

# COLORADO DEPARTMENT OF AGRICULTURE

## Inspection and Consumer Services Division

### Fertilizers and Soil Conditioners

#### 8 CCR 1202-4

##### **PART 1. LEGAL AUTHORITY**

1.1 Title 35, Article 12, Colorado Revised Statutes ~~1973, as amended~~.

##### **PART 2. DEFINITIONS:**

2.1 THESE RULES INCORPORATE THE OFFICIAL TERMS AS PUBLISHED IN THE 2008 OFFICIAL PUBLICATION OF THE ASSOCIATION OF AMERICAN PLANT FOOD CONTROL OFFICIALS, INC. (AAPFCO), INCORPORATED HEREIN BY REFERENCE (LATER AMENDMENTS NOT INCLUDED), ~~Except as the commissioner designates otherwise in specific cases, the names and definitions for commercial fertilizers, soil conditioners, and plant amendments and agricultural liming materials shall be those adopted by the Association of American Plant Food Control Officials (AAPFCO).~~

2.2 ~~Percentages~~ The term of “percentage” by symbol or word, when used on a fertilizers, soil conditioners, and plant amendments and agricultural liming materials label shall represent only the amount of individual plant nutrients or other factors in relation to the total product by weight.

2.3 ~~Fertilizer~~ The terms “fertilizer”, “plant food”, “plant nutrients”, and similar words are synonymous.

2.4 ~~Soil Conditioner~~ Soil conditioner is synonymous with soil additive, soil amendment, biological culture, biological nutrient, compaction agent, soil setting agent, soil penetration agent, exchangeable ion source, and other similar terms, and includes calcium sulfate type products.

2.5 ~~“Plant amendments”~~ means any device or substance applied to the soil, plants, or seeds which is intended to improve germination, growth, yield, product quality, reproduction, flavor, or other desirable characteristics of plants, ~~except commercial fertilizers, soil amendments, agricultural liming materials, animal and vegetable manures, pesticides, plant regulators, and other materials which may be exempted by regulations promulgated by the commissioner.~~

2.6 ~~“Calcium sulfate type products”~~ such as gypsum, landplaster, anhydrite or crude calcium sulfate are products consisting of calcium sulfate with or without combined water and are incapable of neutralizing soil acidity.

2.7 ~~“Foliar”~~ means leaf, leaves and other aerial parts of vegetation. Foliage application means the method of applying a fertilizer or plant amendment to the leaf area or other aerial parts of the plant.

##### **PART 3. REGISTRATION**

3.1 EACH COMMERCIAL FERTILIZER, SOIL CONDITIONER, OR PLANT AMENDMENT PRODUCT SHALL BE REGISTERED BY THE PERSON WHOSE NAME APPEARS ON THE LABEL BEFORE BEING DISTRIBUTED IN THIS STATE. ALL REGISTRATIONS SHALL EXPIRE ANNUALLY ON JUNE 30. APPLICATIONS FOR RENEWAL OF REGISTRATIONS MUST BE SUBMITTED EACH YEAR ON OR BEFORE THAT DATE.

3.2 EACH MANUFACTURING FACILITY THAT PRODUCES COMMERCIAL FERTILIZER CUSTOM MIXES IN THIS STATE MUST BE REGISTERED AS REQUIRED IN SECTION 35-12-104(7), C.R.S. ALL REGISTRATIONS SHALL EXPIRE ANNUALLY

ON JUNE 30. APPLICATIONS FOR RENEWAL OF REGISTRATIONS MUST BE SUBMITTED EACH YEAR ON OR BEFORE SUCH DATE.

3.3 EACH MANUFACTURING FACILITY THAT PRODUCES COMPOST IN THIS STATE MUST BE REGISTERED AS REQUIRED IN SECTION 35-12-104(8) (a), C.R.S. ALL REGISTRATIONS SHALL EXPIRE ANNUALLY ON DECEMBER 31. APPLICATIONS FOR RENEWAL OF REGISTRATIONS MUST BE SUBMITTED EACH YEAR ON OR BEFORE SUCH DATE.

3.4 EACH MANUFACTURING FACILITY IN THIS STATE THAT PRODUCES COMPOST SHALL REGISTER WITH THE COMMISSIONER EXCEPT THAT:

- a. PRODUCERS OF LESS THAN 10 TONS OF COMPOST PER CALENDAR YEAR SHALL NOT BE REQUIRED TO REGISTER;
- b. ANY FACILITIES REGULATED UNDER SECTION 14 OF PART 1 OF THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT REGULATIONS PERTAINING TO SOLID WASTE SITES AND FACILITIES, 6 CCR 1007-2, SHALL NOT BE REQUIRED TO REGISTER.

3.5 ONLY FERTILIZERS CONTAINING ESSENTIAL PLANT NUTRIENTS DERIVED FROM SOURCES RECOGNIZED BY AAPFCO MAY BE REGISTERED. IRON SUCRATE MAY ONLY BE REGISTERED FOR USE AS AN IRON SOURCE FOR SPECIALTY FERTILIZERS.

**PART 4. DISTRIBUTION FEES - REPORTS**

4.1 EACH REGISTRANT SHALL FILE AN AFFIDAVIT ANNUALLY WITH THE COMMISSIONER WITHIN FORTY-FIVE DAYS AFTER JANUARY 1 EACH YEAR THAT DISCLOSES THE POUNDS OR TONNAGE OF COMMERCIAL FERTILIZER, SOIL CONDITIONER, OR PLANT AMENDMENT SOLD OR DISTRIBUTED IN THE STATE DURING THE PRECEDING TWELVE-MONTH PERIOD.

4.2 SUCH AFFIDAVIT SHALL BE SUBMITTED ON THE FORM FURNISHED BY THE COMMISSIONER, AND SHALL ACCURATELY REPORT ALL INFORMATION RELATED TO PRODUCT DISTRIBUTION SPECIFIED ON THE FORM.

