© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

ISBN 978-0-626-44273-6

SANS 368:2020

Edition 1.3

SOUTH AFRICAN NATIONAL STANDARD

Aloe raw material

WARNING
This document references other documents normatively.

Published by the South African Bureau of Standards
1 Dr Lategan Road Groenkloof ✉ Private Bag X191 Pretoria 0001
Tel: +27 12 428 7911 Fax: +27 12 344 1568
www.sabs.co.za
© SABS

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

This page has been left blank intentionally

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.



COPYRIGHT PROTECTED DOCUMENT

© SABS

In terms of the Standards Act 8 of 2008, the copyright in all South African National Standards or any other publications published by the SABS Standards Division, vests in the SABS. Any use of South African National Standards is limited to use specifically prescribed by the SABS. In the case of a South African National Standard based on an international standard, ownership of the copyright vests in the organization from which the SABS adopted the standard, whether it be under licence or membership agreement. The SABS is obliged to protect such copyright and is authorized to make the relevant international organization aware of any misuse thereof. Unless exemption has been granted, no extract or full text of any South African National Standard may be copied, reproduced, stored in a retrieval system or transmitted in any form or by any means without prior written permission from the SABS Standards Division. This does not preclude the free use, in the course of implementing the standard, of necessary details such as symbols, and size, type or grade designations. If these details are to be used for any purpose other than implementation, prior written permission must be obtained.

Details, advice and limitations of use can be obtained from the Manager: Standards Sales and Information Services. Tel: +27 (0) 12 428 6883 email: sales@sabs.co.za

SABS – Standards Division

The objective of the SABS Standards Division is to develop, promote and maintain South African National Standards. This objective is incorporated in the Standards Act, 2008 (Act No. 8 of 2008).

The SABS continuously strives to improve the quality of its products and services and would therefore be grateful if anyone finding an inaccuracy or ambiguity while using this standard would inform the secretary of the technical committee responsible, the identity of which can be found in the foreword.

Buying Standards

Contact the Sales Office for South African and international standards, which are available in both electronic and hard copy format. Tel: +27 (0) 12 428 6883 email: sales@sabs.co.za

South African National Standards are also available online from the SABS Webstore www.store.sabs.co.za

Information on Standards

SABS Customer Services provide comprehensive standards-related information on national, regional and international standards. Tel: +27 (0) 12 428 7911 / 0861 27 7227 email: info@sabs.co.za

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

SANS 368:2020
Edition 1.3

Table of changes

Change No.	Date	Scope
Amdt 1	2008	Amended to include the option of using other test methods in the determination of pesticide residue.
Amdt 2	2015	Amended to add the definitions of "cultivation", "organic agriculture", "organic farming", "sustainable", "wild crafting" and "wild growing", to renumber the definitions and to change cross references accordingly, and to move reference to legislation to the foreword.
Amdt 3	2020	Amended to delete the annex on notes to purchasers.

Foreword

This South African standard was prepared by National Committee SABS/TC 217, *Cosmetics*, in accordance with procedures of the South African Bureau of Standards, in compliance with annex 3 of the WTO/TBT agreement.

This document was approved for publication in September 2020.

This document supersedes SANS 368:2015 (edition 1.2).

A vertical line in the margin shows where the text has been technically modified by amendment No. 3.

Reference is made in 5.1.1 to the "relevant national legislation". In South Africa this means the Agricultural Product Standards Act, 1990 (Act No. 119 of 1990), the Foodstuffs, Cosmetic and Disinfectant Act, 1972 (Act No. 54 of 1972), the Medicines and Related Substances Control Act, 1965 (Act No. 101 of 1965), the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), and the Regulations regarding the general hygiene requirements for food premises and the transport of food of the Health Act, 1977 (Act No. 63 of 1977). **Amdt 2**

Annexes C and D form an integral part of this document. Annex E is for information only. **Amdt 2; amdt 3**

Compliance with this document cannot confer immunity from legal obligations.

Reaffirmed and reprinted in February 2026.
This document will be reviewed every five years and be reaffirmed, amended, revised or withdrawn.

Introduction

The leaves from the plants of the *Aloe* species have been used since ancient times in many applications such as in the treatment of ailments in humans and animals, as well as in cosmetic preparations. These applications continue to be in use today.

The present global trend sees the use of more natural raw materials in various products ranging from medicine to cosmetics and food. This has led to an increase in the demand for natural products, including the aloe raw material. Aloe producers have to ensure that they are able to supply the demand for a quality product, that the plants are not over-harvested and that the environment is not harmed.

This standard has been developed to be of assistance to the aloe industry in South Africa.

© SABS

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

Contents

Page

Foreword

Introduction

1 Scope 3

2 Normative references 3

3 Definitions 4

4 Types 6

5 Requirements 7
5.1 General requirements 7
5.2 Harvesting requirements 8
5.3 Detailed requirements 8
5.4 Microbiological requirements 10

6 Test methods 11
6.1 Loss on drying 11
6.2 Identification of type 1 raw material 12
6.3 Aloin content 13
6.4 Alcohol precipitable solids 15
6.5 Total ash content 17
6.6 Contaminant limits 17
6.7 Microbiological tests 18

7 Packing and marking 18
7.1 Packing 18
7.2 Marking 19

Annex A Deleted by amendment No. 3.

Annex B Deleted by amendment No. 2.

