Question: 15. Two clean, parallel glass plates, separated by a distance d ...

15. Two clean, parallel glass plates, separated by a distance d = 1.5 mm, are dipped in a bath of water (γ = 9.79 kN/m³). How far does the water rise due to capillary action, if σ = 0.0730 N/m. The angle of contact between water and clean glass is considered 0°. **[5 pts]**

A) 1.50 mm

B) 4.97 mm

C) 9.94 mm

D) 39.77 mm

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Expert Answer

Suhail answered this
1,760 answers

Sol:- For Capillary rise in planar surfaces

$$h = \frac{2\sigma\cos\theta}{\gamma D}$$

Here

$D = 1.5\text{ mm} = 1.5\times10^{-3}$

$\gamma = 9.79\times10^{3}\ N/m^3$, $\theta = 0°$

$\sigma = 0.0730\ N/m$

$$\therefore h = \frac{2\times0.073\times\cos0°}{9.79\times10^{3}\times1.5\times10^{-3}}$$

or $h = 9.94\times10^{-3}\ m$

or $\boxed{h = 9.94\text{ mm}}$ = C option

Up next for you in Civil Engineering

flows
up AB(15ft long, 1.5in diameter), then along BC(10ft
long, 1.0in diameter). The measured pressure and

See answer

plates separated by a distance d = 1.5 mm, are

39. Two clean parallel glass plates separated by a distance d = 1.5 mm, are dipped in a bath of water. How far does the water rise due to capillary action, if σ = 0.0730 N/m? Assume the angle of contact between water and glass is zero since the plates are clean
a. 9.94 mm c. 9.64 mm
b. -9.74 mm d. -9.84 mm

See answer

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Q: 39. Two clean parallel glass plates separated by a distance d = 1.5 mm, are dipped in a bath of water. How far does the water rise due to capillary action, if o = 0.0730 N/m? Assume the angle of contact between water and glass is zero since the plates are clean a. 9.94 mm c. 9.64 mm b b. -9.74 mm d.-9.84 mm

A: See answer

Q: Find the radius of a water droplet that can hold a pressure of 85 Pa, surface tension is 0.0772 N/m.

A: See answer 100% (1 rating)

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