



Surface Microbes



About BioPaddles®



BioPaddles® are flexible dual-agar paddles that contain microbe-specific media that is enclosed in a sterile vial.

BioPaddles replace Petri dishes – no need for inoculating loops or Bunsen burners – only a magnifier and a warm place are needed.

surface

noun \sər-fəs\: the upper or outer layer of an object

microbe

noun \mī krōb\: a microorganism



**Microbes can
grow on almost
any surface**

**But they need moisture
and a source of food.**

Surface texture can be grouped into 4 categories:

POROUS

marked with pores, fissures, or cavities that allow liquids or solids to accumulate

TEXTURED

uneven and repetitive

ROUGH

marked with irregularities and projections

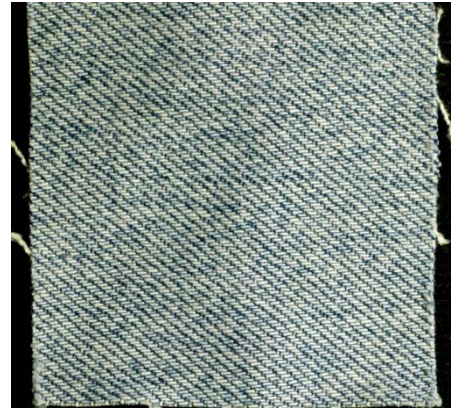
SMOOTH

free from irregularities, roughness, or projections

Surfaces ... up close!



Smooth



Textured



Rough



Porous

Biofilms

Microbes stick to each other and the surface and form a biofilm.

Biofilms are difficult to remove.



Clean is IMPORTANT!

Cleanliness is an
unnatural condition –
because all surfaces
are constantly being
contaminated



Surface Activity Using BioPaddles

Student Groups Set Up Activity

- Review background materials
- Set up lab notebooks
- State hypothesis
- Define the experiment

The surface texture with the most surface area should be the best microbe trap.



