MICHEL LÉVY BIREFRINGENCE CHART

$r = 1000t \times B$

where r = retardation in nm

t = thickness in μm

B = birefringence, $n_\gamma - n_\alpha$ or $n_\epsilon - n_\omega$

Example 1: An unknown cylindrical fiber, 15 μm in diameter, shows a yellow interference color corresponding to 900 nm retardation.

900 = 1000 (15) X birefringence

birefringence = 0.06 = Nylon

Example 2: What interference colors would be observed on a sample of "through 325 mesh" quartz? The birefringence of quartz is 0.009; assume the thickness will range from 0-40 μm.

retardation = 1000 (0.40) X 0.009

retardation = 0-360 nm

interference colors = black, gray, white, yellow

—McCrone Associates, Inc., Chicago, Illinois