

CHAPTER 1510
DEPARTMENT OF AGRICULTURE
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1510.0010 [Repealed, 9 SR 693]

1510.0020 DISCLAIMER CLAUSE.

It shall be unlawful for vendors or sellers of agricultural seed to print upon the seed labels or tags, or to use, attach, or print upon literature, or state in any manner, any form of wording designed as a disclaimer or statement that purposes to disclaim responsibility of the vendor or seller for the data on the label required by law.

Statutory Authority: *MS s 21.85 subd 11*

1510.0030 LABEL SHOWING PERCENT OF HARD SEED.

The label required on all agricultural seed containers shall show the percent of hard seed, when present, separately from the germination percent. It is permissible to combine these percentages and list them on the label as "total percent germination and hard seed." They shall not be stated as "total live seed," "total germination," or in any other unauthorized manner.

Statutory Authority: *MS s 21.85 subd 11*

1510.0040 LABELING OF SEED BINS AND OTHER BULK CONTAINERS.

When agricultural seeds are sold out of the farmers' or seed vendors' bins or other bulk containers which are in retail sales rooms or to which the consumer buyers have access before buying for the purpose of examining the seed and the label thereof, a complete label shall be attached to such bin or other bulk container in a conspicuous place on the exterior of the container, where the buyer may read it conveniently before making a purchase of the seed. Seed labels and label data in the records or files of the seed seller do not meet the requirements of this part.

Statutory Authority: *MS s 21.85 subd 11*

1510.0050 TOLERANCES.

The following tolerances shall be recognized between the percentages or rates of occurrence found by analysis, test, or examination in the administration of the law and percentages or rates of occurrence required or stated as required by the law. Unless otherwise provided, tolerances shall be determined by applying the formulae in parts 1510.0060 to 1510.0100 to the percentages or rates

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of occurrence found in the administration of the law.

Statutory Authority: *MS s 21.85 subd 11*

1510.0060 PURITY TOLERANCES.

In determination of the tolerance for the percentage of the distinguishable kind, type, or variety (pure seed), weed seeds, other crop seeds, and inert matter, the sample shall be first considered as made up of two parts:

A. the percentage of the component (pure seed, weed seed, crop seed, or inert matter as the case may be) being considered, and

B. the difference between that percentage and 100.

The number represented by item A is then multiplied by the number represented by item B and the product is divided by 100. The resulting number is then multiplied by 0.2 (2/10) and the resulting product added to 0.2 or 0.6 as indicated in the following formulae:

$$\text{Pure seed tolerance} = 0.6 + \frac{(0.2 \times a \times b)}{100}$$

$$\text{Weed seeds, other crop seeds and inert matter tolerance} = 0.2 + \frac{(0.2 \times a \times b)}{100}$$

Statutory Authority: *MS s 21.85 subd 11*

1510.0070 ADDITIONAL TOLERANCE.

An additional tolerance shall be allowed for the following kinds of seeds and mixtures containing any of these kinds of seeds singly or combined in excess of 50 percent. The tolerance is to be obtained by adding to the regular tolerance mentioned above the product obtained by multiplying the regular tolerance by the lesser of part 1510.0060, items A and B divided by 100.

Agrostis spp.
Andropogon spp.
Bermuda grass
Bouteloua spp.
Brome grass
Buffalo grass
Carpet grass
Dallis grass
Festuca spp.
Guinea grass
Indian grass, yellow
Meadow foxtail
Molasses grass
Oatgrass, tall
Orchard grass
Panic grass, blue
Poa spp.
Rhodes grass
Ricegrass, Indian
Sweet vernal grass
Switch grass
Vasey grass
Velvet grass
Wheatgrass, crested
Wheatgrass, western

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Statutory Authority: *MS s 21.85 subd 11*

1510.0080 NOXIOUS WEED SEED TOLERANCES.

The following tolerances for rates of occurrence of noxious weed seeds (prohibited and restricted) shall be recognized and shall be applied to the number of noxious weed seeds found by analysis in the quantity of seed specified by the state seed laboratory. Representations showing the rate of occurrence indicated in columns 2 and 4 shall be considered within the tolerance if no more than the accompanying number in columns 1 and 3 are found by analysis in the administration of the law. For rates of occurrence higher than those shown in the table and in case of additional or more extensive analysis, a tolerance based on a degree of certainty of five percent ($P = 0.05$) will be recognized.

Number Found By Analysis	The Following Are Within The Tolerance
2	0
4	1
6	2
8	3
9	4
11	5
12	6
13	7
14	8
16	9
17	10
18	11
20	12
21	13
22	14
23	15
24	16
25	17
27	18
28	19
29	20
30	21

Statutory Authority: *MS s 21.85 subd 11*

1510.0090 GERMINATION.

The following tolerances are applicable to the percentage of germination and also to the sum of the germination plus the hard seed when 400 or more seeds are tested.

Found by test	Tolerance
96 or over	5
90 or over but less than 96	6
80 or over but less than 90	7
70 or over but less than 80	8
60 or over but less than 70	9
Less than 60	10

When only 200 seeds of a component in a mixture are tested two percent shall be added to the above germination tolerances.

Statutory Authority: *MS s 21.85 subd 11*

1510.0100 PURE LIVE SEED.

The tolerance for pure live seed shall be determined by applying the respective tolerances to the germination plus the hard seed and the pure seed.

Statutory Authority: *MS s 21.85 subd 11*

1510.0110 CONSPICUOUS PLACE OF SEED CONTAINER.

A conspicuous place of a container of agricultural seed for attaching the seed label includes any place on the exterior of the container except the bottom, where the prospective retail or consumer purchaser will have reasonable access to the label for reading it before making a purchase of the seed.

Statutory Authority: *MS s 21.85 subd 11*

1510.0111 INFORMATION REQUIRED ON HYBRID SEED CORN LABELS.

Seed labels for hybrid corn varieties or blends of varieties for either grain or forage purposes must include the day classification listed in five-day increments under the heading "Minnesota Relative Maturity." For hybrid seed corn blends, the relative maturity and the germination percentage must be derived by averaging the relative maturities and germination percentages according to the proportion of each component in the blend.

Statutory Authority: *MS s 21.85 subd 11*

History: 9 SR 693

1510.0120 [Repealed, 9 SR 693]

1510.0130 OPEN SACKS.

Open sacks of seed for retail sale with the tops rolled down to expose the seed shall have the labels attached at or near the open mouths of the sacks where they may be read readily.

Statutory Authority: *MS s 21.85 subd 11*

1510.0140 RECORDS AND FILES OF SEED SELLERS.

Labels, label data, and analyses reports in the records and files of the seed seller do not satisfy the meaning "conspicuous place" as to location of seed labels.

Statutory Authority: *MS s 21.85 subd 11*

1510.0150 LIGHT IN RETAIL SEED SALES ROOMS.

The light in retail seed sales rooms must be sufficient to enable the seed labels to be read.

Statutory Authority: *MS s 21.85 subd 11*

1510.0160 [Repealed, 9 SR 693]

1510.0161 KINDS OF LAWN AND TURF GRASS SEEDS EXEMPT FROM TEN PERCENT INERT MATTER LIMITATION.

In accordance with Minnesota Statutes, section 21.82, subdivision 5, paragraph (a), Kentucky bluegrass is a kind of lawn and turf grass seed for which the ten percent inert matter limitation does not apply.

Statutory Authority: *MS s 21.85 subd 11*

History: 9 SR 693

1510.0170 [Repealed, 9 SR 693]

1510.0171 STANDARDS, REQUIREMENTS, AND CONDITIONS FOR LABELING HERMETICALLY-SEALED SEEDS.

In accordance with Minnesota Statutes, section 21.86, subdivision 1, paragraph (a), the following standards, requirements, and conditions must be met before seed is considered to be hermetically-sealed:

A. The seed must be packed within nine months after harvest.

B. The container used must not allow water vapor penetration through any wall, including the seals, greater than 0.05 grams of water per 24 hours per 100 square inches of surface, at 100 degrees Fahrenheit with a relative humidity on one side of 90 percent and on the other side of zero percent. Water vapor penetration or WVP is measured by the standards of the United States Bureau of Standards as:

gm. H₂O/24 hr./100 sq. in./100° F./90%RHV.0%RH

C. The agricultural seed in the container must not exceed the following percentages of moisture, on a wet weight basis:

- (1) beet, field, 7.5 percent;
- (2) beet, sugar, 7.5 percent;
- (3) bluegrass, kentucky, 6.0 percent;
- (4) clover, crimson, 8.0 percent;
- (5) fescue, red, 8.0 percent;
- (6) ryegrass, annual, 8.0 percent;
- (7) ryegrass, perennial, 8.0 percent;
- (8) all others, 6.0 percent; and
- (9) mixture of above, 8.0 percent.

D. The vegetable seeds in the container must not exceed the following percentages of moisture, on a wet weight basis:

- (1) bean, garden, 7.0 percent;
- (2) bean, lima, 7.0 percent;
- (3) beet, 7.5 percent;
- (4) broccoli, 5.0 percent;
- (5) brussels sprout, 5.0 percent;
- (6) cabbage, 5.0 percent;
- (7) carrot, 7.0 percent;
- (8) cauliflower, 5.0 percent;
- (9) celeriac, 7.0 percent;
- (10) celery, 7.0 percent;
- (11) chard, Swiss, 7.5 percent;
- (12) Chinese cabbage, 5.0 percent;
- (13) chives, 6.5 percent;
- (14) collards, 5.0 percent;
- (15) corn, sweet, 8.0 percent;
- (16) cucumber, 6.0 percent;
- (17) eggplant, 6.0 percent;
- (18) kale, 5.0 percent;
- (19) kohlrabi, 5.0 percent;
- (20) leek, 6.5 percent;
- (21) lettuce, 5.5 percent;
- (22) muskmelon, 6.0 percent;
- (23) mustard, India, 5.0 percent;
- (24) onion, 6.5 percent;

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- (25) onion, Welsh, 6.5 percent;
- (26) parsley, 6.5 percent;
- (27) parsnip, 6.0 percent;
- (28) pea, 7.0 percent;
- (29) pepper, 4.5 percent;
- (30) pumpkin, 6.0 percent;
- (31) radish, 5.0 percent;
- (32) rutabaga, 5.0 percent;
- (33) spinach, 8.0 percent;
- (34) squash, 6.0 percent;
- (35) tomato, 5.5 percent;
- (36) turnip, 5.0 percent;
- (37) watermelon, 6.5 percent; and
- (38) all others, 6.0 percent.

E. The container must be conspicuously labeled in not less than 8-point type to indicate:

- (1) that the container is hermetically sealed;
- (2) that the seed has been preconditioned as to moisture content;

and

(3) the calendar month and year in which the germination test was completed.

F. The percentage of germination of seed at the time of packaging must be equal to or above the standards in part 1510.0231, subpart 1.

Statutory Authority: *MS s 21.85 subd 11*

History: 9 SR 693

1510.0180 STATE SEED LABORATORY REPORT.

The report of any examination, test, or determination of the state seed laboratory as provided in Minnesota Statutes, section 21.85, subdivisions 2 and 12, applies directly to the sample of seed received and examined by the seed analyst and does not apply directly to any other sample or to the bulk of seed from which this sample was drawn, or to any other lot of seed. Any discrepancy between the analysis and the nature of the lot of seed from which the sample was drawn indicates inadequate sampling, and is the responsibility of the dealer or seller of the seed.

Statutory Authority: *MS s 21.85 subd 11*

1510.0190 PROHIBITED ADVERTISING; USES OF STATE TEST RESULTS.

The words "state tested" or "state" or the name of the state, the state Department of Agriculture, or state seed laboratory shall not be used for advertising or sales purpose or any other purpose in connection with any analysis test, identification, or examination of any seed or other material or any seed label price list, literature, or advertisement or in any other way to give the impression that the state or any of its subdivisions guarantees the data on any seed label or elsewhere or in any way assumes responsibility for the quality or nature of any seed or other material covered by any seed label, price list, advertisement, or literature.

Statutory Authority: *MS s 21.85 subd 11*

1510.0200 GRAIN SOLD UNDER VARIETY NAMES.

Flax, oats, and other grains sold to farmers in seed quantities in the spring or at seeding time under variety names or where variety names are mentioned in the transaction are subject to all agricultural seed requirements as to cleaning, testing, and labeling unless such seed sales are definitely known to be for nonseed purposes.

Statutory Authority: *MS s 21.85 subd 11*

1510.0210 LABELING FOR SEED SAMPLES.

Samples of all sizes of agricultural seed which are sent to or given to persons or are exposed or displayed for sale as an inducement to prospective retail or consumer purchases shall be labeled fully. The responsibility for such labeling shall rest on the person who owns the seed or in whose possession or place of business such samples are placed on display. No person shall permit any agricultural seed for sale or samples thereof to be on display in or on his premises which are not fully labeled.

Statutory Authority: *MS s 21.85 subd 11*

1510.0220 CORRECTION OF ERRONEOUS SEED LABELS.

Whenever, by examination of the label or by resampling and retesting of the seed or by other dependable information, the label on any seed container of agricultural seed is found to be unlawful or to be in error beyond the limits of tolerance allowed by law, the label shall be corrected at once if the seed is of legal quality. Otherwise the seed shall be removed from sale at once.

Statutory Authority: *MS s 21.85 subd 11*

1510.0230 [Repealed, 9 SR 693]**1510.0231 GERMINATION STANDARDS; STANDARDIZED GERMINATION TESTING PROCEDURES.**

Subpart 1. **Vegetable seed germination.** In accordance with Minnesota Statutes, section 21.82, subdivision 7, paragraph (a), clause (2), the germination standards for vegetable seeds prepared for use by home gardeners are as follows:

- A. artichoke, 60 percent;
- B. asparagus, 70 percent;
- C. asparagusbean, 75 percent;
- D. bean, garden, 70 percent;
- E. bean, lima, 70 percent;
- F. bean, runner, 75 percent;
- G. beet, 65 percent;
- H. broadbean, 75 percent;
- I. broccoli, 75 percent;
- J. brussels sprout, 70 percent;
- K. burdock, great, 60 percent;
- L. cabbage, 75 percent;
- M. cabbage, tronchuda, 75 percent;
- N. cantaloupe (see muskmelon);
- O. cardoon, 60 percent;
- P. carrot, 55 percent;
- Q. cauliflower, 75 percent;
- R. celeriac, 55 percent;
- S. celery, 55 percent;
- T. chard, Swiss, 65 percent;
- U. chicory, 65 percent;

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- V. Chinese cabbage, 75 percent;
- W. chives, 50 percent;
- X. citron, 65 percent;
- Y. collards, 80 percent;
- Z. corn, sweet, 75 percent;
- AA. cornsalad, 70 percent;
- BB. cowpea, 75 percent;
- CC. cress, garden, 75 percent;
- DD. cress, upland, 60 percent;
- EE. cress, water, 40 percent;
- FF. cucumber, 80 percent;
- GG. dandelion, 60 percent;
- HH. eggplant, 60 percent;
- II. endive, 70 percent;
- JJ. kale, 75 percent;
- KK. kale, Chinese, 75 percent;
- LL. kale, Siberian, 75 percent;
- MM. kohlrabi, 75 percent;
- NN. leek, 60 percent;
- OO. lettuce, 80 percent;
- PP. muskmelon, 75 percent;
- QQ. mustard, India, 75 percent;
- RR. mustard, spinach, 75 percent;
- SS. okra, 50 percent;
- TT. onion, 70 percent;
- UU. onion, Welsh, 70 percent;
- VV. pak-choi, 75 percent;
- WW. parsley, 60 percent;
- XX. parsnip, 60 percent;
- YY. pea, 80 percent;
- ZZ. pepper, 55 percent;
- AAA. pumpkin, 75 percent;
- BBB. radish, 75 percent;
- CCC. rhubarb, 60 percent;
- DDD. rutabaga, 75 percent;
- EEE. salsify, 75 percent;
- FFF. sorrel, 65 percent;
- GGG. soybean, 75 percent;
- HHH. spinach, 60 percent;
- III. spinach, New Zealand, 40 percent;
- JJJ. squash, 75 percent;
- KKK. tomato, 75 percent;
- LLL. tomato, husk, 50 percent;
- MMM. turnip, 80 percent;
- NNN. watermelon, 70 percent;

Subp. 2. **Flower seed germination.** In accordance with Minnesota Statutes, section 21.82, subdivision 8, paragraph (a), clause (3), the germination standards for flower seeds prepared for use by home gardeners are set in this subpart.

A. The kinds of flower seeds listed below are those for which standard testing procedures have been prescribed. The percentage listed opposite each

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kind is the germination standard for that kind. For the kinds marked with an asterisk, the percentage is the total of percentage germination and percentage hard seed.

- (1) Achillea (The Pearl), *Achillea ptarmica*, 50 percent;
- (2) African Daisy, *Dimorphotheca aurantiaca*, 55 percent;
- (3) Ageratum, *Ageratum mexicanum*, 60 percent;
- (4) Agrostemma (rose campion), *Agrostemma coronaria*, 65 percent;
- (5) Alyssum, *Alyssum compactum*, *A. maritimum*, *A. procumbens*, *A. saxatile*, 60 percent;
- (6) Amaranthus, (*Amaranthus* spp.) 65 percent;
- (7) Anagalis (pimpernel), (*Anagalis arvensis*, *Anagalis coerulea*, *Anagalis grandiflora*), 60 percent;
- (8) Anemone, *Anemone coronaria*, *A. pulsatilla*, 55 percent;
- (9) Angel's Trumpet, *Datura arborea*, 60 percent;
- (10) Arabis, *Arabis alpina*, 60 percent;
- (11) Arctotis (African lilac daisy), (*Arctotis grandis*), 45 percent;
- (12) Armeria, (*Armeria formosa*), 55 percent;
- (13) Asparagus, fern, (*Asparagus plumosus*), 50 percent;
- (14) Asparagus, sprenger, (*Asparagus sprengeri*), 55 percent;
- (15) Aster, China, *Callistephus chinensis*, except Pompon, Powderpuff, and Princess types, 55 percent
- (16) Aster, China, *Callistephus chinensis*, Pompon, Powderpuff, and Princess types, 50 percent;
- (17) Aubretia, *Aubretia deltoides*, 45 percent;
- (18) Balsam, *Impatiens balsamina*, 70 percent;
- (19) Begonia, (*Begonia fibrous rooted*), 60 percent;
- (20) Begonia, (*Begonia tuberous rooted*), 50 percent;
- (21) Bells of Ireland, (*Molucella laevis*), 60 percent;
- (22) Brachycome (swan river daisy), (*Brachycome iberidifolia*), 60 percent;
- (23) Browallia, (*Browallia elata* and *B. speciosa*), 65 percent;
- (24) Bupthalmum (sunwheel), (*Bupthalmum salicifolium*), 60 percent;
- (25) Calceolaria, (*Calceolaria* spp.), 60 percent;
- (26) Calendula, *Calendula officinalis*, 65 percent;
- (27) California Poppy, *Eschscholtzia californica*, 60 percent;
- (28) Calliopsis, *Coreopsis bicolor*, *C. drummondii*, *C. elegans*, 65 percent;
- (29) Campanula:
 - (a) Canterbury Bells, *Campanula medium*, 60 percent;
 - (b) Cup and Saucer Bellflower, *Campanula medium calycanthema*, 60 percent;
 - (c) Carpathian Bellflower, *Campanula carpatica*, 50 percent;
 - (d) Peach Bellflower, *Campanula persicifolia*, 50 percent;
- (30) Candytuft, Annual, *Iberis amara*, *I. umbellata*, 65 percent;
- (31) Candytuft, Perennial, *Iberis gibraltarica*, *I. sempervirens*, 55 percent;
- (32) Castor Bean, *Ricinus communis*, 60 percent;
- (33) Cathedral Bells, *Cobaea scandens*, 65 percent;
- (34) Celosia, *Celosia argentea*, 65 percent;
- (35) Centaurea (Basket Flower), *Centaurea americana*, Cornflower, *C. cyanus*, Dusty Miller, *C. candidissima*, Royal Centaurea, *C. imperialis*, Sweet Sultan, *C. moschata*, Velvet Centaurea, *C. gymnocarpa*, 60 percent;

