

PRELIMINARY TEST RESULTS

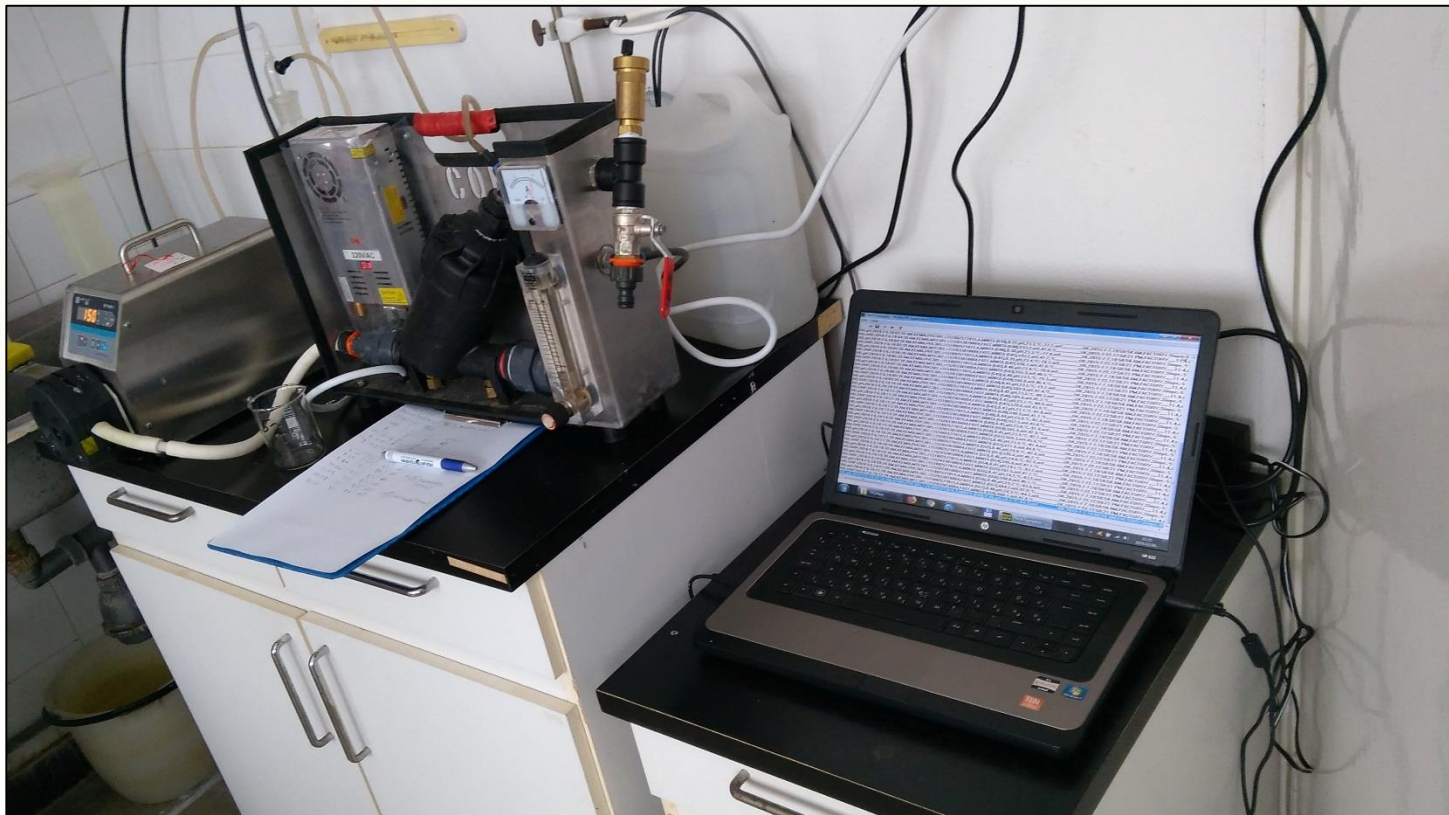
SMARTCHLOR PROJECT - LAB WORK IN BAJA



PROJECT
FINANCED FROM
THE NRDI FUND
MOMENTUM OF INNOVATION

Ongoing experiments:

