Calibration Summary

• Process Chamber vaccum : <5.0 × 10^{-9} mbar 영역으로 유지

sTDS Measurement Resolution
- **SRS RGA200**
  - ♣ quantitative H_2 measurement limit: Δt = 3.48 s for (1 ~ 200) amu FS measurement
    ΔQ_{H2} = 1.3 × 10^{-6} wt ppm/s × 3.48 s (H_2) = 4.5 × 10^{-6} wt ppm (H_2)
  - ♣ quantitative H_2 measurement limit: Δt = 1.00 s for (1 ~ 100) amu measurement
    ΔQ_{H2} = 1.3 × 10^{-6} wt ppm/s × 1.00 s (H_2) = 1.3 × 10^{-6} wt ppm (H_2)
- **Pfeiffer QMG220**
  - ♣ quantitative H_2 measurement limit: Δt = 1.00 s for (1 ~ 200) amu FS measurement
    ΔQ_{H2} = 1.3 × 10^{-6} wt ppm/s × 1.00 s (H_2) = 1.3 × 10^{-6} wt ppm (H_2)

	NIST 2453a	
Material	SRM (Standard Reference Material)	
H_2 Molecules (uncertainty)	126.8 wt ppm (2 %)	
NMI Traceability	NIST, USA	
Sample Weight	0.10 g rod	
Material Type	Ti6Al4V alloy	
Certificate	Certificate of Analysis, NIST: Standard Reference Material 2453a (valid until 31 October 2034)	
Material Impurity	H_2 only	
sTDS Calibration Factor	4.38686E+23 (170425)	**Average: 4.40192E+23**
	4.41698E+23 (170509)	
Temperature Program	ambient ⇒ 800 °C ⇒ ambient	
수소 방출 확인	모든 수소 방출 확인 가능	
Spectrum Noise	invisible	
Base Pressure	2 × 10^{-9} mbar	

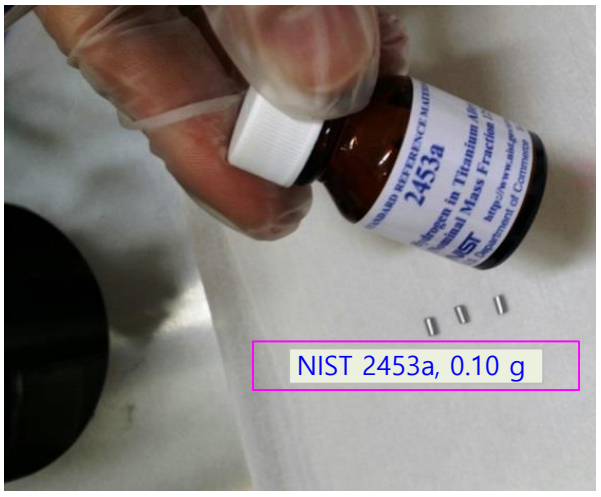


Table 1. Certified Mass Fraction Value for SRM 2453a Hydrogen in Titanium

Constituent	Mass Fraction (mg/kg)	95 % Coverage Interval (mg/kg)
Hydrogen (H)	126.8	124.3 to 129.3

