

Thiothrix-4

Resembles: Type IF-4 (Gram positive) and Type IF-15 (shorter cells and Gram positive)

Probes: class specific probe Gam42a [10]; group-specific probes G123T [7] and TNI [16]

Frequency occurrence (200 samples; 175 WTPs):

- observed with a FI ≥ 1 in 8 samples
- observed with a FI ≥ 3 in 2 samples



Characteristics

- long, bent filaments, protruding from the flocs as well as free in the water phase;
- occasionally rosettes;
- tapering of the filaments not observed;
- filament length variable;
- not motile;
- cell diameter ca. 1.5 – 2.0 μm ;
- sheath present;
- without attached growth;
- septa clearly visible;
- rectangular cells;
- sometimes already *in vivo* sulphur granules; sulphur granules are slowly formed with the S-test;
- Gram negative;
- Neisser negative, but occasionally some poly-P-granules in the filaments.

Occurrence in activated sludge

Thiothrix-4 was observed in WTPs treating wastewater from pulp & paper, potato and chemical industries. Thus, it is not possible to correlate this morphotype with a specific industrial branch. However, it is very likely that growth of *Thiothrix-4* will mainly occur in plants treating wastewater rich in reduced sulphur compounds.

See *Thiothrix-1* lemma for remarks, physiology, control strategies and references.

Slide show images

- 1-2: occasionally formation of rosettes; low magnification

- 3: dark field image of a rosette
- 4-8: sulphur granules absent → cell shape clearly visible
- 9-12: cells with sulphur granules; low magnification
- 13-18: cells with sulphur granules; high magnification
- 19: occasionally an holdfast present
- 20: FISH image with probe TNI