Compact Dry

A simple and rapid dry media method for microbiological investigation

KEY diagnostics

Tel : 02 8212 4074
Fax: 02 9423 6692
www.keydiagnostics.com.au
PO Box 1038 Gymea NSW 2227

List of contents

1. Product overview

At the moment the Compact Dry-line consists of the following products:

Compact Dry TC for total viable count
Compact Dry EC for coliforms and *E. coli*
Compact Dry ETB for enterobacteriacae
Compact Dry CF for coliforms
Compact Dry YM for yeast and mold
Compact Dry SA for *Staphylococcus aureus*
Compact Dry VP for *Vibrio parahaemolyticus*
Compact Dry SL for salmonella confirmation after preculture
Compact Dry TTC for total viable count in catechin containing product
Compact Dry Swab for surfaces
Dilution Rack for easy dilution series
Opener for the Dilution rack

The test for the enumeration and detection of microbes

Ready-to-use test

Compact Dry is a ready-to-use test method, which reduces the labor hours needed to perform microbial testing. Therefore, it allows maximizing the productivity by increasing efficiency. The plates may be used to test raw materials as well as finished products.

Easy-to-read-results test

Compact Dry is an easy-to-read results method**.**
Place 1 ml of the sample onto the plate. Incubate the plates at the temperatures as described (s. page 19). The colonies grow with specific colors which are developed from chromogenic substrates or a redox indicator.

Easy-to-store test

Compact Dry is also an easy-to-store method.
The plates can be kept at room temperature for up to 24 months after production .

Intended use

The Compact Dry plates and accessories are intended to facilitate microbial testing of food and manufacturing plants at food processing companies and hygiene laboratories. Over more, the Compact Dry test kits are useful in the application of HACCP concepts.
Various other applications for microbial testing are possible.

2. Features and benefits

Compact Dry combines the features and benefits of the traditional plate media with the advantages of dehydrated film media.

This unique combination will shorten your test time and increase your lab efficiency, thus reducing your costs.

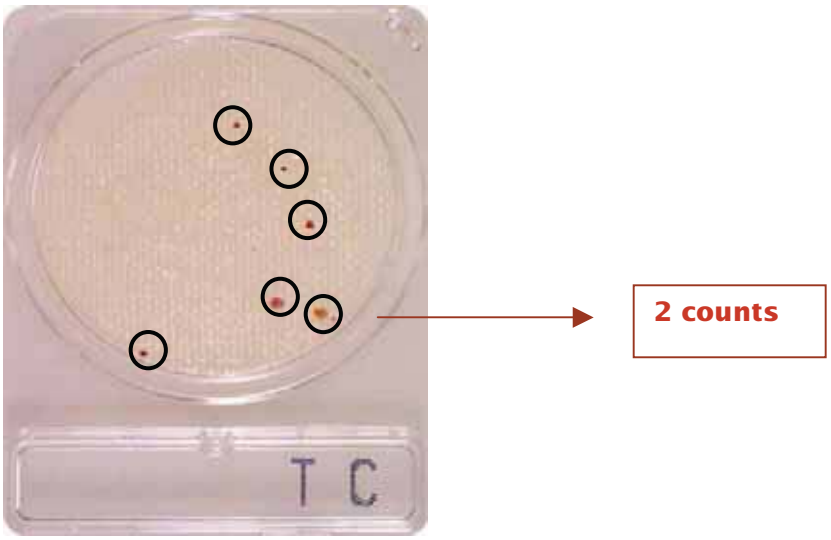
Steps	Criteria	Home-ma plates	Prepared plates	Petrifilm®	Compact Dry
Preparation and storage	Ready-to-use		✓	✓	✓
	Long shelf-life			✓	✓
	Small size (for storage and disposal)			✓	✓
Inoculation (simple and fast)	Liquid samples	✓	✓	✓	✓
	Surfaces			✓	✓
Incubation	Easy handling (rigid plastic)	✓	✓		✓
	Small size			✓	✓
	100% sterile (safe cover)	✓	✓		✓
	Stackable	✓	✓		✓
	No direct contact with media				✓
Reading and interpretation	Easy counting (chromogenic)		✓	✓	✓
	Easy picking & cloning	✓	✓		✓
Validation	Standardization of the production		✓	✓	✓
	Validation /Normalization		✓	✓	✓

Accuracy claims:

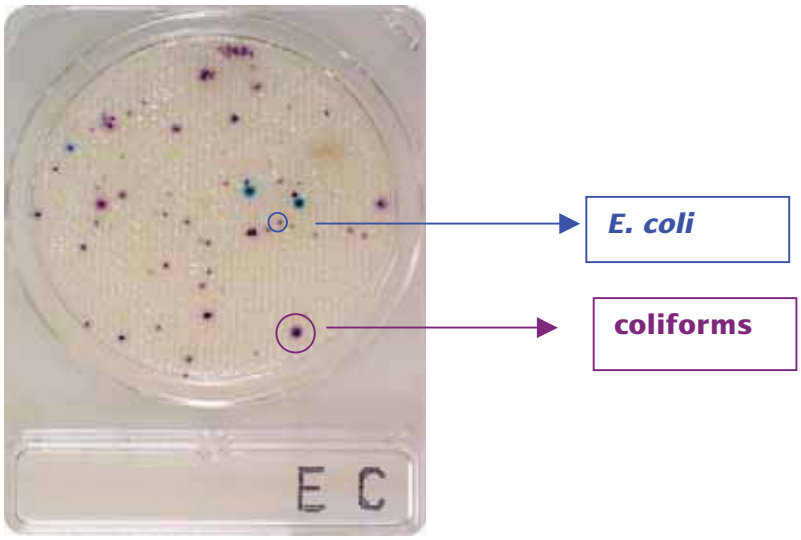
0.97 correlation coefficient compared to the Standard plate count (AOAC Official Method 966.23).0.99 correlation coefficient compared to Petrifilm method (AOAC Official Method 990.12).

3. Easy counting

Make the right dilution by e.g. using the dilution rack and counting is easy. The lower picture shows 7 counts in total.



Blue colonies are *E. coli on the Compact Dry EC Plate*.
Purple colonies are the coliform group count.



4. Compact Dry devices

a) Compact Dry plate

The Compact Dry plate is coated with a dehydrated medium film. Simply apply 1 ml of liquid sample onto the plate to perform the test. Incubate as specified and count the grown colonies.

b) Compact Dry Swab

The swab is an easy system to check dry surfaces.
It contains 1 ml of buffer solution. An extremely easy transfer of the sample to the Compact Dry plate is possible.

c) Dilution Rack

The Dilution Rack contains 4 wells, each with 9 ml sterile buffer solution. By pipetting 1 ml from one well to the next an easy and fast 10-fold dilution series of the sample can be generated.

d) Opener

The stainless steel Opener can be used for the sterile perforation of the aluminum foil cover from the Dilution Rack

5. Compact Dry application

Liquid samples

Apply 1 ml of liquid or homogenized sample onto the Compact Dry plate. The liquid diffuses automatically and evenly in the sheet.

Surface sampling

1. Swab the surface

2. Close the swab.
Shake slightly and mix by inverting the swab

3. Keep the swab upside down. Unscrew the lid

4. Place the liquid onto the plate by smoothly pressing the vial

Solid samples

Add buffer solution to the sample and homogenize by stomacher®. Drop 1 ml of specimen (dilute if necessary) on the middle of the dry sheet of the Compact Dry plate.

Dilution Rack and the Opener

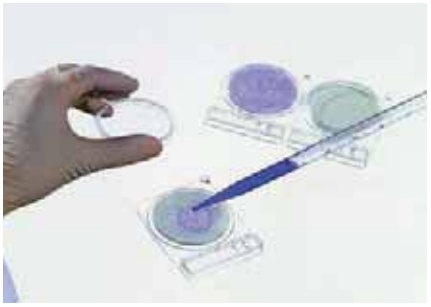
If the sample needs dilution a Dilution Rack and an Opener are offered.

The Dilution Rack consists out of 4 cups, each with 9 ml sterile buffer solution.

1. Disinfect the opener with alcohol or flame.
2. Perforate the aluminum seal of each cup two times with the Opener.
3. Give 1ml of the sample with a sterile pipette through one hole and homogenize the specimen by pipetting up and down several times.
4. Put a new sterile pipette through the second hole and take 1 ml from one well to the next and mix.
5. Continue the dilution step with the remaining cups to generate a 10-fold dilution series of the sample.
6. Take out 1 ml of each dilution and place it onto the Compact Dry medium.