http://www.ivt4u.com

sTDS Calibration: background

for NIST 2453a SRM

Fig. 0

Fig. 1

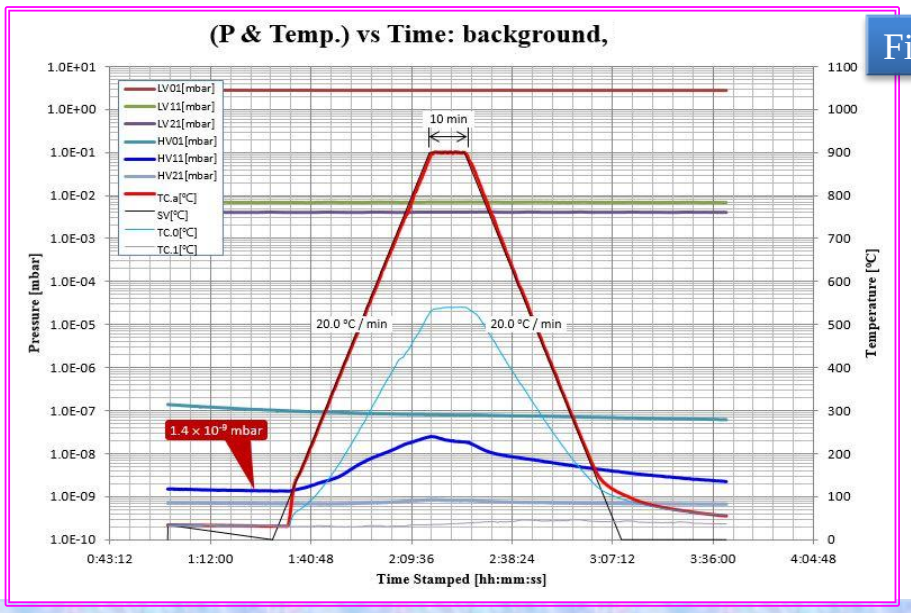


Fig. 2

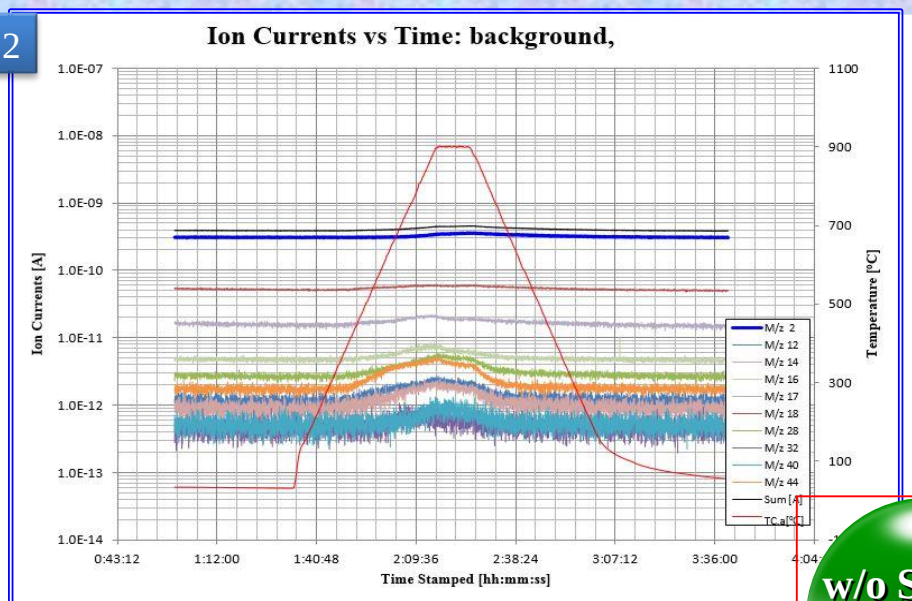
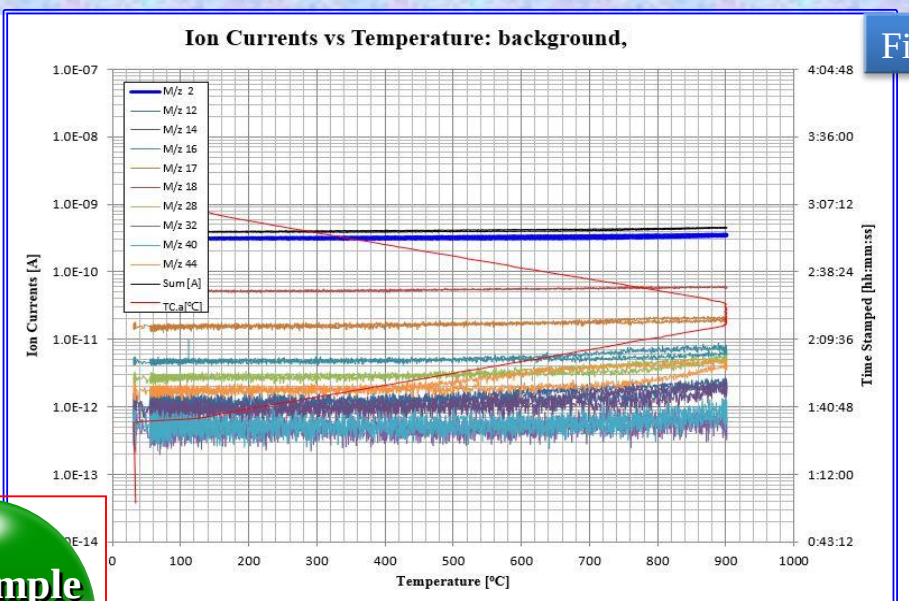