**PART 5. ~~SPECIFICATION AND COMPLIANCE REGULATIONS~~ LABEL REQUIREMENTS**

**5.1 FERTILIZER LABELS**

THE FOLLOWING INFORMATION SHALL BE DISPLAYED ON THE PRODUCT LABEL IN A READABLE AND CONSPICUOUS FORM:

- (a) PRODUCT NAME
- (b) Grade
- (c) Guaranteed Analysis in the following format and order:  
Guaranteed Analysis  
Total Nitrogen (N) \_\_\_\_\_ %  
\_\_\_\_\_ % Ammoniacal Nitrogen\*\*  
\_\_\_\_\_ % Nitrate Nitrogen\*\*  
\_\_\_\_\_ % Water Insoluble Nitrogen\*  
\_\_\_\_\_ % UREA NITROGEN\*\*  
\_\_\_\_\_ % (OTHER RECOGNIZED AND DETERMINABLE FORMS OF NITROGEN)
- (d) Available PHOSPHATE (P<sub>2</sub>O<sub>5</sub>) \_\_\_\_\_ %
- (e) Soluble Potash (K<sub>2</sub>O) \_\_\_\_\_ %
- (f) ~~Additional Plant Nutrients as prescribed by regulation~~ (OTHER NUTRIENTS, ELEMENTAL BASIS) \_\_\_\_\_ %\*\*\*

- (g) DIRECTIONS FOR USE SUFFICIENT TO ENSURE THE SAFE AND EFFECTIVE USE OF THE PRODUCT THAT, AT A MINIMUM, SPECIFY:
  - (i) THE TYPE(S) OF PLANT(S) FOR WHICH THE PRODUCT IS INTENDED
  - (ii) THE RECOMMENDED APPLICATION METHOD(S) AND RATE(S)
  - (iii) ANY WARNING OR CAUTION STATEMENTS NECESSARY TO AVOID HARM TO THE TARGET PLANT(S), OR OTHER PLANTS OR ANIMALS
- (h) Net Weight OR MASS, NET VOLUME OF LIQUID OR DRY MATERIAL, OR COUNT.

\*If claimed or the statement "organic" or "slow acting nitrogen" or similar terms are used on the label

\*\* If claimed.

\*\*\*AS PRESCRIBED BY RULE 5.2

5.2 3-1 Plant Nutrients in addition to Nitrogen, Phosphorous, PHOSPHATE and Potassium--POTASH

- (a) Other plant nutrients, when mentioned in any form or manner, shall be registered and shall be guaranteed only on an available elemental basis. Sources of the elements guaranteed and proof of availability shall be provided the commissioner upon request. The minimum percentages which will be accepted for registration are as follows:

<u>Element</u>	<u>MINIMUM %</u>
Calcium	1.00
Magnesium (Mg)	0.50
Sulfur (S)	1.00
Boron (B)	0.02
CHLORINE (CL)	0.10
COBALT (CO)	0.0005
Copper (Cu)	0.05
Iron (Fe)	0.10
Manganese (Mn)	0.05
Molybdenum (Mo)	0.0005
NICKEL (NI)	0.0010
SODIUM (NA)	0.10
Zinc (Zn)	0.05

Any of the above-listed elements which are guaranteed shall appear in the order listed, immediately following guarantees for the primary nutrients, nitrogen, phosphorous and potassium.

- (b) In determining the percentages of the ~~above-listed~~ plant nutrients GUARANTEED ON THE LABEL in a product the analytical methods SPECIFIED ~~contained~~ in Section 6. 3-6 and 3-7 shall be used, EXCEPT THAT FOR COPPER, IRON, MANGANESE, ZINC AND COBALT, ONLY THAT WHICH IS IN THE Na<sub>2</sub> EDTA SOLUBLE FORM AS DETERMINED BY THE ANALYTICAL METHOD IN RULE 6. (C), OR THAT WHICH IS IN THE WATER SOLUBLE FORM DETERMINED BY THE ANALYTICAL METHOD IN RULE 6 (D), WHICHEVER IS HIGHER, MAY BE GUARANTEED. HOWEVER, IF THE SOURCE FOR IRON IS IRON SUCRATE, THIS EXCEPTION DOES NOT APPLY.

(c) Guarantees or claims for the above-listed plant nutrients are the only ones which will be accepted except that ~~specialty~~ fertilizer guarantees may include other nutrients, recognized by ~~the AAPFCO Association of Plant Food Control Officials~~. Proposed labels and directions for use of the fertilizer shall be furnished with the application for registration upon request. ~~Any of the above-listed elements, which are guaranteed, shall appear in the order listed, immediately following guarantees for the primary nutrients, nitrogen, phosphorous and potassium.~~

### 5.3 3.4 Slowly Available RELEASED Plant Nutrients

- (a) No fertilizer label shall bear a statement that connotes or ~~infers the presence of a slowly available~~ IMPLIES THAT CERTAIN plant nutrients ~~unless the nutrient or nutrients are identified~~ CONTAINED IN A FERTILIZER ARE RELEASED SLOWLY OVER A PERIOD OF TIME, UNLESS THE SLOW RELEASE COMPONENTS ARE IDENTIFIED AND GUARANTEED AT A LEVEL OF AT LEAST 15% OF THE TOTAL GUARANTEE FOR THAT NUTRIENT(S).

