**Filtration and dewatering in wastewater treatment**

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**Abstract**

Wastewater contains organic materials, nitrogen and phosphorus that usually are removed biologically after which solid materials is separated from the liquid in a clarifier or by a membrane. A bi-product from biological treatment is excess sludge which has to be dewatered by using e.g. belt filters or sludge mineralization beds. Sludge is difficult to filter and the filtration rate does not increase with pressure due to high cake compressible. However, large variation is observed for different wastewater treatment plants. The best dewaterability is observed for sludge that contains large strong compact flocs without single cells and dissolved extracellular polymeric substances. Calcium ions improve flocs strength and dewaterability whereas sodium ions (e.g. from road salt, seawater intrusion and industries) reduce dewaterability because flocs disintegrates at high conductivity. Storage lowers dewaterability especially storage under anaerobic condition. High shear destroy the flocs and reduce dewaterabilility. Thus, pumping and mixing should be gently and in pipes without sharp bends.

*Keywords: Resistance; Salts; Sludge; Storage; Pumping.*