6. Instructions for use

1. Open aluminum foil and take out the set of 4 plates.
2. Detach necessary number of plates by bending up and down while pressing the lid.
3. Take off the cap of the plate and drop 1 ml of sample in the middle of the Compact Dry plate. Liquid diffuses automatically and evenly into the sheet and transforms the dried sheet into a gel within seconds.



4. Put the cap back on the plate and write the information needed on the memorandum section. Turn over the capped plate and put in an incubator. For incubation times and temperature please revert to the list “Incubation times and temperatures” (page 19) or check the corresponding package insert.
5. Count the number of colonies appearing on the medium from backside of the plate. White paper placed under the plate helps to count colonies. You can also use commercial available colony counter.
   When the number of colonies is high, it is convenient to use the grids carved on the back of the container consisting of 1 cm x 1 cm or 0.5 cm x 0.5 cm.

7. The test spectrum

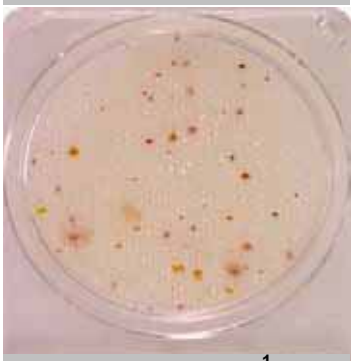
Compact Dry TC (Total Count)

The plates offer a non-selective medium and contain a staining redox dye (2,3,5-triphenyl tetrazolium chloride = TTC), indicating metabolism. Most bacteria form red colonies

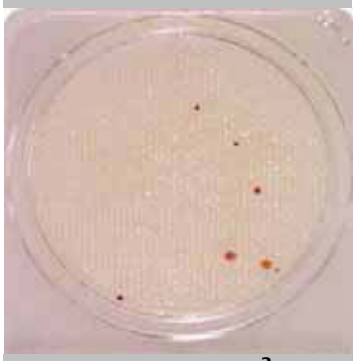
ground beef x 10^{-2}

ground beef x 10^{-3}

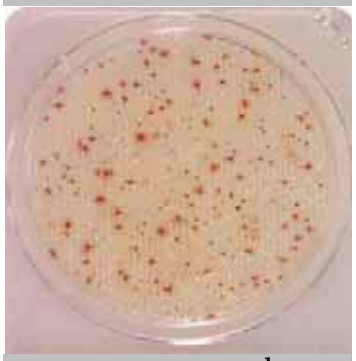
ground beef x 10^{-4}



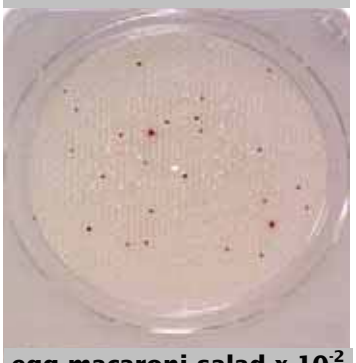
raw ham x 10^{-1}



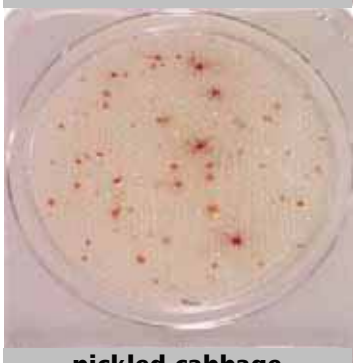
raw ham x 10^{-2}



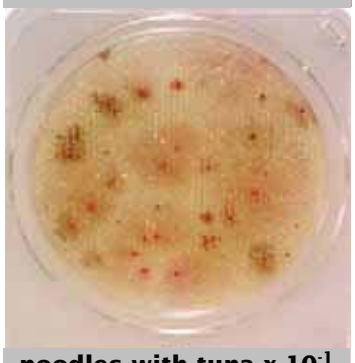
raw tuna x 10^{-1}



egg macaroni salad x 10^{-2}



pickled cabbage



noodles with tuna x 10^{-1}

Compact Dry CF (Coliforms)

Coliforms grow under development of blue colonies as the medium contains the chromogenic enzyme substrate X-GAL. Growth of bacteria other than coliforms is mainly inhibited. Non-coliforms do not form colored colonies.

Enterobacter cloacae
ATCC 13047

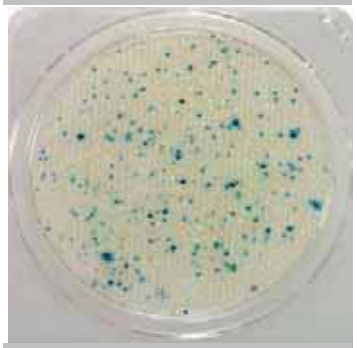
***Escherichia coli* O157**
ATCC 35150

Pseudomonas aeruginosa
ATCC 9027
no color development

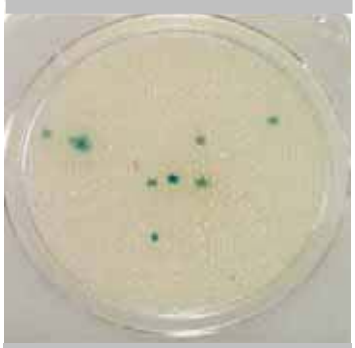
Staphylococcus aureus
ATCC 6538
no growth

