

# KODAK VISION3

## Color Digital Intermediate Film 2254



### TECHNICAL DATA / COLOR INTERMEDIATE FILM

MARCH 2022 H-1-2254

KODAK VISION3 Color Digital Intermediate Film 2254 is 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 love how the faithful color reproduction and improved sharpness of the new intermediate films help retain their original vision. And post houses and laboratories appreciate the performance benefits offered by these films:

- Universal compatibility: KODAK VISION3 Color Digital Intermediate Film offers 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 film offers 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

### BASE

KODAK VISION3 Color Digital Intermediate Film 2254 is coated on a 120 micrometer (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.

### 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) or an equivalent LED light source. 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 are 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 or an equivalent LED light source, may be used provided that such illumination is not allowed to be incident upon the film itself.

### STORAGE

#### 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 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 Color Negative Motion Picture Films, Module 7 available online at [www.kodak.com/go/h24](http://www.kodak.com/go/h24), 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 Using KODAK Kit Chemicals in Motion Picture Film Laboratories KODAK Publication No. H-333, available online at [www.kodak.com/go/h333](http://www.kodak.com/go/h333)

## IDENTIFICATION

After processing, the product code numbers 2254 (ESTAR Base/35 mm); emulsion and roll number identification; KEYKODE 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 2242 is especially noticeable between 30 minutes and 24 hours. Results were obtained under controlled conditions.

## SPLICING

KODAK VISION3 Color Digital Intermediate Film 2254 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.

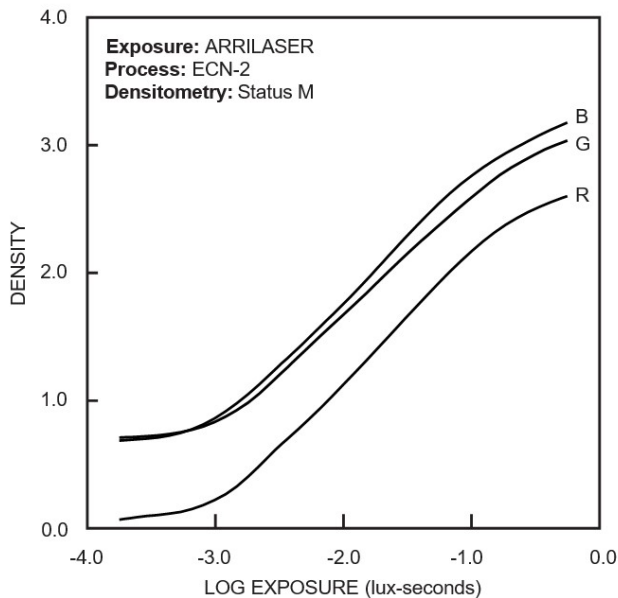
Adhesive tape splicing is often used in splicing rolls of printed raw stock prior to processing. Current splicing procedures using high-quality splicing tapes will work equally well on 2254 Film.

# IMAGE STRUCTURE

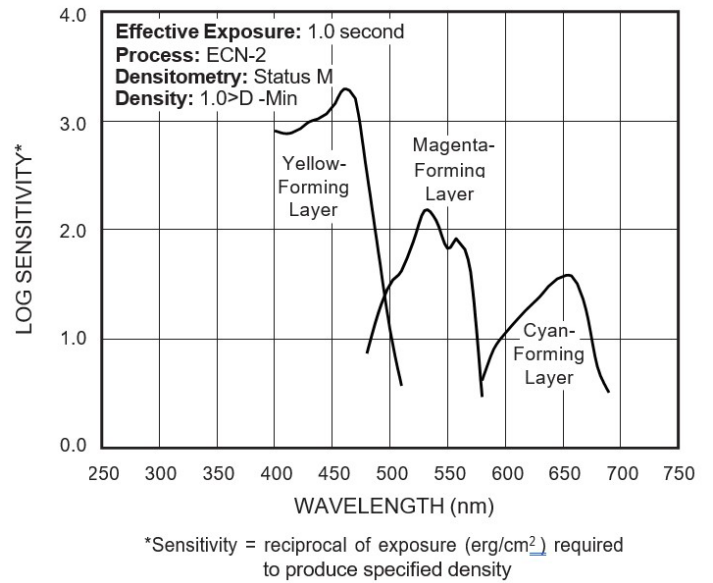
## Sensitometry

The sensitometry (characteristic curve) of KODAK VISION3 Color Digital Intermediate Film is very different from VISION Color Digital Intermediate Film 2242. 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 2242 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.

