

RHEOLOGY SOLUTIONS

STORAGE EXUDATION OF PHOTSENSITIVE FILMS

PROBLEM

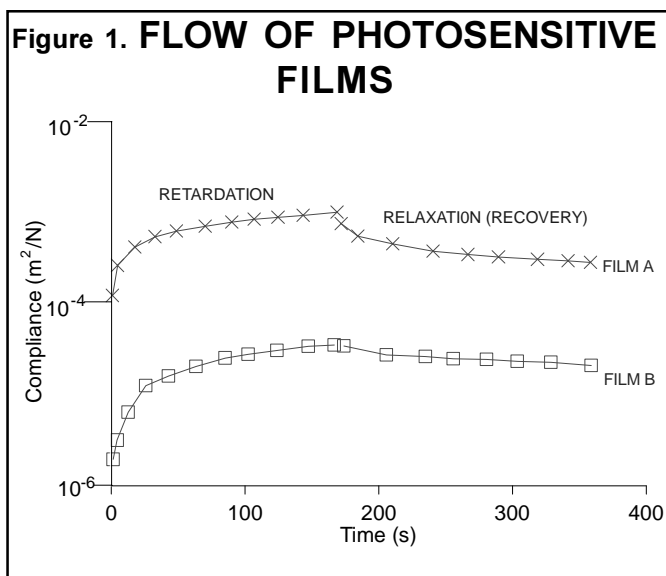
Manufacturers of photosensitive films often supply their products as thin films contained between sheets of release paper. The resultant film “sandwiches” are stored and shipped in roll form. During storage and shipping, some of these products show evidence of exudation (seepage) of the polymer film from the sides of the rolls. This seepage is due to stress on the film caused by roll pressure and presents handling and processing problems for the customer.

SOLUTION

Controlled stress rheometers, which measure the flow of materials under constant stress, provide a convenient method for predicting the effects of long-term storage on photosensitive films. Using creep experiments, where the material is subjected to a constant force, the tendency for flow can be determined.

Figure 1 illustrates the results obtained for films known to exude (Film A) and not exude (Film B) during storage. It is clear that the compliance of the product that exudes is significantly higher than that for the film which does not exude.

From curves such as these, it is possible to compare the amount of flow that occurs under a force chosen to accelerate testing, or to determine how much flow will occur under a specific force (e.g. gravity). **Note:** After a period of time, the force can be removed and the recovery measured. In this example, Film A shows some recovery reflecting elastic behavior.



For more information or to place an order, contact:

TA Instruments, Inc., 109 Lukens Drive, New Castle, DE 19720, Telephone: (302) 427-4000, Fax: (302) 427-4001

TA Instruments S.A.R.L., Paris, France, Telephone: 33-01-30489460, Fax: 33-01-30489451

TA Instruments N.V./S.A., Gent, Belgium, Telephone: 32-9-220-79-89, Fax: 32-9-220-83-21

TA Instruments GmbH, Alzenau, Germany, Telephone: 49-6023-30044, Fax: 49-6023-30823

TA Instruments, Ltd., Leatherhead, England, Telephone: 44-1-372-360363, Fax: 44-1-372-360135

TA Instruments Japan K.K., Tokyo, Japan, Telephone: 813-5434-2771, Fax: 813-5434-2770

Internet: <http://www.tainst.com>