

## 22<sup>th</sup> INTERNATIONAL SPECIALIZED COURSE OPERATION AND CONTROL OF ACTIVATED SLUDGE PROCESSES USING MICROBIOLOGICAL ANALYSIS Perugia - Italy

### FILAMENTOUS MICROORGANISMS IN ACTIVATED SLUDGE

#### Types 0041 & 0675

		UNDER PHASE CONTRAST OBSERVATION	
		Type 0041	Type 0675
OBSERVATION AT 1000X	Sulfur Granules	<i>In situ</i>	-
		<i>S Test</i>	-
	Other Cell Inclusions	-	-
	Filament Diameter	1.8 - 2.0 $\mu\text{m}$	1.0 $\mu\text{m}$
	Filament Length	100 - 500 $\mu\text{m}$	50 - 150 $\mu\text{m}$
	Filament Shape	Straight, Smoothly curved	Straight, Smoothly curved
	Filament Location	Mostly within the floc, Extends from floc surface	Mostly within the floc
	Cell Septa clearly observed	+	+
	Indentations at Cell Septa	-	-
	Sheath	+	+
	Attached Growth	++, -	++, -
	Cell Shape and Size	Squares 1.8 - 2.0 x 2.0-3.0 $\mu\text{m}$	Squares 1.0 x 1.0 $\mu\text{m}$
	Notes:	Neisser positive reaction occurs	Neisser positive reaction occurs
			UNDER DIRECT ILLUMINATION
Gram Stain		+, Variable	+, Variable
Neisser Stain	<i>Filament</i>	-	-
	<i>Granules</i>	-, +	-, +

Phylogenetic  
affiliation:

Type 0041: *Chloroflexi*  
Type 0675: unknown

#### Causes:

- Low F/M
- Mixed basins
- Pulp and paper wastewater

#### Remedies:

- Raise F/M
- $\text{Cl}_2$

