KYOTO ELECTRONICS MANUFACTURING CO.,LTD.

KVX-01311-enL

**Application Memo**

# Water Content of Aldehyde

| | |
|---|---|
| Industry | Organic chemical industry |
| Instrument | Karl Fischer moisture titrator |
| Measurement method | Volumetric titration (Direct Method) |
| Standards | JIS K 0113, ASTM E 203, ISO 760 |

## 1. Overview

Moisture titration with Karl Fischer reagent is the most reliable moisture measurement method in the world. The procedure is adopted in many official standards as test method specified in ISO, ASTM, DIN, BS and JIS.
Here in this application, we measure water content of aldehyde by direct method of KF titration according to JIS K 0113. The aldehydes induce interference reaction that generates water with alcohol like methanol.

$R_2CO + 2ROH \rightarrow R_2C(OR)_2 + H_2O$

Aldehydes can cause interfering reactions that take water away.

$RCHO + SO_2 + H_2O + RN \rightarrow RCH(OR)_2 + HNR$

However, these interference reactions can be avoided by titration with solvent for ketone.

## 2. Apparatus

| | |
|---|---|
| Main unit | Karl Fischer moisture titration volumetric system |
| Electrode | Twin platinum electrode |

## 3. Reagents

| | |
|---|---|
| Titrant | KEMAQUA titrant TR-3 |
| Solvent | KEMAQUA solvent KET for ketone |

## 4. Example

**－Measurement results－**

| Sample name | Max vol. | Water content | |
|---|---|---|---|
| | | mg | % |
| **Benzaldehyde** | **5mL** | **2.62** | **0.13** |
| **2-Bromobenzalde-hyde** | **2mL** | **0.54** | **0.10** |
| **4-Dimethylamino-benzaldehyde** | **10g** | **0.36** | **0.02** |

| Sample name | Max vol. | Water content | |
|---|---|---|---|
| | | mg | % |
| **2- Anizic aldehyde** | **10mL** | **0.76** | **0.04** |
| **3-Hydrozylbenz-aldehyde** | **5g** | **1.46** | **0.22** |
| **Phenyl glyoxal** | **0.5g** | **1.13** | **1.00** |

Please feel free to contact us for any further information.

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