

## Have you Seen our Newest DeSolite® Specialty Coatings?

With increased interest in fiber-to-the-home, there has also been increased interest in **specialty coatings** for particular FTTH applications. Have you seen Desotech's latest product offerings to meet these needs? DeSolite specialty coating properties include low refractive index, high temperature resistance, and easy and consistent splice capability:

### DeSolite® DF-0007

A fluorinated material which offers a refractive index of 1.372. When coupled with a hard secondary coating, DF-0007 can be used as a cladding on specialty fibers.

### DeSolite® DF-0005

A high temperature resistant material similar in properties to our standard secondary coating. DF-0005 offers resistance up to 150°C—much higher than other currently available coatings.

And don't forget another popular (though not new) Desotech specialty material...

### DeSolite® 950-200

A "workhorse" recoat material that protects fiber after splicing and is compatible with all major splice machines. DeSolite 950-200 is now available only through Desotech distributor **Fiber Optic Center** ([www.FOCENTER.com](http://www.FOCENTER.com)), and sold under the brand name **Angstrombond®**. Despite the new name, you can be sure that its quality remains unchanged.

For more information about any of DSM Desotech's specialty fiber coatings—including specialty materials for blown fiber applications—contact your Desotech account representative today.

### Optical Fiber & Cable News

Kim Axiotis Editor November, 2006

DSM Desotech Optical Fiber & Cable News is published as an information resource for the optical fiber industry. Reader inquiries and suggestions for content are welcomed and should be directed to the editor at:

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# Optical Fiber & Cable News

## Cablelite® DX-1000

Setting a new standard for cure speed and consistency...

(see inside)

## Recent Appointments

**Ms. Melissa Hayes: Marketing Manager, Fiber Optic Materials.** Ms. Hayes has succeeded Mr. Myron Bezdicek as Marketing Manager as of July 1. She is based in Desotech's Elgin, USA facility. Prior to joining DSM, Ms. Hayes held the position of Product Manager UV-Curable Materials for SaatiChem.



**Ms. Joke Smedinga: Account Manager, Europe** Ms. Smedinga joined the DSM organization in 1989 and has since held several positions including Global E-Business Manager for DSM Elastomers and Area Sales Manager for DSM Solutech. Joke is based in Desotech's Hoek van Holland facility and will service customers throughout western and southern Europe.



# Cablelite® DX-1000 Inks: Bold Color at Lightning Speed

DSM Desotech is raising the standard for cure speed and consistency in UV-curable fiber optic inks with the introduction of our newest product line, Cablelite DX-1000.

Cablelite DX-1000 Series inks are specially formulated for robust processing at faster line speeds than ever before: **1500 m/min with just one 600 w/inch, 10-inch D-lamp.**

“The DX-1000 Series represents a new performance standard,” says Desotech Marketing Manager Melissa Hayes. “Not only are these inks more than 20% faster than Cablelite 751 Series inks, they also deliver a noticeable improvement in cure consistency—between colors and at varying line speeds. Overall, that translates into increased capacity with less ink consumption for our customers.”

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— Melissa Hayes

When processing at extreme conditions (one 600 w/inch D-lamp at 1500 m/min), DX-1000 series inks can achieve 200 MEK double rubs for all colors. Variation of %RAU between each color is negligible, and the %RAUs are comparable at line speeds of both 1000 and 1500 m/min.

- ✓ Faster cure speed
- ✓ Better cure consistency
- ✓ Optimal ribbon breakout
- ✓ Increased liquid stability
- ✓ Better solvent resistance
- ✓ 12 brilliant colors

Cablelite DX-1000 inks are available in 12 distinct colors and suitable for both loose-tube and ribbon cable designs. In addition to their enhanced cure performance, the inks have been formulated for a number of other property benefits, including increased liquid stability and optimal ribbon breakout.

“DX-1000 delivers a significant improvement in ribbon performance,” says Desotech Technical Service Manager Dr. Keqi Gan. “Twelve-fiber ribbon made with DX-1000 and Cablelite 950-706 matrix material can sustain more than 14 unidirectional twists before failure\*—much more than the normal 10-turn requirement. This adhesion force between the matrix and the ink layer demonstrates DX-1000’s superior ribbon integrity—yet the ribbon maintains excellent breakout and peel.”

