Operator's Manual:

Peel Plate® YM
YEAST AND MOLD

Kit Information

Introduction

Peel Plate® YM (Yeast and Mold) tests detect and enumerate yeast and mold micro-organisms. The method is applicable for determination of fungi in samples when incubated at 25 ±3 °C in the dark. Sample or sample dilution is added to plate and is incubated for 3 to 5 days. Yeast and mold colonies will appear as green, blue, to dark brown round or filamentous shape. Molds may also produce natural pigments. Peel Plate YM tests are intended for microbiological laboratories, but may also be used by food quality stakeholders such as farmers, milk processors, and water municipalities. The method limit of detection is 1 or greater colony forming units per milliliter or gram (CFU/mL or g) of test sample. The accurate quantitative range for yeast and mold is 10 to 150 CFU/test; however, if substantial amounts of mold are present, depending on the type of mold, the upper countable limit may have to be lowered at the discretion of the analyst.

Kit Contents, Storage, and Testing Conditions

A test kit (item code PP-YM-100K) contains 100 tests, 50 each in two desiccated foil bags containing a blue indicator desiccant.

Store kits in foil bag refrigerated* for up to 12 months or at room temperature for up to 1 month.

Open bag and remove number of plates needed for analysis. Perform testing in a clean dry testing area at ambient temperature. **Tests held at room temperature for 1 hour or more will open more easily.** Reseal the bag using the zip closure to store unused tests. Moisture or heat or storage abused test will discolor yellow. Do not use discolored tests or tests from bags with pink/white desiccant indicator.

* Refrigerated is defined as 0 to 7°C or 0 to 4.5°C for U.S. certified labs.

Principle

Peel Plate YM is based on potato dextrose medium to support and colorimetrically identify the growth of yeast and mold at 25 ±3 °C in the dark. Peel Plate YM contains the enzyme substrates that turn blue when detecting phosphatase and glucosidase enzymes that are produced by growing fungi. Peel Plate YM also contains gelling and wicking agents which absorb and diffuse the sample.

Applicability

Peel Plate YM method has been validated for detection of yeast and mold in dairy products (liquid, solid and cultured), juices, and bakery extracts and found not significantly different from reference method FDA-BAM, Chapter 18. The method has also been validated to detect fungi from environmental surface sponges of food contact surfaces. Samples should be 10-fold serially diluted into the countable range of 10 to 150 CFU/mL.

Precautions:

- Observe Good Laboratory Practices for microbial testing. Avoid specimen contamination.
- Perform tests with clean washed and gloved hands assuming potential pathogenic bacteria.
- Test on a level surface in a clean area, free of dust and blowing air.
- Avoid hand contact with test samples and Peel Plate YM medium.
- After plating, replace adhesive cover so it lays flat with no wrinkles to avoid drying out the rehydrated medium during incubation.

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CHARM SCIENCES INC

Sample Preparation	
Liquid Dairy	• White milk dairy samples (raw milk and pasteurized whole, lower fat %, and skim) may be tested directly or serially diluted to a countable range (10 to 150 CFU/mL). ○ To serially dilute, add 25 mL into 225 mL 0.1% peptone or microbiologically suitable dilution buffer. Other automated dilution pipets and dilution schemes are acceptable.
Solid Dairy	• Add 25 g of solid dairy (ice cream, sour cream, heavy cream, etc.) to 225 mL of 0.1% peptone or microbiologically suitable dilution buffer to reach countable range (10 to 150 CFU/mL). • For milk powders and evaporated/condensed, reconstitute with water to normal milk solid content and let any undissolved solids settle. Test liquid fraction as Liquid Dairy.
Bakery	• Add 25 g of flour, or baked products to 225 mL of 0.1% peptone or microbiologically suitable dilution buffer, homogenize for 2 minutes, and let settle to extract sample. • Continue to dilute 10 mL of prior dilution in 90 mL of dilution blank to reach countable range (10 to 150 CFU/mL).
Fruit Juices	• Add 1 mL of juice directly. Raw citrus juice may require pH adjustment, clear or filtered juices and dilutions of citrus should not require a pH adjustment. • Continue to dilute 10 mL of prior dilution in 90 mL of 0.1% peptone or dilution buffer to reach countable range per plate (10 to 150 CFU/mL).
Environmental Swab	• Refer to **Peel Plate Sample Preparation Addendum**.

Peel Plate YM Test Procedure

Step 1

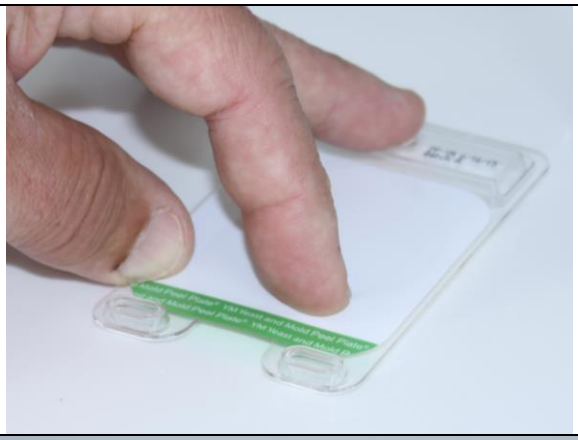
- Label plate on clear side using marker or bar code strip. Do not mark or label the uplifted 47 mm circular area.

