

```

clear
% U12-4
% A - aceton
% B - voda
% C - o-xylen

% data rovnovahy
UA_eq=[0.0092 0.0183 0.0370 0.0547 0.0865 0.0989 0.1891 0.2821]; % kg-A/kg-B
vodna f.
WA_eq=[0.0060 0.0120 0.0236 0.0382 0.0660 0.0735 0.1583 0.2508]; % kg-A/kg-C
xylenova f.

% ze zadani
WA0 = 20/(100-20)      % kg-A/kg-C

```

```

WA0 =
0.2500

```

```

UAS123 = 0.5/(100-0.5) % kg-A/kg-B

```

```

UAS123 =
0.0050

```

```

UAS456 = 0

```

```

UAS456 =
0

```

```

mC = 20*(1-0.2)      % kg-C

```

```

mC =
16

```

```

mB123 = 5*(1-0.005) % kg-B

```

```

mB123 =
4.9750

```

```

mB456 = 5

```

```

mB456 =
5

```

```

E = 0.85; % ucinnost stupne

```

```

% 1.stupen
res1 = @(WAid) pchip(WA_eq, UA_eq, WAid) - ((WA0-WAid)*mC/mB123 + UAS123);
WAid = fzero(res1, WA0)

```

```

WAid =
0.1844

```

```

UAid = (WA0-WAid)*mC/mB123 + UAS123

```

```

UAid =

```

0.2159

```
WA1 = WA0 - E*(WA0-WA1id)
```

WA1 =  
0.1943

```
UA1 = (WA0-WA1)*mC/mB123 + UAS123
```

UA1 =  
0.1843

```
% 2.stupen
```

```
res2 = @(WAid) pchip(WA_eq, UA_eq, WAid) - ((WA1-WAid)*mC/mB123 + UAS123);  
WA2id = fzero(res2, WA1)
```

WA2id =  
0.1421

```
UA2id = (WA1-WA2id)*mC/mB123 + UAS123
```

UA2id =  
0.1729

```
WA2 = WA1 - E*(WA1-WA2id)
```

WA2 =  
0.1499

```
UA2 = (WA1-WA2)*mC/mB123 + UAS123
```

UA2 =  
0.1477

```
% 3.stupen
```

```
res3 = @(WAid) pchip(WA_eq, UA_eq, WAid) - ((WA2-WAid)*mC/mB123 + UAS123);  
WA3id = fzero(res3, WA2)
```

WA3id =  
0.1080

```
UA3id = (WA2-WA3id)*mC/mB123 + UAS123
```

UA3id =  
0.1397

```
WA3 = WA2 - E*(WA2-WA3id)
```

WA3 =  
0.1143

```
UA3 = (WA2-WA3)*mC/mB123 + UAS123
```

UA3 =  
0.1195

#### % 4.stupen

```
res4 = @(WAid) pchip(WA_eq, UA_eq, WAid) - ((WA3-WAid)*mC/mB456 + UAS456);  
WA4id = fzero(res4, WA3)
```

```
WA4id =  
0.0805
```

```
UA4id = (WA3-WA4id)*mC/mB456 + UAS456
```

```
UA4id =  
0.1082
```

```
WA4 = WA3 - E*(WA3-WA4id)
```

```
WA4 =  
0.0856
```

```
UA4 = (WA3-WA4)*mC/mB456 + UAS456
```

```
UA4 =  
0.0920
```

#### % 5.stupen

```
res5 = @(WAid) pchip(WA_eq, UA_eq, WAid) - ((WA4-WAid)*mC/mB456 + UAS456);  
WA5id = fzero(res5, WA4)
```

```
WA5id =  
0.0607
```

```
UA5id = (WA4-WA5id)*mC/mB456 + UAS456
```

```
UA5id =  
0.0796
```

```
WA5 = WA4 - E*(WA4-WA5id)
```

```
WA5 =  
0.0644
```

```
UA5 = (WA4-WA5)*mC/mB456 + UAS456
```

```
UA5 =  
0.0676
```

