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.

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).
3. Describe the differences between an addition and a condensation polymer.