Compact Dry™ LM

Ready-to-Use Medium for
Listeria monocytogenes

Background

It is important to detect *Listeria monocytogenes* in food products and the food environment to limit the possibility of food poisoning. A mixing and dilution culture method has been widely used to determine microbial count. The method is time-consuming and requires complicated operations such as preparation of hot agar, mixing a dilution uniformly and/or spreading. To save operator time and make it possible for anyone to perform a bacterial count test without difficulty, Compact Dry was developed based on a new concept and technology applicable to the food industry.

Detection

Compact Dry LM detects *Listeria monocytogenes* in both food and environmental samples. The plates contain chromogenic substrate. Red colonies with or without blue precipitate around the colony appear for presumptive *L. monocytogenes*.

Colonies sampled from the Compact Dry plate can be used for confirmation of *L. monocytogenes* by inoculation of colonies onto selective media.

Warnings and Precautions

1. General precautions

- Read and follow precisely the warnings and directions for use described in the package insert and/or label.
- Do not use the product after its expiration date. Quality of the product is not warranted after its shelf life expires.
- Do not use product that contains any foreign materials, is discolored or dehydrated, or has a damaged container.
- Use plates as soon as possible after opening. Return any unused plates to the aluminum bag and seal with tape to avoid light and moisture.
- Cap tightly after inoculation to avoid dehydration of gelled medium.

2. Safety precautions

- If medium or reagent comes into contact with eyes or mouth, immediately wash with water and consult a physician.
- Procedures with microorganisms involve certain risks of laboratory-acquired infections. Procedures should be carried out under the supervision of trained laboratory personnel with biohazard protection measures.
- Treat any laboratory equipment or medium that comes into contact with the specimen as infectious and sterilize appropriately.

3. Precautions for disposal of waste

- Sterilize any medium, reagent or materials by autoclaving or boiling after use, and then dispose of it as industrial waste according to local laws and regulations for disposal of such material.

4. User responsibilities

- It is the user's responsibility in selecting any test method to evaluate a sufficient number of samples with particular foods and microbial challenges to satisfy the user that the chosen test method meets the user's criteria.
- It is the user's responsibility to determine that any test methods and results meet its customers or suppliers' requirements. The user must train its personnel in proper testing techniques.
- It is the user's responsibility to validate the performance of this method for use with any non-certified matrix.

5. Limitation of warranties

- Compact Dry plates are manufactured at ISO 9001:2015 facility. If any Compact Dry plate is proven to be defective by fault of the manufacturer or its authorized distributors, they may replace or, at their discretion, refund the purchase price of any plate. These are the exclusive remedies.

Storage and Shelf Life

Storage: Keep at room temperature (1–30°C)

Shelf life: Eighteen (18) months after manufacturing. Expiration date is printed on outer box label and aluminum bag label.

Package

Compact Dry LM 100 plates	Code 54067
Compact Dry LM 1400 plates	Code 54060-CS

Further Information

Customer Support

Shimadzu Diagnostics Corporation
3-24-6, Ueno, Taito-ku, Tokyo 110-0005 Japan
Phone: +81-3-5846-5707
contact@sdc.shimadzu.co.jp

Manufactured by

Shimadzu Diagnostics Corporation
3-24-6, Ueno, Taito-ku, Tokyo 110-0005, Japan

Kit components, operating instructions and interpretation ➤

Operating Procedure for Presence/Absence

Preparation of specimen

1. **Presence/Absence in solid foods, water or liquids:** Add 25 grams/ml of product to 225 ml of Half-Fraser broth (or appropriate pre-incubation media) and homogenize using stomacher. Incubate at 30 ± 1°C for 25 ± 1 hours.
2. **Presence/Absence with environmental swab/sponge:** Swab test area using crosshatch method. Add 9 times volume of half-Fraser broth to the swab or sponge. Homogenize sample and incubate at 30 ± 1°C for 25 ± 1 hours.

pH Adjustment: The pH of the product or 1:10 dilution of product should be between 6 and 7 for optimal growth of target microorganisms. If the pH is not between 6 and 7, adjust the pH or the product or 1:10 dilution with 1 N or 0.1 N NaOH for acidic products or 1 N or 0.1 N HCl for alkaline products.