Step 2

- Invert and apply pressure with fingers to the back platform as shown and lift tab.
- Pull the adhesive cover completely exposing the culture disc. Leave cover adhered to back of plate.

Step 3

- While holding cover up, and keeping plate flat on surface, **vertically dispense 1.0 mL of sample or sample dilution to the center of disc**. Expel within 2 to 3 seconds 1-2 cm above surface.



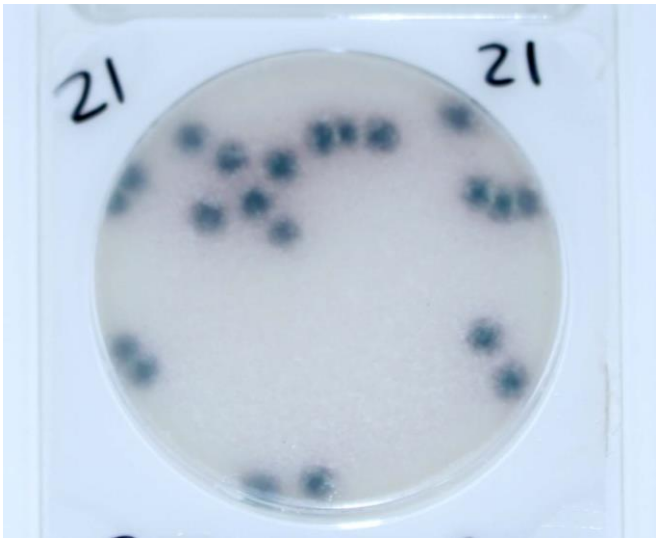
Step 4

- Sample will diffuse to the edges of the disc.
- Re-apply the adhesive cover without wrinkling. Press around edges of plate to ensure proper seal.

Step 5

- Incubate plates with clear side up, as shown.
  - Incubate at room temperature or at a controlled temperature, 25 ±3°C for 3 to 5 days.
  - Plates can stack by aligning the feet and rectangle platform. Stacking will not affect plate heat transfer.

Analysis of Peel Plate YM Results



- At the end of incubation period, observe plates for colonies through the clear side of the Peel Plate YM test. Each blue or blue/grey/green/ brown spot represents one CFU. The sum of spots is reported as the total yeast and mold CFU/mL of the diluted sample.
- Multiply CFU/mL by dilution to calculate CFU/(mL or g) of original sample.
- In case of spreading fungi, score one CFU for each defined spot. Blended or spreading colonies are scored as a single CFU.
- Counts of 10 to 150 CFU/plate are considered countable, while counts outside that range are considered estimates.

Optional Peel Plate Reader:

- Insert completed test into the Peel Plate test reader. Identify the plate as Peel Plate YM.
- Enter sample identity or verify that bar code identity has been populated.
- Press COUNT and CFU/plate yeast and mold will be displayed and recorded into memory with time/date. For more information refer to Peel Plate Reader instructions.

Interpretation of results

- Peel Plate YM tests have been evaluated in the claimed foods with 0.1% peptone diluent, but have not been evaluated with all possible food products, food processes, testing protocols or with all possible microorganism strains.

Quality Control

Quality control should be performed according to Good Laboratory Practices, and with the frequency determined by laboratory standard operating procedures. Common practices call for a Dilution Control, Negative Control, and Positive Control.

- **Dilution Control:** Test 1.0 mL of sterile dilution buffer to verify no detectable yeast or mold after incubation.
- **Negative Control:** Prepare Negative Control by autoclaving the appropriate dilution of test sample at 121°C for 15 minutes. Cool to 4 °C and test 1.0 mL. Verify no detectable yeast or mold in the Negative Control.
- **Positive Control:** Spike a sample with known yeast or mold culture or a combination. Dilute sample to countable range of 10 to 150 CFU/mL and test 1.0 mL to verify detection after incubation.

Disposal

Microbiological cultures and reagents should be collected into biohazard bags and autoclaved. Dispose according to local, state, and federal regulations.

Technical Support

For questions contact a local representative or Charm Sciences at +1.978.687.9200 or support@charm.com.

Order Information

Description	Quantity	Kit Code
Peel Plate YM Tests	100	PP-YM-100K
	1000	PP-YM-1000K

Peel Plate tests for *E. coli* and coliforms, aerobic bacteria, and heterotrophic bacteria are also available. Visit Charm Sciences' website at www.charm.com to learn more.

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