Assignment 8

Due on 2021-05-17, 23:59 IST.

1) A yield stress separator system is used to concentrate 1200 kg/h ore from 10% to 45%. Feed contains fine ore at 30°C, and outlet feed percentages are:

- Ore: 1200 kg/h, Ti = 30°C, 10%.
- Water: 3000 kg/h, Ti = 30°C, 45%.

The separator is designed to achieve a 45% concentration.

- Ore: 1200 kg/h, Ti = 30°C, 45%.
- Water: 3000 kg/h, Ti = 30°C, 5%.

The separator has a yield stress of 100 MPa, a density of 1000 kg/m³, and a viscosity of 0.01 Pa·s.

- Ore: 1000 kg/m³, Ti = 30°C, 45%.
- Water: 1000 kg/m³, Ti = 30°C, 5%.

The separator has a yield stress of 100 MPa, a density of 1000 kg/m³, and a viscosity of 0.01 Pa·s.

- Ore: 1000 kg/m³, Ti = 30°C, 45%.
- Water: 1000 kg/m³, Ti = 30°C, 5%.

The separator has a yield stress of 100 MPa, a density of 1000 kg/m³, and a viscosity of 0.01 Pa·s.

- Ore: 1000 kg/m³, Ti = 30°C, 45%.
- Water: 1000 kg/m³, Ti = 30°C, 5%.

The separator has a yield stress of 100 MPa, a density of 1000 kg/m³, and a viscosity of 0.01 Pa·s.

2) In the process of designing the separator, a new concentration 45% is achieved. The separator is designed to achieve a 45% concentration.

- Ore: 1200 kg/h, Ti = 30°C, 45%.
- Water: 3000 kg/h, Ti = 30°C, 5%.

The separator has a yield stress of 100 MPa, a density of 1000 kg/m³, and a viscosity of 0.01 Pa·s.

- Ore: 1200 kg/h, Ti = 30°C, 45%.
- Water: 3000 kg/h, Ti = 30°C, 5%.

The separator has a yield stress of 100 MPa, a density of 1000 kg/m³, and a viscosity of 0.01 Pa·s.

- Ore: 1200 kg/h, Ti = 30°C, 45%.
- Water: 3000 kg/h, Ti = 30°C, 5%.

The separator has a yield stress of 100 MPa, a density of 1000 kg/m³, and a viscosity of 0.01 Pa·s.

- Ore: 1200 kg/h, Ti = 30°C, 45%.
- Water: 3000 kg/h, Ti = 30°C, 5%.

The separator has a yield stress of 100 MPa, a density of 1000 kg/m³, and a viscosity of 0.01 Pa·s.

- Ore: 1200 kg/h, Ti = 30°C, 45%.
- Water: 3000 kg/h, Ti = 30°C, 5%.

The separator has a yield stress of 100 MPa, a density of 1000 kg/m³, and a viscosity of 0.01 Pa·s.