

## Lithium Carbonate Tablets

**Dissolution** <6.10> Perform the test with 1 tablet of Lithium Carbonate Tablets at 100 revolutions per minute according to the Paddle method, using 900 mL of water as the dissolution medium. Start the test, withdraw 20 mL of the medium at the specified minute after starting the test, and immediately fill up the dissolution medium with exactly 20 mL of water, previously warmed to  $37 \pm 0.5^\circ\text{C}$ , carefully. Filter these media through a membrane filter with a pore size not exceeding 0.45  $\mu\text{m}$ . Discard the first 10 mL of the filtrate, pipet  $V$  mL of the subsequent filtrate, add exactly 5 mL of dilute hydrochloric acid, then add water to make exactly  $V'$  mL so that each mL contains about 4.4  $\mu\text{g}$  of lithium carbonate ( $\text{Li}_2\text{CO}_3$ ) according to the labeled amount, and use this solution as the sample solution. Separately, weigh accurately about 22 mg of Lithium Carbonate RS, previously dried at  $105^\circ\text{C}$  for 3 hours, and dissolve in water to make exactly 100 mL. Pipet 0.5 mL, 2 mL, 3 mL, 4 mL and 5 mL of this solution, and add water to make them exactly 20 mL. Pipet 5 mL of these solutions, add exactly 5 mL of dilute hydrochloric acid, then add water to make them exactly 50 mL, and use this solution as the standard solution. Perform the test with the sample solution and standard solution as directed under Atomic Absorption Spectrophotometry <2.23> according to the following conditions, and determine the absorbances,  $A_{T(n)}$  and  $A_{S1}, A_{S2}, A_{S3}, A_{S4}, A_{S5}$ .

The requirements are met if Lithium Carbonate Tablets conform to the dissolution requirements.

Dissolution rate (%) with respect to the labeled amount of lithium carbonate ( $\text{Li}_2\text{CO}_3$ ) on the  $n$ th dissolution medium withdrawing ( $n=1,2$ )

$$= [(A_{T(n)} - \text{ordinate intercept of the calibration curve}) + \sum_{i=1}^{n-1} (A_{T(i)} - \text{ordinate intercept of the calibration curve}) \times \frac{1}{45}] \times \frac{1}{\text{slope of the calibration curve}} \times \frac{V'}{V} \times \frac{1}{C} \times 90$$

$C$ : Labeled amount (mg) of lithium carbonate ( $\text{Li}_2\text{CO}_3$ ) in 1 tablet

Ordinate intercept and slope of the calibration curve: Draw and calculate a calibration curve with the absorbances,  $A_{S1}, A_{S2}, A_{S3}, A_{S4}$  and  $A_{S5}$ , as the ordinate, and with each content ( $\mu\text{g/mL}$ ) of lithium carbonate as the abscissa

Gas: Combustible gas—Acetylene

Supporting gas—Air

Lamp: Lithium hollow cathode lamp

Wavelength: 670.8 nm

Dissolution Requirements

Labeled amount	Specified minute	Dissolution rate
100 mg	15 minutes	Not more than 45%
	180 minutes	Not less than 80%
200 mg	30 minutes	Not more than 50%
	180 minutes	Not less than 80%

**Lithium Carbonate RS** Lithium Carbonate (JP).