~~When a fertilizer label infers or connotes that the nitrogen is slowly available through use of organic, organic nitrogen, urea form, long lasting or similar terms, the guaranteed analysis must indicate the percentage of water insoluble nitrogen in the material, except manipulated animal and vegetable manures distributed as such and not mixed with other materials. When the water insoluble nitrogen is less than 15% of the total nitrogen, the label shall bear no reference to such designations.~~

~~Example: 10-6-4 Rose Food 25% of nitrogen is organic~~

~~10 (total N guaranteed) X .25 (% N claimed as organic) X .60 = 1.5% water insoluble nitrogen.~~

- (b) TYPES OF PRODUCTS RECOGNIZED BY THE COMMISSIONER TO HAVE SLOW RELEASE PROPERTIES INCLUDE, BUT NOT LIMITED TO, ARE (1) WATER INSOLUBLE PRODUCTS, SUCH AS NATURAL ORGANICS, UREA FORM MATERIALS, UREA-FORMALDEHYDE PRODUCTS, ISOBUTYLIDENE DIUREA, OXAMIDE, ETC., (2) COATED SLOW RELEASE, SUCH AS SULFUR COATED UREA AND OTHER ENCAPSULATED SOLUBLE FERTILIZERS, (3) OCCLUDED SLOW RELEASE, WHERE FERTILIZERS OR FERTILIZER MATERIALS ARE MIXED WITH WAXES, RESINS, OR OTHER INERT MATERIALS AND FORMED INTO PARTICLES AND (4) PRODUCTS CONTAINING WATER SOLUBLE NITROGEN SUCH AS UREA FORM MATERIALS, UREA-FORMALDEHYDE PRODUCTS, METHYLENEDIUREA (MDU), DIMETHYLENTRIUREA (DMTU), DICYANODIAMIDE (DCD), ETC.
- (c) THE TERM, "WATER INSOLUBLE", AND "OCCLUDED SLOW RELEASE" ARE ACCEPTED AS DESCRIPTIVE OF THESE PRODUCTS, PROVIDED THE MANUFACTURER CAN SHOW A TESTING PROGRAM TO SUBSTANTIATE THE CLAIM THAT IS ACCEPTABLE TO THE COMMISSIONER.
- (d) A LABORATORY PROCEDURE, ACCEPTABLE TO THE COMMISSIONER FOR EVALUATING THE RELEASE CHARACTERISTICS OF THE PRODUCT(S) MUST BE PROVIDED BY THE MANUFACTURER.  
~~(e) To supplement (b), it should be established that if a label states the amount of organic nitrogen present in a phrase, such as "25% of the nitrogen from ureaformaldehyde (urea form)," then the water insoluble nitrogen guaranteed must be not less than 60% of the nitrogen so designated.~~
- ~~(d) A warning or caution statement is required on the label for any product which contains 0.03% or more of boron in a water soluble form. This statement shall carry the word "WARNING" or "CAUTION" conspicuously displayed, shall state the crop(s) for which the fertilizer is to be used, and state that the use of the fertilizer on any other than those recommended may result in serious injury to the crop(s).~~
- ~~(e) Products containing 0.001% or more of molybdenum also require a warning statement on the label. This shall include the word "WARNING" or "CAUTION" and the statement that the application of fertilizers containing molybdenum may result in forage crops containing levels of molybdenum which are toxic to ruminant animals.~~

~~Examples of Warning or Caution Statement:~~

~~Boron;~~

- ~~1. Directions: Apply this fertilizer at a maximum rate of 350 pounds per acre for alfalfa or red clover seed production.~~
- ~~2. CAUTION: Apply this fertilizer at a maximum rate of 700 pounds per acre for alfalfa or red clover seed production. Do not use on other crops; the boron may cause serious injury to them.~~
- ~~3. WARNING: This fertilizer carries added Borax and is intended for use only on alfalfa. Its use on any other crops or under conditions other than those recommended may result in serious injury to crops.~~

~~Molybdenum;~~

- ~~1. CAUTION: This fertilizer is to be used on soil which responds to molybdenum. Crops high in molybdenum are toxic to grazing animals (ruminants).~~

~~(f) All products claimed or labeled as chelated or similar terms must be determinable by analytical methods approved by the commissioner.~~

~~3.2 Specialty Fertilizer Labels~~ The following information, if not appearing on the face or display side in a readable and conspicuous form, shall occupy at least the upper third of the container and shall be considered the label. All required information shall be in a readable and conspicuous form.

~~Net Weight OR MASS, NET VOLUME OF LIQUID OR DRY MATERIAL, OR COUNT:~~

- |                |   |
|----------------|---|
| <del>(a)</del> | <del>Brand Name PRODUCT NAME</del>                      |
| <del>(b)</del> | <del>Grade</del>  |
| <del>(c)</del> | <del>Guaranteed Analysis:</del>                         |
|                | <del>Total Nitrogen (N)</del>                           |
|                | <del>_____ %</del>                                      |
|                | <del>_____ % Ammoniacal Nitrogen**</del>                |
|                | <del>_____ % Nitrate Nitrogen**</del>                   |
|                | <del>_____ % Water Insoluble</del>                      |
|                | <del>Nitrogen*</del>                                    |
|                | <del>Available Phosphoric Acid (P2O5) -----</del>       |
|                | <del>----- %</del>                                      |
|                | <del>Soluble Potash</del>                               |
|                | <del>(K2O) _____ %</del>                                |
| <del>(d)</del> | <del>Additional Plant Nutrients as prescribed by</del>  |
|                | <del>regulation.</del>                                  |
| <del>(e)</del> | <del>DIRECTIONS FOR USE</del>                           |
| <del>(f)</del> | <del>** Potential Acidity or Basicity ___ lbs. of</del> |
|                | <del>Calcium Carbonate Equivalent per ton.</del>        |
|                | <del>Name and address of registrant.</del>              |

~~\*If claimed or the statement "organic" or "slow acting nitrogen" or similar terms are used on the label.~~

~~\*\*If claimed.~~

~~Notes: \*If claimed or the statement "organic" or "slow acting nitrogen" or similar terms are used on the label. \*\*If claimed.~~

~~5.4 3.3~~ Soil Conditioner and Plant Amendment Labels-The following information, ~~if not appearing on the face or display side in a readable and conspicuous form, shall occupy at least the upper third of the container and shall be considered the label. All required information~~ shall be DISPLAYED ON THE PRODUCT LABEL in a readable and conspicuous form.

