INDUSTREX Films – Life Expectancy of Processed Industrial Radiographs

The life expectancy of processed industrial radiographs is highly dependent on their processing and storage conditions. Carestream cannot control customers' processing and storage conditions and therefore does not guarantee any particular life expectancy. Carestream's "Limitation of Liability" is printed on every product label; it covers defective manufacturing and packaging.

While Carestream cannot promise a specific life expectancy for radiographs made using its INDUSTREX Film products, we can provide assistance to customers who wish to assess the long-term keeping capability of their radiographs:

- In Carestream's testing of INDUSTREX Film products, films were processed in an INDUSTREX Film Processor Model 43ic, using INDUSTREX Single Part Developer Replenisher and INDUSTREX LO Fixer and Replenisher.
- The processing cycle was the standard 8-minute cycle with a developer immersion time of 100 seconds at a temperature of 26 °C (79 °F), in accordance with the Carestream published processing recommendations.
- Under these conditions, all films (INDUSTREX HS800, AA400, T200, MX125, M100, DR50, and R400 Films) showed less than 0.5 ug/cm^2 of retained Thiosulfate, per ISO Standard 18917. Each sample was analyzed, and results were calculated using a carefully prepared calibration line. These data translate to a life expectancy of 500 years (LE500), per ISO Standard 18901, when stored properly.
- Storage conditions can also have a pronounced influence on radiograph permanence. The essential requirements are proper storage temperature and humidity. ASTM E1254, ISO 18911, and ISO 18902 give details of storage conditions for radiographs.
- The film storage environment should be limited to the range of 4.4 °C (40.0 °F) to 24 °C (75 °F) and 30 % to 60 % RH, per ASTM Standard E 1254.
- For extended-term storage, ISO 18911 recommends a maximum temperature of 21 °C (70 °F) and a relative humidity range of 20 to 50 % RH.

Carestream encourages customers to assess the life expectancy of radiographs made using their own INDUSTREX Film products and using the above referenced standards. We will be happy to assist if you should have any questions.

References:

1. ISO 18917—Determination of residual thiosulfate and other related chemicals in processed protographic materials— Methods using iodine-amylose, methylene blue, and silver sulfide.
2. ISO 18901—Imaging Materials—Processed silver-gelatin type black-and-white films—Specifications for stability.
3. ASTM E 1254—"Standard Guide for Storage of Radiographs and Unexposed Industrial Radiographic Films," ASTM International.

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Rev A (PLI): Rev 3 is released into PLI. Going forward, releases will follow PLI (letter) revisioning.