BioComplete™ Extract and Tea Course

Lecture 7 – Making BioComplete™ Extracts and Teas (Part 2)

BioComplete™ Tea Brewers

- There are a number of different tea brewer designs.
- Check the web for “Compost Tea Brewers”! Hundreds of different designs!
- But many of these “tea brewers” are NOT aerobic brewers.
- Hopefully you fully understand why it is really important to have aerobic conditions.
- Is there a reason to brew up pathogens and toxic chemicals?
- In a later section, we will talk about how toxic compounds produced during anaerobic brewing can kill pathogens like Fusarium, or mildews.

BioComplete™ Tea Brewers

BioComplete™ Tea Brewing involves:

1. Foods to grow any low or missing organisms.
2. Organisms extracted from BioComplete™ Compost.
3. Time for organisms to grow in ambient, aerobic conditions using the added foods.

Also need tank, air pump aeration system, a bag to hold the BioComplete™ Compost with openings to let biology through, but keep particulates in, a system to move BioComplete ™ Tea into the application unit – typically a sprayer – and a method to clean the brewer once the BioComplete™ Tea is finished.

BioComplete™ Tea Brewers

1. All tea brewers have several things in common:
   a. Aeration is required and usually supplied by air pumps, which must be adequate to move water in a vortex and extract organisms from the surfaces of the BioComplete™ Compost without being too high pressure.
   b. Extraction of organisms using air pumps to supply aeration (rolling boil on water's surface) by moving water in a vortex.
   c. Extraction of organisms from surfaces require 80 to 100 psi of moving water to overcome the glues and binding hyphae that hold them on those surfaces.
2. Avoid any situation where pressure will impact the organisms forcefully against a flat surface or corner.

Cleaning BioComplete™ Tea Brewers

- Buckets, tanks, and sprayers need to be cleaned inside and out.

- While the tank is draining, clean stuck on organic matter, or biofilm, off the tank using high pressure water (pressure washers, or thumb in the end of the hose).

- If either the outside or inside surfaces are slimy, let the tank dry and then blast with water again. If still oily, use hydrogen peroxide cleansers to wash surfaces, let dry again and rinse before use.

- Pay careful attention to drains, pipes, the inner surface of the lid of the brewer where it is hard to reach or clean.

BioComplete™ Tea Brewers

In the next series of slides we will review a number of different tea brewers, along with a discussion of what a biofilm is and how to deal with it.

Biofilms

- Since both bacteria and fungi make glues to stick themselves to surfaces of any kind, any clean surface can rapidly develop a layer of microbial life attached to it. If there are adequate foods and water present, these microbes will multiply, developing layer on layer of organisms that form a film. These growing organisms use oxygen such that oxygen concentration drops below aerobic levels rapidly, leaving a perfect habitat for diseases to flourish. Lids, corners, etc……

BioComplete™ Tea Brewers

Surfaces and Impact

- Bacteria, fungi, protozoa, and nematodes in solutions move with the water. Thus, the organisms have that velocity.

- When the water moving those organisms impact a solid surface, water will turn and continue to move, but the organisms in the water will impact that surface. The pressure of impact can cause the organisms to spread across the surface, thus killing the organisms.

- Consider a someone being shot from a cannon at the county fair. The pressure of being shot out is not a problem, but impact on a solid surface 10 ft away causes instant death.

greaterearthorganics.com

GEOTEA Brewer

These brewers come in all sizes and shapes. Browse the internet to see different versions.

Lids, biofilms and organisms impacts. Bags and compaction. Air into the bag. Pump/hose above the level of the water.


