

QSensor QSX 305 PS

The QSensors are developed and produced to provide you with stable, reliable and reproducible data. Full performance is ensured through extensive quality controls and guaranteed for one-time use according to the recommendations.

Sensor specifications

Description	QSX 305 PS
Top coating material	Polystyrene (PS) ^A
Surface roughness	< 1 nm RMS ^B
Maximum temperature ^C	90 °C
Pre-cleaning of sensor	A new sensor might be contaminated with hydrocarbons and dust. Pre-cleaning the surface will give more reproducible QCM-D results.
Protocol light	For light cleaning, Deconex or ethanol wash + nitrogen gas drying can be used.
Protocol thorough ^{D, E, F}	<ol style="list-style-type: none"> 1. Prepare a solution of 1% Deconex 11 (see www.borer.ch) in milliQ water. 2. Immerse the sensor surfaces in the solution for 30 min at 30°C temperature. 3. Rinse with milliQ water. 4. Keep in milliQ water for at least 2 hours. 4. Rinse with 99% ethanol. 5. Dry with nitrogen gas.
Usage	QSensors are intended for one-time use only.
Shelf Life	Stable at least 12 months from package date in unopened package, see expiry date on package.
Storage	The sensor is delivered in inert atmosphere. Store in a cool, dry place out of light.
Chemical compatibility	Do not expose to organic solvents. There is no guarantee that the coating will be stable under all experimental conditions.
Additional information	<p>UV/Ozone treatment of PS might result in new, unwanted chemical composition of the surface.</p> <p>Please note that PS is very hydrophobic and that air bubbles are easily formed on the surface when working with water-based solutions. To reduce the risk of bubble formation, make sure to degas the solutions and to preheat them when working at temperatures above RT. It is also possible to pre-wet the sensor surfaces with ethanol and then replace ethanol with the water-based solution.</p>

Specifications may be subject to change without notice.

A - The chemical composition was confirmed by TOF-SIMS.

B - Ref. AFM.

C - Coating material withstands 90 °C (Glass transition temperature ~90 °C, Wikipedia). Note that ambient environment may influence coating behavior. Theoretically, the quartz and the Au coating withstand temperatures up to 573 °C where the quartz undergoes a phase transition altering its piezoelectric properties. The adhesion layers, the electrode and coating materials will migrate with time, and the migration rate is affected by temperature and time.

D - The suggested pre-cleaning protocols for the sensors are not harmful to the sensor coatings themselves. If the protocols are used for cleaning the sensor after a measurement, note that there is no guarantee that materials adsorbed onto the coatings are removed.

E - A. Naderi et al, Langmuir 22 (2006) p7639

F - Please see QSense "Instrument care and sensor pre-cleaning" for more info.