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Title: Feasibility of using waste polystyrene as a membrane material for gas separation

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## 1 **Highlights**

- 2 ➤ Waste polystyrene was successfully converted into useful gas–separation
- 3 membrane.
- 4 ➤ Waste PS–derived membranes can be applied to O<sub>2</sub>/N<sub>2</sub> and CO<sub>2</sub>/N<sub>2</sub> separation.
- 5 ➤ Waste PS–derived membranes showed a competitive separation performance.
- 6 ➤ The butadiene rubber-contained PS was helpful to restrain the plasticization.
- 7
- 8

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