pork liver

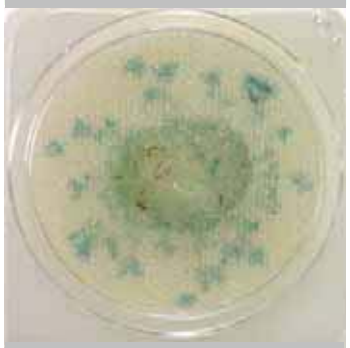
pork round



ground beef
x 10^{-2}



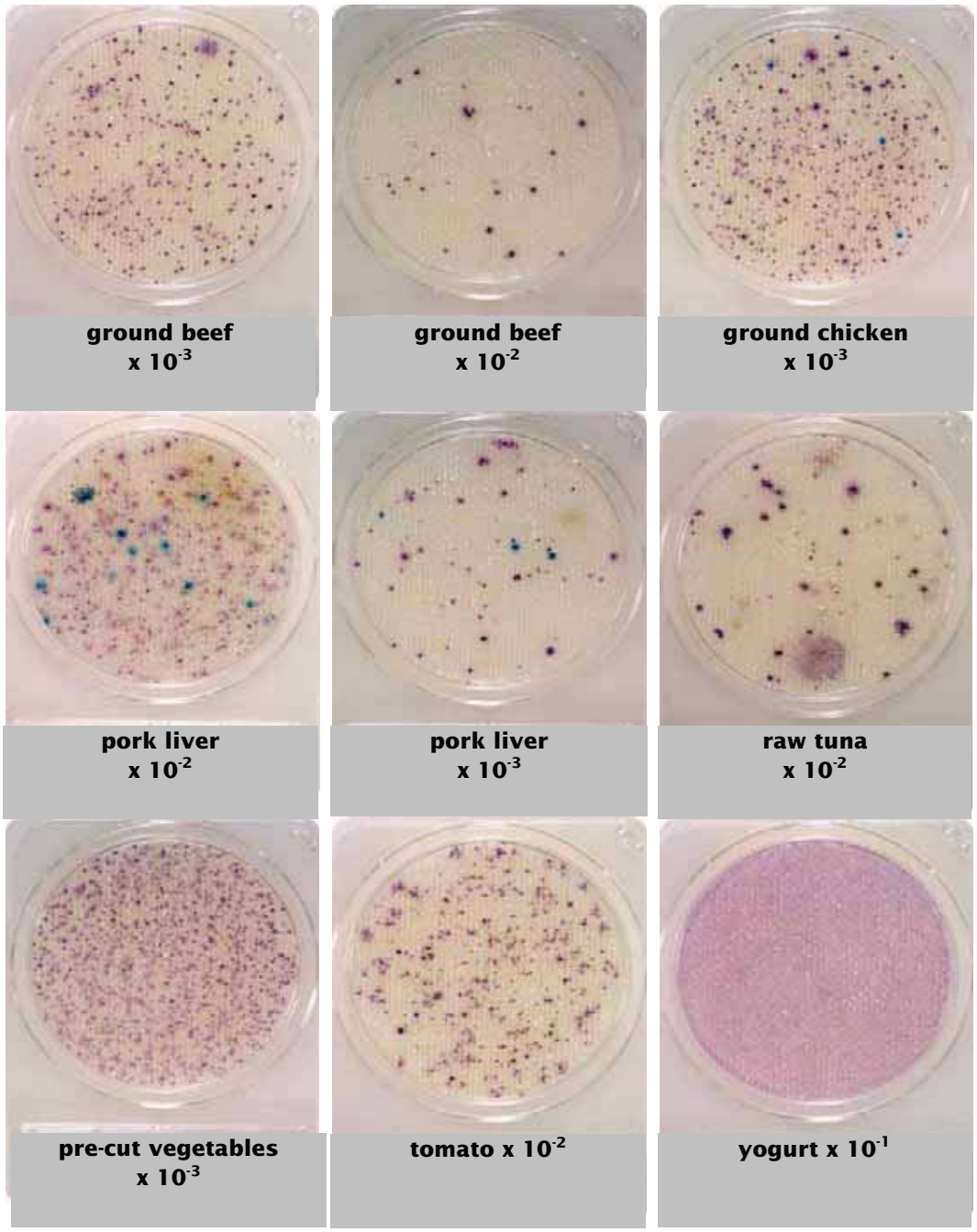
pickled cabbage
x 10^{-1}



banana cake

Compact Dry EC (Coliforms and *E. coli*)

Medium contains two kinds of chromogenic enzyme substrates, Magenta-GAL and X-GLUC. Purple color is observed for coliforms while blue color indicates *E. coli*.

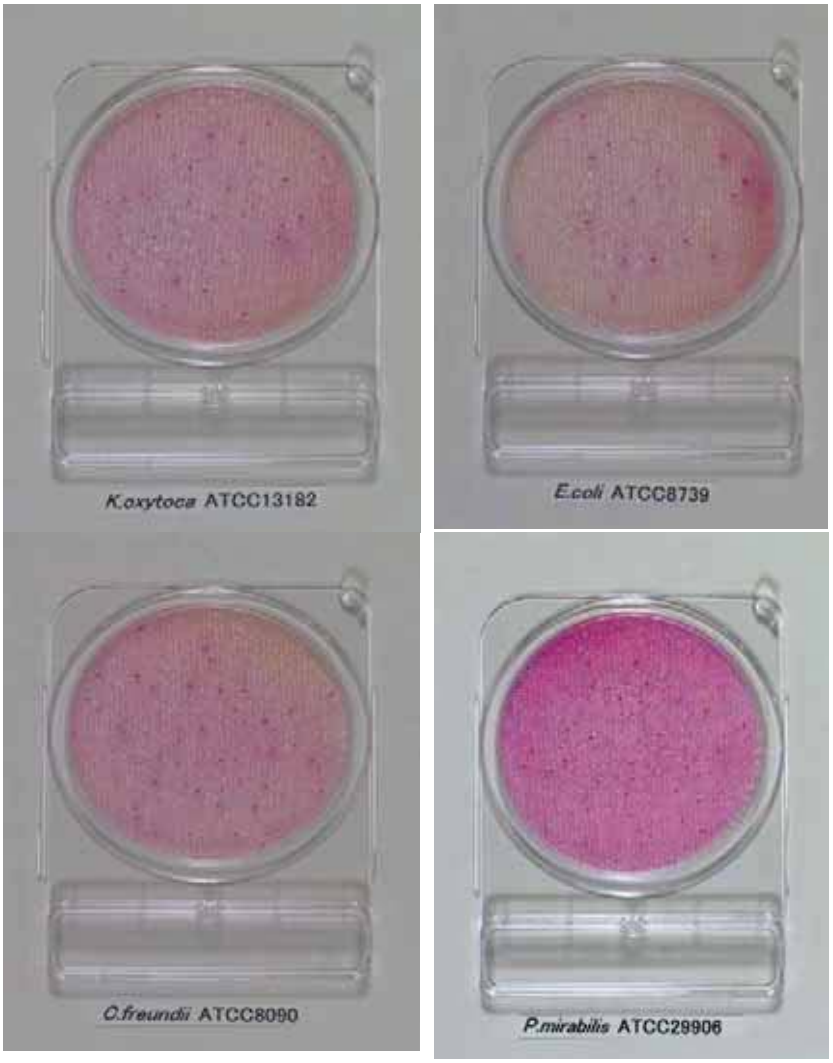


*Yogurt x 10^{-1} is an example of an overloaded plate.
Overloading plates will normally result in white/pink colored plates.
Therefore dilution is recommended.

Compact Dry ETB (*Enterobacteriacae*)

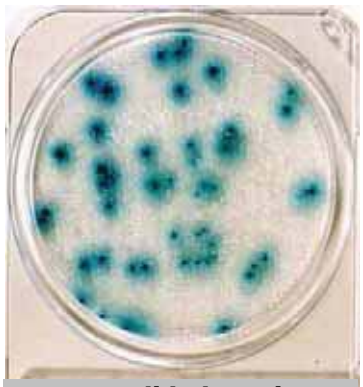
Using Compact Dry ETB you can easily detect Enterobacteriacae .

Compact Dry ETB is a ready to use, selective plate containing glucose for the detection and enumeration of Enterobacteriaceae.
Enterobacteriacae will give reddish purple colonies.

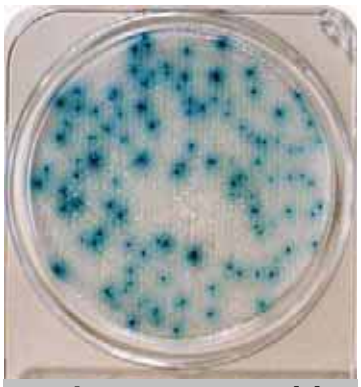


Compact Dry YM (Yeast and Mold)

The medium contains the chromogenic enzyme substrate X-Phos that develops blue/green color with many yeasts. Antibiotics inhibit the growth of bacteria. Molds forms cottony colonies with characteristic colors.



Candida krusei

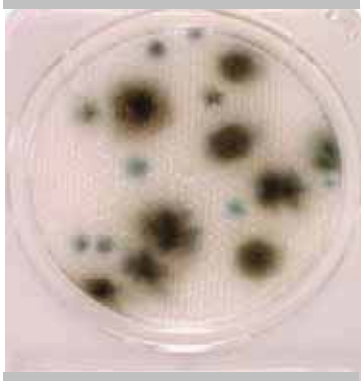


Saccharomyces cerevisiae

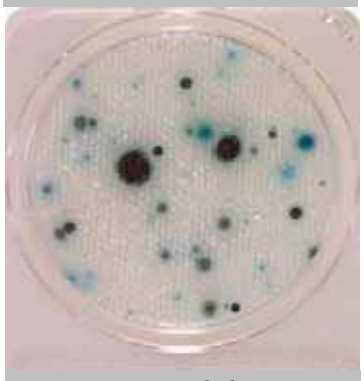
Candida sojae

Candida albicans

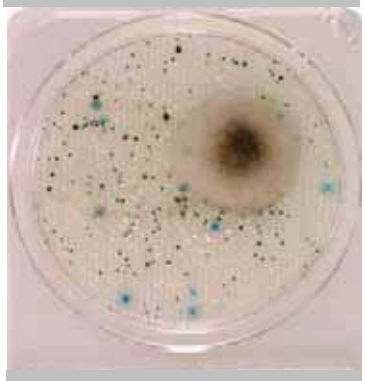
tofu
x 10^{-1}



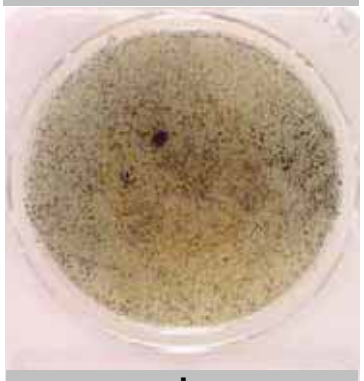
tomato
x 10^{-2}



raw potato
x 10^{-2}



grape
x 10^{-1}



spice
(paprika)

Compact Dry SA *(Staphylococcus aureus)*

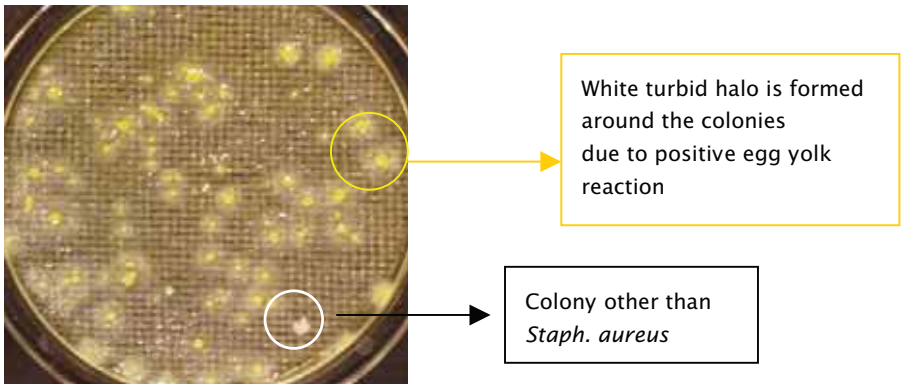
Compact Dry SA is a medium to determine *Staphylococcus aureus* by means of selective growth and differentiation by egg yolk reaction.

