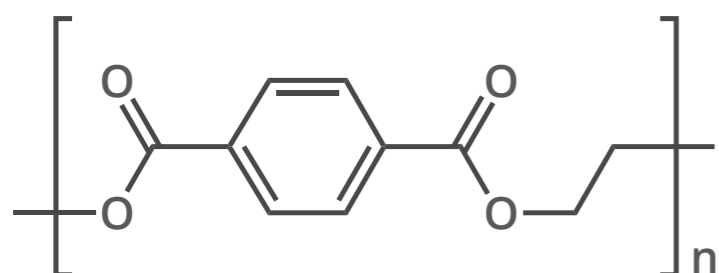


THE CHEMISTRY OF A FOOTBALL SHIRT

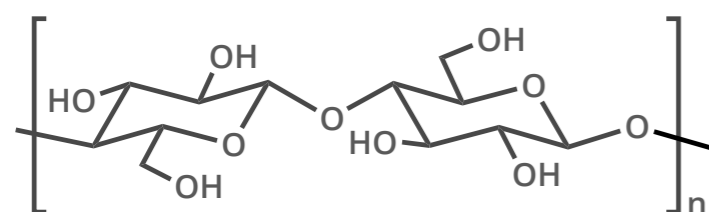
SHIRT MATERIAL - POLYESTER

Polyesters are a group of polymers commonly used in textile applications. The polymer is a very large molecule built up from smaller molecules. The basic synthesis of polyesters involves a condensation reaction between an alcohol and a carboxylic acid; there are several methods through which this can be accomplished.



POLYETHYLENE TEREPHTHALATE (PET)

Most common type of polyester used in textiles. Occasionally combined with cotton (below) to form polycotton

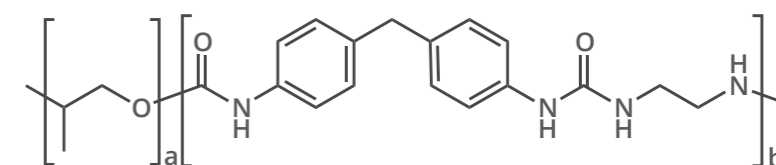


COTTON

Polyester is durable, lightweight, resistant to creasing, and only absorbs 0.4% of its weight of water. It has a good 'wicking' effect - most sweat is carried along the fibres, rather than absorbed, and can evaporate.

SHIRT MATERIAL - ELASTANE

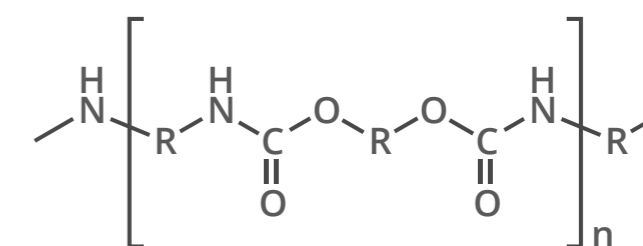
Also known as spandex or lycra, elastane is another polymer often incorporated into football shirts. It can resist approximately 600% elongation before rupturing, so it is useful for adding strength and elasticity to football shirts. However, it is not as 'breathable' as other materials.



ELASTANE

NAME & NUMBER - POLYURETHANE

The name, number, and sponsor logo on the shirt are often made of polyurethane. These are thermally bonded to the shirt using a heat-press.



POLYURETHANE