Fig. 3



w/o Sample

Method

Fig. 4

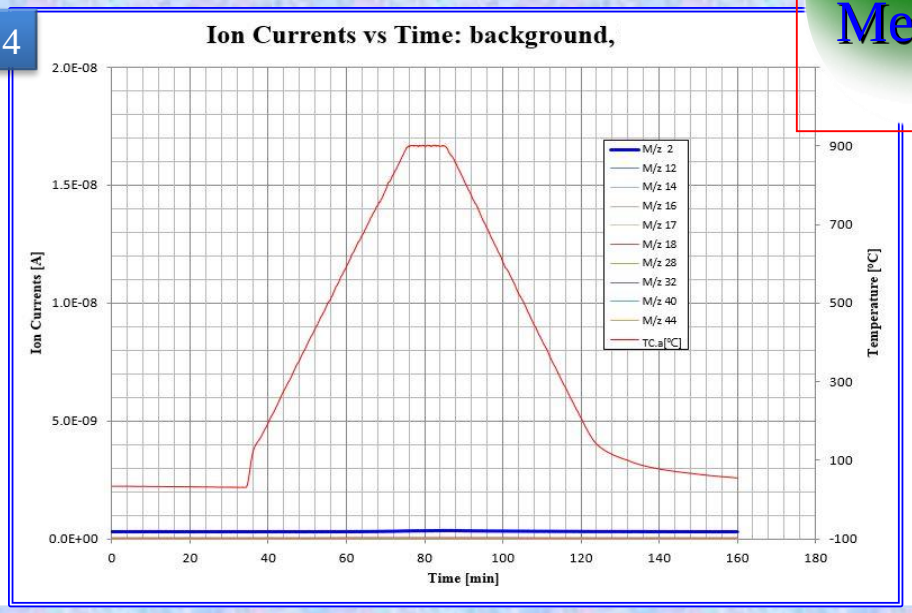


Fig. 5

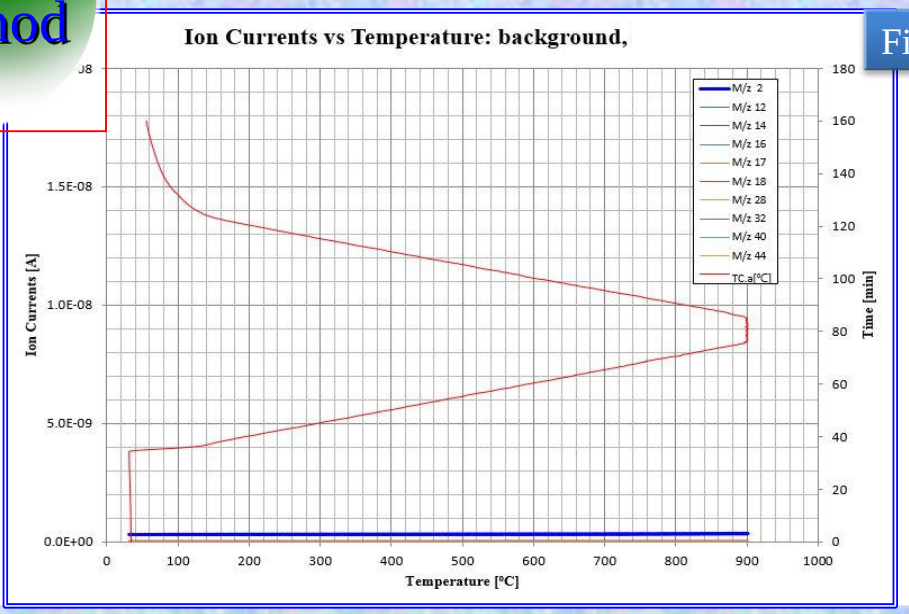