Using TSA/RB BioPaddles®



Using TSA/RB BioPaddles®

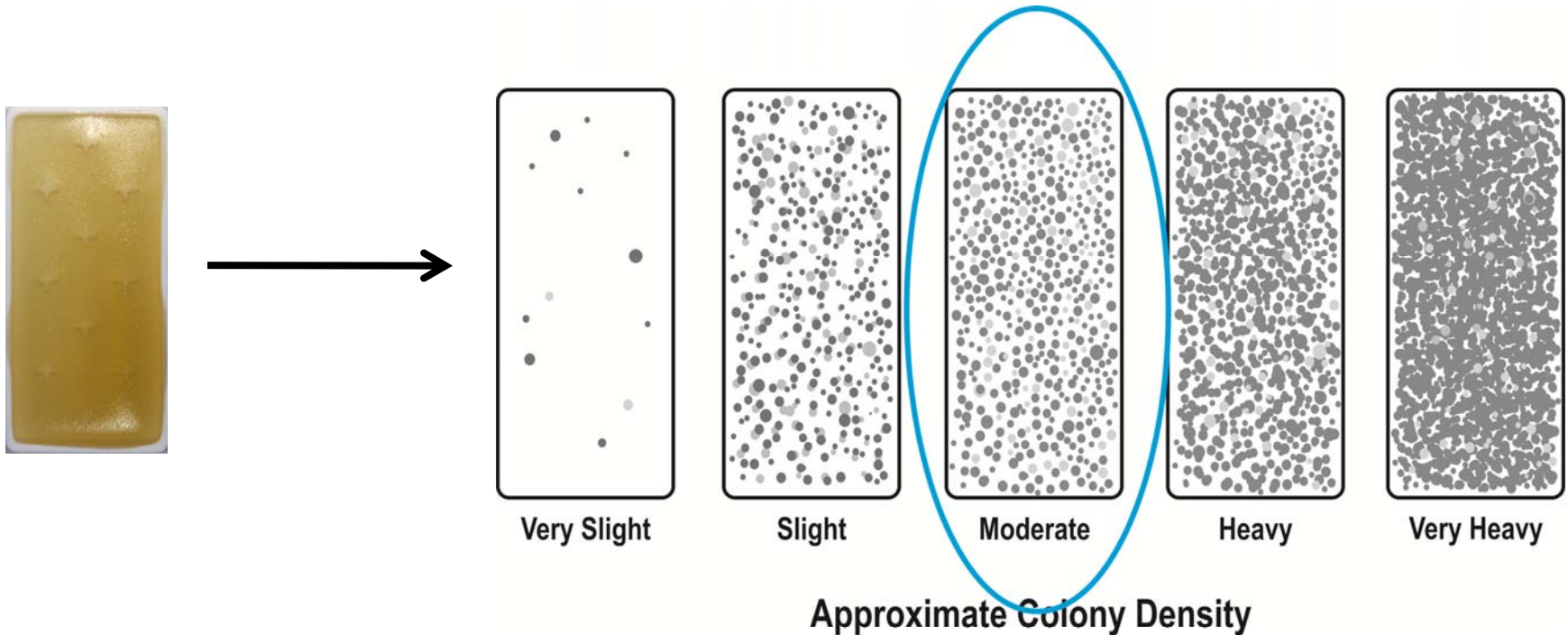
Taking a Contact Sample

1. Remove paddle from vial.
2. Gently make contact with surface for at least 15 seconds.
3. Replace paddle.
4. Incubate.



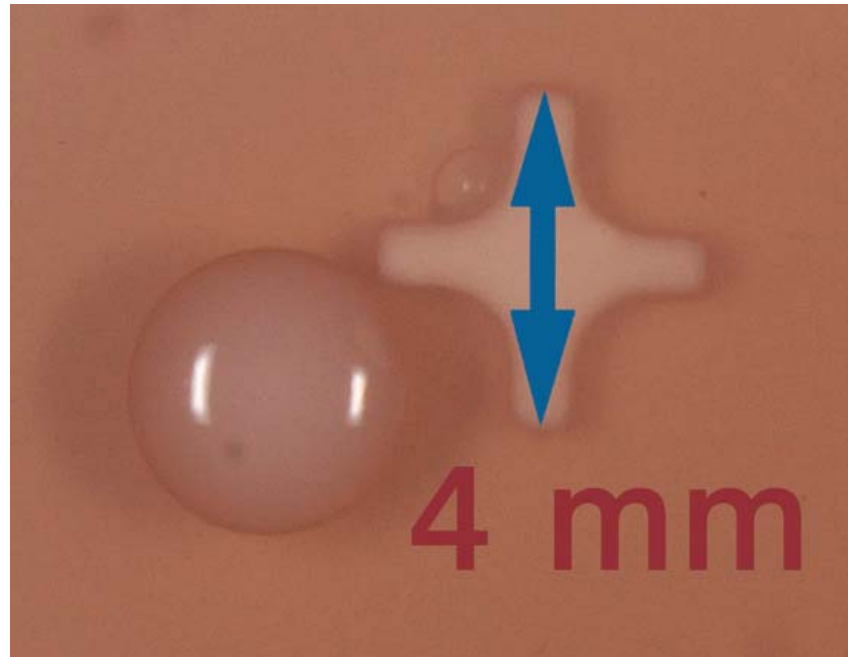
Counting Colonies

Using an Enumeration Panel



Estimating Colony Size

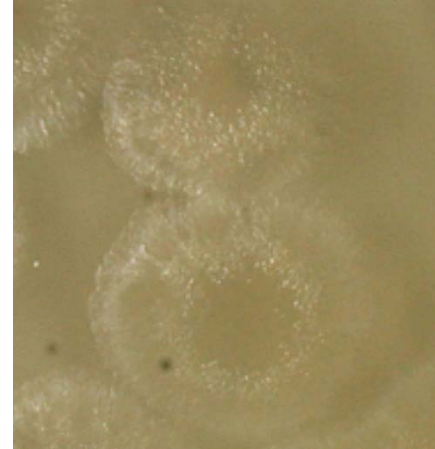
Each BioPaddle® has molded media attachment points that are 4mm in length (point-to-point). This feature provides a useful guide to estimating nearby colony size.



