
Draft Zambian Standard

REUSABLE SANITARY PADS – Specification

ZAMBIA BUREAU OF STANDARDS

AMENDMENTS ISSUED SINCE PUBLICATIONS

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The Technical Committee on Sanitary Products (TC 3/13) upon which the following organizations were represented undertook the preparation of this Zambian Standard:

The University of Zambia
Zambia Association of Consumers
Zambia Compulsory Standards Agency
Zambia Bureau of Standards

Zambia Bureau of Standards
Lechwe House
Freedom Way South-end
P.O. Box 50259
Lusaka

Email: zabs@zamnet.zm or infozabs@zamnet.zm
Website: www.zabs.org.zm

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FOREWORD

This National Standard has been prepared by the Technical Committee on Sanitary Products (TC 3/13) in accordance with the procedures of ZABS. All users should ensure that they have the latest edition of this publication as standards are revised from time to time.

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There have been a number of high-level discussions around the support for girl child education. This has seen a lot of effort made towards removing barriers that prevent girl child from accessing education.

Parliament recently approved motion that government should provide adequate sanitation and sanitary pads to girls in public schools in order to provide for policy formulations to ensure girl child education is supported. Provision of adequate sanitary pads requires considerations for product safety and quality assurance.

The preparation of this Standard has been undertaken by the Technical Committee on Sanitary Products (TC 3/13), the formulation of this standard has been necessitated by the campaigns for girl child education in Zambia. In the preparation of the Zambian Standard the following documents were consulted: -

ZWS 1023:2017 Textiles – Re-usable Sanitary Pads – Specification, published by Standards Association of Zimbabwe.

DUS 1782:2017 Reusable sanitary towels – Specification, published by Uganda National Bureau of Standards

ACKNOWLEDGEMENT

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ZAMBIA BUREAU OF STANDARDS

Zambian Standard

SANITARY PADS – Specification Part 1: Reusable

1 SCOPE

This Zambian Standard specifies the performance and manufacturing requirements for of reusable sanitary pads used during menstruation, post-delivery, and any other health condition as may be required. Sanitary pads may also be referred to as sanitary towels or sanitary napkins.

This standard does not apply to disposable sanitary pads.

2 NORMATIVE REFERENCES

The following Standards contain provisions which, through reference in this text, constitute provisions of this standard. All standards are subject to revision, and parties to agreements based on this Zambian Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below;

ZS ISO 3071	Textiles -- Determination of pH of aqueous extract
ZS ISO 11737-1	Sterilization of health care products — Microbiological methods — Part 1: Determination of a population of microorganisms on products
ZS 190	Drinking Water quality – Specification
ZS ISO 105-X12	Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing
ZS ISO 105-E04	Textiles — Tests for colour fastness — Part E04: Colour fastness to perspiration
ZS ISO 105-C06	Textiles — Tests for colour fastness — Part C06: Colour fastness to domestic and commercial laundering
ZS ISO 105-C10	Textiles — Tests for colour fastness — Part C10: Colour fastness to washing with soap or soap and soda
ZS ISO 16373 Part 1	General principles of testing-coloured textiles for dyestuff identification
ZS ISO 16373 Part 2	General method for the determination of extractable dyestuffs including allergenic and carcinogenic dyestuffs (method using pyridine-water)
ZS ISO 16373 Part 3	— Method for determination of certain carcinogenic dyestuffs (method using triethylamine/methanol)
ISO 1833 series	
ISO 14389	Textiles — Determination of the phthalate content — Tetrahydrofuran method
EN 16711-1	Textiles. Determination of metal content Determination of metals using microwave digestion
EN 16711-2	Textiles - Determination of metal content - Part 2: Determination of metals extracted by acidic artificial perspiration solution

EN 17681-1:2025	Textiles and textile products - Per- and polyfluoroalkyl substances (PFAS) - Part 1: Analysis of an alkaline extract using liquid chromatography and tandem mass spectrometry
ISO 11936	Leather — Determination of total content of certain bisphenols
ISO 10580	Resilient, textile and laminate floor coverings — Test method for volatile organic compound (VOC) emission
ISO 18416	Cosmetics — Microbiology — Detection of <i>Candida albicans</i>
ISO 18416	Cosmetics — Microbiology — Detection of <i>Candida albicans</i>
	Limits in OEKO-TEX ® Standard 100 ^a 2026_AFIRM_RSL_2026_0211b

3 DEFINITIONS

For the purpose of this Zambian Standard, the following shall apply:

3.1 Bale

A container of at least two packages of sanitary pads as declared by a manufacturer.

