



# EASTMAN TRI-X Reversal Film 7278™

## DESCRIPTION

EASTMAN TRI-X Reversal Film 7278 (16 mm) is a high-speed, panchromatic black-and-white film with an anti-halation undercoat that makes it suitable for general interior photography with artificial light. It can be used in daylight and is particularly useful for photographing sports at regular speed or in slow motion in low-light conditions late in the day or with an overcast sky. This film is characterized by excellent tonal gradation and high resolving power.

When processed as a reversal film, the resulting positive can be used for projection or for duplication. If processed as a negative material by conventional methods, this film will yield satisfactory results, although there will be some loss in speed.

## BASE

This film has a gray acetate safety base with an additional anti-halation undercoat. The back side of the base contains an anti-static layer with a carnauba wax lubricant.

## DARKROOM RECOMMENDATIONS

All processing operations should be carried out in total darkness until the bleaching step has been completed. If necessary, the film can be examined (for a few seconds only) after development is 50 percent complete. Use a KODAK 3 Safelight Filter / dark green with a 15-watt bulb, no closer to the film than 1.2 metres (4 feet). Following bleaching, normal room lighting can be used.

## STORAGE

Store *unexposed film* at 13°C (55°F) or lower. For extended storage, store at -18°C (0°F) or lower. Process exposed film promptly. Store *processed film* according to the recommendations in NAPM IT9.11-1992: for medium-term storage (minimum of ten years), store at 25°C (77°F) or lower at a relative humidity of 20 to 50 percent; for extended-term storage (for preservation of material having permanent value), store at 21°C (70°F) or lower at a relative humidity of 20 to 30 percent. For active use, store at 25°C (77°F) or lower at a relative humidity of 50±5 percent. This relates to optimized film handling rather than preservation; static, dust-attraction and curl-related problems are generally minimized at the higher relative humidity. After use, return the film to the appropriate medium- or long-term storage conditions as soon as possible.

For more information about medium- and long-term storage, see NAPM IT9.11-1992, and KODAK Publications H-1, *KODAK Motion Picture Film*, and H-23, *The Book of Film Care*.

## EXPOSURE INDEXES

Use the following exposure indexes for recommended reversal processing:

*Tungsten (3200K)*—160

*Daylight\**—200

Use these indexes with incident- or reflected-light exposure meters and cameras marked for ISO or ASA speeds or exposure indexes. These indexes apply for meter readings of average subjects made from the camera position or for readings made from a gray card of 18-percent reflectance held close to and in front of the subject. For unusually light- or dark-colored subjects, decrease or increase the exposure indicated by the meter accordingly.

For negative processing (gamma=1.0) in a typical motion-picture negative developer, use the following exposure indexes:

*Tungsten (3200K)*—100

*Daylight*—125

## EXPOSURE TABLE FOR TUNGSTEN LIGHT

At 24 frames per second (fps), 170° shutter opening:

| Lens Aperture         | f/1.4 | f/2 | f/2.8 | f/4 | f/5.6 | f/8 |
|-----------------------|-------|-----|-------|-----|-------|-----|
| Footcandles required* | 16    | 32  | 64    | 125 | 250   | 500 |

\* At 18 frames per second, use  $\frac{3}{4}$  of the footcandles (fc) shown. When the film is used as a negative material, the values specified should be doubled.

## LIGHTING CONTRAST

The recommended ratio of key-light-plus-fill-light to fill light is 2:1 or 3:1. You may use 4:1 or greater when you want a particular look.

\*Super 8 automatic cameras will expose the film at ASA 160 due to the ANSI standard cartridge notching system.

## FILTER FACTORS

| KODAK WRATTEN Filter No.   | 3   | 8 | 8N5 | 12 | 15  | 21 | 23A | 25 | 29 | 96* |
|----------------------------|-----|---|-----|----|-----|----|-----|----|----|-----|
| Filter Factor for Daylight | 1.5 | 2 | 4   | 2  | 2.5 | 3  | 5   | 10 | 40 | 8   |

\* For use in bright sunlight to reduce the exposure without modifying color rendition or depth of field. This filter, which has a neutral density of 0.90, provides a reduction in exposure equivalent to 3 full stops.

## RECIPROCITY

| Exposure Time (seconds) | 1/10,000 | 1/1,000 | 1/100 | 1/10 | 1         |
|-------------------------|----------|---------|-------|------|-----------|
| Exposure Adjustment     | none     | none    | none  | none | +1/2 Stop |

## REVERSAL PROCESS

This film can be processed with KODAK Reversal Liquid Chemicals or with solutions prepared according to the formulas presented in KODAK Publication No. H-24.15, *Manual for Processing KODAK Motion Picture Films*, Module 15. The processing times listed below are suggested starting points for most conventional continuous-immersion processors. The processing times may require modification for a particular machine.

