

FORMULA	YARA'S PROPOSAL	CDFA'S PROPOSAL
<p>Homogenous Mixtures of NH_4NO_3 and Limestone / Dolomite</p> <p><i>(dry mixture, insoluble)</i></p>	<p>Create a new term to call this mixture as Calcium Ammonium Nitrate (CAN).</p> <p>“A dry fertilizer containing as its essential ingredients only ammonium nitrate and calcium carbonate (e.g. limestone) and/or magnesium carbonate and calcium carbonate (e.g. dolomite), prepared as a homogenous prill or granule, with a maximum combustible material content, expressed as carbon, of 0.4% by weight. The minimum content of such calcium and/or magnesium carbonates in CAN is 20% by weight and their purity level is 90% by weight minimum.”</p>	<p style="text-align: center;">Lime Stabilized Ammonium Nitrate</p> <p>California understands Yara’s desire to create a term for this unique dry homogenous mixture. To clearly differentiate this material from Calcium Ammonium Nitrate double salt, we propose the term Lime Stabilized Ammonium Nitrate for this mixture. The derivation statement should list ammonium nitrate, calcium carbonate (e.g. limestone), and/or magnesium and calcium carbonate (e.g. dolomite) separately.</p> <p><u>Lime Stabilized Ammonium Nitrate</u> is a dry fertilizer containing only ammonium nitrate and calcium carbonate (e.g. limestone), and/or magnesium and calcium carbonate (e.g. dolomite), prepared as a homogenous material in prill or granule form.</p>
<p>$\text{Ca}(\text{NO}_3)_2$ or $\text{Ca}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O}$</p> <p><i>(liquid or dry, soluble)</i></p>	<p>Revise the current definition for calcium nitrate (N-3) to include both calcium nitrate and calcium ammonium nitrate double salt.</p> <p>“Is the calcium salt of nitric acid and/or the calcium and ammonium double salt of nitric acid. It is a single water soluble compound but not a mixture/blend of multiple sources. It shall contain a minimum of 11.5% nitrate nitrogen and 16.5% calcium”</p>	<p style="text-align: center;">Calcium Nitrate</p> <p>Calcium nitrate has both anhydrate and hydrate forms, so we propose to revise the current definition in N-3 by removing “hydrate”. To be precise, the hydrate form of calcium nitrate contains 11.8% nitrogen.</p> <p><u>Calcium Nitrate (fertilizer quality)</u> is chiefly the hydrate calcium salt of nitric acid. It shall contain not less than 12% 11.8% nitrate nitrogen.</p>
<p>$5\text{Ca}(\text{NO}_3)_2 \cdot \text{NH}_4\text{NO}_3 \cdot 10\text{H}_2\text{O}$</p> <p><i>(liquid or dry, soluble)</i></p>	<p>“Is the calcium salt of nitric acid and/or the calcium and ammonium double salt of nitric acid. It is a single water soluble compound but not a mixture/blend of multiple sources. It shall contain a minimum of 11.5% nitrate nitrogen and 16.5% calcium”</p>	<p style="text-align: center;">Calcium Ammonium Nitrate (double salt)</p> <p>This new term is proposed for the double salt. In California, a description of the manufacturing process is required at registration to substantiate that the product is truly a double salt but not a liquid or dry mixture. The abbreviation is not accepted in the derivation statement.</p> <p><u>Calcium Ammonium Nitrate</u> is a calcium and ammonium double salt of nitric acid. It is a single water-soluble compound but not a mixture/blend of multiple sources.</p>



CAN: CALCIUM AMMONIUM NITRATE DEFINITION ISSUES

Association of American Plant Food Control Officials



GOALS

CDFA:

- **Ensure that the definitions are chemically accurate**
- **Contend that AAPFCO should not approve inaccurate definitions due to industry familiarity**



WHAT'S PROPOSED

- **Revised definition: Calcium Ammonium Nitrate**
Revised SUIP: Mixtures of Ammonium Nitrate and Limestone or Dolomite
- **Deleting Ammoniated Calcium Nitrate definition**

Not on table calcium nitrate (how many real calcium nitrate labels have we registered) CAS#



GOALS

YARA:

- **Ensure that dry mixtures retain the same CAN name known for 90+ years in industry**
- **Differentiate their safer product from Ammonium Nitrate products**



PENDING TERMS / SUIP

N-66 - Ammoniated Calcium Nitrate – Consisting of a hydrated double salt of calcium nitrate and ammonium nitrate having the chemical formula $[5\text{Ca}(\text{NO}_3)_2 \cdot \text{NH}_4\text{NO}_3 \cdot 10\text{H}_2\text{O}]$, CAS# 15245-12-2]. Both the granulated or prilled product (15.5-0-0) provide water soluble nitrogen and calcium. Motion of delete/passed

N-67 - Calcium Ammonium Nitrate (CAN) – A nitrogenous fertilizer derived from ammonium nitrate which contains a minimum of 20% calcium material (e.g. calcite or dolomite) and a maximum of 27% nitrogen. The material can be substituted with calcium sulfate (gypsum). It is a source of water soluble nitrogen but not a source of water soluble calcium. It may be granular or prilled. Motion to delete/passed

N-67 - Calcium Ammonium Nitrate (CAN) – A dry fertilizer containing as its essential ingredients only ammonium nitrate and calcium carbonate (e.g. limestone) and/or magnesium carbonate and calcium carbonate (e.g. dolomite), prepared as a homogenous prill or granule, with a maximum combustible material content, expressed as carbon, of 0.4% by weight. The minimum content of such calcium and/or magnesium carbonates in CAN is 20% by weight and their purity level is 90% by weight minimum. Motion to tentative/passed



PENDING TERMS / SUIP

Below is the current SUIP #6:

Mixtures of Ammonium Nitrate and Limestone or Dolomite – These shall not be designated as “ammonium calcium nitrate”, “calcium ammonium nitrate” or similar names which imply the presence of either calcium nitrate or ammonium carbonate in such mixture.

