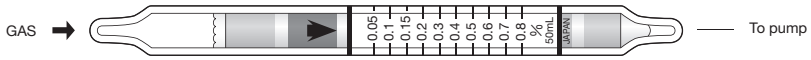
Tube No.
137U

HYDROGEN



1. PERFORMANCE

1) Measuring range : 0.05-0.8 %
   Number of pump strokes 1/2 (50mℓ)
2) Sampling time : 0.5minutes/1/2 pump stroke
3) Detectable limit : 0.03 %
4) Shelf life : 3 years
5) Operating temperature : 0 ~ 40 ℃
6) Temperature compensation : Necessary (See "TEMPERATURE CORRECTION TABLE")
7) Reading : Direct reading from the scale calibrated by 1/2 pump strokes
8) Colour change : Yellow → Blue (over 0.1 %) or Yellowish green (below 0.1 %)

2. RELATIVE STANDARD DEVIATION

RSD-low : 10 % RSD-mid. : 10 % RSD-high : 10 %

3. CHEMICAL REACTION

By reacting with Oxygen in Atomsphere, water vapour is produced. This Water vapour reacts with Magnesium perchlorate and PH indicator is discoloured.

$H_2 + O_2 \rightarrow H_2O$

$H_2O + Mg(ClO_4)_2 \rightarrow Mg(ClO_4)_2 \cdot H_2O$

4. CALIBRATION OF THE TUBE

STANDARD GAS CYLINDER METHOD

5. INTERFERENCE AND CROSS SENSITIVITY

Substance	%	Interference	ppm	Coexistence
Ethanol FIG.1	0.25	Similar stain is produced.	0.4 %	Higher readings are given.
Carbon monoxide		The accuracy of readings is not affected.	500	Lower readings are given.

6. SPECIAL NOTE

1) The tube will not respond in the absence of oxygen.
2) When the concentration of Hydrogen is 12 to 16 %, pretreat reagent gives a heat but is not dangerous for use in hazardous area.
3) When the concentration of Hydrogen is over 40 %, the reading value may be indicated below 0.8 %. In this case, the bottom of the discoloured layer becomes dark purple. In order to make sure that the concentration is extremely high such as 40 %, measure the gas concentration with connecting 2 tubes. If both tubes are discoloured to green, extremely high concentration Hydrogen exists.

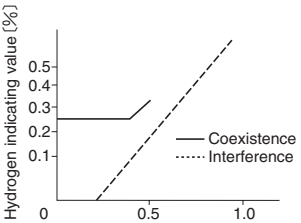


FIG.1 Influence of Ethanol

TEMPERATURE CORRECTION TABLE

Tube Readings (%)	Corrected Concentration (%)								
	0 ℃ (32 ℉)	5 ℃ (41 ℉)	10 ℃ (50 ℉)	15 ℃ (59 ℉)	20 ℃ (68 ℉)	25 ℃ (77 ℉)	30 ℃ (86 ℉)	35 ℃ (95 ℉)	40 ℃ (104 ℉)
0.8	—	—	—	—	0.80	0.68	0.58	0.51	0.45
0.7	—	—	—	1.00	0.70	0.60	0.52	0.45	0.40
0.6	—	—	1.00	0.80	0.60	0.52	0.44	0.39	0.35
0.5	—	—	0.80	0.65	0.50	0.44	0.37	0.33	0.30
0.4	—	—	0.62	0.51	0.40	0.35	0.30	0.27	0.25
0.3	—	0.70	0.46	0.37	0.30	0.26	0.23	0.21	0.19
0.2	0.65	0.47	0.30	0.25	0.20	0.18	0.16	0.14	0.13
0.15	0.46	0.34	0.22	0.19	0.15	0.13	0.12	0.11	0.10
0.1	0.28	0.21	0.15	0.12	0.10	0.09	0.08	0.08	0.07
0.06	0.13	0.10	0.07	0.06	0.05	0.05	0.05	0.05	0.05