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- (36) Chinese Forget-me-not, *Cynoglossum amabile*, 55 percent;
- (37) Chrysanthemum, Annual, *Chrysanthemum carinatum*, *C. coronarium*, *C. segetum*, 40 percent;
- (38) Clarkia, *Clarkia elegans*, 65 percent;
- (39) Cleome, *Cleome gigantea*, 65 percent;
- (40) Columbine, *Aquilegia* spp., 50 percent;
- (41) Coral Bells, *Heuchera sanguinea*, 55 percent;
- (42) Coreopsis, Perennial, *Coreopsis lanceolata*, 40 percent;
- (43) Cosmos, Sensation, Mammoth, and Crested types, *Cosmos bipinnatus*, Klondyke type, *C. sulphureus*, 65 percent;
- (44) Dahlia, *Dahlis* spp., 55 percent;
- (45) Delphinium, Perennial, Belladonna and Bellamosum types, Cardinal Larkspur, *Delphinium cardinale*, Chinensis types, Pacific Giant, Gold Medal, and other hybrids of *D. elatum*, 55 percent;
- (46) Dianthus, Carnation, *Dianthus caryophyllus*, 60 percent;
- (47) Dianthus, China Pinks, *Dianthus chinensis*, *heddewigi*, *heddensis*, 70 percent;
- (48) Grass Pinks, *Dianthus plumarius*, 60 percent;
- (49) Maiden Pinks, *Dianthus deltoides*, 60 percent;
- (50) Sweet William, *Dianthus barbatus*, 70 percent;
- (51) Sweet Wivelsfield, *Dianthus allwood*, 60 percent;
- (52) Dracaena, *Dracaena indivisa*, 55 percent;
- (53) English Daisy, *Bellis perennis*, 55 percent;
- (54) Foxglove, *Digitalis* spp., 60 percent;
- (55) Gaillardia, Annual, *Gaillardia pulchella*, *G. picta*, Perennial, *G. grandiflora*, 45 percent;
- (56) Geum, *Geum* spp., 55 percent;
- (57) Gilia, *Gilia* spp., 65 percent;
- (58) Godetia, *Godetia amoena*, *G. grandiflora*, 65 percent;
- (59) Gourds: Yellow Flowered, *Cucurbita pepo*; White Flowered, *Lagenaria siceraria*: Dishcloth, *Luffa cylindrica*, 70 percent;
- (60) Gypsophila: Annual Baby's Breath, *Gypsophila elegans*; Perennial Baby's Breath, *G. paniculata*, *G. pacifica*, *G. repens*, 70 percent;
- (61) Helenium, (*Helenium autumnale*), 40 percent;
- (62) Helichrysum, *Helichrysum monstrosum*, 60 percent;
- (63) Heliopsis, (*Heliopsis scabra*), 55 percent;
- (64) Helipterum (*Acroclinium*), (*Helipterum roseum*), 60 percent;
- (65) Hesperis (sweet rocket), (*Hesperis matronalis*), 65 percent;
- (66) *Hollyhock, *Althea rosea*, 65 percent;
- (67) Hunnemanja (mexican tulip poppy), (*Hunnemania fumariaefolia*), 60 percent;
- (68) *Hyacinth bean, (*Dolichos lablab*), 70 percent;
- (69) Impatiens, (*Impatiens holstii*, *I. sultani*), 55 percent;
- (70) *Ipomea, Cypress Vine, *Ipomea quamoclit*; Moonflower, *I. noctiflora*; Morning Glories, Cardinal Climber, Hearts and Honey Vine, *Ipomea* spp., 75 percent;
- (71) Jerusalem cross (maltese cross), (*Lychnis chalcedonica*), 70 percent;
- (72) Job's Tears, *Coix lacrymajobi*, 70 percent;
- (73) Kochia, *Kochia childsi*, 55 percent;
- (74) Larkspur, Annual, *Delphinium ajacis*, 60 percent;
- (75) Lantana, *Lantana camara*, *L. hybrida*, 35 percent;

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- (76) Liliun (regal lily), (*Lilium regale*), 50 percent;
- (77) Linaria, *Linaria* spp., 65 percent;
- (78) Lobelia, Annual, *Lobelia erinus*, 65 percent;
- (79) Lunaria, Annual, *Lunaria annua*, 65 percent;
- (80) *Lupine, *Lupinus* spp., 65 percent;
- (81) Marigold, *Tagetes* spp., 65 percent;
- (82) Marvel of Peru, *Mirabilis jalapa*, 60 percent;
- (83) Matricaria (feverfew), (*Matricaria* spp.), 60 percent;
- (84) Migonette, *Reseda odorata*, 55 percent;
- (85) Myosotis, *Myosotis alpestris*, *M. oblongata*, *M. palustris*, 50 percent;
- (86) Nasturtium, *Tropaeolum* spp., 60 percent;
- (87) Nemesia, *Nemesia* spp., 65 percent;
- (88) Nemophila, *Nemophila insignis*, 70 percent;
- (89) Nemophila, Spotted, (*Nemophila maculata*), 60 percent;
- (90) Nicotiana, *Nicotiana affinis*, *N. sanderae*, *N. sylvestris*, 65 percent;
- (91) Nierembergia, *Nierembergia* spp., 55 percent;
- (92) Nigella, *Nigella damascena*, 55 percent;
- (93) Pansy, *Viola tricolor*, 60 percent;
- (94) Penstemon, *Penstemon barbatus*, *P. grandiflorus*, *P. laevigatus*, *P. pubescens*, 60 percent;
- (95) Petunia, *Petunia* spp., 45 percent;
- (96) Phacelia, *Phacelia campanularia*, *P. minor*, *P. tanacetifolia*, 65 percent;
- (97) Phlox, Annual, *Phlox drummondii* all types and varieties, 55 percent;
- (98) Physalis, *Physalis*, spp., 60 percent;
- (99) Platycodon (balloon flower), (*Platycodon grandiflorum*), 60 percent;
- (100) Plumbago, cape, (*Plumbago capensis*), 50 percent;
- (101) Poppy: Shirley Poppy, *Papaver rhoeas*; Iceland Poppy, *P. nudicaule*; Oriental Poppy, *P. orientale*; Tulip Poppy, *P. glaucum*, 60 percent;
- (102) Portulaca, *Portulaca grandiflora*, 55 percent;
- (103) Primula (primrose), (*Primula* spp.), 50 percent;
- (104) Pyrethrum (painted daisy), (*Pyrethrum coccineum*), 60 percent;
- (105) Salpiglossis, *Salpiglossis gloxinaeflora*, *S. sinuata*, 60 percent;
- (106) Salvia, Scarlet Sage, *Salvia splendens*; Mealycup Sage (blue bedder), *Salvia farinacea*, 50 percent;
- (107) Saponaria, *Saponaria ocymoides*, *S. vaccaria*, 60 percent;
- (108) Scabiosa, Annual, *Scabiosa atropurpurea*, 50 percent;
- (109) Scabiosa, Perennial, *Scabiosa caucasica*, 40 percent;
- (110) Schizanthus, *Schizanthus* spp., 60 percent;
- (111) *Sensitive plant (mimosa), (*Mimosa pudica*), 65 percent;
- (112) Shasta Daisy, *Chrysanthemum maximum*, *C. leucanthemum*, 65 percent;
- (113) Snapdragon, *Antirrhinum* spp., 55 percent;
- (114) Solanum, *Solanum* spp., 60 percent;
- (115) Statice, (*Statice sinuata*, *S. suworonii*) (flower heads), 50 percent;
- (116) Stocks: Common, *Mathiola incana*; Evening Scented, *Mathiola bicornis*, 65 percent;

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- (117) Sunflower, *Helianthus* spp., 65 percent;
- (118) *Sweet Pea, Annual and Perennial other than dwarf bush, *Lathyrus odoratus*, *L. latifolius*, 75 percent;
- (119) *Sweet Pea, dwarf bush, *Lathyrus odoratus*, 65 percent;
- (120) Tahoka daisy, (*Machaeanthera tanacetifolia*), 60 percent;
- (121) Thunbergia, *Thunbergia alata*, 60 percent;
- (122) Torch flower, *Tithonia speciosa*, 70 percent;
- (123) Torenia (wishbone flower), (*Torenia fournieri*), 70 percent;
- (124) Tritoma, *Kniphofia* spp., 65 percent;
- (125) Verbena, Annual, *Verbena hybrida*, 35 percent;
- (126) Vinca, *Vinca rosea*, 60 percent;
- (127) Viola, *Viola cornuta*, 55 percent;
- (128) Virginian stocks, (*Malcolmia maritima*), 65 percent;
- (129) Wallflower, *Cheiranthus allioni*, 65 percent;
- (130) Yucca (Adam's needle), (*Yucca filamentosa*), 50 percent;
- (131) Zinnia (except Linearis and Creeping), *Zinnia angustifolia*, *Z. elegans*, *Z. grandiflora*, *Z. gracillima*, *Z. haegeana*, *Z. multiflora*, *Z. pumila*, 65 percent; and
- (132) Zinnia, Linearis and Creeping, *Zinnia linearis*, *Sanvitalia procumbens*, 50 percent.

B. A mixture of kinds of flower seeds is below standard if the germination of any kind or combination of kinds constituting 25 percent or more of the mixture by number is below standard for the kind or kinds involved.

Statutory Authority: *MS s 21.85 subd 11*

History: 9 SR 693

1510.0240 [Repealed, 9 SR 693]

1510.0241 STANDARDIZED GERMINATION TESTING PROCEDURES AVAILABLE.

A. In accordance with Minnesota Statutes, section 21.83, subdivision 2, paragraph (h), item B lists the kinds of tree and shrub seed that have standardized germination testing procedures available for them.

B. Tree and shrub seeds with standardized germination testing procedures available for them are as follows:

- (1) *Abies amabilis* (Dougl.) Forbes, Pacific Silver Fir;
- (2) *Abies balsamea* (L.) Mill., Balsam Fir;
- (3) *Abies concolor* (Gord. and Glend.) Lindl., White Fir;
- (4) *Abies fraseri* (Pursh.) Poir, Fraser Fir;
- (5) *Abies grandis* (Dougl.) Lindl., Grand Fir;
- (6) *Abies homolepis* Sieb. and Zucc., Nikko Fir;
- (7) *Abies lasiocarpa* (Hook.) Nutt., Subalpine Fir;
- (8) *Abies magnifica* A. Murr., California Red Fir;
- (9) *Abies magnifica* var. *shastensis* Lemm., Shasta Red Fir;
- (10) *Abies procera* Rehd., Nobel Fir;
- (11) *Abies veitchii* (Lindl.), Veitch Fir;
- (12) *Acer ginnala* Maxim., Amur Maple;
- (13) *Acer macrophyllum* Pursh., Bigleaf Maple;
- (14) *Acer negundo* L., Boxelder;
- (15) *Acer pensylvanicum* L., Striped Maple;
- (16) *Acer platanoides* L., Norway Maple;
- (17) *Acer pseudoplatanus* L., Sycamore Maple;

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- (18) *Acer rubrum* L., Red Maple;
- (19) *Acer saccharinum* L., Silver Maple;
- (20) *Acer saccharum* Marsh., Sugar Maple;
- (21) *Acer spicatum* Lam., Mountain Maple;
- (22) *Aesculus pavia* L., Red Buckeye;
- (23) *Ailanthus altissima* (Mill.) Swingle, Tree of Heaven, Ailanthus;
- (24) *Berberis thunbergii* DC., Japanese Barberry;
- (25) *Berberis vulgaris* L., European Barberry;
- (26) *Betula lenta* L., Sweet Birch;
- (27) *Betula alleghaniensis* Britton, Yellow Birch;
- (28) *Betula nigra* L., River Birch;
- (29) *Betula papyrifera* Marsh., Paper Birch;
- (30) *Betula pendula* Roth., European White Birch;
- (31) *Betula populifolia* Marsh., Gray Birch;
- (32) *Carya illinoensis* (Wang.) K. Koch, Pecan;
- (33) *Carya ovata* (Mill) K. Koch, Shagbark Hickory;
- (34) *Casuarina* spp., Beefwood;
- (35) *Catalpa bignonioides* Walt., Southern Catalpa;
- (36) *Catalpa speciosa* Warder., Northern Catalpa;
- (37) *Cedrus atlantica* Manetti, Atlas Cedar;
- (38) *Cedrus deodara* (Roxb.) Loud., Deodar Cedar;
- (39) *Cedrus libani* (Loud.), Cedar of Lebanon;
- (40) *Celastrus scandens* L., American Bittersweet;
- (41) *Celastrus orbiculata* Thunb., Oriental Bittersweet;
- (42) *Chamaecyparis lawsoniana* (A. Murr.) Parl, Port Orford Cedar;
- (43) *Chamaecyparis nootkatensis* (D. Don.) Spach., Alaska Cedar;
- (44) *Cornus florida* L., Flowering Dogwood;
- (45) *Cornus Stolonifera* Michx., Red-osier Dogwood;
- (46) *Crataegus mollis*, Downy Hawthorn;
- (47) *Cupressus arizonica* Greene, Arizona Cypress;
- (48) *Eucalyptus deglupta*;
- (49) *Eucalyptus grandis*;
- (50) *Fraxinus americana* L., White Ash;
- (51) *Fraxinus excelsior* L., European Ash;
- (52) *Fraxinus latifolia* Benth., Oregon Ash;
- (53) *Fraxinus nigra* Marsh., Black Ash;
- (54) *Fraxinus pensylvanica* Marsh., Green Ash;
- (55) *Fraxinus pensylvanica* var. *lanceolata* (Borkh.) Sarg., Green

Ash;

- (56) *Gleditsia triacanthos* L., Honey Locust;
- (57) *Grevillea robusta*, Silk-oak;
- (58) *Larix decidua* Mill., European Larch;
- (59) *Larix eurolepis* Henry, Dunkfeld Larch;
- (60) *Larix leptolepis* (Sieb. and Zucc.) Gord., Japanese Larch;
- (61) *Larix occidentalis* Nutt., Western Larch;
- (62) *Larix sibirica* Ledeb., Siberian Larch;
- (63) *Libocedrus decurrens*, incense-cedar;
- (64) *Liquidambar styraciflua* L., Sweetgum;
- (65) *Liriodendron tulipifera* L., yellow-poplar;
- (66) *Magnolia grandiflora*, Southern magnolia;
- (67) *Malus* spp., Apple;

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- (68) *Malus* spp., Crabapple;
- (69) *Nyssa aquatica* L., Water tupelo;
- (70) *Nyssa sylvatica* var. *sylvatica*, Black tupelo;
- (71) *Picea abies* (L.) Karst., Norway Spruce;
- (72) *Picea engelmanni* Parry, Engelmann Spruce;
- (73) *Picea glauca* (Moench.) Voss, White Spruce;
- (74) *Picea glauca* var. *albertiana* (S. Brown) Sarg., Western White Spruce, Alberta White Spruce;
- (75) *Picea glehnii* (Fr. Schmidt) Mast., Sakhalin Spruce;
- (76) *Picea jezoensis* (Sieb. and Zucc.) Carr, Yeddo Spruce;
- (77) *Picea Koyamai* Shiras, Koyama Spruce;
- (78) *Picea mariana* (Mill.) B.S.P., Black Spruce;
- (79) *Picea omorika* (Pancic.) Purkyne, Serbian Spruce;
- (80) *Picea orientalis* (L.) Link., Oriental Spruce;
- (81) *Picea polita* (Sieb. and Zucc.) Carr, Tigertail Spruce;
- (82) *Picea pungens* Engelm., Blue Spruce, Colorado Spruce;
- (83) *Picea pungens* var. *glauca* Reg., Colorado Blue Spruce;
- (84) *Picea rubens* Sar., Red Spruce;
- (85) *Picea sitchensis* (Bong.) Carr, Sitka Spruce;
- (86) *Pinus albicaulis* Engelm., Whitebark Pine;
- (87) *Pinus aristata* Engelm., Bristlecone Pine;
- (88) *Pinus banksiana* Lamb., Jack Pine;
- (89) *Pinus canariensis* C. Smith, Canary Pine;
- (90) *Pinus caribaea*, Caribbean Pine;
- (91) *Pinus cembroides* Zucc., Mexican Pinyon Pine;
- (92) *Pinus clausa*, Sand Pine;
- (93) *Pinus contorta* Dougl., Lodgepole Pine;
- (94) *Pinus contorta* var. *latifolia* Engelm., Lodgepole Pine;
- (95) *Pinus coulteri* D. Don., Coulter Pine, Bigcone Pine;
- (96) *Pinus densiflora* Sieb. and Zucc., Japanese Red Pine;
- (97) *Pinus echinata* Mill., Shortleaf Pine;
- (98) *Pinus elliotii* Engelm., Slash Pine;
- (99) *Pinus flexilis* James, Limber Pine;
- (100) *Pinus glabra* Walt., Spruce Pine;
- (101) *Pinus griffithii* McClelland, Himalayan Pine;
- (102) *Pinus halepensis* Mill., Aleppo Pine;
- (103) *Pinus jeffreyi* Grev. and Balf., Jeffrey Pine;
- (104) *Pinus khasya* Royle, Khasia Pine;
- (105) *Pinus lambertiana* Dougl., Sugar Pine;
- (106) *Pinus heldreichii* var. *leucodermis* (Ant.) Markgraf ex Fitschen, Balkan Pine, Bosnian Pine;
- (107) *Pinus markusii* DeVriese, Markus Pine;
- (108) *Pinus monticola* Dougl., Western White Pine;
- (109) *Pinus mugo* Turra., Mountain Pine;
- (110) *Pinus mugo* var. *mughus* (Scop.) Zenari, Mugo Swiss Mountain Pine;
- (111) *Pinus muricata* D. Don., Bishop Pine;
- (112) *Pinus nigra* Arnold, Austrian Pine;
- (113) *Pinus nigra poiretiana* (Ant.) Aschers and Graebn., Corsican Pine;
- (114) *Pinus palustris* Mill., Longleaf Pine;

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- (115) *Pinus parviflora* Sieb. and Zucc., Japanese White Pine;
- (116) *Pinus patula* Schl. and Cham., Jelecote Pine;
- (117) *Pinus pinaster* Sol., Cluster Pine;
- (118) *Pinus pinea* L., Italian Stone Pine;
- (119) *Pinus ponderosa* Laws., Ponderosa Pine, Western Yellow Pine;
- (120) *Pinus radiata* D. Don., Monterey Pine;
- (121) *Pinus resinosa* Ait., Red Pine, Norway Pine;
- (122) *Pinus rigida* Mill., Pitch Pine;
- (123) *Pinus serotina* Michx., Pond Pine;
- (124) *Pinus strobus* L., Eastern White Pine;
- (125) *Pinus sylvestris* L., Scotch Pine;
- (126) *Pinus taeda* L., Loblolly Pine;
- (127) *Pinus taiwanensis* Hayata, Formosa pine;
- (128) *Pinus thunbergii* Parl., Japanese Black pine;
- (129) *Pinus virginiana* Mill., Virginia Pine, Scrub Pine;
- (130) *Plantanus occidentalis* L., American Sycamore;
- (131) *Populus* spp., Poplars;
- (132) *Prunus armeriaca* L., Apricot;
- (133) *Prunus avium* (L.) L., Cherry;
- (134) *Prunus domestica* L., Plum, Prune;
- (135) *Prunus persica* Batsch., Peach;
- (136) *Pseudotsuga menziesii* var. *glauca* (Beissn.) Franco, Blue Douglas Fir;
- (137) *Pseudotsuga menziesii* var. *caesia* (Beissn.) Franco, Gray Douglas Fir;
- (138) *Pseudotsuga menziesii* var. *viridis*, Green Douglas Fir;
- (139) *Pyrus communis* L., Pear;
- (140) *Quercus* spp., (Red or black oak group);
- (141) *Quercus alba* L., White Oak;
- (142) *Quercus muehlenbergii* Engelm., Chinkapin Oak;
- (143) *Quercus virginiana* Mill., Live Oak;
- (144) *Rhododendron* spp., Rhododendron;
- (145) *Robinia pseudoacacia* L., Black Locust;
- (146) *Rosa multiflora* Thunb., Japanese Rose;
- (147) *Sequoia gigantea* (Lindl.) Decne., Giant Sequoia;
- (148) *Sequoia sempervirens* (D. Don.) Engl., Redwood;
- (149) *Syringa vulgaris* L., Common lilac;
- (150) *Thuja occidentalis* L., Northern White Cedar, Eastern Arborvitae;
- (151) *Thuja orientalis* L., Oriental Arborvitae, Chinese Arborvitae;
- (152) *Thuja plicata* Donn., Western Red Cedar, Giant Arborvitae;
- (153) *Tsuga canadensis* (L.) Carr., Eastern Hemlock, Canada Hemlock;
- (154) *Tsuga heterophylla* (Raf.) Sarg., Western Hemlock, Pacific Hemlock;
- (155) *Ulmus americana* L., American Elm;
- (156) *Ulmus parvifolia* Jacq., Chinese Elm;
- (157) *Ulmus pumila* L., Siberian Elm;
- (158) *Vitis vulpina* L., Riverbank Grape.

Statutory Authority: MS s 21.85 subd 11

History: 9 SR 693

1510.0250 [Repealed, 9 SR 693]

1510.0251 KIND AND VARIETY OR TYPE AND PERFORMANCE CHARACTERISTICS OF FLOWER SEEDS.

In accordance with Minnesota Statutes, section 21.82, subdivision 8, paragraph (a), clause (1), this part contains the requirements for labeling the kind and variety or a statement of type and performance characteristics for flower seeds prepared for use by home gardeners.

A. For seeds of plants grown primarily for their blooms;

(1) if the seeds are of a single named variety, the kind and variety must be stated, for example, "Marigold, Butterball";

(2) if the seeds are of a single type and color for which there is no specific variety name, the type of plant, if it is significant, and the type and color of bloom must be indicated, for example, "Scabiosa, Tall, Large Flowered, Double, Pink";

(3) if the seeds consist of a mixture of colors or a blend of varieties of a single kind, the kind name, the type of plant, if it is significant, and the type of bloom must be indicated, and it must be clearly indicated that the seed is mixed or blended, for example, "Marigold, Dwarf Double French, Mixed Colors" or "Marigold Blend, Dwarf Double French, Mixed Colors";

(4) if the seeds consist of a mixture of kinds, it must be clearly indicated that the seed is mixed and the specific use of the mixture must be indicated, for example, "Cut Flower Mixture" or "Rock Garden Mixture." Statements like "Wild Flower Mixture," "General Purpose Mixture," "Wonder Mixture," or any other statement which fails to indicate the specific use of the seed is not permitted unless the specific use of the mixture is also stated.

B. For seeds of plants grown for ornamental purposes other than their blooms, the kind and variety must be stated, or the kind must be stated together with a descriptive statement concerning the ornamental part of the plant, for example, "Ornamental Gourds, Small Fruited, Mixed."

Statutory Authority: *MS s 21.85 subd 11*

History: 9 SR 693

1510.0260 [Repealed, 9 SR 693]

1510.0261 REQUIREMENTS FOR COMPLETE RECORD.

The initial labeler of agricultural, vegetable, flower, tree, or shrub seeds subject to Minnesota Statutes, sections 21.82 and 21.83, must have the following information as part of the complete record for each seed lot sold:

A. lot number or other lot identification;

B. a copy of the genuine grower's declaration or tree seed collector's declaration or similar documents containing the same information;

C. copies of invoices showing the sale of each seed lot, including the name of the person the seed was sold to, the amount sold, the date of sale, the name of the kind or kind and variety, and the lot number;

D. a copy of the label that was attached to or accompanied the seed lot;

E. a copy of the field and final certification documents, if applicable;

F. a copy of each report concerning the testing of the seed for labeling purposes; and

G. a file sample of the seed lot which is representative of the seed lot and of sufficient size to constitute an official sample as prescribed in section 201.43 of the Federal Seed Act regulations. The prescribed official sample sizes are as follows:

(1) two ounces of grass seed not otherwise mentioned, white or alsike clover, or seeds not larger than these;

(2) five ounces of red or crimson clover, alfalfa, lespedeza, ryegrass, bromegrass, millet, flax, rape, or seeds of similar size;

(3) one pound of sudangrass, sorghum, proso, or seeds of similar size;

(4) two pounds of cereals, vetch, or seeds of similar or larger size; and

(5) at least 400 vegetable seeds.

