TECHNICAL GUIDE

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Electrochemical properties TMB X-tnd®

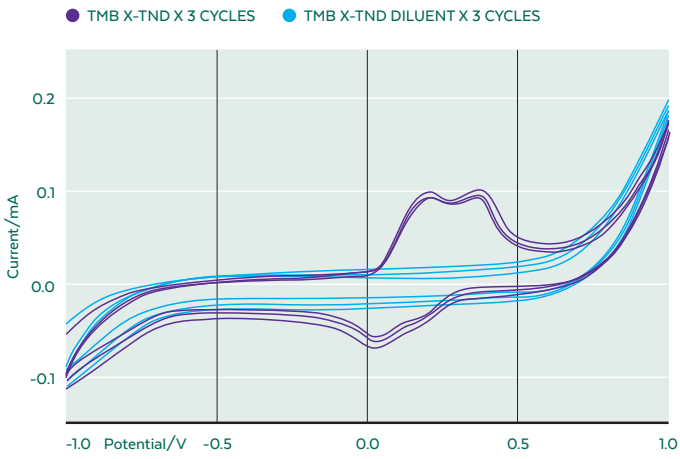
ELECTROCHEMICAL REAGENTS

HRP Substrate
Cat. No. 5280 (TMB X-tnd)

Kementec TMBs perform very well in several electrochemical settings and the various TMBs offer unique characteristics. Furthermore, a diluent, that is sufficient as an electrolyte without any negative effect on the stability of the product, is available to adjust the signal.

Description of voltammogram

Oxidation peaks observed at 0.210 V and 0.370 V. Reduction peaks observed at 0.030 V and 0.210 V. Oxidation peak heights of approximately 81 µA and 68 µA. Reduction peak heights of approximately 39 µA and 17 µA. Minor peak at 0.350 V from diluent after repeated cycles with the same sensor. This is evaluated to not interfere with the signal of the compound if single-measurements are used. The sensor used for the testing is a carbon working electrode, DRP-110, Metrohm.



Signal identification parameters

The following parameters can be used to reproduce compound peaks observed with cyclic voltammetry:

Equilibrium time: 3 s
Initial potential: -1.0 V
Potential vertex1: -1.0 V
Potential vertex2: 1.0 V
Potential step: 0.01 V
Scan rate: 0.2 V/s

Sufficiency of electrolyte

The TMB product and diluent are sufficient as electrolyte

TMB pH: 3.70 - 4.10

Reversibility on sensor

The compound is potentially reversible. Symmetry in peaks is likely to be obtained with further optimization of sensor material and parameters. No compound absorbance is observed.

Use of other sensors

The TMB profile on other sensors, including gold sensors will most likely have a similar outcome.

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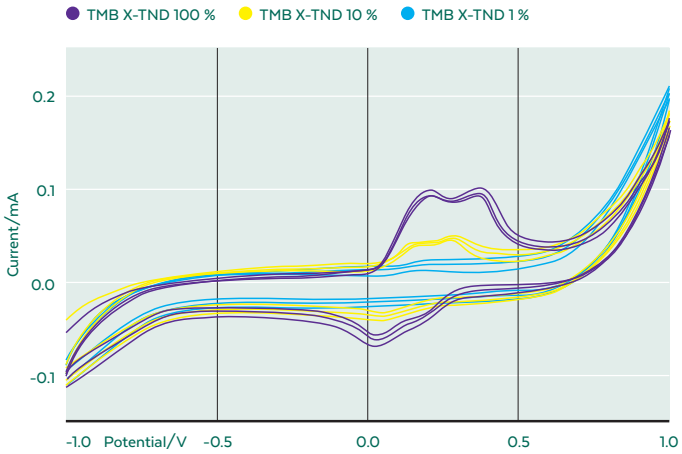

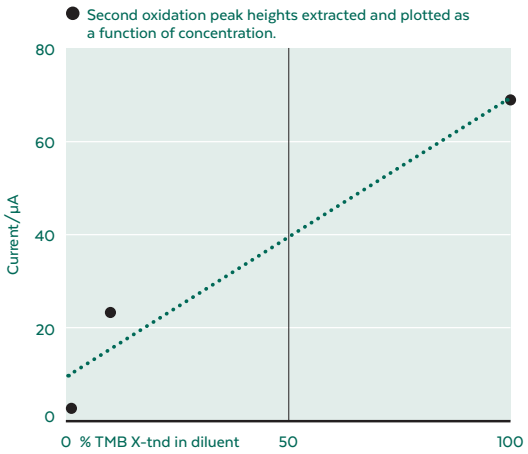

Peak height response to concentration dependency

Increasing height of the second oxidation peak with increasing concentrations of TMB X-tnd is seen. The tested dilutions are 1 %, 10 %, and 100 % of TMB X-tnd diluted with TMB X-tnd diluent. As the fit is not linear, further optimization with regard to linear response is needed.

Lot-to-lot variation

No notable lot-to-lot variation in the electrochemical signals will likely be observed.

ENVIRONMENTAL ECO-TEK® CONSIDERATION

Our immunoassay solutions are eco-friendly, creating a healthy work environment and preserving natural resources, while helping our customers fulfill significant regulatory requirements.

We call it ECO-TEK.

The data shared in this guide is based on certain conditions determined by Kementec. We recommend customers to do their own studies in order to optimize the TMB using their own settings.

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Kementec Solutions A/S | Kuldyssen 10 | DK-2630 Taastrup | Denmark | VAT: DK 25 80 67 35 | Tel: +45 39 27 17 71 | Fax: +45 39 20 01 78 | support@kementec.com | www.kementec.com