

Application Memo

Moisture of Low Melting PET Pellet

| | | |
|--------------------|---|---|
| Industry | : | Plastic, Rubber |
| Instrument | : | Karl Fischer Moisture Titrator |
| Measurement method | : | Coulometric Titration (Evaporation Method) |
| Standards | : | JIS K 0113, JIS K 0068, ASTM D 1533, ASTM D 1744, ISO 760 |

1. Overview

Moisture titration using Karl Fischer reagent is popularly practiced water determination worldwide as the most reliable method. The procedure is adopted in many official standards as test method specified in ISO, ASTM, DIN, BS and JIS.

PET (Polyethylene terephthalate) is generally hard to dissolve in KF solvent, and therefore, the indirect method using an oven to evaporate moisture in sample is generally practiced.

The test sample is first heated in the oven, and the evaporated moisture is transferred to the cell by carrier gas where moisture titration is performed.

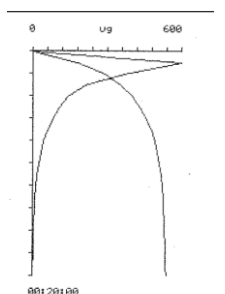
2. Apparatus

| | | |
|-----------|---|---|
| Main unit | : | Karl Fischer moisture titration volumetric system |
| Electrode | : | Electrolysis electrode Twin platinum electrode for KF titration |
| Option | : | KF oven |

3. Reagents

| | | |
|-------------|---|---------------------------------------|
| Annolyte | : | Hydranal Coulomat AG (Riedel de Haen) |
| Catholyte | : | Hydranal Coulomat CG (Riedel de Haen) |
| Carrier gas | : | Nitrogen gas (99.99%) |

4. Example



—Titration curve—

—Measurement results—

| | Sample (g) | Moisture (μg) | Concentration (ppm) |
|---------|---------------|-------------------------------|------------------------|
| 1 | 0.5118 | 442.1 | 863.81 |
| 2 | 0.4993 | 424.1 | 849.39 |
| 3 | 0.5049 | 429.7 | 851.23 |
| Average | | | 854.81 |
| SD | | | 7.85 |
| RSD(%) | | | 0.92 |

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