

Topic 3 - Plastics and Microplastics

Polymer structures - addendum



UNIVERSITY OF LISBON
INTERDISCIPLINARY STUDIES
ON SUSTAINABLE ENVIRONMENT AND SEAS

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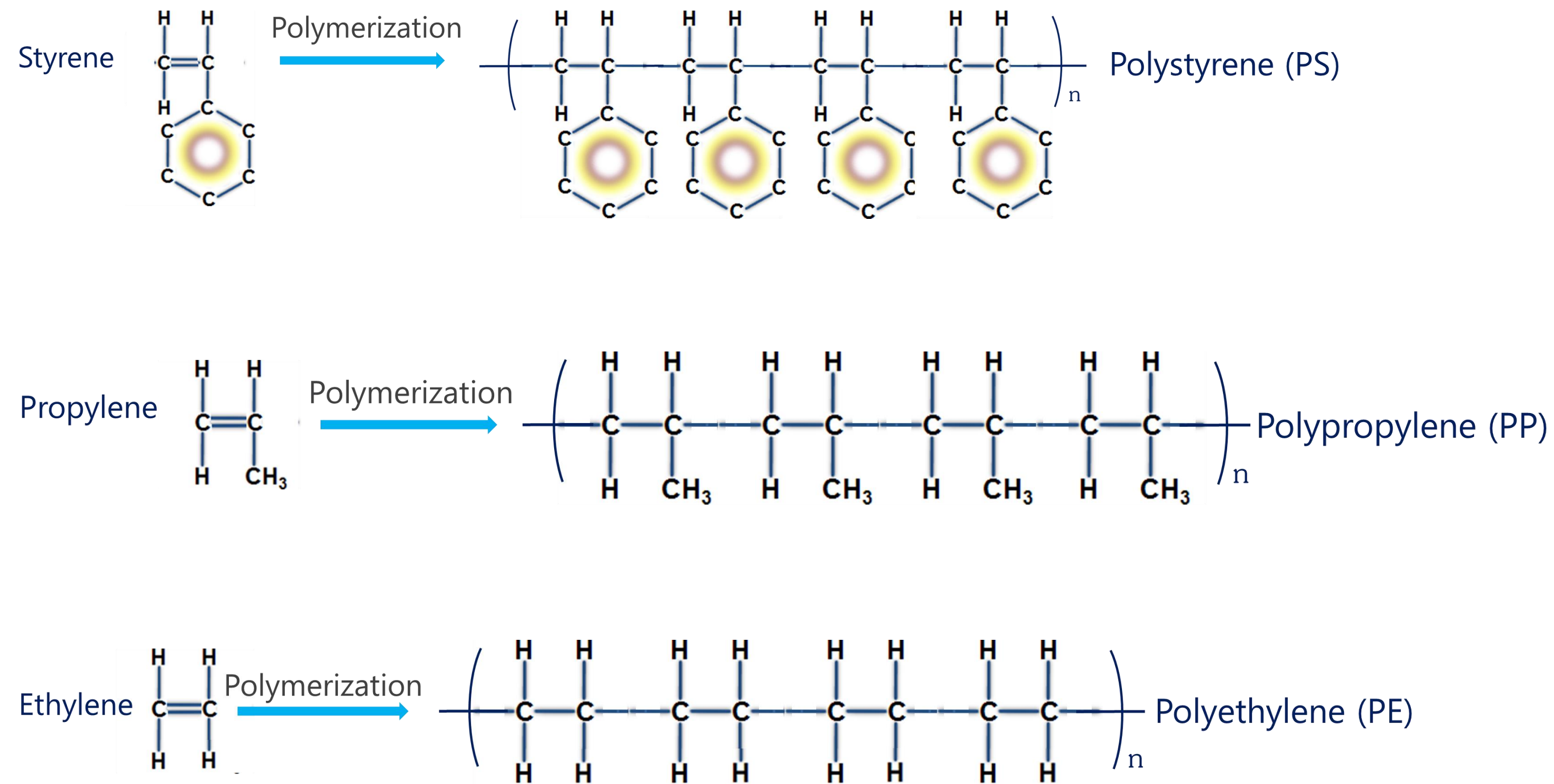


