



ProtLab GPL®

## Introduction:

We received water probes for analysing the concentration of [HCB](#). The original of the water is [a river from south of Austria](#).

The European Water Quality Objective concentration for HCB is right now  $0.01\mu\text{g l}^{-1}$ . In test series we were able to show, that effects on survival, growth or reproduction were observed at concentrations of HCB up to saturation ( $5.0\mu\text{g/L}$ ) or at tissue HCB concentrations of up to  $223\mu\text{g/g}$ .

Tissue HCB concentrations increased with increasing water concentrations, and tissue bioconcentration values were generally similar.

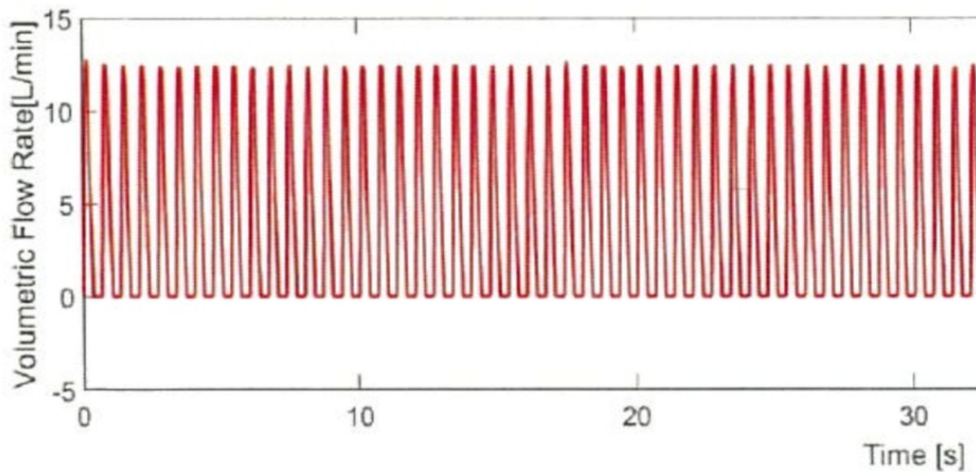
Rapid uptake and change of tissue HCB concentration with change in water concentration occurred, with rapid depuration when the animals were no longer exposed to HCB in the water column, and tissue HCB concentrations were correlated closely with HCB water concentrations.

## Results:

Measurement parameters				
Probe Nr	Frequency [bpm]	T <sub>ON</sub> [ms]	T <sub>OFF</sub> [ms]	Applied Pressure [kPa]
01	60	333	667	65
02	60	500	500	65
03	90	222	444	65
04	90	333	333	65
05	120	166	334	65
06	120	250	250	65
07	120	330	170	65
08	60	333	667	120
09	60	500	500	120
10	90	222	444	120



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In 3 of 5 probes we could measure a significant difference to the original probes, and we describes the elimination kinetics of HCB from these 3 probes in the second (slow rate) compartment in *Chlorella vulgaris*, and the bioavailability of the HCB bound to algae on *Daphnia magna*. First-order elimination kinetics was observed.

The elimination rate constant and the half life were  $0.43 \text{ day}^{-1}$  and 1.6 days, respectively.

The algal growth curve showed a growth rate constant of  $0.27 \text{ day}^{-1}$  and a duplication time of 2.56 days. Comparisons among these values indicate that the dilution effect associated with algal growth accounts for more than 60% of the observed reduction.

*Daphnia magna* fed for 6 days with contaminated *Chlorella*,  $4.4 \mu\text{g HCB kg}^{-1}$  dry weight, accumulated  $1.7 \mu\text{g HCB kg}^{-1}$  dry weight.