KODAK Recording 2000 Film RRD, RRD7, RRDM, RR7M
KODAK Recording 2000 Film RLE
KODAK Recording 2000 Film RIR
KODAK Recording 2000 Film RAI, RAI7, RAIM, RA7M

Features / Customer Product Specifications

KODAK Recording 2000 Films produce extremely hard dots with a high degree of linearity. They are designed for electronic recording graphic arts applications. All are very high contrast and, in most applications, deliver a D-max in excess of 4.5.

These products will achieve optimum results in KODAK RA 2000 Developer and Replenisher (diluted 1:2). It may be possible to achieve satisfactory results in other rapid-access type developers that are indicated as Hard-Dot capable, such as POLYCHROME Millennium 4000 MD-451 Developer.

Recording 2000 Films are coated on a dimensionally stable KODAK ESTAR Base with antistatic and surface properties to ensure dependable transport and handling behavior.

RRD, RRD7, RRDM, RR7M	• Broad band red-sensitive films suitable for use on helium-neon laser (HN; 633 nm) or red laser diode (RLD; 630 to 670 nm) recording devices. • RRD: 4-mil/0.1 mm clear; RRD7: 7-mil/0.18mm clear • RRDM and RR7M (matte versions of RRD and RRD7) feature a special matte surface that provides rapid, uniform drawdown for exposure of films on flexographic or smooth-surface plates.
RLE	• A 4-mil/0.1 mm clear film with far red sensitivity suitable for use on red-light emitting diode (LED, 660 to 680 nm) recording devices. • Although sensitized at the correct wavelength, this film is NOT suitable for use in recorders using red laser diodes (RLD) as a light source because it is too fast. Use RRD Film (listed above).
RIR	• A 4-mil/0.1 mm clear film with far red sensitivity suitable for use on infrared laser diode (780 nm) recording devices.
RAI, RAI7, RAIM, RA7M	• Blue-sensitive films suitable for use on Argon-Ion (488 nm) recording devices. • RAI: 4-mil/0.1 mm clear; RAI7: 7-mil/0.18 mm clear • RAIM and RA7M (matte versions of RAI and RAI7) are suitable for use on flexographic or smooth-surface printing plates.

Safelight Recommendations

KODAK Recording 2000 Films RRD, RRD7, RRDM, RR7M and RIR
Use an EncapSulite T20/ND.75 available from EncapSulite International Ltd. (European Office Frau Karia Hoppe, EncapSulite Sales, Postfach 900-328, 5 Koln 90 Germany) or equivalent. Keep the film at least 1.2 metres (4 feet) from the safelight. Do not expose the film to safelight illumination for longer than two minutes.

KODAK Recording 2000 Film RLE
An EncapSulite T30/ND 1.5 or equivalent can be used. Keep the film at least 1.2 metres (4 feet) from the safelight. Do not expose the film to safelight illumination for longer than 5 minutes. If an EncapSulite T20/ND 0.75 or equivalent is already in use, then exposures only up to 1 minute can be tolerated.

KODAK Recording 2000 Films RAI, RAI7, RAIM, RA7M
This film can be handled under amber or orange-yellow safelight illumination produced by the following sources:

- Deluxe cool-white fluorescent tubes filtered with dark amber safelight sleeves, such as the No. M58V19.055 (55 wall) sleeve available from Illumination Technology, Inc.
- EncapSulite KY or equivalent safelight.
- A 15-watt tungsten bulb filtered with Rohm and Haas Plexiglas amber 2422 material. This material can also be used to filter tungsten light that enters the work area through the windows.

NOTE: Plexiglas amber 2422 material is not recommended for use with fluorescent tubes when KODAK Recording 2000 RAI Films are used.

Can also be handled under most orange or red safelight illumination sources. Keep the film at least 4 feet (1.2 metres) from the safelight.

Storage

Keep unexposed film and processed film in a cool, dry place, preferably at a temperature of 70°F (21°C) or lower and 50% RH. Process film as soon as possible after exposure.

