



Kodak

Diazo C Microfilm 1957, 2957, 3957
Diazo D Microfilm 1956, 2956, 3956

D-41

Datasheet
November 2009

Kodak Duplicating Microfilm

Kodak Diazo C Microfilm 1957, 2957, 3957

Kodak Diazo D Microfilm 1956, 2956, 3956

Diazo microfilm (*Estar* Base) is a fast-speed non-silver print film suitable for generating direct-duplication copies in fiche or roll form from silver or reprintable diazo films. It can be processed in the usual commercially available diazo processors, using either aqueous or anhydrous ammonia vapor at various temperatures and pressures.

The colored title stripes facilitate fiche identification and the translucent stripe permits title reproduction on the next generation copy.

Product applications

A typical use is for producing negative-appearing copies; i.e., clear lines with dark background made from reversal-processed computer output microfilms (COMs). These films can also be used to duplicate copies of source documents, engineering drawings, and continuous-tone negatives.

Diazo C: This film is formulated to produce a blue dye upon development. Its blue-dye image has high visual contrast on a reader. (See Spectral Dye Density curve.)

Diazo D: Upon development, unexposed areas of these films produce a mixture of yellow and blue dyes, which together form a black image with anhydrous or aqueous development. These dyes peak in absorption at about 470 and 580 nm, respectively. The blue dye gives visual contrast and the yellow dye controls the contrast of next-generation prints onto this product or other blue-sensitive materials. (See Spectral Dye Density curve.)

Features

- Direct duplication — positive from positive, negative from negative
- Ultraviolet-blue sensitivity
- Fast printing speed
- Ultra-high resolving power
- Clear polyester base
- Title stripe available in a full range of colors and widths
- Thin base product offers reduced loading frequency and reduced film storage requirements
- Excellent image stability in readers

Diazo C

- Blue diazo film is formulated to be developed in either aqueous or anhydrous ammonia vapor, producing a blue background
- Designed for duplication of reversal-processed computer output microfilms
- Static-resistant backing
- High visual contrast

Diazo D

- Black diazo film is formulated for pressure development in either anhydrous or aqueous ammonia vapors, producing a neutral-black background similar in appearance to silver film
- Designed for document duplication where fast throughput and low contrast are desirable
- Static-resistant backing
- Excellent reprint characteristics with comparable contrast
- Medium visual contrast

Physical properties

Nominal thickness data (mils)

Unprocessed Film		
Diazo C Film	Diazo D Film	Total Film Thickness
1957	1956	4.4
2957	2956	3.6
3957	3956	2.5

