

Theoretical Plate Estimates Indicates Column Condition - HPLC Primer

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Estimating Theoretical Plates to Assess Column Condition – HPLC Primer

A quick way to estimate a reasonable plate number (**N**) for any HPLC column is:

$$N \approx 300 \times \frac{L}{d_p}$$
$$N \approx 300 \times d \text{ pL}$$

Where:

- **L** = column length (in millimeters)
- **d_p** = particle diameter (in micrometers)

Example:

For a 250 mm × 4.6 mm column packed with 5 μm particles:

$$N \approx 300 \times \frac{250}{5} = 15,000$$
$$N \approx 300 \times 50 = 15,000$$

Interpreting Results:

If your measured plate count is within ~20% of this predicted value, the column is considered to be in good condition.



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