

COMPARATIVE FILM SPEEDS

Grain	ISO	ASA	DIN	Speed
Fine	25/15°	25	15°	Slow
	32/16°	32	16°	
	50/18°	50	18°	
	64/19°	64	19°	
Medium	80/20°	80	20°	Medium
	100/21°	100	21°	
	125/22°	125	22°	
	160/23°	160	23°	
	200/24°	200	24°	
Coarse	400/27°	400	27°	Fast
	800/30°	800	30°	
	1000/31°	1000	31°	
	2000/34°	2000	34°	
	3200/36°	3200	36°	

At the present time most manufacturers quote an ISO (International Standards Organisation) rating for film speeds. This combines the previous American Standards Association (ASA) rating and European Deutsche Industrie Normen (DIN) rating. In the ASA system doubling the number indicates that the film speed has been doubled. In the DIN system an increase of 3° indicates that the film speed has been doubled.

DENSITOMETRY DATA

This table showing the relation between Density, Opacity and Transmission (%) enables one to convert densitometer readings into opacity and transmission values. Thus, first measuring the maximum and minimum densities on a densitometer and then converting them to opacity values may estimate the Opacity Scale of a negative, which is the ratio of the maximum - to the minimum - opacity values.

Density	Opacity	Transmission	Density	Opacity	Transmission
0	1.0	100	1.6	40.0	2.5
0.2	1.6	63	1.8	63.0	1.6
0.4	2.5	40	2.0	100.0	1.0
0.6	4.0	25	2.2	160.0	0.63
0.8	6.3	16	2.4	250.0	0.4
1.0	10.0	10	2.6	400.0	0.25
1.2	16.0	6.3	2.8	630.0	0.16
1.4	25.0	4.0	3.0	1000.0	0.10

MACROPHOTOGRAPHY DATA

Increase in exposure required when using extension tubes or bellows:

$$\frac{(L + E)^2}{L^2} = \text{Exposure factor where E is the additional extension}$$

Example: focal length = 5cm; extension = 5cm

$$\frac{(5+5)^2}{5^2} = \frac{(10)^2}{5^2} = \frac{100}{25} = x4$$

increase exposure four times (i.e. open up two stops)