Statutory Authority: *MS s 21.85 subd 11*

History: *9 SR 693*

1510.0270 [Repealed, 9 SR 693]

1510.0271 PROHIBITED WEED SEEDS.

The following are weed seeds which are prohibited from being present in agricultural, vegetable, flower, tree, and shrub seeds sold in Minnesota in accordance with Minnesota Statutes, section 21.86, subdivision 1, paragraph (d):

- A. bull thistle (*Cirsium vulgare L.*);
- B. Canada thistle (*Cirsium arvense Scop.*);
- C. musk thistle (*Carduus nutans L.*);
- D. perennial sow thistle (*Sonchus arvensis L.*);
- E. plumeless thistle (*Carduus acanthoides L.*);
- F. field bindweed (*Convolvulus arvensis L.*);
- G. hemp (*Cannabis sativa L.*);
- H. leafy spurge (*Euphorbia esula L.*);
- I. perennial peppergrass (*Lepidium draba L.*); and
- J. Russian knapweed (*Centaurea repens L.*).

Statutory Authority: *MS s 21.85 subd 11*

History: *9 SR 693*

1510.0280 [Repealed, 9 SR 693]

1510.0281 CHARGES UNDER MINNESOTA SEED LAW.

Subpart 1. **Definitions.** As used in this part, "commissioner" means the commissioner of agriculture or the commissioner's designee, "person" has the meaning given in Minnesota Statutes, section 21.81, subdivision 18, and "initial labeler" has the meaning given in Minnesota Statutes, section 21.81, subdivision 12.

Subp. 2. **Sampling export seed.** In accordance with Minnesota Statutes, section 21.85, subdivision 13, the commissioner shall, if requested, sample seed destined for export to other countries. The fee for sampling export seed is \$20 per hour per inspector.

Subp. 3. **Seed fee permits.** An initial labeler who wishes to sell seed in Minnesota must comply with Minnesota Statutes, section 21.89, subdivisions 1 and 2, and the procedures in this subpart.

A. Each initial labeler who wishes to sell seed in Minnesota must apply to the commissioner to obtain a permit. The application must contain the name and address of the applicant, the application date, and the name and title of the applicant's contact person. The application must be accompanied by an application fee of \$10. Initial labelers holding seed fee permits on the effective date of this rule need not apply for a new permit or pay the application fee.

(1) If, for reasons beyond the control and knowledge of the initial labeler, seed is shipped into Minnesota by a person other than the initial labeler, the responsibility for the seed fees are transferred to the shipper. An application

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for a transfer of this responsibility must be made to the commissioner. Upon approval by the commissioner of the transfer, the shipper is responsible for payment of the seed permit fees.

(2) Seed permit fees may be included in the cost of the seed either as a hidden cost or as a line item cost on each invoice for seed sold. To identify the fee on an invoice, the words "Minnesota seed permit fees" must be used.

B. All seed fee permit holders must file quarterly reports with the commissioner, even if no seed was sold during the reporting period. Each quarterly report must be submitted within 30 days of the end of each reporting period. The reporting periods are January 1 to March 31, April 1 to June 30, July 1 to September 30, October 1 to December 31 of each year.

C. The holder of a seed fee permit must pay fees on all seed for which the permit holder is the initial labeler and which are covered by Minnesota Statutes, sections 21.80 to 21.92 and sold during the reporting period.

(1) For the following kinds of agricultural seed sold either in bulk or containers, the fees are:

(a) oats, wheat, barley, 3 cents per cwt.;

(b) rye, field beans, soybeans, 4 cents per cwt.;

(c) buckwheat, flax, 6 cents per cwt.;

(d) field corn, 15 cents per cwt.;

(e) forage, lawn and turf grasses, and legumes, 20 cents per cwt.;

(f) sugar beet, sunflower, 70 cents per cwt.; and

(g) other agricultural seeds except vegetables grown for processing, 10 cents per cwt.

(2) For vegetable and flower seeds packed in small containers or in bulk for use by home gardeners, the fee is ten cents per \$100 of net sales of these seeds.

D. If a seed fee permit holder fails to submit a quarterly report and pay the seed fee within 30 days after the end of each reporting period, the commissioner shall assess a penalty of \$10 or eight percent, calculated on an annual basis, of the fee due, whichever is greater, but no more than \$100 for each late quarterly report. A \$10 penalty will be charged when the quarterly report is late, even if no fee is due for the reporting period. Seed fee permits may be revoked for failure to comply with the applicable provisions of this rule or the Minnesota seed law.

Subp. 4. **Hybrid seed corn variety registration fee.** In accordance with Minnesota Statutes, section 21.90, subdivision 2, the annual fee for the registration of each hybrid seed corn variety or blend is \$27.50, which must be paid at the time of registration.

Subp. 5. **Service testing and identification.** The fees in items A to D for purity, germination, identification, or other related tests of seeds or plants for farmers, dealers, and others are established pursuant to Minnesota Statutes, section 21.85, subdivision 12.

A. General crops, including corn, cereals, soybeans, sorghum, millet, sunflowers, clovers, alfalfa, ryegrass, timothy, flax, rape, vegetable, and other similar seeds:

(1) Purity, \$8;

(2) Germination, \$5;

(3) Purity and germination, \$11;

(4) Noxious weed seed only, \$4; and

(5) Tetrazolium, \$10.

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B. Grasses, including bromes, fescues, orchardgrass, reed canary, wheat grasses, bluegrasses, bentgrasses, redtop, green needle grass, weeping lovegrass, sandlove, sanddrop seed, flower, and other similar seeds:

- (1) Purity, \$12;
- (2) Germination, \$7;
- (3) Purity and germination, \$17;
- (4) Noxious weed seed only, \$6; and
- (5) Tetrazolium, \$12.

C. Chaffy range grasses, including big bluestem, Indiangrass, side oats grama, gramagrass, little bluestem, meadow foxtail, and similar seeds:

- (1) Purity, \$20;
- (2) Germination, \$10;
- (3) Purity and germination, \$28;
- (4) Noxious weed seed only, \$10; and
- (5) Tetrazolium, \$18.

D. Mixtures. "A" means the full price of the highest-priced species plus one-half the price of each additional species. "B" means one-half of the price of the purity test on the highest-priced species in the mixture.

- (1) Purity, A;
- (2) Germination, A;
- (3) Purity and germination, not applicable;
- (4) Noxious weed seed only, B; and
- (5) Tetrazolium, A.

E. A fee of \$12 per hour will be charged for tests which are specially requested but not included in items A to D, or which require excess time due to abnormal sample conditions, such as unusual amounts of dirt or foreign material.

F. An additional fee of \$2 per sample will be charged for any sample for which special handling is requested, such as samples marked "RUSH."

G. Fees are payable within 30 days of the invoice date by the person requesting a service. Late payment will result in an eight percent service charge calculated on an annual basis and assessed against the unpaid balance.

H. Testing for germination percentage on seed with outdated labeling will be done for one-half of the normal fee when the sample is received during the months of October and November of each year. In order to qualify for this special fee, the person requesting the service must submit a copy of the outdated label for the seed lot that needs new test information for germination percentage in order to be labeled legally for sale in Minnesota.

Statutory Authority: *MS s 21.85 subd 11*

History: *9 SR 693*

1510.0290 [Repealed, 9 SR 693]

1510.0300 [Repealed, 9 SR 693]

1510.0310 RETESTING AND RELABELING SEEDS.

No seed label shall contain any purity, germination, or identification data which is not obtained by testing a sample of seed drawn from the specific containers, sacks, or bins of seed which are to be relabeled. Containers of seed which have been stored under different conditions which might affect the germination or purity of the seed differently should be sampled and tested separately.

Statutory Authority: *MS s 21.85 subd 11*

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1510.0320 RESTRICTED WEED SEEDS.

"Restricted weed seeds" are those weed seeds which, if present in agricultural, vegetable, flower, tree, and shrub seed, must be named on the label together with the number per ounce or pound of seed specified and which may not exceed the legal limit. They are seeds of weeds which are objectionable in fields, lawns, and gardens of this state, and which can be controlled by good cultural practice and use of herbicides. Restricted weed seeds are seeds of buckhorn plantain (*Plantago lanceolata* L.), dodder (*Cuscuta* spp.), Frenchweed (*Thlaspi arvense* L.), hoary alyssum (*Berteroa incana* D.C.), horse nettle (*Solanum carolinense* L.), wild mustard (*Brassica arvensis* L.), quack grass (*Agropyron repens* L.), wild radish (*Raphanus raphanistrum*), giant foxtail (*Setaria faberii*), and Eastern black nightshade (*Solanum ptycanthum* Dun).

Statutory Authority: *MS s 21.85 subd 11*

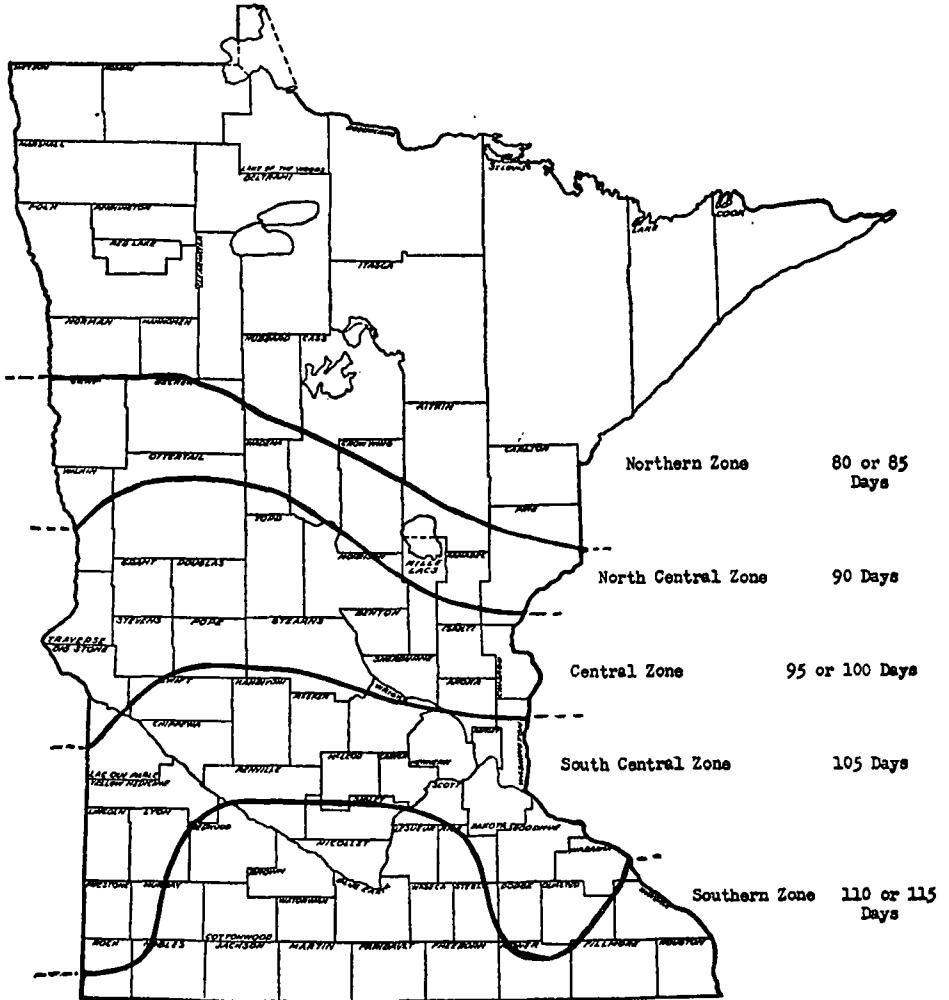
History: *9 SR 693*

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1510.0330 CORN ZONES.



Corn zones indicate the approximate number of days growing season that may be expected from emergence of corn plants after planting to maturity, the stage of being well dented before a killing frost.

Statutory Authority: *MS s 21.51 subd 3*

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1510.0340 SAMPLE LABELS FOR AGRICULTURAL SEED.

The labels shown in parts 1510.0350 and 1510.0360 are suggestive of suitable arrangement of required labeling data. Any arrangement is legal as long as data is complete and may be read and understood readily by the buyer of the seed. Misleading and confusing statements and data must be avoided.

Statutory Authority: *MS s 21.85 subd 11*

History: *9 SR 693*

1510.0350 SUGGESTED LABEL FOR SINGLE AGRICULTURAL SEED.

This label may be used for hybrid corn, or a special label may be used. The hybrid corn part may be omitted if not wanted. If known, the origin of the seed must be stated for all agricultural seeds or that the origin is unknown if the origin cannot be determined.

KIND _____ VARIETY _____ LOT NO. _____
PURE SEED % _____ GERM % _____ HARD SEED % _____ GERM. DATE _____
WEED SEED % _____ INERT MATTER % _____ OTHER CROP % _____
NOXIOUS _____ NO. PER _____
WEED SEEDS _____ POUND _____
(Name)

ORIGIN _____
(State or Foreign Country)

FOR HYBRID MINNESOTA RELATIVE MATURITY _____ DAYS
CORN:
LABELER'S NAME
AND ADDRESS _____

Statutory Authority: *MS s 21.85 subd 11*

History: *9 SR 693*

1510.0360 SUGGESTED LABEL FOR MIXTURES AND BLENDS OF AGRICULTURAL SEED.

KIND _____ VARIETY _____ LOT NO. _____
PURE SEED % _____ GERMINATION % _____
HARD SEED % _____
ORIGIN _____

WEED SEED % _____ INERT MATTER % _____ OTHER CROP % _____
NOXIOUS _____ NO. PER _____ GERM. DATE _____
WEED SEEDS _____ POUND _____
(Name)

LABELER'S NAME
AND ADDRESS _____

Statutory Authority: *MS s 21.85 subd 11*

History: *9 SR 693*

LIQUID COMMERCIAL FERTILIZERS

1510.0370 AUTHORITY AND PURPOSE.

Parts 1510.0370 to 1510.0380 are adopted by the commissioner pursuant to Minnesota Statutes, section 17.725, to govern the storage and handling of liquid commercial fertilizer used for agricultural purposes.

Statutory Authority: *MS s 17.725*

1510.0371 DEFINITIONS.

Subpart 1. **Scope.** For the purposes of parts 1510.0370 to 1510.0380, the terms defined in this part have the meanings given them, and "commercial fertilizer," "commissioner," "grade," "guaranteed analysis," and "person" have the meanings given in Minnesota Statutes, section 17.713.

Subp. 2. **Appurtenances.** "Appurtenances" means valves, pumps, fittings, and metering or dispensing devices.

Subp. 3. **Department.** "Department" means the Department of Agriculture.

Subp. 4. **Facility.** "Facility" means a place where liquid commercial fertilizer is stored, mixed, blended, weighed, or handled.

Subp. 5. **Incident.** "Incident" means a flood, fire, tornado, transportation accident, storage container rupture or leak, or other release of liquid commercial fertilizer, whether accidental or not, which is likely to cause a hazard to people's lives, adjoining property, or the environment.

Subp. 6. **Incident notification sign.** "Incident notification sign" means a sign issued by the department displaying the emergency telephone numbers to be called in case of an incident.

Subp. 7. **Liquid commercial fertilizer.** "Liquid commercial fertilizer" means either mixed fertilizer or fertilizer materials distributed in a fluid, nonpackaged form.

Subp. 8. **Responsible party.** "Responsible party" means the person who has direct custody or control of liquid commercial fertilizer at the time of an incident.

Subp. 9. **Safeguard.** "Safeguard" means a device, structure, or system or a combination of these designed to prevent the escape or movement of a liquid commercial fertilizer from the place it is stored which might result in the pollution of any surface or ground waters.

Subp. 10. **Storage container.** "Storage container" means a tank in which liquid commercial fertilizer is stored. This does not include delivery equipment unless the delivery equipment is used for storage.

Subp. 11. **Substantially altering.** "Substantially altering" means modifying a facility by adding additional safeguards or storage containers, or changing existing storage containers, safeguards, appurtenances, or piping. This does not include routine maintenance of existing safeguards, storage containers, appurtenances, and piping or of existing mixing, blending, weighing, and handling equipment.

Statutory Authority: *MS s 17.725*

1510.0372 APPROVAL OF FACILITY AND EQUIPMENT.

Subpart 1. **Commissioner approval.** A person beginning construction of a new facility or substantially altering an existing facility shall first obtain the approval of the commissioner.

Subp. 2. **Application.** The application for approval must be made on forms provided by the commissioner and must contain the following information:

A. the name, address, and phone number of the firm making application;

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- B. the name, address, and phone number of the firm that will operate the facility;
- C. the name, address, and phone number of the firm that will construct, install, or modify the site;
- D. a statement as to whether the facility is new or existing and whether the alterations will be substantial;
- E. the location of the site, including its legal description;
- F. copies of any permits required for the construction, installation, or modification of the facility;
- G. the size of the lot owned or leased;
- H. a statement of the approximate distance to nearby lakes, streams, or drainage ditches, or a storm drain into which liquid could flow;
- I. a statement of the general soil type found at the site and the type, depth, and proximity of wells on or near the site;
- J. the nature of the terrain at the site;
- K. the number and capacity of storage containers;
- L. a description of the type of storage containers;
- M. a description of the type of safeguards, including drawings or pictures, if available;
- N. at least three scale drawings of the facility, including other storage containers and buildings;
- O. a plumbing diagram showing the location and type of pumps and valves used to control all transfers of liquid commercial fertilizer;
- P. a description of the contingency plan filed with local fire and law enforcement personnel for emergency situations; and
- Q. any other information required by the commissioner reasonably related to the construction, installation, or modification of a liquid commercial fertilizer facility in order to prevent hazards to people's lives, adjoining property, and the environment.

Subp. 3. **Criteria.** The commissioner shall approve the application when inspection of the facility and review of the application demonstrate that the proposed facility satisfies the requirements of parts 1510.0370 to 1510.0380 and provides safeguards to prevent hazards to people's lives, adjoining property, and the environment.

Subp. 4. **Review of approval.** The commissioner shall review approved facilities if the commissioner has reason to believe that existing safeguards are not sufficient to prevent hazards to people's lives, adjoining property, or the environment. Upon determination by the commissioner that hazards to people's lives, adjoining property, or the environment do exist, the commissioner shall proceed in accordance with Minnesota Statutes, section 17.728.

Statutory Authority: *MS s 17.725*

1510.0373 PREVIOUSLY ESTABLISHED FACILITIES.

The person who operates a facility which was established prior to the effective date of this rule including persons who were granted a permit by the Pollution Control Agency, must obtain the commissioner's approval of the facility and equipment according to the following schedule:

A. The person who operates a facility established prior to January 1, 1965; must seek the approval of the commissioner within one year of the effective date of these parts.

B. The person who operates a facility established from January 1, 1965, to December 31, 1973, must seek the approval of the commissioner within two years of the effective date of these parts:

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C. The person who operates a facility established from January 1, 1974, to May 31, 1975, must seek the approval of the commissioner within three years of the effective date of these parts.

D. The person who operates a facility established from June 1, 1975, to December 31, 1977, must seek the approval of the commissioner within four years of the effective date of these parts.

E. The person who operates a facility established from January 1, 1978, to December 31, 1979, must seek the approval of the commissioner within five years of the effective date of these parts.

F. The person who operates a facility established from January 1, 1980, to the effective date of this rule must seek the approval of the commissioner within six years of the effective date of these parts.

Statutory Authority: *MS s 17.725*

1510.0374 VARIANCES.

Upon receipt of a written request, the department shall grant a variance from this rule when the request shows that compliance with this rule would cause unreasonable economic hardship to the requester and that the requested use would not constitute a hazard to people's lives, adjoining property, or the environment. The department shall set forth in writing its reasons for granting or denying a requested variance within 60 days of the request.

Statutory Authority: *MS s 17.725*

1510.0375 MAINTENANCE AND OPERATIONS.

Safeguards, storage containers, and mixing, blending, weighing, and handling equipment must be maintained and operated in a manner which will prevent the escape of any liquid commercial fertilizer from the facility.

Adequate provisions must be made to protect all above-ground piping from physical damage that might result from moving machinery, equipment, and vehicles.

Main valves must be located as near to the storage container as possible and must be either closed and made inoperative when the facility is unattended or protected against tampering by adequate fencing.

Appurtenances and storage containers must be properly maintained, protected against rust, and painted to prevent corrosion and leakage.

Storage container areas must be kept free of clutter and ignitable materials including weeds and long dry grass.

Statutory Authority: *MS s 17.725*

1510.0376 SAFEGUARDS.

Persons storing liquid commercial fertilizers in storage containers shall provide safeguards for containment at least equal to the holding capacity of the largest single storage container.

Statutory Authority: *MS s 17.725*

1510.0377 MARKINGS.

Each storage container must be labeled in a clearly legible and conspicuous manner with the appropriate grade or guaranteed analysis of the contents of the storage container.

An identification sign must be displayed in a clearly legible and conspicuous manner stating the name, address, and telephone number of the nearest agent, representative, owner, or person who operates the facility.

An incident notification sign must be posted in a conspicuous place within the facility.

Statutory Authority: *MS s 17.725*

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1510.0378 INCIDENTS.

A person involved in or responsible for an incident shall report the incident to the department. The department shall immediately notify other state agencies with jurisdiction regarding the incident. The responsible party shall take appropriate action to contain or clean up the results of the incident. The department shall be the lead state agency for making decisions involving the clean-up or containment operations and shall initiate those operations necessary to prevent hazards to people's lives, adjoining property, or the environment. By initiating clean-up or containment operations, the department does not assume any liability for costs in addition to that prescribed or imposed by law.