Annex C (normative) Sampling and compliance with this standard 20

Annex D (normative) Microbiological test methods 22

Annex E (informative) Quality verification of aloe raw material 26

Bibliography 26

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

This page is intentionally left blank

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

Aloe raw material

1 Scope

This standard specifies requirements and related test methods for *Aloe ferox* raw material intended to be used in consumer products including health, cosmetic, health food, medicinal, veterinary and industrial products.

NOTE Although this standard was primarily developed for *Aloe ferox*, it might be applicable to other aloe species.

2 Normative references

The following referenced documents are indispensable for the application of this document. All normative documents are subject to revision and, since any reference to a normative document is deemed to be a reference to the latest edition of that document, parties to agreements based on this document are encouraged to take steps to ensure the use of the most recent editions of the normative documents indicated below. Information on currently valid national and international standards can be obtained from the South African Bureau of Standards.

2.1 Standards

SANS 4832/ISO 4832, *Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coliforms – Colony-count technique*.

SANS 4833/ISO 4833, *Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of microorganisms – Colony-count technique at 30 °C*.

SANS 6579/ISO 6579, *Microbiology of food and animal feeding stuffs – Horizontal method for the detection of* Salmonella *spp.*

SANS 6888-1/ISO 6888-1, *Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus *and other species) – Part 1: Technique using Baird-Parker agar medium.*

SANS 7251/ISO 7251, *Microbiology of food and animal feeding stuffs – Horizontal method for the detection and enumeration of presumptive* Escherichia coli *– Most probable number technique*.

SANS 7932/ISO 7932, *Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of presumptive* Bacillus cereus *– Colony-count technique at 30 °C.*

SANS 7954/ISO 7954, *Microbiology – General guidance for enumeration of yeasts and moulds – Colony count technique at 25 °C.*

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

2.2 Other publications

British Pharmacopoeia (BP).

Official methods of analysis of the AOAC International (Association of Official Analytical Chemists), Volume 1.

3 Definitions

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

3.1
aloe granulated
aloe lump crushed into small pieces ranging between 50 mm and 200 mm in diameter

3.2
bitters
bitter sap
latex
leaf exudate
sap or liquid tapped from the leaf rind

3.3
cultivation
art, science, technology and business of intensive planting applied to improve plant growth, yield, quality, nutritional value, and resistance to diseases and environmental stresses **Amdt 2**

3.4 **Amdt 2**
fillet
leaf parenchyma
inner part of the leaf when the skin is removed

3.5 **Amdt 2**
gel
aloe gel
liquid, almost bitter-free, obtained by milling or pressing the fillet or the unskinned leaf

3.6 **Amdt 2**
lump
latex, concentrated into a thick syrup by boiling, that solidifies upon cooling

3.7
organic agriculture
production system that sustains the health of soils, ecosystems and people

NOTE It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. It combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved. **Amdt 2**

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

3.8
organic farming
form of agriculture that relies on techniques such as crop rotation, green manure, compost and biological pest control

NOTE It uses fertilizers and pesticides but excludes or strictly limits the use of manufactured (synthetic) fertilizers, pesticides (which include herbicides, insecticides and fungicides), plant growth regulators such as hormones, livestock antibiotics, food additives, genetically modified organisms, human sewage sludge, and nanomaterial. **Amdt 2**

3.9 **Amdt 2**
pectin jelly
jelly
product with a jelly-like consistency produced from the leaf by an extraction process subsequent to the removal of latex or gel, or both

3.10 **Amdt 2**
powder

3.10.1 **Amdt 2**
bitter leaf powder
leaf product from which the gel is removed before drying, and milled to a fine powder

3.10.2 **Amdt 2**
bitter powder
powder produced when the bitter sap is spray-dried or freeze-dried

3.10.3 **Amdt 2**
gel powder
dried gel
fillet powder
gel dried to a powder by means of various processes, including spray-drying and freeze-drying

3.10.4 **Amdt 2**
low bitter leaf powder
leaf product from which all, or most, of the latex is removed before drying, and milled to a fine powder

3.10.5 **Amdt 2**
lump powder
solidified lump milled to a fine powder

3.10.6 **Amdt 2**
whole leaf powder
leaf product dried and milled without the processing or removal of any component

3.10.7 **Amdt 2**
whole leaf sap powder
whole leaf sap dried by various processes

3.11 **Amdt 2**
shredded low bitter leaf
leaf product from which the latex, or gel, or both are removed before drying and shredding

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

3.12 **Amdt 2**
stressed
<with regard to plants> plant with leaves that are channelled, curled or discoloured due to drought, cold or disease

3.13
sustainable
using methods, systems and material by conserving an ecological balance and avoiding depletion of resources or harm to natural cycles **Amdt 2**

3.14 **Amdt 2**
tap
tapped
tapping
technique that includes the cutting, and aligning or arranging of the leaves in order to obtain the maximum quantity of bitter sap from the leaf rind

3.15
wild crafting
the practice of harvesting plants from their natural or “wild” habitat, for food or medicinal purposes. It applies to uncultivated plants wherever they may be found, and is not necessarily limited to wilderness areas. Ethical considerations are often involved, such as protecting endangered species and ensuring that the plant populations are harvested in a sustainable way **Amdt 2**

3.16
wild growing
wildcrafted
naturally grown
plants growing in their natural native habitat in an ecological area and applies to uncultivated plants wherever they may be found and is not necessarily limited to wilderness areas **Amdt 2**

3.17 **Amdt 2**
whole leaf sap
liquid comprising the gel and remaining latex, including the solutes from the rind, when pressed from the whole chopped leaf

4 Types

Aloe raw material shall be one of the following types:

Type 1 made from latex, which may be further divided into the following subtypes: **Amdt 3**

a) bitter sap;

b) lump;

c) bitter leaf powder;

d) lump powder; and

e) aloe granulated.

