

Converting Concrete Test Cylinder Molds into Liquid Measuring Vessels

Introduction

The correct dosing of liquid admixtures during truck batching and testing requires the use of standard measuring devices such as a measuring cup, graduated cylinder, etc. For those instances where these are not available, the following guidelines can be used for converting concrete test cylinder molds into measuring devices for liquids.

It should be noted that these converted cylinder molds may not be as accurate as graduated cylinders, measuring cups or other devices. Accuracy for 4 in. x 8 in. (100 mm x 200 mm) molds is likely to be ± 2 fl oz (60 mL) and for 6 in. x 12 in. (150 mm x 300 mm) molds ± 4 fl oz (120 mL).

Equipment Needed (see Figure 1)

- A clean plastic concrete test cylinder mold: 6 in. x 12 in. (150 mm x 300 mm) or 4 in. x 8 in. (100 mm x 200 mm)
- A minimum 12 in. (300 mm) ruler graduated in minimum 0.5 in. (or 10 mm) increments

Calculating the Quantity of Admixture Needed

Quantity of admixture needed =

$$\frac{CM}{100} \times AD \times LS$$

Where,

CM = Total cementitious materials content (lb/yd³ or kg/m³)

AD = Admixture dosage (fl oz/cwt or mL/100 kg)

LS = Load size (yd³ or m³)



Figure 1. Cylinder mold being used as a measuring device for liquids

Using a 6 in. x 12 in. (150 mm x 300 mm) cylinder mold

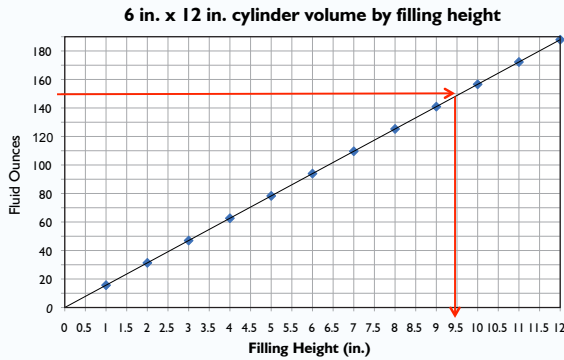
A standard 6 in. x 12 in. (150 mm x 300 mm) cylinder can hold approximately 185 fl oz (5470 mL) of liquid admixture.

Measuring in U.S. Customary Units:

1 in. of filling height = 15.7 fl oz OR 1 fl oz = 0.064 in. of filling height

Example:

To measure 150 fl oz of admixture, filling height inside the mold is:
 $150 \times 0.064 = 9.5$ in.

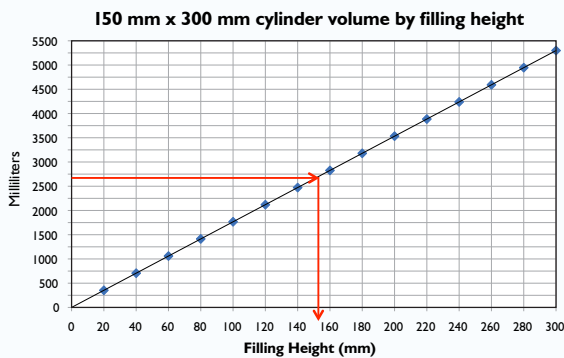


Measuring in Metric Units:

1 mm of filling height = 18 mL OR 1 mL = 0.05 mm of filling height

Example:

To measure 2750 mL of admixture, filling height inside the mold is:
 $2750 \times 0.05 = 150$ mm



Using a 4 in. x 8 in. (100 mm x 200 mm) cylinder mold

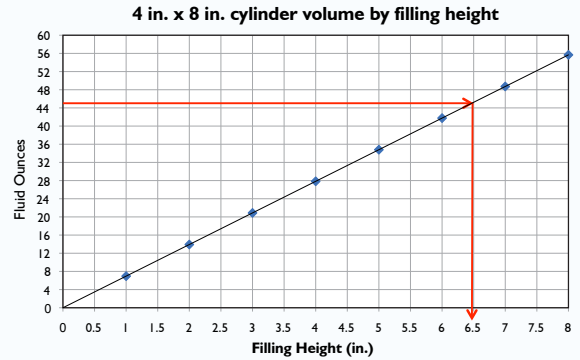
A standard 4 in. x 8 in. (100 mm x 200 mm) cylinder can hold approximately 55 fl oz (1625 mL) of liquid admixture.

Measuring in U.S. Customary Units:

1 in. of filling height = 7 fl oz OR 1 fl oz = 0.14 in. of filling height

Example:

To measure 45 fl oz of admixture, filling height inside the mold is:
 $45 \times 0.14 = 6.5$ in.

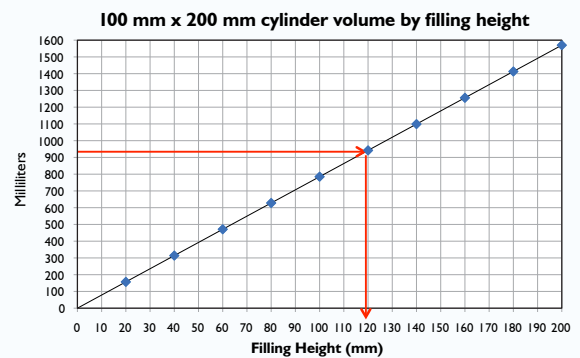


Measuring in Metric Units:

1 mm of filling height = 8 mL OR 1 mL = 0.125 mm of filling height

Example:

To measure 950 mL of admixture, filling height inside the mold is:
 $950 \times 0.125 = 120$ mm



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