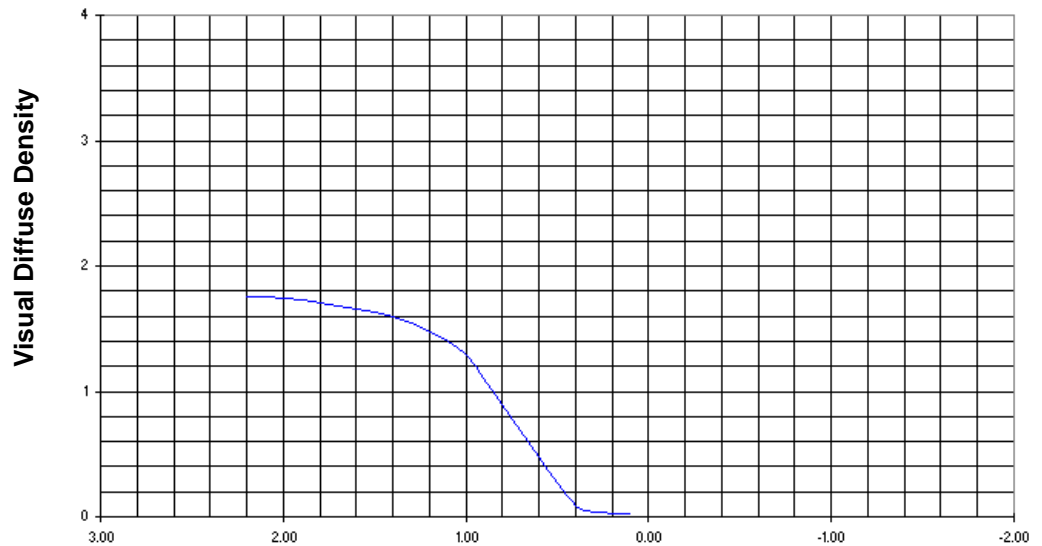
Before-Process Handling and Storage

Store these films in the original, unopened packages for up to 6 months at 21°C (70°F) at 50% relative humidity or below. For longer periods of time, store film at the same humidity, but at 10°C (50°F) or below.

These films can be handled, exposed, and processed under gold fluorescent lights. Normal room light is also suitable for short periods. Open the package only when film is ready to be used, and return unused film to light-protective storage when duplicating equipment is shut down. Prolonged exposure to sources high in ultraviolet radiation, such as sunlight or white fluorescent light, will fog the film, resulting in a loss of density.

To prevent pre-development, avoid exposure to high temperatures and ammonia fumes or other alkaline contaminants.

**Diazo C Microfilms 1957, 2957, 3957
Print and Reprint**

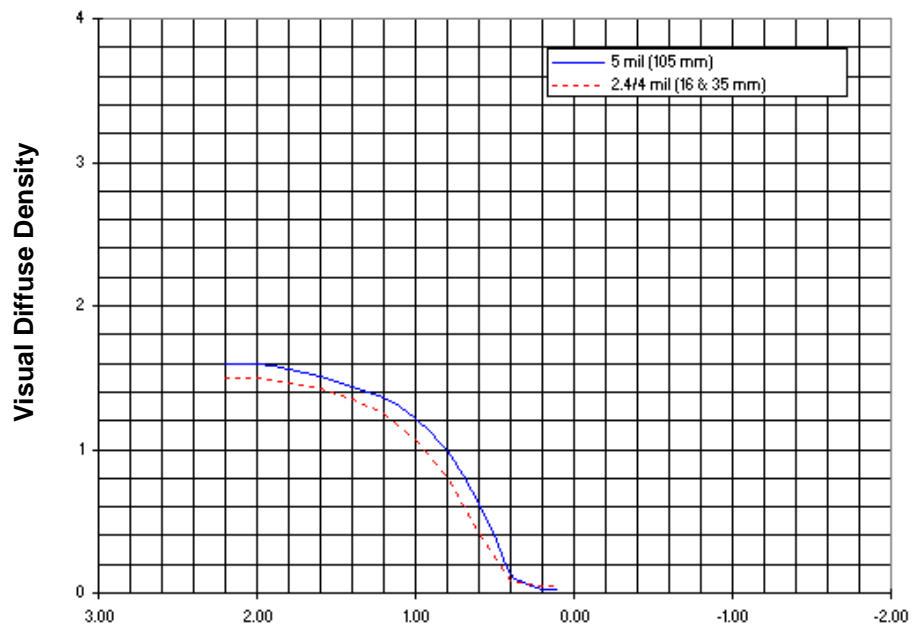


Silver Tablet Diffuse Density

Exposure: Mercury-arc lamp

Process: Anhydrous ammonia, 1 second at 71°C (160°F), OP-50 Bruning Am.
Std. Diffuse Visual Density

**Diazo D Microfilms 1956, 2956, 3956
Print and Reprint**



Silver Tablet Diffuse Density

Exposure: Mercury-arc lamp

Process: Anhydrous ammonia, 1 second at 79°C (175°F), OP-50 Bruning Am.
Std. Diffuse Visual Density

Photographic Properties

ARMM Speed

Diazo C: 51

Diazo D: 42

Exposure: Determine exposure for acceptable quality by running an exposure series on your equipment. Suitable sources of intense ultraviolet-blue radiation (330 to 500 nm) for exposing this diazo film include mercury-arc and xenon-flash lamps. This film is formulated to use with most high-speed duplicators, such that a typical exposure in this wavelength range, using an undoped mercury lamp is about 2.5 million erg/cm sq. for Diazo C microfilm and 3.2 million erg/cm sq. for Diazo D microfilm. This exposure will reduce net density to nearly zero (burn-out density) with recommended processing.

