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Liquid oxygen based bleach for domestic use — Specification

Rwanda Standards Board

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Contents

Page

Foreword

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

DRS 404 was prepared by Technical Committee RSB/TC 042, *Surface Active Agents*.

In the preparation of this standard, reference was made to the following standard:

KS 2502: Liquid oxygen based bleach for domestic use — Specification

The assistance derived from the above source is hereby acknowledged with thanks.

Committee membership

The following organizations were represented on the Technical Committee on surface Active Agents (RSB/TC 042) in the preparation of this standard.

University of Rwanda-College of Sciences and Technology

Trust Industries Ltd

University of Rwanda – College of Education

SULFO Industries

AGROPY Ltd

MACPELA INVESTMENTS Ltd

Rwanda Standards Board (RSB) – Secretariat

Introduction

Oxygen-based or all-fabric bleach is a gentle bleaching agent that removes stains, whitens, and brightens laundry and is safe for use on almost all washable white and colored fabrics. Because of its chemical ingredients, it works more slowly than chlorine bleach, is less corrosive and damaging to fibers, and is more environmentally friendly.

Different brands of oxygen bleach may contain sodium perborate, sodium percarbonate, or hydrogen peroxide as ingredients. Some formulas also contain other ingredients like dyes, fragrances, or anti-caking products. When the dry bleach is introduced to water, the chemical ingredient oxidizes to help remove soil, stains, and cut through residual detergent and fabric softener build-up that dulls fabric.

When you head down the laundry products aisle, you'll see that oxygen bleach is sold in both powder and liquid formulas. Powder formulas (sodium perborate or sodium percarbonate are the active ingredients) are more stable and will retain their cleaning power much longer than liquid formulas. It is easy to use and can be mixed in warm or cool water to create the amount needed for each application.

Powdered oxygen bleach has a shelf life of several years. Over time and exposure to air, the active chemicals in powdered oxygen bleach will revert to environmentally friendly natural soda ash or borax after the oxygen is released.

Liquid oxygen bleach formulas are actually a solution of hydrogen peroxide in water. Liquid oxygen bleach will break down more quickly after opening, especially if exposed to light, leaving only water. Even unopened, the shelf life is six months or less.

For many years, laundry detergents of all types have added the same chemical ingredients that constitute oxygen bleach to their formulas. They have called them brighteners or whiteners. The popularity of stand-alone oxygen bleaches has prompted many manufacturers to add the term OXI to brand labels. Yes, oxygen bleach is in there but in very small quantities.

Liquid oxygen based bleach for domestic use — Specification

1 Scope

This Committee Draft specifies requirements, sampling and test methods for liquid oxygen based bleach for domestic use. This standard does not apply to sodium hypochlorite solutions used as domestic bleaches and sanitizers.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

RS ISO 862, *Surface active agents — Vocabulary*

RS ISO 4316, *Surface active agents — Determination of pH of aqueous solution — Potentiometric method*

RS 278, *Cosmetics — Method of sampling*

3 Terms and definitions

For the purposes of this standard, the terms and definitions given in RS ISO 862 and the following apply.

3.1

liquid oxygen

the liquid form of elemental oxygen.

3.2

nominal concentration

the minimum available oxygen content of the peroxide solution under test.

3.3

product unit

a unit of the final product, packaged in a plastic bottle or other suitable airtight and opaque container.

3.4

lot

a number of containers consisting of product of the same type and style which have been manufactured and packaged under essentially the same conditions.

4 Requirements

4.1 General requirements

4.1.1 Appearance

4.1.1.1 Liquid oxygen based bleach shall be a clear liquid, free from sediment and suspended matter. It may be perfumed or not.

4.1.1.3 The product shall be miscible with water in all proportions.

4.1.2 Stability

The product shall be stable under normal household conditions of use.

NOTE The product should not be heated up to temperature greater than 50 ºC.

4.2 Specific requirements

The product shall comply with the specific quality requirements given in table 1, when tested in accordance with the methods described therein.

Table 1 — Specific requirements for liquid oxygen based bleach

S/N	Parameters	Requirements	Test methods
i.	Available Oxygen, as H_2O_2, % w/v, min.	2.8	Annex A
ii.	pH, neat (at 20 ºC), max.	4	RS ISO 4316

5 Packaging and Labelling

5.1 Packaging

5.1.1 The product shall be packaged in suitable opaque containers

5.1.2 The container/package (including the closure) shall not interact chemically with the product and shall be strong enough to protect adequately during normal handling, transportation and storage.

5.2 Labelling

The container shall be labelled in prominent, legible and indelible label with the following information:

a) manufacturer's name and physical address;

NOTE The name, physical address of the distributor/supplier and trade mark may be added as required.

b) percent w/v of available oxygen;

c) the instructions for use and first aid instructions;

d) storage conditions;

e) net content;

f) date of manufacture;

g) best before date;

h) country of origin;

i) batch number or lot number;

j) the words: “Keep away from heat or sunlight”

6 Sampling

Sampling shall be done in accordance with RS 278.

Annex A
(normative)

Determination of available oxygen

A.1 Place 20 mL distilled water in a small beaker. Add 2.5 mL concentrated Sulphuric acid (H_2SO_4) and mix. Allow to cool.

A.2 Pipette 10 mL sample into a 100 mL volumetric flask and make to volume with distilled water. Place in a refrigerator for 30 min. to cool.

A.3 Pipette 10.0 mL of this solution into a 250 mL conical flask. Add cool sulphuric acid mixture.

A.4 Titrate with 0.2N Potassium permanganate ($KMnO_4$) to a faint pink colour.

A.5 Calculation:

$$\%\ available\ oxygen = Titre\ x\ 0.001701\ x\ F\ x\ 100/10$$

Where F is the concentration factor of 0.2 N Potassium permanganate.

DRS 404: 2019

ICS 71.100.40