- I. Chlorine production capacity of C.Q.M. electrochlorinator
- II. Chlorine decay rates in varied circumstances

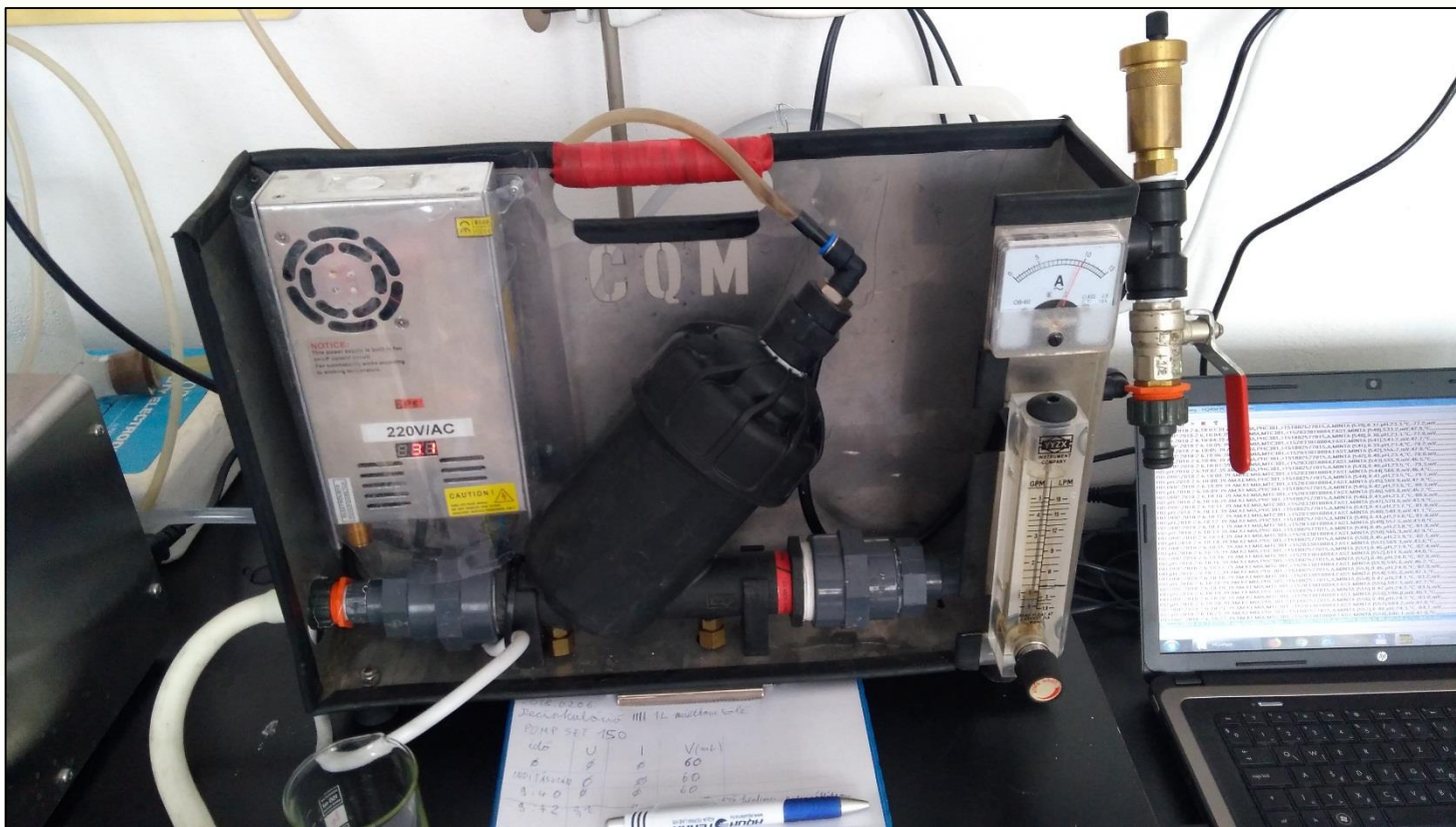


I. Chlorine production capacity

- Varied parameters
