

# KODAK VISION3 Color Digital Intermediate Film 2254



## TECHNICAL DATA / COLOR INTERMEDIATE FILM

October 2020 • H-1-2254t

Responding to the needs of customers around the world, Kodak has developed digital intermediate films featuring state-of-the-art technology, providing excellent image quality and improved efficiency in digital postproduction.

KODAK VISION3 Color Digital Intermediate Films are designed as part of an integrated end-to-end solution, providing a bridge between the outstanding performance of KODAK VISION3 Color Negative Films and the show quality of KODAK VISION Color Print Films.

Filmmakers will love how the faithful color reproduction and improved sharpness of the new intermediate films help retain their original vision. And post houses and laboratories will appreciate the performance benefits offered by the new films:

- Universal compatibility: KODAK VISION3 Color Digital Intermediate Films offer excellent performance in virtually any recorder: laser, CRT, or LED. Now, confidently use just one digital intermediate film for maximum productivity when writing from digital files.
- Improved exposure efficiency: The new films offer up to 1-1/2 stops greater exposure sensitivity than our current color intermediate products, resulting in improved efficiency in digital postproduction.
- Remarkable consistency: Our rigorous quality process and strict manufacturing tolerances provide the same great sensitometric uniformity that you've come to expect from Kodak.
- Excellent Dye Stability: Dye Stability predictions for 2254 Film indicate more than a century of dye stability when stored at recommended conditions

## DARKROOM RECOMMENDATIONS

Make careful safelight tests before proceeding with production work. You can use low-intensity tungsten illumination or a sodium vapor lamp with a KODAK 13 safelight filter (dark yellow). The sodium-vapor lamp provides the best visual efficiency with the least effect on the film.

**Note:** Certain films (i.e., camera-speed and internegative) that are used in the same printing/processing room as KODAK VISION3 Color Digital Intermediate Film 2254 is NOT recommended for use with safelights. In these instances, where illumination must be provided for dials, meters, etc., during printing or color development, a fixture fitted with a KODAK 3 Safelight Filter / Dark Green, may be used provided that such illumination is not allowed to be incident upon the film itself.

## FILM STRUCTURE

KODAK VISION3 Color Digital Intermediate Film / 2254 / ESTAR Base is coated on a 120 micrometre (0.0047-inch) ESTAR Base featuring a patented electrically conductive anti-static layer, a polymeric scratch-resistant backing layer, and a process-surviving back-side lubricant. Unlike rem-jet, the anti-static layer remains with the film after processing, eliminating the electrostatic attraction of dirt particles to the processed film, even at relatively low humidity. A very thin polymeric backing layer coated on top of the anti-static layer provides improved resistance to back-side scratches, cinch marks, and abrasion of both raw stock and processed film. The backing layer also contains process-surviving lubricant and matte to optimize winding and transport characteristics.

FEATURES	BENEFITS
Improved spectral sensitivity	<ul style="list-style-type: none"><li>• Faster recording speeds</li><li>• Optimized for all digital recorders</li></ul>
Extended density ranges	<ul style="list-style-type: none"><li>• Able to achieve high densities</li><li>• Easier recorder calibration</li></ul>
Improved Sharpness	<ul style="list-style-type: none"><li>• Better matched among all color records</li><li>• Reduced fringing</li></ul>
Improved color purity	<ul style="list-style-type: none"><li>• More accurate reproduction</li><li>• Higher quality images</li></ul>
Improved latent-image keeping (LIK)	<ul style="list-style-type: none"><li>• Less than one printer light shift up to one day after exposure</li><li>• Improved product consistency</li></ul>
Dye stability of 100+ years	<ul style="list-style-type: none"><li>• No ongoing expense to maintain accessibility</li><li>• Film is the most economical archival medium</li></ul>

## STORAGE AND HANDLING

### Unprocessed Film

Film is perishable and changes with prolonged storage or adverse storage conditions. Photographic material should generally be kept in equilibrium with 40 percent to 60 percent relative humidity. Containers should be kept sealed until the material is used. After packaging, Kodak stores raw stock at 13°C (55°F) or lower. Transportation and distribution warehousing are refrigerated.

Intermediate film is not adversely affected by short-term (one month or less) storage at room temperatures (less than 25°C/ 77°F).

For extended-term storage, store at -18°C (0°F) or lower. Avoid unconditioned storage, as sensitometric and physical changes occur more rapidly at high temperatures, and may degrade film quality. If refrigerated storage is used, allow the sealed can or foil bag to equilibrate to room temperature before opening to avoid moisture condensation. Unused raw stock should be rebagged and put into sealed film cans before being put back in refrigerated storage. Process exposed film promptly.

### Processed Film

Store processed film according to the recommendations in ISO 18911:2010, Imaging Materials - Processed Safety Photographic Films - Storage Practices.

