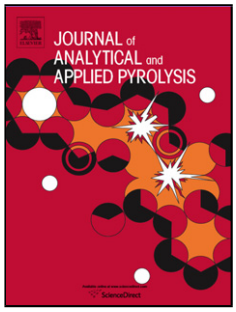

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Evolution of sulfur during fast pyrolysis of sulfonated Kraft lignin

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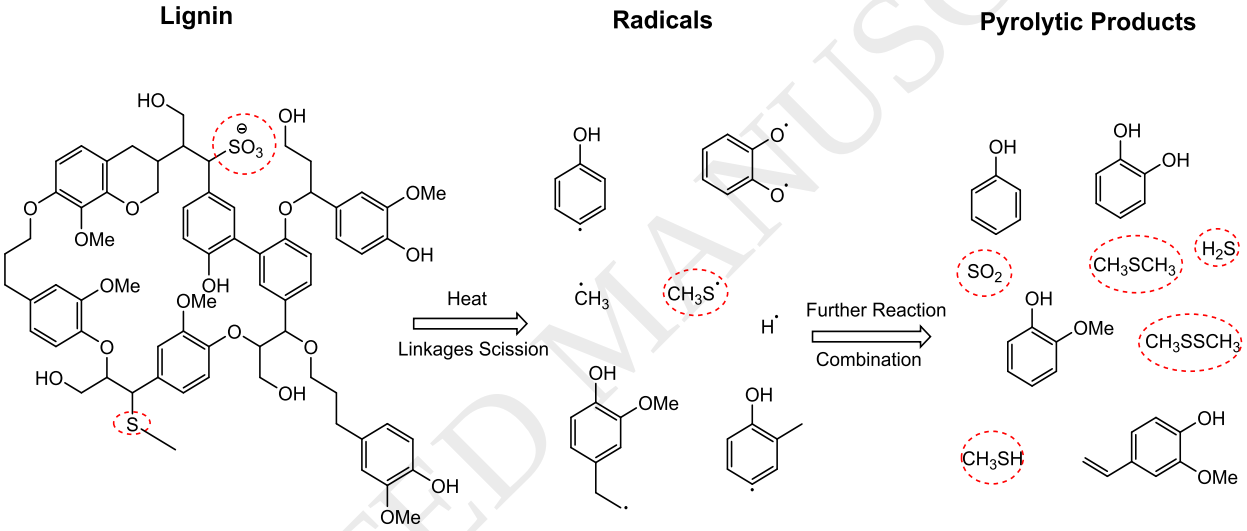
Graphical abstract



Highlights

- Sulfur containing products are mainly present as small molecular compounds.
- Sulfur-containing radicals preferentially combined with other small radicals.
- Sulfur is mainly present as sulfite and sulfide in the sulfonated Kraft lignin.
- Sulfite mainly results in the formation of SO_2.
- Sulfide leads to the formation of H_2S, CH_3SH, CH_3SCH_3 and CH_3SSCH_3.