

Fig. 0



sTDS.ivt Specification:

1. Designed for Impurity Detection of $\phi 25$ mm Samples
2. Sample Heating: IR rod heater, 1200 °C
3. Equipped with Self-calibration Function
 - System Calibration Factor, R, determined every six months
 - factor R experimentally set between method 1 & method 2
 - currently R = 16.00
 - method 1; calibration, *J. Vac. Sci. Technol. A 20(5), Sep/Oct 2002*
 - method 2; default DAQ setting
 - sTDS.q.H.N.2: traceable with certified NIST SRM
4. Loadlock System for Sample Loading
5. GUI DAQ
 - 200 masses scanned with LabVIEW DAQ system
 - Capable of qualitative and quantitative H₂ measurement of less than 1×10^{-5} wt ppm

Fig. 1

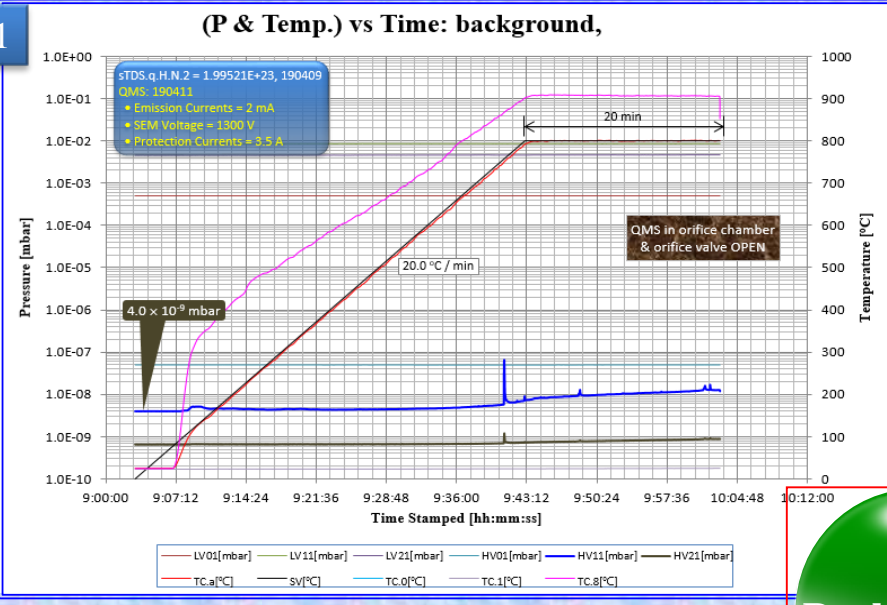


Fig. 2