NOTE: It is recommended that the manufacturer of high-intensity ultraviolet lamps be consulted for safety information pertaining to ultraviolet radiation and ventilation requirements due to ozone generation.

Reciprocity: When using a practical range of exposures, this film has no discernible reciprocity failure.

Image Structure

Resolving power

ISO-RP	1250 lines/mm	(TOC 1000:1)
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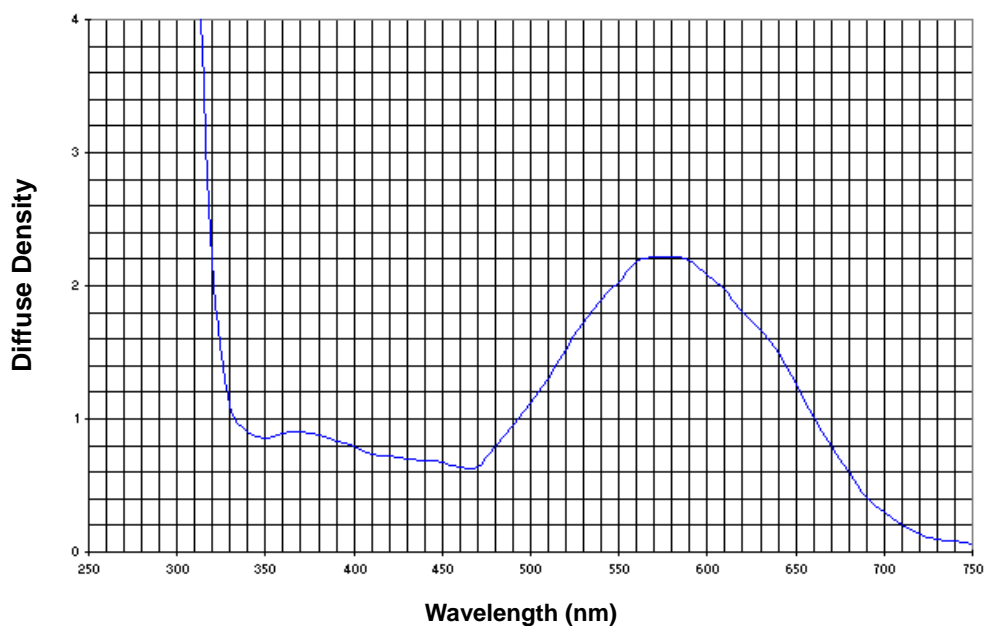
Determined according to the method described in ISO 6328-1982 (except that the light source used was a high-pressure mercury arc). This value applies with all recommended processes.

Processing

Conditions: Suitable commercial diazo processors for this film include the following:

- Anhydrous ammonia for about 1 second at a pressure of 483 to 552 kPa (70 to 80 psi) and a temperature of approximately 60 to 93°C (140 to 200°F) for Diazo C microfilms or approximately 66 to 73°C (150 to 170°F) for Diazo D microfilms.
- Aqueous ammonia vapor for 10 seconds or longer at ambient pressure and temperature of approximately 60 to 93°C (140 to 200°F) for Diazo C microfilms or approximately 66 to 73°C (150 to 170°F) for Diazo D microfilms.

