



## From film manufacture to processing, Kodak maintains a "Vision of Excellence"

Those involved in hands-on motion picture production generally focus on how they can best capture images on film. But the fact is, film production involves an "imaging chain" that begins with film manufacture, is followed by on location image capture, and continues with processing.

"We have to strive for excellence in every step along the imaging chain," says Diane Carroll-Yacoby, KODAK IMAGECARE Program Worldwide Marketing Manager. The chain analogy is apt because, like a chain, a film production is only as good as its weakest link. So the imaging chain requires quality in every step: manufacture, exposure, on-set processing and post-production.

### World-class manufacturing

Kodak is committed to providing its customers with excellent quality films. When it comes to film manufacturing, Kodak is best in class.

All Kodak color negative motion picture film is sensitized in Rochester, N.Y. Sensitizing is the process in which chemical emulsions are mixed and coated on rolls of cellulose triacetate support (film base) that are more than four feet wide and a mile long. The process takes place in total darkness through the use of precision-controlled robotics.

Some of today's films require more than 20 thin liquid layers to be coated onto the film base. Chemicals used in coating must be extraordinarily pure. Film gelatin, a major component, is orders of magnitude purer than the gelatin used in the food industry. Just a few parts per billion of contamination can alter a film's sensitometric profile.

Kodak developed world-class coating technology decades ago and has continued to improve it. "Just as we continue to invest in developing new origination films, we also continue to invest in improving manufacturing processes," notes Mike Smalter, Worldwide Quality Manager, Entertainment Imaging Films, Kodak. "We have recently enhanced our sensitizing operations and invested in new testing devices to ensure more precise process control."

When the coating machine used for motion picture film sensitization was installed, Kodak excavated down to bedrock, isolating the machine from vibration. That assures precision coatings, which in turn translates to high quality. After coating, the wide rolls are slit into smaller sizes (65mm, 35mm, 16mm, 8mm) and the edges are perforated. Kodak continues to improve the dimensional consistency of the film so it performs well in customer equipment. There is a focused

effort on cleanliness throughout the manufacturing process.

"For every manufacturing step and process we control, we are engaged in a continuous improvement," says Smalter.

### Strengthen your imaging chain with KODAK IMAGECARE Program processing

That same thinking inspired the creation of the KODAK IMAGECARE Program, which is designed to help motion picture labs achieve extremely high levels of quality and consistency in processing.

"We've essentially translated manufacturing quality into a process that any film lab can use," explains Carroll-Yacoby. "The KODAK IMAGECARE Program is our way of supporting labs worldwide, so a customer doesn't have to rely on word-of-mouth, or ship its film halfway around the world, to get quality processing."

All KODAK IMAGECARE Program labs are certified to process color negative films. Some are also accredited for release printing services, which covers the printing and processing of color print films used in theatrical projection. There are more than 50 certified labs in 31 countries around the world.

The Program requires labs to standardize and document their procedures, monitor and control processes, and demonstrate that they are following those procedures. Member labs are continuously engaged in a process of self-assessment to ensure standards are being met.

Just as the chemicals used in film coating must be extremely pure and well-controlled, so must the chemicals used in processing. Under the KODAK IMAGECARE Program, all processing chemicals must be certified before use in the lab and all processing solutions must be monitored on a daily basis.

"Those are the kinds of things we do in our factory with our suppliers," Carroll-Yacoby says. "Film labs need to embrace the same kind of thinking."

Labs must regularly measure pH, specific gravity and other parameters of certain solutions, then document the test results. "The goal is to keep their processing parameters in a steady state," notes Carroll-Yacoby. "We want to ensure that processing upholds the same quality as our manufacturing process—another strong link in the imaging chain."