Cablelite DX-1000 Inks are currently available for sampling. Contact your DSM Desotech account representative to learn more.

\*China Test Method YD/Y 979 – 1998

# Measuring Your UV Inks’ Degree of Cure

The optical fiber coloring process consists of applying a thin layer (3-5 micron) of UV-curable ink to the circumference of a coated fiber, then curing it to a solid layer with UV light.

To ensure the quality of the colored fiber, the ink’s degree of cure should be checked from time to time. Poorly cured colored fiber may create one or more of the following problems:

- Tacky surface that could cause blocking in the cabling process
- Color that flakes off from the fiber, making it harder to identify
- Increased attenuation from variable degrees of cure
- Poor ribbon breakout and matrix peel properties
- Higher static charge that could cause difficulty in handling and spooling

Several test methods are currently available to evaluate a UV ink’s degree of cure, including measuring %RAU by Infrared Spectroscopy, testing cured film for residual un-reacted coating components by solvent extraction, or evaluating a cured film’s resistance to solvent through mechanical rubbing (commonly referred to as solvent rub testing).

Though each test method has its own advantages and disadvantages, solvent rub testing has been the method most extensively adopted by optical cable manufacturers due to its quick and easily-obtainable results.

### Solvent Rub Testing

Most optical cable manufacturers conduct the solvent rub test by saturating

a piece of cloth or tissue with their preferred solvent and rubbing it back and forth, by hand, over a newly-colored optical fiber. The operator then observes whether color transfer/breakdown has occurred. Generally speaking, the greater the number of solvent rubs that an ink can withstand without color degradation, the greater that ink’s degree of cure.

### Solvent Rub Test Reliability

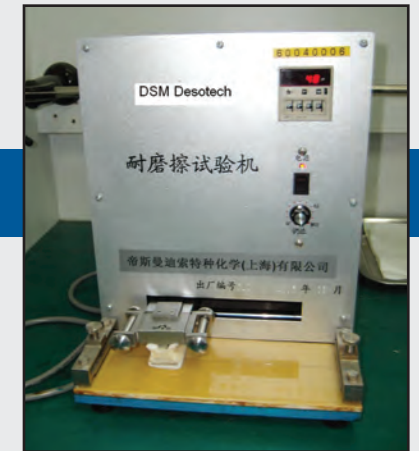
The solvent rub test is an effective, yet highly subjective test process. Even when conducted by the same person over the same period of time, the relative standard deviation can be 15% or greater (see table). When conducted by different people over varying periods of time, it is not unlikely for the error to increase to 50% or greater.

In order to improve the repeatability of the solvent rub test, DSM Desotech has developed an automatic solvent rubbing unit which is able to control three important test conditions:

- 1) standardizing the force applied to the optical fiber;
- 2) applying the back and forth rub at a constant frequency; and,
- 3) controlling the amount of solvent (MEK) applied to the tissue or

Sample number	Cure degree %RAU	Automatic MEK Rubbing			Manual MEK rubbing		
		Test Result, times	Average value, times	Standard Deviation	Test Result, times	Average value, times	Standard Deviation
1	76	65 68 66	66	1.5	70 85 95	83	12.6
2	73	10 10 13	11	1.7	15 21 28	21	6.1
3	78	109 112 115	112	3.0	110 125 150	128	20.2
4	79	135 140 143	139	4.0	155 190 165	170	18.0
5	79	110 120 115	115	5.0	150 185 170	168	17.6

MEK rubbing performance of inked fiber samples, having different degrees of cure, as measured by FTIR, both manually and with an automatic rub testing unit. In order to highlight differences under various curing conditions, some of the samples were purposely under-cured.



Desotech’s automatic solvent rubbing unit improves test repeatability by standardizing solvent amounts, rub force and rub frequency.

cloth. As a result, the standard deviation of values obtained by the automatic rubbing unit is much smaller than that obtained by the manual process.

Automatic solvent rubbing units are currently employed at Desotech’s R&D facilities in the U.S. and China. “Our test results have shown the average number of automatic MEK rubs to be consistently lower than the number of manual rubs—yet with a lower standard deviation,” says Desotech Asia-Pacific Technical Service Manager Li DingYun. “This indicates that the automated test is a more precise and reliable process.

To learn more about DSM Desotech’s automatic solvent rubbing units and how you may utilize this test equipment for your inked fibers, contact your Desotech account representative today.