URGENT NEWS
No 176: Ammonium Chloride for Ruminants

Ammonium Chloride for Ruminants

The use of ammonium chloride in ruminant feed is now totally clear and as such the industry must take appropriate steps to comply with the legislation.

The facts

1. Ammonium chloride is classified as a feed additive under EU legislation. The original authorisation, listed in the Community Register of Feed Additives as E510, ammonium chloride for cats and dogs is under the category of ‘Technological Additives’ within the functional group of acidity regulators: substances which adjust the pH of feedingstuffs. To remain on the Register of Feed Additives, products require re-authorisation through dossier submission. The current listing for ammonium chloride and extended beyond cats and dogs to include the use in ruminant feeds has not yet passed the EU approval stage and there is currently no indication that this is imminent.

2. The use in ruminant diets of the current source of ammonium chloride must stop once available stocks are exhausted.

3. An alternative supply of ammonium chloride (ID number 4d7) has been authorised as a feed additive for lambs for fattening (Regulation EU 832/2012). The additive is listed under the category of ‘Zootechnical Additives’ within the functional group: other zootechnical additives (reduction of urinary pH).

4. The key points regarding this authorisation are:
   - A zootechnical authorisation links the product to the company who must therefore be the additive supplier. No other supplier can be used for ammonium chloride under this application.
   - The authorised conditions of use specify its application to lambs for fattening. It cannot be used in other species or category of animal including for example in breeding ram feeds, calf diets or transition feed (DCAB rations) for dairy cows.
   - The usage rate is up to 10,000 mg/kg of complete feedingstuff (10kg per tonne of fattening lamb compound) and may be fed for a period not exceeding 3 months.
   - The functional group allows a claim to be made regarding the effect of ammonium chloride in reducing urine pH in finishing lambs, but linking this to claiming a reduction in urinary calculi would only be legally compliant with supporting trial data.

5. Clearly there are several restrictions in the use of this source of ammonium chloride but there is no ambiguity on the legal status.

The actions

1. For lamb fattening feeds, no action is necessary to comply with the legislation except to:
   - Change to the authorised source once current stocks of ammonium chloride are exhausted
   - Ensure compliance with the usage restrictions
   - Amend feed labels. Under the ‘Additive’ section add the functional group, ‘Other zootechnical additives’, 4d7 Ammonium Chloride and amount added (mg/kg feed). Directions for use should state ‘For fattening lambs, feed for a maximum of 3 months’.
   - Be aware that the cost of this zootechnical source is approximately twice that of the current supply.
2. For other situations where ammonium chloride was being fed, such as calf or intensive beef rations and partial or full DCAB transition cow rations, alternative ‘urine acidifying’ salts must be adopted. Their effective use in fattening lamb rations could also be considered.

- Suitable salts, other than ammonium chloride, are classified as feed materials and hence do not require additive authorisation but must, however, be listed in the EU feed material catalogue or register. When used, they must be appropriately labelled in the ‘Composition’ section of the feed label.

- Urine acidification is based upon the dietary cation anion balance (DCAB) of the diet, expressed as the difference of (Na + K) – (Cl + S) (in mEq). Acidity requires more anions, chloride and sulphur (as sulphate), than cations.

- Negative DCAB can be achieved by supplementation with calcium, magnesium, and ammonium salts of chloride and sulphate. Sulphate use must be limited because of potential toxicity caused by the formation in the rumen of hydrogen sulphide, a potent neurotoxin. CCN-like symptoms can result in toxicity situations. The maximum limit for dietary sulphur is 0.4% of DMI (NRC 2001).

- The DCAB value can be simply calculated to determine usage rate. Table 1 gives an indication of DCAB values and relative acidifying ‘efficiency’ for a range of salts. Salt (sodium chloride) and elemental sulphur are not effective DCAB products.

- The use of these salts must be carefully considered to achieve the desired effects. The DCAB values given in the table can vary by source dependent upon factors such as purity or water of crystallisation.

The handling of some salts can be difficult, varying from some very ‘liquid’ products (such as magnesium chloride) to others which are very dusty. Their inclusion in premixtures or minerals must be assessed by source and product formulation; trial mixtures may be necessary. Some salts may be best added directly at the feed mill. Magnesium salts should not be used in intensive fattening rations or ram mixtures whilst calcium sources can only be used in transition rations under full DCAB management; partial DCAB dry cow systems still require a restriction in calcium supply if milk fever is to be avoided.

For advice and appropriate solutions to the use or replacement of ammonium chloride in an effective and cost effective manner, which will be dependent upon the situation, please contact the FWTNI technical and sales team on 01335 341102.

Receive these technical publications directly via e-mail link. Contact Sarah Brandrick to register your interest on 01335 341128 or at sarah.brandrick@frankwright.com. You can also access this and past CONTACT and URGENT NEWS publications by registering on our website: www.frankwrighttrouw.com

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<tr>
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<th>DCAB meq/kg</th>
<th>kg salt to equal DCAB of 1kg NH₄Cl</th>
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<tbody>
<tr>
<td>Ammonium chloride</td>
<td>-18692</td>
<td>1.00</td>
</tr>
<tr>
<td>Magnesium chloride</td>
<td>-9852</td>
<td>1.90</td>
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<tr>
<td>Calcium chloride</td>
<td>-16937</td>
<td>1.10</td>
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<tr>
<td>Ammonium sulphate</td>
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<td>1.23</td>
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<tr>
<td>Magnesium sulphate</td>
<td>-16667</td>
<td>1.12</td>
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<tr>
<td>Calcium sulphate</td>
<td>-11628</td>
<td>1.61</td>
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