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**Household fabric softeners —  
Specification**



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In order to match with technological development and to keep continuous progress in industries, standards are subject to periodic review. Users shall ascertain that they are in possession of the latest edition

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## 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 403 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 1797: Household fabric softeners — 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

A fabric softener (or conditioner/enhancer) is a conditioner that is typically applied to laundry during the rinse cycle in a washing machine. In contrast to laundry detergents, fabric softeners may be regarded as a kind of after-treatment laundry aid.

Machine washing puts great mechanical stress on textiles, particularly natural fibers such as cotton and wool. The fibers at the fabric surface are squashed and frayed, and this condition hardens while drying the laundry in air, giving the laundry a harsh feel. Adding a liquid fabric softener to the final rinse (rinse-cycle softener) results in laundry that feels softer.

Early cotton softeners were typically based on a water emulsion of soap and olive oil, corn oil, or tallow oil. Softening compounds differ in affinity to various fabrics. Some work better on cellulose-based fibers (i.e., cotton), others have higher affinity to hydrophobic materials like nylon, polyethylene terephthalate, polyacrylonitrile, etc. New silicone-based compounds, such as polydimethylsiloxane, work by lubricating the fibers. Manufacturers use derivatives with amine- or amide-containing functional groups as well. These groups improve the softener's binding to fabrics.

As softeners are often hydrophobic, they commonly occur in the form of an emulsion. In the early formulations, manufacturers used soaps as emulsifiers. The emulsions are usually opaque, milky fluids. However, there are also micro-emulsions, where the droplets of the hydrophobic phase are substantially smaller. Micro-emulsions provide the advantage of increased ability of smaller particles to penetrate into the fibers. Manufacturers often use a mixture of cationic and non-ionic surfactants as an emulsifier. Another approach is a polymeric network, an emulsion polymer.

In addition to fabric softening chemicals, fabric softeners may include acids or bases to maintain optimal pH for absorption, silicone-based anti-foaming agents emulsion stabilizers, fragrances and colours.

As with soaps and detergents, fabric softeners may cause irritant dermatitis. Manufacturers produce some fabric softeners without dyes and perfumes to reduce the risk of skin irritation. Fabric softener overuse may make clothes more flammable, due to the fat-based nature of most softeners. Some deaths have been attributed to this phenomenon, and fabric softener makers recommend not using them on clothes labelled as flame-resistant.

# Household fabric softeners — Specification

## 1 Scope

This Committee Draft specifies requirements, sampling and test methods for household fabric softeners/conditioners/enhancers.

## 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 2871-1, *Surface active agents — Detergents — Determination of cationic active matter content — Part 1: High-molecular-mass cationic active matter*

RS ISO 2871-1, *Surface active agents — Detergents — Determination of cationic active matter content — Part 2: Cationic active matter of low molecular mass (between 200 and 500)*

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

RS EAS 794, *Determination of the microbial inhibition of cosmetic soap bars and liquid hand and body washes — Test method*

RS ISO 21149, *Cosmetics — Microbiology — numeration and detection of aerobic mesophilic bacteria*

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

#### **fabric softener**

a laundry auxiliary product or laundry detergent ingredient that gives fabrics a soft feel, freshening, smooth surface, or reduces static electricity, or a combination thereof.

## 3.2

**laundering**

the cleaning and restoring of textile materials to a serviceable condition using the washing and drying equipment commonly found in household.

**4 Requirements****4.1 General requirements**

**4.1.1** The fabric softener shall have uniform dispersion with no lumps or phase separation, and shall not contain ingredients in quantities that are toxic to human beings.

**4.1.2** It shall be uniform in colour with no un-dissolved or precipitated dyes that may stain the treated fabrics.

**4.1.3** If the product is antibacterial, it shall pass antibacterial activity test when tested in accordance with RS EAS 794.

**4.1.4 Odour:** The product, both as received and when dissolved in water, shall possess a pleasant, fresh odour and shall not develop an objectionable one during storage at ambient temperature.

**4.1.5 Stability:** The product shall remain stable for the declared shelf life period without breaking of the dispersion (phase separation), changes in colour and deterioration of the odour.

**4.1.6 Dispersion:** The product shall disperse effectively or easily in standards hard water (total hardness 150 ppm  $\pm$  20 ppm) at 30 °C.

**4.1.7 Activity:** The product shall influence the properties of the fabric to improved wet-ability, softer and reduced static charge.

**4.2 Specific requirements**

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

**Table 1 — Specific requirements**

S/N	Parameters	Requirements	Test method
i.	Cationic content, % (w/w), min.	2.5	RS ISO 2871 (1&2)
ii.	pH, neat, range	2 – 7	RS ISO 4316
iii.	Total viable counts, cfu/g, max	$2 \times 10^2$	RS ISO 21149
iv.	Specific organisms	Absent	RS EAS 794

## 5 Packaging and labelling

### 5.1 Packaging

The product shall be packaged in suitable containers that are strong enough to withstand normal usage and transportation and that prevent leaking, drying out and contamination of the product.

### 5.2 Labelling

Each container and each bulk package shall be legibly and indelibly labelled with the following information:

- a) name of the product as “Fabric softener/conditioner/enhancer”;
- b) manufacturer name and physical address;

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

- c) batch or lot number;
- d) net contents;
- e) antibacterial agents if used and their levels;
- f) instructions for use (which shall be either English, French or Kinyarwanda, or in combination as agreed between the manufacturer and supplier);
- g) date of manufacture;
- h) list of ingredients;
- i) precautions;
- j) best before date; and
- k) country of origin.

## 6 Sampling

Sampling shall be done in accordance with RS 278.

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