NOTE: There are many ways/means of forming a bale such as placing towel packages in suitable adhesive tapes, bags or folding sheets of wrapping packaging materials and sealing the ends (with suitable adhesive tapes). Depending on the size of the bale, additional straps may or may not be used to secure the contents.

3.2 Reusable sanitary pad

A hygienic sanitary pad that is made of a highly absorbent fabric type and an impermeable layer which can be washed, dried and reused for a minimum of 30 washes.

3.3 Package

Small unit set of sanitary pads as declared by the manufacturer that can be purchased by customer.

4 REQUIREMENTS

4.1 General

- The reusable sanitary pads shall be manufactured, packed and stored under hygienic conditions;
- The reusable sanitary pads shall be visibly clean and free from obvious defects; and
- The reusable sanitary pads shall release soil and stain quickly when washing by hand and shall dry even in the absence of sunlight.

4.2 Materials

The materials used in manufacturing of reusable sanitary pads shall not harm the skin in contact. All outer layers of the product should be fit for direct contact with the skin; and the colour of the materials shall not come out during washing.

4.2.1 Top sheet (the layer which contacts skin).

It shall be of material that helps absorption, and shall have no harmful health effect to the user. The material used for the top layer should be soft to the touch and shall not shed any fibres when rubbed dry or wet.

4.2.2 Protective barrier.

Reusable sanitary pads shall have a protective barrier that delays or prevents potential leakage from the absorbent layer to the underwear.

4.2.3 Fastening mechanism.

There shall be a suitable device for fastening the pad for secure use. Fastening mechanism shall not be made of a ferrous metal that could rust and cause harm to skin.

4.3 Performance Requirements

4.3.1 Absorbency and ability to withstand pressure after absorption

The reusable sanitary pads shall absorb the testing fluid when dripped at the centre of the pad at different rates as per Table 1 and it shall not leak through at the bottom or sides of the sanitary pad, when tested in accordance with annex A.

Table 1 — Absorbency capacity at different rates

Product category	Absorbency	
	Total Volume required to be absorbed	Volume required to be absorbed /minute
Light	4 ml	2 ml
Regular	8 ml	4 ml
Heavy	16 ml	8 ml

4.4 Other requirements

Other requirements of the re-usable sanitary pads are specified in Table 2

Table 2: Other requirements

S/N	Parameter	Requirements	Test Method
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1.	pH (the sanitary pads shall be free from acids and alkali)	6.5 to 7.5	ZS ISO 3071
2.	Colour fastness		
3.	i) Colour fastness to washing, min	4	ZS ISO 105-C10
	ii) Colour fastness to rubbing		ZS ISO 105-X12
	- Wet, min	4	
	- Dry, min	4	
	iii) Colour fastness to perspiration	4	ZS ISO 105-E04
4.	3. Absorbency Capacity	No leakage	Annex A
5.	4. Absorbency rate of the top absorbent fabric	10 sec	Annex B
6.	Mercury mg/kg max	0.5	EN 16711-1
7.	Lead mg/kg	1.0	EN 16711-1
8.	Cadmium mg/kg max	0.1	EN 16711-1
9.	formaldehyde mg/kg max	20	ISO 14184
10.	phthalates mg/kg max	200	ISO 14389
11.	Bisphenol mg/kg max	10	ISO 11936
12.	Carcinogens mg/kg max	50	ISO 16373
13.	PFAS mg/kg max	100	EN 17681-1
14.	VOC emissions mg/kg max	10	ISO 10580
15.	Fragrance allergens mg/kg max	50	ISO 16373

4.5 Microbiological requirements

The microbiological limits shall be as defined in table 3 below

4.5.1

Table 3 microbiological limits

SN	Parameter	requirement	Test method
1.	Total viable Bacteria Count cfu/g. (maximum limit)	1000	Annex C.4 a)
2.	Total Fungal Count cfu/g. (maximum limit)	100	ISO 16212
3.	Enterobacteriaceae	Absent	Annex C.4.2
4.	Staphylococcus aureus,	Absent	Annex C.4.3
5.	Pseudomonas aeruginosa	Absent	Annex C.4.4
6.	Candida albicans	Absent	ISO 18416
7.	E. Coli	Absent	ISO 21150