Compact Dry SA plate is based on improved mannitol salt agar. Additionally Compact Dry SA egg yolk suspension (ID-Number 1 002 755) is needed.

Staphylococcus aureus generates yellow pigments resulting in light yellow colonies. The lipid-protein complex (lecithin) in the egg yolk is digested by lipase which changes the peripheral medium around the colonies to turbid white.

No need to prepare the medium - simply apply sample solution and egg yolk suspension onto the plate.

- Isolation of single colonies is possible.
-



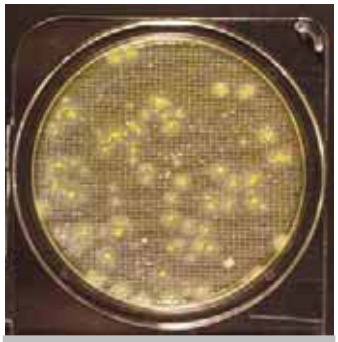
Instructions for use

Inoculation
Drop 1 ml of (diluted) sample in the middle of the plate.

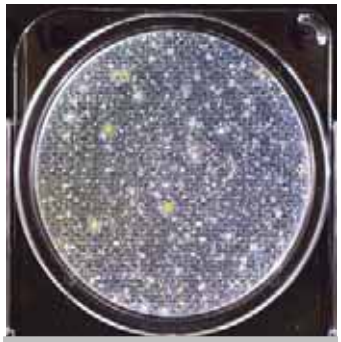
Diffusion
Liquid diffuses automatically and evenly all over the sheet converting the dried media into gel.

Addition of Egg Yolk Suspension (ID-Number 1 002 755)
After sample is diffused drop 0.3 ml SA Egg Yolk Suspension evenly in about 7-8 spots of the plate (using the attached sterilized dropper).

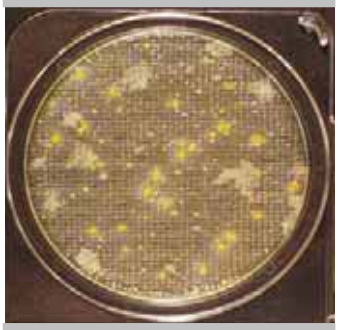
Typical test results for Compact Dry SA



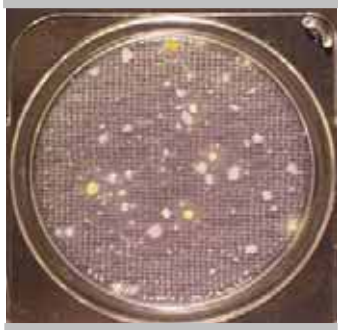
gargle solution



poultry



gargle solution



gargle solution

Compact Dry VP (*Vibrio parahaemolyticus*)

Using Compact Dry VP you can easily detect *Vibrio parahaemolyticus* and also differentiate *Vibrio parahaemolyticus* from other vibrios.

Vibrio parahaemolyticus: Chromogenic substrate stains colonies blue to green.

Vibrio alginolyticus: Vibrios other than *V. parahaemolyticus* develop white (colorless) colonies.

V. parahaemolyticus
ATCC 17802
V. alginolyticus
IFO 15630

V. parahaemolyticus
ATCC 17802

V. alginolyticus
IFO 15630

Compact Dry SL for Salmonella Detection

The food poisoning outbreak caused by Salmonella is increasing in recent years and the necessity of Salmonella control becomes important especially for food manufacturing processes and handling procedures. Especially for food manufacturers it is important to detect Salmonella rapidly and simply for the purpose of controlling product stock and confirming safety of the product.

Compact Dry SL is a simple dry culture medium that detects existence of Salmonella qualitatively based on its specific character, such as biochemical reactivity and motility.

Using **pre-enrichment culture**, a rapid screening for Salmonella is possible on the next day. A colony on Compact Dry SL can be isolated for further confirmation tests.

Features and Benefits:

Ready to use and portable plate: No need to prepare medium, which eliminates waste of medium as well as sterilizing apparatus to prepare the medium. Compact Dry SL can detect Salmonella one day earlier than conventional culture method. Detection of colonies on plate is simple and clear. Isolated colonies on the plate can be isolated for further identification tests.

Detection Principle:

Compact Dry SL is a dry medium for Salmonella detection, which contains chromogenic substrate and Novobiocin. The presence of Salmonella in the sample is detected by the combination of different test principles:

- Alkalization of the medium by Salmonella's lysine decarboxylase ability (medium color will change blue-purple to yellow)
- Greening colony caused by decomposition of chromogenic substrate with specific enzyme of Salmonella (black colonies are generated by hydrogen sulfide producing Salmonella)
- Motility of Salmonella.

Additionally, the colonies isolated from Compact Dry SL can be used for confirmation of Salmonella.

Coliforms generate color change from blue-purple to red-purple by fermented lactose and/or sucrose in the medium.
Please follow this operating procedure precisely, especially how to inoculate sample and sterilized water, to exploit the specific advantages of Compact Dry SL.

Typical test results for Compact Dry SL

Black to green isolated or fused colonies are observed and sheet around the colonies is changed to yellow because of alkalization.

If a large quantity of Salmonella (right picture) is present, no isolated colonies are formed (there may be several spots with fused black or green colonies), but whole plate sheets becomes yellow

Because of Salmonella motility, black or green fused colonies are dotted in the place apart from inoculated part.

8. Incubation times and temperatures

Product	Incubation time	Incubation temperature
Compact Dry TC	48 hours	35 –37 °C
Compact Dry EC	24 hours	35 –37 °C
Compact Dry CF	18 – 24 hours	35 –37 °C
Compact Dry YM	3 – 7 days	25 –30 °C
Compact Dry SA	48 hours	35 –37 °C
Compact Dry VP	20 – 24 hours	35 –37 °C
Compact Dry SL	20 – 24 hours	41 –43 °C
Compact Dry ETB	24-48 hours	35 –37 °C

If desired, plates can also be incubated using the incubation time/temperature according to the national food analysis regulations.

9. Storage and shelf life

Product	Storage	Shelf life (printed on outer box label and foil)
Compact Dry plates	Room temperature + 1 °C to + 30 °C	Between 12 and 24 months after manufacturing
Egg Yolk Suspension (comes with sterilized pipette)	Keep cooled! + 4 °C to + 10 °C	Ten months after manufacturing
Swab for Compact Dry	Room temperature + 1 °C to + 30 °C	Minimum 24 months after manufacturing
Dilution Rack	Room temperature + 5 °C to + 30 °C	Minimum 36 months after manufacturing
Opener for Dilution Rack	No special storage required	The Opener can be disinfected with heat or flame

10. Notes

- During inoculation do not touch the surface of medium and be careful to avoid any contamination by airborne microorganisms.
- During incubation keep cap tight on Compact Dry plates to avoid any possible dehydration.
- It is recommended to use a stomacher® and filter homogenized sample afterwards to eliminate carry over of tiny particles of foodstuff onto the surface of the medium.
- Specimen should be diluted with buffer solution to a level of less than 300 cfu/plate. For dilution a Dilution Rack (ID-No. 1 000 888) is offered.
- If concentrations above 300 cfu/ml were inoculated on a plate, no colonies are able to distinguish but the whole plate becomes colored.
- If the nature of sample does affect the reaction of the medium, inoculate only after the factor is eliminated by means of dilution and other techniques. (e.g. samples with high viscosity, colored, reactive with chromogenic substrate, and with a high or low pH).
- The back of the plate has a grid carved of 1 x 1 cm. In case of counting difficulties due to large colony numbers grown on the medium, total viable count can be obtained by multiplying 20 by an average number of colonies per one grid (1 x 1cm) counted from several grids.
- Since some microorganisms may not reduce TTC and develop red/pink color, colonies that are not necessarily clear red color could develop.
- *E.coli* O-157 cannot be detected as *E.coli* on Compact Dry EC, because *E.coli* O-157 does not produce ß-glucuronidase to react with X-GLUC. *E.coli* O-157 develops pink/red-purple colonies on Compact Dry EC.
- Quality of the product is not warranted after its expiry date of shelf life.
- After opening the aluminum bag, any plates unused should be put back into the aluminum bag which then should be sealed with tape to avoid light and moisture. Open packages should be used up as soon as possible. Compact Dry TC is sensitive to light.