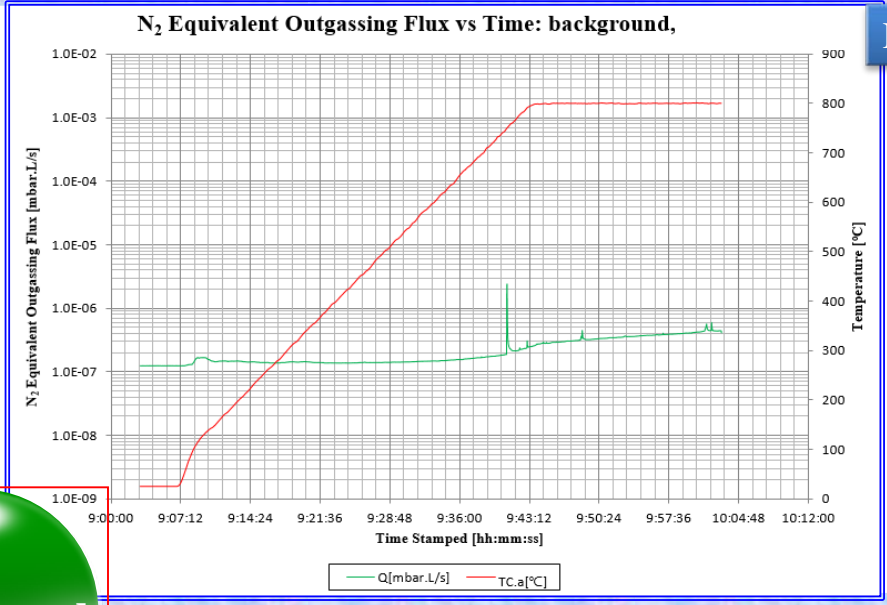


Fig. 3

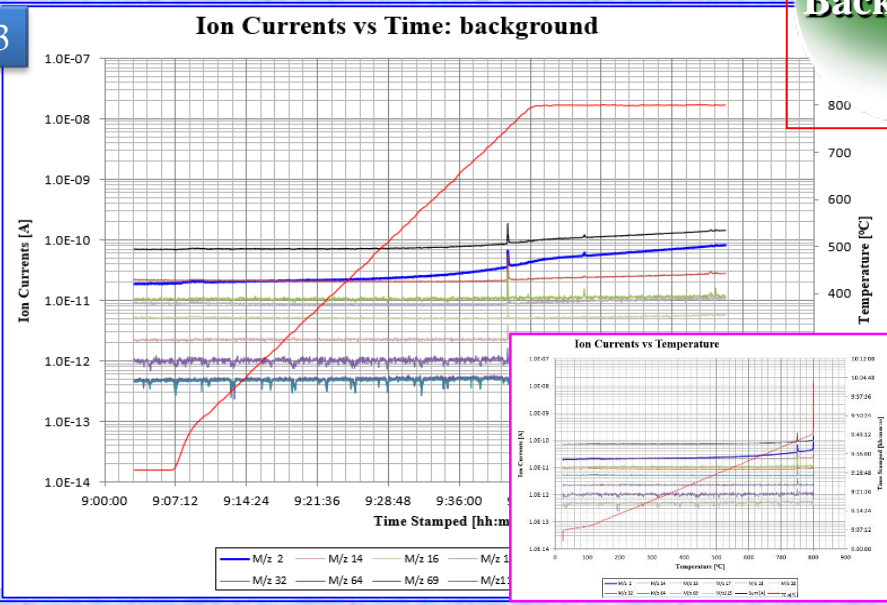


Fig. 4

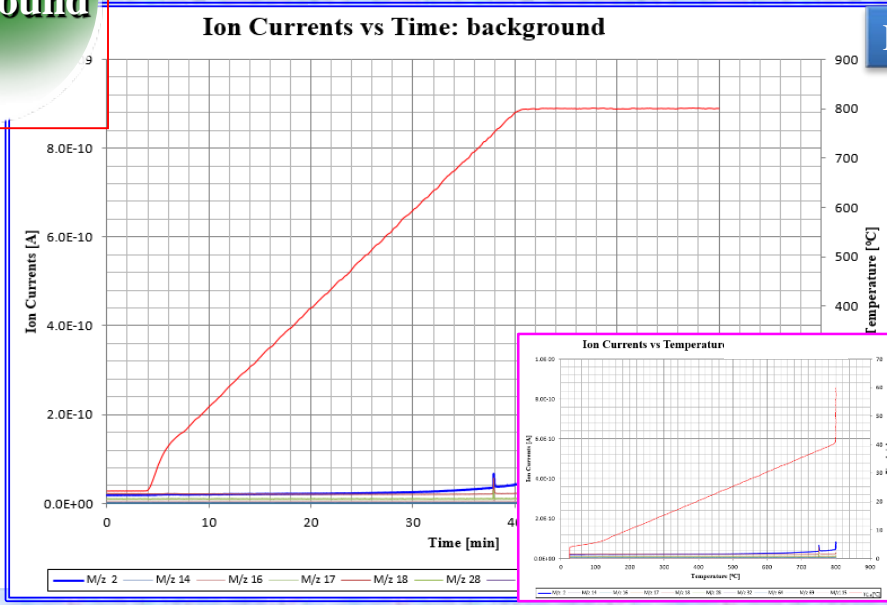


Fig. 5

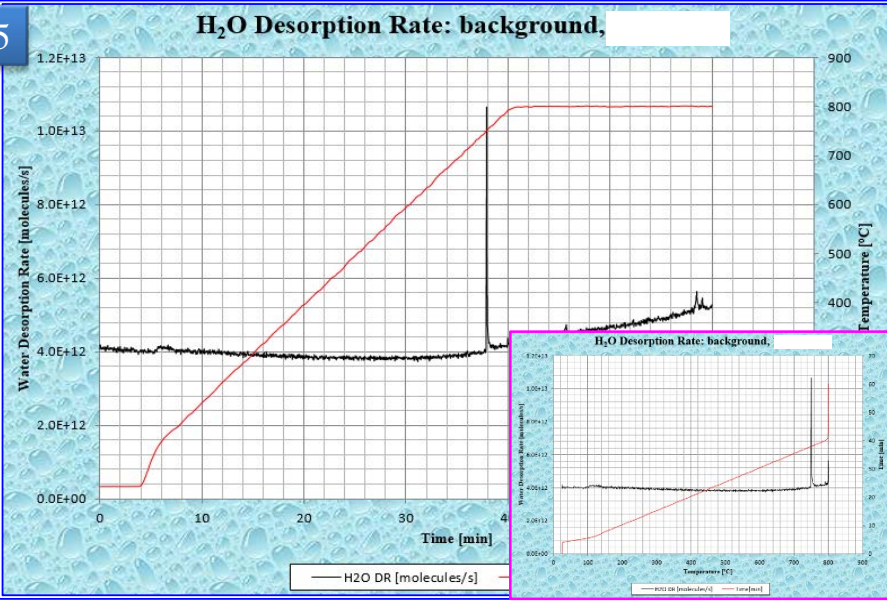
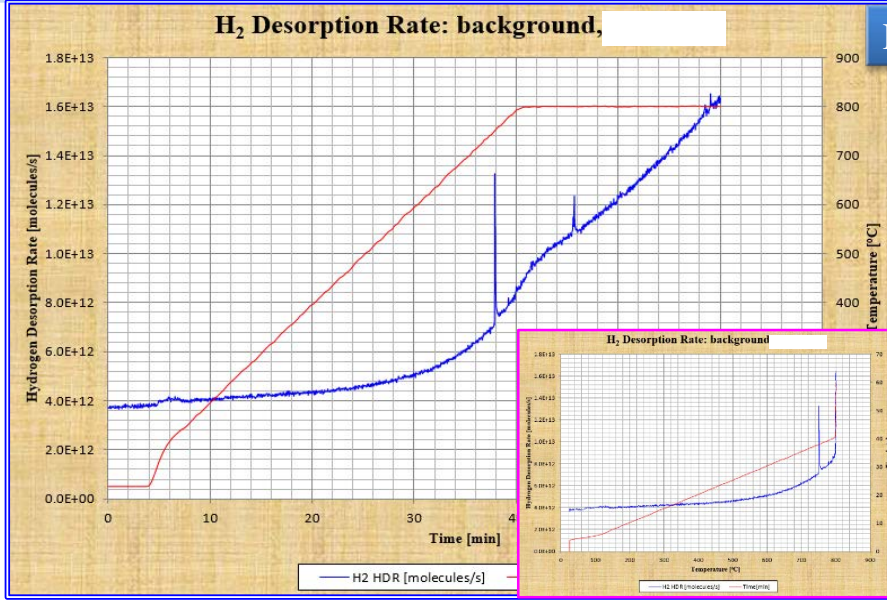


Fig. 6



Background

sTDS: Bare Quartz – System Background

Fig. 1

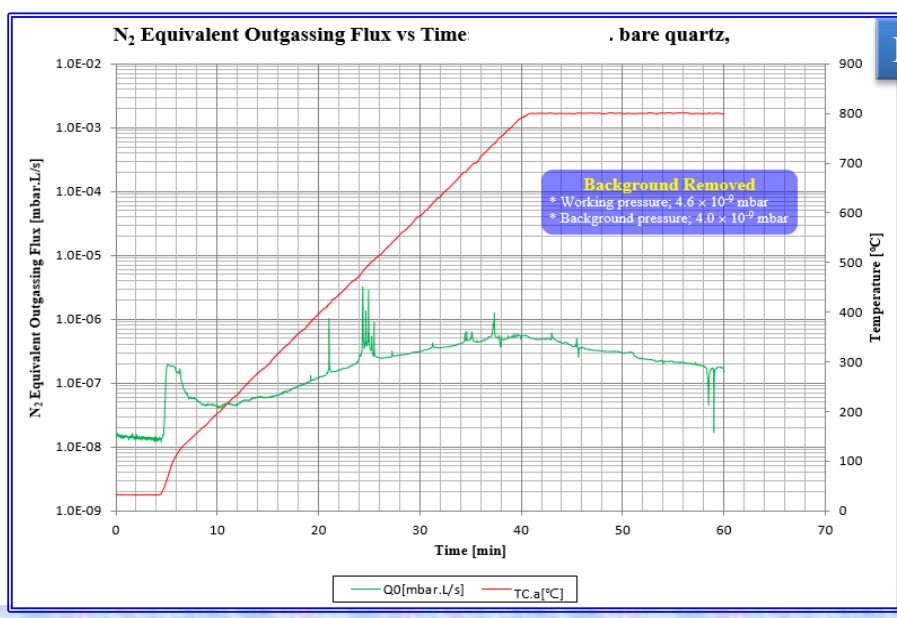
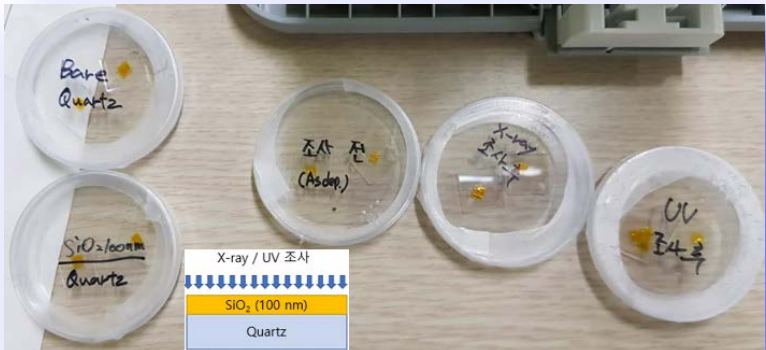


