

Preparation of Cellulose/Xanthan Gum Composite Films Using Ionic Liquid

Introduction

The purpose of this protocol to test the dissolution abilities of diisopropylimidazolium as an ionic liquid to dissolve cellulose, and form a film using xanthan gum as a copolymer.

Reagents

- 0.031g microcrystalline cellulose (MCC)
- 0.12 g xanthan gum
- 1.5 g diisopropylimidazolium (DIPI)
- Ethanol

Equipment

- Analytical balance and weigh boats
- Fume hood
- Hot plate
- Oven
- Soxhlet extraction setup
- Glass petri dish

Procedure

1. Measure out the indicated reagents.
2. Prepare mixture of 0.031 g MCC and 0.12 g Xanthan Gum with 1.5 g DIPI by mixing in a petri dish.
3. Bring the mixture into the ventilated fume hood and heat the mixture up on a hot plate set to 100°C to melt the DIPI and allow for better mixing of the MCC and xanthan gum.
4. Heat the mixture up in an oven set to 100°C for 9 hours to allow for dissolution.
5. Place mixture at room temperature for 1 day to obtain a cellulose/xanthan gum composite ion gel.
6. Run the gel through a Soxhlet extraction setup with ethanol for 12 hours.
7. Dry the sample obtained from the Soxhlet extraction between 2 glass plates at room temperature for 4 days to obtain the final cellulose/xanthan composite film.