For short-term "active" storage, store at room temperature of 20 to 25°C (68 to 77°F) at 50 to 60 percent relative humidity. Avoid prolonged unconditioned storage at high temperatures or excessive humidity. For medium-term storage, store at 10°C (50°F) or lower, at a relative humidity of 20 to 30 percent. For extended-term storage (for preservation of material having permanent value), store at 2°C (36°F) or lower, at a relative humidity of 20 to 30 percent. Molecular Sieves<sup>1</sup> in a sealed can will provide additional benefit.

Arrhenius predictions indicate over a century of dye stability when film is stored in recommended conditions. (Dye stability is defined as the elapsed time before a 10% loss from a starting density of 1.0 occurs in any one color record.)

## PROCESSING

Most commercial motion-picture laboratories provide a processing service for these films. This film should be processed in Process ECN-2. No change in the process sequence is required.

Because it has no rem-jet to be removed, 2254 Film offers the potential for eliminating the current prebath and reducing water usage. However, care must be exercised if the rem-jet removal steps are eliminated, as replenishment rates will change if dry film enters the developer directly. Soluble dye build-up in the seasoned developer will also increase. Reducing water usage during processing leads to increased concentrations of total process effluent from the laboratory, which may have regulatory implications. For further assistance, contact your Kodak engineering representative.

The antihalation dyes used in VISION3 Color Digital Intermediate Films are decolorized and removed during processing. Although most of the dyes are removed in the developer, complete removal is also dependent upon the "tail end" solutions, such as bleach.

See KODAK Publication No. H-24.07, Processing KODAK Motion Picture Films, Process ECN-2 Specifications, Module 7, for more information on the solution formulas and the procedures for machine processing these films. There are also pre-packaged kits available for preparing the processing solutions. For more information on the KODAK ECN-2 Kit Chemicals, check the KODAK Motion Picture Film Product Catalog.

## IDENTIFICATION

After processing, the product code numbers 2254 (ESTAR Base/35 mm); emulsion and roll number identification; KEYCODE numbers; and internal product symbol EW are visible along the length of the film.

## LATENT-IMAGE KEEPING

You may notice less than one printer light shift in the latent image keeping up to one day after exposure. The improvement versus KODAK VISION Color Intermediate Film 5242 is especially noticeable between 30 minutes and 24 hours. Results were obtained under controlled conditions.

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1. Available at 1-800-621-FILM (3456).

## SPLICING

KODAK VISION3 Color Digital Intermediate Film / 2254 / ESTAR Base is manufactured on ESTAR base. Since ESTAR base is impervious to most solvents, solvent-based “cement” splicing CANNOT be used.

Thermal-weld ultrasonic splicers may be used on both raw stock and processed film. After cutting, the two pieces of film are overlapped slightly and brought into contact with a horn that focuses acoustic energy from an ultrasonic transducer to the film overlap. A pressure roller brings the film into intimate contact with the horn, causing a localized heating and fusion of the polyester support, creating a strong weld and reliable splice. Key splicing parameters are the acoustic frequency and power output, roller pressure, and roller transit time. Although the emulsion and back-side layers become part of the polyester weld, there is usually no need to scrape them off prior to ultrasonic splicing.

Adhesive tape splicing is often used in splicing rolls of printed raw stock prior to processing. Current splicing procedures using high-quality splicing tapes will work equally well on 2254 Film.

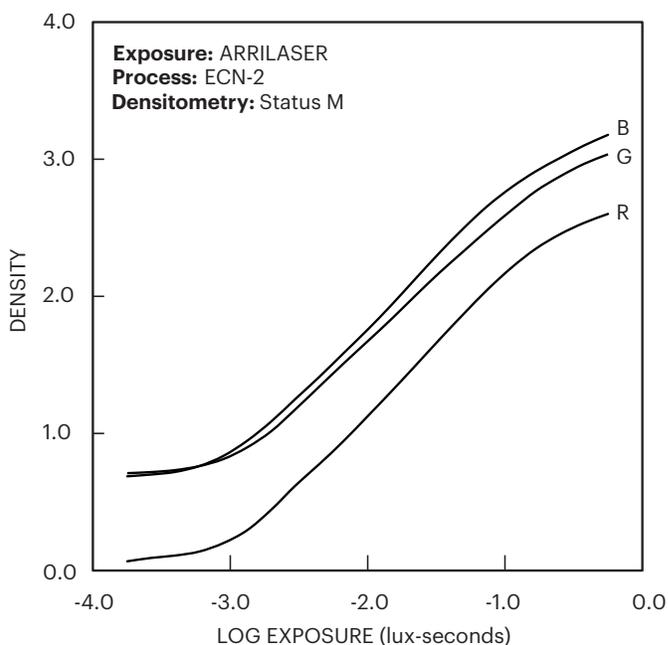
## IMAGE STRUCTURE

### Sensitometry

The sensitometry (characteristic curve) of KODAK VISION3 Color Digital Intermediate Film is very different from VISION Color Intermediate Film 5242. KODAK VISION3 Color Digital Intermediate Film 2254 is optimized to be exposed with recorder systems. As such, the speed, latitude, D-max and contrast positions are significantly advantaged versus 5242 Film. It’s important to remember that 2254 Film is NOT designed to be used in white light exposures (tungsten), as you would observe very low toe speed, particularly in the green record. You will also observe a significantly higher gamma.