4.6 Washing instructions

Washing shall be done by leaving used pads to soak in cold water for 15 minutes with suitable laundry soap or detergent, and then rubbed to remove stains

4.7 Drying instructions

Reusable sanitary pads shall be hang to dry outdoors or indoors as per recommended drying time in Table 3

Table 4 — Recommended drying time for reusable sanitary pads

Condition	Maximum drying time
Pads drying outdoors on a cloudy day	6 hrs
Pads drying indoors on a cloudy day	12 hrs

5 MANUFACTURE, WORKMANSHIP AND FINISH

5.1 The absorbent filler

- 5.1.1 Shall be neatly cut to the required size as per design.
- 5.1.2 Shall be arranged to form a uniform thickness throughout without any wrinkles or distortion.
- 5.1.3 Shall be placed in the covering in such a way that it will not cause lump formation with the effect of sudden pressure.
- 5.1.4 The covering fabric shall cover the filler completely enclosing the absorbent filler.
- 5.1.5 The reusable sanitary pads shall have a water resistant protective barrier at the bottom.
- 5.2 The reusable sanitary pads shall have a very soft feel and when worn shall not chafe or give any discomfort feeling, and shall be free from all sorts of foreign matter.

5.3 Workmanship

When visually examined the sanitary pads shall be free from defects, lumps or wrinkles. Sanitary pads shall have no loose stitching, wings shall be even and there shall be no visible defects on the material. The materials shall be smooth to the touch.

6 FACTORY AND EMPLOYEE REQUIREMENTS

6.1 Factory Requirements

- 6.1.1 Construction of and conditions in the factory.

The factory shall be so constructed and the factory and its immediate surroundings shall be so maintained, that no condition exists in the factory that is detrimental to the manufacture, processing or treatment of the sanitary pads. During all stages of manufacture, the conditions in which the pads are made and handled shall be clean and free from extraneous dust and other contaminants.

- 6.1.1.1 Plant and equipment.

All equipment coming into contact with raw materials or with the pads in the course of manufacture shall be kept clean. An ample supply of materials and apparatus necessary for the proper cleaning of equipment shall be available.

- 6.1.1.2 Stores.

Stores such as paints, oil, fuels and insecticides shall be housed in a part of the factory that is not adjacent to the processing area or to the store for raw materials.

- 6.1.2 Water for processing and washing purposes.

The maximum allowable bacteriological limits specified in ZS 190 shall apply to all water used in the manufacture of the product and in the washing of equipment.

6.1.3 Facilities.

The following shall be provided for employees engaged in the preparation and processing of the reusable sanitary pads:

- a) Ample change-rooms that are furnished with, wash-hand basins with hot and cold running water and soap, or cold water and an adequate supply of antiseptic solution, clean towels (preferably of paper) or hot-air dryers, containers for used paper towels, nail-brushes.
- b) Ample toilet facilities that are furnished with an adequate supply of toilet paper and, where relevant, sanitary pads disposal containers, soap and / or sanitizers and running water.

6.2 Requirements for Employees Engaged in the Manufacture of the Pad

- 6.2.1** All prospective employees shall, as a condition of employment, be required to pass an appropriate medical examination, and all employees shall be medically examined at regular intervals not exceeding 12 months. No employee who is suffering from a transmittable skin disease, a suppurating skin infection, cuts or wounds shall be allowed to handle the pads or raw materials and the equipment used in their preparation.
- 6.2.2** Neither workers' personal effects nor their food shall be present in the processing area of the factory, and in these areas the consumption of food (including sweets and chewing gum) shall not be permitted.
- 6.2.3** Spitting and the use of tobacco in any form shall be prohibited within the preparation, processing and packing areas of the premises. Notices to this effect shall be prominently displayed.
- 6.2.4** Employees shall wear clean, adequate protective clothing and disposable or washable caps or other suitable headgear to cover their hair at all times. All protective clothing shall be maintained in good repair. Clothing shall not be stored in work-rooms. Protective clothing shall be kept in change-rooms and shall not be removed from the premises except for laundering. All protective clothing shall be laundered at least once a week.

