
Determination of urea content in urea-based fertilizers by high performance liquid chromatography (HPLC)

Détermination de la teneur en urée dans les engrais à base d'urée par chromatographie liquide à haute performance (CLHP)

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Foreword

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Introduction

Urea is the most widely used source of nitrogen fertilizers worldwide and is used in a variety of forms such as pure urea, in combination with other nutrients, in complex fertilizers, and as reacted or modified ureas[2].

Due to the rapid hydrolysis of urea in the environment, especially when applied at the soil surface[3], efforts have been made to modify urea to slow down this loss process. Slow release nitrogen fertilizers such as methylene urea compounds, controlled release N fertilizers such as sulfur-coated urea (SCU) or polymer-coated urea (PCU), and stabilized N fertilizers containing additives (urease inhibitors and nitrification inhibitors) are examples of products aimed at containing the rapid hydrolyses of urea in the soil.

Accurate determination of urea in urea-based fertilizers is desirable for regulatory and product quality purposes. This is especially true for those fertilizers in which the urea content is physically or chemically modified. Most of these modified fertilizers contain some amounts of free and unreacted urea which is readily available N and therefore could not be accounted as part of the slow or controlled release N component[5].

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