Carestream

TECHNICAL INFORMATION DATA SHEET

TI5030 Issued 2013-08

MIN-R S Film

1) Description

MIN-R S Film, catalog number 151 3381 (18 x 24 cm) / 173 2726 (24 x 30 cm), is a medium speed, dual coated, ortho-sensitive medical x-ray film for mammographic use with single green-emitting intensifying screens. It is coated on a blue, approximately 0.2 mm (7-mil) polyester base support. MIN-R S Film provides high contrast required to view the breast tissue effectively. MIN-R S Film is intended for standard cycle processing. This film provides high contrast with very low sensitivity to varied processing conditions.

2) Safelight

Use a Ruby Red Safelight Filter (wavelength > 520nm), such as GBX-2, with a frosted 7.5-watt bulb located at least 1.22 meters (48 inches) from the film.

3) Storage and Handling

Handling -

X-ray film is extremely sensitive and prone to handling artifacts. 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. Luminous watches, cell phone and darkroom light leaks should be avoided.

Storage -

Store unexposed film at 10–24 °C (50–75 °F), at 30–50 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 16–27 °C (60–80 °F), and at 30–50 percent RH.

4) Relative Film Systems Speed

Screen-Film Characteristics

Screen	Film	Relative Processing Cycle	Relative Speed[a]		Contrast[a]		D-Max[a]
			RP	EX II	RP	EX II	
MIN-R 2000	MIN-R S	Standard	150	150	3.90	4.10	≥ 4.10
MIN-R 2190	MIN-R S	Standard	190	190	3.90	4.10	≥ 4.10
MIN-R	MIN-R S	Standard	100	100	3.90	4.10	≥ 4.10

[a]This data is representative of films processed in processors recommended for mammography film processing. See the Dedicated and Non-Dedicated Processing Environments sections for listings of those processors.

This data is relative to previously published data for other Carestream Health mammography screen film systems.

5) 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.

6) Process Variations

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

7) Intermix

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

Variations of bromide ions in RP X-OMAT Developer cause sensitometric speed effects, included in GRAPH Section.

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8) Automated Processing

The following tables are for recommended film processors and replenishment rates for MIN-R S Film using RP X-OMAT or X-OMAT EX II Developer and RP X-OMAT LO Fixer.

Note: For low use rates, if sensitometry does not stay within control limits, flooded replenishment may be needed. Flooded replenishment is intended to maintain the developer solution at a continuously fresh chemical activity. This is accomplished by replenishing not only when film is fed, but also on the basis of processor on time.

RP X-OMAT Developer Starter is added to the replenishment tanks at the rate of 25 ml per litre, 89 ml per gallon or 3 fl oz. per gallon. (Use RP X-OMAT Developer Starter only.) Fill the processor tanks with the solution from the replenishment tank. However, do not add extra starter to the processor developer tank.

For more detailed information on how to set up each processor for Flooded Replenishment, see the Installation or Service manual for each processor. The setup should be done by qualified service personnel.

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DEDICATED PROCESSING ENVIRONMENTS -

This information is for MIN-R S Film, and MAY NOT APPLY to other Carestream mammography films.

Processor	Film Size Processed	Average Number of 18 x 24 cm Films per 8 hours of Processor Operation	Replenishment Rates per 35 x 43cm Dev. / Fix
270 RA, Multiloader 300, Multiloader 700, 460 RA, 480 RA, 3000 RA, 5000 RA, Multiloader 300 Plus	18 x 24 cm and 24 x 30 cm	Any number	105 ml / 105 ml
			Replenishment Rates per 24cm of film travel
MIN-R, M35A, M35A-M, M7B, M6A-N, M6AW, M6B, M35, M35-M, M7B-E, Miniloader 2000	18 x 24 cm and 24 x 30 cm Single Feed	60 sheets or more, less than 60	30–40 ml / 30 ml Flooded
	18 x 24 cm and 24 x 30 cm Double Feed	60 sheets or more less than 60	60–70 ml / 60 ml Flooded

NON-DEDICATED PROCESSING ENVIRONMENTS -

This information is for MIN-R S Film, and MAY NOT APPLY to other Carestream mammography films.

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Processor	Film Size Processed	Use Condition	Average Number of Films per 8 hours of Processor Operation	Replenishment Rates per 35 x 43 cm Dev. / Fix
270 RA, Multiloader 300, Multiloader 700, 460 RA, 480RA, 3000 RA, 5000 RA, Multiloader 300 Plus	All	Any	Any number[1]	60 ml / 85 ml
MIN-R, M35A, M35A-M, M7B, M6A-N, M6AW, M6B, M35, M35-M, M7B-E, Miniloader 2000	Average size intermix	High	115 sheets or more	50 ml / 70 ml
		Medium	40–115 sheets	65 ml / 85 ml
		Low	less than 40[2]	80 ml / 100 ml

[1] Flooded replenishment should not be required due to the automatic compensation for use feature, but is available if needed to maintain sensitometry for low use conditions.

[2] If sensitometry does not stay within control limits, flooded replenishment may be needed.

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

Fixer Retention -

The ability to maintain a quality image over several years is dependent on the stability of the image you produce. Image stability begins in the processing cycle. High levels of residual fix (hypo) in processed film indicate insufficient washing, and this can significantly impact the stability of the film. Insufficient washing can be caused by improper wash flow rates, loss of fixer temperature control, inactive fixer, or improper film storage conditions. An analysis of fixer retention in film should be performed quarterly or whenever poor washing is suspected.

Drying -

Use the lowest possible dryer temperature that will maintain proper film drying. The dryer temperature will vary depending on the processing cycle, the relative humidity, and the environmental temperature, and should be adjusted to meet individual conditions. Different processing cycles will require different dryer temperatures to compensate for varying times that the film is in the dryer section. Refer to the Operator Manual for dryer temperature adjustment instructions.

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9) Graphs[1]

Characteristic:

A) RP X-OMAT Chemicals (2013-08)
B) X-OMAT EX II Developer (2013-08)
C) RP X-OMAT Chemicals – Developer Temperature Series (2013-08)

Process Variations from Normal Processing Temperature:

D) Speed (2013-08)
E) Contrast (2013-08)
F) Fog (2013-08)

Safelight Sensitivity:

G) (2013-08)

Bromide Effects:

H) RP X-OMAT Chemicals (2013-08)
I). X-OMAT EX II Chemicals (2013-08)

Inverse/Squared Sensitometry:

J) RP X-OMAT Chemicals – Log Exposure vs. Gamma
K). RP X-OMAT Chemicals – Density vs. Gamma

Note: The Carestream materials described in this publication for use with MIN-R S Film are available from dealers who supply Carestream products. You can use other materials, but you may not obtain similar results.

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[1]NOTICE: 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 Carestream Health, Inc. The company reserves the right to change and improve product characteristics at any time.

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End of Data Sheet

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