

Technologies in the ETERNA-RDI



FUJICOLOR RECORDING FILM
ETERNA-RDI

ETERNA-RDI Type 8511 (35mm, TAC)
ETERNA-RDI Type 4511 (35mm, PET)

Super Nano Cubic Grain Technology

For film design, the silver halide particles are the most important element determining the film performance. In the development of ETERNA-RDI, silver halide particles were developed that would be able to bring out the maximum potential of the digital recorder. The features of the new silver halide particles are:

1 Suitability for Short Exposures due to Resolving High Illumination Reciprocity Law Failure

To support ultra-short exposures in the order of several tens of nanoseconds during film recording, an iridium complex was used as an illumination conversion dopant for doping appropriate positions inside the silver halide particles to form electron traps at the optimum depths in the silver halide. Due to this, dispersion of the latent image is prevented and a reciprocity law failure at high illumination intensity characteristic is realized in which reduction in sensitivity does not occur even at ultra-short exposures.

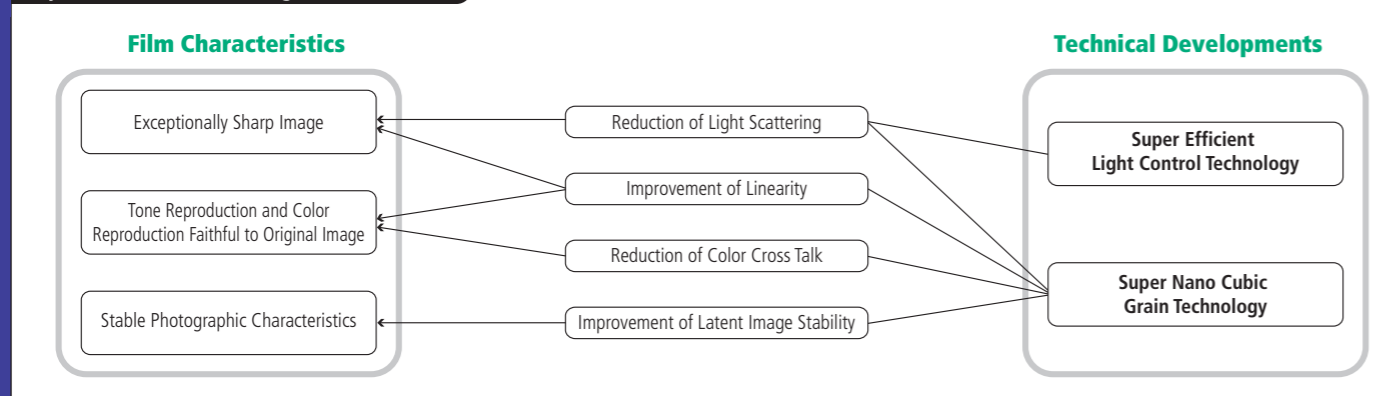
2 Spectral Sensitivity that Matches the Film Recorder's Light Source Wavelength

By having spectral sensitization due to the use of sensitizing dyes, the silver halide particles allow exposure to each of the R, G, and B light sources. During the development of ETERNA-RDI, detailed investigation was carried out relating to the dye characteristics including the sensitizing dye associative and hydrophilic/hydrophobic abilities, and new methods of using the sensitizing dyes were discovered that could not have been realized from previous knowledge. Due to this, an ideal spectral sensitivity for the film recorder light source wavelength has been realized, and it was possible both to achieve higher sensitivity and to prevent color cross talk.

Super Efficient Light Control Technology

The color layers of ETERNA-RDI are layered in order from the top into the blue color layer, green color layer and red color layer. In order for the recording light to reach the lower layers it has to pass through the upper color layers. Because it is not possible to avoid the occurrence of light scattering in the silver halide particles of the high-sensitivity layer at each color layer, scattering will occur before the light reaches the lower layers. To resolve this problem, light absorbing layers were inserted above the sensitizing layers. By cutting the scattered light before the light reaches the lower layers, the occurrence of image bleeding was reduced.

Major Features and Technologies of ETERNA-RDI



Based on these technologies for realizing higher sensitivity, it first became possible to design a film that used only the smallest sizes of silver halide particles. Because these minute silver halide particles conduct very little scattering, it was possible to prevent the light scattering inside the film that causes image bleeding while providing the latitude required for film recording. Due to this, in addition to realizing unprecedented sharpness, ETERNA-RDI achieves a linearity that fully covers the density range of 2.046 utilized by the Cineon file format.