Type 2 made from the fillet, which may be further divided into the following subtypes: **Amdt 3**

f) fillet;

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

g) gel; and

h) gel powder.

Type 3 made from the whole leaf, which may be further divided into the following subtypes: **Amdt 3**

i) whole leaf sap;

j) whole leaf powder;

k) leaf powder;

l) pectin jelly;

m) whole leaf sap powder;

n) shredded low bitter leaf; and

o) low bitter leaf powder.

5 Requirements

5.1 General requirements

5.1.1 The production of aloe raw material shall comply with the requirements set out in the regulations promulgated in terms of the relevant national legislation (see foreword). **Amdt 2**

5.1.2 Specific, designated, clean containers shall be used for the intended type of raw material (see clause 4) during collection and processing, e.g. containers intended to collect latex shall only be used for latex. Containers that have previously been used to store other substances, e.g. chemicals, shall not be used.

5.1.3 The raw material shall be free from extraneous matter, e.g. stones and twigs.

5.1.4 When boiled to produce lump (see 3.6), the sap shall not be burned or overcooked. The coloured lump shall be translucent. **Amdt 2**

NOTE The colour of the lump ranges from yellow to brown to very dark brown and to shades of green.

5.1.5 An adulterant (e.g. starch) shall not be added to the raw material, unless the supplier declares it to the purchaser. Supplementary additives (e.g. vitamins or preservatives) shall be declared. **Amdt 3**

5.1.6 Harvesters shall wear clean gloves to prevent injury to skin (by the thorns) and subsequent contamination of the leaves with blood.

5.1.7 In order to maintain a high standard of hygiene, workers in the manufacturing facility shall wear hairnets, or any other suitable head cover, and gloves when the leaves are processed.

5.1.8 The general and harvesting requirements as contemplated in this standard are applicable to organic, cultivated and wild growing aloe plants (see 3.3; 3.7; 3.8; 3.15 and 3.16). **Amdt 2**

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

5.2 Harvesting requirements

5.2.1 *Aloe ferox* plant

An *Aloe ferox* plant shall be at least 70 cm high before its leaves are harvested for the first time. Only the bottom 8 to 12 leaves shall be harvested to allow the plant to recover. The leaves on the crown shall not be harvested. An individual aloe plant may be harvested every fifteen to twenty months, as determined by rainfall.

5.2.2 *Aloe ferox* leaves

The leaf shall be mature and at least 30 cm long before it is harvested. Only leaves on the lower part of the plant shall be harvested. The bottom leaves that have passed their growing stage, and are about to dry, may be harvested irrespective of their size. The leaves shall not be harvested in the rain, when windy or when the plants are stressed (see 3.12). **Amdt 2**

The leaves shall be stacked without delay to minimize the loss of juice and to prevent bruising. To prevent fermentation, the leaves shall not be stacked at a single collection point unless they can be collected on the same day. The leaves shall be visually examined (see C.2.1) before they are transported to the manufacturing facility. The leaves shall be loaded into a clean vehicle or packed into clean plastic containers before transport.

The leaves shall be washed with water to remove surface impurities before processing.

NOTE It is recommended that the leaves be processed as soon as possible after harvesting, and they should not be older than 5 d before processing.

5.2.3 Tapping of leaves

When the leaves are tapped (see 3.14), the following conditions shall apply to ensure the quality of bitters: **Amdt 2**

a) a clean knife or cutting equipment;

b) no impurities such as dust, paper or ash near the tapping site;

c) a clean holder or receptacle to collect the latex exudate from the leaf; and

d) a container with a lid for transportation of the collected latex (see 5.1.2).

5.3 Detailed requirements

5.3.1 Loss on drying

When determined in accordance with 6.1, the loss on drying for the subtypes of raw material indicated in table 1 shall comply with the limit indicated in column 2. The water content for subtypes 2(g) and 3(l) shall be as specified. **Amdt 3**

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

Table 1 — Loss on drying

1	2
Product	**Limit**
Type 1(b)	Not more than 10 %
Type 1(c)	Not more than 10 %
Type 2(h)	Not more than 10 %
Type 3(j)	Not more than 10 %
Type 3(k)	Not more than 10 %

5.3.2 Identification of type 1 raw material

The identification of type 1 raw material shall be in accordance with the thin layer chromatography method in 6.2.

5.3.3 Aloin content

In the case of manufacturing of pharmaceutical preparations, when determined in accordance with 6.3, the aloin content shall be not less than 18 %. Aloin A and aloin B shall be present in equal amounts. The peak area for the combined aloin A and aloin B shall be more than 18 % of the total peak (the intergration area) of all the combined compounds. For all other applications the supplier shall specify the aloin content.

NOTE An aloin content of 18 % or more is a prerequisite for aloes exported for pharmaceutical purposes. For aloe bitters that are not used in pharmaceutical applications, the level of aloin can be indicated on the product specification without prejudice as to the level required. The purchaser can decide on the level of aloin for the intended application. **Amdt 3**

5.3.4 Alcohol precipitable solids

When determined in accordance with 6.4, the percentage precipitable solids for types 2 and 3 raw material shall be as specified by the supplier. **Amdt 3**

NOTE The purpose of this test is to determine the insoluble fraction of the raw material (an indication of purity and to detect unnatural additives), and precipitable solids (an indication of normal content of polysaccharides).

