Kitagawa No. 175SH

NITROGEN OXIDES LENGTH-OF-STAIN DETECTOR TUBES

(Type SH)

(Direct Reading Type)

PERFORMANCE:

Measuring Range	:	100 - 2,500ppm
Sampling Time	:	1 minute (1 pump stroke)
Colour Change	:	White - Yellow
Detectable Limit	:	10ppm
Storage Condition	:	In a cool and dark place, not exceed 25°C (77°F)
Aspirating Pump	:	Model 400, 400A or AP-1

FLOW CONTROL ORIFICE SUPPLIED WITH PUMPS PRIOR TO SEPTEMBER, 1985 SHOULD NOT BE USED WITH THIS TUBE.
READ CAREFULLY THE "USER RESPONSIBILITY" SECTION PRIOR TO USING THIS PRODUCT.

SAMPLING AND MEASUREMENT:

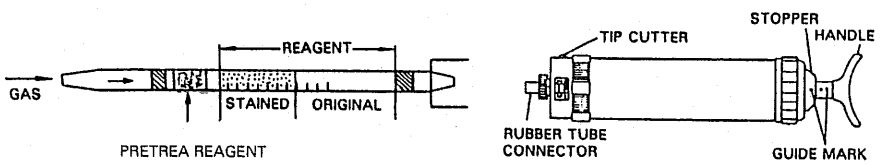

Fig. 1

1. Break both ends of a new detector tube by using the tip cutter.
   CAUTION: SAFETY GLASSES AND GLOVES SHOULD BE WORN TO PREVENT INJURY FROM AIRBORNE PIECES OF BROKEN GLASS AND SHARP CUT GLASS EDGES.
2. And insert the tube end securely according to the direction of printed arrow mark into the rubber tube connector as shown in Fig. 1.
3. 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 minute. (In case of using the previous Model 400, turn the handle by 1/4 to lock after pulling it.)
4. Remove the detector tube from the rubber tube connector on the completion of sampling. A reading can be obtained directly from the scale printed on the detector tube.

SPECIAL NOTE:

1. When the concentration of Nitrogen oxides is high (over 2,000 ppm) in the measuring range, a green ring may occur in the stained layer or double-bed stain may occur. The total stain length should be read in any case.
2. When the top of the stained layer is made obliquely, read the concentration at the centre between the longest and shortest points of the stained layer. The total stain length should be read, even if the stained layer gets multi-colour discolouration.

CORRECTION FOR AMBIENT CONDITIONS:

Temperature;
No temperature correction is necessary at the temperature of 5°C (41°F) to 45°C (113°F).
Humidity;
No corrections are necessary.
Atmospheric Pressure;
Tube readings can be corrected by using either the following equations:
True Concentration = Tube reading × 1013/(Atmospheric pressure in mbar)
or True Concentration = Tube reading × 760/(Atmospheric pressure in mmHg)

INTERFERENCES:

Coexistence of Hydrogen chloride with Nitrogen oxides changes the bottom of the stained layer to Dark blue. In case that the concentration of Hydrogen chloride is less than 500 ppm, the accuracy of readings is not affected, however, in case of over 500 ppm, higher readings are given. The accuracy of readings is not affected by Sulphur dioxide.

HAZARDOUS PROPERTY OF NITROGEN OXIDES:

T.L.V.◆	Nitrogen oxide (NO)	:	25 ppm
	Nitrogen dioxide (NO_2)	:	3 ppm

◆ Threshold Limit Value established by the American Conference of Governmental Industrial Hygienists, 1992.

CHEMICAL REACTION IN THE DETECTOR TUBE:

$$NO + CrO_3 + H_2SO_4 \rightarrow NO_2$$
$$NO_2 + (C_6H_5)_2NH \rightarrow (C_6H_5)_2NNO$$

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 unopened tube into the connector and waiting for 3 minutes. If the handle comes back throughly to the original position when the lock is released, the performance is good.
Any pump showing signs of leakage should be immediately removed from use until the leakage is corrected.

CAUTION:

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

USER RESPONSIBILITY

It is the sole responsibility of the user of this equipment to ensure that the equipment is operated, maintained, and repaired in strict accordance with these instructions and the instructions provided with each Model 400, 400A or AP-1 aspirating pump, and that detector tubes are not used which are either beyond their expiration date or have a colour different than referenced under Performance Specifications.
The Manufacturer and Manufacturer's Distributor shall not be otherwise liable for any incorrect measurement or any damages, whether damages result from negligence or otherwise.

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