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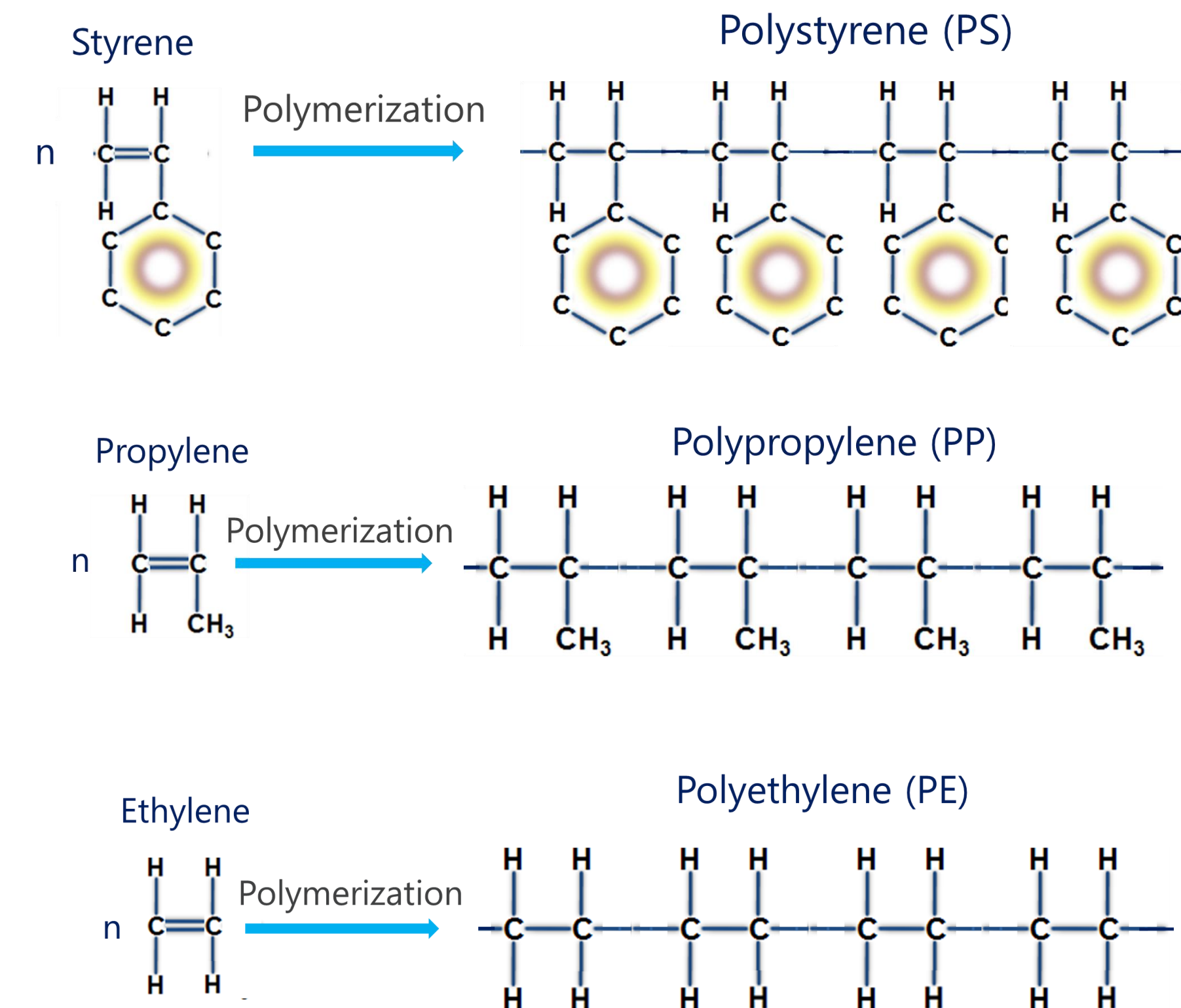


“n” stands for the number of monomers in the polymer molecule

So, where it is:



Should be:



Another way of depicting polymer structures

Polymer	Structure	Uses
Polyethylene	$\text{-(CH}_2\text{—CH}_2\text{)}_n$	Films, packaging, bottles
Polypropylene	$\left[\text{CH}_2\text{—CH} \begin{array}{c} \\ \text{CH}_3 \end{array} \right]_n$	Kitchenware, fibers, appliances
Polystyrene	$\left[\text{CH}_2\text{—CH} \begin{array}{c} \\ \text{C}_6\text{H}_5 \end{array} \right]_n$	Packaging, disposable food containers, insulation
Polyvinyl chloride (PVC)	$\left[\text{CH}_2\text{—CH} \begin{array}{c} \\ \text{Cl} \end{array} \right]_n$	Pipe fittings, plumbing
Polyurethane	$\left[\text{NH—R—NH—C(=O)—O—R'—O—C(=O)} \right]_n$ $\text{R, R' = —CH}_2\text{—CH}_2\text{— (for example)}$	“Foam” furniture stuffing, spray-on insulation, automotive parts, footwear, water-protective coatings
Polyethylene terephthalate (a polyester)	$\left[\text{O—CH}_2\text{—CH}_2\text{—O—C(=O)—C}_6\text{H}_4\text{—C(=O)} \right]_n$	Tire cord, magnetic tape, apparel, soft-drink bottles
Nylon 6,6	$\left[\text{NH—(CH}_2\text{)}_6\text{—NH—C(=O)—(CH}_2\text{)}_4\text{—C(=O)} \right]_n$	Home furnishings, apparel, carpet, fishing line, toothbrush bristles
Polycarbonate	$\left[\text{O—C}_6\text{H}_4\text{—C(CH}_3\text{)}_2\text{—C}_6\text{H}_4\text{—O—C(=O)} \right]_n$	Shatterproof eyeglass lenses, CDs, DVDs, bulletproof windows, greenhouses

An underwater scene with a sea turtle swimming towards the left. The water is filled with various types of plastic pollution, including large pieces of clear plastic, a pink bottle cap, and other debris. Several fish are swimming around the turtle and the trash. The overall color palette is blue and teal.

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