



KODAK Hyper Speed G Medical Film / 4107

1) Description

KODAK Hyper Speed G Medical Film / 4107 is a very high speed, high contrast, and high resolution orthochromatic medical x-ray film for use with green-emitting intensifying screens. It is coated on a blue, 7-mil ESTAR base support that has a base density of approximately 0.19 with zero crossover technology and gradient crossover control for sharper images. This design increases contrast at high densities, compensating for the associated loss of visual contrast sensitivity. It puts the contrast where your eyes most need it.

KODAK Hyper Speed G Film was designed for shorter processing cycles (rapid) and allows for the use of non-hardening chemicals like KODAK X-OMAT LE+. Kwik Cycle using KODAK X-OMAT RA/30 Chemicals may be acceptable under optimum conditions but is not recommended.

2) Safelight

Use a KODAK GBX-2 Safelight Filter with a frosted 15-watt bulb or a KODAK LED Safelight located at least 4 feet from the film. The safelight should be directed away from the work area; for example, direct the safelight at a 45-degree angle from work surface toward the nearest wall.

3) Storage and Handling

Handling -

Hands must be clean, dry and free of lotions, etc. Film should be handled carefully by the edges to avoid physical strains such as pressure, creasing, or buckling.

Storage -

Store unexposed film at 50 to 70°F (10 to 20°C), at 30 to 50 percent RH, and properly shielded from x-rays, gamma rays, or other penetrating radiation. Keep exposed film in a cool, dry place that is properly shielded from penetrating radiation. Process as soon as possible after exposure. Processed film should be stored at 60 to 80°F (16 to 27°C), at 30 to 50 percent RH.

4) Sensitometric Parameters

Relative Speed:	Measured at a density of 1.00 above gross fog.
Contrast:	Measured as slope of the line between densities of 0.25 and 2.00 above gross fog.
Gross Fog:	Density of film base plus processing fog.

5) Process Variations

Changes to speed, contrast, and fog as a result of temperature variation from normal are included in GRAPHIS Section.

6) Intermix

This film can be processed with intermixes of common medical x-ray films.

Variations of bromide and iodide ions in KODAK RP X-OMAT Developer cause sensitometric speed effects that are similar to other T-Grain films.

7) Automated Processing

Processing is recommended in KODAK X-OMAT and RP X-OMAT Processors, using KODAK RP X-OMAT, X-OMAT EX II, and X-OMAT LE+ Developers. KODAK RP X-OMAT LO Fixer and Replenisher is recommended.

8) Emergency Manual Processing

(Not recommended for regular use, but can be used when automated processor fails)

Solution/Step	Temperature	Time	Agitation
KODAK RP X-OMAT Developer working solution	80°F (26.5°C)	1 min	No agitation. Tap hanger immediately after immersion to remove film surface air bubbles.
KODAK Indicator Stop Bath OR Running Water Rinse	80°F (26.5°C)	20 sec	Continuous, moderate
KODAK RP X-OMAT LO Fixer and Replenisher	80°F (26.5°C)	1 min	Vigorous at start
Running water wash ^[1] (8 volume changes/hour)	80°F (26.5°C)	5 min	—
Dry	120°F (49°C)	—	—

^[1]KODAK PHOTO-FLO Solution may be used after washing to minimize water spots and drying marks.

Notice: Observe precautionary information on product labels and on the Material Safety Data Sheets.

9) Manual Processing-Rack and Tank

Solution/Step	Temperature	Time	Agitation
KODAK GBX Developer and Replenisher	72°F (22°C) 80°F (26.5°C)	7 min 4 min	Tap sheet film hangers lightly on side of tank immediately after immersion to dislodge air bubbles.
NOTE: DO NOT agitate films during remainder of development step. Remove film and hanger 5 seconds before end of development. DO NOT allow films to drain excess developer back into the developer tank.			
KODAK Indicator Stop Bath OR Running Water Rinse	60 to 85°F (16 to 30°C)	30 sec	Immerse hanger rapidly; agitate continuously.
KODAK GBX Fixer and Replenisher OR KODAK RP X-OMAT LO Fixer and Replenisher	60 to 85°F (16 to 30°C)	2 to 4 min	Intermittent, 5 sec every 30 sec.
Running Water Wash ^[1] (about 8 volume changes/hour)	60 to 85°F (16 to 30°C)	5 min	—
Dry in a dust-free area at room temperature or a suitable drying cabinet. Temperature not to exceed 120°F (49°C).			

^[1]KODAK PHOTO-FLO Solution may be used after washing to minimize water spots and drying marks.