SOILFOODWEB
SCHOOL


Biologic
Vital Tea Brewer
Plant Loving Organics

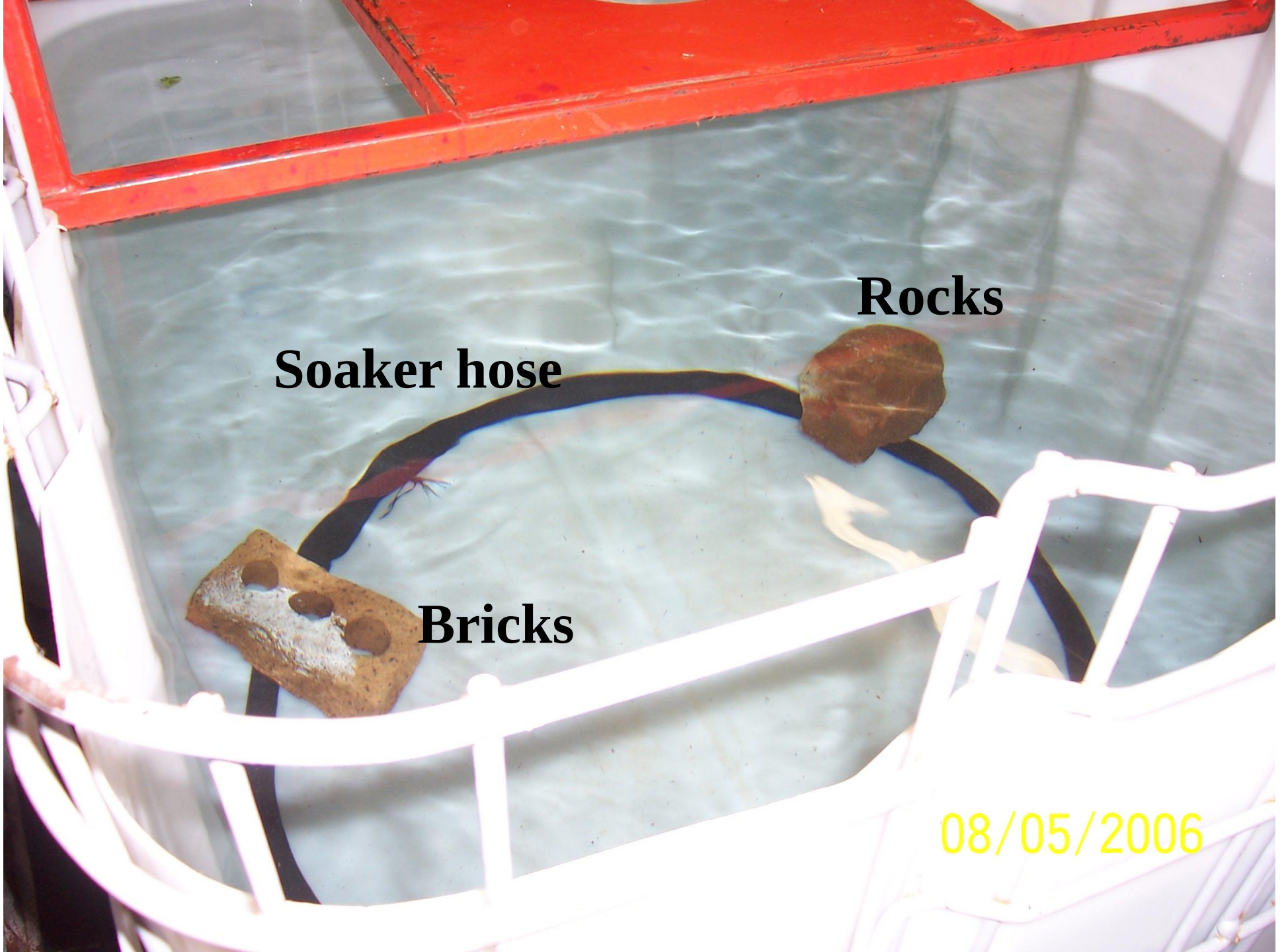
Jolly Farmer, Canada

Tea machines in Mallanganee, NSW


Mookesti,
South Africa