Fig. 6

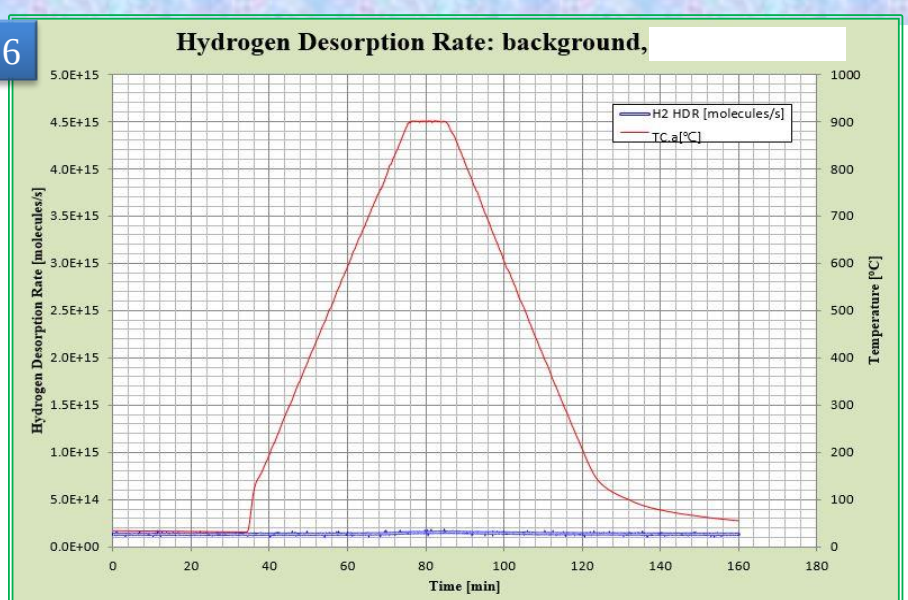
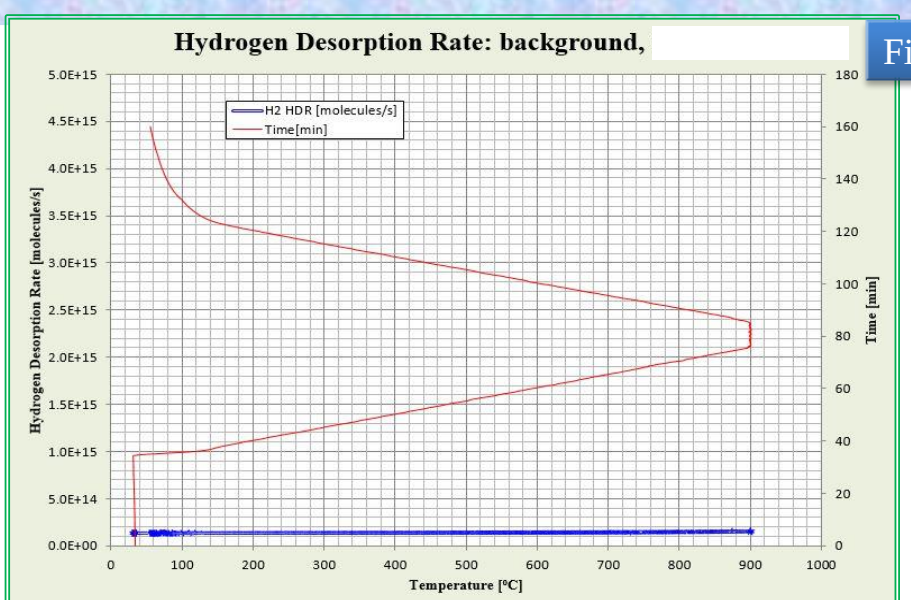