Fig. 2

bare quartz: 0.17 g		Row	Temperature [°C]	Time [min]	$\Sigma(\Delta Q)$ [wt ppm] or [mg/kg]	$\Sigma(\Delta Q)$ [molecules]	Remarks
Hydrogen H2 (m/z = 2)	section 1	242	32.0	4.0	2.2046E-02	1.1196E+15	
	section 2	602	196.1	10.0	3.3421E-01	1.6972E+16	
Water, H2O (m/z = 18)	section 1	1202	396.6	20.0	1.1841E+00	6.7293E+15	
	section 2	3002	799.8	50.0			

Fig. 3

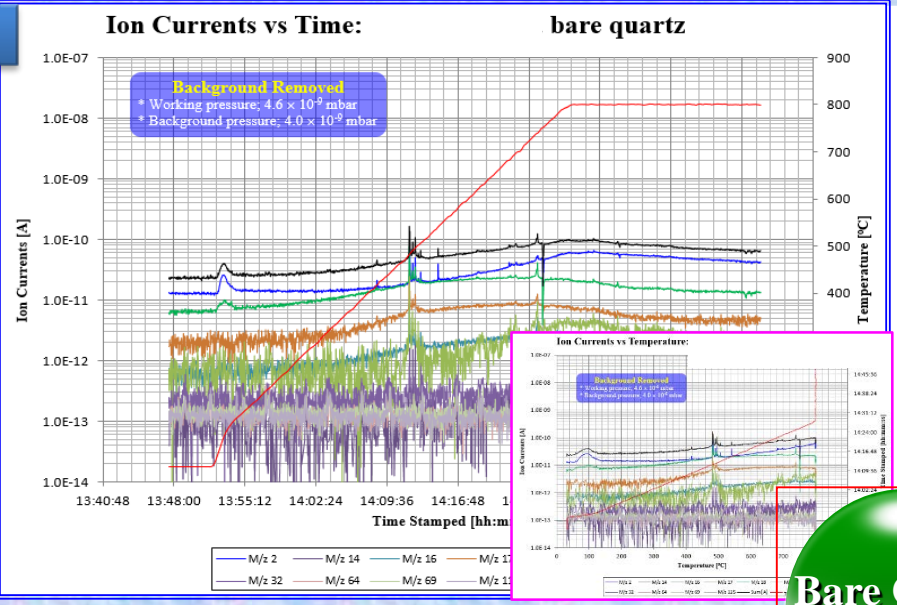
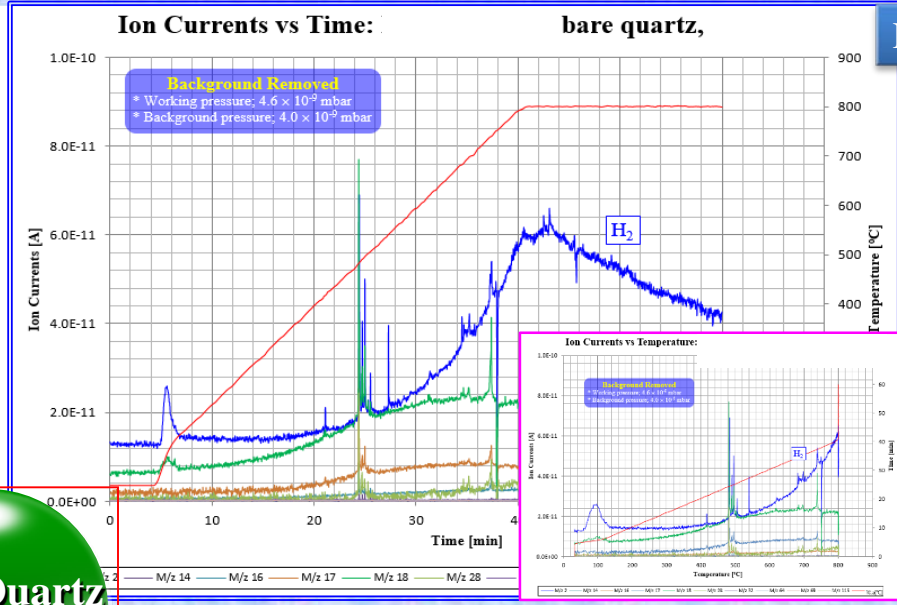