- (a) Net Weight OR MASS, NET VOLUME OF LIQUID OR DRY MATERIAL, OR COUNT.
- (b) ~~Brand~~ PRODUCT Name
- (c) ~~Guaranteed Analysis Soil conditioning and/or plant amending ingredients-~~ STATEMENT OF COMPOSITION INCLUDING THE ~~NAME AND PERCENTAGE OF EACH Ingredients-% and continued until all~~ conditioning and amending ingredients ~~are listed and percentages given-~~ AS DEFINED IN THE 2008 OFFICAL PUBLICATION OF THE ASSOCIATION OF AMERICAN PLANT FOOD CONTROL OFFICIALS, INC., INCORPORATED HEREIN BY REFERENCE (LATER AMENDMENTS NOT INCLUDED). IF NO AAPFCO DEFINITION EXISTS, THE COMMON OR USUAL NAME SHALL BE USED.
- (d) Total percentage of other ingredients.
- (e) ~~The name of each separate product contained in the soil conditioner or plant amendment, as defined by the American Association of Plant Food Control Officials. If no definition exists, the common or usual name shall be used.~~
- (f) Purposes of product.
- (g) ~~Directions for application-~~ Directions for use sufficient to ensure the safe and effective use of the product that, at a minimum, specify:
  - (i) THE TYPE(S) OF PLANT(S) OR SOIL(S) FOR WHICH THE PRODUCT IS INTENDED
  - (ii) THE RECOMMENDED APPLICATION METHOD(S) AND RATE(S)
  - (iii) ANY WARNING OR CAUTION STATEMENTS NECESSARY TO AVOID HARM TO THE TARGET PLANTS (IF APPLICABLE), OR OTHER PLANTS OR ANIMALS
- (h) Name and address of the registrant.

### ~~3.4 Slowly Available Plant Nutrients~~

- ~~(a) No fertilizer label shall bear a statement that connotes or infers the presence of a slowly available plant nutrient unless the nutrient or nutrients are identified.~~
- ~~(b) When a fertilizer label infers or connotes that the nitrogen is slowly available through use of organic, organic nitrogen, urea form, long lasting or similar terms, the guaranteed analysis must indicate the percentage of water insoluble nitrogen in the material, except manipulated animal and vegetable manures distributed as such and not mixed with other materials. When the water insoluble nitrogen is less than 15% of the total nitrogen, the label shall bear no reference to such designations,~~
- ~~(c) To supplement (b), it should be established that if a label states the amount of organic nitrogen present in a phrase, such as "25% of the nitrogen from ureaformaldehyde (urea form)," then the water insoluble nitrogen guaranteed must be not less than 60% of the nitrogen so designated.~~

~~Example: 10-6-4 Rose Food 25% of nitrogen is organic~~

~~10 (total N guaranteed) X .25 (% N claimed as organic) X .60 = 1.5% water insoluble nitrogen.~~

- ~~(d) The term "Coated Slow Release Fertilizer", or Coated Slow Release" be accepted as descriptive of products.~~
- ~~(e) Further, the above phrases (d) be allowed for any products that can show a testing program substantiating the claim. (Testing under guidance of experiment station personnel, or a recognized reputable researcher, etc. acceptable to the commissioner). Water insoluble nitrogen must be guaranteed at 15% of the total nitrogen level as in organic materials.~~
- ~~(f) AOAC Method 2.064, 12th Edition, or as it shall be designated in subsequent AOAC Editions, is to be used to confirm the water insoluble nitrogen of coated products and others whose slow release characteristics depend on particle size. AOAC Method 2.062 (12th Edition) shall be used to determine the water insoluble nitrogen of other products applicable for these procedures.~~

### 5.5—Investigational Allowances

- ~~(a) A commercial fertilizer shall be deemed deficient if the analysis of any nutrient is below the guarantee by an amount exceeding the values in the following schedule, or if the overall index value of the fertilizer is below 98%:~~

<del>Guarantee percent</del>	<del>Nitrogen percent</del>	<del>Available Phosphoric acid percent</del>	<del>Potash percent</del>
<del>4 or less</del>	<del>0.49</del>	<del>0.67</del>	<del>0.41</del>
<del>5</del>	<del>0.51</del>	<del>0.67</del>	<del>0.43</del>
<del>6</del>	<del>0.52</del>	<del>0.67</del>	<del>0.47</del>
<del>7</del>	<del>0.54</del>	<del>0.68</del>	<del>0.53</del>
<del>8</del>	<del>0.55</del>	<del>0.68</del>	<del>0.60</del>
<del>9</del>	<del>0.57</del>	<del>0.68</del>	<del>0.65</del>
<del>10</del>	<del>0.58</del>	<del>0.69</del>	<del>0.70</del>
<del>12</del>	<del>0.61</del>	<del>0.69</del>	<del>0.79</del>
<del>14</del>	<del>0.63</del>	<del>0.70</del>	<del>0.87</del>
<del>16</del>	<del>0.67</del>	<del>0.70</del>	<del>0.94</del>
<del>18</del>	<del>0.70</del>	<del>0.71</del>	<del>1.01</del>
<del>20</del>	<del>0.73</del>	<del>0.72</del>	<del>1.08</del>
<del>22</del>	<del>0.75</del>	<del>0.72</del>	<del>1.15</del>
<del>24</del>	<del>0.78</del>	<del>0.73</del>	<del>1.21</del>
<del>26</del>	<del>0.81</del>	<del>0.73</del>	<del>1.27</del>
<del>28</del>	<del>0.83</del>	<del>0.74</del>	<del>1.33</del>
<del>30</del>	<del>0.86</del>	<del>0.75</del>	<del>1.39</del>
<del>32 or more</del>	<del>0.88</del>	<del>0.76</del>	<del>1.44</del>