10) Graphs¹

Characteristic:

- A) RP X-OMAT Chemicals (2-05)
- B) X-OMAT EX II (2-05)
- C) RP X-OMAT Developer Temperature Series (2-05)

Process Variations from Normal Processing Temperature:

- D) Speed (2-05)
- E) Contrast (2-05)
- F) Fog (2-05)

Safelight Sensitivity:

- G) (2-05)

Spectral Sensitivity:

- H) (02-05)

Bromide Effects:

- I) (2-05)

¹NOTICE: The data in this publication represent product tested under the conditions of exposure and processing specified. They are representative of production coatings, and therefore do not apply to a particular box or roll of photographic material. They do not represent standards or specifications that must be met by Eastman Kodak Company. The company reserves the right to change and improve product characteristics at any time.

MTF:

J) (2-05)

Inverse/Squared Sensitometry:

K) (2-05)

Note: The Kodak materials described in this publication for use with KODAK Hyper Speed G Medical Film / 4107 are available from dealers who supply Kodak products. You can use other materials, but you may not obtain similar results.

The contents of this publication are subject to change without notice.

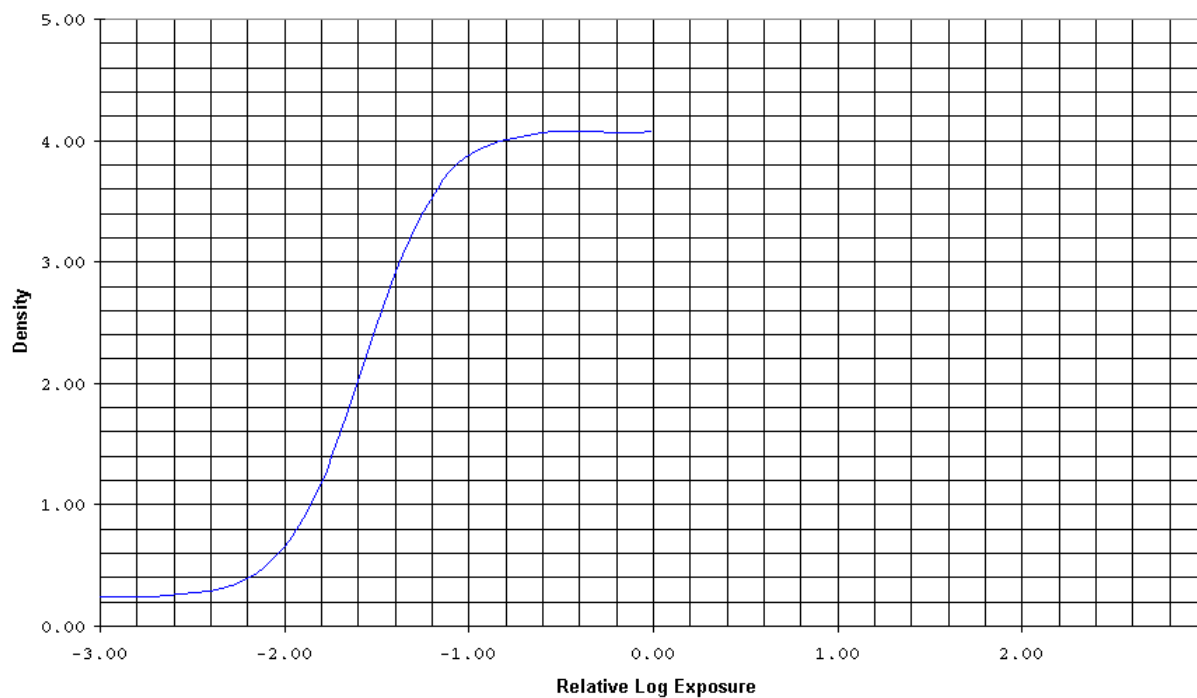
Kodak, X-Sight, X-Omat, Photo-Flo, and Estar are trademarks.