Fig. 4



Bare Quartz

Fig. 5

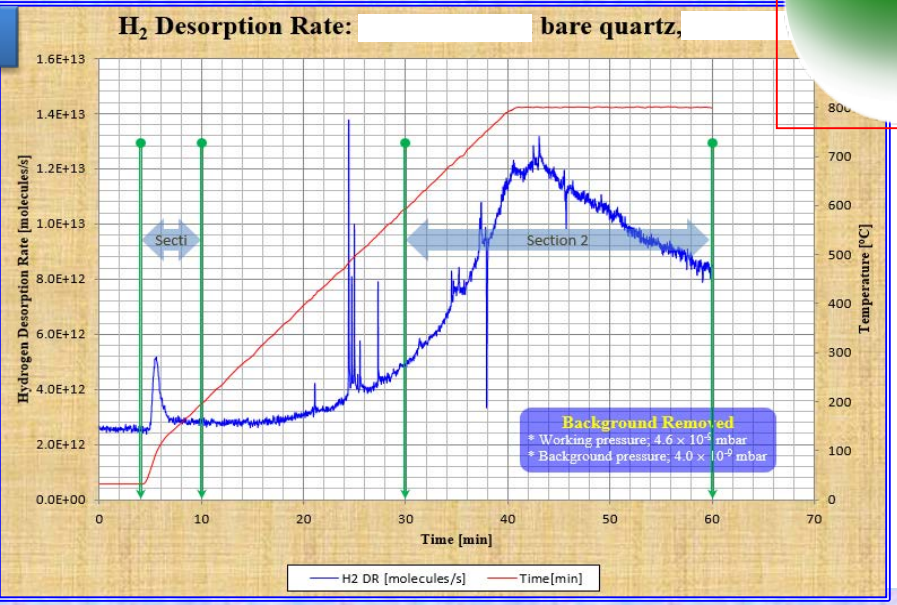


Fig. 6

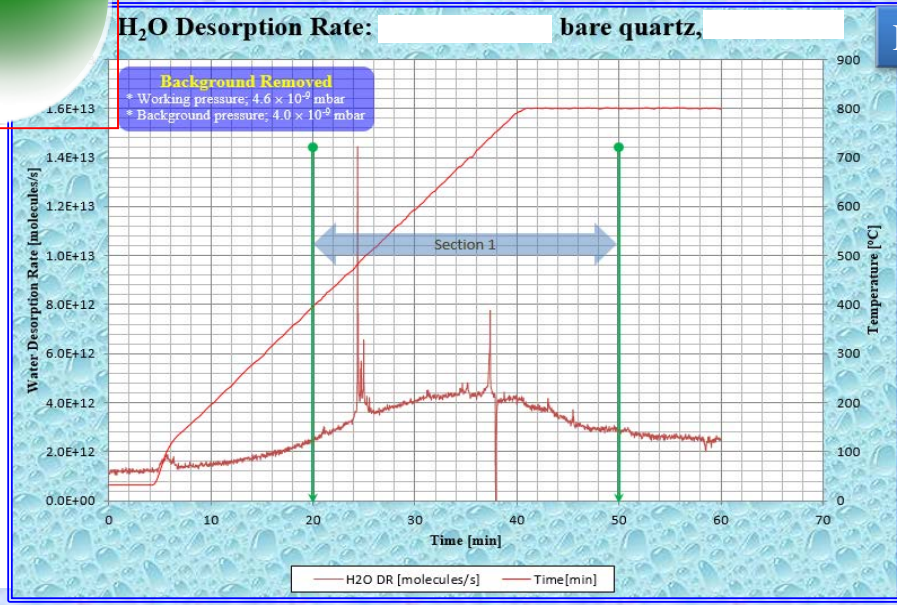


Fig. 7