7 USER AND CARE INSTRUCTIONS

There shall be user and care instructions in every packet of the sanitary pads. The user and care instructions shall be outlined in similar instructions as below to ensure proper use and care by the consumer.

- a) before first use, wash with soap and clean water and allow to dry completely;
- b) place pad in the knickers with the absorbent side facing up (Must be worn in properly fitting knickers);
- c) close the fastening mechanism and wear. Ensure to check and change pads as needed throughout the day;
- d) after use, rinse/soak in water. Pour away dirty water;
- e) in clean water, wash clean with soap. Rub thoroughly; ensuring the absorbent layer has been sufficiently scrubbed clean;
- f) rinse the pad again;
- g) squeeze all the water out of the pad;
- h) hang to dry indoors or outdoors as the case may be. Must be completely dry before re-use;
- i) store in a clean, dry place;
- j) do not bleach;
- k) do not share; and

l) labelling shall be in English and any other language shall be in addition to the English language

8 PACKAGING AND LABELLING

8.1 Packaging

Re-usable sanitary pads shall be supplied in packages made of suitable materials which are sealed so as to protect them from moisture, soiling and contamination during storage and transportation. Only packages with the same batch number shall be packed together.

8.2 Labelling

The following information shall appear legibly and indelibly on the outside of each package:

- a) the manufacturer's name and/or registered trade mark;
- b) the words "reusable sanitary pads";
- c) number of sanitary pads in a package;
- d) absorbency category (light/normal/heavy flow);
- e) use and care instructions, including warning to wash before first use and ironing instructions;
- f) storage instructions;
- g) batch identification number;
- h) country of manufacture; and
- i) date of manufacture and expiry
- j) Declared life cycle or wash cycle

9 SAMPLING

9.1 Lots

In any consignment all the containers of sanitary pads of the same size and type belonging to one batch of manufacture or supply shall constitute a lot.

9.2 Scale of sampling

The samples shall be tested from each lot for ascertaining its conformity to the requirements of the specification. Unless otherwise agreed upon between the buyer and the manufacturer, the number of pieces to be selected at random from the lot shall be in accordance with Table 4.

Table 4 — Scale of sampling

Number of	Number of	Number of	Number of	Permissible
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containers in the lot	containers to be selected	cartons to be selected	packets to be selected	number of non-conforming pieces
Up to 250	6	10	5	10%
251 to 500	8	12	7	10%
501 to 1000	11	15	10	10%
1001 to 2500	15	20	15	10%
2501 to 5000	20	25	20	10%
5001 and above	30	30	25	10%

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ANNEX A (Normative)

METHOD FOR DETERMINATION OF ABSORBENCY CAPACITY

Test methods for determination of absorbency and ability to withstand pressure after absorption.

A.1 Apparatus

A.1.1 Flat level transparent surface.

A.1.2 Burette.

A.1.3 Metallic block.

A.2 Testing fluid

Coloured water

A.3 Procedure

A.3.1 Lay the sanitary pad on a flat transparent surface so that underside of the sanitary pad can be observed.

A.3.2 Using the burette drip at the rate of 15 ml per minute, 30 ml of the fluid maintained at a temperature of $27^{\circ}\text{C} \pm 2^{\circ}\text{C}$ on to the centre of sanitary pad from a height of approximately 1 mm to 2 mm.

A.3.3 After the pad has absorbed the full amount of fluid, keep a standard weight of 10N for one minute on the portion where the fluid was absorbed.

A.4 Test report

Observe the back and sides of the sanitary pads for any leakage

ANNEX B (Normative)

METHOD FOR DETERMINATION OF ABSORBENCY RATE

B.1 Apparatus

B.1.1 Water tub

Tub of depth at least 100 mm and maintained at room temperature

B.1.2 Stop watch

With an accuracy of 0.2 seconds

B.1.3 Cylindrical basket

Weighing 2.7 ± 0.3 g, of height 80 mm, diameter 50 mm with Square opening of 15 mm to 20 mm, made of copper wire of 0.4 mm diameter.

B.1.4 Weighing scale

B.2 Preparation of test sample

Carefully separate the absorbency filler material and weigh 5 g; put the specimen into the basket.