~~For guarantees not listed, calculate the appropriate value by Interpolation.~~

- ~~(b) Other elements shall be deemed deficient if any element is below the guarantee by an amount exceeding the values in the following schedule:~~

<del>ELEMENT</del>	<del>GUARANTEE</del>	<del>ALLOWABLE DEFICIENCY</del>
<del>Calcium and Sulfur</del>	<del>1% and up</del>	<del>0.2 units + 5% of guarantee</del>
<del>Magnesium</del>	<del>0.5% and up</del>	<del>0.2 units + 5% of guarantee</del>
<del>Boron</del>	<del>.02% to 5%</del>	<del>.003 units + 15% of guarantee</del>
<del>Cobalt and Molybdenum</del>	<del>5.0% and up</del>	<del>Potash Schedule 3.5 (a)</del>
	<del>.0005% to 1.0%</del>	<del>.0001 units + 30% of guarantee</del>
	<del>1.0% to 4.0%</del>	<del>.2 units + 10% of guarantee</del>

<u>ELEMENT</u>	<u>GUARANTEE</u>	<u>ALLOWABLE DEFICIENCY</u>
Chlorine, Iron & Sodium	4.1% and up	Potash schedule 3.5 (a)
	0.1% to 4.0%	.005 units + 10% of guarantee
Copper, Manganese, & Zinc	4.1% and up	Potash Schedule 3.5 (a)
	.05% to 4.0%	.005 units +
	4.1% and up	Potash Schedule 3.5 (a)

~~(c) The overall index value is calculated by comparing the commercial value guaranteed with the commercial value found. Unit values of the nutrients used shall be those referred to in section 35-12-110 of Title 35, Article 12, Colorado Revised Statutes 1973, as amended. Overall index value example of calculation for a 10-10-10 grade found to contain 10.1% total nitrogen (N), 10.2% available phosphoric acid (P<sub>2</sub>O<sub>5</sub>), and 10.1% soluble potash (K<sub>2</sub>O). Nutrient unit values are assumed to be \$3.00 per unit N, \$2.00 per unit P<sub>2</sub>O<sub>5</sub> and \$1.00 per unit K<sub>2</sub>O.~~

10.0 units N	X 3 =	30.0
10.0 units P <sub>2</sub> O <sub>5</sub>	X 2 =	20.0
10.0 units K <sub>2</sub> O	X 1 =	10.0
Commercial value guarantee =		60.0
10.0 units N	X 3 =	30.3
10.2 units P <sub>2</sub> O <sub>5</sub>	X 2 =	20.4
10.1 units K <sub>2</sub> O	X 1 =	10.1
Commercial value found =		60.8
Overall index value 60.8/60.0 X 100=101.3%		

~~(d) Soil conditioner ingredients AND, plant amending ingredients and agricultural liming materials shall be deemed deficient if found below an amount exceeding 0.2 unit + 5% of the guarantee.~~

~~(e) The above tolerances listed in (a) and (b) are for single samples run in duplicate, additional analysis and/or additional samples will lower tolerances.~~

~~3.6 Availability of Essential Plant Nutrients—Availability means the chemical form of the essential plant nutrient present in commercial fertilizer.~~

~~The availability of copper, iron, manganese, zinc and cobalt is only that which is in the Na<sub>2</sub>-EDTA soluble form as shown in Regulation 3.7 (c), or that which is in the water soluble form as shown in Regulation 3.7 (d), whichever is higher. The availability of sulfur, other than elemental free sulfur, is only that which is in the water soluble form, as shown in Regulation 3.7 (d). Availability of elemental free sulfur is total and is determined by AOAC 2.129, 12th edition: "Free elemental sulfur Extract 1 gram sample with carbon disulfide in soxhlet apparatus letting extraction thimble drain at least 12 times, etc."~~

~~Availability of sodium, chlorine, molybdenum and boron is that which is water soluble JAOAC\_58-383 (1975) 2.098e (1).~~

## 5.5 COMPOST LABELS –

(a) THE FOLLOWING INFORMATION SHALL BE DISPLAYED ON THE PRODUCT LABEL IN A READABLE AND CONSPICUOUS FORM.

(i) PRODUCT NAME.

(ii) DIRECTIONS FOR USE SUFFICIENT TO ENSURE THE SAFE AND EFFECTIVE USE OF THE PRODUCT THAT AT MINIMUM, SPECIFY:

- (A) THE TYPE(S) OF PLANT(S) OR SOIL(S) FOR WHICH THE PRODUCT IS INTENDED;
- (B) THE RECOMMENDED APPLICATION METHOD(S) AND RATE(S); AND
- (C) ANY WARNING OR CAUTION STATEMENTS NECESSARY TO AVOID HARM TO THE TARGET PLANTS (IF APPLICABLE), OR OTHER PLANTS OR ANIMALS.

(iii) NAME AND ADDRESS OF THE MANUFACTURER OR DISTRIBUTOR.

(iv) NET WEIGHT OR VOLUME.

(v) ADDITIONAL ANALYTICAL INFORMATION, IF SUPPLIED, SHALL BE LISTED UNDER THE HEADING "TYPICAL ANALYSIS" AND SHALL NOT BE CONSIDERED TO BE A GUARANTEE

(b) COMPOST DISTRIBUTED IN BULK SHOULD BE ACCOMPANIED BY A PRINTED OR WRITTEN STATEMENT SHOWING THE PH LEVEL & SOLUBLE SALT LEVEL IN ADDITION TO THE INFORMATION REQUIRED ABOVE.

(c) ANY PRODUCT LABELED AS COMPOST MUST MEET THE FOLLOWING MINIMUM STANDARDS:

(i) THE PRODUCT MUST CONTAIN CARBON AND NITROGEN IN A RATIO OF LESS THAN OR EQUAL TO 25, AS DETERMINED BY THE METHOD SPECIFIED IN RULE 6.2 (a).