Health Imaging
EASTMAN KODAK COMPANY - Rochester, NY 14650

End of Data Sheet

TI5022A 02-05
CHARACTERISTIC, For Publication

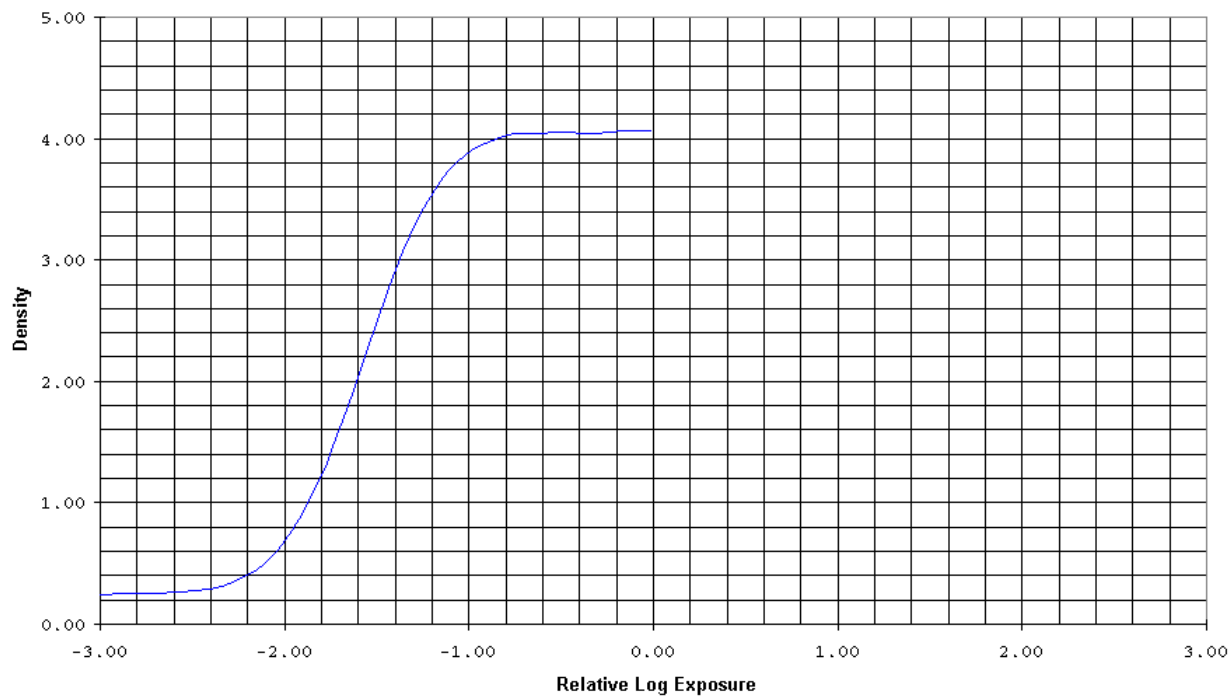
KODAK Hyper Speed G Medical Film / 4107
1/50 second Simulated Green Screen Exposure
Seasoned KODAK RP X-OMAT Chemicals, 95 F (35 C); KODAK X-OMAT 460 RA Processor;
Diffuse Visual Densitometry



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 the product characteristics at any time.

TI5022B 02-05
CHARACTERISTIC, For Publication

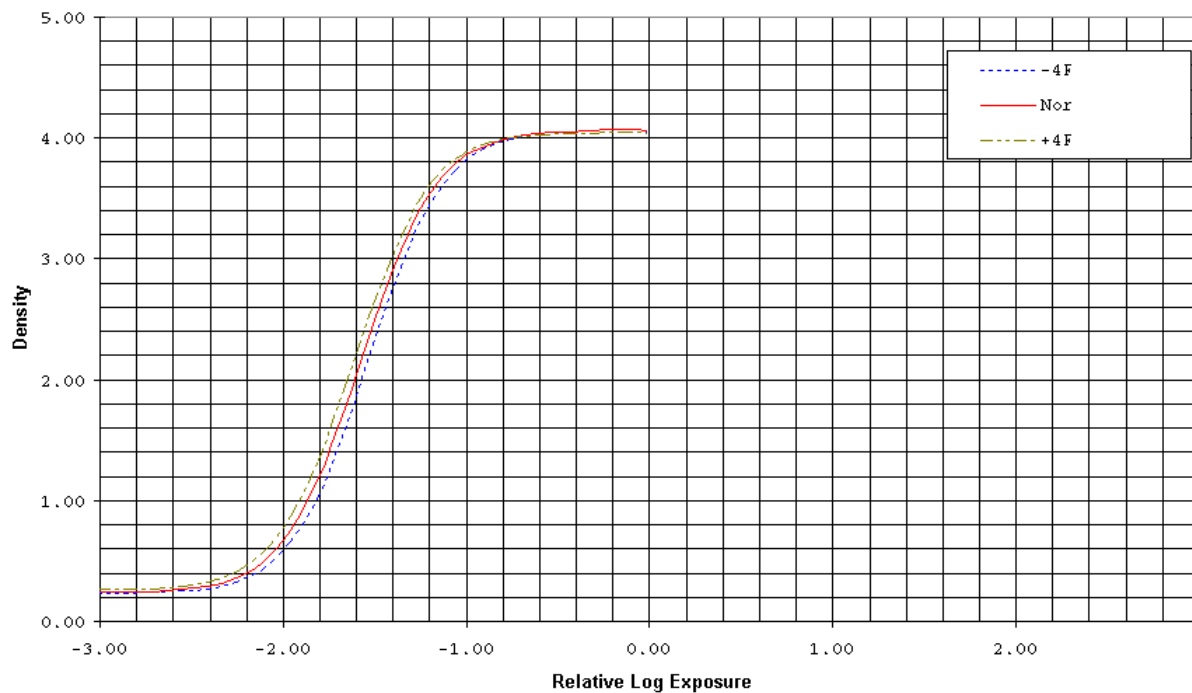
KODAK Hyper Speed G Medical Film / 4107
1/50 second Simulated Green Screen Exposure
Seasoned KODAK X-OMAT EX II Chemicals, 95 F (35 C); KODAK X-OMAT 480 RA Processor;
Diffuse Visual Densitometry