08/02/2006


Fruit Growers,
Ceres, South Africa
2006 12 4

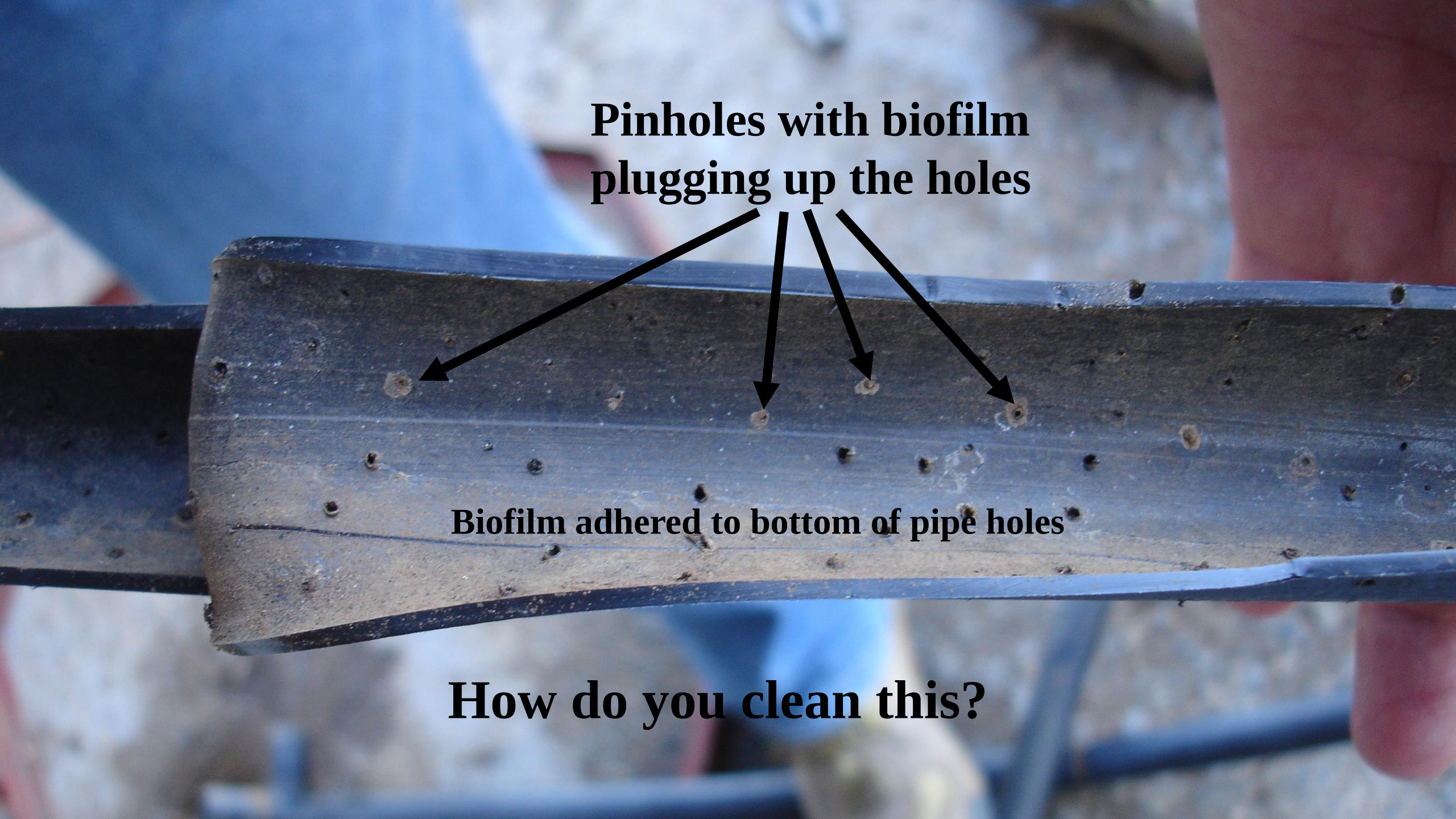

2006 12 6


Rocks
Soaker hose
Bricks
08/05/2006

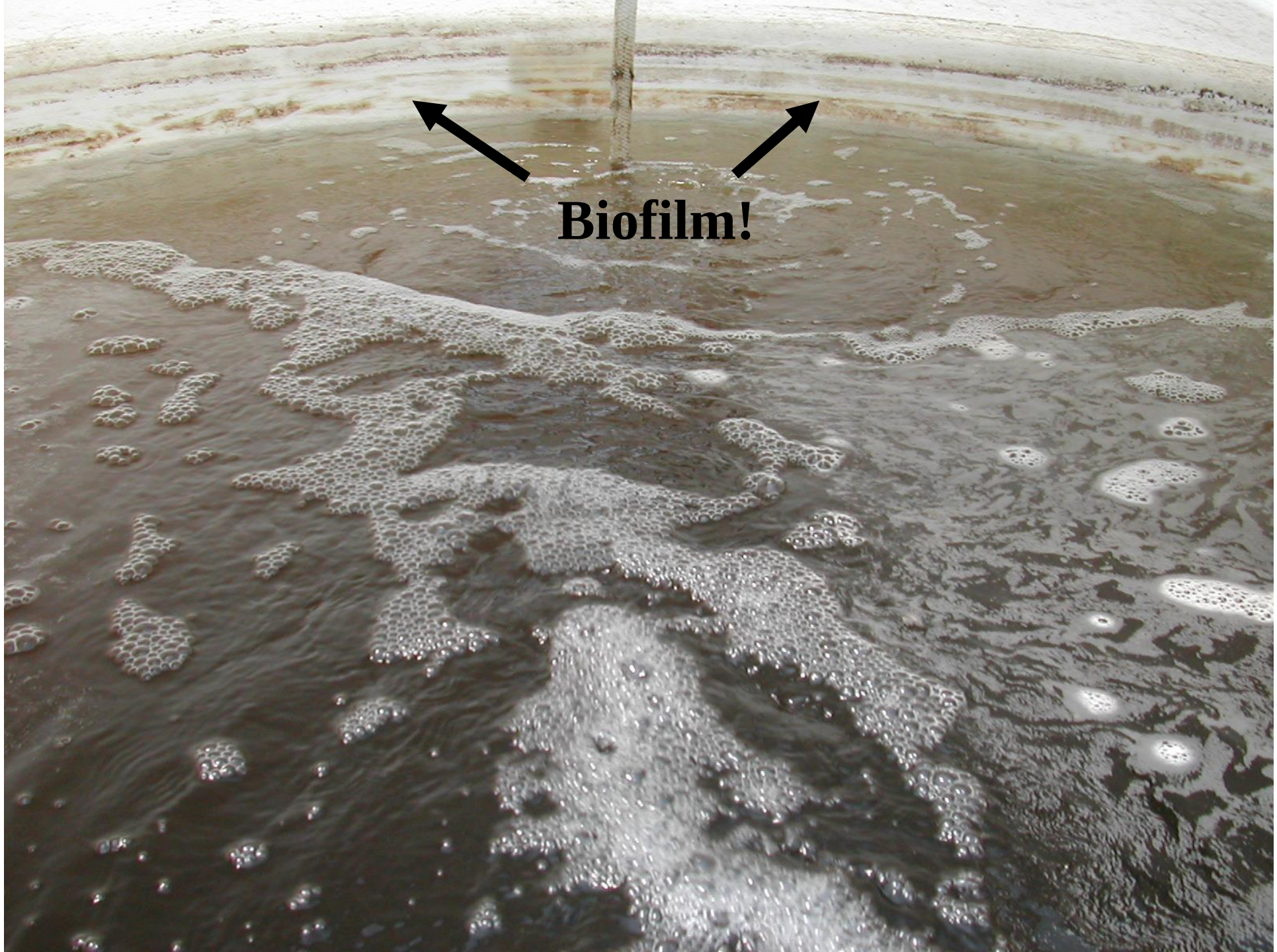

Corroded
metal bars
Plastic
tubing
with
pinholes
2006 11 29


Drain opening
Biofilm must be cleaned!
Will a good tea be possible?
2006 11 29


2006 11 29



How do you clean this?


Biofilm!