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Non-acidic liquid toilet cleaner— Specification

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Foreword

Rwanda Standardsarepreparedby 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.

DRS559was prepared by Technical Committee RSB/TC 042, *Surface Active Agents.*

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

KS 809: Specification for toilet cleansers— Alkaline and neutral liquid toilet cleansers

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.

Akeza Assures Ltd

Oribut Company Ltd

Divine Hope Company Ltd

Sulfo Rwanda Industries Ltd

University of Rwanda/College of Sciences and Technology (UR/CST)

Rwanda Inspectorate, Competition and Consumer Products Authority (RICA)

Rwanda Forensic Laboratory (RFL)

Uburanga Products LTD

Rwanda Food and Drugs Authority (RFDA)

Rwanda Standards Board(RSB) – Secretariat

Non-acidic liquid toilet cleaner — Specification

1 Scope

This Draft Rwanda Standard specifies the requirements, sampling and test methods for non-acidic liquid toilet cleaner.

It applies to alkaline andneutral liquid compound used for the cleaning of toilet bowls and urinals.

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 editioncited 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 ISO 2884-2, *Paints and Varnishes — Determination of viscosity using rotary viscometer — Part 2: Disc or ball viscometer operated at specified speed*

3 Terms and definitions

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

4 Requirements

4.1 General requirements

The product shall:

a) be a homogenous aqueous liquid, stable and with a distinct colour,

b) be miscible in water in all proportions,

c) be stable, and not deteriorate in storage when kept in its original unopened container at ambient temperature for a period of one year from the date of manufacture,

d) not affect toilet bowl surfaces when used as directed by the manufacturer,

e) not be used for any other purpose and with any other cleaning product.

f) contain an effective rust inhibitor when tested in accordance with AnnexA.

4.2 Specific requirements

The product shall comply with the specific quality requirements given in Table 1 when tested in accordance with the methods indicated therein.

Table 1 — Specific requirement for neutral toilet cleansers

S/N	Parameters	Requirements		Test method
		Neutral	Alkaline	
i)	pH	6 - 8	10.5 - 13	RS ISO 4316
ii)	Surfactant, %, m/m, max.	5	5	Annex B
iii)	Viscosity, cps, min.	200	350	RS ISO 2884-2

5 Packaging and labelling

5.1 Packaging

5.1.1 The product shall be packed in suitable containers that are securely closed, are impervious to light, shall not be corroded by the product, and shall be sufficiently strong to prevent contamination of the product arising from the ordinary risks of transportation and storage.

51.2 The lid or cap on the container shall be such that the product is easily dispensed from the container safely

5.2 Labelling

5.2.1 All information marked on the containers shall be marked in a manner that is conspicuous, legible and indelible.

5.2.2 Individual containers shall be marked with the following information:

a) name of the product as ‘liquid toilet cleaner’

b) type of cleanser, ‘neutral’ or ‘alkaline’.

c) name and address of the manufacturer and registered trade mark, if any.

d) batch or code number.

e) net volume of content.

f) directions for use.

g) date of manufacture and expiry.

h) list of ingredients

i) country of origin/manufacture.

j) cautionary words and symbols

5.2.3 A precautionary notice marked with the following information:

a) The word '**CAUTION'** shall be in a colour that contrasts with the surrounding for easy visibility and shall be followed with the statement, '**READ LABEL BEFORE USE'**.

b) The following shall be marked immediately under the words in **5.2.2.1** *(a)*

1) 'Keep out of reach of children'.

2) 'The product shall be used for the cleaning of toilet bowls and urinals only'.

6 Sampling

Sampling shall be done in accordance with RS 278.

Annex A
(normative)

Assessing corrosion potential

A.1 Apparatus

A.1.1 Squat and tall 1-litre pyres glass beakers

A.1.2 An oven capable of maintaining 105±2ºC

A.1.3 Test panels made of stainless steel, of approximate dimensions 125 mm x 63 mm x 1.5 mm. The panels shall have a cold-rolled finish on both faces. They shall be undamaged and unmarked, flat and with their edges free from blurs.

A.1.4 Stainless steel tongs for handling the panels

A.1.5 Panel bolders made of inert material such as polypropylene for use during pre-cleaning and drying operations.

A.1.6 Rubber bands of rectangular cross-section, measuring when lying flat and unstretched, approximately 80 mm x 6 mm.

A.1.7 Magnesium carbonate (technical) for use as an abrasive in cleaning panels.

A.1.8 Distilled water.

A.1.9 Watch glass large enough to cover the tall 1-litre beakers in A.1.1.

A.2 Pre-cleaning of test panels and rubber bands

A.2.1 Panels

A.2.1.1 Swab the test panels, two for each test, with cotton wool using a warm 1 per cent v/v solution of ageneralpurpose detergent.

A.2.1.2 Scour the panels with cotton wool using water as a lubricant and the magnesium carbonate as an abrasive.

