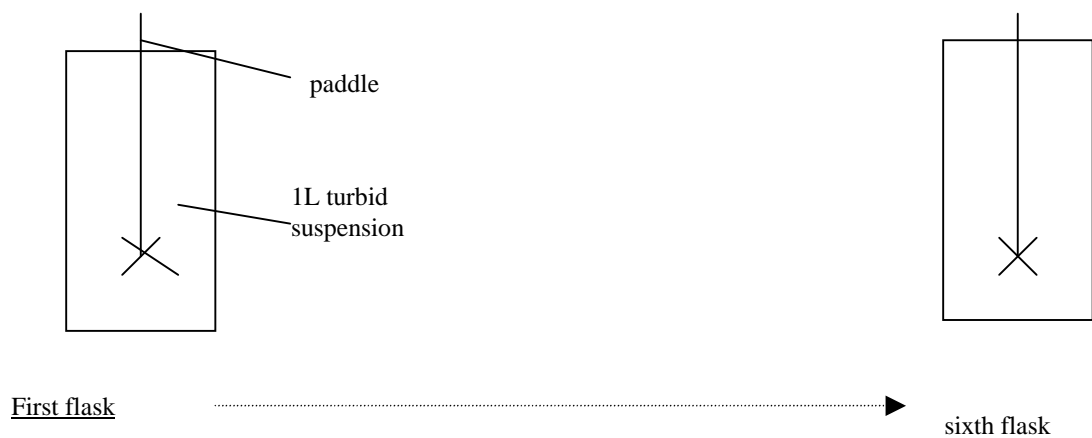| C9-Jar Test |
|---|

1. Principle

This test allows to know the optimal coagulant concentration to clarify a turbid water.
Different coagulants and flocculants can be tested.

2. Procedure

Measure turbidity raw water (and other parameters : permanganate demand…)

Fill 6 flasks with one litre turbid water : pay attention to the suspension heterogeneity.

First flask ···► sixth flask

Add different coagulant, or flocculant volumes (0.5 min to 20 mL max), in the same time, in the six flasks :

[coagulant] $_1$ ···► [coagulant] $_6$

2 min at 180 rpm

15 min at 45 rpm

Lift up the paddles

Settling during 30 min

Measure :
- treated water turbidity (sample at the centre, 2 cm bellow the surface)
- residual metal concentration (depends on the coagulant : Fe^{3+} , Al^{3+} ,…)
- residual permanganate demand…

<u>Determine the optimal coagulant - flocculant dosage</u>, according to the aim of the water treatment

<u>3. Report</u>

    <u>3.1. Indicate raw water analysis</u>

   <u>3.2 . Draw a board :</u>
- coagulant (or flocculant) volumes (mL)
- coagulant (or flocculant) concentration (treatment rate) : mg / L
- treated water analysis

   <u>3.3. Determine and justify the optimal coagulant (or flocculant) dosage.</u>

<u>4. Material and reagents requirement (12 students)</u>

7L raw water :
turbidity (with bentonite) =
permanganate demand (with resorcinol : 6 mg $_{resorcinol}$ / L and PD = 10 mgO$_2$ / L)
...

Jar test, 6 flasks
25 mL graduated pipettes
Coagulant : for example :
1 L   FeCl$_3$ 10 g / L
1L   Al$_2$ (SO$_4$)$_3$, 18 H$_2$O   20 g / L
Flocculant : 500 mL   0.5 g / L   pay attention to its viscosity
Turbidimeter + standards

PD material
Metal residual dosage....