5.3.5 Presence of additives

In the case where additives such as organic acids are added, the quantity and type of additive shall be declared by the supplier (see 5.1.5). **Amdt 3**

5.3.6 Polysaccharide content

In the case where the polysaccharide content is altered, it shall be declared by the supplier (see 5.1.5 and annex A).

NOTE It is recommended that the natural polysaccharide not be altered.

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

5.3.7 Total ash content

In the case of powder products, when determined in accordance with 6.5, the total ash content shall be not more than 4 %. For whole leaf raw material (types 3(i) and (j)) and lump (type 1(b)), the limits shall be determined by the supplier and specified in the product specification. **Amdt 3**

NOTE The ash content for gel products are not specified.

5.3.8 Contaminant limits

5.3.8.1 Heavy metals

When determined in accordance with 6.6.1, heavy metals shall comply with the limits given in column 2 of table 2.

Table 2 — Heavy metal limits

1	2	3
Contaminant	**Max. limit** mg/kg	**Test method**
Lead (Pb)	0,05	6.6.1.1
Cadmium (Cd)	0,05	6.6.1.2
Arsenic (As)	0,2	6.6.1.3
Mercury (Hg)	0,05	6.6.1.4

5.3.8.2 Pesticide residues

When determined in accordance with 6.6.2, the pesticide residue limit for Aldrin shall be not more than 0,05 mg/kg.

5.4 Microbiological requirements

5.4.1 Total viable count (TVC)

When tested in accordance with 6.7.1, the total viable count shall be:

a) less than 100 colony forming units per gram (cfu/g) for raw material used in topical products;

b) less than 1000 cfu/g for bitter powder; and

c) 100 cfu/g for aloe gel.

5.4.2 Yeast and mould

When tested in accordance with 6.7.2, the yeast and mould count shall be:

a) less than 50 cfu/g for raw material used in topical products;

b) less than 500 cfu/g for bitter powder; and

c) 500 cfu/g for aloe gel.

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

5.4.3 Total coliforms

When tested in accordance with 6.7.3, the total coliform count shall be less than 10 cfu/g of sample.

5.4.4 *Escherichia coli* (*E.coli*)

When tested in accordance with 6.7.4, *E.coli* shall be absent per gram of sample.

5.4.5 *Staphylococcus aureus* (*S.aureus*)

When tested in accordance with 6.7.5, *S.aureus* shall be absent per gram of sample.

5.4.6 *Pseudomonas* spp

When tested in accordance with 6.7.6, *Pseudomonas spp* shall be absent per gram of sample.

5.4.7 *Salmonella*

When tested in accordance with 6.7.7, *Salmonella* shall be absent per 10 g of sample.

5.4.8 *Bacillus cereus*

When tested in accordance with 6.7.8, *Bacillus cereus* shall be absent per gram of sample.

6 Test methods

6.1 Loss on drying

6.1.1 Apparatus and glassware

6.1.1.1 **Drying oven**, capable of operating between 100 °C ± 1 °C and 110 °C ± 1 °C.

6.1.1.2 **Balance**, accurate up to three decimals.

6.1.1.3 **Desiccator**.

6.1.1.4 **Sample holder**.

6.1.2 Procedure

6.1.2.1 Determine the mass of the sample holder.

6.1.2.2 Accurately weigh approximately 20 g ± 0,1 g of sample (see C.2) into the holder.

6.1.2.3 Dry in an oven at 105 °C ± 1 °C for 24 h.

6.1.2.4 Cool in a desiccator for 30 min to 60 min.

6.1.2.5 Determine the mass of the holder with the sample to the third decimal without delay.

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

6.1.3 Calculation

Calculate the loss on drying using the following formula:

$$L = \frac{b - c}{b - a} \times 100$$

where

L is the loss on drying as a mass fraction, expressed as a percentage;

b is the mass of the sample holder and sample before drying, in grams;

c is the mass of the sample holder and sample after drying, in grams;

a is the mass of the sample holder, in grams.

6.2 Identification of type 1 raw material

6.2.1 Apparatus and glassware

6.2.1.1 Ultraviolet light source, capable of observing a 365 nm wavelength.

6.2.1.2 Flat silica gel glass plates (TLC), of size 20 cm × 20 cm.

6.2.1.3 Developing chamber with a lid.

6.2.1.4 Graduated micropipettes, capable of delivering 5 µL.

6.2.1.5 Volumetric flasks for volumes of 20 mL.

6.2.1.6 Balance, accurate up to three decimals.

6.2.1.7 Oven, capable of operating at 110 °C ± 1 °C.

6.2.2 Reagents

6.2.2.1 Methanol of analytical grade.

6.2.2.2 Ethyl acetate of analytical grade.

6.2.2.3 Methanolic potassium hydroxide.

6.2.2.4 Reference solution, that contains 50 mg aloin (barbaloin) in 10 mL methanol.

6.2.3 Solvent system

A 13:17:100 mixture of water, methanol and ethyl acetate.

6.2.4 Procedure

6.2.4.1 Accurately weigh 0,5 g lump powder or bitters (see C.3.2) into a volumetric flask. Add 20 mL methanol and shake for a few minutes.

6.2.4.2 Decant the supernatant and keep at 4 °C. Use within 24 h.

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

6.2.4.3 Using a micropipette, apply 5 µL of the test solution onto the plate, 2 cm from the edge of the plate. Two or three spots should be applied. Apply the reference solution (see 6.2.2.4) using the same procedure. The spots shall be 1,5 cm apart.