Statutory Authority: *MS s 17.725*

1510.0379 EXEMPT FACILITIES.

Parts 1510.0370 to 1510.0380 do not apply to anhydrous ammonia facilities, or to portable or nonstationary tanks.

Statutory Authority: *MS s 17.725*

1510.0380 ENFORCEMENT.

The commissioner shall proceed in accordance with Minnesota Statutes, section 17.728 upon satisfactory evidence that the storage or handling of liquid commercial fertilizer does not meet the provisions in parts 1510.0370 to 1510.0380.

Statutory Authority: *MS s 17.725*

DRY COMMERCIAL FERTILIZERS

1510.0400 AUTHORITY AND PURPOSE.

Parts 1510.0400 to 1510.0408 are adopted by the commissioner pursuant to Minnesota Statutes, section 17.725, to govern the storage and handling of dry commercial fertilizer used for agricultural purposes.

Statutory Authority: *MS s 17.725*

1510.0401 DEFINITIONS.

Subpart 1. **Scope.** For the purposes of parts 1510.0401 to 1510.0408, the terms defined in this part have the meanings given them, and "commercial fertilizer," "commissioner," "grade," "guaranteed analysis," and "person" have the meanings given in Minnesota Statutes, section 17.713.

Subp. 2. **Department.** "Department" means the Department of Agriculture.

Subp. 3. **Dry commercial fertilizer.** "Dry commercial fertilizer" means either mixed fertilizer or fertilizer materials distributed in a nonfluid, nonpackaged form.

Subp. 4. **Facility.** "Facility" means a place where dry commercial fertilizer is stored, mixed, blended, weighed, or handled.

Subp. 5. **Incident.** "Incident" means a flood, fire, tornado, transportation accident, or other event causing a release of dry commercial fertilizer, whether accidental or not, which is likely to cause a hazard to people's lives, adjoining property, or the environment.

Subp. 6. **Incident notification sign.** "Incident notification sign" means a sign issued by the department displaying emergency telephone numbers to be called in the case of an incident.

Subp. 7. **Responsible party.** "Responsible party" means the person who has direct custody or control of the dry commercial fertilizer at the time of an incident.

Subp. 8. **Safeguard.** "Safeguard" means a device, structure, or system or a combination of these designed to prevent the escape or movement of a dry commercial fertilizer from the place it is stored which might result in the pollution of any surface or ground waters.

Subp. 9. **Storage container.** "Storage container" means a tank or bin in which dry commercial fertilizer is stored. This does not include delivery equipment unless the delivery equipment is used for storage.

Subp. 10. **Substantially altering.** "Substantially altering" means modifying a facility by adding additional safeguards or storage containers, or by changing existing safeguards or storage containers. This does not include routine maintenance of existing safeguards or storage containers or of existing mixing, blending, weighing, and handling equipment.

Statutory Authority: *MS s 17.725*

1510.0402 APPROVAL OF FACILITY AND EQUIPMENT.

Subpart 1. **Commissioner approval.** A person beginning construction of a new facility or substantially altering an existing facility shall first obtain the approval of the commissioner.

Subp. 2. **Forms.** The application for approval must be made on forms provided by the commissioner and must contain the following information:

A. the name, address, and phone number of the firm making the application;

B. the name, address, and phone number of the firm that will operate the facility;

C. the name, address, and phone number of the firm that will construct, install, or modify the site;

D. a statement as to whether the facility is new or existing and whether the alterations will be substantial;

E. the location of the site, including its legal description;

F. copies of any permits required for the construction, installation, or modification of the facility;

G. the size of the lot owned or leased;

H. the number and capacity of storage containers;

I. a description of the type of storage containers;

J. a description of the type of safeguards, if any;

K. at least three scale drawings of the facility, including other storage containers and buildings;

L. a description of the contingency plan filed with local fire and law enforcement personnel for emergency situations; and

M. any other information required by the commissioner reasonably related to the construction, installation, or modification of a dry commercial fertilizer facility in order to prevent hazards to people's lives, adjoining property, and the environment.

Subp. 3. **Criteria.** The commissioner shall approve the application when inspection of the facility and review of the application demonstrate that the proposed facility satisfies the requirements of parts 1510.0400 to 1510.0408 and provides safeguards to prevent hazards to people's lives, adjoining property, and the environment.

Subp. 4. **Review of approved facilities.** The commissioner shall review approved facilities if the commissioner has reason to believe that existing safeguards are not sufficient to prevent hazards to people's lives, adjoining property, or the environment. Upon determination by the commissioner that hazards to people's lives, adjoining property, or the environment do exist, the

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commissioner shall proceed in accordance with Minnesota Statutes, section 17.728.

Statutory Authority: *MS s 17.725*

1510.0403 VARIANCES.

Upon receipt of a written request, the department shall grant a variance from these parts when the request shows that compliance with this rule would cause unreasonable economic hardship to the requester and that the requested use would not constitute a hazard to people's lives, adjoining property, or the environment. The department shall set forth in writing its reasons for granting or denying a requested variance within 60 days of the request.

Statutory Authority: *MS s 17.725*

1510.0404 MAINTENANCE AND OPERATIONS.

Safeguards, storage containers, and mixing, blending, weighing, and handling equipment must be maintained and operated in a manner which will prevent avoidable amounts of particulate matter from leaving the facility. This requirement does not apply to facilities governed by this rule which were established prior to the date of its adoption unless the existing facility, without modification, would result in a hazard to people's lives, adjoining property, or the environment.

Storage containers must be maintained to prevent cross contamination of various dry commercial fertilizers.

Storage container areas must be kept free of clutter and ignitable materials including weeds and long dry grass.

Statutory Authority: *MS s 17.725*

1510.0405 MARKINGS.

Each storage container must be labeled in a clearly legible and conspicuous manner with the appropriate grade or guaranteed analysis of the contents of the storage container.

An incident notification sign must be posted in a conspicuous place within the facility.

Statutory Authority: *MS s 17.725*

1510.0406 OUTSIDE STORAGE.

Outside dry commercial fertilizer storage piles may not be located in areas where surface water runoff could enter storm sewers, sanitary sewers, or other surface or ground waters.

Statutory Authority: *MS s 17.725*

1510.0407 INCIDENTS.

A person involved in or responsible for an incident shall report the incident to the department. The department shall immediately notify other state agencies with jurisdiction regarding the incident. The responsible party shall take appropriate action to contain or clean up the results of the incident. The department shall be the lead state agency for making decisions involving clean-up or containment operations and shall initiate those operations necessary to prevent hazards to people's lives, adjoining property, or the environment. By initiating clean-up or containment operations, the department does not assume any liability for costs in addition to that prescribed or imposed by law.

Statutory Authority: *MS s 17.725*

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1510.0408 ENFORCEMENT.

The commissioner shall proceed in accordance with Minnesota Statutes, section 17.728 upon satisfactory evidence that the storage or handling of dry commercial fertilizer does not meet the provisions in parts 1510.0401 to 1510.0408.

Statutory Authority: *MS s 17.725*

FERTILIZER LABELS AND LABELING REQUIREMENTS

1510.0410 AUTHORITY AND PURPOSE.

Parts 1510.0410 to 1510.0421 are adopted by the commissioner pursuant to Minnesota Statutes, section 17.725 to prescribe conditions for labels and procedures for labeling fertilizers.

Statutory Authority: *MS s 17.725*

1510.0411 DEFINITIONS.

Subpart 1. **Scope.** For the purposes of parts 1510.0410 to 1510.0421, the terms defined in this part have the meanings given them, and "brand," "commercial fertilizer," "commissioner," "fertilizer material," "grade," "guaranteed analysis," "guarantor," "label," "labeling," "mixed fertilizer," "organic," and "specialty fertilizer," have the meanings given in Minnesota Statutes, section 17.713.

Subp. 2. **Department.** "Department" means the Department of Agriculture.

Subp. 3. **Fertilizer.** "Fertilizer" means a commercial fertilizer or a specialty fertilizer.

Subp. 4. **Plant nutrient.** "Plant nutrient" has the meaning given to "plant food" in Minnesota Statutes, section 17.713, subdivision 15b.

Statutory Authority: *MS s 17.725*

1510.0412 LABEL INFORMATION REQUIREMENTS.

Fertilizers offered for sale, sold or distributed in this state, in bags or other containers, must have placed on or affixed to the container the following information in the following format and order except as provided in part 1510.0413:

- A. net weight;
- B. brand and grade;
- C. guaranteed analysis:
 - Total Nitrogen (N) _____%
 - _____% Ammoniacal Nitrogen
 - _____% Nitrate Nitrogen
 - _____% Water Insoluble Nitrogen
 - _____% Urea Nitrogen
 - _____% Other approved and determinable forms of Nitrogen
 - Available Phosphoric Acid (P₂O₅) _____%
 - Soluble Potash (K₂O) _____%

Other plant nutrients (elemental basis) _____%

D. sources of plant nutrients, when shown on the label, listing the common or usual English name of all ingredients used in manufacturing or blending the commercial fertilizer;

E. name and address of guarantor.

Statutory Authority: *MS s 17.725*

1510.0413 EXCEPTIONS TO LABEL INFORMATION REQUIREMENTS.

If the percentage of any plant nutrient in specialty fertilizer is zero, the plant nutrient must be omitted from the statement.

Chemical forms of nitrogen must be listed, without limitation, when the fertilizer is a fish emulsion or when the nitrogen is organic or slowly released. Whenever the chemical forms of nitrogen are claimed, they must be claimed in the form indicated in part 1510.0412, item C.

Chemical forms of nitrogen may be listed, when the fertilizer is not a fish emulsion, or when the nitrogen is not organic or not slowly released.

Statutory Authority: *MS s 17.725*

1510.0414 LOCATION OF LABEL INFORMATION.

For packaged fertilizers, the information required in part 1510.0412 must be in a readable and conspicuous form and must meet one of the following requirements:

- A. appear on the front of the package;
- B. occupy at least the upper one-third of either side of the package;
- C. appear on the upper end of the container; or
- D. be printed on a tag and attached to the package.

Statutory Authority: *MS s 17.725*

1510.0415 BULK FERTILIZERS.

For bulk fertilizers, the information required in part 1510.0412, in written or printed form, must accompany delivery and be supplied to the purchaser at the time of delivery. The format and order in part 1510.0412 is not required for bulk fertilizers.

Statutory Authority: *MS s 17.725*

1510.0416 SLOWLY RELEASED PLANT NUTRIENTS.

Subpart 1. **Prohibited statement on label.** A fertilizer label may not bear a statement that connotes or implies that certain plant nutrients contained in the fertilizer are released slowly over a period of time, unless the plant nutrients are identified and guaranteed.

Subp. 2. **Permitted labels.** The following types of plant nutrients may be labeled as slowly released plant nutrients:

- A. water insoluble nitrogen products, such as natural organics, urea formaldehyde, IBDU and oxamide;
- B. coated slow release plant nutrients such as sulfur coated urea and other encapsulated soluble fertilizers; and
- C. occluded slow release plant nutrients, such as fertilizers mixed with waxes, resins or other inert materials and formed into particles.

Subp. 3. **Descriptive terms.** The terms "water insoluble," "coated slow release," and "occluded slow release" are accepted as descriptive of these products, provided that the manufacturer can show a testing program approved by the department substantiating the claim.

Subp. 4. **Organic nitrogen.** When the nitrogen is organic and the label states the amount of organic nitrogen present in a phrase such as "nitrogen in organic form equivalent to ___% N," then the water insoluble nitrogen guarantee must not be less than 60 percent of the nitrogen so designated. For example, if the total nitrogen guarantee for a fertilizer is ten percent and the label states: "nitrogen in organic form equivalent to 2.5% N," then the water insoluble nitrogen guarantee must not be less than 1.5 percent ($2.5\% \times 0.6 = 1.5\%$).

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Subp. 5. **Less than 15 percent of certain nutrients.** When a slowly released plant nutrient is less than 15 percent of the guarantee for total nitrogen, available phosphoric acid, or soluble potash, the label may not bear a reference to those designations.

Subp. 6. **Methods.** Until more appropriate methods are developed, Association of Official Analytical Chemists (AOAC) method number 2.074 in Official Methods of Analysis of the Association of Official Analytical Chemists (William Horwitz, ed.; 13th edition; 1980), or the appropriate AOAC method in a subsequent edition, must be used to confirm the coated slow release and occluded slow release plant nutrients and others whose slow release characteristics depend on particle size. The AOAC method number 2.072 in Official Methods of Analysis of the Association of Official Analytical Chemists (William Horwitz, ed.; 13th edition; 1980), or the appropriate AOAC method in a subsequent edition, must be used to determine the water insoluble nitrogen of organic materials.

Subp. 7. **Acceptable breakdown.** The following is an example of an acceptable breakdown of nitrogen where nitrogen is the only slow release plant nutrient in the fertilizer:

Total Nitrogen (N)	22%
5.5% Ammoniacal Nitrogen	
5.5% Nitrate Nitrogen	
1.0% Urea Nitrogen	
10.0% Coated Slow Release Urea Nitrogen	

Subp. 8. **Two or more nutrients with slow release properties.** When two or more plant nutrients in a fertilizer are coated or occluded to obtain slow release properties, the guarantees for those plant nutrients must be shown as footnotes rather than following each plant nutrient, as indicated in the following example:

Fertkote 10-15-20	
Guaranteed Analysis	
Total Nitrogen (N)*	10%
2.5% Ammoniacal Nitrogen	
2.5% Nitrate Nitrogen	
5.0% Urea Nitrogen	
Available Phosphoric Acid (P ₂ O ₅)*	15%
Soluble Potash (K ₂ O)*	20%
Sulfur (S)	14%

* The nitrogen, phosphorus, and potassium materials in this product have been coated to provide 9.0 percent coated slow release nitrogen (N), 13 percent coated slow release available phosphoric acid (P₂O₅), and 18 percent coated slow release soluble potash (K₂O).

Statutory Authority: *MS s 17.725*

1510.0417 FISH EMULSIONS.

The following is an example of an acceptable breakdown of nitrogen for a fish emulsion fertilizer:

Total Nitrogen (N)	5%
0% Nitrate Nitrogen	
0% Urea Nitrogen	
0.5% Ammoniacal Nitrogen	
0.5% Water Insoluble Nitrogen	
4.0% Other Water Soluble Nitrogen	

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In the example given above, water insoluble nitrogen is guaranteed but no claims or statements, such as organic, slow acting or slow release, can be used since it is less than 15 percent of the total nitrogen.

Zero guarantees are not acceptable as noted in part 1510.0413; however, for this specific label they will be allowed so that the term "other water soluble nitrogen" will mean nitrogen that is soluble but is not nitrate, ammoniacal or urea nitrogen.

Statutory Authority: *MS s 17.725*

1510.0418 ADDITIONAL PLANT NUTRIENTS PERMITTED.

Subpart 1. **List of nutrients.** The commissioner will accept guarantees only for the additional plant nutrients listed in this part. Any or all of these additional plant nutrients in a particular fertilizer may be guaranteed if the following minimum content requirements are met.

Plant Nutrient	Minimum Percent Allowed
Calcium (Ca)	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
Sodium (Na)	0.10
Zinc (Zn)	0.05

Subp. 2. **Procedures.** If any of the plant nutrients in subpart 1 are guaranteed, the procedures in items A to E must be followed for labels and labeling:

- A. The plant nutrients must be listed immediately following nitrogen, phosphorus, and potassium.
- B. The plant nutrients must appear in the format listed in subpart 1.
- C. The plant nutrients must appear in the order listed in subpart 1.
- D. The plant nutrients must be stated on the elemental basis.
- E. The percentages of each of the plant nutrients contained in the fertilizer must be stated.

Subp. 3. **Prohibition.** If the minimum requirement stated in subpart 1 is not met for a particular plant nutrient, labels and labeling for the fertilizer may not contain any statement regarding that particular plant nutrient.

Statutory Authority: *MS s 17.725*

1510.0419 LABELING AND LABELS.

Proposed labeling and labels with directions for use of the fertilizer shall be furnished with the application for registration of a fertilizer.

Statutory Authority: *MS s 17.725*

1510.0420 WARNING STATEMENTS.

Warning or caution statements are required on the label for any product which contains 0.03 percent or more of Boron in a water-soluble form or 0.001 percent or more of Molybdenum.

Statutory Authority: *MS s 17.725*

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1510.0421 SEEDS, FERTILIZERS, FEEDS

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1510.0421 ENFORCEMENT.

The commissioner shall proceed in accordance with Minnesota Statutes, section 17.728 upon satisfactory evidence that a label or labeling of a fertilizer does not meet the provisions in parts 1510.0410 to 1510.0421.

Statutory Authority: *MS s 17.725*

SOIL AND PLANT AMENDMENT LABELS

1510.0430 AUTHORITY AND PURPOSE.

Parts 1510.0430 to 1510.0434 are adopted by the commissioner pursuant to Minnesota Statutes, section 17.725 to prescribe conditions for the labels and procedures for labeling soil and plant amendments.

Statutory Authority: *MS s 17.725*

1510.0431 DEFINITIONS.

For the purposes of parts 1510.0430 to 1510.0434, the terms "brand," "commercial fertilizer," "commissioner," "fertilizer material," "guaranteed analysis," "guarantor," "label," "labeling," "plant amendment," "plant food," "sewage sludge," and "soil amendment" have the meanings given them in Minnesota Statutes, section 17.713.

Statutory Authority: *MS s 17.725*

1510.0432 LABEL REQUIREMENTS.

Subpart 1. **Information required.** Any soil or plant amendment, except for sewage sludge, which is offered for sale, sold, or distributed in this state, in bags or other containers, must have placed on or affixed to the container the following information:

- A. net weight;
- B. brand name;
- C. guaranteed analysis;
- D. name and address of guarantor;
- E. directions for the soil or plant amendment's use;
- F. the soil or plant amendment's purpose or proposed use;
- G. the words "NOT A PLANT FOOD PRODUCT"; and
- H. a statement listing the common or usual English name of all ingredients used in manufacturing or blending the soil or plant amendment.

Subp. 2. **Exception.** The label requirements in subpart 1, item G do not apply to soil or plant amendments or sewage sludge offered for sale that contain fertilizer materials.

If the soil or plant amendment or sewage sludge contains fertilizer materials that meet the plant food content requirements of Minnesota Statutes, section 17.721, the fertilizer materials must be guaranteed and labeled in accordance with Minnesota Statutes, sections 17.711 to 17.729 and parts 1510.0410 to 1510.0421.

If the soil or plant amendment or sewage sludge contains fertilizer materials that do not meet the plant food content requirements of Minnesota Statutes, section 17.721, the fertilizer materials may not be guaranteed and must be listed in a caution or warning statement with appropriate percentages of each plant food.

The following is an example of an acceptable caution or warning statement for a soil or plant amendment offered for sale containing fertilizer materials below the plant food requirements of parts 1510.0410 to 1510.0421.

"CAUTION. This product may contain _____ percent nitrogen, _____ percent calcium, and _____ percent zinc. This information should be taken into consideration when the product is used in conjunction with commercial fertilizer or when sensitive crops or plants are involved."

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Subp. 3. **Sewage sludge analysis.** Sewage sludge which is applied to a landspreading site must have a sewage sludge analysis containing the information listed in items A to G. All analytical values except pH and total solids must be recorded on a dry weight basis. The most recent sewage sludge analysis, in written or printed form, must be supplied to the owner, renter, or lessee of a landspreading site before sewage sludge is spread. The information required is as follows:

- A. percentage of total solids;
- B. volatile solids as a percentage of total solids;
- C. pH;
- D. percentage of nitrogen, including the percentages of kjeldahl, ammonia, and in the case of aerobically digested and composted sewage sludge, nitrate;
- E. phosphorus and potassium, expressed as percentages of available phosphoric acid (P_2O_5) and soluble potash (K_2O);
- F. total weight of heavy metals, including milligrams per kilogram of zinc, copper, lead, nickel, cadmium, chromium, mercury, and molybdenum; and
- G. polychlorinated biphenyls expressed as milligrams per kilogram.

Subp. 4. **Amendments or sludge for sale.** For packaged soil or plant amendments or sewage sludge offered for sale, the information required in subpart 1 or 2 must be in a readable and conspicuous form and must meet one of the following requirements:

- A. appear on the front of the package;
- B. occupy at least the upper one-third of either side of the package;
- C. appear on the upper end of the container; or
- D. be printed on a tag and attached to the package.

Subp. 5. **Bulk sale.** For bulk soil or plant amendments or sewage sludge offered for sale, the information required in subpart 1 or 2, in written or printed form, must accompany delivery and be supplied to the purchaser at the time of delivery.

Statutory Authority: *MS s 17.725*

1510.0433 LABELING AND LABELS.

Proposed labeling and labels with directions for use of the soil or plant amendment must be furnished with an application for registration of a soil or plant amendment.

Statutory Authority: *MS s 17.725*

1510.0434 ENFORCEMENT.

The commissioner shall proceed in accordance with Minnesota Statutes, section 17.728 upon satisfactory evidence that a label or labeling of a soil or plant amendment or sewage sludge does not meet the provisions in parts 1510.0430 to 1510.0434.

Statutory Authority: *MS s 17.725*

STORAGE AND HANDLING OF ANHYDROUS AMMONIA

1510.0480 ANHYDROUS AMMONIA.

The term "anhydrous ammonia" as used in these rules refers to the compound formed by the combination of the two gaseous elements, nitrogen and hydrogen, in the proportion of one part of nitrogen to three parts of hydrogen by volume. Anhydrous ammonia is ammonia gas in compressed and liquefied form. It is not to be confused with aqueous ammonia which is a solution of ammonia gas in water.

Statutory Authority: *MS s 17.725*

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1510.0490 SAFETY PRACTICES FOR STORAGE AND HANDLING.

