Electronic Supplementary Material (ESI) for Analytical Methods


# Electronic supplementary information

# Automated solid-phase spectrophotometric system for optosensing of bromate in drinking waters

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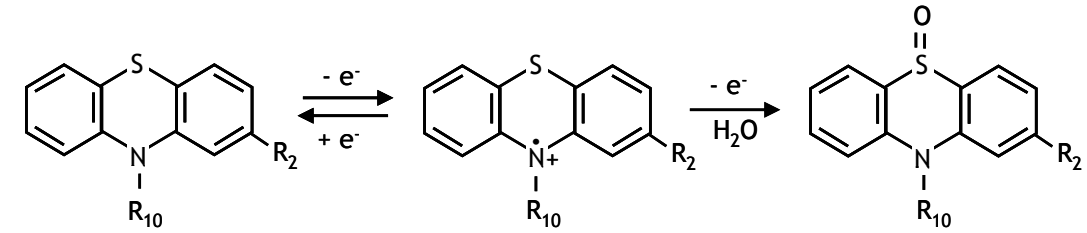
**Table S1** Protocol sequence for the determination of bromate in drinking waters using solid phase spectrophotometry.

| Step | Description | Position of the commutation valves[a] | | | | | | | | Time | Volume[b] | Flow rate[b] / |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $V_1$ | $V_2$ | $V_3$ | $V_4$ | $V_5$ | $V_6$ | $V_7$ | $V_8$ | / s | / µL | mL $min^{-1}$ |
| 1 | The sorbent is conditioned | F | N | N | F | F | F | F | F | 60 | 2000 | 2 |
| 2 | Chlorpromazine and sample are aspirated into the injection loop | N | F | F | F | N | N | *[c] | F | 48 | 8000 | 10 |
| 3 | Reaction product is formed and directed towards pre-concentration and detection | F | N | N | F | F | F | F | F | 240 | 8000 | 2 |
| 4 | Syringes are refilled | F | F | F | F | F | F | F | F | 9 | 3000 | 20 |
| 5 | Reaction product is eluted and the optosensor is regenerated | F | F | F | N | F | F | F | N | 60 | 3000 | 3 |
| 6 | Syringes are refilled | F | F | F | F | F | F | F | F | 6 | 2000 | 20 |

[a] N and F represent positions “on” and “off”, respectively.

[b] The indicated volumes and flow rates correspond to syringe 1 (10 mL).

[c] This valve switches between positions “on” and “off” at 1 Hz.




Colorless phenothiazine Colored cation radical Colorless sulfoxide

$R_2$: – Cl $R_{10}$: – $(CH_2)_3N(CH_3)_2$

**Fig. S1** Schematic representation of the oxidative process of chlorpromazine, originating a colored cation radical.

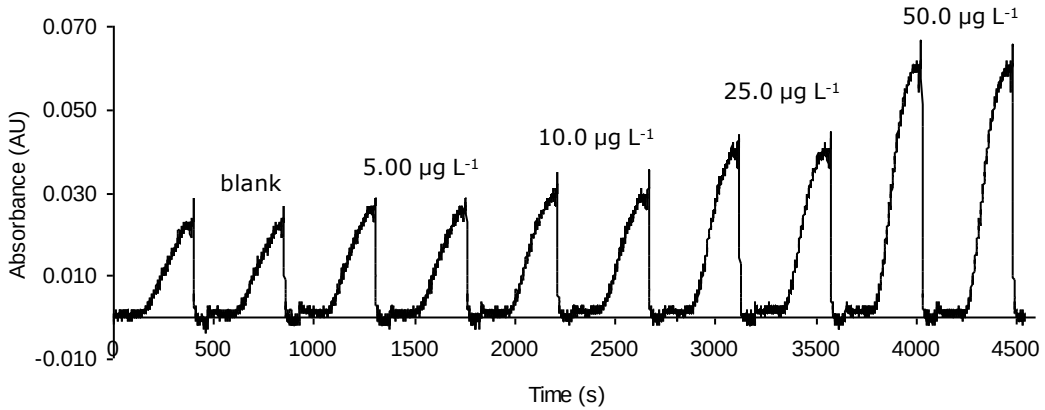



**Fig. S2** Analytical signals recorded for a calibration curve using bromated standard solutions between 5.0 and 50.0 µg $L^{-1}$.