6.2.4.4 Leave the plates for a few minutes to dry.

6.2.4.5 Add sufficient solvent into the developing chamber to reach a depth of 5 mm to 10 mm.

6.2.4.6 Place the plate, with the test spots showing at the lower end, in the developing chamber. The solvent should be below the spots. Cover the chamber.

6.2.4.7 Allow the solvent to ascend 15 cm above the spots.

6.2.4.8 Remove the plate and use a hairdryer to dry the plate. Spray with 10 % methanolic potassium hydroxide.

6.2.4.9 Examine the plate under UV light at 365 nm. At a retention factor (Rf) of 0,4 to 0,5, a yellow to orange zone corresponding to aloin will be present. A light blue zone lower down (Rf of 0,25) indicates the presence of aloesin. The presence of one or two yellow zones just above the aloesin corresponds with aloinosides A and B.

6.2.4.10 Heat the plate in the oven for 5 min at 110 °C. If a violet zone appears directly below the aloin, it indicates that the sample is from the *Aloe vera* plant. The violet zone (7-hydroxyaloin) is absent in *Aloe ferox.*

6.3 Aloin content

6.3.1 Apparatus and glassware

6.3.1.1 High performance liquid chromatography (HPLC) with:

a) a suitable detector (UV or diode array) at 275 nm or 365 nm;

b) a suitable binary or quaternary pump capable of delivering 1 mL/min in a gradient program;

c) a suitable injector capable of delivering 20 µL; and

d) a suitable integrator or data processing system.

6.3.1.2 Reverse phase column, that uses a C18 cartridge with 5 µm particle size, a column length of 250 mm and a diameter of 4,6 mm.

6.3.1.3 Volumetric flasks, for the calibration standard.

6.3.2 Reagents

6.3.2.1 Methanol, of HPLC grade.

6.3.2.2 Water, of HPLC grade (millipore purified).

6.3.2.3 Reference standard, consisting of pure aloin that contains both aloin A and aloin B in equal quantities.

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

6.3.3 Mobile phase

Methanol and water.

Mobile phase A: 100 % water.

Mobile phase B: 100 % methanol.

6.3.4 Solvent system

For the solvent system, run a 40 % to 100 % linear gradient of methanol in water at a flow rate of 1 mL/min. The program for the elusion gradient is indicated in table 3.

Table 3 — Elusion gradient

1	2
Time min	**Value** % B
0,00	40,0
1,00	80,0
13,00	100,0
14,00	100,0
19,00	0,0
21,00	40,0

Stop the run at 33 min (allow a minimum of 10 min for the system to re-equilibrate at 40 % B).

6.3.5 Procedure

6.3.5.1 Accurately weigh 20 mg of the powdered sample (see C.3.2) into a 10 mL volumetric flask. Add 2 mL of 1:1 methanol:water mixture and mix.

6.3.5.2 Make up the reference standard in accordance with 6.3.5.1.

6.3.5.3 Inject 20 µL of the reference standard into the HPLC system.

6.3.5.4 Inject 20 µL of the sample into the HPLC system.

6.3.6 Interpretation of results

6.3.6.1 Both aloins (A and B) have the characteristic ultraviolet visible spectroscopy (UV/VIS) spectrum, with maximum wavelength at 268, 295 and 355.

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

6.3.6.2 The peak area for the combined aloin A and aloin B is calculated using the following formula:

$$R_A = \frac{PA\text{aloinA}}{\sum PA} \times 100 \quad (1)$$

where

R_A is the ratio of aloin A, expressed as a percentage;

PA is the peak area;

$\sum$ is the sum of the total peak area.

$$R_B = \frac{PA\text{aloinA}}{\sum PA} \times 100 \quad (2)$$

where

R_B is the ratio of aloin B, expressed as a percentage;

PA is the peak area;

$\sum$ is the sum of the total peak area.

$R_A + R_B \geq 18$ %. (3)

NOTE An accurate determination of aloin values can be done by using a predetermined gradient curve from a series of injections of pure aloin reference standard. Aloin should not be present in aloe gel. Using this method can determine the presence, and the level, of aloin in an aloe gel sample. For routine analysis of aloe bitters however, the level of aloin in the product, expressed as a percentage of total peak area (of all peaks), is acceptable and adequate.

6.4 Alcohol precipitable solids

6.4.1 Apparatus and glassware

6.4.1.1 Centrifuge.

6.4.1.2 Balance, accurate up to three decimals.

6.4.1.3 Drying oven, capable of operating between 100 °C ± 1 °C and 110 °C ± 1 °C.

6.4.1.4 Freeze-dryer.

6.4.1.5 Volumetric flasks, for volumes of 10 mL.

6.4.1.6 Freeze-drying flasks.

6.4.1.7 Centrifuge tubes.

6.4.2 Reagents

6.4.2.1 Ethanol, of alcohol absolute analytical grade that contains not less than 99,5 % C_2H_6O.

6.4.2.2 Distilled water.

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

6.4.3 Solubility test

6.4.3.1 Accurately weigh 20 mg of the spray-dried powdered sample (see C.3.1) into a volumetric flask.

6.4.3.2 Add 2 mL of water and mix for 15 min at room temperature.

6.4.3.3 Transfer the mixture into the centrifuge tube and centrifuge at 2 000 r/min for 10 min.

6.4.3.4 Determine the mass of a freeze-drying flask.

6.4.3.5 Carefully decant the supernatant into a volumetric flask.

6.4.3.6 Transfer the residue into the freeze-drying flask in 6.4.3.4.

6.4.3.7 Place the freeze-drying flask into the freeze-dryer and dry the residue.

6.4.3.8 Determine the mass of the freeze-drying flask and the residue.

6.4.3.9 Determine the mass of the residue (an indication of purity) using the following formula:

$$M_1 = F_1 - D_1 \quad (1)$$

where

M_1 is the mass of the dry residue, in grams;