SUIP #6 would be amended as follows:

Calcium Ammonium Nitrate (CAN) In the CAN production process, the carbonates are added as a fine powder with a minimum of 80 percent of the powder smaller than 250 microns. Carbonates are either added directly to the CAN granulator or premixed with a concentrated ammonium nitrate solution to produce a homogeneous slurry that is fed into the granulation or prilling section. The solid CAN that is produced contains an intimate homogenous mixture in which each single particle has a similar ammonium nitrate/carbonates ratio.

Mixtures of Ammonium Nitrate and Limestone or Dolomite A physical blend of dry fertilizer grade ammonium nitrate granules or prills with carbonates (e.g., limestone granules or chips) giving the same average chemical composition as CAN does not qualify as CAN under this definition if any of its individual blended constituents containing ammonium nitrate
Motion to delete N-66 and N-67 and move to tentative new definition for Calcium Ammonium Nitrate and changes to SUIP #6. Motion Passed



CHALLENGES WITH THESE PROPOSALS

- **“CAN” has been used to describe many products in the marketplace with varying GA’s, derivation, and % of ammonium and nitrate**
 - **CAN-17, CAN-27, calcium ammonium nitrate double salt, etc.**



CHALLENGES WITH THESE PROPOSALS

- **Calcium ammonium nitrate decahydrate double salt $[5\text{Ca}(\text{NO}_3)_2 \cdot \text{NH}_4\text{NO}_3 \cdot 10\text{H}_2\text{O}]$ and calcium nitrate tetrahydrate $[\text{Ca}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O}]$ are distinctly different**
- **Calling these the same name in the past has cause much confusion for regulators, especially for states who require forms of nitrogen**



CHALLENGES WITH THESE PROPOSALS

- **“CAN” is neither exclusive nor described and could be understood to describe...**
 - **Calcium ammonium double salt**
 - **The mixture of ammonium nitrate with limestone/dolomite**
 - **Or possibly even calcium salt of nitric acid**
- **When re-packaged, the guarantors may not know what the material truly is**



CHALLENGES WITH THESE PROPOSALS

- **Industry wants to maintain the known, even if incorrect, term**
 - **Has support of multiple companies and TFI**



LIQ. CALCIUM NITRATE

LIQUID CALCIUM PRODUCTS

Grade: 8-0-0
Product Code: 13305

GUARANTEED ANALYSIS

Total Nitrogen (N).....	8.0%
8.0%.....Nitrate Nitrogen	
Calcium (Ca).....	11.0%
11.0%.....Water Soluble Calcium	
Derived from: nitric acid, lime	



WARNING

MAY BE HARMFUL IF SWALLOWED
MAY CAUSE MILD SKIN IRRITATION
MAY CAUSE EYE IRRITATION
MAY CAUSE RESPIRATORY IRRITATION

PRECAUTIONARY STATEMENTS:

- Call a poison center/physician if unwell
- If skin irritation occurs, seek medical advice
- If in eyes, rinse cautiously with water for several minutes; remove contact lenses
- If eye irritation persists, seek medical advice
- Wash hands after handling
- Use only outdoors or in well ventilated areas
- Avoid breathing mist
- If inhaled, remove to fresh air and keep at rest in

FIRST AID MEASURES:

- If inhaled: Move victim to fresh air. Seek medical attention if irritation persists.
- If on skin: Wash affected areas with soap and water. Seek medical attention if irritation persists. Wash contaminated clothing before re-use.
- If in the eyes: Immediately flush with water for at least 20 minutes. Seek medical attention if irritation persists.
- If swallowed: If victim is alert and not

Calcium nitrate tetrahydrate

*delete the ammoniacal guarantee
or revise ingredient to
"calcium ammonium nitrate"*

Guaranteed Analysis

Total Nitrogen (N) 15.5%
1.0% Ammoniacal Nitrogen
14.5% Nitrate Nitrogen
Calcium (CA) 19%

Masterblend's Calcium Nitrate is an important component of the Tomato & Vegetable Formula. For best results, follow the provided mixing instructions for proper ratios and mixing order.

PLANT NUTRIENTS DERIVED FROM:

Calcium Nitrate
relocate
MANUFACTURED BY:
Masterblend International LLC
4873 Weitz Rd.
Morris, IL 60450

COMBINE WITH MASTERBLEND 5-12-25 TOMATO & VEGETABLE FORMULA

Combining Masterblend's Calcium Nitrate per the mixing instructions with Masterblend's 5-12-25 Tomato & Vegetable Formula boosts the level of essential Nitrate Nitrogen. This form of Nitrogen is directly available for plant uptake resulting in fast and predictable growth. The addition of Calcium protects against Calcium deficiency which can cause blossom end rot in tomatoes and tip burn in lettuces. Calcium also helps maintain an optimum root environment and improves cell wall strength helping plants tolerate disease and heat stress.



877-658-9537
masterblend.com



PART 2



Tomato & Vegetable System

MASTERBLEND[®]
PREMIUM FERTILIZERS

CALCIUM NITRATE

Water-Soluble Fertilizer

15.5-0-0

Combine with Masterblend 5-12-25 Tomato & Vegetable

1.0 lb (.45 kg)

Regulator's headache: Derivation statement does not match Guaranteed Analysis