

## OBJECTIVE

To determine the alkaline resistance of Caprolan nylon 6 fibers.

## MATERIALS

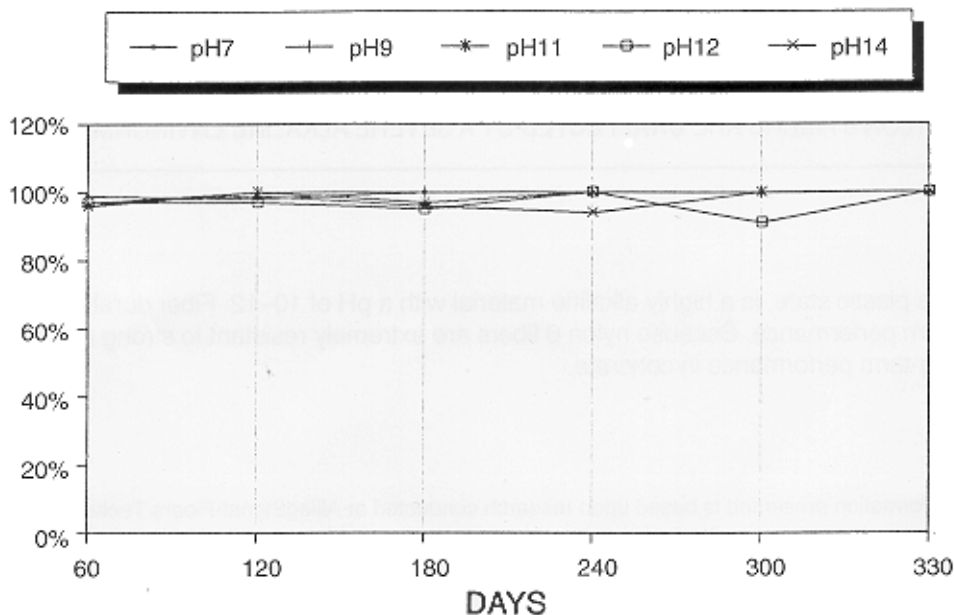
Nylon 6 continuous filament.

Five solutions of calcium hydroxide prepared at pH's 7 - 14.

## EXPERIMENTAL

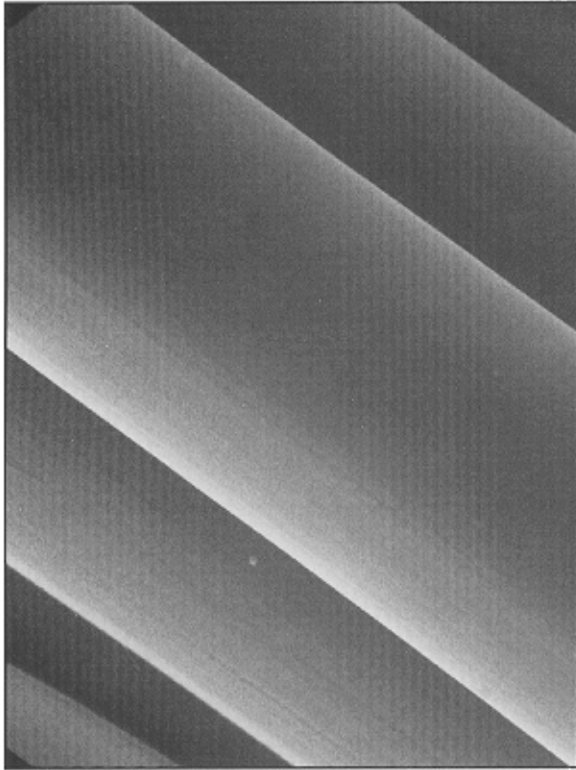
Five solutions of calcium hydroxide, ranging in pH from 7 to 14, were prepared. Skeins of Caprolan nylon 6 were suspended in each solution for a designated length of time, up to 330 days. All the solutions were well covered and monitored to control pH. Following the designated time period, a skein from each solution was washed, conditioned for 24 hours at 72°F and 65% RH, and tensile tested. Samples of the treated yarns were examined under a scanning electron microscope for surface defects.

## RESULTS

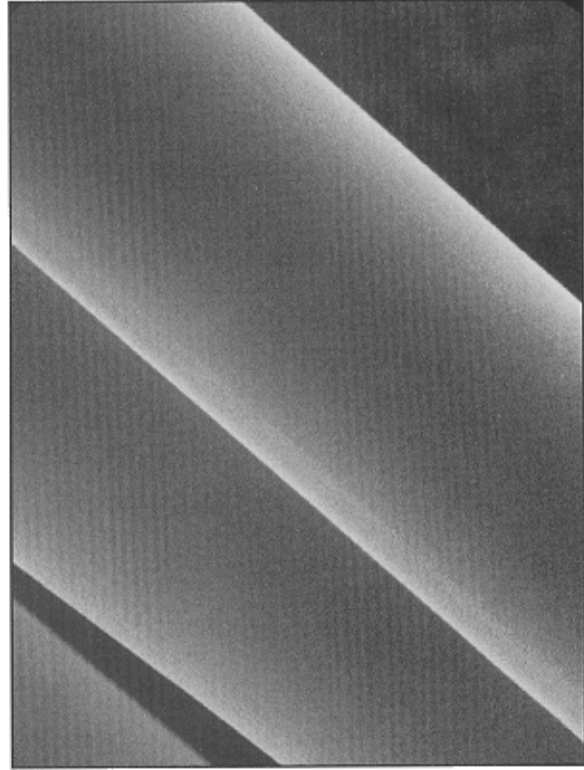


At 330 days all samples retained at least 99% of their original breaking strength.

## RESULTS



Nylon 6 at 0 days



Nylon 6 at 330 days

Photomicrographs of nylon 6 fiber before and after alkali exposure.  
Nylon 6 fiber is unaffected by the alkaline environment (pH 14).  
The magnification is 1500X.

## CONCLUSIONS

CAPROLAN NYLON 6 FIBERS ARE  
**UNAFFECTED**  
BY A SEVERE ALKALINE ENVIRONMENT.

Concrete, in its plastic state, is a highly alkaline material with a pH of 10 - 12. Fiber durability in concrete is a key to long-term performance. Because nylon 6 fibers are extremely resistant to strong alkalis, they are able to provide long-term performance in concrete.

The technical information presented is based upon research conducted at Honeywell Technical Center.

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