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TI5022C 2-05
CHARACTERISTIC, For Publication

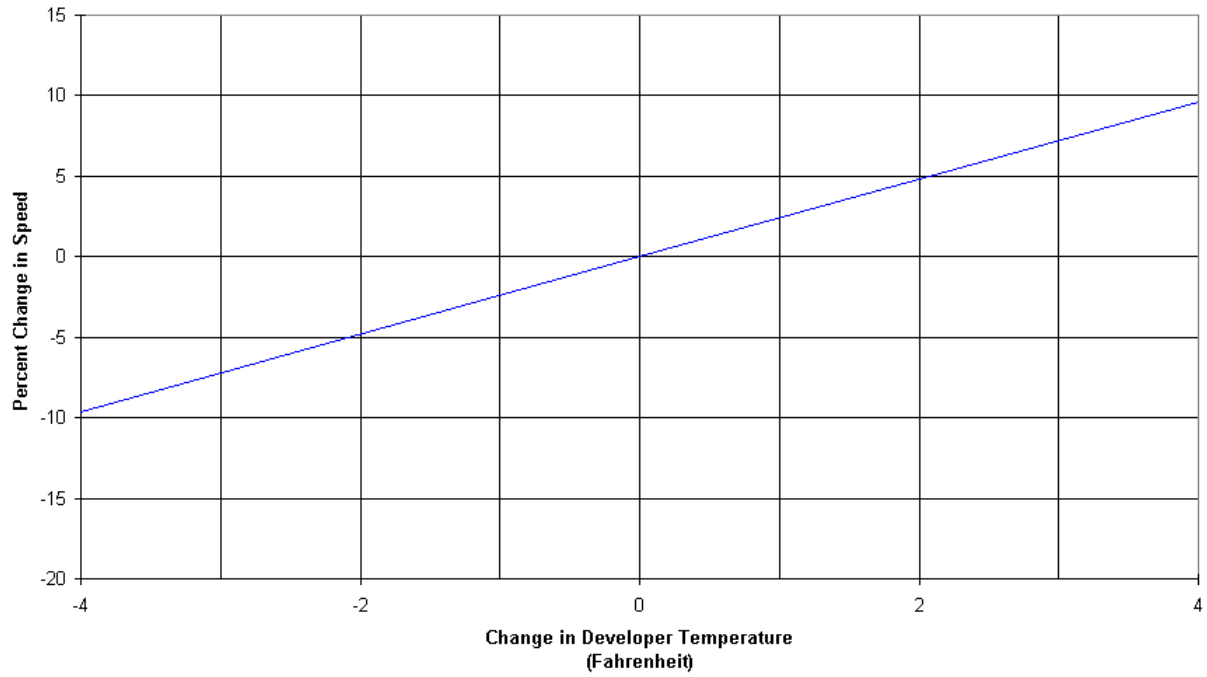
KODAK Hyper Speed G Medical Film / 4107
1/50 second Simulated Green Screen;
KODAK RP X-OMAT Chemicals; KODAK X-OMAT 460 RA Processor;
Diffuse Visual Densitometry



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TI5022D 2-05
TEMPERATURE VARIATION, For Publication