Presence/Absence Directions

1. Open aluminum pouch, and take out a set of 4 plates.
2. Detach the quantity needed from a set of four by bending up and down while pressing the lid.
3. Remove the lid and add 0.1 ml of enrichment culture in the middle of the plate.
4. Pipet 1 ml of a sterilized diluent (ex. Saline or Butterfield's Phosphate Buffer) in the middle of plate and allow to diffuse across the surface area of the plate.
5. Replace lid, invert and incubate for 24 ± 2 hours at 37 ± 1°C. If colonies of presumptive *L. monocytogenes* are present, the incubation may be stopped at this stage. If colonies are not present, incubate for additional 24 ± 2 hours at 37 ± 1°C.

Operating Procedure for Enumeration

Preparation of specimen

1. **Enumeration in solid foods:** Add 10 grams of product to 90 ml of Butterfield's Phosphate buffer for a 1:10 dilution. Homogenize sample and dilute to specification. Sample size may vary based on product specifications.
2. **Enumeration in water or liquids**: Add 1 ml of the sample (diluted if necessary according to specification) in the middle of the Compact Dry plate. If the sample does not diffuse evenly, spread the aliquot around the area of the plate.
3. **Enumeration of environmental swab or sponge:** Swab test area with swab or sponge using cross hatch method and return swab or sponge to diluent.

pH Adjustment: The pH of the product or 1:10 dilution of product should be between 6 and 7 for optimal growth of target microorganisms. If the pH is not between 6 and 7, adjust the pH or the product or 1:10 dilution with 1 N or 0.1 N NaOH for acidic products or 1 N or 0.1 N HCl for alkaline products.

Enumeration Directions

1. Open aluminum pouch, and take out a set of 4 plates.
2. Detach the quantity needed from a set of four by bending up and down while pressing the lid. Use a set of four connected plates when a series of diluted samples is inoculated.
3. Remove the lid and add 1 ml of specimen in the middle of plate. Specimen diffuses automatically and evenly to transform entire sheet into gel. If diffusion does not occur evenly, pipette around surface area of the plate.
4. Replace lid, invert and incubate for 24 ± 2 hours at 37 ± 1°C. If colonies of presumptive *L. monocytogenes* are present, the incubation may be stopped at this stage. If colonies are not present, incubate for additional 24 ± 2 hours at 37 ± 1°C. White paper placed under the plate can make colony counting easier.

Precautions for Use – Presence/Absence and Enumeration

1. During inoculation, do not touch the surface of plate, and be careful to avoid any contamination by falling microorganism.
2. During incubation, keep the lid tight to avoid any possible dehydration.
3. It is recommended to use a stomacher bag with filter to eliminate risks of contamination with tiny pieces of food.
4. During streaking, only apply gentle pressure with loop on the surface of the plate. A loop which has a large diameter and a smooth surface is most suitable.
5. Specimen should be diluted by buffer solution to the level of concentration of less than 300 cfu/plate. If bacteria more than 10^4 cfu were inoculated on a plate, no colonies are formed, but the entire plate will become colored.
6. If the nature of sample affects the reaction of the medium, inoculate the sample only after the factor is eliminated by means such as dilution. For instance, samples with high viscosity, colored, reacted with redox indicator, and too high or too low a pH.

Interpretation

Presence/Absence: Interpret red colonies with or without blue precipitate as presumptive positive for *Listeria monocytogenes*. If a volume of *L. monocytogenes* is too much, no colonies are formed and the entire plate or streaked portion will be red-colored. Interpret this result also as presumptive positive.

Enumeration: Count red colonies with or without blue precipitate as presumptive *L. monocytogenes*.

If presumptive colonies of *L. monocytogenes* are observed, perform confirmation tests by ISO11290-1:2017, ISO11290-2:2017 or other methods.

Precautions for Interpretation

1. *Listeria ivanovii* also forms red colonies with or without blue precipitate. *Listeria* spp. except for *L. monocytogenes* and *L. ivanovii* form blue/green colonies.
2. Bacteria other than *Listeria* spp. are inhibited by selective agents in the medium, and do not form colored colonies even if they grow. Rarely some *Bacillus* spp. may form relatively large, flat and orange colonies.
3. *L. monocytogenes* may also form orange, reddish-brown or reddish-purple colonies in addition to red colonies.
4. The full plate size is 20 cm^2. The plate's backside contains a carved grid of 1 cm x 1 cm and 0.5 cm x 0.5 cm to make colony counting easier. If large numbers of colonies are present on the medium, the total viable count can be obtained by averaging the number of colonies per large grid (1 cm x 1 cm), counted from several grids, and multiplying by 20.