In the interest of safety, it is important that personnel understand the properties of this gas and that they be thoroughly trained in safe practices for its storage and handling.

Statutory Authority: *MS s 17.725*

1510.0500 LIQUID AND GASEOUS PHASES.

Under moderate pressure the gas liquefies, but upon release of the pressure, the liquid is readily converted into the gaseous phase. Advantage of this characteristic is taken by the industry, and for convenience the gas is shipped and stored under pressure as a liquid.

Statutory Authority: *MS s 17.725*

1510.0510 SKIN OR MUCOUS MEMBRANE IRRITATION OR INJURY.

Anhydrous ammonia may cause varying degrees of irritation of the skin or mucous membrane, and may injure severely the respiratory mucosa.

Statutory Authority: *MS s 17.725*

1510.0520 ADEQUATE VENTILATION.

At atmospheric temperatures and pressures, ammonia is a pungent and colorless gas and serves as its own warning agent. Since ammonia gas is lighter than air, adequate ventilation is the best means of preventing any accumulation.

Statutory Authority: *MS s 17.725*

1510.0530 FREEZING POINT.

In the case of the pure product at atmospheric pressure and below minus 28 degrees Fahrenheit, anhydrous ammonia is a liquid. Anhydrous ammonia freezes to a white crystalline mass at minus 107.9 degrees Fahrenheit.

Statutory Authority: *MS s 17.725*

1510.0540 AMMONIA CONTAINERS, FITTINGS, AND OTHER EQUIPMENT.

The common metals are not affected by dry ammonia. Ammonia containing water will not corrode iron or steel, but even if minute quantities of water are present, it will rapidly react with copper, brass, zinc, and many alloys, especially those of copper base. It is required that only iron, steel, and certain nonferrous alloys, proved to be satisfactory for ammonia service, be used for ammonia containers, fittings, and other equipment.

Statutory Authority: *MS s 17.725*

1510.0550 FLAMMABLE LIMITS.

The flammable limits of ammonia are from 16 to 25 percent by volume in air. Experience has shown that ammonia is extremely hard to ignite in spite of these theoretical limits, and is generally considered to be a nonflammable gas.

Statutory Authority: *MS s 17.725*

1510.0560 DEFINITIONS.

Subpart 1. **Applicability.** For the purposes of these rules, the terms in subparts 2 to 15 shall be construed to have the following meanings.

Subp. 2. **Approved.** "Approved" as used in these rules means listed by a recognized testing laboratory, recommended by manufacturer as suitable for use with anhydrous ammonia and so marked, or inspected and approved by the Minnesota Department of Agriculture.

Subp. 3. **Appurtenance.** "Appurtenance" refers to all devices such as safety devices, liquid level gaging devices, valves, pressure gages, fittings, metering, or dispensing devices.

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Subp. 4. **Capacity.** "Capacity" as used in these rules refers to the total volume of the container measured in U.S. gallons, unless otherwise specified.

Subp. 5. **Code.** The "code" refers to the Unified Pressure Vessel Code of the American Society of Mechanical Engineers (Section VIII of the ASME Boiler Construction Code), 1952, 1956, 1959, 1962, and 1965 editions, the joint code of the American Petroleum Institute and the American Society of Mechanical Engineers (API-ASME Code) 1951 edition, and subsequent amendments to or later editions of the same, as adopted.

Subp. 6. **Container.** "Container" includes all vessels such as tanks or cylinders used for the storage and handling of anhydrous ammonia.

Subp. 7. **Design pressure.** "Design pressure" is identical in meaning to the term "maximum allowable working pressure" used in the codes.

Subp. 8. **Filling density.** "Filling density" is defined as the percent ratio of the weight of the gas in a container to the weight of water the container will hold at 60 degrees Fahrenheit.

Subp. 9. **Fixed facility.** "Fixed facility" is a facility to unload tank cars or transport built and installed according to approved practices and in compliance with these rules.

Subp. 10. **Gas.** "Gas" refers to anhydrous ammonia in either the gaseous or liquefied state.

Subp. 11. **ICC.** "ICC" refers to the Interstate Commerce Commission.

Subp. 12. **Implement of husbandry.** "Implement of husbandry" means farm wagon-type tank vehicles of not over 3,000 gallons capacity, used during the liquid fertilizer season as field storage "nurse tanks" supplying the fertilizer to a field applicator and moved on highways only for bringing the fertilizer from a local source of supply to farms or fields or from one farm or field to another.

Subp. 13. **PSIG and PSIA.** The abbreviations "psig" and "psia" refers to pounds per square inch gage and pounds per square inch absolute, respectively.

Subp. 14. **Systems.** "Systems" as used in these rules refers to an assembly of equipment consisting essentially of the container or containers, appurtenances, pumps, compressors, and interconnecting piping.

Subp. 15. **Tank.** "Tank" refers to vessels designed and constructed for the storage and handling of anhydrous ammonia.

Statutory Authority: *MS s 17.725*

1510.0570 APPLICATION OF RULES.

The following rules are intended to apply to the design, construction, location, installation, and operation of anhydrous ammonia systems. These rules do not apply to ammonia manufacturing plants, refrigerating, or air conditioning systems.

Nothing in these rules shall prevent the continued operation of anhydrous ammonia systems in existence prior to February 20, 1967, unless it shall be determined that such continued operation without modification would result in a distinct hazard to life or adjoining property.

Parts 1510.0590 to 1510.1020, apply to all parts unless otherwise specified.

Parts 1510.1030 to 1510.1080 apply to installations utilizing containers of 1,000 pounds water capacity or less, constructed in accordance with ICC specifications.

Parts 1510.1090 to 1510.1270 apply to stationary, nonrefrigerated storage installations utilizing containers other than those constructed in accordance with ICC specifications as covered in parts 1510.1030 to 1510.1080.

Parts 1510.1280 to 1510.1540 apply to systems mounted on trucks, semitrailers, and full trailers (other than farm vehicles) used for the transportation of ammonia.

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Parts 1510.1550 to 1510.1640 apply to systems mounted on farm vehicles for the transportation of ammonia.

Parts 1510.1650 to 1510.1710 apply to systems mounted on farm vehicles for the application of ammonia.

Parts 1510.1720 to 1510.1910 apply to systems utilizing containers for the storage of anhydrous ammonia under refrigerated conditions.

Statutory Authority: *MS s 17.725*

1510.0580 MODIFICATION OF RULES.

The Minnesota Department of Agriculture shall have the power to grant exemption from application of these rules upon request in writing, doing so when such request shows that compliance with the rules would cause unnecessary hardship to the petitioner, provided that such request shall not be granted where the requested use would constitute a distinct hazard to life or adjoining property.

Statutory Authority: *MS s 17.725*

1510.0590 APPROVAL OF EQUIPMENT.

Each system utilizing ICC cylinders shall have container valves, connectors manifold valve assemblies, and regulators approved as to design, construction, and performance.

In systems utilizing ASME containers, each metering or dispensing device, container valve, excess flow valve, gaging device, and safety relief valve shall be approved as to design, construction, and performance. As an alternate the Minnesota Department of Agriculture may approve complete system.

Statutory Authority: *MS s 17.725*

1510.0600 REQUIREMENTS FOR NEW CONSTRUCTION AND ORIGINAL TEST OF CONTAINERS, OTHER THAN REFRIGERATED STORAGE TANKS (SEE EXCEPTION IN PART 1510.1730).

Containers used with systems covered in parts 1510.1090 to 1510.1270 shall be constructed and tested in accordance with the 1965 edition (and subsequent amendments thereto) of the Unfired Pressure Vessel Code of the ASME except that construction under Table UW 12 at a basic joint efficiency of under 80 percent is not authorized.

Containers built according to this code do not have to comply with paragraphs UG 125 to UG 128 inclusive, and paragraphs UG 132 and UG 133.

Containers may be constructed and tested in accordance with the rules of the authority under which the containers are installed, provided such rules are in substantial conformity with the rules of the Unfired Pressure Vessel Code of the ASME.

Statutory Authority: *MS s 17.725*

1510.0610 CONTAINERS EXCEEDING 36 INCHES IN DIAMETER OR 250 GALLONS CAPACITY.

Containers exceeding 36 inches in diameter or 250 gallons capacity shall be constructed to comply with one or more of the following additional requirements: containers shall be stress relieved after fabrication in accordance with the code, or cold-formed heads, when used shall be stress relieved, or hot-formed heads shall be used.

Statutory Authority: *MS s 17.725*

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1510.0620 NONCODE WELDING.

Noncode welding where necessary shall be made only on saddles or brackets originally welded to the container by the manufacturer. Noncode welding directly to the container or any part subject to pressure is not authorized.

Statutory Authority: *MS s 17.725*

1510.0630 INSPECTION OF CONTAINERS AT TIME OF CONSTRUCTION.

All containers, except refrigerated storage tanks with a design pressure of less than 15 psig, constructed as required by these rules, shall be inspected at the time of construction by a person having a current certificate of competency from the National Board of Boiler and Pressure Vessel Inspectors and employed by an insurance company or companies, or by a municipality, state, or province having laws specifically providing for that type of inspection service. Said inspectors shall be paid by the insurance company or companies, municipality, state, or province.

Statutory Authority: *MS s 17.725*

1510.0640 CONTINUED USE OR REINSTALLATION OF CERTAIN CONTAINERS.

The provisions of part 1510.0600 shall not be construed as prohibiting the continued use or reinstallation of containers constructed and maintained in accordance with the 1949, 1950, 1952, 1956, 1959, and 1962 editions of the Unfired Pressure Vessel Code of the ASME and the standards published by the Agricultural Ammonia Institute for the storage and handling of anhydrous ammonia in effect at the time of fabrication.

Statutory Authority: *MS s 17.725*

1510.0650 ABOVEGROUND INSTALLATION OF ANHYDROUS AMMONIA CONTAINERS.

Note: Aboveground installation of anhydrous ammonia containers is recommended but rules for underground container installations are included to provide for those cases where special considerations make underground installation desirable.

Statutory Authority: *MS s 17.725*

1510.0660 MARKINGS ON CONTAINERS AND SYSTEMS.

Each container or system covered in parts 1510.1090 to 1510.1710 shall be marked as specified in the following:

A. With a marking identifying compliance with, and other markings required by the rules of the code under which the container is constructed. Underground: on container and system nameplate; aboveground: on container.

B. With the name and address of the supplier of the system or the trade name of the system, together with the date of manufacture. Underground and aboveground: on system nameplate.

C. With the capacity of the container in pounds or gallons, U.S. Standards. Underground: on container and system nameplate; aboveground: on container.

D. With the working pressure in pounds per square inch gage (psig) for which the container is designed. Underground: on container and system nameplate; aboveground: on container.

E. With the wall thickness of the shell and heads. Underground: on container and system nameplate; aboveground: on container.

F. With marking indicating the maximum level to which the container may be filled with liquid at liquid temperatures between 20 degrees Fahrenheit and 100 degrees Fahrenheit, except on containers provided with fixed maximum

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level indicators, or which are filled by weighing. Markings shall be increments of not more than 20 degrees Fahrenheit. Underground and aboveground: on system nameplate, or on liquid level gaging device. Refrigerated storage tanks shall be exempt from these requirements but shall be marked to show the maximum permissible liquid level (see part 1510.0920, subpart 1).

G. With the outside surface area in square feet. Underground: on system nameplate; aboveground: on container.

Marking specified on container shall be on the container itself or on a nameplate permanently affixed thereto.

Statutory Authority: *MS s 17.725*

1510.0670 SIGN.

A sign with letters of minimum height of one inch shall be displayed in a conspicuous outside place stating the name, address, and telephone number or numbers of the nearest owner, representative, or agent of the owner of the storage location.

Statutory Authority: *MS s 17.725*

1510.0680 MARKING ON CERTAIN CONTAINERS.

Each container used with system embodied in parts 1510.1030 to 1510.1080 shall be marked in accordance with part 1510.1040.

Statutory Authority: *MS s 17.725*

1510.0685 LOCATION OF CONTAINERS.

Container shall be located outside of buildings other than those especially constructed for this purpose. Permanent storage shall be located outside of densely populated areas and subject to the approval of the Minnesota Department of Agriculture. The container shall not be less than: 50 feet from the line of adjoining property which may be built upon (except that the distance can be reduced to not less than ten feet from the near side of a public right of way); 50 feet from an open source of drinking water; and 400 feet from any school, hospital, or other place of public assembly.

Statutory Authority: *MS s 17.725*

1510.0690 CONTAINER VALVES AND APPURTENANCES.

All shutoff valves and appurtenances (liquid or water) shall be suitable for use with anhydrous ammonia and designed for not less than the maximum pressure to which they may be subjected. Valves which may be subjected to container pressures shall have a rated working pressure of at least 250 psig, except valves for refrigerated storage tanks shall have a rated working pressure at least equal to the maximum pressure to which they may be subjected.

Statutory Authority: *MS s 17.725*

1510.0700 CONNECTIONS TO CONTAINERS.

All connections to containers, except safety relief connections and gaging devices, shall have shutoff valves located as close to the container as practicable.

Statutory Authority: *MS s 17.725*

1510.0710 CERTAIN LIQUID LEVEL GAGING DEVICES.

Liquid level gaging devices which are so constructed that outward flow or container contents shall not exceed that passed by a No. 54 drill size opening, need not be equipped with excess flow valves.

Statutory Authority: *MS s 17.725*

1510.0720 OPENINGS FROM CONTAINER OR THROUGH FITTINGS ATTACHED DIRECTLY ON CONTAINER.

Openings from container or through fittings attached directly on container, to which pressure gage connection is made, need not be equipped with excess flow valves if such openings are protected by not larger than No. 54 drill size opening.

Statutory Authority: *MS s 17.725*

1510.0730 MARKING OF EXCESS FLOW VALVES.

All excess flow valves shall be plainly, and permanently marked with the name or trademark of the manufacturer, the catalog number, and the rated capacity.

Statutory Authority: *MS s 17.725*

1510.0740 AUTOMATIC CLOSURE OF EXCESS FLOW VALVES.

Excess flow valves shall close automatically at the rated flows of vapor or liquid as specified by the manufacturer. The connections and line including valves, fittings, etc., being protected by an excess flow valve shall have a greater capacity than the rated flow of the excess flow valve, so that the valve will close in case of failure at any point in the line or fittings.

Statutory Authority: *MS s 17.725*

1510.0750 LOCATION OF EXCESS FLOW AND BACK PRESSURE CHECK VALVES.

Excess flow and back pressure check valves shall be located inside of the container or at a point outside where the line enters the container. In the later case, installation shall be made in such a manner that any undue strain beyond the excess flow or back pressure check valve will not cause breakage between the container and the valve.

Statutory Authority: *MS s 17.725*

1510.0760 BYPASS.

Excess flow valves shall be designed with a bypass not to exceed a No. 60 drill size opening to allow equalization of pressure.

Statutory Authority: *MS s 17.725*

1510.0770 PIPING, TUBING, AND FITTINGS.

All fittings, where subjected to container pressure, shall be made of materials specified for use with anhydrous ammonia (part 1510.0540) and designed for a minimum working pressure of 250 psig, except fittings for refrigerated storage tanks shall have a rated working pressure at least equal to the maximum pressure to which they may be subjected. Cast iron bushings, plugs, or pipe fittings shall not be used. This does not prohibit the use of fittings made of malleable or nodular iron.

For information as to the suitability of malleable or nodular iron for use, refer to standards of the American Society for Testing and Materials (A47-61, A395-61), 1916 Race Street, Philadelphia, Pennsylvania.

Galvanized pipe shall not be used. Screwed joints are permissible only with extra heavy (schedule 80) pipe. Black steel or iron pipe of at least 800 psig minimum bursting pressure (schedule 40) may be used, provided pipe joints are welded or joined by means of welding type flanges, except that piping for handling refrigerated anhydrous ammonia shall have its wall thickness determined in accordance with the applicable portions of the American Standards Association Code for Pressure Piping (ASA B-31.1). Pipe joint compounds shall be resistant to ammonia.

Statutory Authority: *MS s 17.725*

1510.0780 STRAIGHT LINE INSTALLATION.

All pipe lines shall be installed as nearly as possible in a straight line with a minimum amount of pipe, and shall not be restricted by an excessive number of tees, elbows, etc. Where nipples are used, they shall be of extra heavy seamless type.

Statutory Authority: *MS s 17.725*

1510.0790 RIGID CONNECTIONS OR CERTAIN ALL-METAL FLEXIBLE CONNECTIONS.

Rigid connections or all-metal flexible connections with a bursting pressure of 1,000 psig are recommended for permanent installation, but other types of flexible connections may be used for temporary installation. Provisions shall be made for expansion, contraction, jarring, vibration, and for settling.

Statutory Authority: *MS s 17.725*

1510.0800 UNDUE STRAIN ON EXPOSED PIPING.

Adequate provisions shall be made to protect all exposed piping from physical damage that might result from moving machinery, the presence of automobiles or trucks, or any other undue strain that may be placed upon the piping.

Statutory Authority: *MS s 17.725*

1510.0810 TESTING FOR LEAKS.

After assembly, all piping and tubing shall be tested and proved to be free from leaks at a pressure not less than the normal operating pressure of the system.

Statutory Authority: *MS s 17.725*

1510.0820 HOSE SPECIFICATIONS AND ASSEMBLIES.

Hose and hose connectors shall be fabricated of materials that are resistant to the action of anhydrous ammonia. Hose subject to container pressure shall meet the requirements of the joint AAI-RMA Hose Specification (AAI-RMA Standard No. M-5). Hose and hose connections located on the low pressure side of flow control or pressure reducing valves or devices discharging to atmospheric pressure shall be designed for a minimum working pressure of 60 psig. All connections shall be designed, constructed, and installed so that there will be no leakage when connected.

Where liquid transfer hose is not drained of liquid upon completion of transfer operations, such hose shall be equipped with an approved shutoff valve at the discharge end. Provision shall be made to prevent excessive hydrostatic pressure in the hose (see part 1510.0890).

Statutory Authority: *MS s 17.725*

1510.0830 SAFETY DEVICES.

Subpart 1. **General.** Every container used with systems embodied in parts 1510.1090 to 1510.1710 shall be provided with one or more safety relief valves of springloaded or equivalent type. The discharge from safety relief valves shall be directed away from the container upward and unobstructed to the open air. The rate of discharge, except as provided in parts 1510.1720 to 1510.1910, shall be in accordance with the provisions of part 1510.1920. Refrigerated storage tanks are excepted. See part 1510.1760, subpart 1.

Subp. 2. **Start-to-discharge settings.** Container safety relief valves shall be set to start-to-discharge as follows with relation to the design pressure of the container:

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Containers	Minimum	Maximum
ASME Code -- 1950, 1952, 1956, 1959, 1962 and 1965 editions	95%	100%
ASME Code -- 1946 and 1959 editions Par. U-200 and U-201	95%	100%
API-ASME Code -- All editions	95%	100%
ASME Code -- 1949 and earlier editions Par. U-68 and U-69	110%	125%
ICC -- As approved by the Bureau of Explosives.		

Note: A plus tolerance of ten percent is permitted.

Subp. 3. **Design of valves.** Safety relief valves used on containers or systems described in parts 1510.1090 to 1510.1710 shall be constructed to discharge at the rates required in subpart 1. The design of these valves must ensure such discharge before the pressure exceeds 120 percent of the maximum not including the ten percent referred to in subpart 2 start-to-discharge pressure setting specified in subpart 2.

Statutory Authority: *MS s 17.725*

1510.0840 MINIMIZATION OF POSSIBILITY OF TAMPERING.

Safety relief valves shall be so arranged that the possibility of tampering will be minimized. If the pressure setting adjustment is external, the relief valves shall be provided with approved means for sealing the adjustment.

Statutory Authority: *MS s 17.725*

1510.0850 INSTALLATION OF SHUTOFF VALVES BETWEEN SAFETY RELIEF VALVES AND CONTAINER.

Shutoff valves shall not be installed between the safety relief valves and the container, except that a shutoff valve may be used where the arrangement of this valve is such as always to afford full required capacity flow through the relief valves.

Note: The above exception is made to cover such cases as a three-way valve installed under two safety relief valves, each of which has the required rate of discharge and is so installed as to allow either of the safety relief valves to be closed off, but does not allow both safety valves to be closed off at the same time. Another exception to this may be where two separate relief valves are installed with individual shutoff valves. In this case, the two shutoff valve stems shall be mechanically interconnected in a manner which will allow full required flow of one relief valve at all times. Still another exception is a safety relief valve manifold which allows one valve of two, three, four, or more to be closed off and the remaining valve or valves will provide not less than the rate of discharge shown on the manifold name plate.

Statutory Authority: *MS s 17.725*

1510.0860 DIRECT COMMUNICATION WITH VAPOR SPACE OF CONTAINER.

Safety relief valves shall have direct communication with the vapor space of the container.

Statutory Authority: *MS s 17.725*

1510.0870 MARKING.

Each safety relief valve used with systems described in parts 1510.1090 to 1510.1710 shall be plainly and permanently marked as follows:

- A. with letters "AA" or the symbol "NH₃";
- B. the pressure in pounds per square inch gage (psig) at which the valve is set to start-to-discharge;

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C. the rate of discharge of the valve at its full open position in cubic feet per minute of air at 60 degrees Fahrenheit and atmospheric pressure (14.7 psia);

D. the manufacturer's name and catalog number.

For example, a safety relief valve marked AA-250-4200 (air) would mean that this valve is suitable for use on an anhydrous ammonia container; that it is set to start-to-discharge at 250 psig; and that its rate of discharge at full open position (see part 1510.0830) is 4,200 cubic feet per minute of air.

Statutory Authority: *MS s 17.725*

1510.0880 CONNECTIONS.

Connections such as couplings, flanges, nozzles, and discharge lines for venting, to which relief valves are attached, shall have internal dimensions of sufficient size to avoid any restriction of flow through the relief valves.