Note: Scouring also removes any films produced by reaction between the detergent and the abrasive, e.g. magnesium silicate.

Without delay, thoroughly rinse the panel under hot tap water, ensuring that all of the magnesium

A.2.1.3 Without delay, thoroughly rinse the panel under hot tap water, ensuring that all of the magnesium carbonate is removed.

A.2.1.4 Then rinse the panels in boiling, distilled water immersing each panel in turn in water contained in three 1-litre beakers.

A.2.1.5 Dry in an oven at 105 ± 2o C.

A.2.1.6 Allow to cool in a dry, dust-free position.

A.2.2 Rubber Bands

A.2.2.1 Place the rubber bands is a hard-boiling 1 per cent v/v solution of a general cleaning detergent for 10 minutes.

A.2.2.2 Rinse under hot tap water.

A.2.2.3 Then rinse in distilled water and allow to dry.

A.3 Procedure

The procedure shall be as follows, carried out in duplicate:

A.3.1 In a tall 1-litre beaker, make up to 950 mL of the use dilution of the compound under test. Mark the level of the solution on the side of the beaker.

A.3.2 Place two rubber bands around each test panel in the direction of the long axis of the panel, ensuringthat the bands are flat against both sides of the panel and that the panel is not touched by the fingers.

A.3.3 Five minutes after placement of the bands, immerse the panels on their ends as upright as possible in the test solution, so that there is at least 10 mm of solution above the panels. Note the time; place the watch glasses on the beakers.

A.3.4 Leave the panels in the test solution for 72 h. Each morning and evening, top up the solution to the mark with distilled water.

A.3.5 At the end of the 72 h remove the panels from the test solution, remove the bands and rinse the panels under hot, running water.

A.3.6 Then, rinse three times as prescribed in A.1.4.

A.3.7 Finally, dry the panels in the oven at 105 + 2$_{o}$C.

A.3.8 Examine the panels for –

i) evidence of corrosion, and,

NOTE: Pitting is most likely to occur where the rubber band contacts the edges of the panel.

ii) discolouration.

A.4 Interpretation of results

If the duplicator panels from the test detergents show the same characteristics, record the results. If the duplicates differ, repeat the test using fresh panels.

A.5 Report

The product shall be deemed to contain an effective rust inhibitor if no visible corrosion or discolouration of the panels has occurred.

Annex B
(informative)

Determination of non-ionic, anionic and cationic surfactant

B.1 Procedure

B.1.1 Accurately about 100 g of the compound in a 250 mL Erlenmeyer flask and neutralize it with caustic soda solution to a pH of 6.8 to 7.0.

B.1.2 Evaporate the resulting solution to dryness at 105ºC. Cool to room temperature and wash the resulting solids with five 20 mL aliquots of chloroform, filtering and collecting each in one tared 300 ml beaker.

NOTES:

1. The molar mass and chemical name of all surfactants used shall be supplied by the manufacturer on request by Kenya Bureau of Standards, when use of high pressure liquid chromatography (HPLC) equipment is employed in the determination of surfactant content in the product.

2. You shall use Myer's reagent to confirm nonionic surfactant. Dissolve 100 mg to 150 mg of isolated surfactants in 5 mL of distilled water. Add 2 drops of Myer's reagent. A yellow precipitate will form if nonionic surfactant is present.

Evaporate the chloroform and determine the weight of organic solids, (W_1) g.

B.1.3 Dissolve the organic solids in 50 mL of ethanol and pass resulting solution through a 22 mm x 200 mm x 250 mm chromatographic column of freshly regenerated cationic exchange resin (150 mm to 175 mm mesh). Wash the beaker with four 50 mL aliquots of ethanol collecting them in one tared beaker. (Cationic surfactant, if present, shall be retained, the eluate shall contain nonionic surfactants if present.) Evaporate the alcohol eluate in an oven. Weigh accurately, ($W2$) g.

Cationic surfactant; g = $W_1 - W_2$

Dissolve organic solids (W_2) g obtained in 50 ml of alcohol and pass the resulting solution through a chromatographic column specified in B3 having freshly regenerated anionic exchange resin (150 mm to 175 mm mesh). Wash the beaker with four 50 mL aliquots of alcohol, collecting them in one taredbeaker. (Anionic surfactant, if present, will be retained, the eluate will contain only nonionic surfactant.) Weigh accurately, W_3g.

B.2 Calculation

By difference

Anionic surfactant content, g = ($W_2 - W_3$)
Surfactant content, %, m/m

$=\frac{(W1-W2)}{m}$ + W_3 * 100 % (for cationic cleansers)

OR

$=\frac{W2}{m}$ * 100 % (for anionic cleansers)

$(W_1 -$

+ W_3 x 100 % (for cationic cleansers)

OR

=

m

$_2 W$

x 100 % (for anionic cleansers)

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Price based onnnnpages