~~(ii) THE PRODUCT MUST CONTAIN AMMONIA NITROGEN AND NITRATE NITROGEN IN A RATIO OF LESS THAN OR EQUAL TO 5~~ THE PRODUCT MUST HAVE A SOLVITA AMMONIA TEST RESULT OF GREATER THAN OR EQUAL TO 4, AS DETERMINED BY THE METHOD SPECIFIED IN RULE 6.2 (b).

~~(iii) WHEN ANALYZED USING THE DEWAR SELF HEATING CAPACITY TEST, THE PRODUCT'S TEMPERATURE MUST NOT RISE MORE THAN 10 DEGREES C~~ THE PRODUCT MUST HAVE A SOLVITA CARBON DIOXIDE TEST RESULT OF GREATER THAN OR EQUAL TO 5, AS DETERMINED BY THE METHOD SPECIFIED IN RULE 6.2 (b).

## PART 6 ~~3.7~~ Analytical Methods

6.1 THE METHODS OF SAMPLING AND ANALYSIS FOR FERTILIZERS AND SOIL CONDITIONERS SHALL BE THOSE SET FORTH IN THE 18<sup>TH</sup> EDITION OF THE OFFICIAL METHODS OF ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS, INTERNATIONAL, INCORPORATED HEREIN BY REFERENCE (LATER AMENDMENTS NOT INCLUDED), PROVIDED THAT COPPER, IRON, MANGANESE, ZINC AND COBALT SHALL BE ANALYZED USING ONLY THE FOLLOWING METHODS:

### ~~(a) Total Phosphorous~~

~~AOAC Method 2.020 (a) (12th edition) for extraction: "Dissolve in 30 ml HN03 and 3-5 ml HC1, and boil until organic matter is destroyed (30 min. for liquids and suspensions)."~~

### ~~(b) Available Phosphorous~~

~~AOAC methods 2.040 or 2.042 shall be used to determine available phosphorous.~~

~~(a)(e)~~ Disodium salt of ethylenediamine tetra acetic acid solubility of copper, iron, manganese, zinc, and cobalt, ~~AOAC 58-383 (1975) 2.098 e (2)~~ AOAC METHOD 965.09 (e)(2)

~~(b)(d)~~ Water extraction-soluble K<sub>2</sub>O. sodium, chlorine, molybdenum boron, copper, iron, manganese, zinc, cobalt and sulfur AOAC method ~~AOAC 2.098 (e) (1) 983.02 place 1.00~~

~~gm. of material in 250 ml. beaker, add 75 ml H2O and boil for 30 minutes. Filter into 100 ml. volumetric flask and wash paper with 1^0 dilute to volume etc.~~

(c) IRON SUCRATE AOAC METHOD 965.09 (a)

~~(f) AOAC Method 2.064, 12th Edition, or as it shall be designated in subsequent AOAC Editions, is to be used to confirm the water insoluble nitrogen of coated products and others whose slow release characteristics depend on particle size. AOAC Method 2.062 (12th Edition) shall be used to determine the water insoluble nitrogen of other products applicable for these procedures.~~

~~(e) Calcium and Magnesium and Sulfur in Gypsum~~

~~AOAC 2.020 (b) (12th edition): "Dissolve 1 gram sample in 15-30 ml. hydrochloric acid and 3-10 ml. nitric acid".~~

6.2 THE METHODS FOR SAMPLING AND ANALYSIS OF COMPOST SHALL BE THOSE SPECIFIED IN TEST METHODS FOR THE EXAMINATION OF COMPOSTING AND COMPOST, US COMPOSTING COUNCIL RESEARCH AND EDUCATION FOUNDATION (CCREF), AND UNITED STATES DEPARTMENT OF AGRICULTURE (USDA) (TMECC, 2002) INCORPORATED HEREIN BY REFERENCE (LATER AMENDMENTS NOT INCLUDED).

(a) THE CARBON : NITROGEN RATIO SHALL BE DETERMINED USING TMECC METHOD 04.02D/2002-04-07 FOR ANALYZING TOTAL CARBON AND TOTAL NITROGEN CONTENT.

~~(b) THE AMMONIA-NITROGEN : NITRATE-NITROGEN RATIO SHALL BE DETERMINED USING TMECC METHOD 04.02C/2002-04-07 FOR AMMONIA-NITROGEN AND TMECC METHOD 04.02D/2002-04-07 FOR NITRATE-NITROGEN CONTENT. THE SOLVITA CARBON DIOXIDE AND AMMONIA TEST RESULTS SHALL BE DETERMINED USING TMECC METHOD 05.08-E/2002-04-07.~~

~~(c) THE DEWAR SELF-HEATING TEST SHALL BE PERFORMED USING TMECC METHOD 05.08D/2002-04-07.~~

6.3 Investigational Allowances

(a) A commercial fertilizer shall be deemed deficient if the analysis of any nutrient is below the guarantee by an amount exceeding the values in the following schedule, or if the overall index value of the fertilizer is below 98%:

Guarantee percent	Nitrogen percent	Available Phosphoric acid percent	Potash percent
4 or less	0.49	0.67	0.41
5	0.51	0.67	0.43
6	0.52	0.67	0.47
7	0.54	0.68	0.53
8	0.55	0.68	0.60
9	0.57	0.68	0.65
10	0.58	0.69	0.70
12	0.61	0.69	0.79
14	0.63	0.70	0.87
16	0.67	0.70	0.94
18	0.70	0.71	1.01
20	0.73	0.72	1.08

Guarantee percent	Nitrogen percent	Available Phosphoric acid percent	Potash percent
22	0.75	0.72	1.15
24	0.78	0.73	1.21
26	0.81	0.73	1.27
28	0.83	0.74	1.33
30	0.86	0.75	1.39
32 or more	0.88	0.76	1.44

For guarantees not listed, calculate the appropriate value by Interpolation.