Statutory Authority: *MS s 17.725*

1510.0890 MANIFOLD FLOW RATING.

The manufacturer or supplier of a relief valve manifold must publish complete data showing the flow rating through the combined assembly of the manifold with safety relief valves installed. The manifold flow rating must be determined by testing the manifold with all but one valve discharging. If one or more openings have restrictions not present in the remaining openings, the restricted opening or openings or those having the lowest flow shall be used to establish the flow rate marked on the manifold nameplate. The marking shall be similar to that required in part 1510.0870 for individual valves.

Statutory Authority: *MS s 17.725*

1510.0900 PRESSURE RELIEF VALVE.

A relief valve, venting to atmosphere at a safe location, shall be installed between each pair of shutoff valves in an ammonia line where liquid may be trapped. It is recommended that the start-to-discharge pressure of pressure relief valves be not less than 350 psig, and not in excess of 400 psig.

Statutory Authority: *MS s 17.725*

1510.0910 DISCHARGE FROM SAFETY RELIEF DEVICES.

Discharge from safety relief devices shall not terminate in or beneath any building.

Statutory Authority: *MS s 17.725*

1510.0920 FILLING DENSITIES (SEE PART 1510.0560, SUBPART 8).

Subpart 1. **Nonrefrigerated containers.** The filling densities for nonrefrigerated containers shall not exceed the following:

A. Uninsulated aboveground, 56 percent. This corresponds to 85 percent by volume at five degrees Fahrenheit. At 60 degrees Fahrenheit, it is 90.6 percent by volume.

B. Uninsulated underground, 58 percent.

C. Insulated aboveground, 57 percent.

D. ICC containers shall be filled in accordance with ICC regulations.

Subp. 2. **Refrigerated storage tanks.** The filling density for refrigerated storage tanks shall be such that the tanks will not be liquid full at a liquid temperature corresponding to the vapor pressure at the start-to-discharge pressure setting of the safety relief valve.

Subp. 3. **Thermometers.** If containers are to be filled according to liquid level by any gaging method other than a fixed length dip tube gage, each container should have a thermometer well so that the internal liquid temperature can be easily determined and the amount of liquid and vapor in the container

corrected to a 60 degrees Fahrenheit basis.

Statutory Authority: *MS s 17.725*

1510.0930 TRANSFER OF LIQUIDS.

Anhydrous ammonia must always be at a temperature suitable for the material of construction and design of the receiving containers. Ordinary steels are not suitable for refrigerated ammonia. See Appendix R of API Standard 620 for materials for temperature service.

At least one attendant shall supervise the transfer of liquids from the time the connections are first made until they are finally disconnected.

Containers shall be filled or used only upon authorization of owner.

Containers shall be gaged and charged only in the open air or in buildings especially provided for that purpose.

Statutory Authority: *MS s 17.725*

1510.0940 PUMPS FOR TRANSFERRING AMMONIA.

Pumps used for transferring ammonia shall be recommended and labeled for ammonia service by the manufacturer.

Liquid pumps may be of piston, rotary, centrifugal, or regenerative type, designed for 250 psig working pressure.

Positive displacement pumps shall have, installed off the discharge port, a constant differential relief valve discharging through a line of sufficient size to carry the full capacity of the pump at relief valve setting, which setting and installation shall be according to pump manufacturer's recommendation.

On the discharge side of the pump, before the relief valve line, there shall be installed a pressure gage graduated from 0 to 400 psi.

Centrifugal or regenerative pumps do not require a bypass relief valve, but the installation shall incorporate a line from the discharge side of the pump to the vapor space of the supplying container. In this line, at accessible level, must be installed a shutoff valve.

Shutoff valves shall be installed on the inlet and on the discharge of the pump.

Statutory Authority: *MS s 17.725*

1510.0950 COMPRESSORS FOR TRANSFERRING OR REFRIGERATING AMMONIA.

Compressors used for transferring or refrigerating ammonia shall be recommended and labeled for ammonia service by the manufacturer.

Compressors may be of reciprocating or rotary type designed for 250 psig working pressure.

Plant piping shall contain shutoff valves located as close as practical to compressor connections.

A relief valve large enough to discharge the full capacity of the compressor shall be connected to the discharge before any shutoff valve. The discharging pressure of this valve shall not exceed 300 psig.

Compressors shall have pressure gages graduated from 0 to 400 psi at suction and discharge.

Adequate means shall be provided on the compressor suction to minimize the entry of liquid into the compressor. A drainable liquid trap is one means of providing such protection.

Statutory Authority: *MS s 17.725*

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1510.0960 ADDITIONAL EXCESS FLOW VALVE, BACKFLOW CHECK VALVE, OR REMOTELY OPERATED SHUTOFF VALVE.

In addition to the excess flow valves in the liquid and vapor connections of the storage container, an excess flow valve or backflow check valve shall be installed in the liquid piping close to the point where the piping and hose are joined at the tank car or tank truck unloading station. Also, each tank car unloading adapter to which the liquid hose is attached shall be equipped with a properly sized excess flow valve or a remotely operated shutoff valve to stop the flow from the tank in the event of hose rupture.

Statutory Authority: *MS s 17.725*

1510.0970 TANK CAR UNLOADING POINTS AND OPERATIONS.

Tank car siding shall be substantially level. A sign reading "Stop -- Tank Car Connected," as covered by ICC rules, shall be displayed at the active end or ends of the siding while the tank car is connected for unloading. While tank cars are on siding for unloading, the wheels at both ends shall be blocked on the rails. Tank cars shall be unloaded only through a fixed facility unloading point and into a permanently located bulk storage container. Anhydrous ammonia shall not be unloaded directly from a railroad tank car into a transport truck or other portable container.

Statutory Authority: *MS s 17.725*

1510.0980 CONVERTING ANHYDROUS AMMONIA TO AQUEOUS AMMONIA.

The transfer of anhydrous ammonia from a tank car to any other unit for the purpose of converting anhydrous ammonia to aqueous ammonia shall only be done at such location whereby the railroad tank car can be retained for an indefinite period and where an aqueous converter is located at a site approved by the Minnesota Department of Agriculture for this purpose, and then only when the converter is in operation to safely consume the discharged gas or fumes so that they will not be released into the atmosphere. The requirements of part 1510.0685 must be met before such site and facility will be approved by the department.

Statutory Authority: *MS s 17.725*

1510.0990 LIQUID LEVEL GAGING DEVICES.

Each container, except containers filled by weight, shall be equipped with a liquid level gaging device of approved design. All gaging devices shall be arranged so that the maximum liquid level to which the container may be filled is readily determinable (see parts 1510.0660, item F and 1510.0920, subpart 1).

Gaging devices that require bleeding of the product to the atmosphere, such as the rotary tube, fixed tube, and slip tube, shall be so designed that the bleed valve maximum opening is not larger than a No. 54 drill size, unless provided with an excess flow valve. Note: This does not apply to parts 1510.1650 to 1510.1710.

Gaging devices shall have a design pressure at least equal to the design pressure of the storage container on which they are installed.

Statutory Authority: *MS s 17.725*

1510.1000 FIXED LIQUID LEVEL GAGES.

Fixed liquid level gages shall be so designed that the maximum volume of the container filled by liquid shall not exceed 85 percent of its water capacity. The coupling into which the fixed liquid level gage is threaded must be placed at the 85 percent level of the container. If located elsewhere, the dip tube of this

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gage must be installed in such a manner that it cannot be readily removed.
Note: This does not apply to refrigerated storage.

Statutory Authority: *MS s 17.725*

1510.1010 GAGE GLASSES OF COLUMNAR TYPE.

Gage glasses of the columnar type shall be restricted to bulk storage installations. They shall be equipped with valves having metallic handwheels, with excess flow valves, and with extra heavy glass adequately protected with a metal housing applied by the gage manufacturer. They shall be shielded against the direct rays of the sun.

Statutory Authority: *MS s 17.725*

1510.1020 PAINTING.

White is the recommended color for all aboveground containers with other light-reflecting colors accepted.

Statutory Authority: *MS s 17.725*

1510.1030 CYLINDER SYSTEMS.

Parts 1510.1030 to 1510.1080 apply specifically to systems utilizing containers of 1,000 pounds water capacity or less, constructed in accordance with Interstate Commerce Commission specifications. All basic rules of parts 1510.0590 to 1510.1020 apply to parts 1510.1030 to 1510.1080, unless otherwise noted.

Statutory Authority: *MS s 17.725*

1510.1040 MARKING OF CONTAINERS.

All containers shall be marked in accordance with Interstate Commerce Commission regulations. Additional markings not in conflict with Interstate Commerce Commission regulations may be used.

Statutory Authority: *MS s 17.725*

1510.1050 LOCATION OF CONTAINERS.

Containers shall not be buried below ground. Containers shall be set upon firm foundations or otherwise firmly secured. The possible effect of settling on the outlet piping shall be guarded against by a flexible connection or special fitting.

Statutory Authority: *MS s 17.725*

1510.1060 CONTAINER VALVES AND REGULATING EQUIPMENT.

Container valves and pressure-regulating equipment shall be protected against tampering when installed for use. Container valves and pressure-regulating equipment shall be protected while in transit, in storage, and while being moved into final utilizations, as follows: by setting them into a recess of the container, or by ventilated cap or collar, fastened to the container, capable of withstanding a blow from any direction equivalent to that of a 30-pound weight dropped four feet. Construction must be such that a blow will not be transmitted to the valves or other connections.

When containers are not connected for service, the outlet valves shall be kept tightly closed or plugged, even though containers are considered empty.

Statutory Authority: *MS s 17.725*

1510.1070 SEEDS, FERTILIZERS, FEEDS

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1510.1070 SAFETY DEVICES.

Containers shall be provided with safety devices as required by Interstate Commerce Commission regulation.

Statutory Authority: *MS s 17.725*

1510.1080 REINSTALLATION OF CONTAINERS.

Containers shall not be reinstalled if due to be retested unless they have been retested in accordance with currently effective regulations of the Interstate Commerce Commission.

Statutory Authority: *MS s 17.725*

1510.1090 SYSTEM UTILIZING CONTAINERS OTHER THAN ICC CYLINDERS.

Parts 1510.1090 to 1510.1270 apply to stationary, nonrefrigerated storage installations utilizing containers other than those constructed in accordance with Interstate Commerce Commission specifications. All basic rules of parts 1510.0590 to 1510.1020 apply to parts 1510.1090 to 1510.1270 unless otherwise noted.

Statutory Authority: *MS s 17.725*

1510.1100 DESIGN PRESSURE OF CONTAINERS.

Containers shall be constructed in accordance with part 1510.1710 with a minimum design pressure of 250 psig.

Note: Because of the insulating effect of the earth, the average vapor pressure of products stored in underground containers will be materially lower than when stored aboveground. This reduction in actual operating pressure, therefore, provides a substantial corrosion allowance for these containers when installed underground.

Statutory Authority: *MS s 17.725*

1510.1110 INSTALLATION OF STORAGE CONTAINERS.

Note: Aboveground installation of anhydrous ammonia containers is recommended, but rules for underground container installations are included to provide for those cases where special considerations make underground installation desirable.

Statutory Authority: *MS s 17.725*

1510.1120 CONTAINERS INSTALLED ABOVEGROUND.

Containers installed aboveground shall be provided with substantial reinforced concrete footings and foundations, or structural steel supports mounted on reinforced concrete foundations. In either case, the reinforced concrete foundations or footings must extend below the established frost line and shall be of sufficient width and thickness to support the total weight of the containers and contents adequately. The foundation shall maintain the lowest point of the tank at not less than 18 inches above the ground. Floating type, reinforced concrete foundations will also be acceptable providing the foundations are designed to adequately support the tank, contents, and pumping equipment.

Statutory Authority: *MS s 17.725*

1510.1130 HORIZONTAL ABOVEGROUND CONTAINERS.

Horizontal aboveground containers shall be mounted on foundations in such a manner as to permit expansion and contraction. Every container shall be supported so as to prevent the concentration of excessive loads on the supporting portion of the shell. Suitable means of preventing corrosion shall be provided on that portion of the container in contact with the foundations or saddles.

Statutory Authority: *MS s 17.725*

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1510.1140 SECURE ANCHORAGE OR ADEQUATE PIER HEIGHT.

Secure anchorage or adequate pier height shall be provided against container flotation wherever sufficiently high flood water might occur.

Statutory Authority: *MS s 17.725*

1510.1150 CONTAINERS BURIED UNDERGROUND.

Containers buried underground shall be placed so that the top of the container is at least one foot below the surface of the ground. Should ground conditions make compliance with these requirements impractical, precautions shall be taken to prevent physical damage to the container. It will not be necessary to cover the portion of the container to which a manhole and other connections are affixed. When necessary to prevent floating, containers shall be securely anchored or weighted.

Statutory Authority: *MS s 17.725*

1510.1160 FIRM FOUNDATIONS AND PROTECTIVE COATING FOR UNDERGROUND CONTAINERS.

Underground containers shall be set on firm foundations (firm earth may be used) and surrounded with soft earth or sand well tamped in place. As a further means of resisting corrosion, the container, prior to being placed underground, shall be given a protective coating satisfactory to the Minnesota Department of Agriculture. Such protective coating shall be equivalent to hot dip galvanizing, or to two preliminary coatings of red lead followed by a heavy coating of coal tar or asphalt. The container thus coated shall be lowered into place in such a manner as to prevent abrasion or other damage to the coating.

Statutory Authority: *MS s 17.725*

1510.1170 DISTANCE BETWEEN ABOVEGROUND CONTAINERS.

Distance between aboveground containers of over 1,200 gallons capacity shall be at least five feet.

Statutory Authority: *MS s 17.725*

1510.1180 CONTAINER VALVES AND APPURTENANCES.

All containers shall be equipped with a fixed liquid level gage. All containers shall be equipped with a pressure indicating gage having a dial graduated from 0 to 400 psi. The filling connection shall be fitted with an approved combination back-pressure check valve and excess flow valve; one double or two single back-pressure check valves; or a positive shutoff valve, in conjunction with either an internal back-pressure check valve or an internal excess flow valve.

All containers shall be equipped with an approved vapor return valve. All vapor and liquid connections, except safety relief valves and those specifically exempt in parts 1510.0710 and 1510.0720 shall be equipped with approved excess flow valves; or, in lieu thereof, may be fitting with approved quick-closing internal valves which, except during operating periods, shall remain closed.

Statutory Authority: *MS s 17.725*

1510.1190 SAFETY DEVICES.

Every container shall be provided with one or more safety relief valves of spring-loaded or equivalent type and shall comply with the following: The discharge from safety relief valves shall be directed away from the container upward and unobstructed to the open air. Vent pipes shall not be restricted or smaller in size than the relief valve outlet connection. All relief valve discharges shall have suitable rain caps that will allow free discharge of the vapor and prevent the entrance of water. Suitable provision shall be made for drainage condensate which may accumulate. If desired, vent pipes from two or more

safety relief devices located on the same unit or similar lines from two or more different units may be run into a common header, provided the cross-sectional area of such header is at least equal to the sum of the cross-sectional area of the individual vent pipes.

Statutory Authority: *MS s 17.725*

1510.1200 UNDERGROUND CONTAINERS.

Spring loaded relief valves installed on underground containers may be reduced to a minimum of 30 percent of the rate of discharge specified in part 1510.1920. Containers so protected shall not be uncovered after installation until the liquid ammonia has been removed therefrom. Containers which may obtain liquid ammonia before being installed underground and before being completely covered with earth are to be considered aboveground containers when determining the rate of discharge requirement of the relief valves.

Statutory Authority: *MS s 17.725*

1510.1210 UNDERGROUND INSTALLATIONS WITH PROBABILITY OF FLOODING.

On underground installations where there is a probability of the manhole or housing becoming flooded, the discharge from vent pipes should be above the possible water level. All manholes or housings shall be provided with ventilated louvers or their equivalent, the area of such openings equalling or exceeding the combined discharge areas of safety relief valves and vent pipes which discharge their content into the manhole housing.

Statutory Authority: *MS s 17.725*

1510.1220 MARKING CONTAINERS.

Each container or group of containers shall be marked on at least two sides with the words "Caution -- Ammonia" in sharply contrasting colors with letters not less than six inches high.

Statutory Authority: *MS s 17.725*

1510.1230 CAPACITY OF CONTAINERS.

Individual storage container capacity shall be limited only by good engineering practice.

Statutory Authority: *MS s 17.725*

1510.1240 PROTECTION OF CONTAINER APPURTENANCES.

Main container shutoff valves shall be kept closed and locked when the installation is unattended. If the facility is protected against tampering by fencing or other physical means, locks will not be required.

All connections to underground containers shall be located within the substantial dome, housing, or manhole fitted with a substantial removable cover. Appurtenances shall also be protected during the transit of containers intended for installation underground.

Storage containers need not be grounded. All areas occupied by storage installations shall be kept free of high grass and weeds.

Statutory Authority: *MS s 17.725*

1510.1250 REINSTALLATION OF CONTAINERS.

Containers once installed underground shall not later be reinstalled aboveground or underground, unless they successfully withstand hydrostatic pressure retests at the pressure specified for the original hydrostatic test as required by the code under which constructed and show no evidence of serious corrosion. Where containers are reinstalled underground, the corrosion-resistant coating shall be put in good condition. Where reinstalled aboveground, all

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requirements for aboveground containers will apply.

Statutory Authority: *MS s 17.725*

1510.1260 SAFETY EQUIPMENT.

Each fixed facility shall have on hand as a minimum the following equipment for emergency and rescue purposes:

A. One full face gas mask with anhydrous ammonia refill canisters.
Note: An ammonia canister is effective for short periods of time in light concentrations of ammonia vapor, generally 15 minutes in concentrations of three percent, and will not protect breathing in heavier concentrations. If ammonia vapors are detected when mask is applied, the concentration is too high for safety. The life of a canister in service is controlled by the percentage of vapors to which it is exposed. Canisters must not be opened until ready for use and may as well be discarded after use. Unopened canisters may be guaranteed for as long as three years. All should be dated when received because of this limited life. In addition to this protection, an independently supplied air mask of the type used by fire departments may be used for severe emergencies.

B. One pair of protective gloves.

C. One pair of protective boots.

D. One protective slicker and/or protective pants and jacket.

E. Easily accessible shower and/or at least 50 gallons of clean water in an open top container.

F. Tight-fitting goggles or one full face shield.

Note: Gloves, boots, slickers, jackets, and pants shall be made of rubber or other material impervious to ammonia.

Statutory Authority: *MS s 17.725*

1510.1270 ELECTRICAL EQUIPMENT.

The conduit system and electrical equipment for use at ammonia storage installations may be general purpose, dust tight, or weather resistant as appropriate.

Electrical systems, such as for lighting, pump motors, etc. shall be installed and grounded in a manner approved by the National Electrical Code and/or local ordinance.

Statutory Authority: *MS s 17.725*

1510.1280 SYSTEMS MOUNTED ON TANK TRUCKS, SEMITRAILERS, AND TRAILERS FOR TRANSPORTATION OF AMMONIA.

Parts 1510.1280 to 1510.1540 apply specifically to systems mounted on trucks, semitrailers, and trailers other than those covered under parts 1510.1550 to 1510.1710 used for the transportation of ammonia. All basic rules of parts 1510.0590 to 1510.1020 apply to parts 1510.1280 to 1510.1540 unless otherwise noted. Systems for tank trucks and trailers for transportation of anhydrous ammonia, in addition to complying with the requirements of these rules, shall also comply, where required, with the requirements of the Interstate Commerce Commission and those of any other regulatory body which may apply.

Statutory Authority: *MS s 17.725*

1510.1290 DESIGN PRESSURE OF CONTAINERS.

Containers shall be constructed in accordance with parts 1510.0600 to 1510.0640 with a minimum design pressure of 250 psig, except that containers used in interstate commerce shall meet Interstate Commerce Commission regulations.

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The shell or head thickness of any container shall not be less than 3/16 inch.

Statutory Authority: *MS s 17.725*

1510.1300 BAFFLE PLATES.

Baffles are not required for cargo tanks designed for service in which under normal conditions the container is loaded to capacity and discharged at one unloading point. All other containers over 500 gallons capacity should be equipped with suitable semirigid baffle plates.

Statutory Authority: *MS s 17.725*

1510.1310 LABELS.

All container openings except safety relief valves, liquid level gaging devices, and pressure gages shall be labeled to designate whether they communicate with liquid or vapor space. Labels may be on valves.

Statutory Authority: *MS s 17.725*

1510.1320 MOUNTING CONTAINERS ON TRUCK.

The means of attachment of any container to the cradle, frame, or chassis of a vehicle shall be designed to withstand static loading in any direction equal to twice the weight of the container and attachments then filled with lading, using a safety factor of not less than four, based on the ultimate strength of the material to be used.

Statutory Authority: *MS s 17.725*

1510.1330 HOLD-DOWN DEVICES.

"Hold-down" devices, when used, shall anchor the container to the cradle, frame, or chassis in a suitable and safe manner that will not introduce undue concentration of stresses. These devices shall incorporate positive means for drawing the container down tight. Suitable stops or anchors shall be provided to prevent relative movement between container and framing due to stopping, starting, or changes in direction.

Statutory Authority: *MS s 17.725*

1510.1340 VEHICLES WITH CARGO TANKS CONSTITUTING STRESS MEMBER USED IN LIEU OF FRAME.

Whenever any vehicle is designed and constructed so that cargo tanks constitute in whole or in part the stress member used in lieu of a frame, such cargo tanks shall be designed to withstand the stresses thereby imposed in addition to those covered by the code under which the cargo tank was designed.

Statutory Authority: *MS s 17.725*

1510.1350 LIQUID WITHDRAWAL LINE.

If a liquid withdrawal line is installed in the bottom of a container, the connections thereto, including hose, shall not be lower than the lowest horizontal edge of the trailer axle.

Statutory Authority: *MS s 17.725*

1510.1360 SECURING HOSE IN TRANSIT.

Provisions shall be made to secure both ends of the hose while in transit.

Statutory Authority: *MS s 17.725*

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1510.1370 ELIMINATION OF METAL-TO-METAL FRICTION.