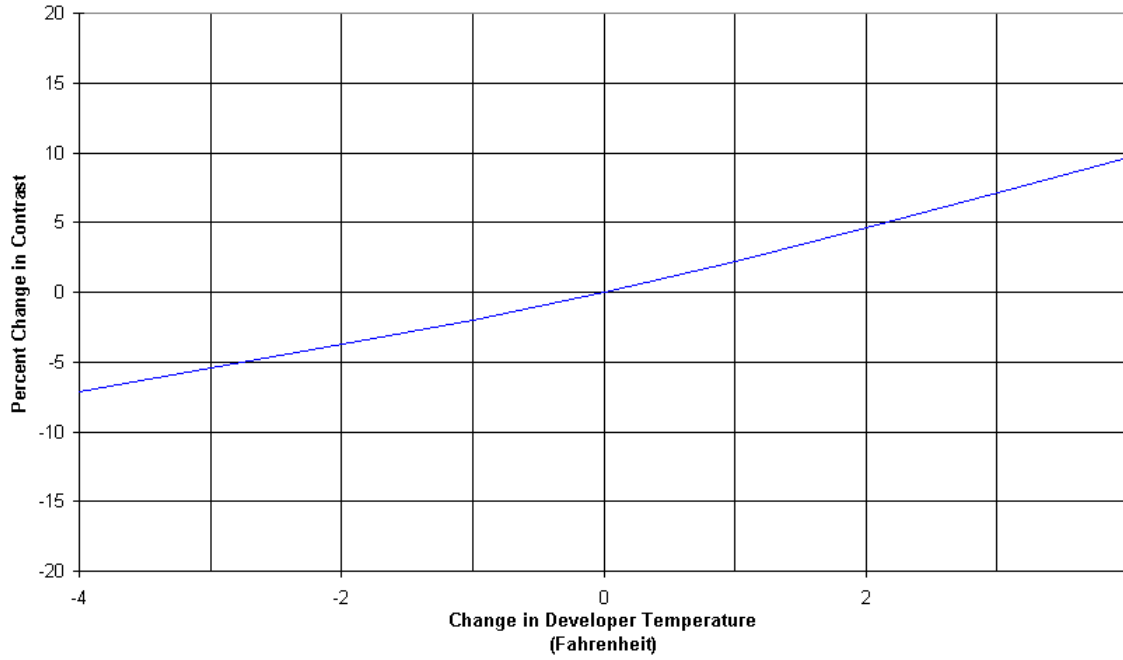
KODAK Hyper Speed G Medical Film / 4107
Percent Change in Relative Speed
KODAK RP X-OMAT Chemicals; KODAK X-OMAT 480 RA Processor
(Reference: Normal Temp. = 0% Change)
(4 F = 2.2 C)



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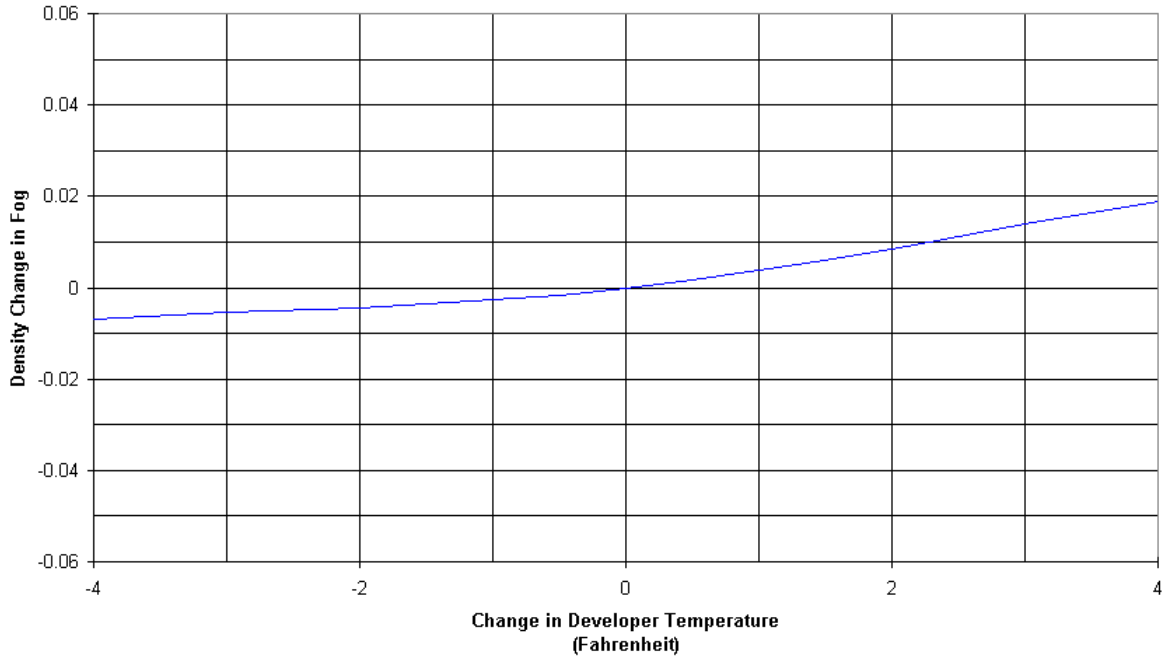
TI5022E 2-05
TEMPERATURE VARIATION, For Publication

