

### Enzyme pretreatment systems to reduce sludge

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Annual sludge production amounts to 1,500,000 tonnes and increases 15% amount of the present sludge 2005. The importance of sludge reduction is to economize sludge treatment cost ( 40-60% cost to treatment wastewater )

Pretreatment processes have been developed in order to improve sludge treatment and disposal. Disintegration of sludge solids in the aqueous phase changes the sludge structure and solubilizes the organic matter.

Enzyme addition is employed to solubilize the organic matter under various conditions.

Advantage of enzyme is four : 1)It can react with substrate and promote degradation in small quantities 2)Enzyme itself remains unchanged and can be reused 3)Use of enzyme promotes degradation without changing the inherent properties of reactant/product,so there is no problems due to secondary pollution 4)Low cost compared to chemical/physical processing

The enzyme pretreatment increases the SCOD of primary sludge and cells digests the pretreatment sludge with enzyme. The amount of sludge is reduced by decreasing this SCOD value and organic matters change inorganic matters.

The objective of this study is to investigate the effects of enzyme in reducing the sludge.