F_1 is the mass of the dry residue and flask, in grams;

D_1 is the mass of the freeze-drying flask, in grams.

$$S = 100 - \left[\frac{M_1}{K} \times 100 \right] \quad (2)$$

where

S is the solubility of the residue, expressed as a percentage;

M_1 is the mass of the residue, in grams;

K is the mass of the sample, in grams.

6.4.4 Test for alcohol precipitable solids

6.4.4.1 Add 6 mL of 80 % ethanol to the supernatant in 6.4.3.5.

6.4.4.2 Stir the solution for 10 min at room temperature.

6.4.4.3 Determine the mass of a centrifuge tube.

6.4.4.4 Carefully transfer the solution into the centrifuge tube and centrifuge at 2 000 r/min for 10 min.

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

6.4.4.5 Decant the supernatant and dry the residue in the tube at 100 °C in a drying oven.

6.4.4.6 Immediately place in a dessicator to cool.

6.4.4.7 Immediately determine the mass of the residue and the tube.

6.4.4.8 Determine the alcohol precipitable solids of the sample using the following formula:

$$M_2 = F_2 - D_2 \quad (1)$$

where

M_2 is the mass of the dry residue, in grams;

F_2 is the mass of the dry residue and tube, in grams;

D_2 is the mass of the centrifuge tube, in grams.

$$P = \frac{M_2}{K} \times 100 \quad (2)$$

where

P is the precipitable solids as a mass fraction, expressed as a percentage;

M_2 is the mass of the dry residue, in grams;

K is the mass of the sample, in grams.

6.5 Total ash content

Follow the method for vegetable drugs described in the latest BP.

6.6 Contaminant limits

6.6.1 Heavy metals

6.6.1.1 Lead

Follow the limit test method described in the latest BP.

6.6.1.2 Cadmium

Follow the limit test method described in the latest BP.

6.6.1.3 Arsenic

Follow the limit test method described in the latest BP.

6.6.1.4 Mercury

Follow the limit test method described in the latest BP.

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

6.6.2 Pesticide residues

Follow the method in the AOAC International or any other validated test method that will give equivalent results. **Amdt 1**

6.7 Microbiological tests

6.7.1 Total viable count

Follow the method described in annex D, or another equivalent method.

6.7.2 Yeast and moulds

Follow the method described in annex D, or another equivalent method.

6.7.3 Total coliforms

Follow the method described in SANS 4832, or another equivalent method.

6.7.4 Presence of *E.coli*

Follow the method described in SANS 7251, or another equivalent method.

6.7.5 Presence of *Staphylococcus aureus*

Follow the method described in SANS 6888-1, or another equivalent method.

6.7.6 Presence of *Pseudomonas spp*

Follow the method described in the latest BP, or another equivalent method.

6.7.7 Presence of *Salmonella*

Follow the method described in SANS 6579, or another equivalent method.

6.7.8 Presence of *Bacillus cereus*

Follow the method described in SANS 7932, or another equivalent method.

7 Packing and marking

7.1 Packing

7.1.1 The aloe raw material shall be packed in acceptable containers that will withstand normal usage and transportation, and prevent any risk of contamination and significant losses.

7.1.2 Hygroscopic raw material shall be packed in airtight containers. Silica gel bags or capsules may be placed into these containers to absorb residual moisture.

7.1.3 Raw material sensitive to light shall be packed in containers that are light-resistant.

7.1.4 Liquid raw material shall be packed in leak-proof containers.

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

7.1.5 Aloe gel shall be packed into airtight, rigid plastic containers immediately after processing and placed in a refrigerator or cold room to allow the gel to set before transportation.

7.1.6 Fresh aloe fillets shall be pasteurised and packed in plastic bags, in boxes or plastic containers. Fillets may also be frozen and packed in plastic containers. It is recommended that fresh aloe fillets be vacuum-packed.

7.1.7 Powdered raw material shall be packed in plastic bags and placed inside an airtight container.

7.1.8 Lumps shall be packed in plastic bags and sealed in metal drums, or they shall be packed in airtight plastic containers.

7.2 Marking

The following information shall appear in legible and indelible marking on the outside of each container or on a label attached to the container:

a) the name of product (type of raw material);

b) the species of aloe;

c) the method of collection (i.e. wild or farmed);

d) the geographical origin of the aloe and sap;

NOTE The origin should be the area close to a city, e.g. the Swellendam area as opposed to the Swellendam-Riversdal area.

e) the classification or grade, e.g. pharmaceutical grade or food grade;

f) the batch number;

g) the manufacturer’s trade name or trademark (or both);

h) the manufacturer’s physical address;

i) the date of manufacture; and

j) the weight of the product.

NOTE The symbol for organic certification may be exhibited on products that have organic certification.

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

Annex A

Deleted by amendment No. 3.

Annex B

Deleted by amendment No. 2.

Annex C
(normative)

Sampling and compliance with this standard

C.1 Sampling

C.1.1 General

The following sampling procedure shall be applied in determining whether a lot submitted for inspection and testing complies with the relevant requirements of this standard. The sample so drawn shall be deemed to represent the lot.