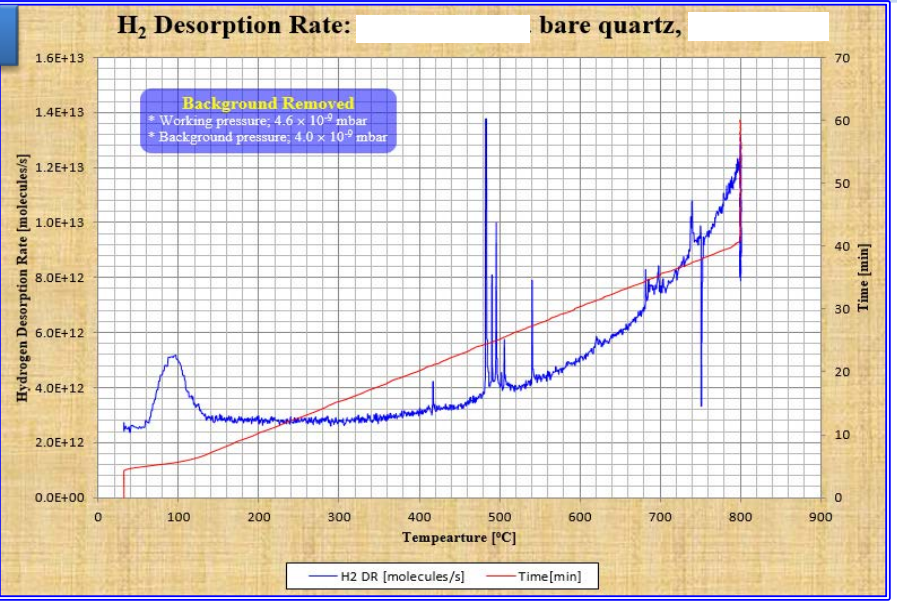


Fig. 8

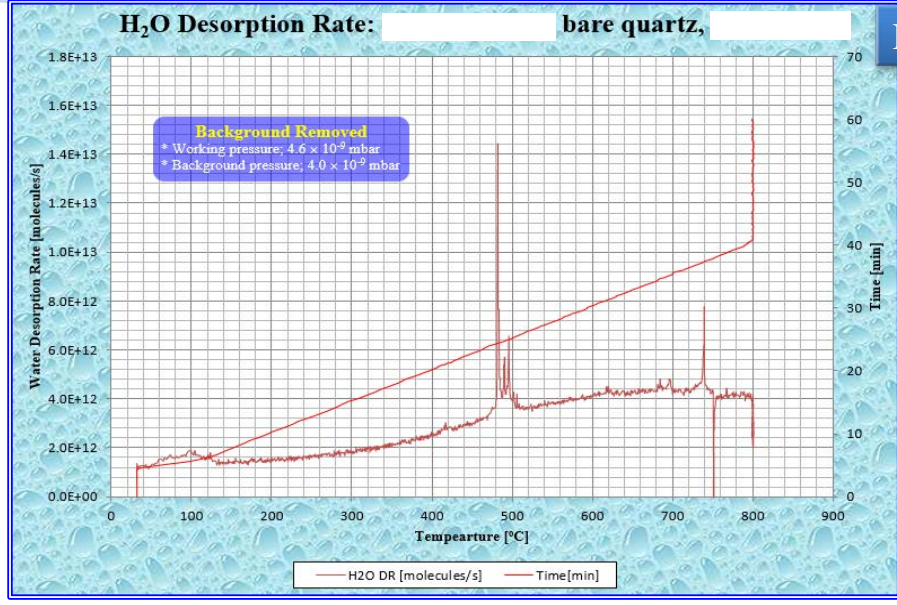


Fig. 1

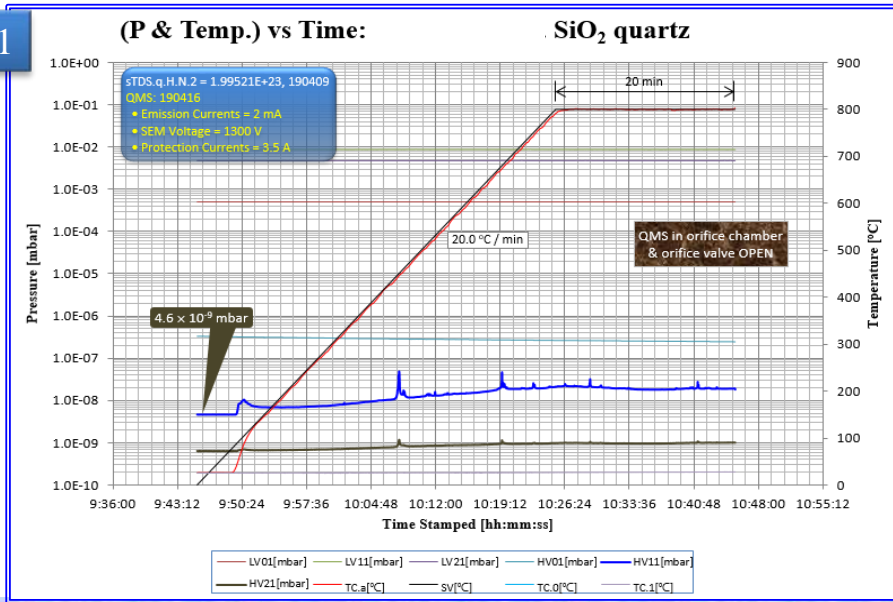


