

# Electrochemical properties

## TMB ONE

## ELECTROCHEMICAL REAGENTS

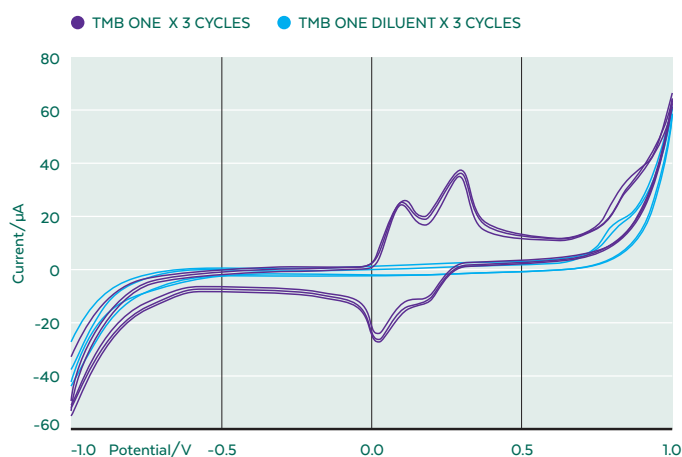
**HRP Substrate**

Cat. No. 4380 (TMB ONE) and 4470 (TMB ONE Diluent).

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 0.10 V and 0.290 V. Reduction peaks observed at 0.040 V and 0.190 V. Oxidation peak heights of approximately 22  $\mu\text{A}$  and 29  $\mu\text{A}$ . Reduction peaks of approximately 20  $\mu\text{A}$  and 9  $\mu\text{A}$ . Secondary non-reversible  $\text{H}_2\text{O}$  oxidation observed at 0.820 V. Minor peak at 0.33 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.

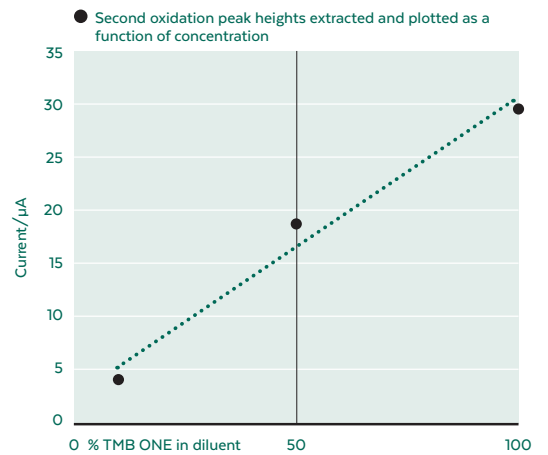
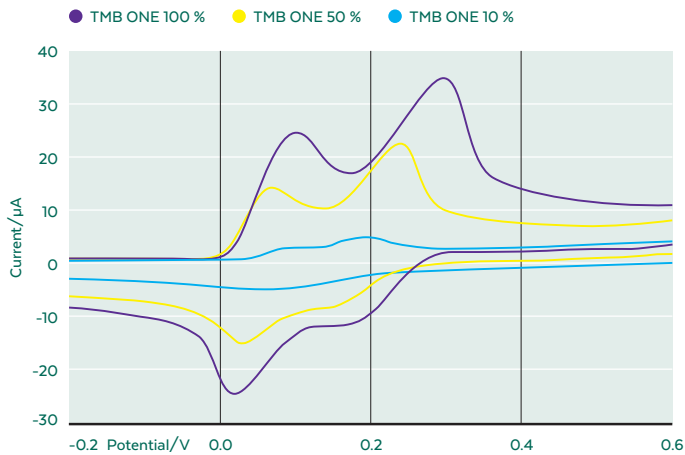
**TMB pH:** 3.80 - 4.20

**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.

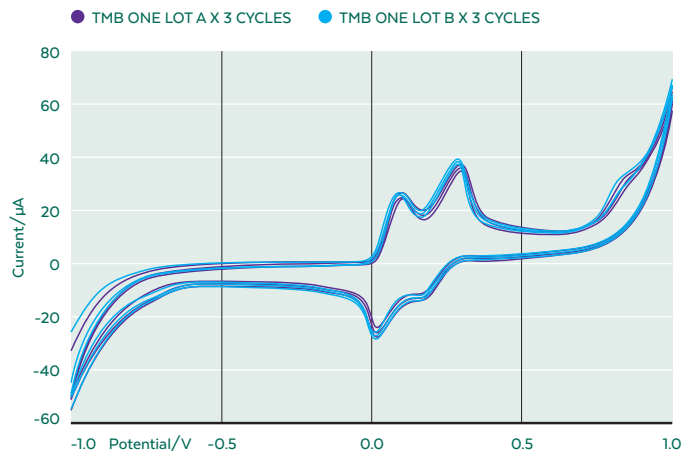


### Peak height response to concentration dependency

Increasing height of the second oxidation peak with increasing concentrations of TMB ONE is seen. A linear response is observed when tested with dilutions of 10 %, 50 %, and 100 % of TMB ONE diluted with TMB ONE diluent.

### Lot-to-lot variation

No notable lot-to-lot variation in the electrochemical signal is observed.



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.