 - Flowrate (retention time)
 - NaCl concentration (in desalinated water)
 - Voltage (3-6-9 electric current)
 - With/without recirculation
- Measured parameters
 - Active Cl_2 concentration – DPD-test and iodometry
 - pH, T, ORP, conductivity, Cl^- , gas volume

I. Chlorine production capacity

Gas collection in measuring cylinder

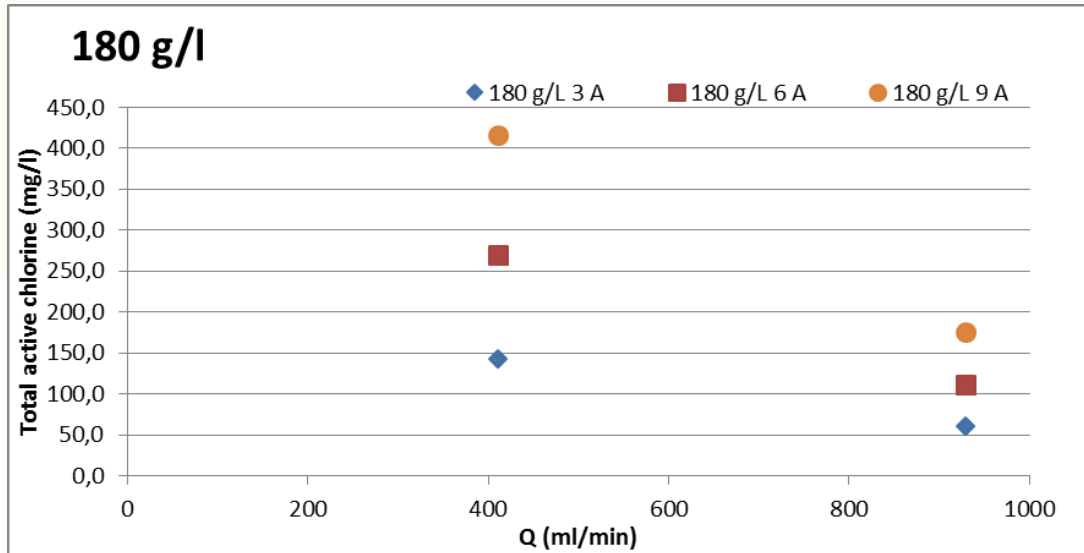
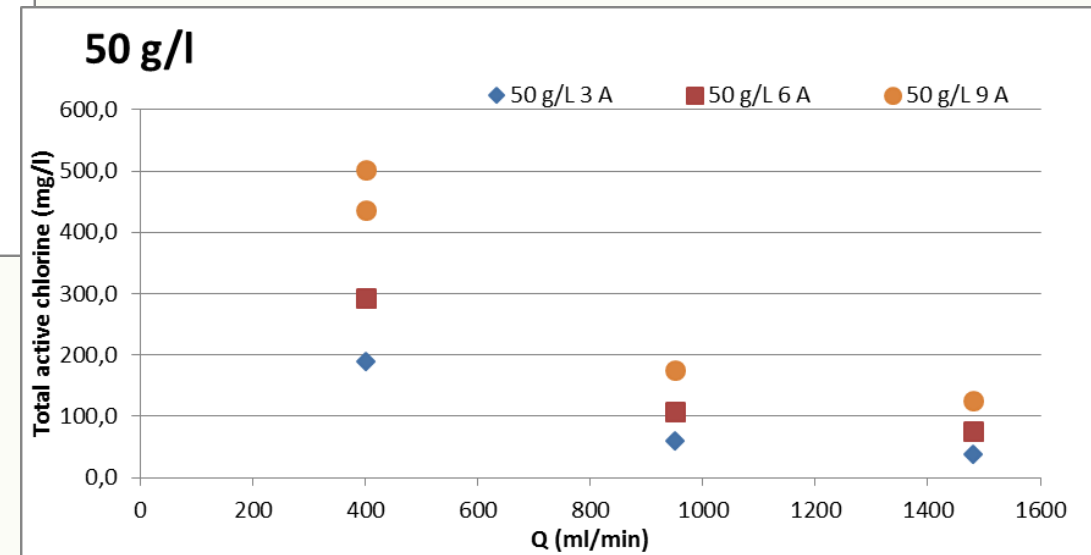
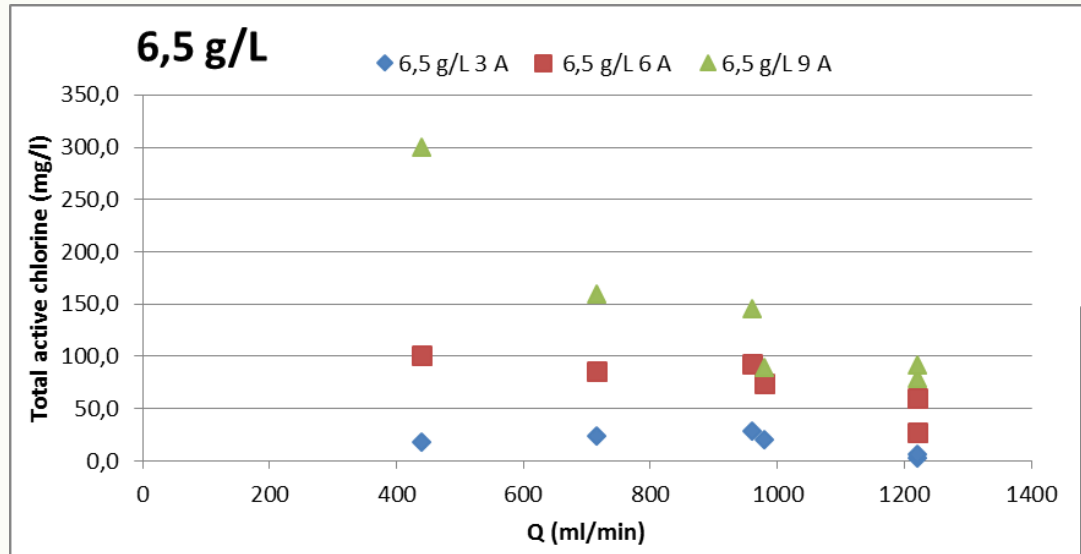


