Waste tires pyrolysis kinetics and reaction mechanisms explained by TGA and Py-GC/MS under kinetically-controlled regime

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Thermal Methods

<paper review>

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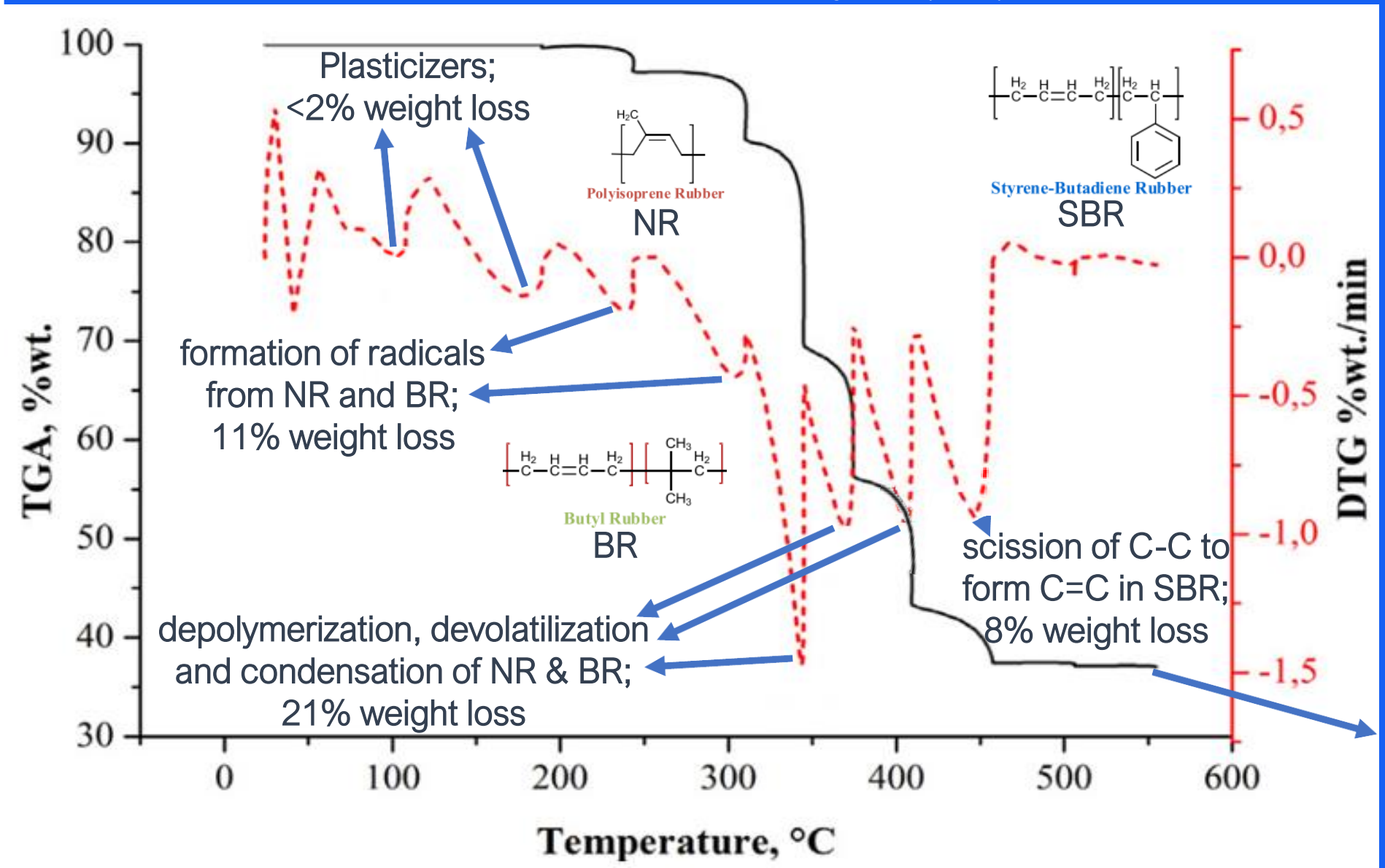
Pyrolysis of waste tires (WTs) is a thermochemical degradation occurring at high temperatures (typically 400–800 °C) in an oxygen-free atmosphere. The WTs pyrolysis products includes a liquid (oil), from which valuable compounds such as limonene, benzene, toluene and xylene (BTX) can be extracted.



DTGs peaks correspond to tire decomposition.

Process parameters:

- 20 mg of sample
- alumina crucible
- N2 flow (50 mL/min)
- 20–25 min of heating at 20 °C/min

The completion of the pyrolysis process was around 510 °C, with a final residue of 37% in the TGA

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