

22th INTERNATIONAL SPECIALIZED COURSE
OPERATION AND CONTROL OF ACTIVATED SLUDGE
PROCESSES USING MICROBIOLOGICAL ANALYSIS
Perugia - Italy

FILAMENTOUS MICROORGANISMS IN ACTIVATED SLUDGE

Sphaerotilus natans & Type 1701

UNDER PHASE CONTRAST OBSERVATION				
		<i>Sphaerotilus natans</i>	Type 1701	
OBSERVATION AT 1000X	Sulfur Granules	<i>In situ</i>	-	
		<i>S Test</i>	-	
	Other Cell Inclusions		PHA	PHA
	Filament Diameter		1.4 - 1.6 μm	0.8 - 1.0 μm
	Filament Length		100 - 500 μm	20 - 80 μm
	Filament Shape		Straight	Straight, Bent
	Filament Location		Extends from floc surface	Mostly within the floc, Extends from floc surface
	Cell Septa clearly observed		+	+
	Indentations at Cell Septa		+	+
	Sheath		+	+
Attached Growth		-	++	
Cell Shape and Size		Sausage-shaped 1.6 x 2.5 μm	Sausage-shaped 1.0 x 1.5 μm	
Notes:		False branching	Cell septa sometimes hard to see	
UNDER DIRECT ILLUMINATION				
Gram Stain		-	-	
Neisser Stain	<i>Filament</i>	-	-	
	<i>Granules</i>	-	-	

Phylogenetic
affiliation:

S. natans: *Betaproteobacteria*

Type 1701: unknown

Causes:

- Low DO
- High/moderate F/M
(low/moderate sludge
age)

Remedies:

- Raise DO
- Lower F/M
- Install anoxic/anaerobic
selector
- Cl_2



False branching



Sausage shape