

## Analysis of furfural in transformer oil

Furfural included in an essential oil has some particular smell. The colour changes to yellow-brown and then it becomes resinified when furfural is exposed to light in the air. Furfural is used for the raw materials of nylon and phenol furan resin, and solvent for purification to remove wax from oils. It is also used for resistance to mildew and antibacterial agent. It was found that the content is changed by the deterioration of oil as a result of the analysis of furfural in transformer oil with HPLC. Fig. 1 shows a chromatogram of furfural when 20  $\mu$ l of fresh transformer oil was injected. Fig.2 shows a chromatogram when 10  $\mu$ l of transformer oil deteriorated for 2 months was injected.

**Conditions:**

|              |   |
|--------------|---|
| Pump:        | 880-PU  |
| Detector:    | 875-UV  |
| Wavelength:  | 280 nm  |
| Sensitivity: | 0.16 AUFS   |
| Column:      | Finepak SIL C18S  |
| Eluent A:    | Step gradient   |
|              | CH <sub>3</sub> OH / H <sub>2</sub> O (10/90) ----- CH <sub>3</sub> OH 100% |
|              | after 15 min.   |
| Flow rate:   | 1.0ml/min   |

