



Holotest

films and plates for holography



AGFA-GEVAERT

HOLOTEST films and plates for holography

Holography is a technique that appears to have left the experimental stage after a relatively short time. The most successful applications of holography are non-destructive testing of materials and display.

The Agfa-Gevaert holographic emulsions have undoubtedly contributed to this rapid development.

This folder contains the most salient facts on the various HOLOTEST emulsions. Agfa-Gevaert will be pleased to supply you with any additional information you may require.

Since the dimensions of the structure of the interference pattern to be recorded are usually of the order of magnitude of the wavelength of the light used for exposure, a very high resolving power is a prime requirement of any holographic emulsion. High sensitivity is also essential when brief exposures are desired.

To meet the various practical demands of holography, Agfa-Gevaert supply a number of HOLOTEST emulsions, namely HOLOTEST 8 E 75 and the more sensitive 10 E 75 for red laser light, and HOLOTEST 8 E 56 and the more sensitive 10 E 56 emulsion for blue and green laser light.

Density curves

For plotting the curves, the exposures of Holotest 8 E 75 and 10 E 75 were effected at the principal wavelength of the helium-neon laser (633 nm) and of Holotest 8 E 56 and 10 E 56 at that of the krypton laser (476 nm and 521 nm). The material was processed for 5 minutes in Agfa-Gevaert developer G 3 p and for 4 minutes in fixer G 334, followed by washing for 5 minutes.

Amplitude transmission curves

Since amplitude transmission plays a very important part in holography, we reproduce also the amplitude transmission curves.

Approximate values of light intensities for $|T_a| = 0.5$ (corresponding to $D = 0.6$):

20 erg/cm² for emulsion 10 E 75

75 erg/cm² for emulsion 8 E 75

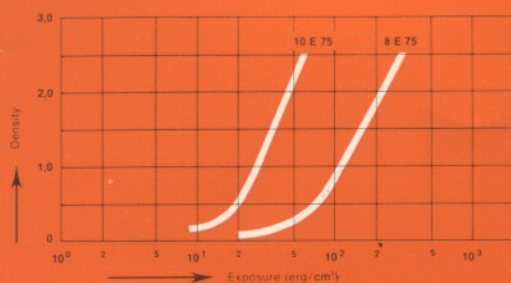
at 633 nm

10-20 erg/cm² for emulsion 10 E 56

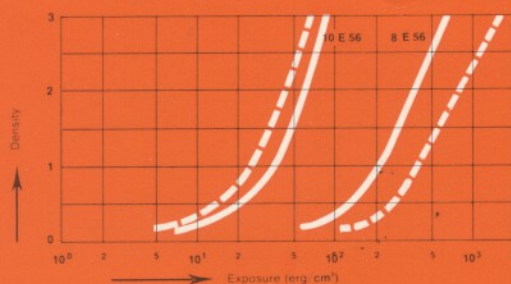
150-300 erg/cm² for emulsion 8 E 56 at 476 nm and 521 nm

Spectral sensitivity

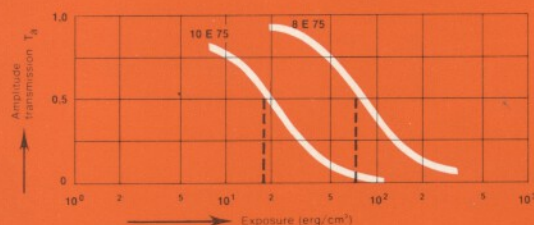
Holographic emulsions Holotest 8 E 75 and 10 E 75 are specifically sensitized for wavelengths between 600 and 750 nm, which include those of the helium-neon laser (633 nm) and the ruby laser (694 nm). Holotest 8 E 56 and 10 E 56 are suitable for recording wavelengths up to 560 nm (krypton and argon lasers). The above density and amplitude transmission curves apply to the wavelength of the helium-neon laser (633 nm) and the krypton laser (521 nm) respectively. The following spectrograms will make it possible to convert the exposure to other wavelengths.



