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## Nanocrystalline cellulose as an eco-friendly reinforcing additive to polyurethane coating for augmented anticorrosive behavior

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### Highlights

- -Micro powdered and nanocrystalline cellulose were extracted from rice straw.
- -They are considered as an ecofriendly reinforcing additive for protective coatings.
- -The effect of their concentration of the properties of polyurethane was studied.
- -The optimum corrosion resistance was obtained at 1 wt. % loading level.
- -The highest mechanical properties were found at 1.5 wt. % loading level.

### Abstract

Nanocrystalline cellulose (NCC) and micro-powdered cellulose (MPC) were extracted from rice straw by mechanical and alkali treatment methods, then characterized via infrared spectroscopy and dynamic light scattering. A series of polyurethane nanocrystalline cellulose composite (PNCCC) and polyurethane micro-

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