



Technical Information

NDT/HOLOGRAPHY - SCIENTIFIC PHOTOGRAPHY

HOLOTEST AND SCIENTIA EMULSIONS

In common with all other photographic emulsions, Holotest and Scientia emulsions are characterized by the following four properties : overall speed, contrast, colour sensitivity and resolving power.

SPEED

In scientific photography there is little point in expressing the speed of a photographic emulsion in absolute values. For this reason Scientia emulsions are divided into three classes, class I indicating the highest speed and class III the lowest speed. Generally speaking these classes correspond to the following ASA speeds : class I : 125-32 ASA; class II : 25-12 ASA; class III : 10-6 ASA.

Since it is not possible to indicate the speed of materials intended for holography in ASA values, the number of $\mu\text{J}/\text{cm}^2$ required for making an amplitude hologram, is given in the table.

CONTRAST

The emulsions are also divided into six groups according to their gamma (slope of the straightline portion of the characteristic curve). The curves are plotted by means of the following procedure :

exposure light : tungsten 2,850 °K
development : in Refinal, 10 minutes at 20 °C (68 °F)

- | | |
|---------------------|---------------------|
| 1. low contrast | - gamma 1-1.5 |
| 2. high contrast | - gamma 2-3 |
| 3. extreme contrast | - gamma more than 4 |

COLOUR SENSITIVITY

Emulsions with a code number ending in 50 are, in the visible part of the spectrum, only sensitive to blue. In other emulsions the sensitivity has been extended to include green (ending in 56), red (ending in 65 and 75).



AGFA-GEVAERT

The maximum sensitivity of holographic emulsions lies around the emission spectrum of the various lasers :

ending in 56 — for argon lasers (5,145 Å)

ending in 75 — for ruby lasers (6,943 Å)

— for He-Ne lasers (6,328 Å)

— also suitable for argon laser.

RESOLVING POWER

The value of the resolving power depends on many factors, including the important one concerned with the method of measurement. The values indicated in the table were calculated on the photograph of a Foucault maximum contrast test chart, illuminated by tungsten light of 2,850 °K. Development : 5 minutes at 20 °C (68 °F) in GP 201.

INSTRUCTIONS FOR USE

DARKROOM ILLUMINATION

Colour sensitivity	Filter	Colour
code numbers ending in 50	R 3	red
56	R 4	dark red
65 and 75	complete darkness	

Holographic emulsions

10 E, 8 E	R 4	dark red
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DEVELOPERS (*)

For fine grain : a standard very fine grain developer (e.g. Atomal)

For medium contrast : a standard fine grain developer (e.g. Refinal or Rodinal)

For high contrast : a standard MQ developer (e.g. Neutol)

For high speed and high contrast : a standard X-ray developer (e.g. G 127)

For holographic emulsions : a universal continuous-tone developer (e.g. G 3 p)

FIXING BATHS

A universal acid fixing bath (e.g. Acidofix powder) or a rapid X-ray fixing bath (e.g. G 321 solution).

WETTING BATH

We recommend immersing the film or plate after the final washing in a solution of 0.1 per cent Agepon wetting agent in water.

(*) Only the most current developers are stated.

	HOLOTEST				SCIENTIA	
RANGE	8 E 56 HD	8 E 75 HD	10 E 56	10 E 75	23 D 56	34 B 50
SPEED AND SPEED CLASS	25 $\mu\text{J}/\text{cm}^2$	10 $\mu\text{J}/\text{cm}^2$	1 $\mu\text{J}/\text{cm}^2$	0,5 $\mu\text{J}/\text{cm}^2$	I	III
CONTRAST GROUP	3	3	3	3	2	1
RESOLVING POWER lines/mm	5000 (**)	5000 (**)	3000 (**) 1000	3000 (**) 1000	200	110
Films	●	●	●	●	●	
Plates	●	●	●	●	●	●
A FEW APPLICATIONS						
Photomicrography (optical)			●		●	
Photomicrography (electronic)			●		●	
Holography	●	●	●	●		
Spectrography					●	●

Emulsion thickness : on plates 7 μm
on films 5 μm

(**) These values relate to the holographic resolving power. They have been determined by means of two-beam interference with laserlight.

ATWISSE		DE REINIGINGSMIDDEL		DE REINIGINGSMIDDEL	
WISSE	WISSE	WISSE	WISSE	WISSE	WISSE
1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36
37	38	39	40	41	42
43	44	45	46	47	48
49	50	51	52	53	54
55	56	57	58	59	60
61	62	63	64	65	66
67	68	69	70	71	72
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535	536	537	538	539	540
541	542	543	544	545	546
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619	620	621	622	623	624
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715	716	717	718	719	720
721	722	723	724	725	726
727	728	729	730	731	732
733	734	735	736	737	738
739	740	741	742	743	744
745	746	747	748	749	750
751	752	753	754	755	756
757	758	759	760	761	762
763	764	765	766	767	768
769	770	771	772	773	774
775	776	777	778	779	780
781	782	783	784	785	786
787	788	789	790	791	792
793	794	795	796	797	798
799	800	801	802	803	804
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811	812	813	814	815	816
817	818	819	820	821	822
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841	842	843	844	845	846
847	848	849	850	851	852
853	854	855	856	857	858
859	860	861	862	863	864
865	866	867	868	869	870
871	872	873	874	875	876
877	878	879	880	881	882
883	884	885	886	887	888
889	890	891	892	893	894
895	896	897	898	899	900
901	902	903	904	905	906
907	908	909	910	911	912
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955	956	957	958	959	960
961	962	963	964	965	966
967	968	969	970	971	972
973	974	975	976	977	978
979	980	981	982	983	984
985	986	987	988	989	990
991	992	993	994	995	996
997	998	999	1000	1001	1002

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