

High performance fabric from plastic bags

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A new textile produced from poly(ethene) – the simplest of all polymers – shows superior cooling properties to cotton, is easily recyclable and can potentially be made from recycled materials. Poly(ethene) is not usually used for fabrics because of its hydrophobic nature – it prevents rain getting through but also stops sweat evaporating so clothes become uncomfortable. The hydrophobicity is lessened in the new fabric by melt-spinning the polymer into micrometre-diameter fibres. This partially oxidises the surface, making it more hydrophilic.



Addressing the waste from both the fashion industry and discarded plastic rubbish

Textiles woven from the fibres behave like advanced, multi-layer synthetic fabrics. It is impossible to dye poly(ethene) using traditional methods but dyes can be mixed into the molten polymer before they are spun into fibres. The dye-resistance of the fibres also makes the textile more stain-resistant than cotton or polyester.







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- 1. Draw one repeating unit of poly(ethene).
- 2. Suggest an advantage of the new fabric.
- 3. Describe the differences between an addition and a condensation polymer.



