

4.12 Wastewater as a Source of Energy, Nutrients, and Service Water

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4.12.1 Introduction

With continuously improving analytical techniques, it becomes more and more obvious that municipal wastewater represents a multisubstance mixture containing probably several hundreds of different substances.

Normally, human excrements play a major role. Urine and feces contain nonexploited residuals of ingested food and

their degradation products. Fats, proteins, carbohydrates, and other carbon compounds; ammonia, urea, and other organic nitrogen compounds; organically bound phosphorus and dissolved ortho-phosphate; organic sulfur compounds; and potassium are the main components. Their amounts can be estimated and balanced per person. In addition, metals/heavy metals such as iron, copper, and zinc are essential trace elements in human nutrition. They are taken up with food,