Fig. 2

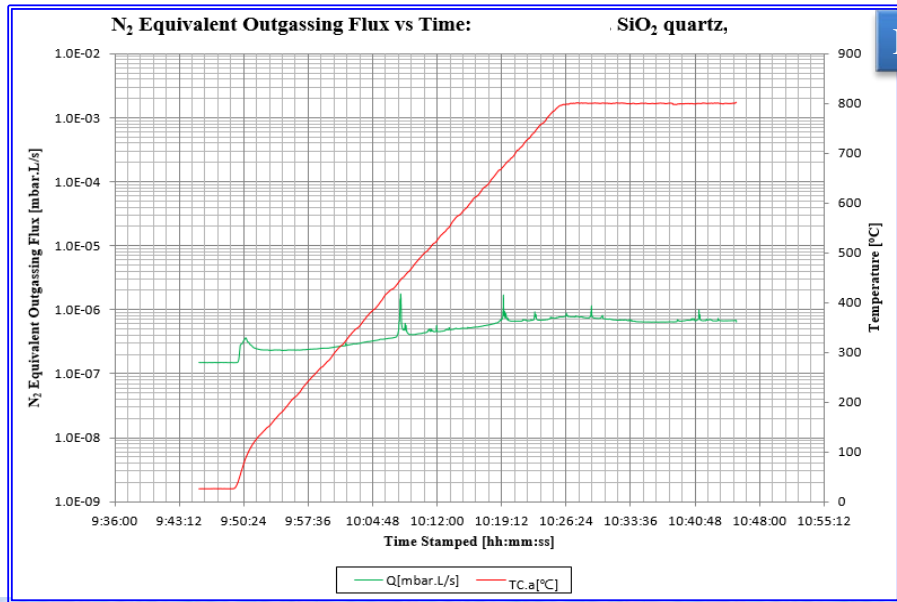


Fig. 3

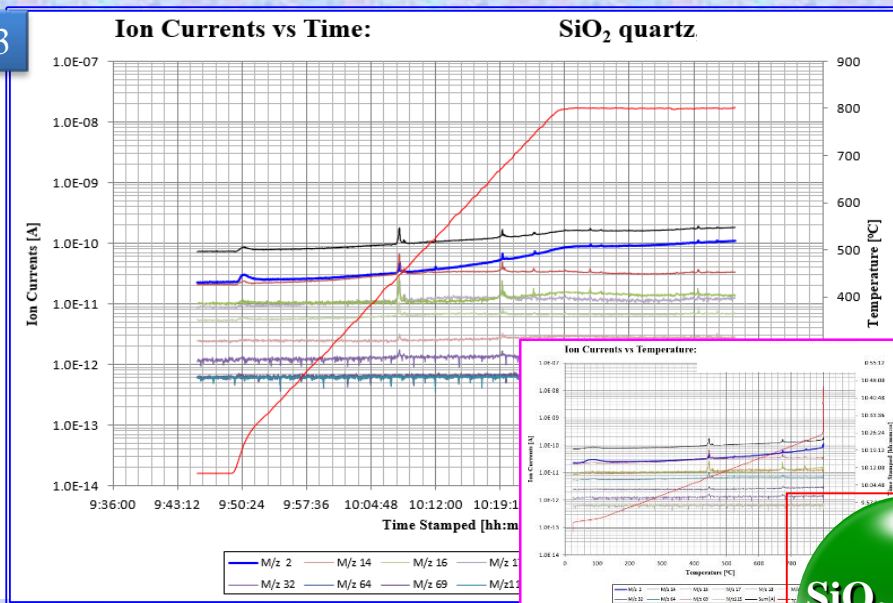
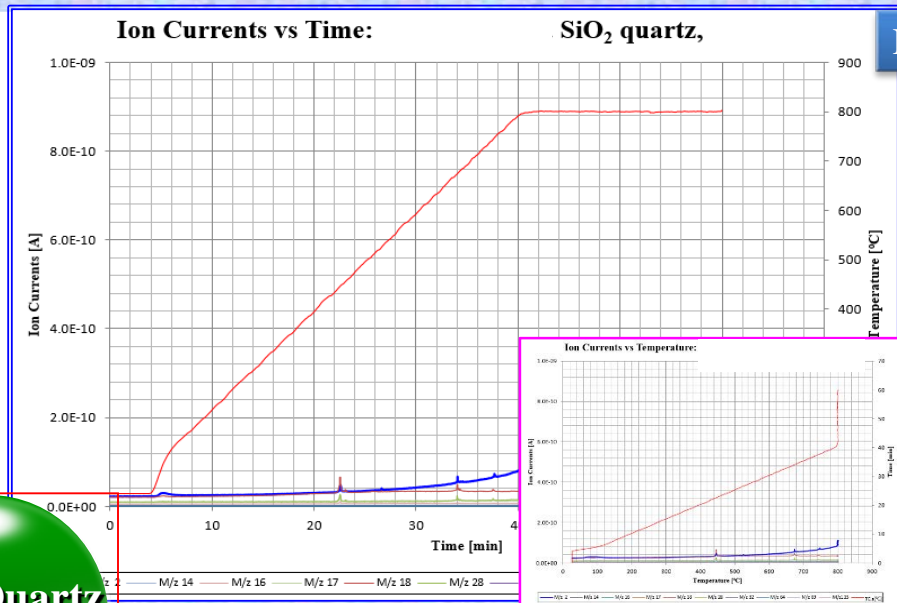