Cell Motility

Motile Cells

Colony borders have rough edges

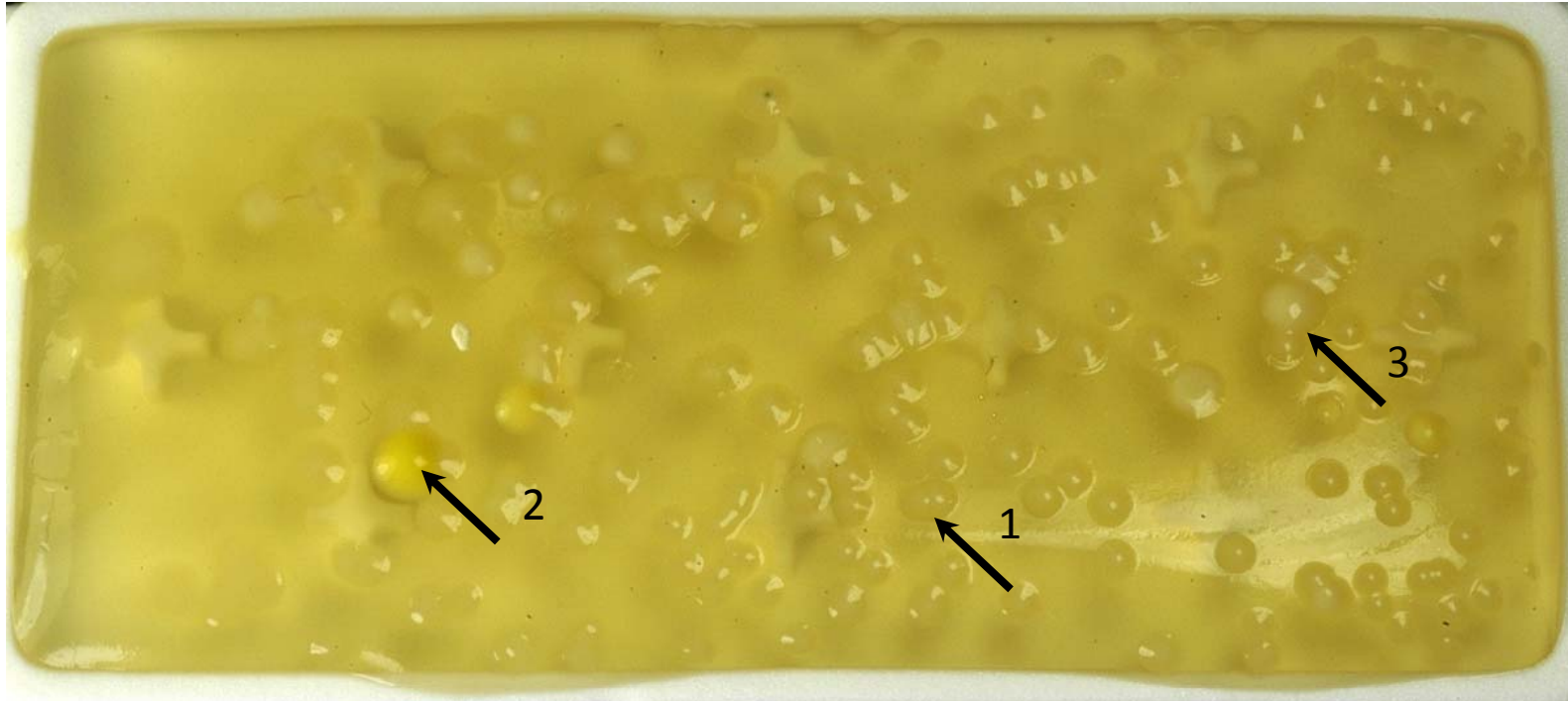


Non-Motile Cells

Colony borders have smooth edges



Surface Contact Example 1

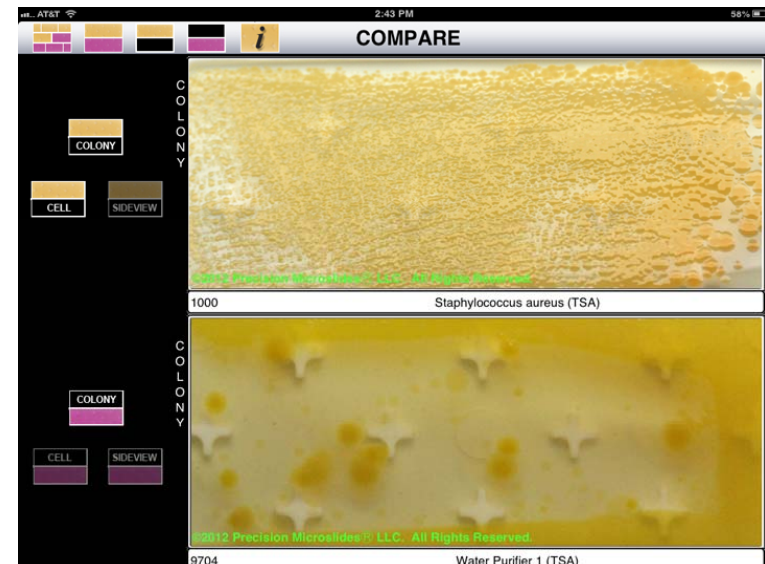
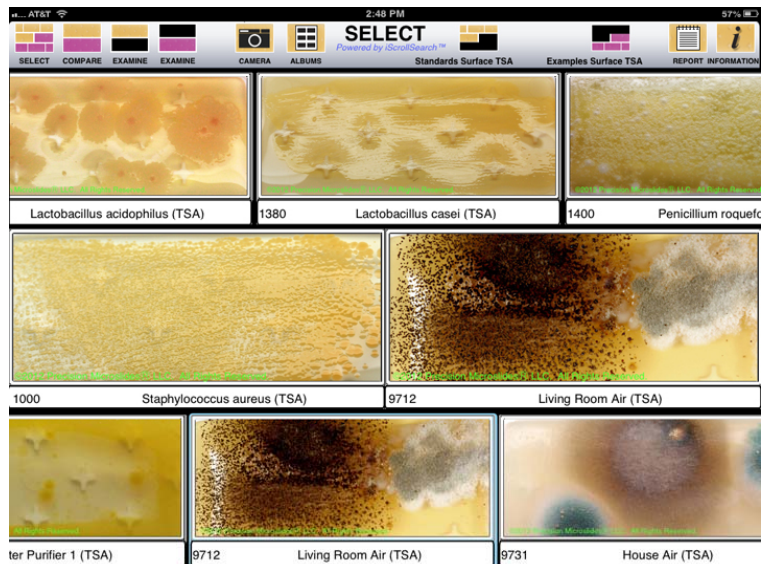