Exposure

Following are the intended uses for KODAK Recording 2000 Films. Follow exposure procedures recommended by the equipment manufacturer.

RRD, RRD7, RRDM, RR7M	Film recorders and imagesetters that use a helium-neon laser (HN, 633 nm) or a red laser diode (RLD, 630 to 670 nm) as the exposing source.
RLE	Film recorders and imagesetters that use red light-emitting diodes (LED, 660 to 680 nm) as the exposing source.
RIR	Film recorders and imagesetters that use infrared laser diodes (IR, 780 nm) as the exposing source.
RAI, RAI7, RAIM, RA7M	Film recorders and imagesetters that use an argon-ion laser (AI, 488 nm nm) as the exposing source..

Mechanized Processing

NOTICE! Observe precautionary information on product labels and on the Material Safety Data Sheets.

The recommended starting points for development and replenishment, using KODAK RA 2000 Developer and Replenisher (1:2), KODAK RA 2001 Developer, or KODAK Dry Powder Developer and Replenisher (sold only in Europe, Asia and the Middle East) are:

Rapid Access Processors, 30 to 40 seconds at 95°F (35°C)

Tank Turnovers per Week	Percent Exposed Area	Basic Replenishment Rates [1]
Minimum of 1	50%	0.30 mL/sq in. (465 mL/sq m)
Minimum of 1	90%	0.60 mL/sq in. (930 mL/sq m)

[1] If using KODAK RA 2050 Replenisher, the rate is approximately 50% of the rate used with KODAK RA 2000 Developer and Replenisher.

Kodak Polychrome Graphics LLC
Norwalk, CT 06850

End of Instruction Sheet.

KODAK Recording 2000 Film RRD, RRD7, RRDM, RR7M
KODAK Recording 2000 Film RLE
KODAK Recording 2000 Film RIR
KODAK Recording 2000 Film RAI, RAI7, RAIM, RA7M

1) Support

Dimensionally stable support:

RRD, RRDM, RLE, RIR, RAI and RAIM	4 mil (0.004 in., 0.10 mm)	ESTAR Base
RRD7, RR7M, RAI7 and RA7M	7 mil (0.007 in., 0.18 mm)	ESTAR Thick Base

2) Dimensional Stability

Dimensional stability is an all-inclusive term. In photography, it applies to size changes caused by changes in humidity and in temperature, and by processing and aging. The dimensional properties of ESTAR Base may vary slightly in different directions within a sheet; the differences that may exist, however, are not always aligned with the length and width directions:

Data for the 4 mil products (RRD, RRDM, RLE, RIR, RAI, RAIM):

Thermal Coefficient of Linear Expansion:

Unprocessed or Processed	0.001% per degree F 0.0018% per degree C

Humidity Coefficient of Linear Expansion:

Unprocessed	0.0017% per % RH
Processed	0.0016% per % RH

Processing Dimensional Change:

Dependent on drying conditions

.

3) Reciprocity

With recommended processing, the reciprocity speed change is negligible within exposure range of 1/1000 second to 1 billionth second; there is no change in contrast.

4) Graphs [1]

Using KODAK RA 2000 Developer and Replenisher (1:2)

Characteristic

A) KODAK Recording 2000 Film RRD, RRD7, RRDM, RR7M (11-97)
B) KODAK Recording 2000 Film RLE (6-95)
C) KODAK Recording 2000 Film RIR (10-97)
D) KODAK Recording 2000 Film RAI, RAI7, RAIM, RA7M (6-92)

Spectral Sensitivity

E) KODAK Recording 2000 Film RRD, RRD7, RRDM, RR7M (11-97)
F) KODAK Recording 2000 Film RLE (6-95)
G) KODAK Recording 2000 Film RIR (10-97)
H) KODAK Recording 2000 Film RAI, RAI7, RAIM, RA7M (6-92)

The Kodak products mentioned in this document may not all be available in all regions or countries. If you have questions or need assistance, contact your local Kodak Polychrome Graphics representative or visit our website: www.kpgraphics.com.

