

Application Memo

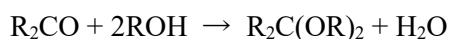
Water Content in Ketone (3)

| | |
|--------------------|--------------------------------------|
| 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 ketone by direct method of KF titration according to JIS K 0113. The ketones induce side reaction of generating water with alcohol like methanol.



However, the side reaction can be avoided by titration with commercially sold 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 volume | Water content | |
|---------------------------|------------|---------------|-------|
| | | (mg) | (%) |
| Hexachloro-acetone | 5mL | 1.56 | 0.12 |
| Acetophenone | 10mL | 1.60 | 0.029 |
| 2-fluoroacetophenone | 10mL | 2.11 | 0.21 |
| 2,4-dihydroxyacetophenone | 5g | 0.82 | 0.021 |
| 2-aminoacetophenone | 10mL | 4.46 | 0.13 |

| Sample name | Max volume | Water content | |
|--------------------------|------------|---------------|-------|
| | | (mg) | (%) |
| Pyruvic acid | 1mL | 2.39 | 1.07 |
| 2-ketobutyric acid | 1g | 3.30 | 0.95 |
| Levulinic acid | 10mL | 4.05 | 0.22 |
| 3-benzoyl-propionic acid | 5g | 0.46 | 0.020 |
| 1,2-cyclohexoic acid | 1g | 3.00 | 0.90 |

Please feel free to contact us for any further information.

< Contact > Kyoto Electronics Manufacturing Co., Ltd.

Overseas Sales & Marketing Sect.

<http://www.kyoto-kem.com/en/contact/form.php>