3M™ Petrifilm™ Plates

Guide to Dilution Preparation

Many foods require a dilution step before plating and the following is a guide to follow when preparing dilutions. Please refer to the 3M™ Petrifilm™ Plate Application Guide. Use with Dairy and Juice Products, for specific dilution recommendations.

Dilution	Sample size	Diluent
1:5	10.00 g or 22.50 g or 24.75 g	40 mL, 90 mL, 99 mL
1:10	1.00 g or 10.00 g or 11.00 g	9 mL, 90 mL, 99 mL
1:20	4.74 g or 5.21 g	90 mL, 99 mL

Diluent Volume Calculations:

Volume of Buffer Needed = (Weight of Sample x Dilution) – Weight of Sample

Example: You have 7.5 mL of sample and want to prepare 1:10 dilution.

(7.5 mL x 10) – 7.5 mL = 67.5 mL

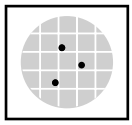
(Weight of Sample x Dilution) – Weight of Sample = Volume of Buffer Needed

Procedure for Determining Counts:

Use a multiplication factor to convert the plate count to the number of colony forming units (CFU) of bacteria per gram of sample. The multiplication factor is determined by dividing the dilution used by the volume plated.

Example 1: Single plate

1 mL plated of 1:10 dilution



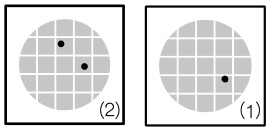
count = 3

$$\frac{10\ (1{:}10\ \text{dilution})}{1\ \text{mL plated}} = 10\ \text{(dilution factor)}$$

3 (count) x 10 (dilution factor) ÷ 1 (mL plated) = 30 (CFU/g reported)

Example 2: Multiple plates in order to achieve higher sensitivity

1 mL each plated of 1:10 dilution on two plates equals 2 mL total



total count = 3

$$\frac{10\ (1{:}10\ \text{dilution})}{2\ \text{mL plated}} = 5\ \text{(dilution factor)}$$

3 (count) x 10 (dilution factor) ÷ 2 (mL plated) = 15 (CFU/g reported)

Sensitivity of 3M™ Petrifilm™ Plates:

If no colonies appear on the plate, do not report the count as zero. Report in CFU/g as shown at right. Most 3M Petrifilm Plates require a 1 mL volume of sample. 3M™ Petrifilm™ High-Sensitivity Coliform Count Plate requires a 5 mL volume of sample.

Dilution	3M Petrifilm Plate	CFU/g
1 : 10	1 mL plate 5 mL plate	< 10.0 < 2.0
1 : 5	1 mL plate 5 mL plate	< 5.0 < 1.0
1 : 2	1 mL plate 5 mL plate	< 2.0 < 0.4
Undiluted	1 mL plate 5 mL plate	< 1.0 < 0.0

For greater sensitivity, a lower dilution and /or more plates may be used.

For detailed WARNING, CAUTIONS, DISCLAIMER OF WARRANTIES / LIMITED REMEDY, LIMITATION OF 3M LIABILITY, STORAGE AND DISPOSAL information, and INSTRUCTIONS FOR USE see product's instructions online at **3M.com/foodsafety/Petrifilm**

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