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

| Processing Step | Processing Time (min:sec)                            |             |              |
|-----------------|--|-------------|--------------|
|                 | 20°C (68°F)  | 35°C (95°F) | 43°C (110°F) |
| First Developer | 2:00   | 0:40        | 0:13         |
| Rinse*          | 0:30   | 0:20        | 0:10         |
| Bleach          | 0:50   | 0:40        | 0:10         |
| Rinse           | 0:30   | 0:30        | 0:20         |
| Clear           | 0:30   | 0:20        | 0:10         |
| Rinse           | 0:30   | 0:30        | 0:20         |
| Re-exposure     | 8600 lux-seconds†                                    |             |              |
| Redeveloper     | 0:50   | 0:20        | 0:10         |
| Rinse‡          | 0:30   | 0:20        | 0:10         |
| Fix             | 0:50   | 0:30        | 0:10         |
| Wash            | As required§   |             |              |
| Dry             | As required<br>(about 1 minute in a typical machine) |             |              |

\* Do NOT use acid stop bath at this point.

† 800-footcandle seconds. A 10-second exposure to a common 60-watt lamp at 12 to 18 inches.

‡ An acid stop bath, such as KODAK Stop Bath SB-1a, can be used in place of a water rinse following the redeveloper.

§ The amount of washing needed is determined by the efficiency of the water application and the permissible residual hypo concentration for the intended use.

## NEGATIVE PROCESS

### Continuous Processors

Although designed for reversal processing, these films are capable of yielding useful negative images of conventional quality and contrast if developed in a developer such as KODAK Developer D-76 and then fixed. When a developer of this type is used, the speed is not more than one-half to two-thirds that normally obtained in reversal processing.

If negatives are required, it is preferable to use films designed for that purpose.

### Rewind Equipment

| Operation | Processing Solution*  | Time for Operation (minutes) |                |
|-----------|-----------------------|------------------------------|----------------|
|           |                       | 20°C (68°F)                  | 29.4°C (85°F)† |
| Prebath   | KODAK Prebath PB-3    | 4                            | 4              |
| Rinse     | Water‡                | 2                            | 2              |
| Develop   | KODAK Developer D-19  | 8                            | 6              |
| Rinse     | KODAK Stop Bath SB-5  | 4                            | 4              |
| Fix       | KODAK Fixing Bath F-5 | 14                           | 10             |
| Wash      | Water                 | 10                           | 8              |
| Dry       | —                     | As required                  |                |

\* Replenishment is not recommended. Fresh solutions should be used after each roll of film has been processed.

† Processing temperatures above 29.4°C (85°F) are not practical.

‡ In rinsing and in washing, the water should either run into the tank continuously or be replaced after each complete winding cycle.

## IDENTIFICATION

After processing, the product code number 7278, emulsion and roll number identification, internal product symbol (TXR), and EASTMAN KEYCODE Numbers are visible along the length of the film.

## IMAGE STRUCTURE

The modulation-transfer curves, the diffuse rms granularity, and the resolving-power data were generated from samples of 7278 Film exposed with tungsten light and processed in the recommended reversal process at 20°C (68°F). For more information on image-structure characteristics, see KODAK Publication No. H-1, *KODAK Motion Picture Film*.

### Diffuse RMS Granularity\* 16

#### Reversal Process

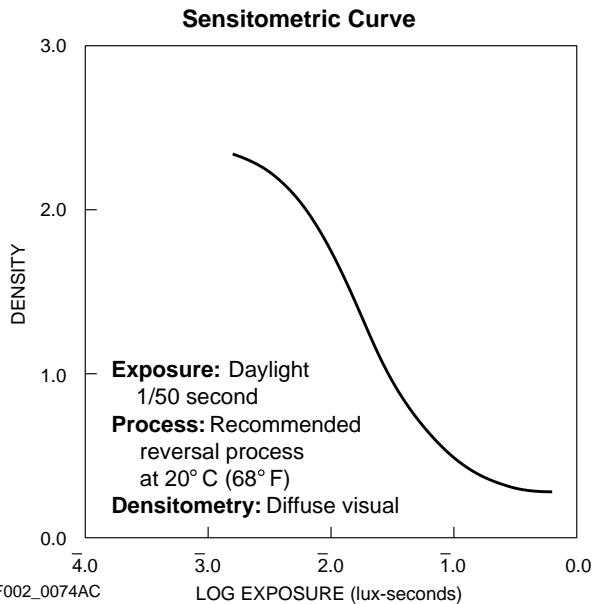
|                  |            |              |
|------------------|------------|--------------|
| Resolving Power† | TOC 1.6:1  | 50 lines/mm  |
|                  | TOC 1000:1 | 125 lines/mm |

