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Florida's Regulatory Chronology of Controlled Release Fertilizers



- 1962 – “Controlled Release of Fertilizer Minerals by encapsulating Membranes” - Oertil & Lunt, was published in the Soil Science Society of America Proceedings. This research demonstrated the availability of nutrients from inorganic fertilizer salts can be regulated through coating materials.
- 1985 – The Florida Department of Agriculture and Consumer Services (FDACS), received the initial inquiry as to the acceptable method of labeling a Sulfur Coated Urea product with a controlled release nitrogen claim.

Florida's Regulatory Chronology of Controlled Release Fertilizers

- 1986 – FDACS received a request for clarification if the fertilizer material 'Nitroform' conformed to the Urea-Form/Urea Formaldehyde definition as referenced in AAPFCO. The manufacture was attempting to claim the water insoluble nitrogen component as controlled release properties.



Florida's Regulatory Chronology of Controlled Release Fertilizers

- 1988 – Research and development of an analytical method to determine controlled release nitrogen in fertilizers
- 1989 – Validation of method to quantify controlled release nitrogen content in fertilizers



Florida's Regulatory Chronology of Controlled Release Fertilizers

- 1990 – FDACS began a pilot program analyzing products with labeled controlled release claims.
 - More than 50% did not meet label claims
- 1993 – Regulatory authority for controlled release claims was adopted and analytical results reported

Florida Commercial Fertilizer Law, Chapter 576 FS

✓ **Slow or Controlled Release
Fertilizer defined in Section
576.011 (34)FS.**

✓ **Rule 5E-1.003 FAC.**



DEFINITION - CHAPTER 576 FS

✓ **“Slow or controlled release fertilizer” means a fertilizer containing a plant nutrient in a form which delays its availability for plant uptake and use after application, or which extends its availability to the plant significantly longer than a reference “rapidly available nutrient fertilizer,” such as ammonium nitrate or urea, ammonium phosphate, or potassium chloride.**

RULES 5E-1.003 (3) SLOW OR CONTROLLED RELEASE NUTRIENTS

✓ **When one or more slow or controlled release nutrients are claimed or advertised, the guarantees for such nutrients shall be shown as a footnote following the listing of source materials and shall be expressed as percent of actual nutrient.**

SLOW OR CONTROLLED RELEASE NUTRIENTS

✓ Listing of source materials providing slow or controlled release characteristics by controlling the water solubility of a naturally soluble material (as by coating or occlusion) shall be required.



SLOW OR CONTROLLED RELEASE NUTRIENTS

✓ Listing of source materials in which availability of nitrogen is controlled through slow hydrolysis of water soluble organic nitrogen compounds shall constitute a claim of slow or controlled release nutrient and a guarantee for such nutrient shall be required. The reference for such availability shall be the enzymatic hydrolysis of urea.

SLOW OR CONTROLLED RELEASE NUTRIENTS

✓ No guarantee, claim or advertisement shall be made or required when a slow or controlled release nutrient is less than 15 percent of the total guarantee for that nutrient.



Bluebird Lawn Fertilizer 16-4-8

Total Nitrogen (N).....16.00%*

1.57% Ammoniacal Nitrogen

1.00% Water Soluble Nitrogen

5.43% Urea Nitrogen

8.00% Water Insoluble Nitrogen

Available Phosphate (P₂O₅).... 4.00%

Soluble Potash (K₂O)..... 8.00%

Derived From: Urea, Sewage Sludge, Methylene Urea, Diammonium Phosphate, Muriate of Potash

***10.0% Slow Release Nitrogen**

Brand X Fertilizer

10-10-10 Plus SCU

Total Nitrogen (N).....10.00%*

10.00% Urea Nitrogen

Available Phosphate (P₂O₅).....10.00%

Soluble Potash (K₂O)..... 10.00%

Iron (Fe)..... 0.50%

0.50% Water Soluble Iron (Fe)

Derived From: Urea, Superphosphate, Muriate of Potash, Iron Sulfate, Sulfur Coated Urea.

*** 7.5% Slowly Available Nitrogen**

Brand Y Fertilizer

6-6-6

Total Nitrogen (N)..... 6.00%*

1.50 % Other Water Soluble Nitrogen

4.50 % Water Insoluble Nitrogen

Available Phosphate (P₂O₅)..... 6.00%

Soluble Potash (K₂O)..... 6.00%

Chlorine (Cl) Not More Than..... 4.50%

Derived From: Bone Meal, Feather Meal, Muriate of Potash, Sewage Sludge.

*** 4.5% Slowly Available Nitrogen**

Brand Z Fertilizer

8-4-8

Total Nitrogen (N)..... 8.00%*

0.75% Nitrate Nitrogen

1.00% Ammoniacal Nitrogen

1.25 % Other Water Soluble Nitrogen

0.50 % Urea Nitrogen

4.50 % Water Insoluble Nitrogen

Available Phosphate (P₂O₅)..... 4.00%

Soluble Potash (K₂O)..... 8.00%

Derived From: Ammonium Nitrate, Urea Form,
Urea, Superphosphate, Diammonium Phosphate,
Sulfate of Potash Magnesium, Sewage Sludge.

* 5.5% Slowly Available Nitrogen

Bluebird Spike Fertilizer

2-3-2

Total Nitrogen (N).....2.00%*

0.50 % Ammoniacal Nitrogen

0.50 % Nitrate Nitrogen

1.00 % Other/Water Soluble Nitrogen
(And/Or Urea Nitrogen)

Available Phosphate (P₂O₅)....10.00%*

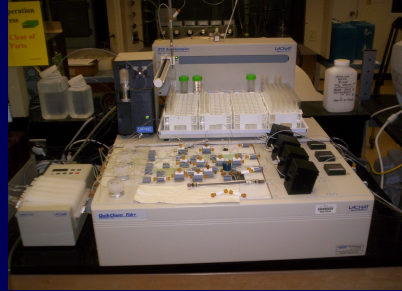
Soluble Potash (K₂O).....10.00%*

Derived From: Occluded: Ammonium Nitrate; Urea;
Diammonium Phosphate and Potassium Sulfate.

* This product contains Occluded 2.00% slowly available
Nitrogen, 10.00% Slowly Available Phosphate and 10%
Slowly Available Potassium.

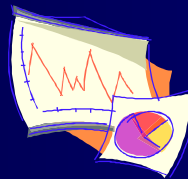


Analytical Analysis



Regulatory Perspective

- 1993 – 15% of Fertilizer products made controlled release claims
 - 38% violation rate
- 2005 – 37% of products claimed controlled release nutrients
 - 15% violation rate



Evolution of Controlled Release Products

- Sulfur Coated
- Urea-Form
- Poly Coated
- Occluded
- Advanced Coatings
 - Generation of nutrients in vitro
 - Predetermined release rates



The Vision For Controlled Release Products



- Best Management Practices
- Nutrient Management Plans
- DACS/AAPFCO Promotes and encourages uniformity and consistent regulations

SUMMARY

- ❖ **Labeling for slow or controlled release fertilizers regulated under Florida's Fertilizer Law, Chapter 576 Florida Statutes.**
- ❖ **Claiming less than 15% of the nutrient guaranteed is prohibited.**
- ❖ **All slow or controlled release fertilizer materials must be recognized, peer reviewed and defined.**



Contact Information

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Website Information

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www.flaes.org

THANK YOU

On behalf of the Florida Department of
Agriculture and myself, I would like to say
thank you for allowing me this opportunity to
speak on Enhanced-Efficiency Fertilizers.

