

Urea quantification strategies in electrocatalysis

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Electrochemically synthesized urea from CO₂ and nitrates (e-urea) recently emerged as a more sustainable alternative to fossil-based nitrogen fertilizers.¹ Indeed, using captured CO₂ and nitrates from wastewater could offer environmental benefits compared to conventional methods. On the road to e-urea technology development, its accurate and reliable quantification is an undeniable cornerstone. This field being in its infancy, with very low product concentration and numerous side-products² makes the quantification challenging, with reported false positives and negatives.^{3,4} Despite the consensus that at least two methods ought to be used, the selection of the most suitable methods and quantification protocols is an open topic in the scientific community.³⁻⁶ This work presents a comparative study of the most common methods, highlighting their advantages, limitations, and recent developments, aiming to provide valuable insights to guide the advancement of this emerging field and facilitate the upscaling of sustainable fertilizer production.

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