



**United States
Department of
Agriculture**

**Agricultural
Marketing
Service**

**Dairy
Programs**

United States Standards for Dry Whey

Effective December 14, 2000

United States Standards for Dry Whey¹

Definitions

§ 58.2601 *Whey*.

“Whey” is the fluid obtained by separating the coagulum from milk, cream, and/or skim milk in cheesemaking. It shall conform to the applicable provisions of 21 CFR 184.1979. The acidity of the whey may be adjusted by the addition of safe and suitable pH adjusting ingredients. Moisture removed from cheese curd as a result of salting may be collected for further processing as whey if the collection of the moisture and the removal of the salt from the moisture are conducted in accordance with procedures approved by the Administrator.

§ 58.2602 *Dry Whey*.

“Dry Whey” is the product resulting from drying fresh whey which has been pasteurized and to which nothing has been added as a preservative. It shall conform to the applicable provisions of 21 CFR 184.1979. It contains all constituents, except moisture, in the same relative proportions as in the whey.

U. S. Grade

§ 58.2603 *Nomenclature of U.S. grade*.

The nomenclature of the U.S. grade is U.S. Extra Grade.

§ 58.2604 *Basis for determination of U.S. grade*.

The U.S. grade of dry whey is determined on the basis of flavor, physical appearance, bacterial estimate, coliform count, milkfat content, moisture and scorched particle content.

§ 58.2605 *Requirements for U.S. grade*.

(a) *U.S. Extra*. U.S. Extra Grade dry whey conforms to the following requirements:

¹Compliance with these standards does not excuse failure to comply with the provisions of the Federal Food, Drug, and Cosmetic Act.

(1) *Flavor*. Reconstituted whey shall have a normal whey flavor free from undesirable flavors, but may possess the following flavors to a slight degree: Bitter, fermented, storage, and utensil; and the following to a definite degree: feed and weedy. See Table I of this section.

(2) *Physical appearance*. Dry whey shall possess uniform color. It shall be reasonably free flowing, be free from lumps except those that readily break up with slight pressure and be practically free from visible dark particles. See Table II of this section.

(3) *Bacterial estimate*. Not more than 30,000 per gram standard plate count. See table III of this section.

(4) *Coliform count*. Not more than 10 per gram. See table III of this section.

(5) *Milkfat content*. Not more than 1.50 percent. See Table III of this section.

(6) *Moisture content*. Not more than 5.0 percent. See table III of this section.

(7) *Scorched particles content*. Not more than 15.0 mg. See table III of this section.

Table I.--Classification of Flavor

Flavor Characteristics	U.S. Extra Grade
Bitter	Slight
Feed	Definite
Fermented	Slight
Storage	Slight
Utensil	Slight
Weedy	Definite

Table II.--Classification of Physical Appearance

Physical Appearance Characteristics	U.S. Extra Grade
Color	Uniform
Free Flowing	Reasonably
Lumpy	Slight pressure
Visible dark particles	Practically free

Table III.—Classification According to Laboratory Analysis

Laboratory tests	U.S. Extra Grade
Bacterial estimate; Standard plate count; per gram (max)	30,000
Coliform count; per gram (max)	10
Milkfat content; percent (max)	1.5
Moisture content; percent (max)	5.0
Scorched particle content; mg (max)	15.0

§ 58.2606 *Basis for acidity classification.*

Acidity classification is not a U.S. grade requirement. Acidity classification will be made available only upon a U.S. graded product and the results will be shown on the grading certificate. The dry whey will be classified for acidity as follows:

(a) *Dry sweet-type whey.* Dry whey not over 0.16 percent titratable acidity on a reconstituted basis.

(b) *Dry whey _____ % titratable acidity.* Dry whey over 0.16 percent, but below 0.35 percent titratable acidity on a reconstituted basis. The blank being filled with the actual acidity.

(c) *Dry acid-type whey.* Dry whey with 0.35 percent or higher titratable acidity on a reconstituted basis.

§ 58.2607 *[Reserved]*

§ 58.2608 *Optional tests.*

There are certain optional requirements in addition to those required for U.S. Grade assignment. Tests for these requirements may be run occasionally at the option of the Department and will be run whenever they are requested by an interested party. These optional requirements are as follows:

(a) *Protein content ($N \times 6.38$).* Not less than 11 percent.

(b) *Alkalinity of ash (sweet-type whey only).* Not more than 225 ml. of 0.1 N HCl per 100 grams.

§ 58.2609 *U.S. grade not assignable.*

Dry whey shall not be assigned the U.S. grade for one or more of the following reasons:

- (a) The dry whey fails to meet the requirements of U.S. Extra Grade.
- (b) The dry whey fails to meet the requirements of any optional test, when tests have been made.
- (c) The dry whey is produced in a plant found on inspection to be using unsatisfactory manufacturing practice, equipment, or facilities, or to be operating under unsanitary plant conditions.

§ 58.2610 *Test methods.*

All required tests, and optional tests when specified, shall be performed in accordance with the following methods:

(a) Scorched particle content shall be determined by the method contained in the latest revision of 918-RL, Laboratory Methods and Procedures, USDA/AMS/Dairy Programs, Dairy Grading Branch, Room 2746-S, 14th and Independence Ave. S.W. Washington, DC 20250-0230.

(b) All other tests shall be performed by the methods contained in the latest edition of the “Official Methods of Analysis of the Association of Official Analytical Chemists”, published by the Association of Official Analytical Chemists International, 481 North Frederick Avenue, Suite 500, Gaithersburg, MD 20877-2417; by the methods provided in the latest edition of the “Standard Methods for the Examination of Dairy Products”, available from the American Public Health Association, 1015 Fifteenth Street, NW, Washington, DC 20005, or by methods published by the International Dairy Federation, available from the International Dairy Federation, 41 Square Vergate, B-1030 Brussels, Belgium.

Explanation of Terms

§ 58.2611 *Explanation of terms.*

- (a) *With respect to flavor:*
 - (1) *Slight.* Detectable only upon critical examination.
 - (2) *Definite.* Not intense but detectable.
 - (3) *Undesirable.* Those flavors in excess of the intensity permitted, or those flavors not otherwise listed.
 - (4) *Bitter.* Distasteful, similar to taste of quinine.
 - (5) *Feed.* Feed flavors (such as alfalfa, sweet clover, silage, or similar feed) in milk carried through into dry whey.

(6) *Fermented*. Flavors, such as fruity or yeasty, produced through unwanted chemical changes brought about by microorganisms or their enzyme systems.

(7) *Storage*. Lacking in freshness and imparting a “stale” aftertaste.

(8) *Utensil*. A flavor that is suggestive of improper or inadequate washing and sanitation of utensils or manufacturing equipment.

(9) *Weedy*. Aromatic flavor characteristic of the weeds eaten by cows carried through into the dry whey.

(b) *With respect to physical appearance:*

(1) *Slight pressure*. Only sufficient pressure to readily disintegrate the lumps.

(2) *Practically free*. Present only upon very critical examination.

(3) *Reasonably free flowing*. Pours in a fairly constant, uniform stream from the open end of a tilted container or scoop.

(4) *Lumps*. Loss of powdery consistency but not caked into hard chunks.

(5) *Uniform color*. Free from variation in shades of color.

(6) *Visible dark particles*. The presence of scorched or discolored specks readily visible to the eye.