#### % 6.stupen

```
res6 = @(WAid) pchip(WA_eq, UA_eq, WAid) - ((WA5-WAid)*mC/mB456 + UAS456);  
WA6id = fzero(res6, WA5)
```

```
WA6id =  
0.0450
```

```
UA6id = (WA5-WA6id)*mC/mB456 + UAS456
```

```
UA6id =  
0.0623
```

```
WA6 = WA5 - E*(WA5-WA6id)
```

```
WA6 =  
0.0479
```

```
UA6 = (WA5-WA6)*mC/mB456 + UAS456
```

```
UA6 =  
0.0529
```

```
% Graf
```

```
WA_eq_graph = linspace(min(WA_eq), max(WA_eq), 50)
```

```
WA_eq_graph = 1×50  
0.0060 0.0110 0.0160 0.0210 0.0260 0.0310 0.0360 0.0410 ...
```

```
UA_eq_graph = pchip(WA_eq, UA_eq, WA_eq_graph)
```

```
UA_eq_graph = 1×50  
0.0092 0.0167 0.0248 0.0331 0.0402 0.0463 0.0521 0.0579 ...
```

```
plot(WA_eq_graph, UA_eq_graph, 'k-', ...  
WA_eq, UA_eq, 'ko', ...  
[WA1id WA0], [UA1id, UAS123], 'b:', ...  
[WA1, WA0], [UA1, UAS123], 'r+-', ...  
[WA2id WA1], [UA2id, UAS123], 'b:', ...  
[WA2, WA1], [UA2, UAS123], 'r+-', ...  
[WA3id WA2], [UA3id, UAS123], 'b:', ...  
[WA3, WA2], [UA3, UAS123], 'r+-', ...  
[WA4id WA3], [UA4id, UAS456], 'b:', ...  
[WA4, WA3], [UA4, UAS456], 'r+-', ...  
[WA5id WA4], [UA5id, UAS456], 'b:', ...  
[WA5, WA4], [UA5, UAS456], 'r+-', ...  
[WA6id WA5], [UA6id, UAS456], 'b:', ...  
[WA6, WA5], [UA6, UAS456], 'r+-')
```

```
ax = gca;
```

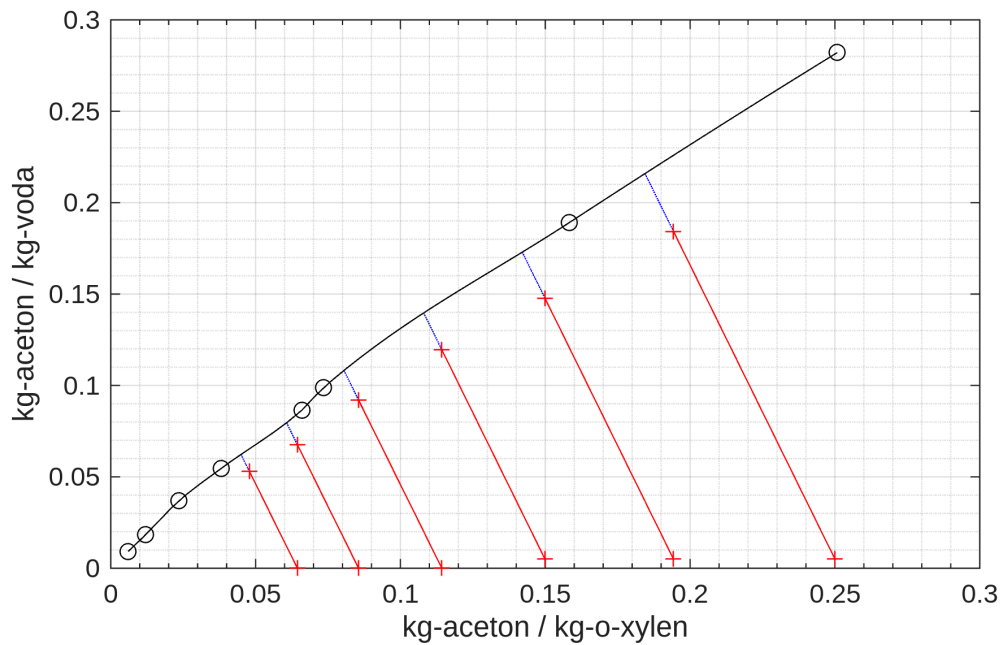
```
ax.XMinorTick = 'on';
```

```
grid on
```

```
grid minor
```

```
xlabel('kg-aceton / kg-o-xylen')
```

```
ylabel('kg-aceton / kg-voda')
```



```
% post-processing (obycejne zlomky)
```

```
% konecny rafinat
```

```
rafinat_6_hmzlom = WA6/(1+WA6) % kg-A/kg
```

```
rafinat_6_hmzlom =  
0.0457
```

```
m_R6 = (1+WA6)*mC % kg
```

```
m_R6 =  
16.7662
```

```
% spojeni extrakt 1, 2 a 3
```

```
extrakt_123 = (UA1+UA2+UA3)/(UA1+UA2+UA3+3) % kg-A/kg
```

```
extrakt_123 =  
0.1308
```

```
m_extrakt_123 = (3+UA1+UA2+UA3)*mB123 % kg
```

```
m_extrakt_123 =  
17.1712
```

```
% spojeni extrakt 4, 5 a 6
```

```
extrakt_456 = (UA4+UA5+UA6)/(UA4+UA5+UA6+3) % kg-A/kg
```

```
extrakt_456 =  
0.0662
```

```
m_extrakt_456 = (3+UA4+UA5+UA6)*mB456 % kg
```

```
m_extrakt_456 =  
16.0626
```