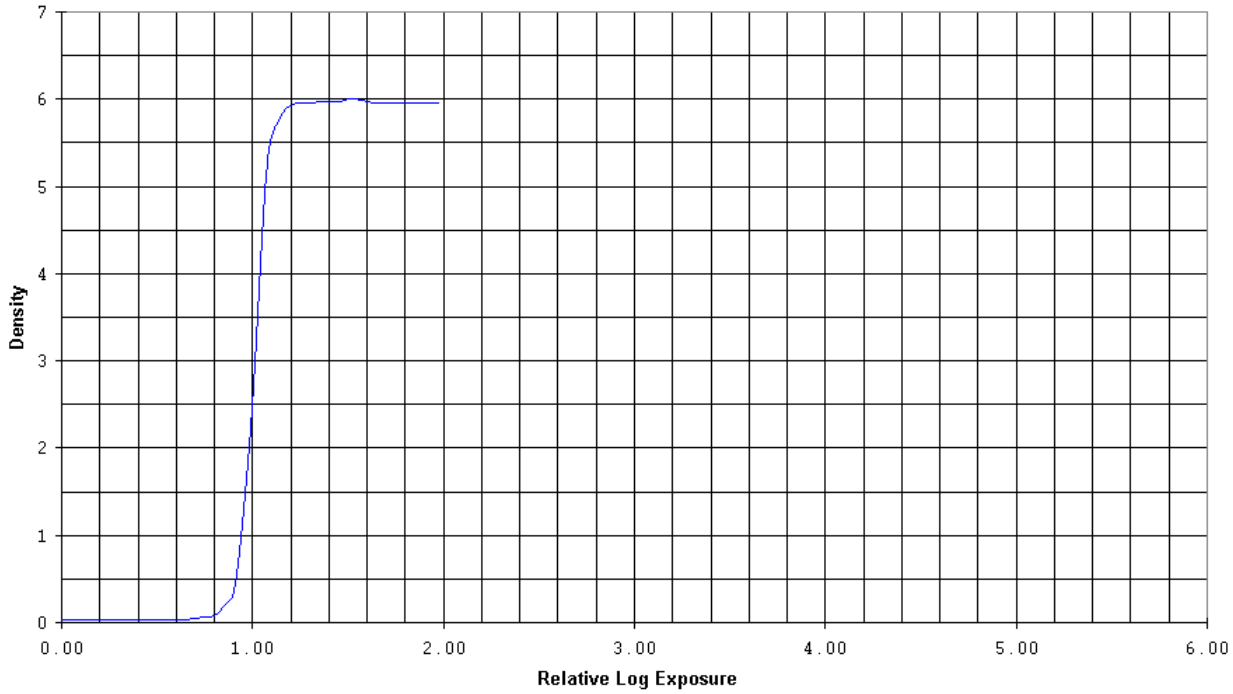
Kodak Polychrome Graphics LLC
Norwalk, CT 06850

End of Data Sheet

[1] NOTICE: While the data presented are typical of production coatings, they do not represent standards that must be met by Kodak Polychrome Graphics. Varying storage, exposure, and processing conditions will affect results. The company reserves the right to change and improve product characteristics at any time.