KODAK VISION3 Color Digital Intermediate Film 2254 is NOT designed to be used for duplicating purposes.

### SENSITOMETRIC CURVES



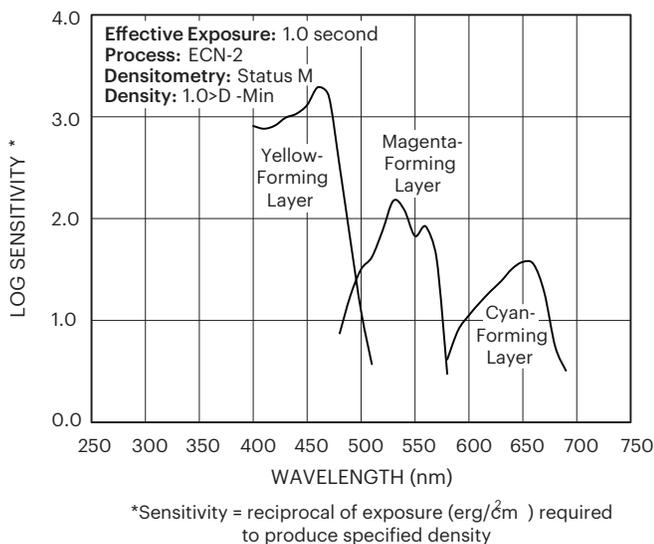
### IMPORTANT

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 that must be met by Eastman Kodak Company. The company reserves the right to change and improve product characteristics at any time.

## SPECTRAL SENSITIVITY

The spectral sensitivity of KODAK VISION3 Color Digital Intermediate Film is significantly different when compared to the spectral sensitivity of VISION Color Intermediate Film 5242. Particularly in the green and red records, the peaks have been shifted to better align with the output spectra of the variety of recorders currently in existence in the trade, therefore improving the film's performance. The green peak sensitivity is shifted from 545nm to 532nm and the red sensitivity is shifted from 690nm to 660nm. The blue remains at 455nm.

### SPECTRAL SENSITIVITY CURVES



## COLOR REPRODUCTION

The color reproduction of KODAK VISION3 Color Digital Intermediate Film 2254 is different from VISION Color Intermediate Film 5242/2242 in two aspects. The color saturation (the perceived intensity of colors) of 2254 Film is slightly lower (by approximately 4%). The color purity (absence of undesired colors) of 2254 Film is significantly improved versus 2242 Film, primarily in the blue and green color records.

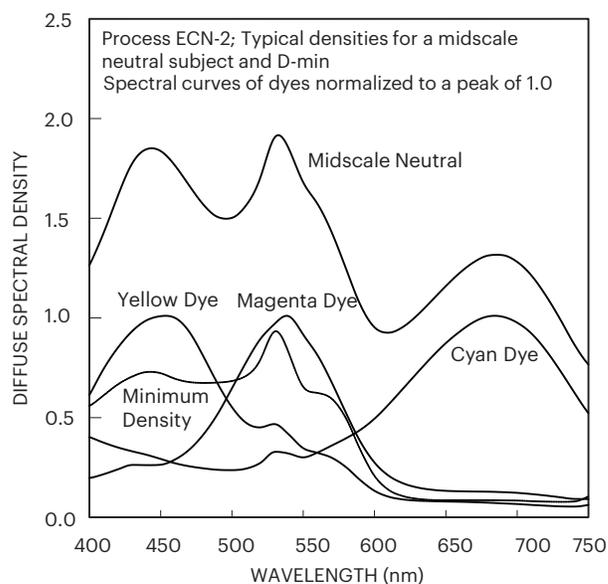
To achieve the same level of color saturation as was achieved with 5242 Film, a full recalibration using 2254 Film is recommended.

## PROCESSING

The spectral dye densities of KODAK VISION3 Color Digital Intermediate Film closely matches those of VISION Color Intermediate Film 5242 through most of the exposure range. The d-min dye densities will show a difference in the green region. This is due to the change in the green dye set that is used in this product.