I. Chlorine production capacity

- Results:
 - The flow rate and the measurable chlorine concentration are inversely proportional,
 - No extra chlorine production above 10-20 g/l Cl^- (higher salt concentration in the solution does not results proportionally higher chlorine concentration)
 - Instrument volume approx. 800 ml
 - Flowrate $\rightarrow$ retention time: 400 – 1600 ml/min $\rightarrow$ 0,5 – 2 min

I. Chlorine production capacity

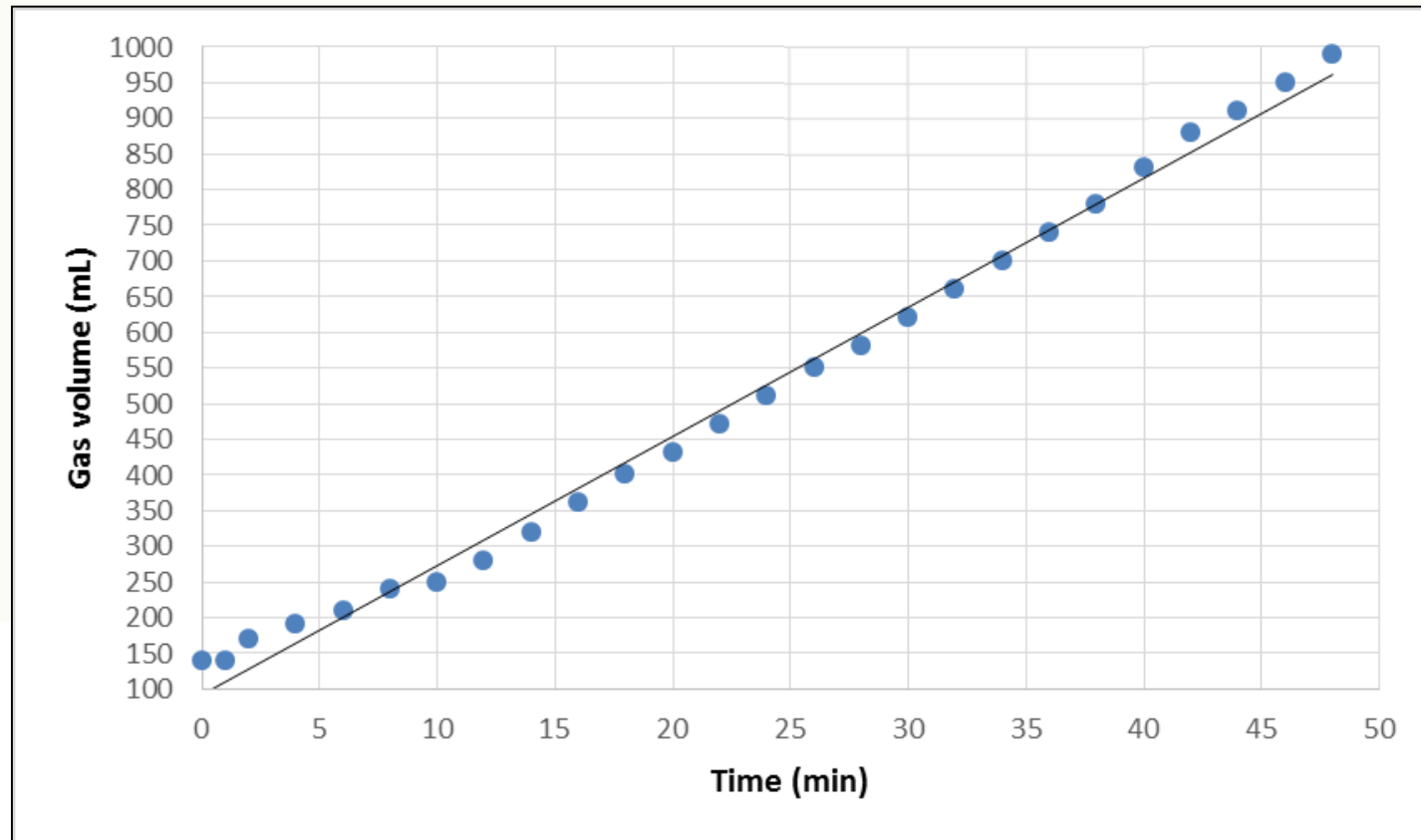
- Results:



I. Chlorine production capacity

- Results:

- Gas production approx. 20 – 50 ml/min (3 V, 3,5 A, 1,5 l/min)



I. Chlorine production capacity

- Contamination from electrodes (grey material) – cleaning?



II. Chlorine decay rates

- First 2x16 sample measured after 0, 1, 24, 96 h)
- Problem: DPD photometric test (Lovibond, up to 6 mgCl₂/L) is not enough accurate.
- New reagent was purchased, after recalibration we'll continue experiments.



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III. Next steps

- Planned experiments
 - Chlorine decay rates in varied circumstances
 - Measurement with low chloride concentration (1 – 1000 mg/L)
 - Detailed analysis of produced gas.



Thank you for your attention!



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