QSense®

[Product Information]

# QSensor QSX 309 $Al_2O_3$

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 309 $Al_2O_3$ (Aluminium oxide) |
| Top coating material | Aluminium oxide ($Al_2O_3$)[A] |
| Surface roughness | < 2 nm RMS[B] |
| Maximum temperature[C] | 150 °C |
| Pre-cleaning of sensor | A new sensor might be contaminated with hydrocarbons and dust.<br>Pre-cleaning the surface will give more reproducible QCM-D results. |
| Protocol light | For light cleaning, step 2 - 4 below can be used. |
| Protocol thorough[D, E, F] | 1. Sonicate the sensor surfaces in 99% ethanol for 15 minutes.<br>2. Rinse with milliQ water.<br>3. Dry with nitrogen gas.<br>4. UV/ozone treat for 10 minutes (see UVO treatment). |
| 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 | Store in a cool, dry place out of light. |
| Chemical compatibility | Do not expose to strong acids and bases. Stay within pH 4-9 to avoid corrosion.[G]<br>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 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 - K. D. Kwon et al, Environ. Sci. Technol. 40 (2006) p27739*

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

*G - http://www.aluminiumdesign.net*


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