**Diazo C Microfilm 1957, 2957, 3957
Spectral Dye Density**

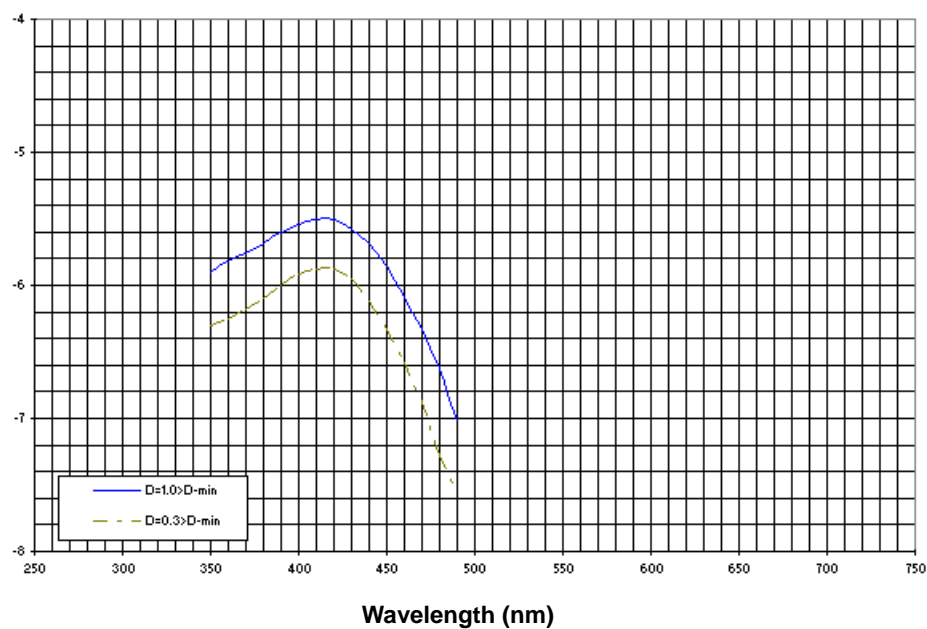


Exposure: None. Processed to maximum density

Process: Anhydrous ammonia at 552 kPa (80 psi), 1 second at 71°C (160°F), Am. Std. Diffuse Visual Density

**Diazo C Microfilm 1957, 2957, 3957
Spectral Sensitivity**

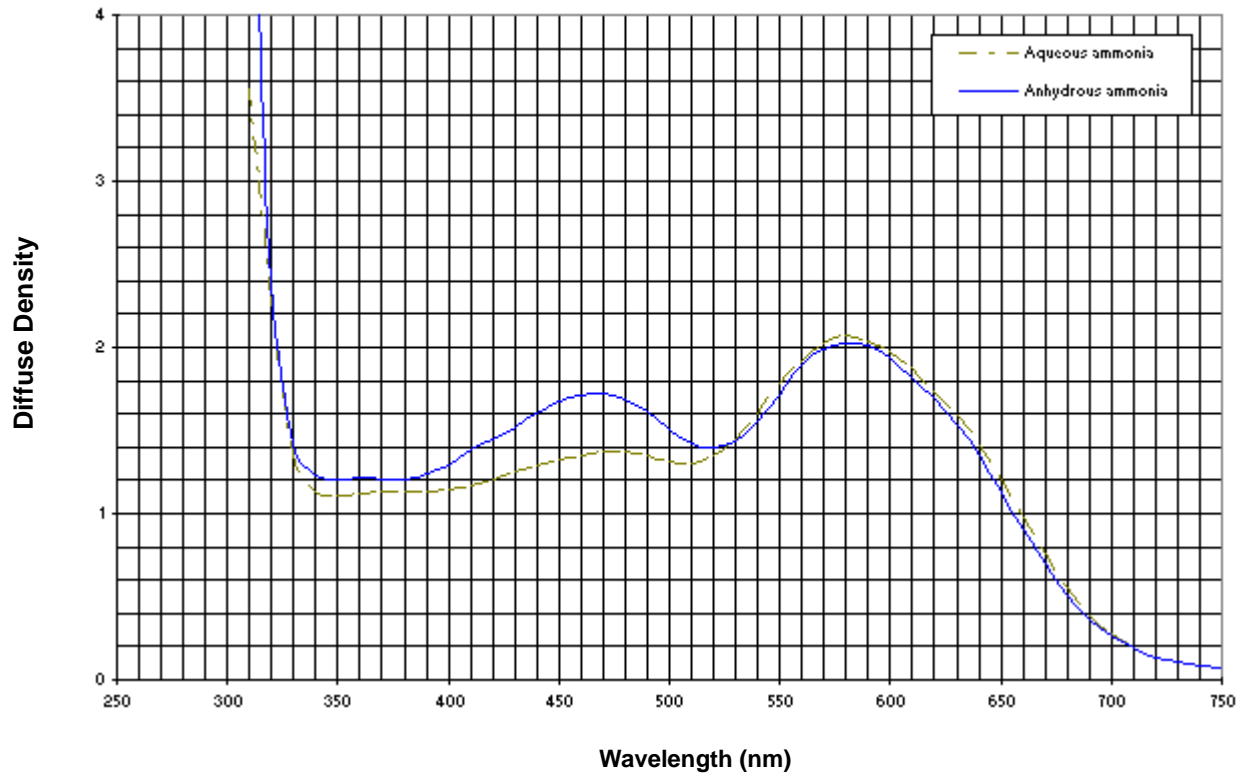
Log Sensitivity
Sensitivity = reciprocal of exposure (ergs/sq. cm) required to produce specified density.



