

Article title	Separating Nitrogen Polymers from Urea in Ureaform Fertilizer to Study Soil Nitrogen Transformations
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Abstract	<p>A technique was developed to separate polymers from urea in a soluble urea-formaldehyde (ureaform) N fertilizer that contained 45.3% of total N as urea N and 54.0% as polymer N. First, urease was used to hydrolyze urea to <math>\text{NH}_4\text{HCO}_3</math>. Then <math>\text{NH}_4\text{-N}</math> was precipitated with sodium tetraphenylboron followed by filtration. The filtrate that contained the polymers was compared with urea and ureaform in a soil incubation at 0, 1, 2, 3, 5, 8, 10, and 12 wk. The N rates of urea and polymers applied separately were the same as urea and polymers applied from ureaform. The results showed that the amounts of <math>\text{NH}_4\text{-N}</math> and <math>\text{NO}_3\text{-N}</math> produced from the ureaform fertilizer were about the same as the sum of those from urea and polymers, indicating the successful separation of polymers from the urea in the ureaform fertilizer. Mineralization of polymer N to <math>\text{NH}_4\text{-N}</math> and <math>\text{NO}_3\text{-N}</math> ranged from 45 to 80% of the polymer N applied during the incubation.</p>
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