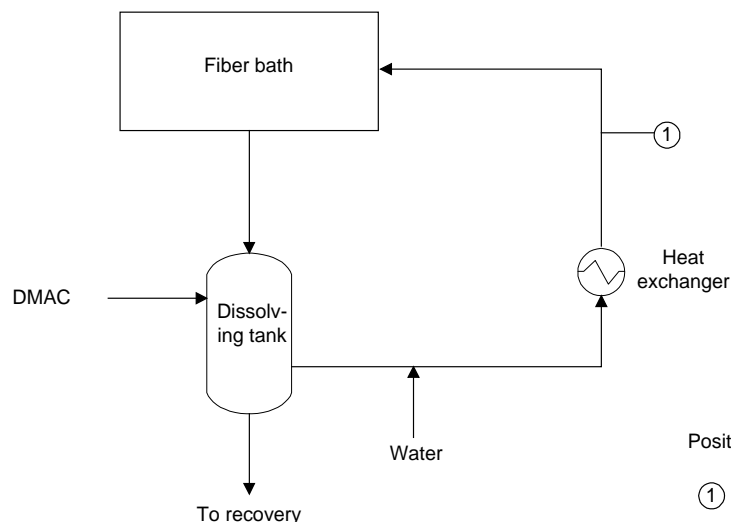


APPLICATION NOTE

Spandex fibers / Dimethyl Acetamide (DMAC)

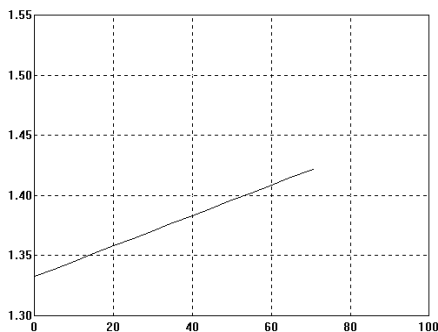


SPANDEX

Dimethylacetamide, DMAC Dimethylformamide, DMF

Typical end products
Solvent of e.g. fibers, adhesives and dyes

Chemical curve: R.I. per Conc% b.w.



R.I. Ref. temp. 30°C

Introduction

Spandex is a generic name for a manufactured fiber whose fiber-forming substance is a long chain synthetic polymer comprising at least 85% of a segmented polyurethane. Trade names of these fibers are LYCRA (DuPont), DORLOSTAN (Bayer), SPANZELLE (Courtaulds), VYRENE (US Rubber), etc.

Application

Typically spandex fiber structure is achieved by reacting diisocyanates with long chain glycols which are usually polyesters or polyethers. The polymer is then dissolved to dimethyl acetamide (DMAC) and then chain-extended or coupled through the use of glycol, diamine or water. There are also many other common solvents in use (DMF, HNO₃). This gives the final polymer, which is converted into fibers by spinning.

DMAC is an excellent solvent for large variety of organics and is

widely used as a solvent for fibers, adhesives, dyes etc.

Installation

Refractometer is used to measure the concentration of DMAC in the water on the fiber bath. Typical measurement range is 40-60% DMAC in water and the process temperature about 10°C (50°F).