



QSensor QSX 304 Stainless steel (SS2343)

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 304 Stainless steel (SS2343)
Top coating material	Stainless Steel (SS2343) ^A
Surface roughness	< 1 nm RMS ^B
Maximum temperature ^C	60 °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 1-3 and 7 below can be used.
Protocol thorough ^{D, E, F}	<ol style="list-style-type: none"> 1. Immerse the sensor surfaces in 1% Hellmanex II (see www.hellma-worldwide.com) for 30 minutes at room temperature. The surface can be kept in the solution for 12 hours. 2. Rinse with milliQ water. 3. Dry with nitrogen gas. 4. Sonicate in 99% ethanol for 10 minutes. 5. Rinse with milliQ water. 6. Dry with nitrogen gas. 7. UV/ozone treat for 10 minutes.
Usage	QSensors are intended for one-time use only.
Shelf Life	Stable at least 18 months from package date in unopened package, see expiry date on package.
Storage	Store in a cool, dry place out of light.
Chemical compatibility	Do not expose to strong acids. 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 - Coating material withstands 60 °C (www.atlassteels.com.au/documents/Atlas%20Technical%20Handbook%20rev%20Aug%202013.pdf). A particular problem for the common austenitic grades is stress corrosion cracking (SCC). This occurs in chloride environments, but it is possible for SCC to take place with only traces of chlorides, so long as the temperature is over about 60°C, and so long as a tensile stress is present in the steel, which is very common. 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-C Olofsson et al, Appl. Environ. Microbiol. 71 (2005) p2705

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