Fig. 4



SiO₂ Quartz

Fig. 5

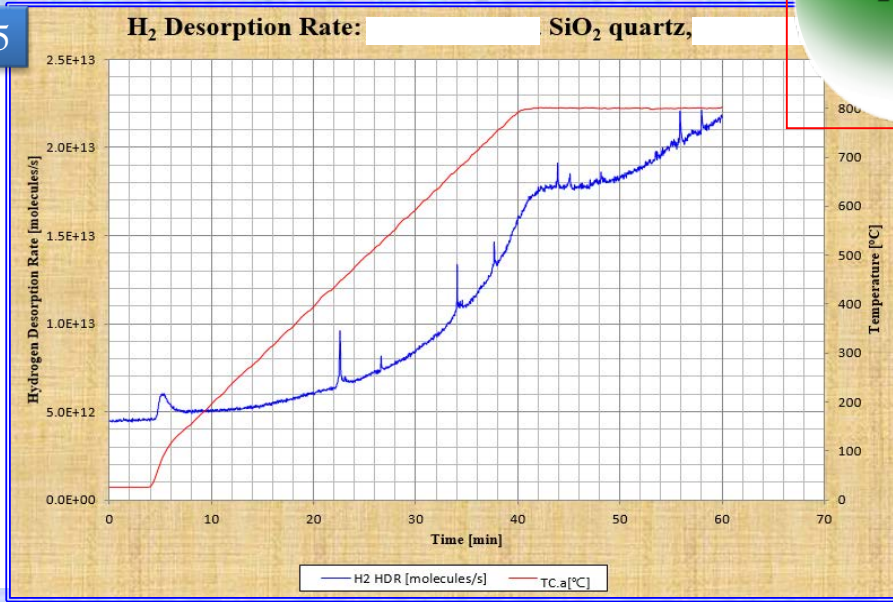


Fig. 6

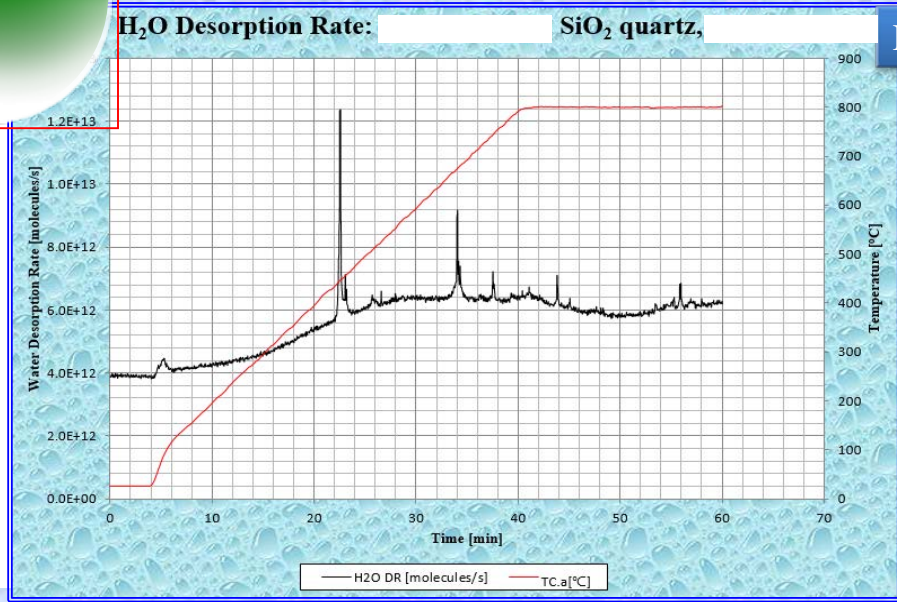


Fig. 7

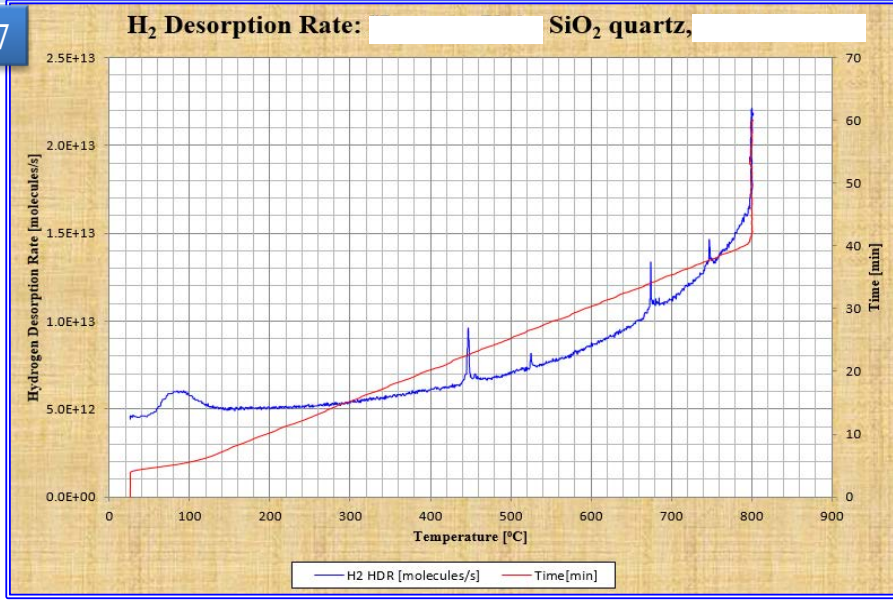


Fig. 8

