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Bio-based polyurethanes foams: Effects of green flame-retardants

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Bio-based Rigid Polyurethane Foams: Effect of Flame Retardants

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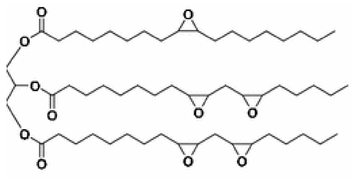
Introduction

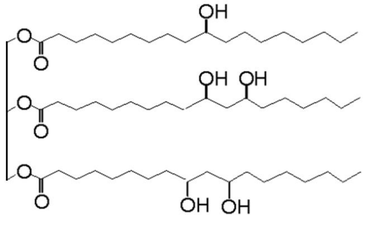
- ❑ Polyurethane has a wide variety of applications
- ❑ Researchers are shifting to biomass in the synthesis of polyurethanes due to the gradual depletion of fossils
- ❑ Bio-based oils such as soybean, corn oil and many others are of interest to scientists due to their cheap accessibility
- ❑ This research investigates the effects of different green flame retardants on the properties of bio-based rigid polyurethane foams made with sunflower polyol

Experiment

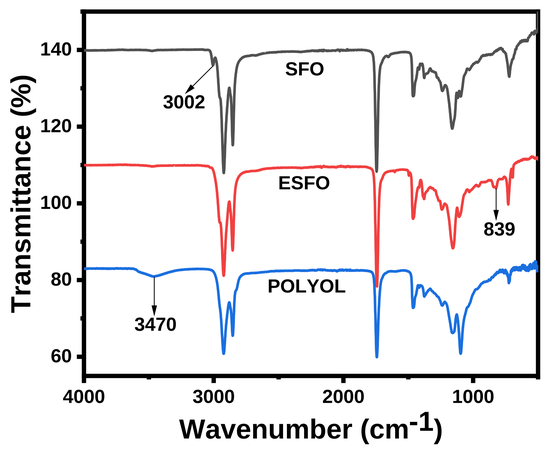
Sunflower Oil → **ESFO**

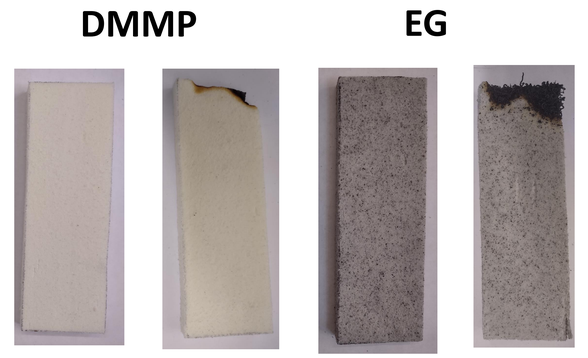


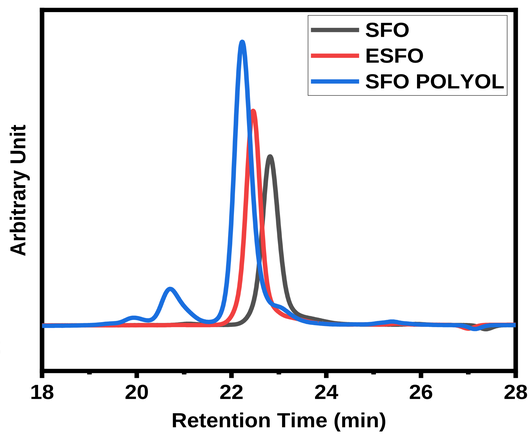
Polyol → **Rigid PU foam**

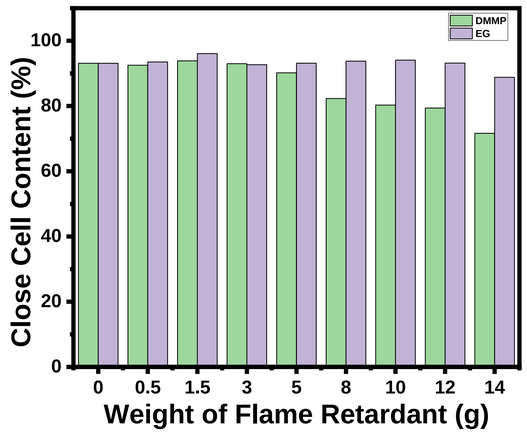


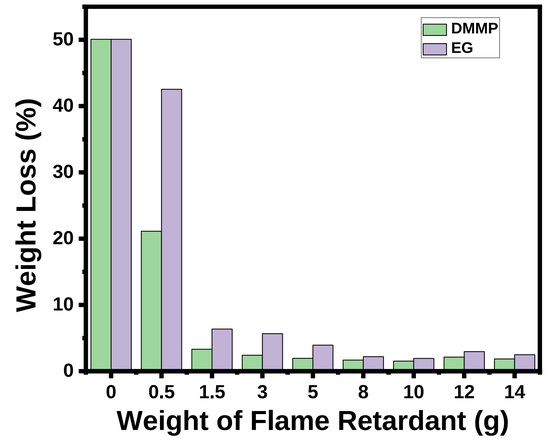
Results and discussion

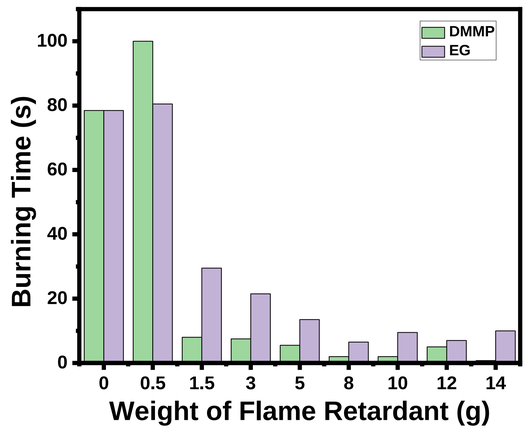












Summary

- ❑ Epoxidation and ring opening methods were used as a facile method to synthesize bio-based polyol
- ❑ Sunflower polyol was effective on the synthesis of quality rigid foams
- ❑ The rigid polyurethane foams exhibited high mechanical properties
- ❑ DMMP and EG reduced the flammability of the rigid polyurethane foams

Acknowledgement

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