

SURPLUS ACTIVATED SLUDGE DISINTEGRATION FOR ADDITIONAL NUTRIENTS REMOVAL

JAN SUSCHKA, ALICJA MACHNICKA, KLAUDIUSZ GRÚBEL

University of Bielsko-Biała

ul. Willowa 2, 43-300 Bielsko-Biała, Poland

Activated sludge systems designed for enhanced nutrients removal are based on the principle of altering anaerobic and aerobic conditions for growth of microorganisms with a high capacity of phosphorous accumulation. To avoid return of large parts of accumulated phosphorous in the processes of sludge conditioning chemical precipitation is often applied. This can be not be the case, at least for a part, if prior to other processes of sludge handling, the sludge will be disintegrated. It was demonstrated that disintegration of surplus activated sludge permits removal of a substantial part of nutrients in the form of struvite. The effects of sludge disintegration on metals ions release and poly-P destruction were elucidated. Appropriated handling of disintegrated sludge allows for removal of at least 25% of the inflowing phosphorous load without addition of chemicals.