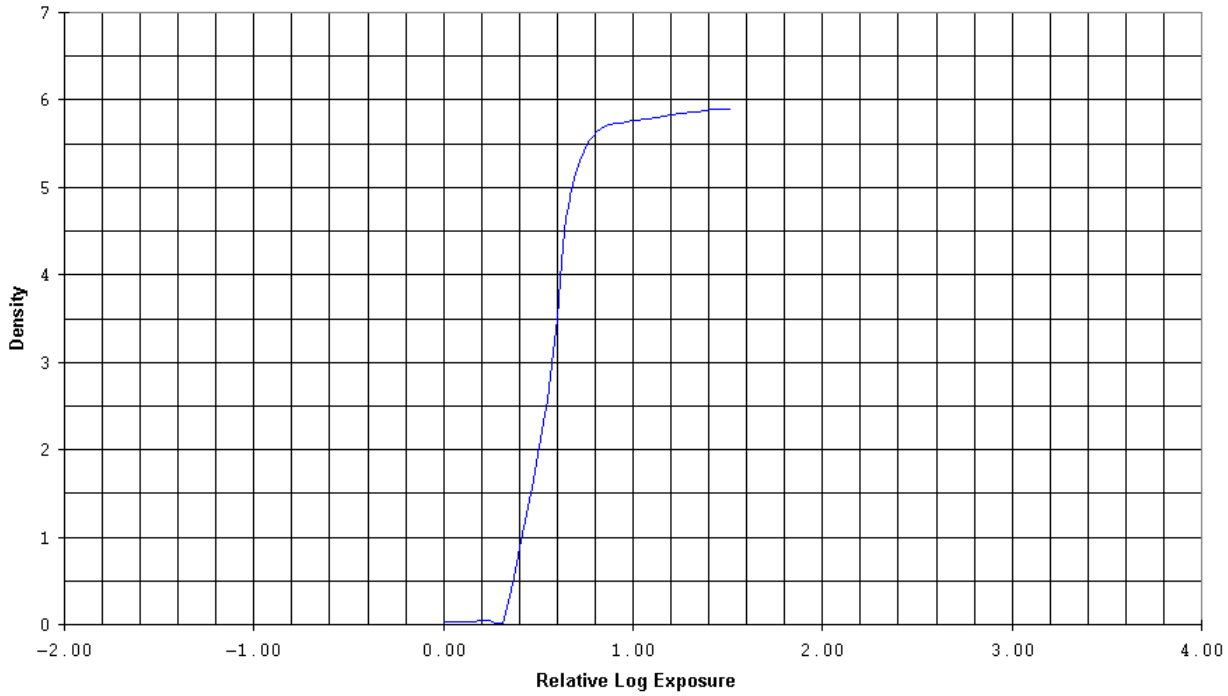
TI2395A 12-97
CHARACTERISTIC, For Publication

KODAK Recording 2000 Film RRD, RRD7, RRDM, RR7M
Exp: 637 nm, 1 microsec;
KODAK RA 2000 Developer and Replenisher (1:2)
Developer, KODAK KODAMATIC 710 Processor, 30 sec at 95F (35C)



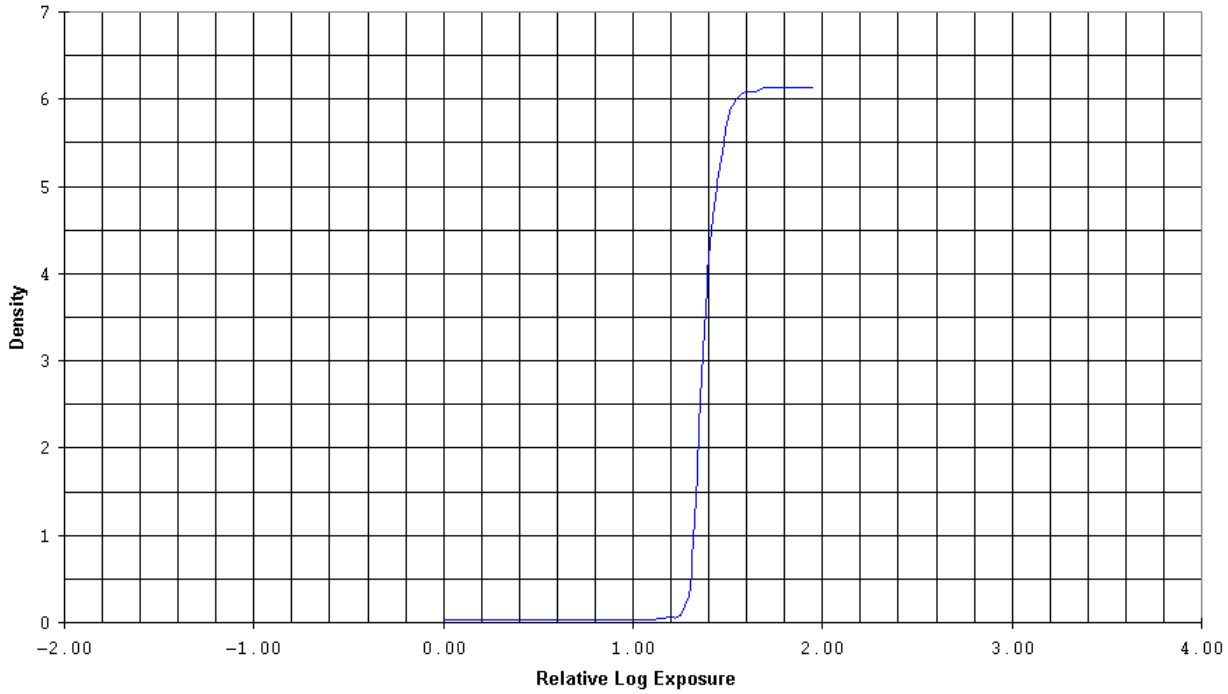
TI12395B 7-95
CHARACTERISTIC, For Publication

