TECHNICAL NOTE

Electrochemistry **June 2014**

Disinfection of the LDO/DO electrode

Several methods for disinfection of tools and sensors are available. Due to the limited temperature range of LDO & DO electrodes, hot or steam sterilization cannot be used. The plastic materials used with the LDO electrode are very sensitive to organic solvents, including alcohols.

Alcoholic disinfectants are commonly available and non-hazardous. This is why we tested the short-term reaction of alcoholic disinfection solutions on the LDO/DO probe materials.

As example a standard disinfectant “Mikrozid AF liquid” (Schulke & Mayr GmbH, Germany) was tested, which consists of Ethanol and 1-Propanol mixed with DI water to 100 ml volume.

Recommendation: All three plastic materials of the LDO electrode withstand a short disinfection time of **maximum 2 minutes** with alcoholic solutions. It is recommended to rinse the probe after disinfection with deionized water to remove remaining alcohol. This type of disinfection should be done **not more than 2 times per day**; otherwise the LDO electrode material will quickly be damaged. After disinfection and rinsing it is recommended to do a 2 point calibration using a 100% and 0% oxygen standard.

	Oxygen probe materials	
	HQd LDO101 probe	**sension+ DO probe**
	optical methode	electrochem. method
body	PPE & PPO	PPS
sensor cap / membrane	PMMA	Silicone / PTFE

	Chemical resistance	
+ = resistant, - = not resitant	**Ethanol**	**1-Propanol**
Polymethylmethacrylate = PMMA	-	-
Polyphenylensulfid = PPS	+	+
Polyphenylenoxid = PPO & Polyphenylenether = PPE	+	+
Silicone	-	-
Polytetrafluorethylen = PTFE	+	+

PMMA = "plexiglass", PPE & PPO = "Noryl"

The DO probe material similar resistant like LDO and again membrane material of Silicone is sensitive to alcoholic solutions. Disinfection for **maximum 2 minutes** and **up to 3 times per day** will not damage the DO probe.

LDO/DO calibration: As recommended in the LDO manual do the 100% calibration in a BOD bottle with some ml of DI water, shake it several times and let it rest for a minute. Then insert the LDO probe and press calibration / measure.
The 0% standard can either be a sulfite solution (with some crystals of CoCl2) or an alkaline ascorbic acid solution. For 0% recipes see DO norms ISO 5814 (electrochemical DO method) and new DIN ISO 17289 to be published in 2014 (optical DO method).

Important note: Storing the LDO electrode in alcoholic disinfection solution for more than 16 hours causes visible damage of the LDO sensor cap and its black coating. Consequently the LDO cap can no longer be used for measurements. Similar damages can be seen with the DO membrane cap.

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