- (b) Other elements shall be deemed deficient if any element is below the guarantee by an amount exceeding the values in the following schedule:

<u>ELEMENT</u>	<u>GUARANTEE</u>	<u>ALLOWABLE DEFICIENCY</u>
Calcium and Sulfur	1% and up	0.2 units + 5% of guarantee
Magnesium	0.5% and up	0.2 units + 5% of guarantee
Boron	.02% to 5%	.003 units + 15% of guarantee
Cobalt and Molybdenum	5.0% and up .0005% to 1.0%	Potash Schedule 3.5 (a) .0001 units + 30% of guarantee
Chlorine, Iron & Sodium	1.0% to 4.0% 4.1% and up 0.1% to 4.0%	.2 units + 10% of guarantee Potash schedule 3.5 (a) .005 units + 10% of guarantee
Copper, Manganese, & Zinc	4.1% and up .05% to 4.0% 4.1% and up	Potash Schedule 3.5 (a) .005 units + Potash Schedule 3.5 (a)

- (c) The overall index value is calculated by comparing the commercial value guaranteed with the commercial value found. Unit values of the nutrients used shall be those referred to in section 35-12-110, ~~C.R.S. of Title 35, Article 12, Colorado Revised Statutes 1973, as amended.~~ Overall index value-example of calculation for a 10-10-10 grade found to contain 10.1% total nitrogen (N), 10.2% available phosphoric acid (P<sub>2</sub>O<sub>5</sub>), and 10.1% soluble potash (K<sub>2</sub>O) Nutrient unit values are assumed to be \$3.00 per unit N, \$2.00 per unit P<sub>2</sub>O<sub>5</sub> and \$1.00 per unit K<sub>2</sub>O.

10.0 units N	X 3 =	30.0
10.0 units P <sub>2</sub> O <sub>5</sub>	X 2 =	20.0
10.0 units K <sub>2</sub> O	X 1 =	<u>10.0</u>
Commercial value guarantee =		60.0
10.0 units N	X 3 =	30.3
10.2 units P <sub>2</sub> O <sub>5</sub>	X 2 =	20.4
10.1 units K <sub>2</sub> O	X 1 =	<u>10.1</u>
Commercial value found =		60.8
Overall index value 60.8/60.0 X 100=101.3%		

- (d) Soil conditioner ingredients ~~AND~~, plant amending ingredients ~~and agricultural liming materials~~ shall be deemed deficient if found below an amount exceeding 0.2 unit ~~-f~~ + 5% of the guarantee.

(e) The above tolerances listed in (a) and (b) are for single samples run in duplicate, additional analysis and/or additional samples will lower tolerances.

~~3.9 Minimum Plant Nutrients of Fertilizer — Commercial fertilizer sold for agricultural use on the soil, primarily for the N— P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O nutrients shall contain a minimum total of 20 units of N— P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O. The remaining essential nutrient declared shall conform with Regulation 3.1.~~

~~A fertilizer may be exempted from the 20-unit minimum N— P<sub>2</sub>O<sub>5</sub>—K<sub>2</sub>O requirement, if the commissioner after he has been petitioned for such an exemption on a product, finds such an exemption to be in the best interest of the state.~~

~~Commercial fertilizer sold for use on the soil, for essential EDTA-soluble nutrients Cu, Fe, Mn, Zn, and Co shall contain not less than 5% of a single available EDTA-soluble nutrient, or not less than 9% of a combination of two or more.~~

~~Commercial fertilizers and agricultural liming materials sold primarily for their magnesium shall have the following minimum magnesium content. Chelated magnesium fertilizer shall contain a minimum of 5% magnesium. Magnesium products sold for agricultural use which are not magnesium-chelated type products shall contain a minimum of 10% magnesium. A fertilizer sold primarily for its magnesium content may be exempted from the minimum requirement if the commissioner after he has been petitioned for such an exemption on a product finds such an exemption to be in the best interest of the state.~~

~~Commercial fertilizer sold for essential EDTA-soluble nutrients Cu, Fe, Mn, Zn, and Co either in a chelate form, or only for foliar application may be exempted from the minimum requirements if the commissioner, after he has been petitioned for such an exemption on a product, finds such an exemption to be in the best interest of the state.~~

~~Before registration of a fertilizer for foliar use the commissioner may require proof of effectiveness and proof of labeling claims as provided for in the law (Title 35-12-104 (4)).~~

~~3.10 Minimum Calcium and Magnesium of Agricultural Liming Material and Labeling. — Agricultural liming material sold for use for neutralizing soil acidity or sources of calcium carbonate or magnesium carbonate shall contain a calcium carbonate equivalent as shown in Table I:~~

~~TABLE I. AGRICULTURAL LIMING MATERIALS~~

<del>MATERIAL</del>	<del>CALCIUM CARBONATE EQUIVALENT (C.C.E.) PERCENT</del>
<del>Burnt Lime</del>	<del>not less than 140</del>
<del>Hydrated Lime</del>	<del>not less than 110</del>
<del>Limestone</del>	<del>not less than 80</del>
<del>Slag</del>	<del>not less than 80</del>
<del>Shells</del>	<del>not less than 80</del>

~~The label shall declare in a type size equal to the largest used on the labeling the American Association of Plant Food Control Officials name that applies to the product. The label shall also indicate the use for which the product is intended. The calcium and/or magnesium shall be guaranteed on the elemental basis.~~

~~3.11 Labeling of Calcium Sulfate Type Products — Calcium sulfate type products are soil conditioners. No calcium sulfate type products can be registered or sold unless they conform to the American Association of Plant Food Control Officials definitions relating to the products. The label shall~~

~~declare in the type size equal to the largest used on the labeling the American Association of Plant Food Control Officials name that applies to the product. The label shall indicate the use for which the product is intended and shall contain adequate application instructions. The label shall guarantee the gypsum equivalent (Ca 804.2 H<sub>2</sub>O) in addition to the calcium and sulfur guarantees.~~