KODAK Recording 2000 Film RLE / 2614
Laser Diode Exposure; KODAK RA 2000 Developer and Replenisher (1:2)
KODAMATIC 710 Processor, 30 sec at 95F(35C); Diffuse visual



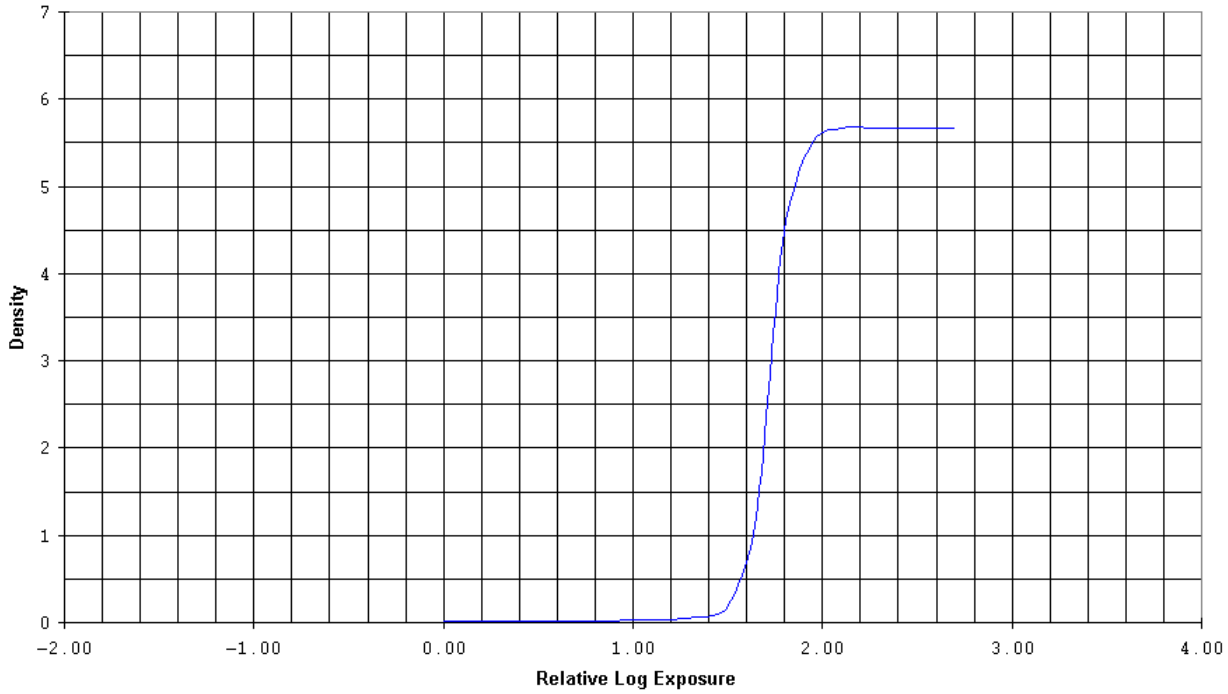
TI2395C 12-97
CHARACTERISTIC, For Publication

