

KITAGAWA  
2-BUTANOL LENGTH-OF-STAIN DETECTOR TUBES  
(Type U)

No.189U

PERFORMANCE:

Measuring Range :	10 - 300 ppm	4 - 120 ppm
Sampling Time :	3 min. (2 pump strokes)	6 min. (4 pump strokes)
*The graduations printed on the tube are for 2 pump strokes.		
Colour Change :	Yellow - Pale blue	
Detectable Limit :	3 ppm (2 pump strokes)	
Storage Condition:	In a cool and dark place, not to exceed 25 °C (77 °F)	

**\*\*FLOW CONTROL ORIFICE SHOULD NOT BE USED WITH THIS TUBE.**

SAMPLING AND MEASUREMENT:

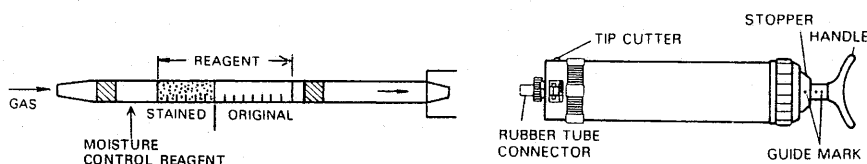


Fig. 1

1. Break both ends of a new detector tube by using the tip cutter, and insert the tube end securely according to the direction of printed arrow mark into the rubber tube connector as shown in Fig. 1.
2. Align the guide marks (red dots) on the shaft and stopper of the pump. Pull the handle at a full stroke and wait for 1.5 minutes. (In case of using the previous Model 400, turn the handle by 1/4 to lock after pulling it.)
3. Turn the handle right or left by 1/4 and push it back fully without removing the detector tube from the connector. Then repeat step 2.
4. Remove the detector tube from the connector on the completion of sampling. A reading can be obtained directly from the scale printed on the detector tube.
5. In case of 4 pump strokes, repeat these pulling and pushing steps another 3 times. And multiply the reading value corrected with the undermentioned temperature correction table, by 0.4.

SPECIAL NOTE:

When the top of the discoloured layer is made obliquely, read the concentration at the centre between the longest and the shortest points of the discoloured layer. The total stain length should be read, even if the stained layer gets multi-colour discolouration.

CORRECTION FOR AMBIENT CONDITIONS:

Temperature;

The scale is calibrated based on the temperature of 20 °C (68 °F). Readings obtained in other temperature circumstances should be corrected with the following temperature correction table.

Scale Readings (ppm)	True Concentration (ppm)					
	10°C (50°F)	15°C (59°F)	20°C (68°F)	25°C (77°F)	30°C (80°F)	35 - 40°C (95 - 104°F)
300	480	360	300	270	250	240
250	390	290	250	230	220	210
200	300	230	200	190	190	180
150	200	160	150	150	140	140
100	110	100	100	100	100	100
50	50	50	50	50	50	50

Humidity;

No corrections are necessary.

Atmospheric Pressure;

Tube readings can be corrected by using either the following equation:  
 True concentration = Tube reading x 1013 / (Atmospheric pressure in mbar)  
 or True concentration = Tube reading x 760 / (Atmospheric pressure in mmHg)

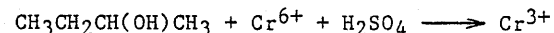
INTERFERENCES:

Alcohols or Ethers produce similar stains and give higher readings. Paraffinic hydrocarbons (more than C<sub>3</sub>), Aromatic hydrocarbons, Esters, Ketones or Halogenated hydrocarbons change the whole reagent to Pale brown and coexistence of them with 2-Butanol give higher readings.

HAZARDOUS AND DANGEROUS PROPERTIES OF 2-BUTANOL:

T.L.V.\*\*\* : 100 ppm  
 Explosive range in air: 1.7 - 9.8 %  
 \*\*\*Threshold Limit Value established by the American Conference Governmental Industrial Hygienists, 1989.

CHEMICAL REACTION IN THE DETECTOR TUBE:



INSPECTION OF ASPIRATING PUMP:

Before testing, the pump shall be checked for proper performance. Leakage of air will affect accuracy of readings. The leakage check should be carried out by pulling the handle fully with an unopened tube into the connector and waiting for 3 minutes. If the handle comes back thoroughly to the original position when the lock is released, the performance is good. When the handle does not come back to the original position completely, give maintenance to the pump referring to the relevant description in the instruction manual of the pump. Then, confirm the pump by carrying out this inspection procedure again.

CAUTION:

Keep the detector tubes out of the reach of children and used tubes should be discarded carefully according to relevant regulations.