C.1.2 Definitions

C.1.2.1
batch
defined quantity of material produced from a single process or, in the case of a continuous production process, the material produced in a defined cycle of manufacture that is intended or purported to be homogeneous in character and quality

NOTE 1 Small batches may be combined and blended together to form a uniform batch.

NOTE 2 A batch of bitters with a low aloin content can be mixed with a batch of bitters with a high aloin content resulting in a batch with the required aloin content.

C.1.2.2
defective
aloe raw material that fails in one or more respects to comply with the requirements of this standard

C.1.2.3
lot
the quantity of aloe raw material that bears the same batch identification, from one manufacturer, and submitted at any one time for inspection and testing

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

C.2 Sample for inspection

C.2.1 The leaves shall be visually inspected for damage (black spots or blemishes), discolouring or disease. The leaves shall be inspected when collected from the field and when washed for processing. Infected leaves shall be discarded.

C.2.2 Aloe lump shall be visually inspected at the top, middle and bottom of the container, if possible, before it is crushed or milled into smaller lumps.

C.3 Sample for testing

C.3.1 Sampling of gel, juice and powder products

C.3.1.1 Take 3 g of powdered sample from the top, middle and bottom of each container per batch of product.

C.3.1.2 Before drawing a liquid sample, thoroughly mix the contents of the relevant container. Take 3 mL of liquid sample from the top, middle and bottom of each container per batch of product.

C.3.1.3 Transfer into a clean, dry, air-tight container clearly marked with the sample identification, batch number and date of sampling.

C.3.1.4 Take a composite of each sampling container and mix a sufficient amount for all the required tests.

C.3.1.5 Store the remainder of the samples for retention purposes.

C.3.2 Sampling of aloe lump

C.3.2.1 Take samples from the containers originating from the same area in a radius of not more than 30 km.

C.3.2.2 Remove samples from each container in proportion to the size of the container to make up a sufficient amount of the pooled sample for all the testing requirements and for retention purposes.

C.4 Compliance with this standard

The lot shall be deemed to comply with the requirements of this standard if, after inspection and testing of the samples taken in accordance with C.1, C.2 and C.3, no defective is found.

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

Annex D
(normative)

Microbiological test methods

D.1 Apparatus and glassware

D.1.1 **Autoclave**, for steam sterilization at 121 °C ± 1 °C.

D.1.2 **Incubators**, each operating at a temperature of 25 °C ± 1 °C or 37 °C ± 1 °C.

D.1.3 **Waterbath**, capable of operating between 45 °C ± 1 °C and 50 °C ± 1 °C.

D.1.4 **pH meter**, accurate to within 0,1 pH units.

D.1.5 **Graduated pipettes or micropipettes**, with nominal volumes of 1 mL and 10 mL graduated respectively in 0,1 mL and 0,5 mL.

D.1.6 **Petri dishes**, made of glass or plastic and of diameter 90 mm to 100 mm.

D.1.7 **Balance**, accurate up to three decimals.

D.1.8 **Shaker or vortex**.

NOTE Disposable apparatus may be used as an alternative to reusable glassware if it has similar specifications.

D.2 Media and diluents

NOTE Commercially available dehydrated media and diluents may be used.

D.2.1 Buffered peptone water

D.2.1.1 Composition

Enzymatic digest of animal tissues	10,0 g
Sodium chloride	5,0 g
Disodium hydrogen phosphate dodecahydrate	9,0 g
Potassium dihydrogen phosphate	1,5 g
Water	1 000 mL

D.2.1.2 Preparation

Dissolve the components in the water and mix. Adjust the pH so that after sterilization the pH value at 25 °C is 7,0 ± 0,2. Dispense the medium into suitable containers. Sterilize in an autoclave at 121 °C for 15 min.

D.2.2 Neutralizing solution

D.2.2.1 Composition

Enzymatic digest of animal tissues	10,0 g
Sodium chloride	5,0 g
Disodium hydrogen phosphate dodecahydrate	9,0 g

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

Potassium dihydrogen phosphate	1,5 g
Polysorbate 80	10 g
Water	1 000 mL

D.2.2.2 Preparation

Dissolve the components in the water by heating. Adjust the pH so that after sterilization the pH value at 25 °C is 7,0 ± 0,2. Dispense the medium into suitable containers. Sterilize in an autoclave at 121 °C for 15 min.

D.2.3 Soybean-casein digest agar

D.2.3.1 Composition

Pancreatic digest of casein	15,0 g
Papaic digest of soya bean	5,0 g
Sodium chloride	5,0 g
Agar	15,0 g
Water	1 000 mL

D.2.3.2 Preparation

Dissolve the components in the water while heating. Adjust the pH so that after sterilization the pH value at 25 °C is 7,3 ± 0,2. Sterilize in an autoclave at 121 °C for 15 min. After sterilization cool the medium in a waterbath at 45 °C ± 1 °C to 50 °C ± 1 °C.

D.2.4 Potato dextrose agar

D.2.4.1 Composition

Agar	15 g
Glucose	20 g
Potatoes (peeled)	300 g
Water	1 500 mL

D.2.4.2 Preparation

Dice the potatoes and cook in 500 mL water until soft. Filter the soft potatoes through a cheesecloth. Add water and make up to 1 000 mL. Add the rest of the components. Dissolve the mixture by heating. Adjust the pH so that after sterilization the pH value at 25 °C is 5,6 ± 0,2. Sterilize in an autoclave at 121 °C for 15 min. Before use, cool to 45 °C in a waterbath and add 14 mL of sterile 10 % tartaric acid solution to obtain a pH value of 3,5 ± 0,1.

