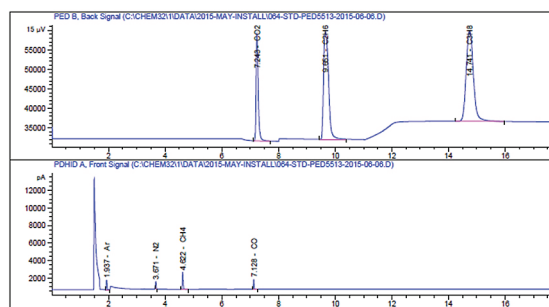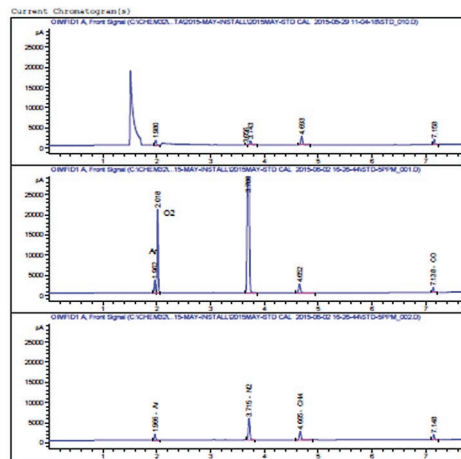# CREATVAR TECHNOLOGY CORP.

ANALYSIS OF TRACE IMPURITIES IN ELECTRONIC GRADE HYDROGEN USING AGILENT GC WITH PDHID AND PLASMADETEK 2

APPLICATION

Impurities(Ar-O2-N2-CH4-CO-CO2) analysis of electronic grade Hydrogen at 10 to 20ppb level with the PDHID and Plasmadetek 2.

This analyzer has been configured with two independent channels, front channel for impurities(Ar-O2-N2-CH4-CO) measurement by PDHID and back channel for impurities(CO2,n-C2~4) measurement by PED . The system is based on a GC 6890N from Agilent equipped with electronic pressure control module. Two low leak rate 6 port and 4 port switching valves with Molsieve 5A column to perform bulk Hydrogen heart-cut technic and assure the baseline separation for Ar and O2 in H2 gas sample.

H2 Analyzer

Signal 1: PED B, Back Signal

RetTime [min]	Type	Area [15 µV*s]	Amt/Area	Amount [ppm]	Grp	Name
7.243	BB S	1.44087e5	2.78998e-5	4.02000		CO2
9.651	BB S	3.36276e5	3.28599e-5	11.05000		C2H6
14.741	BB	4.07393e5	1.13159e-5	4.61000		C3H8

Signal 2: PDHID A, Front Signal

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.937	BBA	1860.75464	2.86443e-3	5.33000		Ar
3.671	BB	1753.38501	3.59305e-3	6.30000		N2
4.622	BB	4349.97461	1.13334e-3	4.93000		CH4
7.128	BB	1978.74536	2.41567e-3	4.78000		CO

LDL CACULATION

COMPONENT	Standard Gas Conc. (ppm)	Peak Height	3xNoise	MDL (ppb)
AR-PDDA	5.33	1826.99624	0.3381	9.36858
N2-PDDA	6.3	794.99384	0.3381	2.679304
CH4-PDDA	4.93	1911.48582	0.3381	8.72009
CO-PDDA	4.78	1107.18896	0.3381	1.45966
CO2-PEDB	4.02	19544.75508	6.4824	1.33331
C2H6-PEDB	11.05	16159.39258	6.4824	4.43275
C3H8-PEDB	4.61	15624.92695	6.4824	1.91258

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