B.3 Testing procedure

Drop the test sample in a horizontal position into the water tub. Using the stop watch, measure the time it takes the basket and its content to sink below the surface of the water in seconds. Record the absorption period to the nearest 0.1 seconds. Repeat the test for at least two test specimens.

B.4 Calculation

Calculate the arithmetic mean of the absorbent filler material tested.

ANNEX C

(Normative)

MICROBIOLOGICAL EXAMINATION

C.1 Apparatus and equipment

Use apparatus and equipment complying with the relevant requirements of ISO 7218.

C.2 Media and reagents

C.2.1 General

Ensure compliance with the general requirements for the ingredients and for the preparation of media and reagents given in ISO 7218.

C.2.2 Bacteriological peptone

Peptone	10 g
Disodium phosphate dodecahydrate	1 g
Sodium chloride	5 g
Mono-potassium phosphate	1.5 g

Dissolve the ingredients in distilled water and make up to 1 litre. Adjust the pH value to be 7.0 ± 0.1 after sterilization. Dispense 300 ml volumes into flasks of capacity 500 ml and sterilize by autoclaving at $121 \text{ }^{\circ}\text{C} \pm 2 \text{ }^{\circ}\text{C}$ for 20 min.

C.2.3 Plate count agar

Agar	15 g
Glucose	1 g
Tryptone	5 g
Yeast extract	2.5 g

Dissolve the ingredients in distilled water, made up to 1 litre, and adjust the pH value to 7.2 ± 0.2 . Dispense 15 ml volumes into bottles and sterilize by autoclaving at $121 \text{ }^{\circ}\text{C} \pm 2 \text{ }^{\circ}\text{C}$ for 20 min.

C.2.4 Neutral red-bile salt peptone glucose medium

Peptone	20 g
Glucose	10 g
Bile salts No. 3	1.5 g
Sodium chloride	5 g
Neutral red	0.03 g
Crystal violet	0.002 g

Dissolve the ingredients in 400 ml of distilled water and make up to 500 ml boiling to aid solution. Adjust the pH value to 7.4 and filter to a clear solution. Dispense 10 ml volumes into bottles each containing a Durham tube and sterilize by autoclaving at $121 \text{ }^{\circ}\text{C} \pm 2 \text{ }^{\circ}\text{C}$ for 20 minutes.

C.2.5 Fluid soybean-casein digest medium

Pancreatic digest of casein	17 g
Papaic digest of soybean meal	3 g
Sodium chloride	5 g
Dibasic potassium phosphate	2.5 g
Dextrose	2.5 g

Dissolve the ingredients in distilled water and make up to 1 litre, warming slightly to aid solution. Cool the

solution to room temperature and adjust the pH value to be 7.3 ± 0.2 after sterilization. Filter to clarify (if necessary), dispense into suitable containers, and sterilize by autoclaving at $121 \pm 2^\circ\text{C}$ for 20 minutes.

C.2.6 Cetrimide agar medium

Pancreatic digest of gelatine	20 g
Magnesium chloride	1.4 g
Potassium sulphate	10 g
Agar	13.6 g
Cetyltrimethylammonium bromide (Cetrimide)	0.3 g
Glycerine	10 ml

Dissolve all the solid ingredients in distilled water, make up to 1 litre, and then add the glycerine. Heat, agitating frequently, and boil for 1 min. Adjust the pH value to be 7.2 ± 0.2 after sterilization. Dispense into suitable containers and sterilize by autoclaving at $121^\circ\text{C} \pm 2^\circ\text{C}$ for 20 min.

C.2.7 Pseudomonas agar medium for detection of fluorescein

Pancreatic digest of casein	10 g
Peptic digest of animal tissue	10 g
Anhydrous dibasic potassium phosphate	1.5 g
Magnesium sulphate ($\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$)	1.5 g
Glycerine	10 ml
Agar	15 g

Dissolve all the solid ingredients in distilled water, make up to 1 litre, and then add the glycerine. Heat, agitating frequently, and boil for 1 min. Adjust the pH value to be 7.2 ± 0.2 after sterilization. Dispense into suitable containers and sterilize by autoclaving at $121^\circ\text{C} \pm 2^\circ\text{C}$ for 20 min.