Damp Kitchen Sponge

1. *Pseudomonas* spp.
2. *Micrococcus* spp.
3. *Klebsiella* spp.

BioPaddles® Colony ID™ Lite App

- Presumptively identify microbe colonies
- Library of 80 standard images
- 5 microhabitats (AIR, WATER, SOIL, SURFACE, and FOOD)
- 9 paddle agar types
- Image series at colony and cell level.
- Resource materials

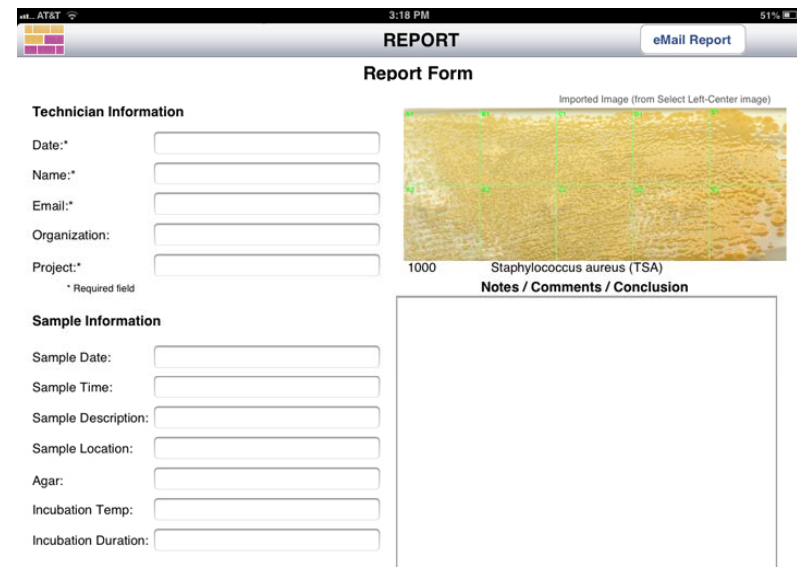


BioPaddles® Colony ID™ App

Includes all of the features of the
Lite App PLUS...



IMAGE CAPTURE

A screenshot of the BioPaddles app's report form. The top status bar shows "cell. AT&T 3G", "3:18 PM", and "51%". The app header is "REPORT" with an "eMail Report" button. The form is titled "Report Form" and contains two main sections: "Technician Information" and "Sample Information". The "Technician Information" section includes fields for Date, Name, Email, Organization, and Project, with a note that these are required fields. The "Sample Information" section includes fields for Sample Date, Sample Time, Sample Description, Sample Location, Agar, Incubation Temp, and Incubation Duration. To the right of the technician information fields is a small image of a petri dish with a grid overlay, labeled "Imported Image (from Select Left-Center image)". Below this image is the text "1000 Staphylococcus aureus (TSA)". At the bottom right is a large text area labeled "Notes / Comments / Conclusion".

EMAILABLE REPORT

Other Surface Microbe Activities

ACTIVITY 2: Identifying Surface Microbes

ACTIVITY 3: How Do Sanitizers Work on Surfaces?

ACTIVITY 4: Design a Sanitizing Protocol?

ACTIVITY 5: Antimicrobial Surfaces



Also Available:

Milk Microbe Hunter

NOT ALL MICROBES ARE BAD!!!

Is Pasteurized Milk Sterile?

What Do Milk, Cottage Cheese, and Yogurt Have in Common?

What are Probiotics?



Coming Soon!

Food Microbe Hunter

**Microbe Race
Engineering Activity**

When Do Foods Spoil?

**Does Pickling Prevent
Food Spoilage?**





Surface Microbe Hunter Code 5561

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Photography credits:

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