Exposure: 1 to 390 seconds/20 nm intervals (as required for indicated density)

Process: Anhydrous ammonia at ambient pressure, 9 seconds at 71°C (160°F), Am. Std. Diffuse Visual Density

Diazo D Microfilm 1956, 2956, 3956
Spectral Dye Density

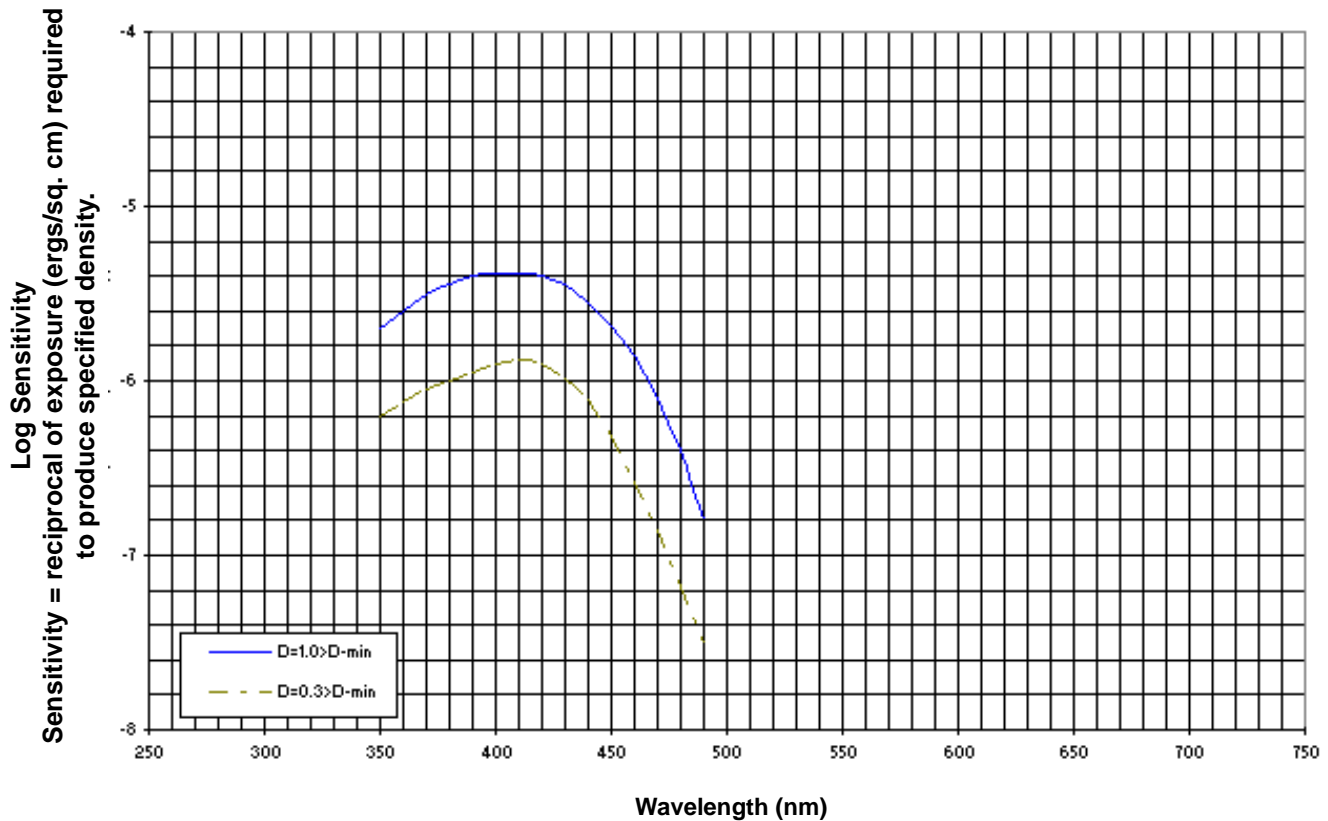


Exposure: None. Processed to maximum density

Process: Aqueous ammonia at ambient pressure, 9 seconds at 71°C (160°F)

Anhydrous ammonia at 552 kPa (80 psi), 1 second at 71°C (160°F), Am. Std.
Diffuse Visual Density

Diazo D Microfilm 1956, 2956, 3956 **Spectral Sensitivity**



Exposure: 1 to 390 seconds/20 nm intervals (as required for indicated density)

Process: Aqueous ammonia at ambient pressure, 9 seconds at 71°C (160°F), Am. Std. Diffuse Visual Density

Absorption of excess ammonia: For minimum discomfort from ammonia fumes with processors using an aqueous or acidic tray, the use of *Kodak* Indicator Stop Bath, diluted 1:5 with tap water, is recommended. This solution will gradually change from a yellowish to a purplish color as it turns alkaline from excess ammonia, at which time it should be discarded.

This is not intended to replace existing ammonia-absorption recommendations of equipment manufacturers except in critical applications such as unusual individual sensitivity or a confined processing environment.

After-Process information

These films offer excellent resistance to the effects of high humidity, fungi and bacteria. However, image stability is best when this film is stored in the dark and at low temperatures. Use normal handling precautions to avoid scratches and abrasions.

Do not store in the same roll or container or in contact with other types of films; i.e., silver or vesicular films.

Storage prints: storage prints are prints which will be utilized infrequently for viewing (primarily as a record) or for reprinting to generate additional copies.

Diazo C films meet the image stability limits as specified for ammonia-processed diazo film as a Class B long-term film outlined in ISO 18905.

