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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 ($\gamma = 9.79$ kN/m³). How far does the water rise due to capillary action, if $\sigma = 0.0730$ 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

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Sol:- For capillary rise b/w planar surfaces

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

Here

$$D = 1.5 \text{ mm} = 1.5 \times 10^{-3}$$

$$\gamma = 9.79 \times 10^3 \text{ N/m}^3, \theta = 0^\circ$$

$$\sigma = 0.0730 \text{ N/m}$$

$$\therefore h = \frac{2 \times 0.073 \times \cos 0^\circ}{9.79 \times 10^3 \times 1.5 \times 10^{-3}}$$

or

$$h = 9.94 \times 10^{-3} \text{ m}$$

or

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

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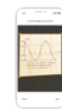
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flows up AB(15ft long, 1.5in diameter), then along BC(10ft long, 1.0in diameter). The measured pressure and

[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 $\sigma = 0.0730$ 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 $\sigma = 0.0730$ 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

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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