

## **Ammonium chloride – suggested spectral and analytical methods for identification**

### Pure ammonium chloride (>80% (w/w)):

- UV-VIS and NMR: statement should be provided
- IR and XRD: analysis should be provided
- ICP-MS or ion chromatography (IC is the preferred method by LR)

### Ammonium chloride manufactured/imported in mixtures without any possibility of isolating the substance:

The quantitative analysis of mixture of different substances is unreal. Fertilizer mixtures are substances of polar character. When analyzing them they dissolve and pass into ionic form – so in mixture of cations and anions. There is of course possibility of assessment of cations and anions, but exact reconstruction of composition of substances present in fertilizer is impossible.

The most often used methods for quantitative assessment of cations is ICP (AAS), for assessment of anions is capillary electrophoresis or ion chromatography. However all forms of hydrogenphosphoric anions all transferred to phosphoric anion and expressed by one figure. So the assessment of cations should not be a problem at all, but the assessment of anions, especially hydrogenphosphoric anions could lead to less transparent results.

Spectral data (XRD, IR spectrum) as descriptive characteristics will not influence above mentioned information and could be obtained. However such spectra have no information about present substances.

However, we have to anticipate the presence of insoluble parts in case of fertilizers as well. In such case the assessment of heterogeneous mixture is even more challenging.

Lead Registrant recommends to submit spectral analysis of pure ammonium chloride. The spectra of NPK or other fertilizers could be provided but it could cause confusion in ECHA.

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Lead Registrant for substance ammonium chloride