

## Supporting Information

### Handheld Methanol Detector for Beverage Analysis: Interlaboratory Validation

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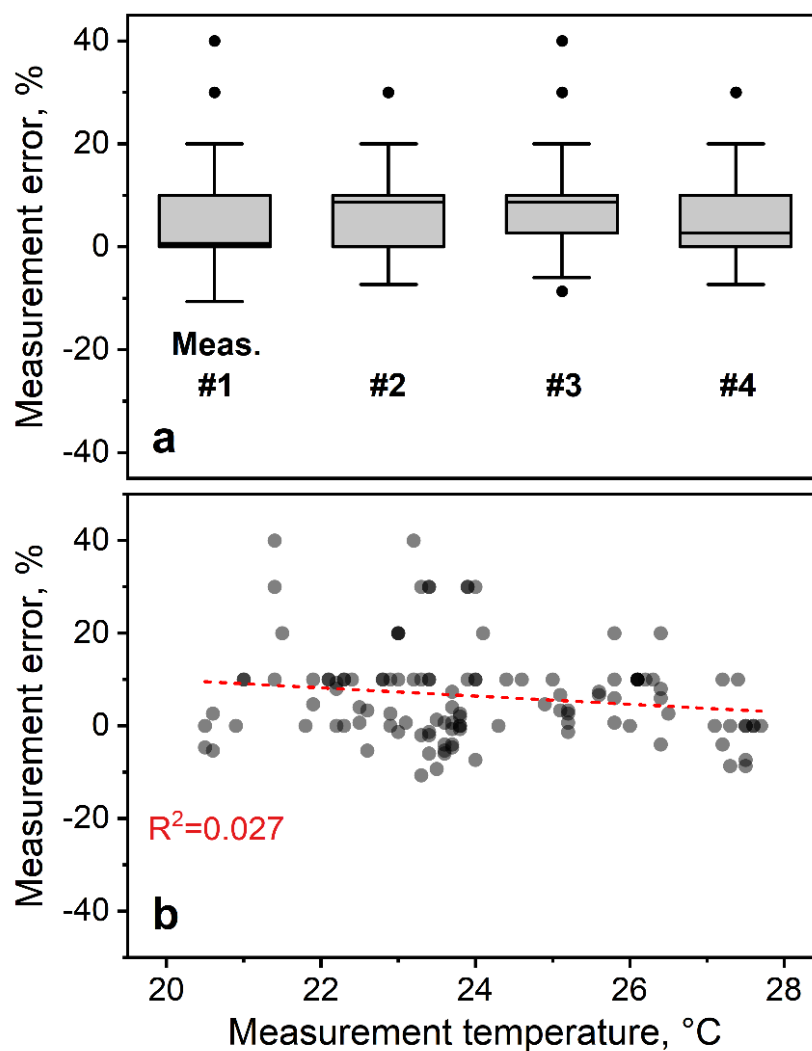
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**Fig. S1** Measurement error of the detector for all samples categorized (a) by the replicate number and (b) as a function of temperature. Boxes in (a) represent median, 25 and 75% quartiles. Whiskers indicate 1.5-times interquartile distance. In (b), also the linear fit (dashed red line) through all measurements and its corresponding  $R^2$  are shown.

**Table S1** List of all participants in the interlaboratory trial.

<b>Institution</b>	<b>Type</b>	<b>Country</b>	<b>Participants</b>
E. Rémy Martin & Co	Distiller	France	1
Etter Soehne AG	Distiller	Switzerland	1
General Chemical State Laboratory (GCSL)	Authority	Greece	2
ETH Zürich, Human-centered Sensing Laboratory	University	Switzerland	2
University of Cyprus, Department of Chemistry	University	Cyprus	1
Destillerie Freihof GmbH	Distiller	Austria	1
S. Fassbind AG	Distiller	Switzerland	1
Federal College and Research Institute for Viticulture and Pomology Klosterneuburg	Competence center	Austria	1
Bayerisches Landesamt für Gesundheit und Lebensmittelsicherheit (LGL)	Authority	Germany	1
TU Wien, Research Group Biochemistry, Institute of Chemical, Environmental and Bioscience Engineering	University	Austria	1
Scotch Whisky Research Institute	Competence center	Scotland	2
Agroscope, Swiss Confederation's center of excellence for agricultural research	Competence center	Switzerland	2
Z'GRAGGEN Destillerie AG	Distiller	Switzerland	1

**Table S2** Results of individual repeat measurement of the 1.5/40 sample level as measured by the detector, as well as their mean and standard deviation.