11. Warnings

- When medium or reagent gets into contact with eyes or mouth, wash immediately with plenty of water, and consult a physician.
- Manipulations with microorganisms involve always certain risks of laboratory-acquired infections. Any inoculated medium should be handled as infectious in the laboratory.

12. Disposal of waste

- Any medium should be sterilized by autoclaving or in boiling water after use, and then disposed as industrial waste according to the national waste disposal and cleaning in every country.

13. FAQ's

1. **What is the detection limit for Compact Dry ?**
   The detection limit of Compact Dry is <10 cfu/ml of sample solution.

2. **What are the ingredients of the Compact Dry Swab Solution?**

Peptone	1.0 g/l
NaCl	4.3 g/l
$Na_2HPO_4 \times 12H_2O$	7.23 g/l
KH_2PO_4	3.56 g/l
Distilled water	pH 7.0 ± 0.1

3. **We would like to test yeast and mold in juices. What is the influence of pH of the sample?**
   The pH of juices such as orange juice does not affect the results.

4. **Is there a problem if the Compact Dry plates get overloaded?**
   Overloading the Compact Dry plates with highly contaminated sample material can result in color development on the whole medium. Therefore dilution series are recommended.

5. **Can Compact Dry CF be used to test dairy and turbid products?**
   Compact Dry CF can be used to test dairy products, even if they are turbid. Before testing we recommend dilution of the sample.

6. **Why is there no color development when adding high numbers of bacteria on Compact Dry TC?**
   High numbers of bacteria develop formazan from TTC, then the metabolism of the bacteria cause color degradation.

7. **Why is Compact Dry EC changing the color to blue even without any incubation?**

   Some food include a lot of beta-glucoronidase. The beta-glucoronidase reacts with X-GLUC in Compact Dry EC and turn to blue without any incubation

14. Specification

Compact Dry TC

	Item	Specification	Remarks
1	Appearance	Sheet of light yellow color No particles	Visual check
2	PH	6.8 – 7.2	Measured by pH meter
3	Loss on drying	Less than 10.0 %	
4	Sterility test	No growth of colonies if incubated at +30 °C for 5 days.	Visual check
5	Performance a) Growth test	When following test strains are inoculated and incubated at 35 °C for 44-48 hours, good growth should be observed: *Bacillus subtilis* ATCC 6633 *Escherichia coli* ATCC 8739 *Klebsiella pneumoniae* ATCC 13883 *Pseudomonas aeruginosa* ATCC 9027 *Staphylococcus aureus* ATCC 6538	Visual check

Compact Dry EC

No.	Item	Specification	Remarks
1	Appearance	Sheet of light yellow color No particles	Visual check
2	PH	6.8 – 7.2	Measured by pH meter
3	Loss on drying	Less than 10.0 %	
4	Sterility test	No growth of colonies if incubated at +30 °C for 5 days	Visual check
5	Performance a) Growth test b) Inhibition test	When following test strains are inoculated and incubated at +35 °C for 20-24 hours, good growth and color development should be observed with: *Escherichia coli* ATCC 8739 (blue colony) *Klebsiella oxytoca* ATCC 13182 (reddish purple) *Pseudomonas aeruginosa* ATCC 9027 (white) When following test strains are inoculated and incubated at +35 °C for 20-24 hours, no growths should be observed with: *Bacillus subtilis* ATCC 6633 *Staphylococcus aureus* ATCC 6538	Visual check

Compact Dry CF

No.	Item	Specification	Remarks
1	Appearance	Sheet of light yellow color No particular matters	Visual check
2	PH	6.8 – 7.2	Measured by pH meter
3	Loss on drying	Less than 10.0 %	
4	Sterility test	No growth of colonies if incubated at +30 °C for 5 days	Visual check
5	Performance a) Growth test b) Inhibition test	 When following test strains are inoculated and incubated at +35 °C for 18-24 hours, good growth should be observed with: *Escherichia coli* ATCC 8739 blue/green colony) *Klebsiella oxytoca* ATCC 13182 (blue/green colony) *Pseudomonas aeruginosa* ATCC 9027 (white colony) When following test strains are inoculated and incubated at +35° C for 18-24 hours, no growth should be observed with: *Bacillus subtilis* ATCC 6633 *Staphylococcus aureus* ATCC 6538	Visual check

Compact Dry YM

No.	Item	Specification	Remarks
1	Appearance	Sheet of light yellow color No particular matters	Visual check
2	PH	5.2 – 5.8	Measured by pH meter
3	Loss on drying	Less than 10.0 %	
4	Sterility test	No growth of colonies if incubated at +30 °C for 5 days	Visual check
5	Performance a) Growth test b) Inhibition test	When following test strains are inoculated and incubated at +30 °C for about 48 hours, good growth should be observed with: *Candida albicancs* ATCC 2091 *Candida albicancs* ATCC 10231 *Aspergillus niger* ATCC 16404 When following test strains are inoculated and incubated at +30 °C for about 48 hours, no growth should be observed with: *Bacillus subtilis* ATCC 6633 *Eschericia coli* ATCC 8739	Visual check

Compact Dry VP

No.	Item	Specification	Remarks
1	Appearance	Sheet of light yellow color No particular matters	Visual check
2	PH	8.5 – 9.1	Measured by pH meter
3	Loss on drying	Less than 10.0 %	
4	Sterility test	No growth of colonies if incubated at +30 °C for 5 days	Visual check
5	Performance a) Growth test b) Inhibition test	When following test strains are inoculated and incubated at +35 °C for 20-24 hours, good growth should be observed with: *Vibrio parahaemolyticus* ATCC 17802 (light blue/green) *Vibrio alginolyticus* IFO 15630 (white colony) *Vibrio cholerae* (white colony) *Escherichia coli* ATCC 8739(colorless) *Pseudomonas aeruginosa* ATCC 27853 (colorless) When following test strains are inoculated and incubated at +35 °C for 18-24 hours, no growth should be observed: *Enterococcus faecalis* ATCC 19433	Visual check

Compact Dry SA

No.	Item	Specification	Remarks
1	Appearance	Sheet of light blue color No particular matters	Visual check
2	PH	7.2 – 7.6	Measured by pH meter
3	Loss on drying	Less than 6.0 %	
4	Sterility test	No growth of colonies if incubated at +30 °C for 5 days	Visual check
5	Performance a) Growth test b) Egg Yolk Reaction	When following test strains are inoculated and incubated at +35 °C for about 48 hours, growth and color development should be comparable to those of control medium: *Staphylococcus aureus* ATCC 12600 (positive) *Staphylococcus aureus* ATCC 29213 (positive) *Staphylococcus epidermidis* ATCC 14990 (positive) *Escherichia coli* ATCC 8739 (negative) *Staphylococcus aureus* ATCC 12600 (positive) *Staphylococcus aureus* ATCC 29213 (positive) *Staphylococcus epidermidis* ATCC 14990 (negative) *Escherichia coli* ATCC 8739 (negative)	Visual check

Compact Dry SL

No.	Item	Specification	Remarks
1	Appearance	Blue purple color dry sheet No particular matters	Visual check
2	PH	5.5 – 6.3	Measured by pH meter
3	Loss on drying	Less than 10.0 %	
4	Sterility test	No growth of colonies if incubated at +30 ℃ for 5 days	Visual check
5	Performance a) Growth test b) Inhibition test	 When following test strains are inoculated and incubated at +42 ℃ for 20-24 hours, good growth should be observed with: *Salmonella typhimurium* ATCC 13311 (yellow) *Salmonella enteritidis* SAL-1 (yellow) *Salmonella habana* SAL-23-150 (yellow) *Salmonella cubana* SAL-FDA H_2S (yellow) When following test strains are inoculated and incubated at +42 ℃ for 20-24 hours, no growth should be observed: *Citrobacter freundii* ATCC 8090 *Escherichcia coli* ATCC 8739 *Klebsiella pneumoniae* ATCC 13880 *Proteus mirabilis* ATCC 29906 *Staphylococcus aureus* ATCC 6538	Visual check