When the cradle and the container are not welded together, suitable material shall be used between them to eliminate metal-to-metal friction.

Statutory Authority: *MS s 17.725*

1510.1380 CONTAINER VALVES AND APPURTENANCES.

All containers shall be equipped with a fixed liquid level gage.

All containers shall be equipped with a pressure-indicating gage having a dial graduated from 0 to 400 psi.

Nonrecessed container fittings and appurtenances shall be protected against damage by either their location, the vehicle frame or bumper, or a protective housing. The protective housing, if used, shall comply with the requirements under which the containers are fabricated with respect to design and construction, and shall be designed to withstand static loadings in any direction equal to twice the weight of the container and attachments when filled with the lading, using a safety factor of not less than four, based on the ultimate strength of the material to be used. The housing shall be protected with a weather cover, if necessary, to ensure proper operation of valves and safety devices.

Statutory Authority: *MS s 17.725*

1510.1390 AUTOMATIC VALVE.

Filling connections shall be provided with approved automatic valves to prevent back flow in case the filling connection is broken, except that where the filling and discharge connect on a common opening in the container shell, and that opening is fitted with a quick-closing internal valve as specified in the second paragraph of this part, the automatic valve shall not be required.

All other connections to containers, except safety relief valves and those specifically exempt in parts 1510.0710 and 1510.0720 shall be provided with approved excess flow valves, or in lieu thereof may be fitted with approved quick-closing internal valves, which, except during delivery operations, shall remain closed. The control mechanism for such valves may be provided with a secondary control remote from the delivery connections. Such control mechanism shall be provided with a fusible section (melting point 208 degrees Fahrenheit to 220 degrees Fahrenheit) which will cause the internal valve to close automatically in case of fire.

Statutory Authority: *MS s 17.725*

1510.1400 VAPOR RETURN VALVE.

All containers shall be equipped with an approved vapor return valve of adequate capacity.

Statutory Authority: *MS s 17.725*

1510.1410 SAFETY DEVICES.

The discharge from safety relief valves shall be directed away from the container upward and unobstructed to the open air in such a manner as to prevent any impingement of escaping gas. Loose fitting rain caps shall be used. The unloading line shall be provided with an excess flow valve at the point where the hose leaves the truck.

Statutory Authority: *MS s 17.725*

1510.1420 MARKING CONTAINER.

Every container, whether loaded or empty, shall be conspicuously and legibly marked on each side and rear thereof on a background of sharply contrasting color with the words "COMPRESSED GAS" in letters at least four inches high; or with the words "ANHYDROUS AMMONIA" in letters at least four inches high; or in compliance with Interstate Commerce Commission

regulations and Minnesota fertilizer law.

Statutory Authority: *MS s 17.725*

1510.1430 PIPING, TUBING, AND FITTINGS.

All piping, tubing, and metering or dispensing devices shall be securely mounted and protected against damage. Piping, tubing, and fittings shall be suitable for a minimum pressure of 250 psig. Pipe shall be at least schedule 80 if joints are threaded, or threaded and back welded. At least schedule 40 (ASTM A-53 Grade B electric resistance welded and electric flash welded pipe or equal) shall be used if joints are welded, or welded and flanged.

Statutory Authority: *MS s 17.725*

1510.1440 ELECTRICAL EQUIPMENT AND LIGHTING.

Tank trucks, tank trailers, and tank semitrailers, may not be equipped with any artificial light other than electric light. Electric lighting circuits shall have suitable overcurrent protection (fuses or automatic circuit breakers). The wiring shall have sufficient carrying capacity and mechanical strength, and shall be suitably secured, insulated, and protected against physical damage.

Statutory Authority: *MS s 17.725*

1510.1450 TRAILERS AND SEMITRAILERS.

All trailers shall be firmly and securely attached to the vehicle drawing them by means of suitable drawbars supplemented by suitable safety chains.

Statutory Authority: *MS s 17.725*

1510.1460 BRAKES.

Every trailer or semitrailer shall be equipped with a reliable system of brakes. Adequate provision shall be made for efficient operation of the brakes from the driver's seat of the vehicle drawing the trailer.

Statutory Authority: *MS s 17.725*

1510.1470 SIDE LIGHTS AND TAIL LIGHT.

Every trailer or semitrailer shall be provided with side lights and a tail light.

Statutory Authority: *MS s 17.725*

1510.1480 FOUR-WHEELED TRAILERS.

Four-wheeled trailers shall be of a type of construction which will prevent the towed vehicle from whipping or swerving dangerously from side to side and which will cause it to follow substantially in the path of the towing vehicle.

Statutory Authority: *MS s 17.725*

1510.1490 FIFTH WHEEL.

Where a fifth wheel is employed, it shall be ruggedly designed, securely fastened to both units, and equipped with a positive locking mechanism which will prevent separation of the two units, except by manual release.

Statutory Authority: *MS s 17.725*

1510.1500 SAFETY EQUIPMENT.

All tank trucks, trailers, and semitrailers shall be equipped with the following for emergency and rescue purposes:

A. One full face gas mask with anhydrous ammonia refill canisters.

Note: An ammonia canister is effective for short periods of time, in light concentrations of ammonia vapor, generally 15 minutes in concentration of three percent and will not protect breathing in heavier concentrations. If ammonia vapors are detected when mask is applied, the concentration is too high for safety. The life of a canister in service is controlled by the percentage of vapors

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to which it is exposed. Canisters must not be opened until ready for use and may as well be discarded after use. Unopened canisters may be guaranteed for as long as three years. All should be dated when received because of this limited life. In addition to this protection, an independently supplied air mask of the type used by fire departments may be used for severe emergencies.

B. One pair of protective gloves. Note: Gloves should be made of rubber or other materials impervious to ammonia.

C. Tight-fitting goggles or one full face shield.

D. A container of not less than five gallons of readily available clean water.

Statutory Authority: *MS s 17.725*

1510.1510 TRANSFER OF LIQUID.

Truck and trailer containers shall be loaded by weight or by a suitable liquid level gaging device. Pumps or compressors when designed and installed in accordance with parts 1510.0930 to 1510.0960 and properly protected against physical damage may be mounted upon ammonia tank trucks and trailers.

Statutory Authority: *MS s 17.725*

1510.1520 PROTECTION AGAINST COLLISION.

Each tank truck and trailer shall be provided with properly attached steel bumpers or a chassis extension so arranged as to protect the container, piping, valves, and fittings in case of collision.

Statutory Authority: *MS s 17.725*

1510.1530 CHOCK BLOCKS.

Chock blocks shall be provided. These blocks shall be placed at rear wheels to prevent rolling of the vehicle whenever it is parked, including loading and unloading operations.

Statutory Authority: *MS s 17.725*

1510.1540 SKID TANKS.

Where skid tanks are used in lieu of containers permanently mounted on trucks, semitrailers, or trailers for the day-to-day transportation of ammonia, they shall comply with all requirements of parts 1510.1280 to 1510.1540.

Statutory Authority: *MS s 17.725*

1510.1550 SYSTEMS MOUNTED ON FARM VEHICLES.

Parts 1510.1550 to 1510.1640 apply to containers of 3,000 gallons capacity or less and pertinent equipment mounted on farm vehicles (implements of husbandry). All basic rules of parts 1510.0590 to 1510.1020 apply to parts 1510.1550 to 1510.1640 unless otherwise noted.

Statutory Authority: *MS s 17.725*

1510.1560 DESIGN PRESSURE OF CONTAINER.

Containers shall be constructed in accordance with parts 1510.0600 to 1510.0640 with a minimum design pressure of 250 psig. The shell or head thickness of any container shall not be less than 3/16 inch. All containers over 500 gallons capacity should be equipped with suitable semirigid baffle plates.

Statutory Authority: *MS s 17.725*

1510.1570 MOUNTING CONTAINERS.

A suitable stop or stops shall be mounted on the vehicle or on the container in such a way that the container shall not be dislodged from its mounting due to the vehicle coming to a sudden stop. Back slippage shall also be prevented by proper methods. A suitable hold down device shall be provided which will anchor the container to the vehicle at one or more places on each side of the container. When containers are mounted on four-wheel trailers, care shall be taken to ensure that the weight is distributed evenly over both axles. When the cradle and the container are not welded together, suitable material shall be used between them to eliminate metal-to-metal friction.

Statutory Authority: *MS s 17.725*

1510.1580 CONTAINER VALVES AND APPURTENANCES.

All containers shall be equipped with a fixed liquid level gage. All containers with a capacity of 250 gallons or more shall be equipped with a pressure indicating gage having a dial graduated from 0 to 400 psi. The filling connection shall be fitted with an approved combination back pressure check valve and excess-flow valve; one double or two single back-pressure check valves; or a positive shutoff valve, in conjunction with either an internal back pressure check valve or an internal excess-flow valve. All containers with a capacity of 250 gallons or more shall be equipped with an approved vapor return valve.

Statutory Authority: *MS s 17.725*

1510.1590 EXCESS-FLOW VALVES OR QUICK-CLOSING INTERNAL VALVES.

All vapor and liquid connections, except safety relief valves and those specifically exempt in parts 1510.0710 and 1510.0720, shall be equipped with approved excess-flow valves or may be fitted with approved quick-closing internal valves, which, except during operating periods, shall remain closed.

Statutory Authority: *MS s 17.725*

1510.1600 PROTECTION OF FITTINGS.

Fittings shall be adequately protected from physical damage by means of a metal box or cylinder with open top securely fastened to the container; or by means of rigid guards, well braced, welded to the container on both sides of the fittings; or by means of a metal dome. If a metal dome is used, the relief valve shall be properly vented through the dome.

Statutory Authority: *MS s 17.725*

1510.1610 LIQUID WITHDRAWAL LINE.

If a liquid withdrawal line is installed in the bottom of a container, the connections thereto, including hose, shall not be lower than the lowest horizontal edge of the vehicle axle.

Statutory Authority: *MS s 17.725*

1510.1620 SECURING HOSE IN TRANSIT.

Provision shall be made to secure both ends of the hose while in transit.

Statutory Authority: *MS s 17.725*

1510.1630 MARKING CONTAINER.

There shall appear on each side and on the rear of the container the words "Caution -- Ammonia" on a background of sharply contrasting colors in letters at least four inches high, or the container shall be marked in accordance with the Interstate Commerce Commission regulations and Minnesota fertilizer law.

Statutory Authority: *MS s 17.725*

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1510.1640 FARM VEHICLES.

Farm vehicles (implements of husbandry) shall conform with the rules of the state of Minnesota. All trailers shall be securely attached to the vehicle drawing them by means of drawbars supplemented by suitable safety chains. A trailer shall be constructed so that it will follow substantially in the path of the towing vehicle and will prevent the towed vehicle from whipping or swerving dangerously from side to side. All vehicles shall carry a container of not less than five gallons of readily available clean water.

Statutory Authority: *MS s 17.725*

1510.1650 SYSTEMS MOUNTED ON FARM VEHICLES (IMPLEMENTS OF HUSBANDRY) FOR THE APPLICATION OF AMMONIA.

Parts 1510.1650 to 1510.1710 apply to systems mounted on farm vehicles and used for the field application of ammonia.

Statutory Authority: *MS s 17.725*

1510.1660 DESIGN PRESSURE OF CONTAINERS.

Containers shall be constructed in accordance with parts 1510.0600 to 1510.0640 with a minimum design pressure of 250 psig. The shell or head thickness of any container shall not be less than 3/16 inch.

Statutory Authority: *MS s 17.725*

1510.1670 MOUNTING OF CONTAINERS.

All containers and flow-control devices shall be securely mounted.

Statutory Authority: *MS s 17.725*

1510.1680 CONTAINER VALVES AND APPURTENANCES.

Each container shall have a fixed liquid level gage. The filling connection shall be fitted with an approved combination back-pressure check valve and excess-flow valve; one double or two single back-pressure check valves; or a positive shutoff valve, in conjunction with either an internal back-pressure check valve or an internal excess-flow valve.

Statutory Authority: *MS s 17.725*

1510.1690 EXCESS-FLOW VALVE IN VAPOR CONNECTION.

An excess-flow valve is not required in the vapor connection, provided the controlling orifice is not in excess of 7/16 inch in diameter and the valve is a hand-operated (attached hand wheel or equivalent) shutoff valve. To assist in filling applicator tanks, it is permissible to bleed vapors to the open air providing the preceding requirements are met.

Statutory Authority: *MS s 17.725*

1510.1700 FLEXIBLE CONNECTION.

Regulation equipment may be connected directly to the container coupling or flange, in which case a flexible connection shall be used between such regulating equipment and the remainder of the liquid withdrawal system. Regulating equipment not so installed shall be flexibly connected to the container shutoff valve.

Statutory Authority: *MS s 17.725*

1510.1710 EXCESS-FLOW VALVE IN LIQUID WITHDRAWAL SERVICE LINE.

No excess-flow valve is required in the liquid withdrawal service line provided the controlling orifice between the contents of the container and the

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outlet of the shutoff valve (part 1510.0700) does not exceed 7/16 inch in diameter.

Statutory Authority: *MS s 17.725*

1510.1720 REFRIGERATED STORAGE.

Parts 1510.1720 to 1510.1910 apply specifically to systems utilizing tanks for the storage of anhydrous ammonia under refrigerated conditions. All basic rules of parts 1510.0590 to 1510.1020 apply to parts 1510.1720 to 1510.1910 unless inconsistent with the requirements of parts 1510.1720 to 1510.1910.

Statutory Authority: *MS s 17.725*

1510.1730 DESIGN OF TANKS.

Tanks may be designed for any storage pressure desired as determined by economical design of the refrigerated system. Tanks with a design pressure exceeding 15 psig shall be constructed in accordance with parts 1510.0600 to 1510.0640, and in addition the materials shall be selected from those listed in API Standard 620, tables 2.02, R2.2, R2.2(A), R2.2.1, or R2.3. Tanks with a design pressure of 15 psig and less shall be constructed in accordance with the general requirements of the latest edition of API Standard 620, including Appendix R. When austenitic steels or nonferrous materials are used, the ASME code shall be used as a guide in selection of materials for use at the design temperature.

Statutory Authority: *MS s 17.725*

1510.1740 INSTALLATION OF STORAGE TANKS.

Tanks shall be supported on suitable noncombustible foundations designed to accommodate the type of tank being used. Adequate protection against flotation or other water damage shall be provided wherever high flood water might occur. Tanks for product storage at less than 32 degrees Fahrenheit shall be supported in such a way, or heat shall be supplied, to prevent the effects of freezing and consequent frost heaving.

Statutory Authority: *MS s 17.725*

1510.1750 TANK VALVES, FILL PIPES, AND DISCHARGE PIPES.

Shutoff valves shall be provided for all connections except those with a No. 54 drill size restriction, plugs, safety valves, thermometer wells, and located as close to the tank as practicable.

When operating conditions make it advisable, a check valve shall be installed on the fill connection and a remotely operated shutoff valve on other connections located below the maximum liquid level.

Statutory Authority: *MS s 17.725*

1510.1760 SAFETY RELIEF DEVICES.

Subpart 1. **Pressure settings.** Safety relief valves shall be set to start-to-discharge at a pressure not in excess of the design pressure of the tank and shall have a total relieving capacity sufficient to prevent a maximum pressure in a tank of more than 120 percent of the design pressure.

Subp. 2. **Total relieving capacity.** The total relieving capacity shall be the larger requirement of the following:

A. possible refrigeration system upset such as cooling water failure, power failure, instrument air or instrument failure, mechanical failure of any equipment, excessive pumping rates;

B. either one of the following formulas for fire exposure:

(1) for valve manufacturers who use weight of vapors to be relieved as basis for classifying valves:

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$$W = \frac{34,500 F A^{0.82}}{L}$$

(2) for valve manufacturers that classify valves on the basis of air flows:

$$Q_a = \frac{633,000 F A^{0.82}}{LC} \sqrt{\frac{ZT}{M}}$$

Where W = weight of vapors to be relieved in pound/hour at relieving conditions;

Q_a = air flow in cubic feet per minute at standard conditions (60 degrees Fahrenheit and 14.7 psi);

F = fireproofing credit. Use F = 1.0 except when an approved fireproofing material of recommended thickness is used, then use F = 0.2;

A = total surface area in square feet up to 25 feet above grade or to the equator of a sphere, whichever is greater;

Z = compressibility factor of ammonia at relieving conditions (if not known, use Z = 1.0);

T = temperature in degrees R (460 + temperature in degrees Fahrenheit of gas at relieving conditions);

M = molecular weight = 17 for ammonia;

L = latent heat of ammonia at relieving conditions;

C = constant based on relation of specific heats. (C may be obtained from the following table).

(If K is not known, use C - 315).

K	C	K	C	K	C
1.00	315	1.26	343	1.52	366
1.02	318	1.28	345	1.54	368
1.04	320	1.30	347	1.56	369
1.06	322	1.32	349	1.58	371
1.08	324	1.34	351	1.60	372
1.10	327	1.36	352	1.62	374
1.12	329	1.38	354	1.64	376
1.14	331	1.40	356	1.66	377
1.16	333	1.42	358	1.68	379
1.18	335	1.44	359	1.70	380
1.20	337	1.46	361	2.00	400
1.22	339	1.48	363	2.20	412
1.24	341	1.50	364		

$$K = \frac{C_p}{C_v}$$

and C_p = specific heat of vapor at constant pressure.

C_v = Specific heat of vapor at constant volume.

Note: If the relieving capacity required for fire exposure is greater than that required by item A the additional capacity may be provided by weak roof to shell seams in tanks operating at essentially atmospheric pressure and having an

inherently weak roof to shell seam. The weak roof to shell seam is not to be considered as providing any of the capacity required by item A.

Statutory Authority: *MS s 17.725*

1510.1770 DISCHARGE FROM SAFETY RELIEF VALVES.

All safety relief devices shall comply with the following. The discharge from safety relief valves shall be vented away from the tank at any desired angle above the horizontal using a vent stack suitably designed for weather protection. The size of discharge lines from safety relief valves shall not be smaller than the nominal size of relief valve outlet connections. Suitable provisions shall be made for draining condensate which may accumulate.

Statutory Authority: *MS s 17.725*

1510.1780 COMMON DISCHARGE HEADER.

If desired, discharge lines from two or more safety relief devices located on the same unit may be run into a common discharge header. Where safety relief valves from two or more units vent into the same discharge header, the header shall be designed for maximum back pressure of ten percent of the lowest set pressure for conventional safety relief valves and 50 percent of the lowest set pressure for balanced valves when the maximum possible quantity of gas is flowing in the header.

Statutory Authority: *MS s 17.725*

1510.1790 PROTECTION OF TANK APPURTENANCES.

Refrigerated storage tanks shall comply with the provisions of part 1510.1240.

Statutory Authority: *MS s 17.725*

1510.1800 REINSTALLATION OF TANKS.

Tanks of such size as to require field fabrication shall when moved and reinstalled be reconstructed and reinspected in complete accordance with the code under which they were constructed. The tanks shall be subjected to a pressure retest. If rerating is necessary, it shall be done in accordance with the applicable code procedures.

Statutory Authority: *MS s 17.725*

1510.1810 DAMAGE FROM VEHICLES.

Precaution shall be taken to avoid any damage by trucks, tractors, or other vehicles.

Statutory Authority: *MS s 17.725*

1510.1820 REFRIGERATION LOAD AND EQUIPMENT.

The total refrigeration load shall be computed as the sum of the following:

- A. load imposed by heat flow into the tank caused by the temperature differential between design ambient temperature and storage temperature;
- B. load imposed by heat flow into the tank caused by maximum sun radiation; and
- C. maximum load imposed by filling the tank with ammonia warmer than the design storage temperature.

More than one storage tank may be handled by the same refrigeration system.

Statutory Authority: *MS s 17.725*

1510.1830 COMPRESSORS.

A minimum of two compressors shall be provided, either of which is of sufficient size to handle the loads listed in part 1510.1820, items A and B. Where more than two compressors are provided, minimum standby equipment equal to the largest normally operating equipment shall be installed. Filling compressors may be used as standby equipment for holding compressors.

Compressors shall be sized to operate with a suction pressure at least ten percent below the minimum setting of the safety valve(s) on the storage tanks and shall withstand a suction pressure at least equal to 120 percent of the design pressure of the tank. Discharge pressure will be governed by condensing conditions.

Statutory Authority: *MS s 17.725*

1510.1840 COMPRESSOR DRIVES.

Each compressor shall have its individual driving unit. Any standard drive consistent with good design may be used. An emergency source of power of sufficient capacity to handle the loads listed in part 1510.1820, items A and B shall be provided, unless facilities are provided to safely dispose of vented vapors while the refrigeration system is not operating.

Statutory Authority: *MS s 17.725*

1510.1850 AUTOMATIC CONTROL EQUIPMENT.

The refrigeration system shall be arranged with suitable controls to govern the compressor operation in accordance with the load as evidenced by the pressure in the tank or tanks. An emergency alarm system shall be installed to function in the event the pressure in the tank or tanks arises to the maximum allowable operating pressure. An emergency alarm and shut-off shall be located in the condenser system to respond to excess discharge pressure caused by failure of the cooling medium.

All automatic controls shall be installed in a manner to preclude operation of alternate compressors unless the controls will function with the alternate compressors.

Statutory Authority: *MS s 17.725*

1510.1860 SEPARATORS.

An entrainment separator of suitable size and design pressure shall be installed in the compressor suction line. The separator shall be equipped with a drain and gaging device.

An oil separator of suitable size shall be installed in the compressor discharge line. It shall be designed for at least 250 psig and shall be equipped with a gaging device and drain valve.

Statutory Authority: *MS s 17.725*

1510.1870 CONDENSERS.

The condenser system may be cooled by air or water or both. The condenser shall be designed for at least 250 psig. Provision shall be made for purging noncondensibles either manually or automatically.