C.2.8 Pseudomonas agar medium for detection of pyocyanin

Pancreatic digest of casein	20 g
Anhydrous magnesium chloride	1.4 g
Anhydrous potassium sulphate	10 g
Agar	15 g
Glycerine	10 ml

C.3 Preparation of Test Suspension

Transfer 300 ml of the sterile solution of bacteriological peptone (C.2.2) to a sterile wide-mouthed jar of capacity not less than 1 litre and not more than 2 litres. The jar shall have a mouth of diameter not less than 150 mm and not more than 250 mm, and is fitted with a hermetically closing glass or metal-and glass lid. Aseptically place the pad under test in the solution in the jar, fit the lid, agitate the contents of the jar for 2 min and then allow the jar to stand for 10 min. Repeat this agitating and standing procedure twice more. Aseptically remove about 100 ml of the test suspension for testing as described in C.4 below.

C.4 Procedure

C.4.1 Total viable bacterial count

Into each of three sterile petri dishes aseptically pipette a 1 ml portion of the test suspension. To each dish add 15 ml of freshly melted plate count agar that has been cooled to 45°C , and mix well. Incubate, count and calculate the total count as described in ISO 4833 Part 2. From the total viable bacterial count and the mass of the sanitary pad, calculate the total viable bacterial count per gram of sanitary pad.

C.4.2 Examination for the presence of Enterobacteriaceae.

Aseptically add 10 ml of the test suspension to a bottle that contains neutral red-bile salt peptone glucose medium (C.2.4). Incubate the bottle for 24 hours to 36 hours at $37 \pm 0.5^\circ\text{C}$ and examine for the presence of Enterobacteriaceae as evidenced by the formation of acid and gas.

C.4.3 Examination for the presence of Staphylococcus aureus.

Use the media, reagents and procedure described in ISO 6888-2 to examine the test suspension (see C.3). As a control, pipette 0.1 ml of a 1:1000 dilution of an 18 h to 24 h culture of *Staphylococcus aureus* SATCC Sta 10 into *Staphylococcus* medium and proceed as with the test suspension.

C.4.4 Examination for the presence of *Pseudomonas aeruginosa*

a) Aseptically pipette 10 ml of the test suspension into 90 ml of fluid soybean-casein digests medium (C.2.5) and mix well. Incubate for 24 hours at 30 °C to 35 °C. By means of an inoculating loop transfer a portion from the 24 h incubated sample tube of fluid soybean-casein digest medium to the dry surface of petri dishes each containing approximately 20 ml of Cetrimide agar medium (C.2.6). Incubate at 30 °C to 35 °C and examine after 24 hours, and again after 48 hour incubation, for suspect colonies, bearing in mind that in general greenish fluorescent colonies are typical of *Pseudomonas aeruginosa* and that in its presence a gram stain examined microscopically will reveal gram-negative slender rod-shaped cells.

b) As a control, add 0.1 ml of a 1:1000 dilutions of an 18 h to 24 h culture of *Pseudomonas aeruginosa* SATCC Pse 11 ml to 100 ml of fluid soybean-casein digest medium (C.2.5), and proceed as with the test suspension.

c) If none of the colonies obtained from the test suspension conforms to the description given in i) above and the control culture has been satisfactorily recovered, deem the test sample to be free from *Pseudomonas aeruginosa*.

d) If colonies conforming to the description given in i) above are found, streak representative suspect colonies from the Cetrimide agar onto the surfaces of *Pseudomonas* agar medium for the detection of fluorescein (C.2.7) and *Pseudomonas* agar medium for the detection of pyocyanin (C.2.8) to obtain isolated colonies. Cover and invert the petri dishes and incubate at 30 – 35 °C for at least 3 days.

Examine the streaked surfaces under ultraviolet light for suspect colonies, as described in Table C.1.

Table C.1 — Description of colonies

Medium	Description of colonies
<i>Pseudomonas</i> agar for the detection of fluorescein	Generally colourless to yellowish. Yellowish fluorescence in ultra violet light
<i>Pseudomonas</i> agar for the detection of pyocyanin	Generally greenish. Blue fluorescence in ultraviolet light

If any further doubt exists as to the identity of the colonies, obtain final confirmation by inoculating the suspect colonies to the wells on commercially available diagnostic kits in accordance with the manufacturer's instructions.