KODAK Hyper Speed G Medical Film / 4107
Percent Change in Contrast
KODAK RP X-OMAT Chemicals; KODAK X-OMAT 480 RA Processor
(Reference: Normal Temp. = 0% Change)
(4 F= 2.2C)



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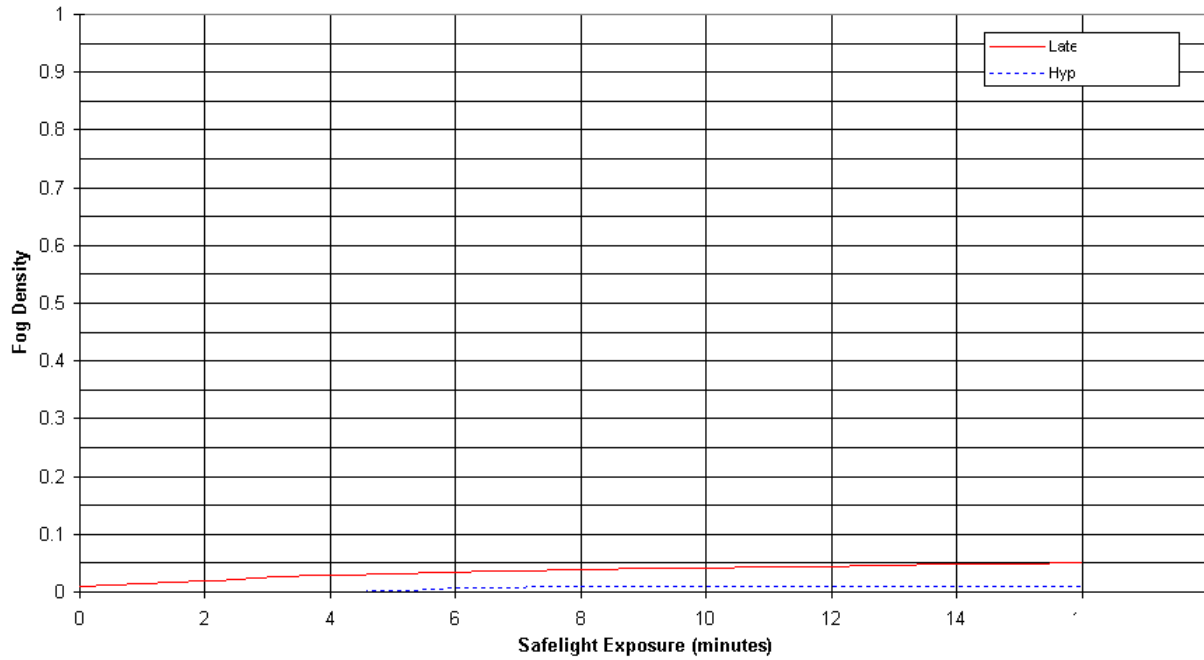
TI5022F 2-05
TEMPERATURE VARIATION, For Publication
KODAK Hyper Speed G Medical Film / 4107
Density Change in Fog
KODAK RP X-OMAT Chemicals; KODAK X-OMAT 480 RA Processor
(Reference: Normal Temp. = 0% Change)
(4 F = 2.2 C)



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TI5022G 2-05
SAFELIGHT SENSITIVITY, For Publication

KODAK Hyper Speed G Medical Film / 4107
KODAK GBX-2 Safelight Filter, 15 watt lamp, 48 inches
KODAK X-OMAT 5000 RA Processor; KODAK RP X-OMAT Chemicals, 95 F
(Fog growth with increasing safelight exposure)



