

Assay of TiO₂_ICP Method

[SJ-MM-034]

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REV.0

Quality Assurance Dept.

Test procedure

1. Add sample 0.3g, nitric acid 7ml and hydrofluoric acid 3ml into each Control Vessel and sample vessel.
2. Fix the vessel with pipewrench after removing the moisture outside of vessel completely.
3. Attach the temperature sensor and pressure sensor onto Control vessel.
4. Do preprocess after installing it to microwave.
5. Check if sample is fully melted by naked eye.
6. Dilute 5) with distilled water 50g.
7. Dilute sample 0.5g form 6) with distilled water 50g.
8. Separately, make calibration curve after making 5,10,25,50ppm Ti standard liquid and conduct ICP
9. Conduct test liquid in ICP then calculate the amount of Ti(334.188nm) by calibration curve.
10. Calculate content of TiO₂ as below.

$$\text{TiO}_2 (\%) = \frac{\text{Calculated Ti(ppm)} * \text{Dilution magnification} * \text{TiO}_2 \text{ molecular weight}(79.88)}{\text{Ti molecular weight} (47.88) * \% (10,000)}$$

Microwave condition

120°C increase 15min → 120°C maintain 5min → 220°C increase 10min → 220°C maintain 15min

ICP condition

Wavelength : 334.188 nm

Plasma : Argon gas (more than 99.99 v/v%)