Compact Dry ETB

No.	Item	Specification	Remarks
1	Appearance	Sheet of light pink color No particular matters	Visual check
2	PH	7.2 – 7.6	Measured by pH meter
3	Loss on drying	Less than 10.0 %	
4	Sterility test	No growth of colonies if incubated at +30 ℃ for 5 days	Visual check
5	Performance a) Growth test b) Inhibition test	When following test strains are inoculated and incubated at +36℃ for 22-26 hours, good growth should be observed with: *Citrobacter freundii* ATCC 8090 (reddish,purple) *Klebsiella oxytoca* ATCC 13182 (reddish,purple) *Salmonella typhimurium* ATCC 13311 (reddish,purple *Escherichia coli* ATCC 8739 (reddish purple) *Proteus mirabilis* ATCC 29906 (reddish purple) When following test strains are inoculated and incubated at +35 ℃ for 18-24 hours, no growth should be observed: *Bacillus subtilus* ATCC 6633 *Staphylococcus aureus* ATCC 6538	Visual check

Egg Yolk Suspension

No.	Item	Specification	Remarks
1	Appearance	Translucent light yellow solution No particular matters observed	Visual check
2	PH	6.0 – 7.0	Measured by pH meter
3	Sterility test	No growth of colonies if incubated at +30 °C for 5 days	Visual check
4	Performance a) Growth test Test strains	When following test strains are inoculated and incubated on Compact Dry SA and the egg yolk suspension, the results should be comparable to those of control medium in terms of halo-formation because of the egg yolk suspension, size of colonies, shape and number of the colonies at each dilution: *Staphylococcus aureus* ATCC 12600 (positive) *Staphylococcus aureus* ATCC 29213 (positive) *Staphylococcus aureus* ATCC 25923 (positive) *Staphylococcus aureus* ATCC 6538 (positive)	Visual check

15. Type culture collection strains behavior

Gram-positive and Gram-negative strains tested for growth and colony color formation using Compact Dry TC and Compact Dry EC

	Compact Dry TC		Compact Dry EC	
	growth	color	growth	color
Bacillus cereus ATCC 19637	+	red	-	-
Bacillus subtilis ATCC 6633	+	red	-	-
Bacillus licheniformis ATCC 14580	+	red	-	-
Corynebacterium renale ATCC 19412	+	red	-	-
Corynebacterium minutissium ATCC 23348	+	red	-	-
Corynebacterium xerisus ATCC 373	+	red	-	-
Enterococcus faecalis ATCC 19433	+	red	-	-
Enterococcus faecium ATCC 19434	+	red	-	-
Enterococcus avium ATCC 14025	+	red	-	-
Enterococcus durans ATCC 19432	+	red	-	-
Lactobacillus delbrueckii subsp. lactis ATCC 12315	+	red	-	-
Micrococcus luteus ATCC 29070	+	red	-	-
Staphylococcus auricularis ATCC 33753	+	red	-	-
Staphylococcus aureus ATCC 12600	+	red	-	-
Staphylococcus aureus ATCC 25923	+	red	-	-
Staphylococcus aureus ATCC 229213	+	red	-	-
Staphylococcus aureus ATCC 6538	+	red	-	-
Staphylococcus aureus MRSA	+	red	-	-
Staphylococcus capitis ATCC 27840	+	red	-	-
Staphylococcus epidermidis ATCC 14990	+	red	-	-
Staphylococcus haemolyticus ATCC 29970	+	red	-	-
Staphylococcus hominis ATCC 27844	+	red	-	-
Staphylococcus lentus ATCC 29070	+	red	-	-
Staphylococcus saprophyticus ATCC 15305	+	red	-	-
Staphylococcus sciuri ATCC 29062	+	red	-	-
Staphylococcus simulans ATCC 27848	+	red		-
Staphylococcus warneri ATCC 27836	+	red	-	-
Staphylococcus xylosus ATCC 29971	+	red	-	-
Streptococcus thermophilus ATCC 14485	+	red	-	-
Staphylococcus epidermidis ATCC 12228	+	red	-	-
Candida albicans ATCC 10231	+	red	-	-
Saccharomyces cereviseae NHL 10010	+	red	-	-

Gram-positive and Gram-negative strains tested for growth and colony color formation using Compact Dry TC and Compact Dry EC

	Compact Dry TC		Compact Dry EC	
	growth	color	growth	color
Aeromonas hydrophila JCM 3976	+	red	+	magenta
Citrobacter amalonaticus ATCC 25405	+	red	+	magenta
Citrobacter freundii ATCC 8090	+	red	+	magenta
Citrobacter koseri ATCC 25408	+	red	+	magenta
Enterobacter aerogenes ATCC 13048	+	red	+	magenta
Enterobacter amnigenus ATCC 33072	+	red	+	magenta
Enterobacter cloacae ATCC 13047	+	red	+	magenta
Enterobacter intemedius ATCC 33110	+	red	+	magenta
Enterobacter salazakii ATCC 29544	+	red	+	magenta
Escherichia coli ATCC 11775	+	red	+	blue
Escherichia coli ATCC 8739	+	red	+	blue
Escherichia coli ATCC 9637	+	red	+	blue
Escherichia coli ATCC 25922	+	red	+	blue
Escherichia coli serotype 0157 ATCC 35150	+	red	+	magenta
Escherichia coli serotype 0157 ATCC 43888	+	red	+	magenta
Escherichia hermanii JCM 1473	+	red	+	magenta
Klebsiella oxytoca ATCC 13182	+	red	+	magenta
Klebsiella pneumoniae subsp. ozaenae ATCC 11296	+	red	+	magenta
Klebsiella pneumoniae subsp. pneumoniae ATCC 13883	+	red	+	magenta
Kluyvera ascorbata ATCC 33433	+	red	+	magenta
Kluyvera cryocrescens ATCC 33*435*	+	red	+	magenta
Morganella morganii ATCC 25830	+	red	+	cream
Proteus mirabilis ATCC 29906	+	red	+	cream
Proteus vulgaris ATCC 13315	+	red	+	white
Pseudomonas aeruginasa ATCC 9027	+	red	+	white
Pseudomonas aeruginosa ATCC 10145	+	red	+	white
Pseudomonas aeruginosa ATCC 27853	+	red	+	white
Pseudomonas putida ATCC 12633	+	red	+	white
Rahnella aquatilis ATCC 33071	+	red	+	magenta
Rahnella aquatilis JCM 1683	+	red	+	magenta
Salmonella typhimurium ATCC 13311	+	red	+	white
Serratia fonticola ATCC 29844	+	red	+	magenta
Serratia liquefaciens ATCC 27592	+	red	+	light magenta
Serratia liquefaciens ATCC 81002	+	red	+	magenta
Serratia liquefaciens ATCC 13880	+	red	+	magenta

Gram-positive and Gram-negative strains tested for growth and colony color formation using Compact Dry CF

	Compact Dry CF	
	growth	color
Bacillus cereus ATCC 19637	-	-
Bacillus subtilis ATCC 6633	-	-
Bacillus licheniformis ATCC 14580	-	-
Corynebacterium renale ATCC 19412	-	-
Corynebacterium minutissium ATCC 23348	-	-
Corynebacterium xerisus ATCC 373	-	-
Enterococcus faecalis ATCC 19433	-	-
Enterococcus faecium ATCC 19434	-	-
Enterococcus avium ATCC 14025	-	-
Enterococcus durans ATCC 19432	-	-
Lactobacillus delbrueckii subsp. lactis ATCC 12315	-	-
Micrococcus luteus ATCC 29070	-	-
Staphylococcus auricularis ATCC 33753	-	-
Staphylococcus aureus ATCC 12600	-	-
Staphylococcus aureus ATCC 25923	-	-
Staphylococcus aureus ATCC 229213	-	-
Staphylococcus aureus ATCC 6538	-	-
Staphylococcus aureus MRSA	-	-
Staphylococcus capitis ATCC 27840	-	-
Staphylococcus epidermidis ATCC 14990	-	-
Staphylococcus haemolyticus ATCC 29970	-	-
Staphylococcus hominis ATCC 27844	-	-
Staphylococcus lentus ATCC 29070	-	-
Staphylococcus saprophyticus ATCC 15305	-	-
Staphylococcus sciuri ATCC 29062	-	-
Staphylococcus simulans ATCC 27848		-
Staphylococcus warneri ATCC 27836	-	-
Staphylococcus xylosus ATCC 29971	-	-
Streptococcus thermophilus ATCC 14485	-	-
Staphylococcus epidermidis ATCC 12228	-	-
Candida albicans ATCC 10231	-	-
Saccharomyces cerevisiae NHL 10010	-	-

