# **ACRYLONITRILE**



# 1. PERFORMANCE

1) Measuring range 0.1-3.5%Number of pump strokes  $1(100 \text{m} \ell)$ 

2) Sampling time : 1.5 minutes/1 pump stroke

3) Detectable limit : 0.001 % (10 ppm)

4) Shelf life

: 3 years :  $0 \sim 40^{\circ}$ 

5) Operating temperature :  $0 \sim 40 \, ^{\circ}\mathrm{C}$ 

6) Temperature compensation : Necessary (See "TEMPERATURE CORRECTION TABLE") 7) Reading : Direct reading from the scale calibrated by 1 pump stroke

8) Colour change : Orange → Dark green

# 2. RELATIVE STANDARD DEVIATION

RSD-low: 10% RSD-mid.: 5% RSD-high: 5%

### 3. CHEMICAL REACTION

Chromium oxide is reduced.

 $CH_2 = CHCN + Cr^{6+} + H_2SO_4 \rightarrow Cr^{3+}$ 

# 4. CALIBRATION OF THE TUBE

GAS CHROMATOGRAPHY

#### 5. INTERFERENCE AND CROSS SENSITIVITY

| Substance  | Interference                         | ppm  | Coexistence  |  |  |  |  |  |
|--|--------------------------------------|------|--|--|--|--|--|--|
| Acetylene  | Whole layer is discoloured to Brown. | 3%   | Whole layer is discoloured to Brown and higher readings are given. |  |  |  |  |  |
| Propane  | "                                    | 0.2% | "  |  |  |  |  |  |
| Other organic gases or vapours except Halogenated hydrocarbons | Similar stain is produced.           | 50   | Higher readings are given.   |  |  |  |  |  |

#### TEMPERATURE CORRECTION TABLE

| Tube            | Corrected Concentration (%) |                  |                 |                 |                 |  |
|-----------------|-----------------------------|------------------|-----------------|-----------------|-----------------|--|
| Readings<br>(%) | 0 °C<br>(32 °F)             | 10 °C<br>(50 °F) | 20 ℃<br>(68 °F) | 30 ℃<br>(86 °F) | 40°C<br>(104°F) |  |
| 3.5             | 5.5                         | 4.6              | 3.5             | 3.2             | 2.8             |  |
| 3.0             | 4.7                         | 3.9              | 3.0             | 2.7             | 2.4             |  |
| 2.5             | 3.9                         | 3.2              | 2.5             | 2.2             | 2.0             |  |
| 2.0             | 3.1                         | 2.6              | 2.0             | 1.8             | 1.6             |  |
| 1.5             | 2.4                         | 1.9              | 1.5             | 1.4             | 1.2             |  |
| 1.0             | 1.6                         | 1.3              | 1.0             | 0.9             | 0.8             |  |
| 0.8             | 1.3                         | 1.0              | 0.8             | 0.7             | 0.7             |  |
| 0.5             | 0.8                         | 0.7              | 0.5             | 0.5             | 0.4             |  |
| 0.3             | 0.5                         | 0.4              | 0.3             | 0.3             | 0.3             |  |
| 0.1             | 0.2                         | 0.1              | 0.1             | 0.1             | 0.1             |  |