



PRODUCT PROFILE

TPP-001
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FUJI MI-NH PRODUCT PROFILE

1. OVERVIEW

Fuji MI-NH is a single-coated, orthochromatic, high-contrast, high-speed sheet film. Fuji MI-NH is designed for high-definition screen radiography (especially extremity radiography) and recording CRT images such as those derived from DR (digital radiography), CT (computed tomography), MR (magnetic resonance), NM (nuclear medicine), and US (ultrasound) equipment. Fuji MI-NH is about 55% faster than Fuji MI-NC.

2. APPLICATIONS

Fuji MI-NH is sensitive to the light from green, blue, and white phosphors used in the CRT recording of CT, DR, MR, US, and NM studies. The higher speed of Fuji MI-NH allows photography at reduced CRT intensities, avoiding the adverse effects of blooming. In nuclear medicine, lower count and dynamic studies are facilitated.

Fuji MI-NH provides high-definition extremity radiographs with excellent lesion and bone tissue image detail characteristics, when used in conjunction with a single intensifying screen.

3. PHOTOGRAPHIC CHARACTERISTICS

3.1 Speed

Fuji MI-NH is a high-speed film, about 55% faster than Fuji MI-NC in single green-emitting intensifying screen radiography, and about 70% faster than Fuji MI-NC for CRT exposures:

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Relative Speed (Fuji HR-G/Kyokko GF-1 [pair]=100)

<u>Film</u>	<u>System Speed</u>
Fuji HR-G/Kyokko GF-1	100**
Fuji MI-NH	40*
Fuji MI-NC	25*

*single Kyokko GF-1

**double Kyokko GF-1

3.2 Contrast

Fuji MI-NH is a high-contrast film, appropriate for the recording of fine details in single intensifying screen radiography such as extremity radiography. High contrast also improves the fidelity of reproduction in video CRT photography by minimizing the contrast-reducing effect of flare common to all optical systems. In x-y camera CRT photography, the high contrast of Fuji MI-NH produces images with "hard", sharp dots.

<u>Film</u>	<u>Average</u>
	<u>Gradient</u>
Fuji MI-NC	2.39 +0.24
Fuji MI-NH	2.27 <u>+0.23</u>

3.3 Sharpness

Fuji MI-NH incorporates an effective anti-halation backing to improve sharpness by reducing internal reflections in the film. Because of this light-absorbing backing, efforts to expose the film from the back (non-emulsion side) will result in very low speed.

Fuji MI-NH exhibits very high MTF, assuring radiographic sharpness will be limited primarily by the intensifying screen and geometrical unsharpness. The relatively low limiting resolution of images presented for CRT recording (5lp/mm) in multi-format cameras also occur at frequencies where Fuji MI-NH exhibits an excellent MTF.

3.4 Noise

Intensifying screen structure and x-ray quantum mottle are the primary components of noise at visible frequencies in a radiograph. In addition, their effects are magnified by the contrast of the recording film, a property of the film and its processing. The RMS (Root Mean Square) granularity of Fuji MI-NH is very low; a representative RMS granularity curve may be found in the Fuji MI-NH data sheet.

Fuji MI-NH is very resistant to a type of grainy appearance put on some films by rough processor rollers, and is resistant to the phenomenon of "pick-off".

3.5 Spectral Sensitivity

Fuji MI-NH has orthochromatic spectral sensitivity; it is sensitive to both blue and green light. Fuji MI-NH will record images from both green and blue light emitting intensifying screens and CRT phosphors and the white and simulated white phosphors (P4, P45) popular in CRT-based video multi-image/multiformat cameras. Fuji MI-NH is not sensitive to red light and is therefore not suitable for recording images from laser-based cameras using a red or infrared laser.

4. PROCESSING

Fuji MI-NH is processable in 90-second and longer cycle processors. There is generally no technical preference for emulsion-side orientation on the processor feed tray. If worn or damaged processor rollers cause processing artifacts (pick-off or roller mottle), reversing the processing emulsion side orientation may alleviate the problem until the processor can be repaired.

5. PHYSICAL CHARACTERISTICS

5.1 Construction

Fuji MI-NH is coated on a dimensionally-stable, blue-tinted, 175 (0.007in.) virgin polyester safety support. Fuji MI-NH exhibits very low haze.

Fuji MI-NH is a single-coated film, only one of its two sides, the active emulsion side, should be used for image recording. The active emulsion side is facing the operator when the notches are oriented in the upper right hand side.

The emulsion layer is protected by a thin, clear protective layer to protect the emulsion from damage in normal processing and handling.

The back (non-emulsion) side of the support features an antihalation backing layer which reduces the blurring reflection of light at the base-air boundary (halation) for increased sharpness. The antihalation backing layer also controls film curl to improve flatness in the film holder or on the viewbox under extremes of relative humidity.

Fuji MI-NH is identified in the darkroom by two semicircular notches centered at 25mm and 32.5mm from the edge on one of the shorter ends of the film. Processed Fuji MI-NH may be identified, in addition to the ID notches on all sizes, by the edge printing (.....FUJI.NH.SAFETY...) on the 14x17in., and 11x14in. sizes only. Other sizes are not edge printed so as not to interfere with diagnosis.

5.2 Handling and Storage

Fuji MI-NH may be handled under relatively high levels of safelight illumination, despite its high speed, with minimum increase in gross fog density. If other films are being used in the darkroom with lower safelight tolerance, use a red (EK GBX-2 or equivalent) safelight filter equipped with a 15 watt bulb at a distance of about 3 feet.

Fuji MI-NH, like other photographic products, should be stored at or below room temperature, on-edge, and away from sources of ionizing radiation such as gamma and x-rays.

Stock should be rotated on a FIFO (first in, first out) basis using the expiration data as a guide.

Fuji MI-NH incorporates anti-static properties to protect the film from static discharge artifacts when handling in conditions of low relative humidity.

All Fuji Medical Imaging Films meet or exceed ANSI standard PH 1.25 for fire safety and PH 1.28 for archival properties.

6. FEATURES AND BENEFITS

FEATURE

higher speed
than MI-NC

BENEFIT

reduced dose, especially
in extremity radiography

sharper images due to
reduced motion blur in
screen radiography

reduced "blooming" in CRT
recording because of
lower CRT intensities

allows reduced-count
(faster) nuclear medicine
studies and facilitates
dynamic flow studies

high contrast	improved perception of fine detail
anti-halation layer	increased sharpness
high maximum density	allows visualization of an extended range of soft tissue densities; permits hot-lighting
anti-static protection	reduced static electricity discharge artifacts in low humidity environments
orthochromatic	may be used with all extremity screens; is most efficient with green-emitting screens
protective coating	maximum protection against scratches and processing artifacts

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