Gram-positive and Gram-negative strains tested for growth and colony color formation using Compact Dry CF

	Compact Dry CF	
	growth	color
Aeromonas hydrophila JCM 3976	+	blue
Citrobacter amalonaticus ATCC 25405	+	blue
Citrobacter freundii ATCC 8090	+	blue
Citrobacter koseri ATCC 25408	+	blue
Enterobacter aerogenes ATCC 13048	+	blue
Enterobacter amnigenus ATCC 33072	+	blue
Enterobacter cloacae ATCC 13047	+	blue
Enterobacter intemedius ATCC 33110	+	blue
Enterobacter salazakii ATCC 29544	+	blue
Escherichia coli ATCC 11775	+	blue
Escherichia coli ATCC 8739	+	blue
Escherichia coli ATCC 9637	+	blue
Escherichia coli ATCC 25922	+	blue
Escherichia coli serotype 0157 ATCC 35150	+	blue
Escherichia coli serotype 0157 ATCC 43888	+	blue
Escherichia hermanii JCM 1473	+	blue-green
Klebsiella oxytoca ATCC 13*182*	+	blue
Klebsiella pneumoniae subsp. ozaenae ATCC 11296	+	blue-green
Klebsiella pneumoniae subsp. pneumoniae ATCC13883	+	blue-green
Kluyvera ascorbata ATCC 33433	+	blue
Kluyvera cryocrescens ATCC 33435	+	blue
Morganella morganii ATCC 25830	+	cream
Proteus mirabilis ATCC 29906	+	cream
Proteus vulgaris ATCC 13315	+	white
Pseudomonas aeruginasa ATCC 9027	+	white
Pseudomonas aeruginosa ATCC 10145	+	white
Pseudomonas aeruginosa ATCC 27853	+	white
Pseudomonas putida ATCC 12633	+	white
Rahnella aquatilis ATCC 33071	+	blue
Rahnella aquatilis JCM 1683	+	white
Salmonella typhimurium ATCC 13311	+	white
Serratia fonticola ATCC 29844	+	blue-green
Serratia liquefaciens ATCC 27592	+	blue-green
Serratia liquefaciens ATCC 81002	+	blue-green
Serratia liquefaciens ATCC 13880	+	blue

Yeast and Mold tested for growth and colony color formation with Compact Dry YM

	Compact Dry YM	
	growth	color
Aspergillus flavus	+	yellow green/light blue
Aspergillus fumigatus	+	blue
Aspergillus niger	+	black/blue
Aspergillus ochraceus	+	yellow/light blue
Aspergillus restrictus	+	white/blue
Aspergillus versicolor	+	yellow green/light blue
Emericella nidulans	+	green/blue
Eurotium sp.	+	brown/blue
Alternaria alternata	+	burnt umber/blue
Aureobasidium pullulans	+	burnt umber/blue
Cladosporium cladosporioides	+	dark yellow green/blue
Chaetomium globosum	+	olive green black
Curvularia lunata	+	burnt umber/blue
Epicoccum sp.	+	brown
Fusarium sp.	+	white/blue
Geotrichum candidum	+	white/blue
Paecilomyces sp.	+	yellow brown/blue
Pnicillium citrinum	+	greenish blue
Phoma sp.	+	burnt umber/blue
Trichoderma sp.	+	greenish blue
Wallemia sepi	+	blue
Rhizopus sfolonifer	+	white-grey
Candida albicans	+	white-light blue
Candida krusei	+	blue
Candida tropicalis	+	blue
Candida guiliermondii	+	blue
Candida glabrata	+	blue
Saccharomyces cerevisiae	+	blue

Staphylococcus aureus and other Gram-negative and Gram-positive strains tested for growth and colony color with Compact Dry SA

	Compact Dry SA		
	growth	mannitol	egg yolk
Staphylococcus aureus ATCC 12600	+	+	+
Staphylococcus aureus ATCC 25923	+	+	+
Staphylococcus aureus ATCC 29213	+	+	+
Staphylococcus aureus ATCC 6538	+	+	+
Staphylococcus aureus MRSA	+	+	+
Staphylococcus epidermidis ATCC 14990	+	-	-
Staphylococcus saprophyticus ATCC 15305	+	+	-
Staphylococcus xylosus ATCC 29971	+	-	-
Staphylococcus hominis ATCC 27844	+	+	-
Staphylococcus warneri ATCC 27836	+	+	-
Staphylococcus capitis ATCC 27840	+	-	-
Staphylococcus simulans ATCC 27848	+	-	-
Staphylococcus sciuri ATCC 29062	+	+	-
Staphylococcus intermedius ATCC 29663	+	+	-
Staphylococcuslentus ATCC 29070	+	+	-
Enterococcus faecium ATCC 19434	-	+	-
Enterococcus faecalis ATCC 19433	+	+	-
Enterococcus avium ATCC 14025	-	-	-
Enterococcus durans ATCC 19432	-	+	-
Micrococcus luteus ATCC 4698	+	+	-
Micrococcus lylae ATCC 27566	+	-	-
Micrococcus sedentarius ATCC 14392	-	-	-
Proteus mirabilis ATCC 29906	-	-	-
Proteusvulgaris ATCC 13315	-	-	-
Escherichia coli ATCC 11775	-	-	-
Escherichia cloacae ATCC 13047	+	+	-
Citrobacter freundii ATCC 8090	-	+	-
Klebsiella pneumoniae ATCC 13883	W	+	-
Candida albicans ATCC 10231	+	-	-
Bacillus cereus ATCC 14579	+	-	W
Bacillus subtilis ATCC 6633	+	-	-

W: weak

Gram-negative strains tested for growth and colony color formation using Compact Dry VP

	Compact Dry VP	
	growth	color
Aeromonas hydrophila JCM 3976	-	-
Citrobacter freundii ATCC 8090	-	-
Enterobacter cloacae ATCC 13047	-	-
Enterobacter sakazakii ATCC 29544	-	-
Escherichia coli ATCC 25922	-	-
Escherichia coli ATCC 8739	-	-
Escherichia hermanii JCM 1473	-	-
Hafnia alvei ATCC 13337	-	-
Klebsiella oxytoca ATCC 13182	-	-
Klebsiella pneumoniae subsp.ozaenae ATCC 11296	-	-
Klebsiella pneumoniae subsp.pneumoniae ATCC 13883	-	-
Kluyvera ascorbata ATCC 33433	-	-
Kluyvera cryocrescens ATCC 33435	-	-
Morganella morganii ATCC 25830	-	-
Proteus mirabilis ATCC 29906	+	white
Pseudomonas aeruginosa ATCC 9027	-	-
Pseudomonas putida ATCC 12633	-	-
Rahnella aquatilis ATCC 33071	-	-
Salmonella typhimurium ATCC 13311	-	-
Salmonella choleraesuis ATCC 13312	-	-
Serratia fonticola ATCC 29844	-	-
Serratia liquefaciens ATCC 27592	-	-
Serratia marcescens ATCC 8100	-	-
Vibrio parahaemolyticus ATCC 17802	+	blue
Vibrio alginolyticus IFO 15630	+	white
Vibrio cholerae #11	+	magenta
Vibrio vulnificus ATCC 27562	+	magenta
Vibrio mimicus ATCC 33653	+	magenta
Vibrio fluvialis ATCC 33809	+	white
Vibrio hollisae JCM 1283	-	-
Vibrio orientalis IFO 15638	-	-
Vibrio penaeicida IFO 15640	-	-
Photobacterium damselae IFO15633	-	-

Gram-positive strains tested for growth and colony color formation using Compact Dry VP

