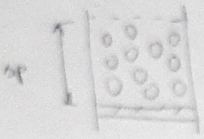
2-1 ② 2-2 2-5 12-15 ①

$\Delta p = ?$ vzduch, $t = 260°C$ $p = 986 hPa$, $CuSO_4$ $D = 100$ mm
$m = 350$ g $CuSO_4$
$\varrho_p = 3610$ kg/m³



$\Delta p S = V_p (\varrho_p - \varrho) g$

$\varrho = ?$ $pV = mRT$ $m = \frac{m}{M}$

$p = \frac{m}{VM} RT$

$p = \frac{\varrho}{M} RT$

$\varrho = \frac{p \cdot M}{RT} = \frac{98 \cdot 10^3 \cdot 28,84 \cdot 10^{-3}}{8,314 \ (273+260)} = 0,638$ kg/m³

$V_p = \frac{m}{\varrho_p} = \frac{0,350}{3610} = 9,70 \cdot 10^{-5}$ m³

$S = \pi D^2/4 = \pi \cdot 0,1^2/4 = 0,0079$ m²

lze zanedbat

$\Delta p = \frac{V_p (\varrho_p - \varrho) g}{S} = \frac{9,7 \cdot 10^{-5} (3610 - 0,638) \cdot 9,81}{0,0079} = 437$ Pa

Tlaková ztráta – fluidní vrstva

$\Delta p \cdot S = V_p (\varrho_p - \varrho) g$ rovnováha sil !!

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U2-1 fluidace

```
clear
M = 0.21*32e-3+0.79*28e-3 % kg/mol
```

```
M = 0.0288
```

```
p = 98e3; % Pa
T = 273.15+260; % K
rho = p*M/8.314/T % kg/m3
```

```
rho = 0.6376
```

```
mp = 0.35;    % kg
rhop = 3610; % kg/m3
Vp = mp/rhop % m3
```

```
Vp = 9.6953e-05
```

```
S = pi*0.1^2/4 % m2
```

```
S = 0.0079
```

```
delta_p = Vp*(rhop-rho)*9.81/S % Pa
```

```
delta_p = 437.0896
```

```

```