~~A calcium sulfate type product may be exempted from Regulation 3.11 if the commissioner after he has been petitioned for such an exemption on a product finds such an exemption to be in the best interest of the state.~~

~~3.12 Chemical Elements or other Materials that are not NOT Essential Plant Nutrients — are not to be listed or guaranteed in or on labels or labeling without permission of the commissioner.~~

~~3.13 Agricultural Liming Materials Standards~~

~~All agricultural lining materials distributed in the state shall be crushed or ground to a fineness such that 90% of the material will pass an 8 mesh screen, not less than 50% will pass a 60 mesh screen, and not less than 25% shall pass a 100 mesh screen. Limestone and ground shells used as agricultural liming materials shall (a) have not less than 80% calcium carbonate equivalent (CCE) (b) and an effective calcium carbonate equivalent (ECCE) determined as follows: (% passing 8 mesh screen X 0.3 + % passing 60 mesh screen X 0.6 + % passing 100 mesh screen) X % calcium carbonate equivalent (CCE) 4 100, of not less than 70%.~~

~~3.14 Labeling of Agricultural Liming Materials~~

~~Agricultural liming materials shall be labeled to show in addition to the requirements set forth in the Commercial Fertilizer, Soil Conditioner, Plant Amendment, and Agricultural Liming Materials Act of 1977, Title 35, Article 12, Section 105(7) & (8) & (9); the fineness showing the minimum percentage passing 8 mesh, 60 mesh and 100 mesh sieves and the minimum effective calcium carbonate equivalent (ECCE) guarantee.~~

PART 7.0 ADULTERATION

7.1 FERTILIZER

(a) ANY PRODUCT DISTRIBUTED AS A FERTILIZER THAT CONTAINS GUARANTEED AMOUNTS OF PHOSPHATES AND/OR MICRONUTRIENTS SHALL BE DEEMED ADULTERATED IF IT CONTAINS ONE OR MORE METALS IN AMOUNTS GREATER THAN THE LEVELS OF METALS ESTABLISHED BY THE FOLLOWING TABLE:

METALS	PPM PER 1% P <sub>2</sub> O <sub>5</sub>	PPM PER 1% MICRONUTRIENT S <sup>3</sup>
1. ARSENIC	13	112
2. CADMIUM	10	83
3. COBALT	136 <sup>d</sup>	2228 <sup>d</sup>

4. LEAD	61	463
5. MERCURY	1	6
6. MOLYBDENUM	42	300 <sup>d</sup>
7. NICKEL	250	1,900
8. SELENIUM	26	180
9. ZINC	420	2,900 <sup>d</sup>

(b) TO USE THE ABOVE TABLE:

(i) FIRST:

(A) **FERTILIZERS WITH A PHOSPHATE GUARANTEE BUT NO MICRO-NUTRIENT GUARANTEE**, MULTIPLY THE PERCENT GUARANTEED  $P_2O_5$  IN THE PRODUCT BY THE VALUES IN THE TABLE TO OBTAIN THE MAXIMUM ALLOWABLE CONCENTRATION OF EACH METAL. THE MINIMUM VALUE FOR  $P_2O_5$  UTILIZED AS A MULTIPLIER SHALL BE 6.0.

(B) **FERTILIZERS WITH ONE OR MORE MICRO-NUTRIENT GUARANTEES BUT NO PHOSPHATE GUARANTEE**, MULTIPLY THE SUM OF THE GUARANTEED PERCENTAGES OF ALL MICRO-NUTRIENTS IN THE PRODUCT BY THE VALUE IN THE APPROPRIATE COLUMN IN THE TABLE TO OBTAIN THE MAXIMUM ALLOWABLE CONCENTRATION (PPM) OF EACH METAL. THE MINIMUM VALUE FOR MICRO-NUTRIENTS UTILIZED AS A MULTIPLIER SHALL BE 1.

(C) **FERTILIZERS WITH BOTH A PHOSPHATE AND A MICRO-NUTRIENT GUARANTEE**, MULTIPLY THE GUARANTEED PERCENT  $P_2O_5$  BY THE VALUE IN THE APPROPRIATE COLUMN. THE MINIMUM VALUE FOR  $P_2O_5$  UTILIZED AS A MULTIPLIER SHALL BE 6.0.

(ii) THEN MULTIPLY THE SUM OF THE GUARANTEED PERCENTAGES OF THE MICRO-NUTRIENTS BY THE VALUE IN THE APPROPRIATE COLUMN. THE MINIMUM VALUE FOR MICRO-NUTRIENTS UTILIZED AS A MULTIPLIER SHALL BE 1.

(iii) THEN UTILIZE THE HIGHER OF THE TWO RESULTING VALUES AS THE MAXIMUM ALLOWABLE CONCENTRATION (PPM) OF EACH METAL.

## 7.2 COMPOST

(a) ANY PRODUCT LABELED AND DISTRIBUTED AS COMPOST SHALL BE DEEMED ADULTERATED IF IT CONTAINS ONE OR MORE METALS IN AMOUNTS GREATER THAN THE LEVELS OF METALS ESTABLISHED BY THE FOLLOWING TABLE:

Metals	Maximum level mg/kg dry weight basis
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2800

- (b) ANY PRODUCT LABELED AND DISTRIBUTED AS COMPOST SHALL BE DEEMED ADULTERATED IF IT CONTAINS PATHOGEN CONCENTRATION GREATER THAN THE FOLLOWING LEVELS:
- (i) FECAL COLIFORM IN AN AMOUNT GREATER THAN 1000 MOST PROBABLE NUMBER PER GRAM OF TOTAL SOLIDS (DRY WEIGHT BASIS); OR
  - (ii) SALMONELLA SP. BACTERIA IN AN AMOUNT GREATER THAN THREE (3) MOST PROBABLE NUMBER PER FOUR (4) GRAMS OF TOTAL SOLIDS (DRY WEIGHT BASIS).