#### Negative Process

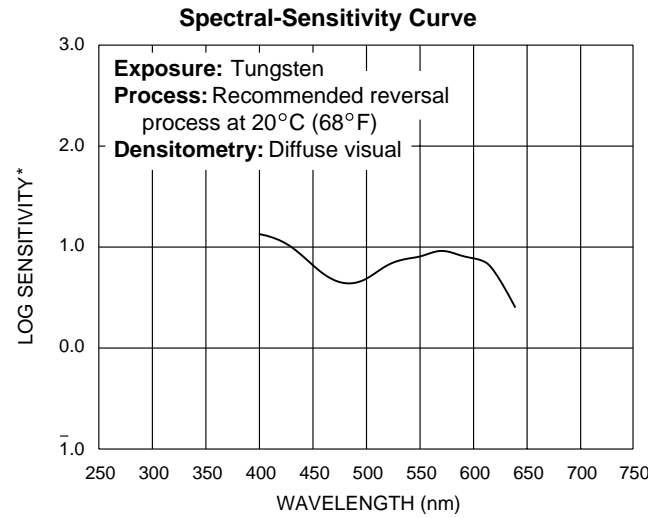
|                  |            |              |
|------------------|------------|--------------|
| Resolving Power† | TOC 1.6:1  | 50 lines/mm  |
|                  | TOC 1000:1 | 100 lines/mm |

\* Read at a gross diffuse visual density of 1.0, using a 48-micrometre aperture.

† Determined according to a method similar to the one described in ISO 6328-1982, *Photography—Photographic Materials—Determination of ISO Resolving Power*.

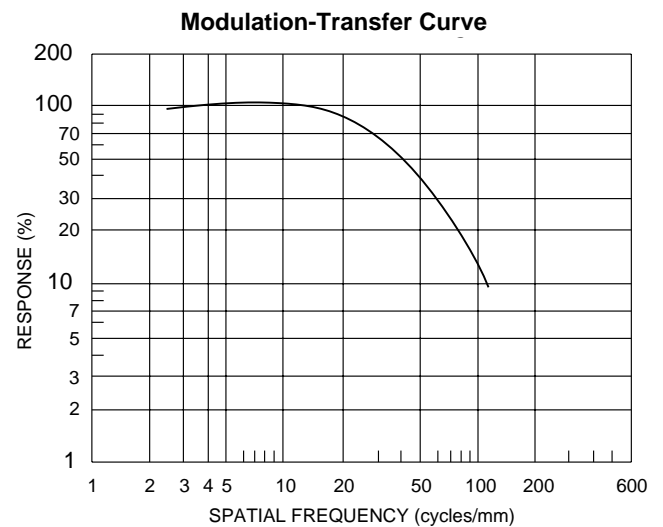


F002\_0074AC



\*Sensitivity = reciprocal of exposure (ergs/cm<sup>2</sup>) required to produce specified density

F002\_0075AC



F002\_0073AC

These photographic modulation-transfer values were determined by using a method similar to the one described in ANSI Standard PH2.39-1977(R1990). The film was exposed with the specified illuminant to spatially varying sinusoidal test patterns having an aerial image modulation of a nominal 35 percent at the image plane, with processing as indicated. In most cases, these photographic modulation-transfer values are influenced by development-adjacency effects and are not equivalent to the true optical modulation-transfer curve of the emulsion layer in the particular photographic product.

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

# EASTMAN TRI-X Reversal Film 7278™

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## AVAILABLE ROLL LENGTHS

For information on film roll lengths, check Kodak's *Professional Motion Imaging Price Catalog* or see a Kodak sales representative in your country.

## KODAK LOCATIONS

FOR DIRECT ORDERING IN THE UNITED STATES:  
**1-800-621-FILM**

### ATLANTA, GEORGIA

4 Concourse Parkway  
Suite 300  
Atlanta, Georgia 30328-6105  
Information: 800-800-8398

### CHICAGO, ILLINOIS

815 West Van Buren, Suite 320  
Chicago, Illinois 60607  
Information: 312-492-1423

### DALLAS, TEXAS

11337 Indian Trail  
Dallas, Texas 75229  
Information: 972-481-1170  
312-492-1423

### HOLLYWOOD, CALIFORNIA

6700 Santa Monica Boulevard  
P. O. Box 38939  
Hollywood, California 90038-1203  
Information: 323-464-6131

### NEW YORK, NEW YORK

360 West 31st Street  
New York, New York 10001-2727  
Information: 212-631-3450

### LATIN AMERICAN REGION

8600 NW 17th Street, Suite 200  
Miami, Florida 33126  
Information: 305-507-5656

FOR DIRECT ORDERING IN CANADA:  
**1-800-621-FILM**

### MONTREAL, CANADA

Kodak Canada Inc.  
4 Place du Commerce, Suite 100  
Ile des Soeurs  
Verdun, Quebec, Canada, H3E 1J4  
Information: 514-761-7001

### TORONTO, CANADA

Kodak Canada Inc.  
3500 Eglinton Avenue West  
Toronto, Ontario, Canada, M6M 1V3  
Information: 416-761-4922

### VANCOUVER, CANADA

Kodak Canada Inc.  
4185 Still Creek Drive, Suite C150  
Burnaby, British Columbia, Canada, V5C 6G9  
Information: 604-570-3526

### KODAK On Line At:

<http://www.kodak.com/go/motion>



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