KODAK Recording 2000 Film RIR IR Laser-Diode Exposure;
KODAK RA 2000 Developer and
Replenisher (1:2), 30 sec, 35 C (95 F); Diffuse visual



TI2395D 6-92
CHARACTERISTIC, For Publication

KODAK Recording 2000 Films RAI RAI7 RAIM RA7M / 2612 4612 1612 7612
Xenon Flash 85 microseconds;
KODAK RA 2000 Developer and Replenisher (1:2), 95F, 30sec; Diffuse visual

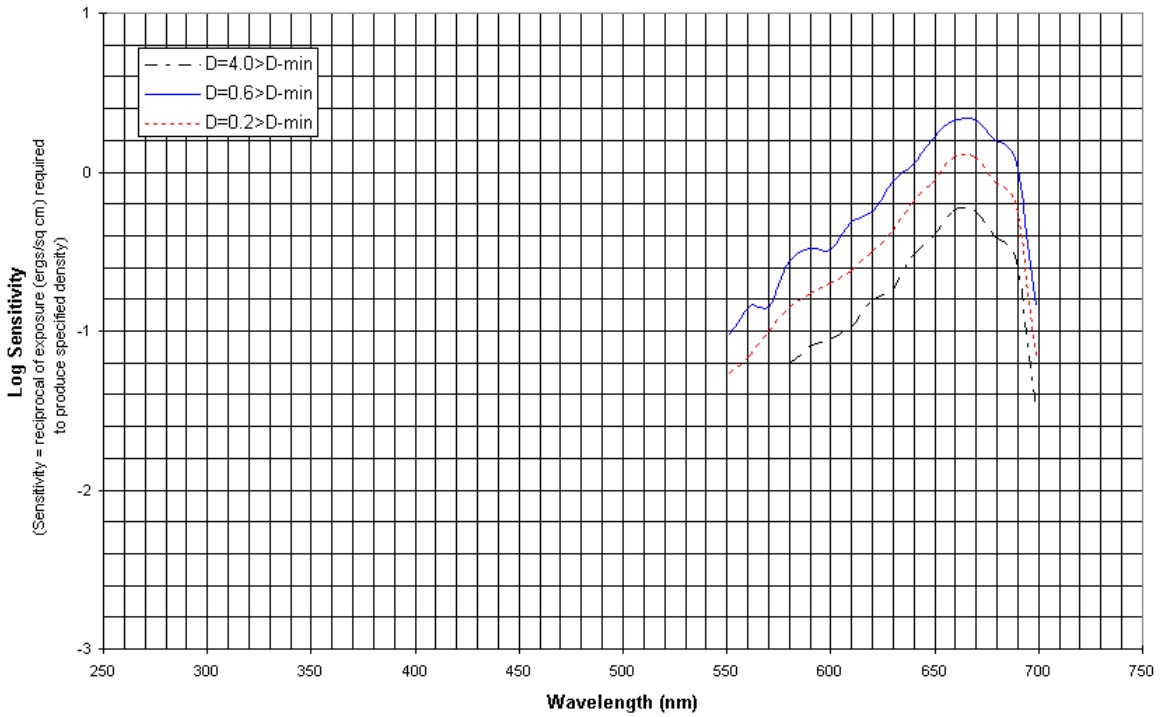


TI2395E 12-97
SPECTRAL SENSITIVITY, For Publication

KODAK Recording 2000 Film RRD, RRD7, RRDM, RR7M
Exposure: 1.4 sec; KODAK RA 2000 Developer and
Replenisher (1:2), diffuse visual; D=0.6>D-min