Sensitometric Curves



Spectral Sensitivity Curves



## Color Reproduction

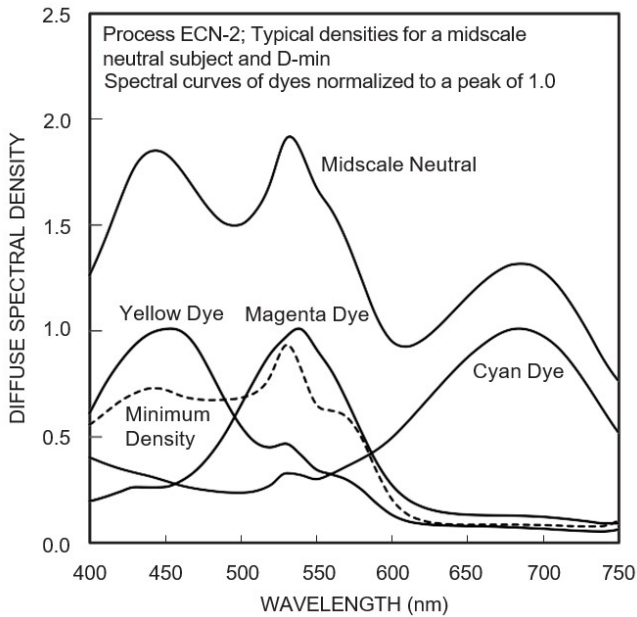
The color reproduction of KODAK VISION3 Color Digital Intermediate Film 2254 is different from VISION Color Intermediate Film 2242 in two aspects. The color saturation (the perceived intensity of colors) of 2254 Film is slightly lower (by approximately 4%). The color purity (absence of undesired colors) 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 2242 Film, a full recalibration using 2254 Film is recommended.

## Spectral Dye Density

The spectral dye densities of KODAK VISION3 Color Digital Intermediate Film closely matches those of VISION Color Intermediate Film 2242 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 83 will be higher by 5 or 6 printer lights depending on the process vs. what is used with 2242.

**Spectral Dye Density Curves**



## 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

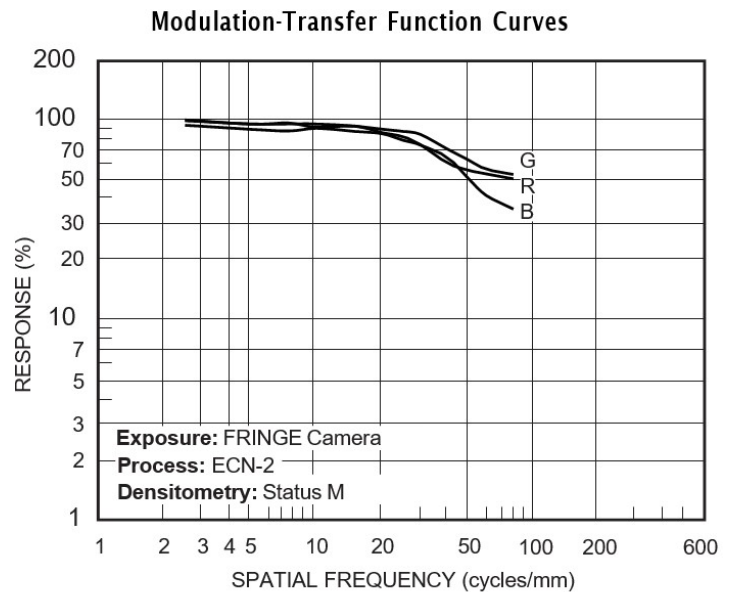
The emulsion granularity of KODAK VISION3 Color Digital Intermediate Film is similar to that of VISION Color Intermediate 2242.

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.



NOTICE: 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.

## Available Roll Lengths and Formats

See Kodak Motion Picture Products Catalog at [www.kodak.com/go/mpcatalog](http://www.kodak.com/go/mpcatalog)

To order film in the United States and Canada, call 1- 800-356-3259, prompt 3.

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