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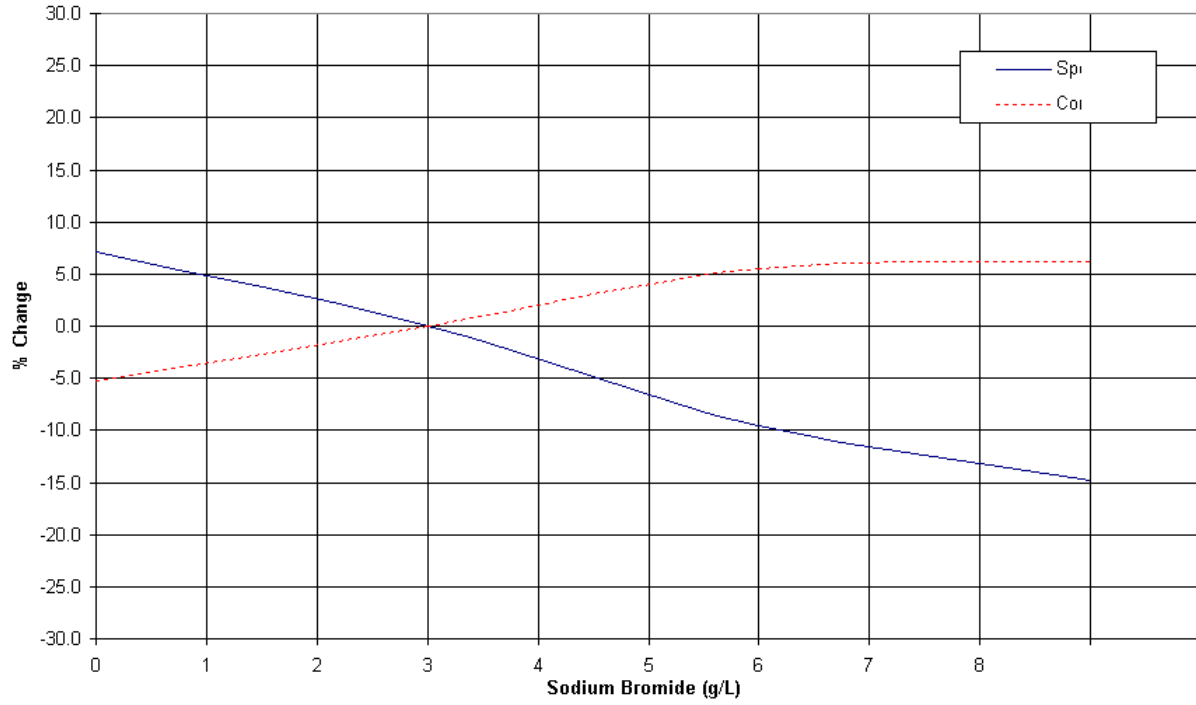
TI5022H 2-05
SPECTRAL SENSITIVITY, For Publication

KODAK Hyper Speed G Medical Film / 4107
Seasoned KODAK RP X-OMAT Chemicals; KODAK X-OMAT 5000 RA Processor
Effective Exposure 1.4 sec; Diffuse Visual Densitometry



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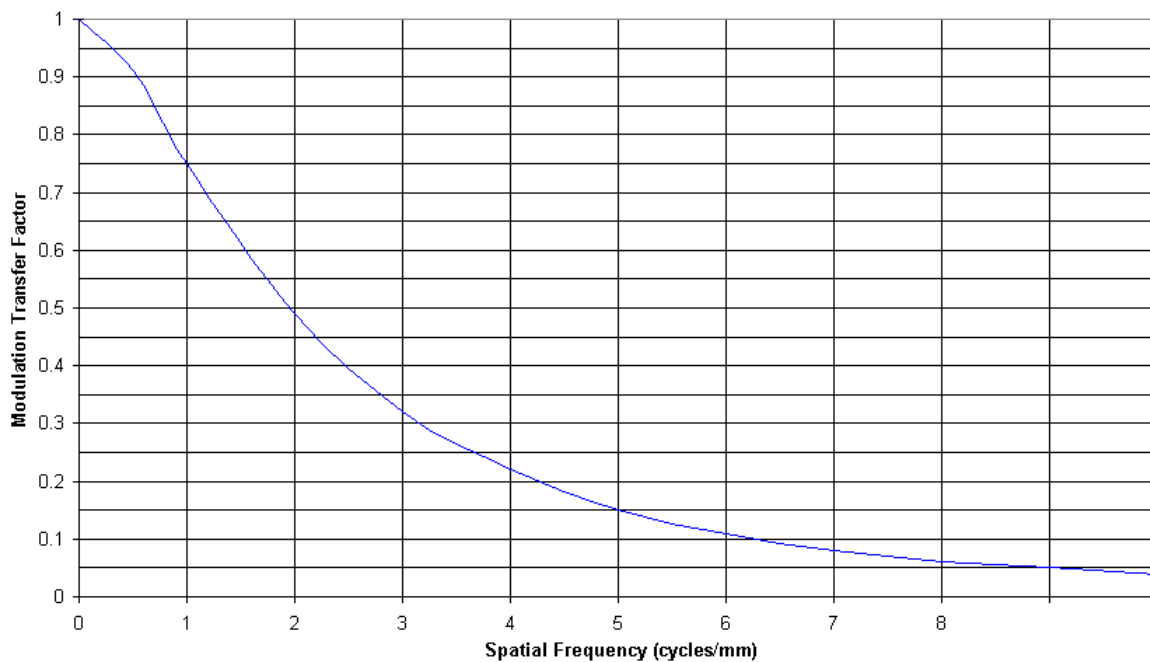
TI5022I 2-05
BROMIDE EFFECTS, For Publication
KODAK Hyper Speed G Medical Film / 4107
KODAK X-OMAT 480 RA Processor, Seasoned KODAK RP X-OMAT Chemicals, 95 F(35.5 C);
Normal Level is 3.0 g/L