	Compact Dry VP	
	growth	color
Bacillus cereus ATCC 19637	-	-
Bacillus licheniformis ATCC 14580	-	-
Bacillus subtilis ATCC 6633	-	-
Corynebacterium minutissimum ATCC 23348	-	-
Corynebacterium renale ATCC 19412	-	-
Corynebacterium xerosis ATCC 373	-	-
Enterococcus faecalis ATCC 19433	-	-
Enterococcus faecium ATCC 19434	-	-
Lactobacillus delbrueckii subsp. lactis ATCC 12315	-	-
Micrococcus luteus ATCC 9341	-	-
Staphylococcus aureus ATCC 12600	-	-
Staphylococcus aureus ATCC 6538	-	-
Staphylococcus aureus MRSA	-	-
Staphylococcus auricularis ATCC 33753	-	-
Staphylococcus capitis ATCC 27840	-	-
Staphylococcus epidermidis ATCC 12228	-	-
Staphylococcus haemolyticus ATCC 29970	-	-
Staphylococcus hominis ATCC 27844	-	-
Staphylococcus lentus ATCC 29070	-	-
Staphylococcus saprophyticus ATCC 15305	-	-
Staphylococcus sciuri ATCC 29062	-	-
Staphylococcus simulans ATCC 27848	-	-
Staphylococcus warneri ATCC 27836	-	-
Staphylococcus xylosus ATCC 29971	-	-
Streptococcus thermophilus ATCC 14485	-	-
Candida albicans ATCC 10231	-	-
Saccharomyces cerevisiae NHL 10010	-	-

Legend:

ATCC: American Type Culture Collection, Manassas, U.S.A.
MRSA: Methicillin resistant *Staphylococcus aureus*
NHL: National Institute of Hygienic Sciences, Tokyo, Japan
JCM: Japan Collection of Microorganisms, Hirosawa, Japan
IFO: Institute for Fermentation, Osaka, Japan

16. Literature

Journal of Food Protection

Vol. 63, No. 5, pp. 665-667.

Evaluation of Dry Sheet Medium Culture Plate (Compact Dry TC) Method for Determining Numbers of Bacteria in Food Samples

SHINGO MIZUOCHI and HIDEMASA KODAKA
Research Department, Nissui Pharmaceutical Co. Ltd., 1075-2 Hokunanmoro, Yuki, Ibaraki 307-0036 Japan

Abstract:

The Compact Dry, a ready-to-use and self-diffusible dry medium sheet culture system, has been developed by the Nissui Pharmaceutical Co. Ltd. for enumerating bacteria in food. The Compact Dry consists of special spread sheet with culture medium that is the same as standard method nutrients, a cold water-soluble gelling agent, and a unique plastic dish. The procedure for bacterial examination in a sample solution (1 ml) is to just inoculate a test solution into the center of the self-diffusible medium and incubate at 35°C for 48 h. The Compact Dry TC (CTC) for the enumeration of total aerobic bacteria from 97 food samples was compared with the standard plate count (SPC) method and 3M Petrifilm aerobic count plates (PAC). The correlation coefficients between the CTC and SPC method, the CTC and PAC, and the PAC and SPC method were 0.97, 0.99, and 0.97, respectively. The Compact Dry system is useful for the enumeration of total aerobic bacteria in food and may be a possible suitable alternative to the conventional pour-plate or the Petrifilm plate methods.

Journal of Food Protection

Vol. 65, No. 2, 2002, pp. 423-425.

Comparison of the Compact Dry TC and 3M Petrifilm ACP Dry Sheet Media Methods with the Spiral Plate Method for the Examination of Randomly Selected Foods for Obtaining Aerobic Colony Counts

P. ELLLIS AND R. MELDRUM*

Food, Water and Environment Section, Cardiff Public Health Laboratory, Public Health Laboratory Service in Wales, University Hospital of Wales, Health Park, Cardirff CF14 4XW, UK

Abstract:

Two hundred thirty-six randomly selected food and mild samples were examinated to obtain aerobic colony counts by tow dry sheet media methods and a standard Public Health Laboratory Service spiral plate method. Results for 40 samples were outside the limits of detection for one or more of the tested methods and were not considered. (The limits of detection for the spiral plate method were 200 to 1 x 10^8 CFU/ml for the spiral plate method and 100 to 3 x 10^6 CFU/ml for the dry sheet media methods.) The remaining 196 sets of results were analyzed further. When the results from the three methods were compared, correlation coefficients were all >0.80 and slopes and intercepts were close to 1.0 and 0.0, respectively. Mean log values and standard deviations were very similar for all three methods. The results were evaluated according to published UK guidelines for ready-to-eat- foods sampled at the point of sale, which include a quality acceptability assessment that is based on aerobic colony counts. Eighty-six percent of the comparable results gave the same verdict with regard to acceptability according to the aerobic colony count guidelines. Both dry sheet media methods were comparable to the spiral plate method and can be recommended for the examination of food.

Bokin Bobai Vol. 29, No. 8, pp 507~ 510, 2001

Application of ready-made Compact Medium to a Sterility Confirmation Test of Soft Drinks

Jim Sato[1], Shingo Mizuochi[2], Hakime Teramura[2], Mika Ito[2], and Hidemas Kodakao[2]*

[1]Quality Standards and Compliance, Coca Cola (Japan), Compnay , Limited 6-3, Shibuya 4-chome, Tokyo 150-002, Japan

[2]Research Division, Nissui Diagnostics 1075-2, Hokunanmoro, Yuki-shi, Ibaraki 307-0036, Japan

A ready-made compact medium, the Compact Dry TC (CDTC) has been developed for the measurement of standard plate counts. We studied whether or not CDTC coul dbe substituted for the standard method agar (SMA) in the

sterility confirmation testing for aseptic soft drink products filled into PET bottles. With *Pseudomonas aeruginosa* CCJC-B-007, *Stenotrophomonas maltophila* CCJB-B-018 and *Bacillus pumilus* CCJC-B-007, the results on CDTC we confirmed to agre with those on SMA in the case of mineral water, blended tea, oolong tea and milk coffee products. Therefore the possibility was suggested that CDTC could be applied to the sterility confirmation testing for aseptic products, even to the determination f bacterial counts

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Enumeration of total bacteria and coliforms in milk by dry dehydratable film methods: Coolaborative study. J. Assoc. Off. Anal. Chem. **69**: 527 – 532

Inside Laboratory Management; AOAC International, 2004, 19-22
Nissui Pharmaceutical granted PTM status for Compact Dry TC, **July:** 19-22

17. Approval/Certifcations

Compact Dry CF Test AOAC certificate

PTM Status: Certificate No. 110401

Compact Dry TC Test AOAC certificate

PTM Status: Certificate No. 010404

Compact Dry YM Test AOAC certificate

PTM Status: Certificate No. 041023

Compact Dry EC Test AOAC certificate

PTM Status: Certificate No. 110402

Compact Dry TC, EC, CF, YM and ETB are submitted for the European Microval Approval . http://www.microval.org/

17. Ordering Information

Product	ID-No.	Packaging	Application
Compact Dry TC	1 000 166 1 000 167 1 002 877	40 plates 240 plates 880 plates	Total Count
Compact Dry CF	1 000 867 1 000 868 1 002 879	40 plates 240 plates 880 plates	Coliforms
Compact Dry YM	1 000 869 1 000 870 1 002 880	40 plates 240 plates 880 plates	Yeast and mold
Compact Dry SA	1 000 899 1 001 013 1 002 881	40 plates 240 plates 880 plates	*Staphyloccocus aureus*
Compact Dry ETB	1 002 941 1 002 942 1 002 943	40 plates 240 plates 880 plates	Enterobacteriacae
Compact Dry EC	1 000 168 1 000 169 1 002 878	40 plates 240 plates 880 plates	E.coli and Coliforms
Swab for Compact Dry line	1 002 953 1 002 952	40 swabs 240 swabs	Swab for dry surfaces
Egg Yolk Suspension	1 002 755	2 tubes, each for 20 plates	for Compact Dry SA
Compact Dry VP	1 000 900 1 001 014 1 002 882	40 plates 240 plates 880 plates	*Vibrio parahaemolyticus*
Compact Dry SL	1 002 973 1 002 938 1 002 940	40 plates 240 plates 880 plates	Salmonella
Dilution Rack	1 000 888	30 x 4 wells	Dilution of samples
Opener for Dilution Rack	1 000 887	1 piece	Easy opening of the Dilution Rack

Contact and Support

HyServe GmbH & Co. KG

Hechenrainer Str. 24

82449 Uffing am Staffelsee

Germany

Tel. 0049-8846-1344

Fax. 0049-8846-1342

http://www.hyserve.com/

mailto:info@hyserve.com