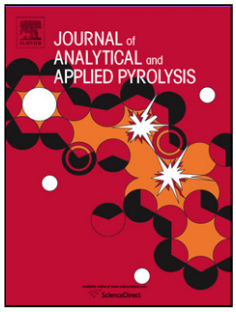

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Co-pyrolysis of woody biomass and plastic waste in both analytical and pilot scale

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Highlights:

- Co-pyrolysis of biomass and plastic waste was studied in analytical and pilot scale.
- Co-pyrolysis significantly affects the composition and properties of the products.
- Co-pyrolysis suppressed reactive oxygenates and promoted alcohols and esters.
- Plastic waste introduces new challenges related to chlorine, acidity and viscosity.

Abstract

Earlier studies show that co-pyrolysis of biomass and plastics can improve the quantity and quality of the produced pyrolysis oil compared to pyrolysis of the separate feedstocks. In this work three relevant plastic wastes; paper reject, shredder light fraction and cable plastics; were evaluated together with woody biomass (stem wood from spruce and pine) using analytical pyrolysis, Py-GC-MS/FID. One verification experiment was also conducted in a cyclone pyrolyser pilot plant at industrially relevant conditions.