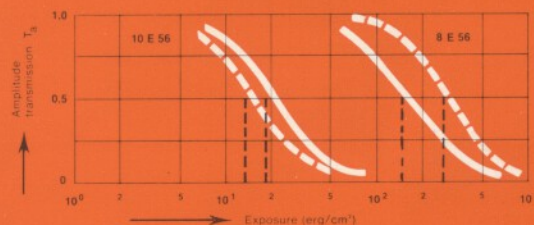
Characteristic curve for Holotest 8 E 75 and 10 E 75 at $\lambda = 633$ nm



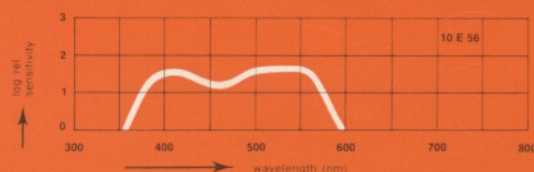
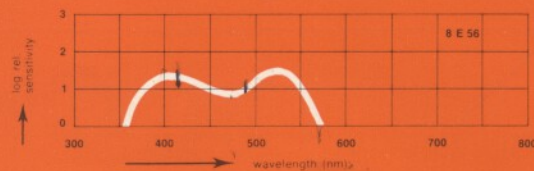
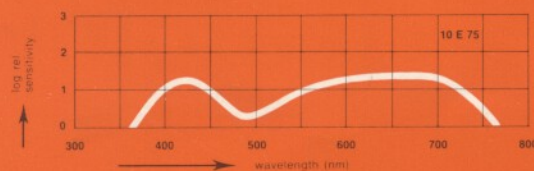
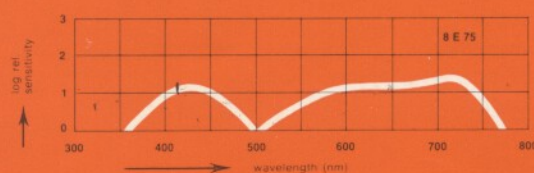
Characteristic curve for Holotest 8 E 56 and 10 E 56 at $\lambda = 476$ nm ---- $\lambda = 521$ nm —



Amplitude transmission curves at $\lambda = 633$ nm



Amplitude transmission curves at $\lambda = 476$ nm ---- $\lambda = 521$ nm —



Spectral sensitivity for an equi-energetic spectrum

PROCESSING

Darkroom illumination

Recommended Agfa-Gevaert
safelight filters :
complete darkness for Holotest
8 E 75 and 10 E 75
R4 (dark red) for Holotest 8 E 56 and
10 E 56

Processing

Amplitude holograms

Development :
4 - 5 minutes in G 280 c (1 + 4),
G 3 p or Metinol U at 20° C
Fixing : 4 minutes in G 334 or G 321

Phase holograms

1. Develop for 5 minutes in G 3 p at
20° C. DO NOT FIX (pre-bleach
density approx. 2 - 4).

2. Stop bath (1 per cent solution of
acetic acid), 2 minutes
3. Wash for 5 minutes
4. Bleach for 2 minutes in :
potassium bichromate 5 g
concentrated sulphuric acid 5 ml
distilled water to make 1 l
5. Wash for 5 minutes
6. Clear for 1 minute in :
sodium sulphite (anhyd.) 50 g
sodium hydroxide 1 g
distilled water to make 1 l
7. Wash for 5 minutes
8. Desensitize for 10 minutes in :
ethyl alcohol 88 per cent
distilled water 10 per cent
glycerine 2 per cent
potassium bromide 120 mg/litre
phenosafranine 200 mg/litre
9. Rinse briefly in ethyl alcohol
and dry.

Product range	Plates	Films
Holotest 10 E 75	with or without anti-halation layer	with anti-halation layer
Holotest 8 E 75	with or without anti-halation layer	with anti-halation layer
Holotest 8 E 75 B	without anti-halation layer	without anti-halation layer
Holotest 8 E 56	anti-halation in the emulsion	
Holotest 10 E 56	with or without anti-halation layer	with anti-halation layer

Emulsion thickness

on films	5 μ m for	10 E 75,	8 E 75,	10 E 56,	
on plates	7 μ m for	10 E 75,	8 E 75,	10 E 56,	8 E 56
on films	15 μ m for	8 E 75 B			
on plates	15 μ m for	8 E 75 B			

Holotest and Metinol are registered trade marks of Agfa-Gevaert, Antwerp/Leverkusen.

AGFA-GEVAERT, INC.,
275 NORTH STREET
TETERBORO - NEW JERSEY 07608

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Holotest 8 E 75 B	without anti-halation layer	without anti-halation layer
Holotest 8 E 56	anti-halation in the emulsion	
Holotest 10 E 56	with or without anti-halation layer	with anti-halation layer

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