TI2395F 7-95
SPECTRAL SENSITIVITY, For Publication

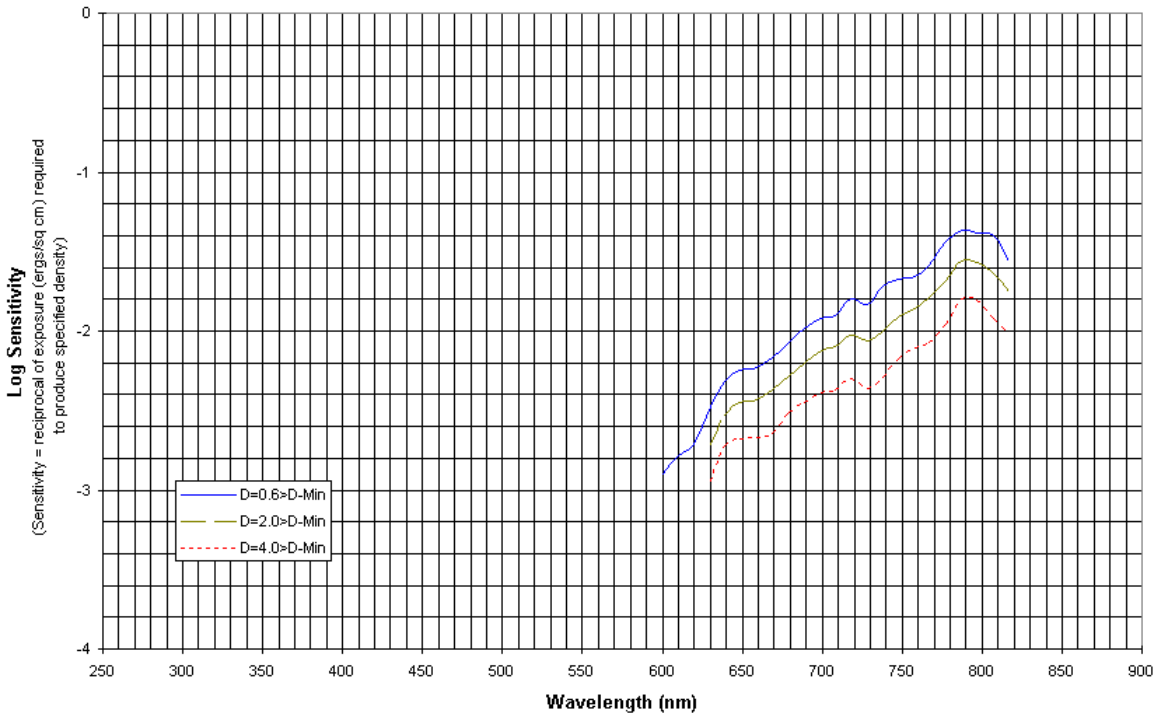
KODAK Recording 2000 Film RLE / 2614
Exposure: 1 sec; KODAK RA 2000 Developer and Replenisher (1:2), Diffuse visual; For Publication



Notice: While the data presented are typical of production coatings, they do not represent standards which must be met by Eastman Kodak Company. Varying storage, exposure and processing conditions will affect results. The company reserves the right to change and improve product characteristics at any time.

TI2395G 12-97
SPECTRAL SENSITIVITY, For Publication

KODAK Recording 2000 Film RIR
5 sec exposure; KODAK RA 2000 Developer
and Replenisher (1:2), 30 sec, 35 C (95 F)



Notice: While the data presented are typical of production coatings, they do not represent standards which must be met by Eastman Kodak Company. Varying storage, exposure and processing conditions will affect results. The company reserves the right to change and improve product characteristics at any time.

TI2395H 6-92
SPECTRAL SENSITIVITY, For Publication

KODAK Recording 2000 Films RAI RAI7 RAIM RA7M / 2612 4612 1612 7612
Effective exp 7 sec; KODAK RA 2000 Developer and Replenisher (1:2),
Diffuse visual; Density=0.60

Notice: While the data presented are typical of production coatings, they do not represent standards which must be met by Eastman Kodak Company. Varying storage, exposure and processing conditions will affect results. The company reserves the right to change and improve product characteristics at any time.