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NY

**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

NY/T 939-2016

Identification of Reconstituted Milk in Pasteurized and UHT Milk

巴氏杀菌乳和UHT灭菌乳中复原乳的鉴定

(English Translation)

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Foreword

This Standard was drafted as per the rules specified in GB/T 1.1-2009.

Compared with NY/T 939-2005, this Standard has the major changes as follows.

- Modify the index value for the identification of reconstituted milk in the pasteurized milk;
- Modify the index value for the identification of reconstituted milk in the UHT milk;
- Modify the pre-treatment method for furosine determination;
- Add the UPLC determination of furosine;
- Modify the determination of lactulose.

This Standard was proposed by the Department of Animal Husbandry, Ministry of Agriculture.

This Standard shall be under the jurisdiction of National Technical Committee for Standardizations of Animal Husbandry (SAC/TC 274).

Drafting organizations of this Standard. Institute of Animal Science of CAAS; Laboratory of Quality & Safety Risk Assessment for Dairy Products (Beijing), Ministry of Agriculture; and Ministry of Agriculture - Milk and Dairy Product Inspection Center (Beijing).

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Identification of Reconstituted
Milk in Pasteurized and UHT Milk

1 Scope

This Standard specifies the identification method of reconstituted milk in pasteurized and UHT milk.

This Standard is applicable to the pasteurized and UHT milk.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.

GB 5009.5 Determination of Protein in Foods

GB/T 6682 Water for Laboratory Use - Specifications

GB/T 10111 Generation of Random Numbers and Procedures Applied to Sampling
Inspection for Product Quality

3 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

3.1 Raw milk

The normal milk extruded from the breasts of the healthy dairy animals, it meets the relevant national requirements and has no ingredient changes.

3.2 Reconstituted milk

The milk obtained by mixing a dried or concentrated dairy product with water in proportion.

3.3 Heat treatment

The operation that uses heating technology with strength no less than pasteurization, inhibiting the growth of the microorganisms and killing the microorganisms; while controlling the physicochemical properties of the heated objects within the only limited changes.

3.4 Pasteurization

The processing method used to effectively kill pathogenic microorganisms, namely, the treatment method to keep at a low temperature for a long time (maintain for 30min at 63°C~65°C) or to keep at a high temperature for a short time (maintain for 15s at 72°C~76°C; or maintain for 10s~15s at 80°C~85°C).

3.5 Pasteurized milk

The liquid product with raw milk as the raw material, obtained by pasteurization process, with the lactulose content less than 100mg/L.

3.6 Ultra high-temperature, UHT

The processing method for effectively killing microorganisms and inhibiting heat-resistant spores; namely, heating to at least 132°C in a continuous flow state, and maintaining a very short time of heat treatment.

4.1.1 Principle

Hydrolyze the specimen by hydrochloric acid, then determine its protein content; after diluting, the hydrolysate shall be analyzed by high performance liquid chromatography (HPLC) or ultra-high-performance liquid chromatography (UPLC) under ultraviolet (wavelength 280nm) detector and quantify by external standard method.

4.1.2 Reagents and materials

Unless otherwise specified, all reagents used in this method shall be analytical reagents; and the water shall be Class-I water in the laboratory specified in GB/T 6682.

4.1.2.10 Furosine standard stock solution (500.0mg/L). convert the furosine standard

substance as per the Net Peptide Content provided by the standard substance certificate; then use 3mol/L hydrochloric acid solution to formulate into a standard stock solution. It can be stored for 24 months at -20°C.

4.1.3.1 High Performance Liquid Chromatograph. equipped with a UV detector or diode array detector.

4.1.3.2 Ultra-High-Performance Liquid Chromatograph. equipped with a UV detector

or diode array detector.

4.1.6.1 Furosine content in the specimen

The furosine is calculated by mass fraction F ; the value of which is expressed in mg/100g protein; and calculated as per Formula (1).

4.1.6.3 Furosine content at the sterilization of UHT milk

At the end of sterilization of UHT milk, the furosine content shall be calculated by FT ; the value of which shall be expressed by mg/100 protein; and calculated as per Formula (3).

4.2.1 Principle

The sample is hydrolyzed by beta - D - galactosidase to produce galactose and fructose; the lactulose content is calculated by the enzymatic determination of the amount of fructose.

4.2.2.30 Glucose oxidase (GOD) suspension (20mg/mL). use sterilized water to prepare the glucose oxidase with activity of 200 IU/mg into suspension with concentration of 20mg/mL. It shall be prepared for current use.