



# Particle settling velocity distribution based wastewater characterisation: Generalisation of a single protocol



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## Objective

Little data of settling velocity distribution for wastewater samples are available in literature. This work aims at showing results of various analyses performed using the ViCAs protocol (1).

## Proposition

This poster presents the ViCAs protocol and results obtained for 3 different waters from various process units:

- 1) WwTP influent and effluent (primary settler)
- 2) Combined sewage (CSO retention tank)
- 3) Runoff (stormwater tank)

## ViCAs protocol

The ViCAs protocol requires a small volume sample (4.5 L). It is then easy to start up.

### Principle

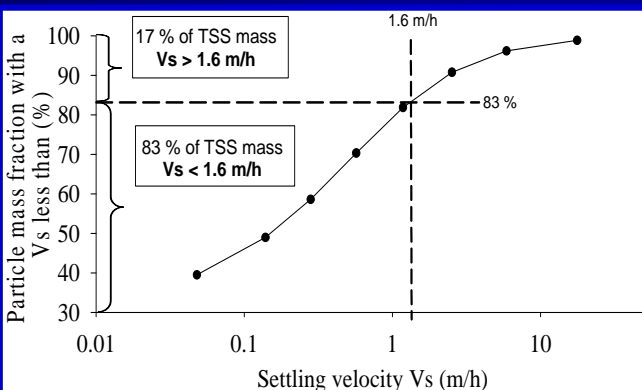
The column is filled using a pump. Water is kept in the column by creating a vacuum.

During the experiment, particles are collected at the bottom of a 70 cm column thanks to cups slid below the column.

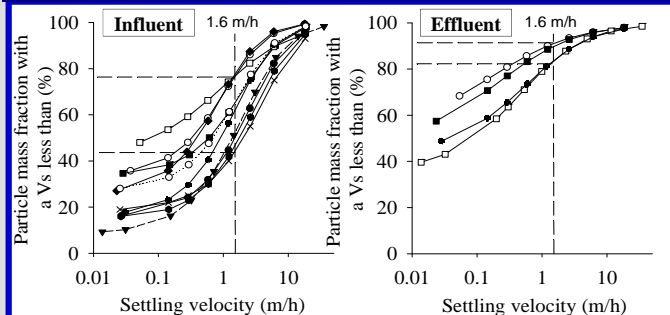
A simple numerical treatment gives settling velocities of TSS fractions by fitting a model to the cumulative settled mass data.



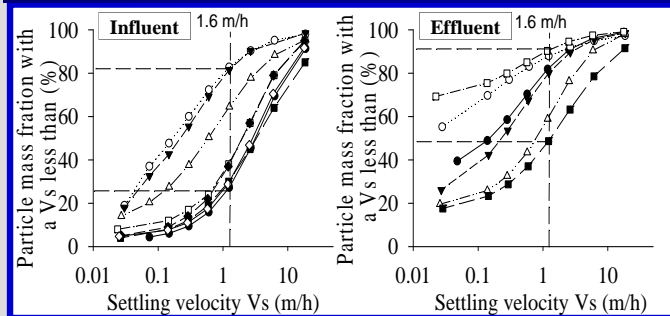
## What's a settling velocity distribution curve ?



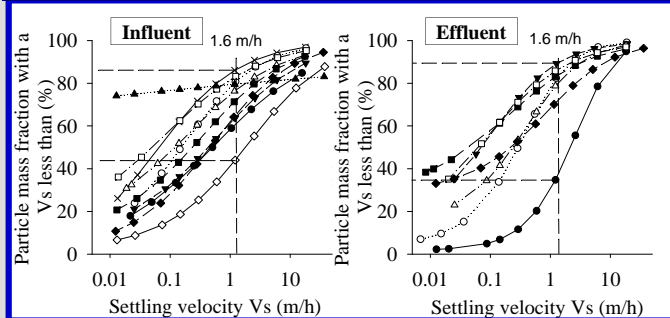
## Primary settler



## CSO retention tank



## Stormwater tank



## TAKE HOME MESSAGE

- A huge Vs distribution range exists for the same process unit. ViCAs tests confirm this.
- Results observed for the primary settler validate the consistency of such a ViCAs data. Most particles at the influent settle faster than those found in the effluent.

(1) Chebbo, G. and Gromaire, M.-C. (2009) ViCAs-An operating protocol to measure the distributions of suspended solid settling velocities within urban drainage samples. *J. Environ. Eng.*, 135(9), 768-775.