Participant	Repeat Measurement				Mean, vol%	Standard deviation, vol%
	#1	#2	#3	#4		
1	1.51	1.48	1.54	1.55	1.52	0.032
2	1.62	1.64	1.56	1.47	1.57	0.076
3	1.50	1.43	1.42	1.54	1.47	0.057
4*	1.36	1.51	1.60	1.72	1.55	0.152
5	1.51	1.56	1.61	1.53	1.55	0.043
6	1.49	1.44	1.43	1.39	1.44	0.041
7	1.55	1.57	1.65	1.60	1.59	0.043
8	1.49	1.51	1.54	1.52	1.52	0.021
9*	1.49	1.58	1.71	1.76	1.64	0.123
10	1.37	1.39	1.37	1.44	1.39	0.033
11	1.34	1.47	1.41	1.48	1.43	0.065
12	1.57	1.65	1.55	1.51	1.57	0.059
13 <sup>+</sup>	1.62	1.57	1.48	1.71	1.62	0.096
14	1.51	1.42	1.54	1.48	1.49	0.051
15	1.51	1.60	1.61	1.59	1.58	0.046
16	1.44	1.62	1.59	1.54	1.55	0.079
17	1.36	1.44	1.41	1.42	1.41	0.034

<sup>+</sup> Results rejected as measurements not performed under repeatability conditions.

\* Rejected stragglers according to the Cochran (variance outliers) test.

**Table S3** Results of individual repeat measurement of the 0.1/40 sample level as measured by the detector, as well as their mean and standard deviation.

Participant	Repeat Measurement				Mean, vol%	Standard deviation, vol%
	#1	#2	#3	#4		
1	0.10	0.11	0.11	0.10	0.11	0.006
2	0.10	0.10	0.11	0.11	0.11	0.006
3	0.10	0.11	0.11	N/A	0.11	0.006
4	0.11	0.10	0.11	0.10	0.11	0.006
5	0.11	0.11	0.11	0.11	0.11	0.000
6*	0.11	0.12	0.14	0.13	0.13	0.013
7	0.12	0.11	0.10	0.11	0.11	0.008
8	0.10	0.11	0.11	0.11	0.11	0.005
9	0.11	0.11	0.11	0.10	0.11	0.005
10	0.11	0.11	0.12	0.10	0.11	0.008
11	0.14	0.13	0.13	0.13	0.13	0.005
12	0.10	0.11	0.11	0.11	0.11	0.005
13 <sup>+</sup>	0.12	0.10	0.11	0.10	0.11	0.010
14	0.13	0.13	0.12	0.13	0.13	0.005
15	0.11	0.11	0.11	0.11	0.11	0.000
16	0.10	0.10	0.10	0.10	0.10	0.000
17	0.12	0.11	0.12	0.12	0.12	0.005

<sup>+</sup> Results rejected as measurements not performed under repeatability conditions.

\* Retained stragglers according to the Cochran (variance outliers) test

## **Standard measurement method «Methanol measurement in liquids by use of the Alivion Spark M-20»**

This measurement method describes the measurement of methanol content in water- and alcohol-containing liquids by use of the Alivion Spark M-20 measurement instrument.

In general, the instructions in the operating manual and the quick start guide must be followed for all measurements. In addition, the following points must be observed:

- The measurements must be performed in a room (measuring room) with low air contamination and constant temperature ( $<1\text{ }^{\circ}\text{C/h}$ ).
- The measuring instrument, accessories (calibration standards, sample vials and pipettes) as well as sample liquids should be stored in the measuring room for at least 3 hours before the measurement is carried out in order to guarantee constant temperatures. For sample liquids in large containers  $>100\text{ mL}$ , this time must be adjusted upwards as required.
- Samples should be stored in closed inert containers (e.g. glass) to ensure the composition does not change until the measurement.
- The measuring instrument must be switched on 15-30 minutes before performing the first measurement.
- The measuring instrument must be calibrated with a 2-point calibration directly before performing a series of measurements.
- Calibrations and measurements must be performed only when no warnings are displayed on the display:
  - CAL warning: The device must be recalibrated.
  - TEM warning: The temperature in the measuring room is not constant.
  - CON warning: The background air is contaminated.
- Used measuring accessories (sample vials and pipettes) must be disposed of in a sealed container (e.g. plastic bag) or outside the measuring room immediately after sampling.
- Liquid samples must always be resealed immediately after sampling.
- The result displayed by the measuring instrument (2 decimal places) is regarded as the measurement result.