D.3 Test methods

D.3.1 Total viable count

D.3.1.1 Preparation

D.3.1.1.1 Transfer an amount of sample into buffered peptone water (see D.2.1) to make a 1 in 10 dilution.

NOTE Neutralizing solution (see D.2.2) may be used for samples that have added antimicrobial additives.

D.3.1.1.2 Mix the solution and prepare serial dilutions up to 10^{-6}.

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

D.3.1.1.3 Prepare two Petri plates for each dilution.

D.3.1.1.4 Transfer by means of a sterile pipette 1 mL into each Petri plate corresponding to each dilution.

D.3.1.1.5 Pour 15 mL soybean-casein digest agar (see D.2.3) into each plate. Mix gently and allow the medium to solidify. Invert the plates and incubate at 37 °C ± 1 °C for 48 h.

D.3.1.2 Expression of results

Count the colonies in the plates at consecutive dilutions corresponding to the highest dilution and having less than 300 colonies. The number of cfu/g or cfu/mL is calculated using the following formula (see SANS 4833):

$$N = \frac{\sum C}{(n_1 + 0{,}1\, n_2)d}$$

where

N is the number of cfu/g or cfu/mL;

$\sum C$ is the sum of all the colonies counted on all the plates for consecutive dilutions;

n_1 is the number of plates at the first dilution;

n_2 is the number of plates at the second dilution;

d is the dilution factor corresponding to the first dilution.

Example

The count for a product gave the following results

– at the first dilution (10^{-2}): 168 and 215 colonies, and

– at the second dilution (10^{-3}): 14 and 25 colonies.

$$N = \frac{\sum C}{(n_1 + 0{,}1\, n_2)d}$$

$$= \frac{168 + 215 + 14 + 25}{\left(2 + (0{,}1 \times 2)\right) \times 10^{-2}}$$

$$= \frac{422}{0{,}022}$$

$$= 19\ 182$$

$$= 1{,}9 \times 10^4$$

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

D.3.2 Yeast and mould count

D.3.2.1 Preparation

D.3.2.1.1 Transfer an amount of sample into buffered peptone water (see D.2.1) to make a 1 in 10 dilution.

NOTE Neutralizing solution (see D.2.2) may be used for samples that have added antimicrobial additives.

D.3.2.1.2 Mix the solution and prepare serial dilutions up to log 10^{-5}.

D.3.2.1.3 Prepare two Petri plates for each dilution.

D.3.2.1.4 Transfer by means of a sterile pipette 1 mL into each Petri plate corresponding to each dilution.

D.3.2.1.5 Pour 15 mL potato dextrose agar (see D.2.4) into each plate. Mix the contents gently and allow the medium to solidify. Incubate the plates at 25 °C for 5 d.

D.3.2.2 Expression of results

Count the colonies in the plates at consecutive dilutions corresponding to the highest dilution and having less than 150 colonies. The number of cfu/g or cfu/mL is calculated using the following formula (see SANS 7954):

$$N = \frac{\sum C}{(n_1 + 0{,}1\, n_2)\, d}$$

where

N is the number of cfu/g or cfu/mL;

$\sum C$ is the sum of all the colonies counted on all the plates for consecutive dilutions;

n_1 is the number of plates at the first dilution;

n_2 is the number of plates at the second dilution;

d is the dilution factor corresponding to the first dilution.

Example

The count for a product gave the following results

– at the first dilution (10^{-2}): 83 and 97 colonies, and

– at the second dilution (10^{-3}): 33 and 28 colonies.

$$N = \frac{\sum C}{(n_1 + 0{,}1\, n_2)\, d}$$

$$= \frac{83 + 97 + 33 + 28}{\left(2 + (0{,}1 \times 2)\right) \times 10^{-2}}$$

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.

© SABS. This standard may reside on internal network or intranet on a Single Site only and is exclusively available to The Cosmetic, Toiletry and Fragrance Association in accordance with copyright exploitation agreement no. 014/009/26-295, valid until 2027-07-31. The single-site licence allows authorised staff member of The Cosmetic, Toiletry and Fragrance Association to make five (5) printouts of the standard and will expire after one year unless renewed. Unauthorised copying, sharing, distribution, or access outside approved networks is prohibited.

$$= \frac{241}{0{,}022}$$

$$= 10\ 954$$

$$= 1{,}1 \times 10^4$$

Annex E
(informative)

Quality verification of aloe raw material

When purchasers require ongoing verification of the quality of aloe raw material, it is suggested that, instead of concentrating solely on evaluation of the final product, they also direct their attention to the manufacturer's quality system. In this connection it should be noted that SANS 9001 covers the provisions of an integrated quality system.

Bibliography

Standards

SANS 9001/ISO 9001, *Quality management systems – Requirements.*

Other publications

United States Pharmacopoeia (USP).

van Wyk, B-E., van Rheede van Oudtshoorn M.C.B. & Smith, G.F. (1995). *Natural products and medicinal plant research*. Planta medica, 61: 199-296.

Wagner, H. & Bladt, S. (1996). *Plant drug analysis – A thin layer chromatography atlas* 2nd Ed. New York: Springer – Verlag Berlin Heidelberg.

This product is copyrighted by SABS, 1 Dr Lategan Road, Groenkloof, 0181, South Africa. All rights reserved.