



QSensor QSX 303 SiO₂

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 303 SiO ₂
Top coating material	Silicon dioxide (SiO ₂) ^A
Surface roughness	< 1 nm RMS ^B
Maximum temperature ^C	150 °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, step 1, 4 and 5 below can be used.
Protocol thorough ^{D, E, F}	<ol style="list-style-type: none"> 1. UV/ozone treat for 10 minutes 2. Prepare a solution of 2 % Sodium Dodecyl Sulfate in milliQ water 3. Immerse the sensor surfaces in the solution for 30 minutes in room temperature 4. Rinse with milliQ water. It is important that the surfaces are kept wet after SDS immersion until they are rinsed well with water 5. Dry with nitrogen gas 6. UV/ozone treat for 10 minutes
Usage	QSensors are intended for one-time use only.
Storage	Store in a cool, dry place out of light.
Shelf Life	Stable at least 18 months from package date in unopened package, see expiry date on package.
Chemical compatibility	Do not expose to strong bases. There is no guarantee that the coating will be stable under all experimental conditions.

Specifications may be subject to change without notice.

A - The chemical composition was confirmed by XPS.

B - Ref. AFM.

C - Sensor oscillates/works at 150 °C in air. Temperatures above 150 °C have not been tested. Note that ambient environment may influence coating behavior. Theoretically, the quartz and the electrode 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 - K. Harewood et al, *Anal. Biochem.* 55 (1973) p573 and J. Penfold et al, *Langmuir* 18 (2002) p5755.

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