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QB

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

QB/T 4314-2023

**Alkaline detergent for food tools and industry equipment
(English Translation)**

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1 Scope

This document specifies the requirements for alkaline detergents for food tools and industrial equipment; describes the corresponding test methods; specifies the inspection rules and the contents of marking, packaging, transportation, storage; provides product classification for ease of technical specification.

This document applies to alkaline detergents (hereinafter referred to as "products") for food tools and industrial equipment, which is composed of alkaline substances, inorganic auxiliaries, and/or surfactants, including alkaline cleaning synergists added to alkaline substances to enhance cleaning effectiveness.

2 Normative references

The following documents, through normative references herein, constitute essential provisions of this document. For dated references, only the edition cited applies; for undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 191 Packaging - Pictorial marking for handling of goods

GB/T 6367 Surface active agents - Preparation of water with known calcium hardness

GB/T 6682 Water for analytical laboratory use - Specification and test methods

GB/T 13173-2021 Surface active agents - Test methods for detergents

GB 14930.1 National food safety standard - Detergent

GB/T 26396-2011 Technical specification for safety of soaps and detergents

GB/T 36970 Instruction for use of consumer products - Labelling for detergents

QB/T 2739 Preparations of standard volumetric solutions of general test methods for washing products

QB/T 2951 Inspecting rules for detergent products

QB/T 2952 Requirements for detergent marks and packaging

JJF 1070 Rules of metrological testing for net quantity of products in prepackages with fixed content

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Food tools and industry equipment

Machinery, pipes, tanks, containers, tools, etc., used in food processing.

3.2

Alkaline detergent for tools and food industry equipment

Alkaline detergents for cleaning food tools and industry equipment (3.1), and alkaline cleaning synergists added to alkaline substances to improve cleaning effectiveness.

3.3

Decontamination capability

The percentage of dirt detached from stainless steel sheets under specified conditions relative to the total amount of dirt cleaned.

Note: Expressed as a percentage (%).

4 Classification and naming

Products are classified into two categories based on variety, performance, specifications.

phosphorus-containing (HL type) and phosphorus-free (WL type). Each type is further divided into ordinary type (type A) and enhanced type (type B), with the following naming codes.

a) HL type. Phosphate-containing products, divided into HL-A and HL-B types, labeled as "alkaline detergent for food tools and industrial equipment HL-A" and

"alkaline detergent for food tools and industrial equipment HL-B", respectively;

b) WL type. Phosphate-free products, with total phosphate (calculated as phosphorus pentoxide) not exceeding 0.5%, divided into WL-A and WL-B types, labeled as "alkaline detergent for food tools and industrial equipment WL-A" and "alkaline detergent for food tools and industrial equipment WL-B", respectively.

5.1 Material requirements

The biodegradability of the surfactants used in the product shall comply with the requirements of 5.2.2.1 in GB/T 26396-2011.

The raw materials used in the product shall comply with the relevant requirements for Class B products in GB/T 14930.1.

5.2 Sensory requirements

The sensory requirements of the product shall comply with the requirements in Table 1.

5.3 Physicochemical indicators

The physicochemical indicators of the product shall comply with the requirements in Table 2.

5.4 Quantitative Packaging Requirements

The net content of each batch of products shall comply with the requirements of JJF 1070. For batches exceeding 25 kg, the content can be specified through label marking or contractual agreement.

6.1 Basic requirements

Unless otherwise specified, only reagents confirmed to be of analytical grade and water conforming to GB/T 6682 grade III or higher shall be used in the analysis.

6.2 Appearance

Observe an appropriate amount of sample under indirect light conditions.

6.3 Odor

Sensory examination.

6.4 Stability

Measure two portions of specimen, each of which is not less than 100 mL; place each in a 250 mL colorless, stoppered wide-mouth glass bottle. Place one portion in an incubator at $(40 \pm 1) ^\circ\text{C}$ for 24 hours; observe immediately upon removal; place the other portion in a refrigerator at $-3 ^\circ\text{C} \sim -10 ^\circ\text{C}$ for 24 hours; observe after returning to room temperature.

6.5 Surfactant content

It is determined according to Method A of Chapter 7 in GB/T 13173-2021.

6.6 Total phosphorus pentoxide (P₂O₅) content

It is determined according to 6.2 of GB/T 13173-2021.

6.7.1 Principle

The total alkali in the specimen is neutralized by titration with a standard hydrochloric acid solution, using methyl orange as an indicator. When it changes to orange, it is regarded as the end point. The mass fraction of total alkali can then be calculated using the volume of hydrochloric acid consumed.

6.7.2 Reagents

6.7.2.1

Standard hydrochloric acid titration solution. $c(\text{HCl}) = 0.5 \text{ mol/L}$, which is prepared and calibrated according to QB/T 2739.

6.7.2.2

Methyl orange indicator. 1.0 g/L, which is prepared according to QB/T 2739.

6.7.3 Determination

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