The d-min position of the green record is higher than that of VISION Color Intermediate. When printing digital intermediates made on this film onto 2383 the green printer light set up to achieve the correct aim density on 2383 will be higher by 5 or 6 printer lights depending on the process vs. what is used with 5242.

### SPECTRAL DYE DENSITY CURVES



These curves depict the spectral absorptions of the dyes formed when the film is processed. They are useful for adjusting or optimizing any device that scans or prints the film.

**DYE STABILITY PREDICTIONS**

Summary of high-temperature Arrhenius testing— predictions of Density Loss / D-min Gain.

Record	21°C (70°F)	7°C (45°F)
1.0 Above D-min (Neutral) Years to 0.10 Density Loss		
Red	>100	>100
Green	>100	>100
Blue	>100	>100
1.0 Above D-min (Color Separations) Years to 0.10 Density Loss		
Cyan	>100	>100
Magenta	>100	>100
Yellow	86	>100
D-min — Years to 0.1 Density Gain		
Red	>100	>100
Green	>100	>100
Blue	77	>100

\* Recommended temperature based on ISO 18911:2010, Imaging Materials — Processed Safety Photographic Films — Storage Practices.

**GRANULARITY**

The emulsion granularity of KODAK VISION3 Color Digital Intermediate Film is similar to that of VISION Color Intermediate 5242.

The “perception” of graininess of any film depends on scene content, complexity, color, and density. Other factors, such as film age, processing, and exposure conditions may also have significant effects.

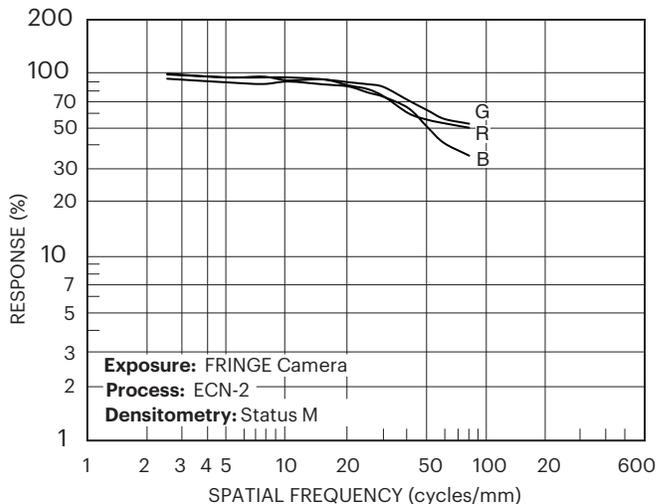
**SHARPNESS**

The “perceived” sharpness of any film depends on various components of the motion picture production system. The camera and projector lenses and film printers, among other factors, all play a role, but the specific sharpness of a film can be measured and is charted in the Modulation Transfer Function Curve.

These curves depict the response of the film to image detail, which can be mathematically expressed as a series of frequencies. The ability of the film to reproduce frequencies at or near 100% over a long range means that the film will copy the original negative with little or no loss in sharpness.

The sharpness of KODAK VISION3 Color Digital Intermediate Film is improved vs. VISION Color Intermediate Film, particularly in the red record.

**MODULATION-TRANSFER FUNCTION CURVES**



# KODAK VISION3 Color Digital Intermediate Film 2254

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## MORE INFORMATION

Outside the United States and Canada, please contact your Kodak representative. You can also visit our web site at [www.kodak.com/go/motion](http://www.kodak.com/go/motion) for further information. You may want to bookmark our location so you can find us easily the next time.

<b>H-2</b>	Cinematographer's Field Guide <a href="http://www.kodak.com/go/fieldguide">www.kodak.com/go/fieldguide</a>
<b>H-845</b>	The Essential Reference Guide for Filmmakers <a href="http://www.kodak.com/go/referenceguide">www.kodak.com/go/referenceguide</a>
<b>H-24</b>	Manual for Processing KODAK Motion Picture Films, Process ECN-2 Specifications, Module 7 <a href="http://www.kodak.com/go/h24">www.kodak.com/go/h24</a>
<b>H-61</b>	LAD—Laboratory Aim Density <a href="http://www.kodak.com/go/lad">www.kodak.com/go/lad</a>
<b>H-387</b>	LAD—Laboratory Aim Density <a href="http://www.kodak.com/go/lad">www.kodak.com/go/lad</a>

## SIZES AVAILABLE

### Standard Products Available

Identification No.	Length in Metres (Feet)	Core	Description	Perforations
35 mm SP239	610 (2000)	Y	2254 (ESTAR)	BH-4740 (BH-1866)

To order film in the United States and Canada, call 1-800-621-FILM (3456).

Worldwide customers can find the nearest sales office at [www.kodak.com/go/filmsales](http://www.kodak.com/go/filmsales)

