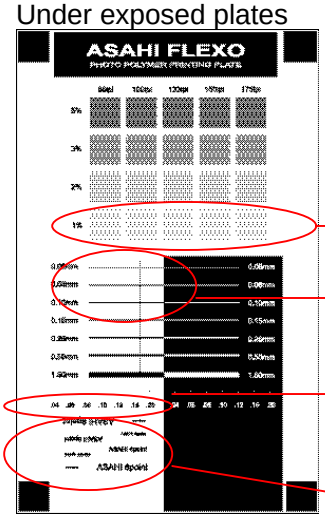
C: 30% longer than standard face exposure time

3) Wash out the plate with standard conditions.

4) Dry the plates at least one hour at 60degrees Celsius (140 degrees Fahrenheit).

3. Check points for quality

Under exposed plates



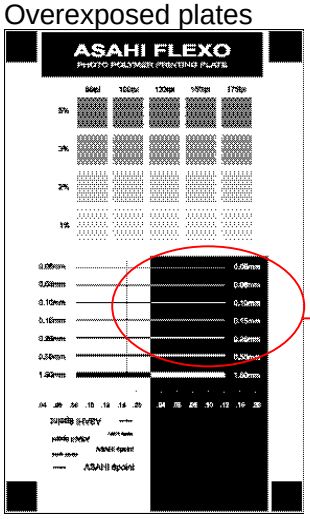
Fine highlight dots are not formed.

Isolated lines are wavy.

Fine small dots are not formed.

Reproduction of small sized texts is poor.

Overexposed plates



Reverse lines are shallow.

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