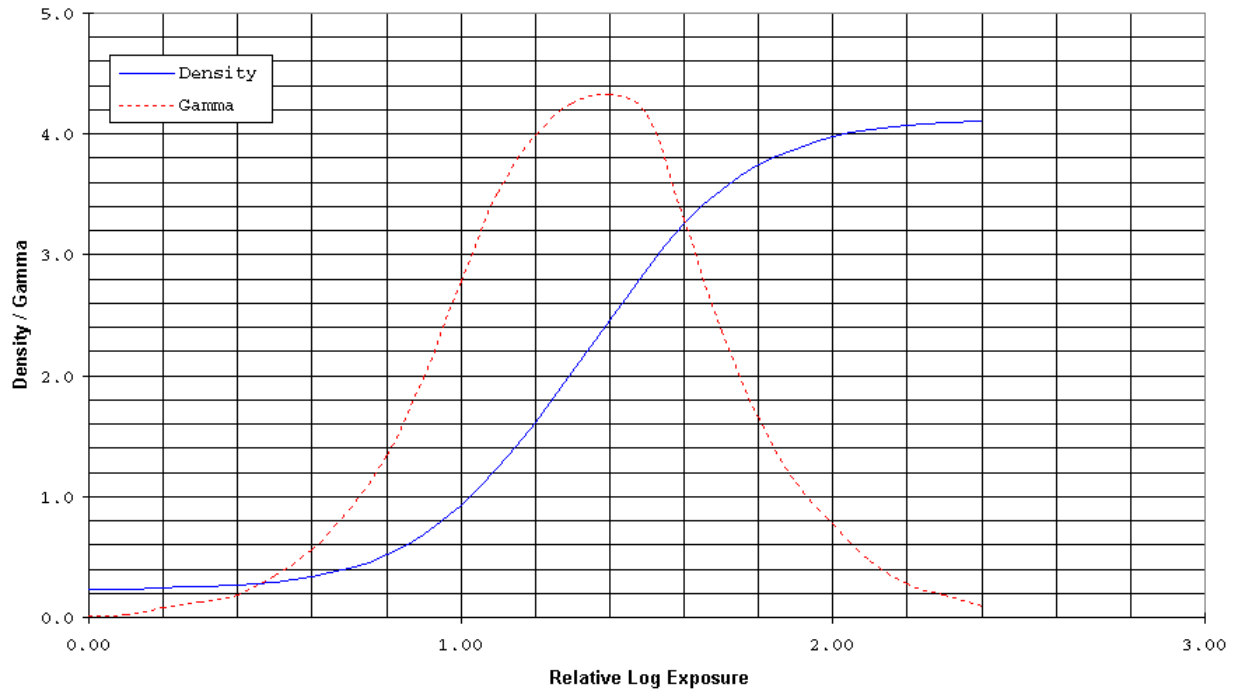
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TI5022J 2-05
MTF, For Publication

KODAK Hyper Speed G Medical Film / 4107
Exposure: 50 kV, 1.62 mm Aluminum plus 0.13 mm Copper filtration.



TI5022K 2-05
INVERSE/SQUARED SENSITOMETRY, For Publication
KODAK Hyper Speed G Medical Film / 4107
Fresh flooded KODAK RP X-OMAT Chemistry, 95F (35C);
KODAK X-OMAT 5000 RA Processor



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