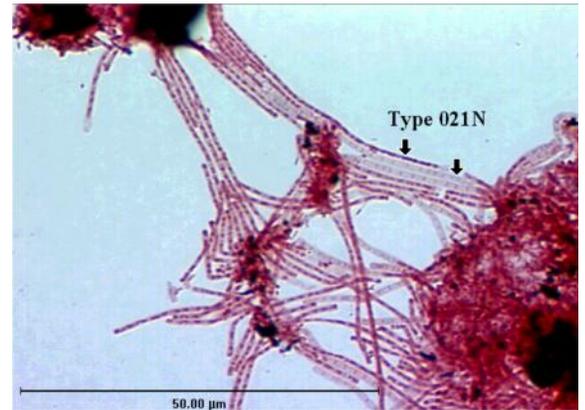


Type 021N - Identification:

Relatively large, non-motile filaments (100->1000 μm). Straight or smoothly curved, sometimes coiled filaments with no branching. Characteristic looping seen. Filaments taper from a thick basal region, and often exhibit a holdfast to a thinner apical region, terminating in a loosely attached gonidia (a distinctive rod-shaped cell at the trichome end). Rosettes are observed infrequently. Rosettes are when many filaments radiate outward from a common origin. The cell septa are very clear with indentations. Cells are very irregular, large and usually

square but can vary from disc, ovoid, rod or barrel shaped, sometimes even in the same filament (1.0-2.0 μm). Filaments are found within the floc structure and the bulk solution when in rapid growth stage. The filament staining is usually Gram negative and Neisser negative with Neisser positive granules. Can be Gram positive when sulfur granules are present. Usually easy to identify due to its irregular shaped cells. There is no sheath, although a heavy cell wall will remain after cell lysis with chlorination. There may be intracellular sulfur granules and often responds to S-tests. Poly-β-hydroxybutric acid (PHB) granules are frequently observed as dark intracellular granules. No attached growth.



Similar Organisms:

At least five other organisms can be mistaken for this filament because of its variable cell shape, *Thiothrix* or Type 0041 especially.

Environment:

This filament is usually found in environments where there is septic wastes, or wastes with sulfides or organic wastes, N deficient wastes and low F/M when the waste is composed of simple sugars or organic acids. Grows readily in food processing, wet corn milling, brewing and malting, fish processing petrochemicals and pulp and paper mills.

Control:

If the S test is positive, the cause is septic wastes or presence of sulfides and can be remedied by pre-aeration or pre-chlorination. Nitrogen deficient wastes can be checked by effluent values of residual NH₃ and should be supplemented. F/M can be changed by use of a selector. Chlorination should be definitely used if in the rapid growth phase.

Rank:

Type 021N ranks 3rd in number of predominance. (SVI values can exceed 500 mg/l) Rapid growth of this filament can cause severe settling problems in only a few days. **This is just a sample there is much more.**

