

Gafchromic™ XR-SP2 film

Self-developing X-ray film for non-destructive testing (NDT) and security applications



Product Overview

Specifically designed to meet the current demand for security and industrial X-ray imaging applications:

- Self-developing, no need for processor equipment
- Safe to use in the light, no more fumbling in the dark
- Shoot and see, no additional equipment required
- Observe the results with the film "in place"
- No more wasted under- or over-exposures
- Custom size, easily cut and shaped as needed
- Robust, water resistant, scratch resistant
- Competitively priced

Applications

For faster, easier, more convenient and less costly X-ray or isotope imaging. Particularly effective in field applications and remote environments:

- Security application
 - Suspicious packages
 - EOD
- Non-destructive testing
 - Electronic circuit
 - Welding

Sensitivity of Gafchromic XR-SP2 film

The response of Gafchromic XR-SP2 film depends upon the output spectrum of the X-ray generator or the type and strength of the isotopes, as well as the thickness and composition of the object to be imaged. The user-dependent contrast and detail required for the specific task determines the exposure needed. Users should decide on the dose-density response pertaining to their specific situation.

Figure 1. Unknown package inspection using ICM 120

Figure 2. Developed images (30 seconds for A and 60 seconds for B with ICM 120 at setting 120 kVp and 1 mA from a distance of 4.5 ft) showing the wires and a cell phone, a possible improvised explosive device (IED)

Figure 3. Detail from the X-ray image obtained on the above exposed unknown package



Benefits

Stand-alone imaging tool

No screens required

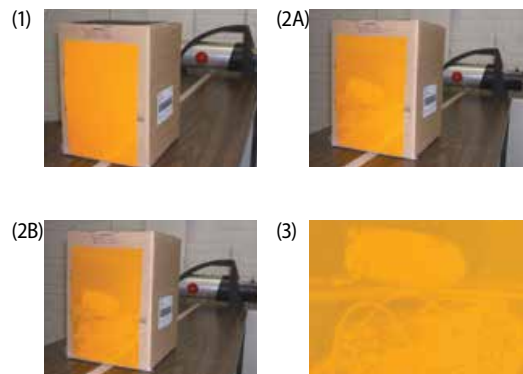
No cassettes required

Self-developing instantaneously

Resolution better than 10 microns

Robust – water and scratch resistant; usable in daylight from - 40° F to 140 °F

Stable in real world environment with shelf life >1 year



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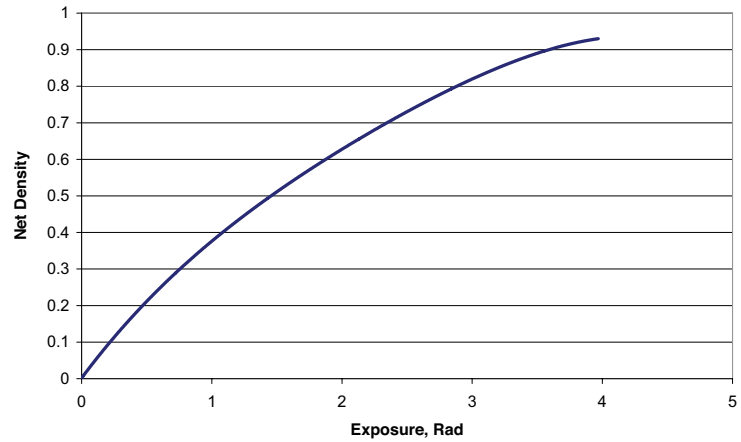
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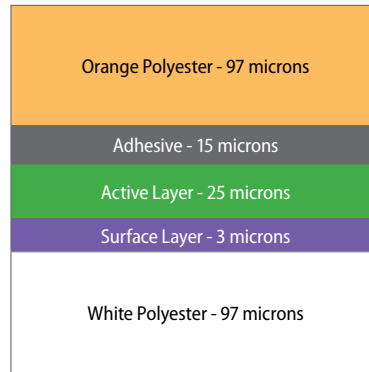
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H/D curve of Gafchromic XR-SP2 film



Film configuration



Property summary of Gafchromic XR-SP2 film

Dose Range	Energy Range	Size	Active Layer Thickness
0.05 Rad to 10 Rads	20 KVp to 200 KVp	8"x10" or 10"x12"	25 microns

Typical exposure parameters for commonly available X-ray generators¹

X-ray Source	Setting	Distance	Exposure
ICM 1201 or 160	120 kVp 1 mA	2 ft	10 – 20 seconds
	160 kVp 0.5 mA	4 ft	30 – 60 seconds
Golden Engineering XR-3	n/a	1 ft	100 – 300 pulses
	n/a	2 ft	300 – 900 pulses
Pantak	120 kVp 1 mA 1 mm Al filter	1 ft	10 – 20 seconds

¹ The exposure parameters serve only as reference. The users are to set the parameters based on the characteristics of the generators and objects to be imaged.