Statutory Authority: *MS s 17.725*

1510.1880 RECEIVER AND LIQUID DRAIN.

A receiver shall be provided which is equipped with an automatic float valve to discharge the liquid ammonia to storage or with a high pressure liquid drain trap of suitable capacity. The receiver shall be designed for at least 250 psig operating pressure and be equipped with the necessary connections, safety valves, and gaging device.

Statutory Authority: *MS s 17.725*

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1510.1890 INSULATION.

Where insulation is required, the insulation thickness shall be determined by good economical design. Insulation on refrigerated tanks and pipe lines shall be suitably waterproofed. The insulating material should be fire retardant; the weatherproofing should be fire resistant.

Statutory Authority: *MS s 17.725*

1510.1900 PIPING.

All piping shall be well supported. Provision shall be made for expansion and contraction. All refrigeration system piping shall conform to the Refrigeration Piping Code (ASA B31.5 -- 1962), a section of the American Standard Code for Pressure Piping, as it applies to ammonia.

Statutory Authority: *MS s 17.725*

1510.1910 SAFETY EQUIPMENT.

All refrigerated storage plants shall have on hand the minimum safety equipment required under part 1510.1260.

Statutory Authority: *MS s 17.725*

1510.1920 APPENDIX A: TABLE OF REQUIRED RATES OF DISCHARGE.

Minimum required rate of discharge in cubic feet per minute of air at 120 percent of maximum permitted start-to-discharge pressure for safety relief valves to be used on containers other than those constructed in accordance with Interstate Commerce Commission specifications.

Surface Area Sq. Ft.	Flow Rate CFM Air	Surface Area Sq. Ft.	Flow Rate CFM Air	Surface Area Sq. Ft.	Flow Rate CFM Air
20	258	185	1,600	900	5,850
25	310	190	1,640	950	6,120
30	360	195	1,670	1,000	6,380
35	408	200	1,710	1,050	6,640
40	455	210	1,780	1,100	6,900
45	501	220	1,850	1,150	7,160
50	547	230	1,920	1,200	7,410
55	591	240	1,980	1,250	7,660
60	635	250	2,050	1,300	7,910
65	678	260	2,120	1,350	8,160
70	720	270	2,180	1,400	8,410
75	762	280	2,250	1,450	8,650
80	804	290	2,320	1,500	8,900
85	845	300	2,380	1,550	9,140
90	885	310	2,450	1,600	9,380
95	925	320	2,510	1,650	9,620
100	965	330	2,570	1,700	9,860
105	1,010	340	2,640	1,750	10,090
110	1,050	350	2,700	1,800	10,330
115	1,090	360	2,760	1,850	10,560
120	1,120	370	2,830	1,900	10,800
125	1,160	380	2,890	1,950	11,030
130	1,200	390	2,950	2,000	11,260

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135	1,240	400	3,010	2,050	11,490
140	1,280	450	3,320	2,100	11,720
145	1,310	500	3,620	2,150	11,950
150	1,350	550	3,910	2,200	12,180
155	1,390	600	4,200	2,250	12,400
160	1,420	650	4,480	2,300	12,630
170	1,500	750	5,040	2,400	13,080
175	1,530	800	5,300	2,450	13,300
180	1,570	850	5,590	2,500	13,520

Surface area = Total outside surface area of container in square feet. When the surface area is not stamped on the name plate or when the marking is not legible, the surface area can be calculated by using one of the following formulas:

A. Cylindrical container with hemispherical heads: Area = overall length in feet times outside diameter in feet times 3.1416.

B. Cylindrical container with other than hemispherical heads: Area = (overall length in feet plus 0.3 outside diameter in feet) times outside diameter in feet times 3.1416.

C. Spherical container: Area = outside diameter in feet squared times 3.1416.

Flow Rate = CFM Air = cubic feet per minute of air required at standard conditions, 60 degrees Fahrenheit and atmospheric pressure (14.7 psia).

The rate of discharge may be interpolated for intermediate values of surface area. For containers with total outside surface area greater than 2,500 sq. ft., the required flow rate can be calculated using the formula, Flow Rate CFM Air = 22.11 A^{0.82}, where A = outside surface area of the container in square feet.

Statutory Authority: *MS s 17.725*

COMMERCIAL FEEDS

1510.1930 DEFINITIONS AND TERMS.

The names and definitions for commercial feeds shall be the Official Definition of Feed Ingredients adopted by the Association of American Feed Control Officials, except as the commissioner designates otherwise in specific cases.

The terms used in reference to commercial feeds shall be the Official Feed Terms adopted by the Association of American Feed Control Officials, except as the commissioner designates otherwise in specific cases.

Statutory Authority: *MS s 25.40*

1510.1935 COMMODITIES EXEMPT FROM DEFINITION OF COMMERCIAL FEED.

The following commodities are hereby declared exempt from the definition of commercial feed, under the provisions of Minnesota Statutes, section 25.33, subdivision 5: raw meat; and hay, straw, stover, silages, cobs, husks, hulls, and individual chemical compounds or substances when such commodities, compounds, or substances are not intermixed or mixed with other materials; provided that these commodities are not adulterated within the meaning of Minnesota Statutes, section 25.37, clause (A), (B), (C) or (D).

Statutory Authority: *MS s 25.40*

1510.1940 LABEL FORMAT.

Commercial feeds shall be labeled with the information prescribed in this rule on the principal display panel of the product and in the following general format:

- A. Net weight.
- B. Product name and brand name, if any.
- C. If drugs are used:
 - (1) the word "medicated" shall appear directly following the product name in type size no smaller than one half the type size of the product name;
 - (2) the purpose of medication (claim statement);
 - (3) the required direction for use and precautionary statements or reference to their location if the detailed feeding directions and precautionary statements required by parts 1510.2170 and 1510.2180 appear elsewhere on the label; and
 - (4) an active drug ingredient statement listing the active drug ingredients by their established name and the amounts in accordance with part 1510.2100.
- D. The guaranteed analysis of the feed as required under the provisions of Minnesota Statutes, section 25.35, clause (A), item (3), shall include the following items, unless exempted in item E, and in the order listed:
 - (1) minimum percentage of crude protein;
 - (2) the percentage of equivalent protein from nonprotein nitrogen as required in part 1510.2110;
 - (3) minimum percentage of crude fat;
 - (4) maximum percentage of crude fiber;
 - (5) minerals, to include, in the following order: minimum and maximum percentages of calcium (Ca); minimum percentages of phosphorus (P); minimum and maximum percentages of salt (NaCl); and other minerals;
 - (6) vitamins in such terms as specified in 1510.2090; and
 - (7) total sugars as invert on dried molasses products or products being sold primarily for their molasses content.
- E. Guarantees for minerals are not required when there are no specific label claims and when the commercial feed contains less than 6-1/2 percent of mineral elements. Guarantees for vitamins are not required when the commercial feed is neither formulated for nor represented in any manner as a vitamin supplement. Guarantees for crude protein, crude fat, and crude fiber are not required when the commercial feed is intended for purposes other than to furnish these substances or they are of minor significance relating to the primary purpose of the product, such as drug premixes, mineral or vitamin supplements, and molasses.
- F. Feed ingredients, collective terms for the grouping of feed ingredients, or appropriate statements as provided under the provisions of Minnesota Statutes, section 25.35, clause (A), item (4):
 - (1) The name of each ingredient as defined in the Official Definitions of Feed Ingredients published in the Official Publication of the Association of the American Feed Control Officials, common or usual name, or one approved by the commissioner.
 - (2) Collective terms for the grouping of feed ingredients as defined in the Official Definitions of Feed Ingredients published in the Official Publication of the Association of American Feed Control Officials in lieu of the individual ingredients; provided that: when a collective term for a group of ingredients is used on the label, individual ingredients within the group shall not be listed on the label; and the manufacturer shall provide the feed control official, upon request, with a listing of individual ingredients, within a defined

group, that are or have been used in manufacturing facilities distributing in or into the state. The registrant may affix the statement "Ingredients as registered with the state" in lieu of the ingredient list on the label. The list of ingredients must be on file with the commissioner. This list shall be made available to the feed purchaser upon request.

G. Name and principal mailing address of the manufacturer or person responsible for distributing the feed. The principal mailing address shall include the street address, city, state, and zip code. However, the street address may be omitted if it is shown in the current city directory or telephone directory.

Statutory Authority: *MS s 25.40*

1510.1950 OTHER INFORMATION REQUIRED BY STATUTES.

The information required in Minnesota Statutes, section 25.35, clause (A), (1) to (5) must appear in its entirety on one side of the label or on one side of the container. The information required by Minnesota Statutes, section 25.35, clause (A), (6) to (7) shall be displayed in a prominent place on the label or container but not necessarily on the same side as the above information. When the information required by Minnesota Statutes, section 25.35, clause (A), (6) to (7) is placed on a different side of the label or container, it must be referenced on the front side with a statement such as "see back of label for directions for use." None of the information required by Minnesota Statutes, section 25.35 shall be subordinated or obscured by other statements or designs.

Statutory Authority: *MS s 25.40*

1510.2000 BRAND AND PRODUCT NAMES.

The brand or product name must be appropriate for the intended use of the feed and must not be misleading. If the name indicates the feed is made for a specific use, the character of the feed must conform therewith. A mixture labeled "Dairy Feed," for example, must be suitable for that purpose. Commercial, registered brand, or trade names are not permitted in guarantees or ingredient listings.

Statutory Authority: *MS s 25.40*

1510.2010 NAME DERIVED FROM ONE OR MORE INGREDIENTS OF MIXTURE.

The name of a commercial feed shall not be derived from one or more ingredients of a mixture to the exclusion of other ingredients and shall not be one representing any components of a mixture unless all components are included in the name; provided, that if any ingredient or combination of ingredients is intended to impart a distinctive characteristic to the product which is of significance to the purchaser, the name of that ingredient or combination of ingredients may be used as a part of the brand name or product name if the ingredient or combination of ingredients is quantitatively guaranteed in the guaranteed analysis, and the brand or product name is not otherwise false or misleading. The word "protein" shall not be permitted in the product name of a feed that contains added nonprotein nitrogen.

Statutory Authority: *MS s 25.40*

1510.2020 PERCENTAGE VALUE OR FIGURE USED IN BRAND NAME.

When the name carries a percentage value, it shall be understood to signify protein and/or equivalent protein content only, even though it may not explicitly modify the percentage with the word "protein"; provided, that other percentage values may be permitted if they are followed by the proper description and conform to good labeling practice. When a figure is used in the brand name, except in mineral, vitamin, or other products where the protein guarantee is nil or unimportant, it shall be preceded by the word "number" or some other

suitable designation.

Statutory Authority: *MS s 25.40*

1510.2030 SINGLE-INGREDIENT FEEDS.

Single-ingredient feeds shall have a product name in accordance with the designated definition of feed ingredients as recognized by the Association of American Feed Control Officials unless the commissioner designates otherwise.

Statutory Authority: *MS s 25.40*

1510.2040 USE OF WORD "VITAMIN."

The word "vitamin," or a contraction thereof, or any word suggesting vitamin can be used only in the name of a feed which is represented to be a vitamin supplement, and which is labeled with the minimum content of each vitamin declared, as specified in part 1510.2090.

Statutory Authority: *MS s 25.40*

1510.2050 USE OF TERM "MINERALIZED."

The term "mineralized" shall not be used in the name of a feed, except for "TRACE MINERALIZED SALT." When so used, the product must contain significant amounts of trace minerals which are recognized as essential for animal nutrition.

Statutory Authority: *MS s 25.40*

1510.2060 TERMS "MEAT" AND "MEAT BY-PRODUCTS."

The terms "meat" and "meat by-products" shall be qualified to designate the animal from which the meat and meat by-products is derived unless the meat and meat by-products are from cattle, swine, sheep, and goats.

Statutory Authority: *MS s 25.40*

1510.2070 EXPRESSION OF GUARANTEES.

The guarantees for crude protein, equivalent protein from nonprotein nitrogen, crude fat, crude fiber, and mineral guarantees (when required) will be in terms of percentage by weight.

Statutory Authority: *MS s 25.40*

1510.2080 COMMERCIAL FEEDS CONTAINING MINERAL ELEMENTS.

Commercial feeds containing 6-1/2 percent or more mineral elements shall include in the guaranteed analysis the minimum and maximum percentages of calcium (Ca), the minimum percentage of phosphorus (P), and if salt is added, the minimum and maximum percentage of salt (NaCl). Minerals, except salt (NaCl), shall be guaranteed in terms of percentage of the element. When calcium and/or salt guarantees are given in the guaranteed analysis, such shall be stated and conform to the following:

A. When the minimum is five percent or less, the maximum shall not exceed the minimum by more than one percentage point;

B. When the minimum is above five percent, the maximum shall not exceed the minimum by more than 20 percent and in no case shall the maximum exceed the minimum by more than five percentage points.

Statutory Authority: *MS s 25.40*

1510.2090 GUARANTEES FOR MINIMUM VITAMIN CONTENT OF COMMERCIAL FEEDS AND FEED SUPPLEMENTS.

Guarantees for minimum vitamin content of commercial feeds and feed supplements, when made, shall be stated on the label in milligrams per pound of feed except that: vitamin A, other than precursors of vitamin A, shall be stated in International or USP units per pound; vitamin D, in products offered for

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poultry feeding, shall be stated in International Chick Units per pound; vitamin D for other uses shall be stated in International or USP units per pound; vitamin E shall be stated in International or USP units per pound; guarantees for vitamin content on the label of a commercial feed shall state the guarantee as true vitamins, not compounds, with exception of the compounds pyridoxin hydrochloride, choline chloride, thiamine, and d-pantothenic acid; oil and premixes containing vitamin A or vitamin D or both may be labeled to show vitamin content in terms of units per gram.

Statutory Authority: *MS s 25.40*

1510.2100 GUARANTEES FOR DRUGS.

Guarantees for drugs shall be stated in terms of percent by weight, except:

A. antibiotics present at less than 2,000 grams per ton total of commercial feed shall be stated in grams per ton of commercial feed;

B. antibiotics present at 2,000 or more grams per ton total of commercial feed shall be stated in grams per pound of commercial feed;

C. labels for commercial feeds containing growth promotion and/or feed efficiency levels of antibiotics, which are to be fed continuously as the sole ration, are not required to make quantitative guarantees except as specifically noted in the federal food additive regulations for certain antibiotics wherein quantitative guarantees are required regardless of the level or purpose of the antibiotic;

D. the term "milligrams per pound" may be used for drugs or antibiotics in those cases where a dosage is given in "milligrams" in the feeding directions.

Statutory Authority: *MS s 25.40*

1510.2110 COMMERCIAL FEEDS CONTAINING ADDED NONPROTEIN NITROGEN.

Commercial feeds containing any added nonprotein nitrogen shall be labeled as follows:

A. Complete feeds, supplements, and concentrates containing added nonprotein nitrogen and containing five percent or more protein from natural sources shall be guaranteed as follows: crude protein, minimum, _____ percent. This includes not more than _____ percent equivalent protein from nonprotein nitrogen.

B. Mixed feed concentrates and supplements containing less than five percent protein from natural sources may be guaranteed as follows: equivalent crude protein from nonprotein nitrogen, minimum, _____ percent.

C. Ingredient sources of nonprotein nitrogen such as urea, diammonium phosphate, ammonium polyphosphate solution, ammoniated rice hulls, or other basic nonprotein nitrogen ingredients defined by the Association of American Feed Control Officials shall be guaranteed as follows: nitrogen, minimum, _____ percent. Equivalent crude protein from nonprotein nitrogen, minimum, _____ percent.

Statutory Authority: *MS s 25.40*

1510.2120 MINERAL PHOSPHATIC MATERIALS FOR FEEDING.

Mineral phosphatic materials for feeding purposes shall be labeled with the guarantee for minimum and maximum percentage of calcium (when present), the minimum percentage of phosphorus, and the maximum percentage of fluorine.

Statutory Authority: *MS s 25.40*

1510.2130 INGREDIENTS.

The name of each ingredient or collective term for the grouping of ingredients, when required to be listed, shall be the name as defined in the Official Definitions of Feed Ingredients as published in the Official Publication of the Association of American Feed Control Officials, the common or usual name, or one approved by the commissioner, and must be shown in letters or type of the same size. No reference to quality or grade of an ingredient shall appear in the ingredient statement of a feed. The term "dehydrated" may precede the name of any product that has been artificially dried.

Statutory Authority: *MS s 25.40*

1510.2140 SINGLE-INGREDIENT PRODUCT.

A single-ingredient product defined by the Association of American Feed Control Officials is not required to have an ingredient statement.

Statutory Authority: *MS s 25.40*

1510.2150 TENTATIVE DEFINITIONS.

Tentative definitions for ingredients shall not be used until adopted as official, unless no official definition exists or the ingredient has a common accepted name that requires no definition, e.g. sugar.

Statutory Authority: *MS s 25.40*

1510.2160 WORD "IODIZED" IN CONNECTION WITH FEED INGREDIENT.

When the word "iodized" is used in connection with a feed ingredient, the feed ingredient shall contain not less than 0.007 percent iodine, uniformly distributed.

Statutory Authority: *MS s 25.40*

1510.2170 DIRECTIONS FOR USE AND PRECAUTIONARY STATEMENTS.

Directions for use and precautionary statements on the labeling of all commercial feeds and customer-formula feeds containing additives (including drugs, special purpose additives, or nonnutritive additives) shall:

A. be adequate to enable safe and effective use for the intended purposes by users with no special knowledge of the purpose and use of such articles; and

B. include, but not be limited to, all information prescribed by all applicable regulations under the federal Food, Drug and Cosmetic Act.

Adequate directions for use and precautionary statements are required for feeds containing nonprotein nitrogen as specified in part 1510.2180.

Adequate directions for use and precautionary statements necessary for safe and effective use are required on commercial feeds distributed to supply particular dietary needs or for supplementing or fortifying the usual diet or ration with any vitamin, mineral, or other dietary nutrient or compound.

Statutory Authority: *MS s 25.40*

1510.2180 NONPROTEIN NITROGEN.

Nonprotein nitrogen products defined in the Official Publication of the Association of American Feed Control Officials are acceptable ingredients only in commercial feeds for ruminant animals as a source of equivalent crude protein and are not to be used in commercial feeds for other animals and birds. If the commercial feed contains more than 8.75 percent of equivalent crude protein from all forms of nonprotein nitrogen, added as such, or the equivalent crude protein from all forms of nonprotein nitrogen, added as such, exceeds one-third of the total crude protein, the label shall bear adequate directions for the safe use of feeds and a precautionary statement: "CAUTION: USE AS

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DIRECTED." The directions for use and the precautionary statement shall be in type of such size so placed on the label that they will be read and understood by ordinary persons under customary conditions of purchase and use.

On labels such as those for medicated feeds which bear adequate feeding directions and/or precautionary statements, the presence of added nonprotein nitrogen shall not require a duplication of the feeding directions or the precautionary statements as long as those statements include sufficient information to ensure the safe and effective use of this product due to the presence of nonprotein nitrogen.

Statutory Authority: *MS s 25.40*

1510.2190 DRUG AND FEED ADDITIVES.

Prior to approval of a registration application and/or approval of a label for commercial feeds which contain additives including drugs, special purpose additives, or nonnutritive additives the distributor may be required to submit evidence to prove the safety and efficacy of the commercial feed when used according to the directions furnished on the label. Satisfactory evidence of safety and efficacy of a commercial feed may be:

A. when the commercial feed contains such additives, the use of which conforms to the requirements of the applicable regulation in the Code of Federal Regulations, title 21, or which are "prior sanctioned" or "generally recognized as safe" for such use; or

B. when the commercial feed is itself a drug as defined in Minnesota Statutes, section 25.33, subdivision 8, and is generally recognized as safe and effective for the labeled use or is marketed subject to an application approved by the Food and Drug Administration under United States Code, title 21, section 360(b).

Statutory Authority: *MS s 25.40*

1510.2200 ADULTERANTS.

For the purpose of Minnesota Statutes, section 25.37, clause (A), the terms "poisonous or deleterious substances" include but are not limited to the following:

A. fluorine and any mineral or mineral mixture which is to be used directly for the feeding of domestic animals and in which the fluorine exceeds 0.30 percent for cattle; 0.35 percent for sheep; 0.45 percent for swine; and 0.60 percent for poultry;

B. fluorine-bearing ingredients when used in such amounts that they raise the fluorine content of the total ration above the following amounts: 0.009 percent for cattle; 0.01 percent for sheep; 0.014 percent for swine; and 0.035 percent for poultry;

C. soybean meal, flakes, or pellets or other vegetable meals, flakes, or pellets which have been extracted with trichlorethylene or other chlorinated solvents;

D. sulfur dioxide, sulfurous acid, and salts of sulfurous acid when used in or on feeds or feed ingredients which are considered or reported to be a significant source of vitamin B₁ (Thiamine); and

E. artificial color that has not been cleared for safety for use in feeds. Evidence of safety must include a clearance for use of these color additives under the provisions of the federal Food, Drug and Cosmetic Act. No artificial color material shall be used to enhance the natural color of the feed or feed ingredient whereby inferiority would be concealed.

Statutory Authority: *MS s 25.40*

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1510.2210 WEED SEEDS.

All screenings or by-products of grains and seeds containing weed seeds, when used in commercial feed or sold as such to the ultimate consumer, shall be ground fine enough or otherwise treated to destroy the viability of such weed seeds so that the level of such viable weed seeds in the finished product shall not exceed the levels specified in Minnesota Statutes, sections 21.71 to 21.78.

Statutory Authority: *MS s 25.40*

1510.2220 GOOD MANUFACTURING PRACTICES.

For the purposes of enforcement of Minnesota Statutes, section 25.37, clause (H), the commissioner adopts the following as current good manufacturing practices:

A. the regulations prescribing good manufacturing practices for medicated feeds as published in the Code of Federal Regulations, title 21, part 133, sections 133.100 to 133.110; and

B. the regulations prescribing good manufacturing practices for medicated premixes as published in the Code of Federal Regulations, title 21, part 133, sections 133.200 to 133.210.

Statutory Authority: *MS s 25.40*