Fig. 7



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sTDS Calibration: NIST 2453a

Fig. 0

Fig. 1

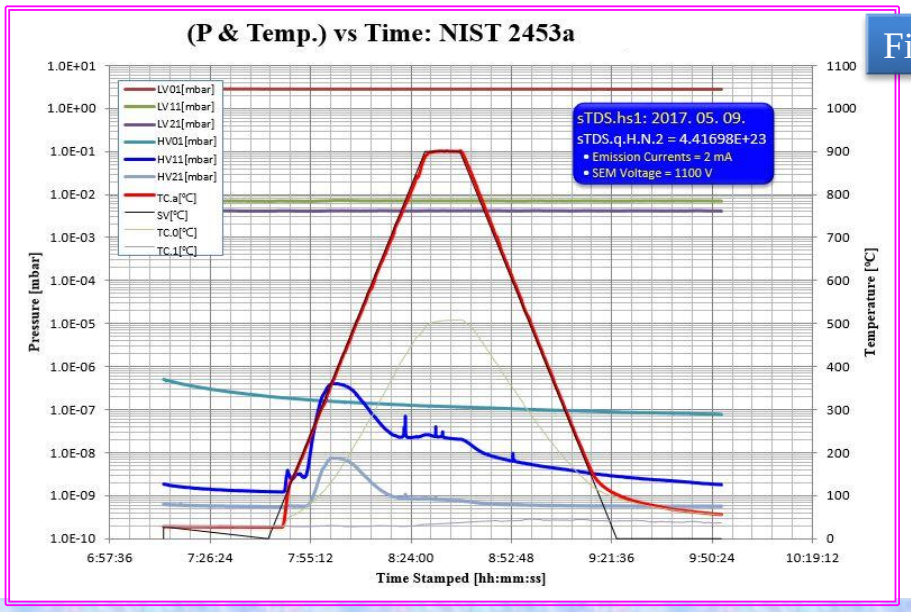


Fig. 2

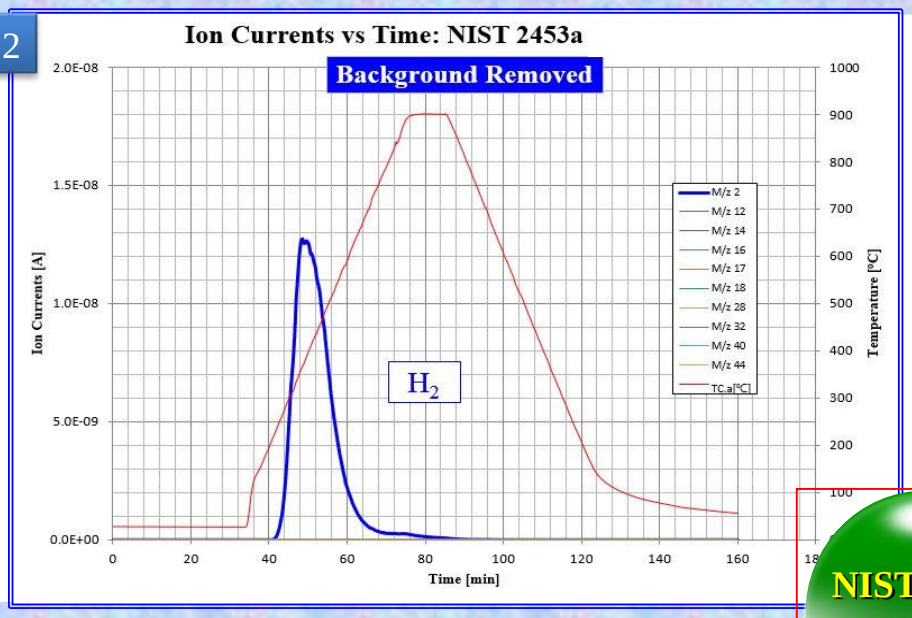
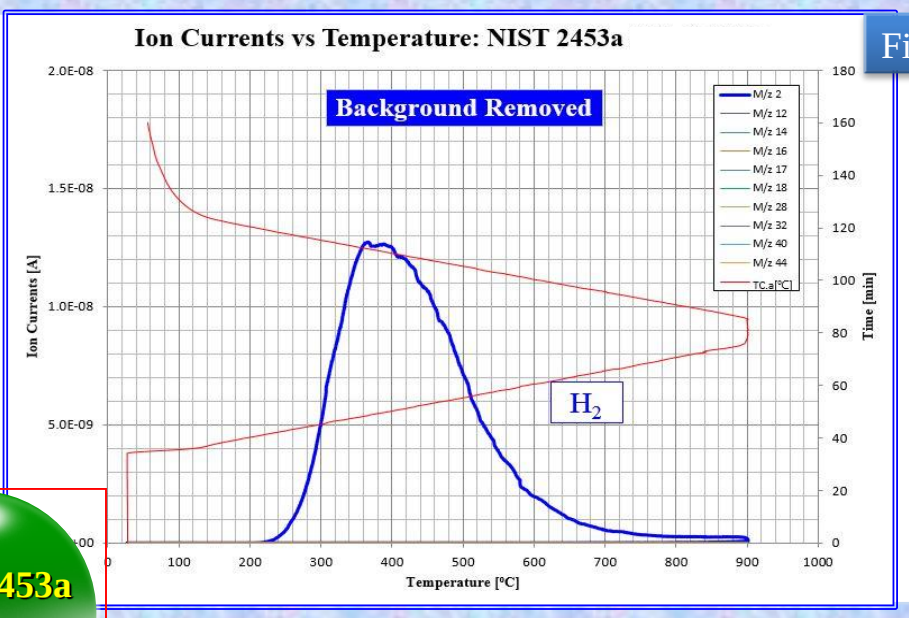