Diazo D films meet the image stability limits as specified for ammonia-processed diazo film as a Class A long-term film outlined in ISO 18905.

Record films must be stored under "archival" conditions as stated in ISO 18911 and outlined in pertinent ANSI Standards and in Kodak Publication D-31. These conditions include storage at 21°C (70°F) and 15 to 40% relative humidity, air conditioning to avoid temperature and humidity cycling, and stringently clean air. In addition, the film should be stored in the dark in approved light-tight containers. These conditions will extend the film's lifetime to be a minimum of 100 years.

Working prints: as with other diazo films, working prints on Diazo C film normally are handled and viewed extensively and frequently are subjected to degradation from dirt, abrasion and fingerprints, as well as high temperatures and image fading associated with extended viewing. Accordingly, no minimum time for usability can be assigned. However, replacement working prints can be readily generated from storage prints which are on silver-gelatin films or on reprintable diazo films.

Dye stability

Final color rendition of the dye is influenced by process conditions such as development temperature, type of ammonia, amount of pressure, etc. A shift in the final color of the film can occur from variations in these conditions.

NOTE: Films and sizes are subject to change or may be discontinued without notice. For specific sizes and formats, contact your Document Imaging Systems Media Products representative.

Disclaimer

The sensitometric curves and 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 directly to a particular box or roll of photographic material. They do not represent standards or specifications which must be met by Eastman Kodak Company. The company reserves the right to change and improve product characteristics at any time.

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