



# Nonfat Dry Milk (NDM) Standard

## Product Definition

Nonfat Dry Milk (NDM) is obtained by the removal of water from pasteurized skim milk. It contains not more than 5% by weight of moisture and not more than 1.5% by weight of milkfat unless otherwise indicated. NDM for human consumption complies with all provisions of the U.S. Federal Food, Drug, and Cosmetic Act.

## Specific Grading Requirements for Extra Grade Nonfat Dry Milk

**Extra Grade** is so designated to indicate the highest quality of nonfat dry milk. In addition to meeting the foregoing **General Grading Requirements** (see page 12), it shall meet the following specifications:

### Composition/Specifications for Extra Grade NDM

Classifications	Fat	Moisture	Titratable Acidity	Solubility Index	Scorched Particles
Spray Dried Extra Grade NDM	Max. 1.25%	Max. 4.0%	Max. 0.15%	Max. 1.2 ml*	Max. 15.0 mg
Atmospheric Roller Dried Extra Grade NDM	Max. 1.25%	Max. 4.0%	Max. 0.15%	Max. 15.0 ml	Max. 22.5 mg

\*Except product designated as “high-heat” which shall not be greater than 2.0 ml.

### Extra Grade NDM Microbiological Analysis

Standard Plate Count	10,000 cfu/g
Coliform	≤ 10 cfu/g
Salmonella	negative
Listeria	negative
Coagulase positive Staphylococci	<10 cfu/g
Yeast & Mold	≤ 100 cfu/g

**Extra Grade** nonfat dry milk shall be entirely free from lumps, except those that break up readily under slight pressure. The re-liquefied product shall have a sweet and desirable flavor, but in the case of the spray process nonfat dry milk, this may possess the following flavors to a slight degree: chalky, cooked, feed and flat. In the case of roller process nonfat dry milk, a slight scorched flavor is permitted in addition to those listed above.

## **Specific Grading Requirements for Standard Grade Nonfat Dry Milk**

**Standard Grade** includes all nonfat dry milk that fails in one or more particulars to meet the requirements of Extra Grade, but it shall meet the following specifications:

Classifications	Fat	Moisture	Titratable Acidity	Solubility Index	Scorched Particles
Spray Dried Standard Grade NDM	Max. 1.5%	Max. 5.0%	Max. 0.17%	Max. 2.0 ml**	Max. 22.5 mg
Atmospheric Roller Dried Standard Grade NDM	Max. 1.5%	Max. 5.0%	Max. 0.17%	Max. 15.0 ml	Max. 32.5 mg

### **Composition/Specifications for Standard Grade NDM**

\*\*Except product designated as “high heat” which shall not be greater than 2.5 ml.

### **Standard Grade NDM Microbiological Analysis**

Standard Plate Count	50,000 cfu/g
Coliform	≤ 10 cfu/g
Salmonella	negative
Listeria	negative
Coagulase positive Staphylococci	<10 cfu/g
Yeast & Mold	≤ 100 cfu/g

**Standard Grade** nonfat dry milk shall be free from lumps, except those that break up readily under slight pressure. The re-liquefied product shall have a fairly desirable flavor, but in the case of the spray process nonfat dry milk may possess the following flavors to a slight degree: bitter, oxidized, stale, storage, utensil and scorched; and chalky, cooked, feed and flat flavors to a definite degree. In the case of roller process nonfat dry milk, a definite scorched flavor is also permitted.

### **GRADE NOT ASSIGNABLE**

Nonfat dry milk shall not be assigned a grade for one or more of the following reasons:

- α) Fails to meet the requirements for Standard Grade
- β) Has a Direct Microscopic Clump Count exceeding 100 million per gram, or
- χ) Has a coliform count exceeding 10 per gram.

## **Methods of Analysis (see pages 49-79)**

<b>Criteria</b>	<b>Reference Method</b>
Fat	AOAC 989.05
Total Moisture	AOAC 925.45

## **Product Labeling**

Product should be labeled as: “Nonfat Dry Milk”

## **Product Applications and Functionality**

Fluid milk fortification, frozen desserts, cheese, yogurt, dairy beverages, bakery products, custards, gravies, sauces, frozen foods, packaged dry mixes, processed meats, soups, infant formulas, snack foods, cosmetics

Nonfat dry milk is classified for end-product use according to the heat-treatment used in its manufacture. The classifications are: high, medium, and low-heat. See page 24 for definitions.

## **Storage & Shipping**

Product should be stored and shipped in a cool, dry environment with temperatures below 80°F and relative humidities below 65%. Shelf life is 18-24 months when stored under recommended conditions.

## **Packaging**

Multiwall kraft bags with polyethylene inner liner or other suitable closed container - i.e., “tote bins,” etc.