Fig. 3



NIST 2453a
Method 2

Fig. 4

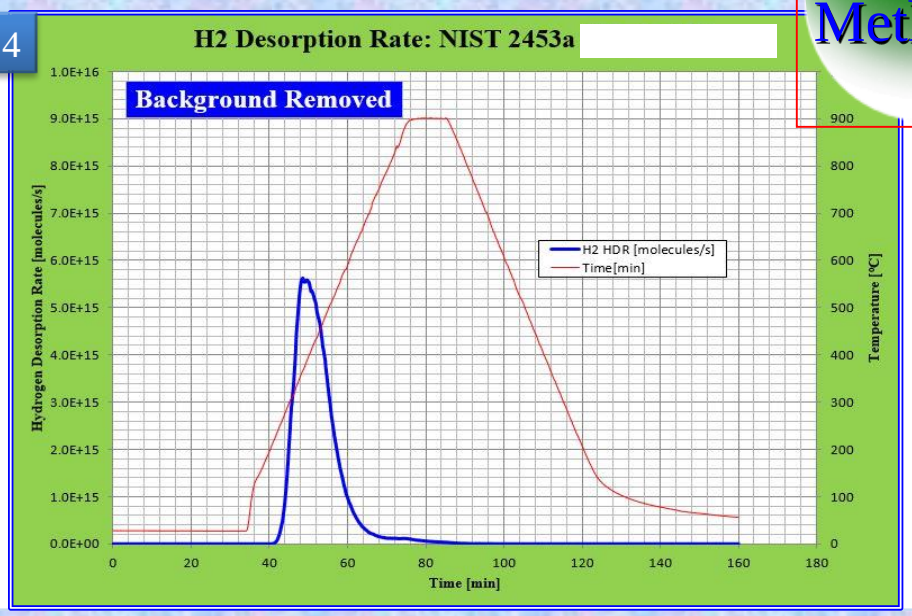


Fig. 5

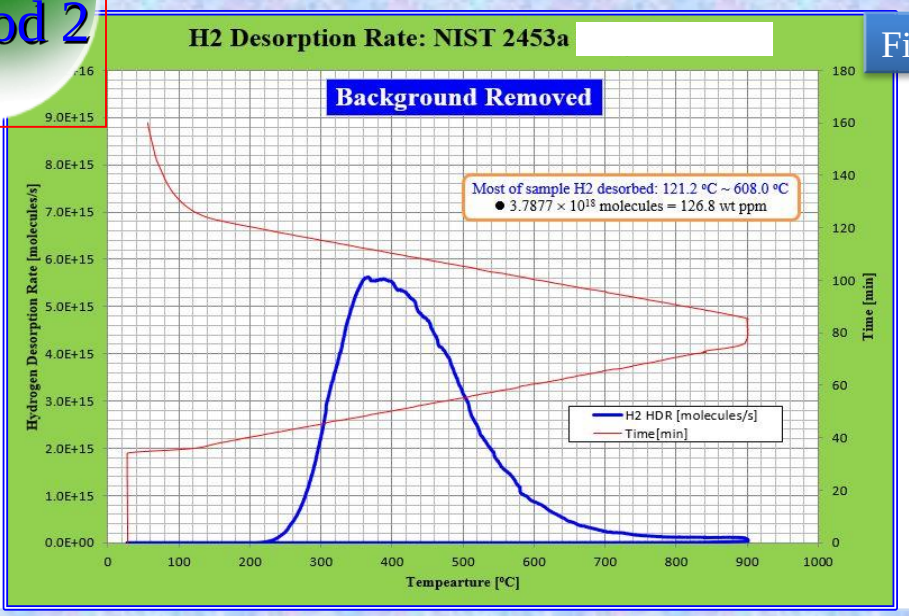


Fig. 6

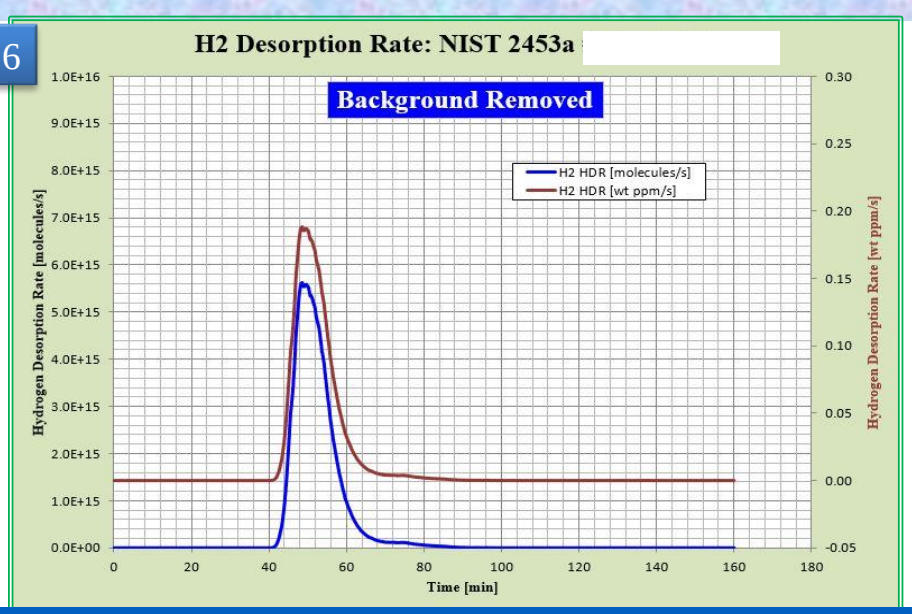


Fig. 7