

3 *Minnesota*

Dairy Products Processor



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AGRICULTURAL EXTENSION SERVICE • INSTITUTE OF AGRICULTURE
UNIVERSITY OF MINNESOTA • ST. PAUL 1, MINNESOTA

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On July 1, 1961 the new state standards for frozen foods will become effective. Because the revisions are quite extensive, this issue of the newsletter will be devoted to an analysis of the changes made.

SECTIONS IN THE STATUTES THAT ARE DIRECTLY INVOLVED

Amendments were made for Statutes 1957, Section 31.01, Subdivisions 6, 7, 8, 9, 10, 11, 12, 13, and 14; Section 31.25, Subdivision 1.

REVISIONS IN STATUTES 1957, SECTION 31.01

1. Subdivision 6 remains unchanged and frozen foods are defined as ice cream, frozen custards, ice milk, milk sherbet, fruit ice or ice sherbet, or frozen malted milk, but not frozen vegetables, fruits, meats, poultry, or bakery products.

2. Subdivision 7 defining milk products now states: pure, clean, and wholesome cream; dried cream; plastic cream--sometimes known as concentrated milk fat--butter; butter oil; milk; concentrated milk; evaporated milk; sweetened condensed milk; superheated condensed milk; dried milk; skim milk; concentrated skim milk; evaporated skim milk; condensed skim milk; superheated condensed skim milk; sweetened condensed skim milk; sweetened condensed part-skim milk; nonfat dry milk; sweet cream buttermilk; condensed sweet cream buttermilk; dried sweet cream buttermilk; whey; concentrated whey; and dry whey; and includes any of the foregoing products from which lactose has been wholly or partially removed.

Terms omitted from this subdivision are: pure milk fat, skimmed milk, condensed milk, sweetened condensed skimmed milk, dried skimmed milk, buttermilk, condensed buttermilk, dried buttermilk, condensed (whey) and dried (whey).

You will note that the above products have not been eliminated but merely are described differently. Also, some new products have now been included.

OTHER CHANGES IN SECTION 31.01

Item	New standard	Old standard
Ice cream mix	Not less than 10 percent by weight of milk fat.	Not less than 12 percent by weight of milk fat.
Ice cream mix base	Not less than 26.5 percent milk fat.	Not less than 30.5 percent milk fat.
	Not less than 68.5 percent of nonfat solids.	Not less than 64.5 percent of nonfat solids.
Ice cream	Not less than 10 percent by weight of milk fat.	Not less than 12 percent by weight of milk fat.
Ice cream (containing fruits, nuts, cocoa, chocolate, maple syrup, cakes, or confections)	Not less than 10 percent by weight of milk fat except for such reduction as due to the flavoring material and then:	Not less than 12 percent by weight of milk fat except for such reduction as due to the flavoring material and then:
	Not less than 8 percent by weight of milk fat.	Not less than 10 percent by weight of milk fat.
Frozen custard	Not less than 10 percent by weight of milk fat.	Not less than 12 percent by weight of milk fat.
	Total weight of egg yolk solids: not less than 1.4 percent of the weight of the finished frozen custard.	Not less than five egg yolks or their equivalent in egg powder or egg yolk powder in each gallon of finished product.
Ice milk	Not less than 2 percent and not more than 10 percent by weight of milk fat.	Not less than 2 percent and not more than 12 percent by weight of milk fat.
Milk sherbet	Not less than 0.35 percent acid.	Not less than 0.40 percent acid.
	Not less than 1 percent by weight of milk fat.	Not less than 2 percent by weight of milk fat.
	Not less than 2 percent by weight of milk solids.	Not less than 4 percent by weight of milk solids.
	Must weigh not less than 6 pounds per gallon.	Must weigh not less than 5½ pounds per gallon.
Fruit ice or ice sherbet	Not less than 0.35 percent acid.	Not less than 0.40 percent acid.
	Must weigh not less than 6 pounds per gallon.	Must weigh not less than 5½ pounds per gallon.

REVISIONS IN STATUTES 1957, SECTION 31.25, SUBDIVISION 1

This section pertains to the labeling of containers used in the distribution of mix, ice cream mix, mix base, or ice cream mix base. A label must be attached and include the following information:

1. Name of product.
2. Percentage of milk fat contained in the product.
3. Percentage of total solids contained in products.
4. Statement of net contents.
5. Name and address of manufacturer or distributor.

Mix formulations, therefore, may now be labeled with the name and address of the distributor.

SUMMARY

In summarizing, then, the general changes made are:

1. The list of products for use in frozen dairy products has been extensively revised.
2. The percent fat has been reduced in many products.
3. The percent solids not fat in mix bases has been increased.
4. The minimum acid content in sherbets and fruit ices has been decreased while the weight per gallon has been increased.

FORMULATION OF 10 PERCENT MIXES

The range of composition of 10-percent fat mixes would be within the following:

	<u>Range</u>
Fat	10.0 - 10.2
Serum solids	11.5 - 12.5
Sugar	11.0 - 13.0
Corn sweetener solids	3.0 - 6.0*
Stabilizer	0.3 - 0.4*
Emulsifier	0.0 - 0.2*

* Amount depends on type being used.

One formula that has proven successful in Pennsylvania where a 10-percent standard has been in effect for some time is:

Fat	10.2 percent
Serum solids	12.0 percent
Sugar	12.5 percent
Corn sweetener solids	4.0 percent
Stabilizer	--as recommended by manufacturer
Emulsifier	--as recommended by manufacturer
Total solid	39.00 +

PROCESSING, FREEZING, AND FLAVORING THE MIX

Dr. P. G. Keeney of Pennsylvania State University made some interesting comments on this topic during the short course at the University of Minnesota on May 31.

He said that the processing could be handled in much the same way as for a 12-percent mix, but in general the mix would be less viscous. The ice cream should be drawn at a slightly colder temperature and at a reduced overrun for best results.

The serum solids content cannot be increased above 12.00 to 12.5 percent without the danger of developing sandiness as a result of lactose crystallization. Use of low lactose ingredients can minimize the possibility of this defect occurring.

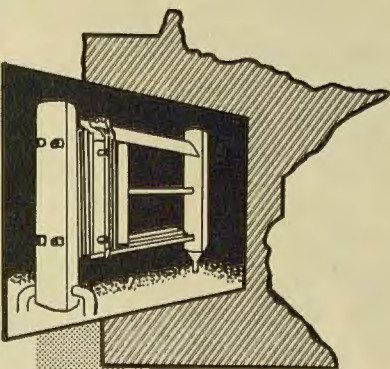
The amount of stabilizer may be increased slightly but precautions should be taken not to use excessive quantities.

Corn sweeteners assist in retarding coarse texture problems as a result of temperature fluctuations.

A general tendency in Pennsylvania has been to reduce the amount of flavoring added, but this can be done only at the expense of quality.

The net effect of the 10-percent standard in Pennsylvania has been to improve the quality of the 12-percent product which, interestingly enough, has remained the dominant product. Ten-percent ice cream products have been used primarily in cutting costs and for price war competition.

The influence of the new standard in Minnesota remains to be seen, but should cause no drastic changes or problems.



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