



Flocculant optimized by charge titration with StabinoZeta

Recycling the water of a magenta pigment suspension was initiated with a 7 mL/L FeCl_3 solution. The flocculation immediately starts. However, it saturates and never reaches 100% where the pigment interface potential is expected to be zero (Fig.1).

To complete the flocculation by bringing the potential to zero, cationic polymer solution is added after a given dose of FeCl_3 . The cost of this process depends on the optimum switching moment from FeCl_3 to the polymer. The Volume

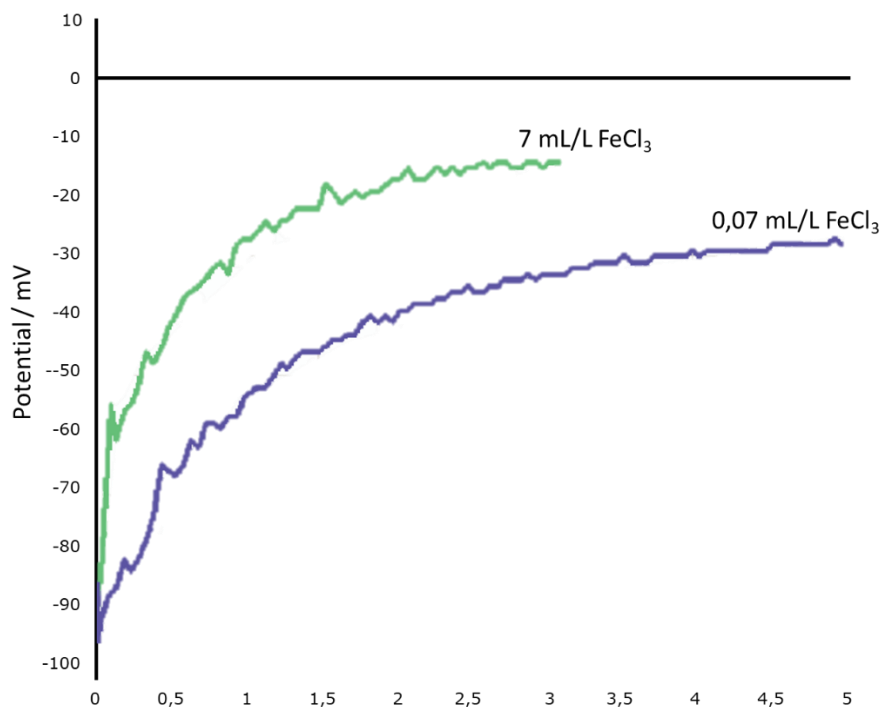


Figure 1

In Fig. 2, where the polymer titrations at different levels of pre-treatment are shown, "100%" corresponds to the 7mL/L FeCl₃, which was used in the process. Due to the high conductivity of > 50 mS/cm at 100%, a high sensitivity piston was used for titration. The starting potential decreases from 5% FeCl₃ concentration to 80%. This is mainly due to the increasing salt conductivity. The decrease of the consumption is mainly related to the decrease of number of particles after reaction with FeCl₃.

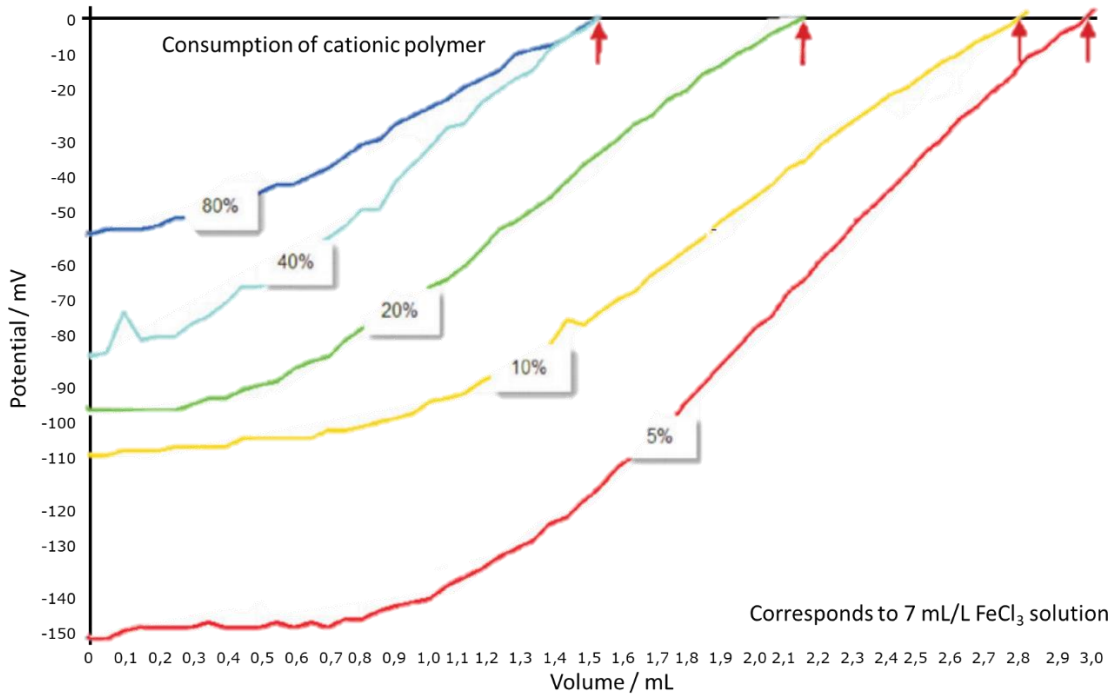
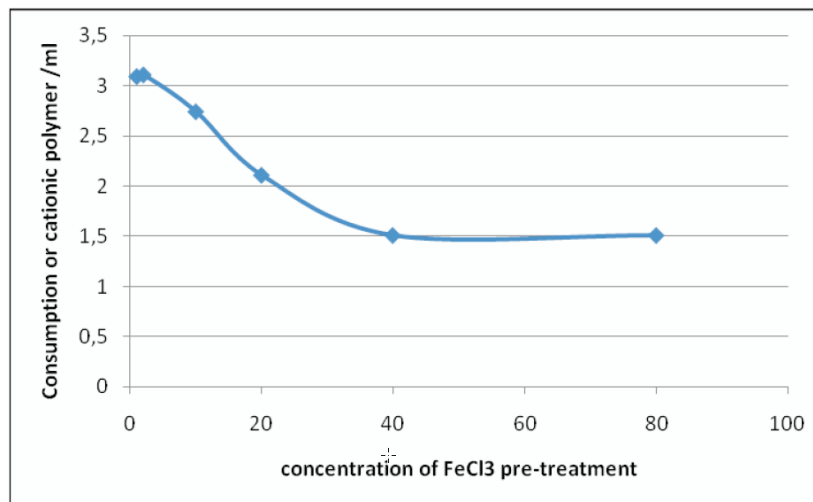


Figure 2

Conclusion

By plotting the polymer consumption versus the concentration of FeCl₃ (Fig. 3), the conclusion is obvious:



It is not effective to do a FeCl₃ pre-treatment at higher than 30 - 40% concentration. 2/3rd of the FeCl₃ could have been saved. In view of the cost saving, the little investment into 5 - 15 minutes per titration is worthwhile.