

2-2

$\eta_0 = ?$

$$d_p = 4 \text{ mm}$$

$$\rho_p = 1280 \text{ kg/m}^3$$

$$\varepsilon_0 = 0,4$$

$$t = 25^\circ\text{C}$$

$$P = 733 \cdot 133,32 \text{ Pa}$$

2

$$Ar = \frac{g d_p^3 \rho (\rho_p - \rho)}{\eta^2} = \frac{9,81 \cdot (4 \cdot 10^{-3})^2 \cdot 1,137 \cdot (1280 - 1,137)}{18,41 \cdot 10^{-6}} = 269350$$

$$\rho = \frac{PM}{RT} = \frac{733 \cdot 133,32 \cdot 28,84 \cdot 10^{-3}}{8,314 \cdot 298,15} = 1,137 \text{ kg/m}^3$$

$Ar \gg 1$ turbulence

nbo 2.20 ✓

$$Re_{po} = \sqrt{\frac{4 \varepsilon_0^2}{3 \beta_2}} \sqrt{Ar} =$$

2,34

$$Re_{po} = C_1 (1 - \varepsilon_0) \left[\left(1 + C_2 \frac{\varepsilon_0^3}{(1 - \varepsilon_0)^2} Ar_0 \right)^{1/2} - 1 \right]$$

42,628

$$\eta = \frac{Re_p \cdot \eta}{d_p \cdot \rho}$$

$$\frac{7}{150^2} = 3,1357 \cdot 10^{-4}$$

Práhová rychlost fluidace

$$Ar \varepsilon_0^3 = 1,755 Re_0^2 + 150 (1 - \varepsilon_0) Re_0 \quad (2-19)$$

2

U2-2 fluidace

```
clear
```

```
p = 733*133.32 % Pa
```

```
p = 9.7724e+04
```

```
M = 28.84e-3; % kg/mol
```

```
T = 25+273.15; % K
```

```
rho = p*M/8.314/T % kg/m3
```

```
rho = 1.1370
```

```
eta = 18.41e-6; % Pa.s
```

```
rhop = 1280; % kg/m3
```

```
dp = 4e-3; % m
```

```
AR = 9.81*dp^3*rho*(rhop-rho)/eta^2
```

```
AR = 2.6935e+06
```

```
eps0 = 0.4;
```

```
Blam=2.34;
```

```
REP=sqrt(4/3*eps0^3/Blam*AR)
```

```
REP = 313.4072
```

```
Alam = 133
```

```
Alam = 133
```

```
C1=3/4*Alam/Blam;
```

```
C2 = 3.1357e-4 %7/150^2;
```

```
C2 = 3.1357e-04
```

```
REPalt=C1*(1-eps0)*(sqrt(1+C2*eps0^3/(1-eps0)^2*AR)-1) 2-20
```

```
REPalt = 288.8743
```

```
v = REP*eta/dp/rho
```

```
v = 1.2687
```

```
valt = REPalt*eta/dp/rho
```

```
valt = 1.1694
```

Nebo :