Activit?4ter

April 18, 2018

In [61]:
```
import numpy as np
import pandas as pd
import math
import cmath
import pickle
from scipy.optimize import root
import matplotlib.pyplot as plt
%matplotlib inline
```

In [62]:
```
a = ("Table1.txt")
a
```

Out[62]:
```
'Table1.txt'
```

In [381]:
```
class InterfazPolimero:
    def __init__ (self,a):
        self.a=a

    def Lire(self):
        tab = pd.read_csv(self.a,sep=" ")
        coef =tab.values
        self.Experiment = coef[:,0]
        self.Thickness = coef[:,1]
        self.FoodSimulant = coef[:,2]
        self.Cpo = coef[:,3]
        self.K = coef [:,4]
        self.Dp = coef[:,5]
        self.RMSE = coef[:,6]
        self.k = coef[:,7]
        self.c4 = coef[:,8]
#         self.c1 =coef[:,9]
        self.c2 = np.zeros(10)

        return tab

    def inicializarC2(self):
        self.c2 = np.zeros(10)
        self.dimension = np.shape(self.c2)
```

```
            print(self.dimension)
            return self.c2


        def calcul(self):
            self.j1 = (self.Dp / (self.Thickness / 2)) * (self.Cpo - self.c2)
            print(self.j1)
            self.c3 = self.c2 / self.K
            self.j2 = self.k * (self.c3 - self.c4)
            return (self.j1 - self.j2) / self.j1

        def calcul2(self):
            i = 0
            for self.Thickness, self.Dp, self.K, self.k, self.c in enumerate(tab):
                self.sol = root(calcul,15,args=(float(self.Dp),float(self.k),float(self.K)
                c2[i]= self.sol.x
                i = i + 1
            print(self.c2)
            return self.c2

        def Garder(self):
            raw_data ={"résultat" : [1.115510936772821, 1.0542169426645587, 1.041340418781
            df = pd.DataFrame(raw_data,index=["1","2","3","4","5","6","7","8","9","10"])
            df.to_csv("c2rep")
            return df


        def Graphique(self):
            plt.plot(self.Dp,self.Cpo,"^")
            plt.title("Cpo=f(Dp)")

        def Graphique2(self):
            plt.plot(self.Dp,[1.115510936772821, 1.0542169426645587, 1.041340418781726, 1.

        def Graphique3(self):
            plt.plot(self.Cpo,[1.115510936772821, 1.0542169426645587, 1.041340418781726, 1
```

In [382]:
```
p = InterfazPolimero("Table1.txt")
p
```

Out[382]:
```
<__main__.InterfazPolimero at 0x1e944c70a58>
```

In [383]:
```
p.Lire()
```

Out[383]:

	Experiment	Thickness	FoodSimulant	Cpo	K	Dp	RMSE	\
0	1	0.000146	EtOH95%	1157	52.0	1.950000e-13	1.5	
1	2	0.000146	NaN	2440	35.0	1.970000e-13	3.0	
2	3	0.000146	NaN	3152	24.0	2.000000e-13	2.6	
3	4	0.000146	NaN	5950	0.5	2.000000e-13	2.3	

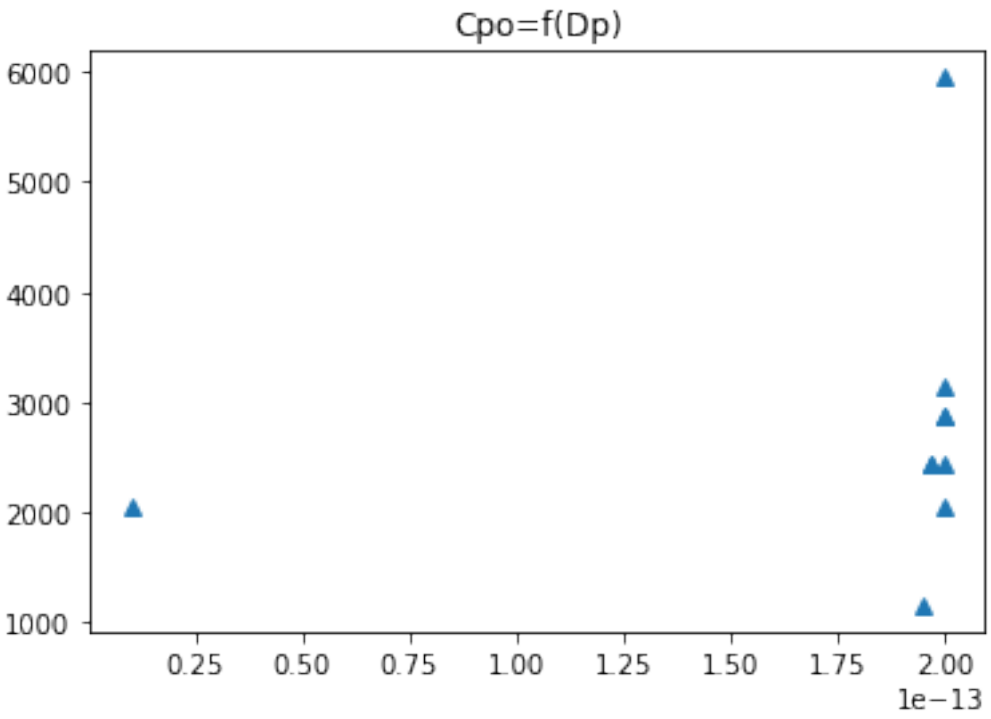
```
4           5   0.000050      EtOH95%  2050  334.0  1.000000e-14   3.1
5           6   0.000146          NaN  2440   35.0  1.970000e-13   3.0
6           7   0.000190          NaN  2878   34.0  2.000000e-13   4.6
7           8   0.000050      EtOH10%  2050    1.0  2.000000e-13   1.0
8           9   0.000146          NaN  2440    1.0  2.000000e-13   1.0
9          10   0.000190          NaN  2878    1.0  2.000000e-13   1.0

          k    c4    c1
0  0.000007  0.05  1045
1  0.000007  0.05  1069
2  0.000007  0.05  1094
3  0.000007  0.05  1119
4  0.000007  0.05  1144
5  0.000007  0.05  1169
6  0.000007  0.05  1194
7  0.000007  0.05  1219
8  0.000007  0.05  1244
9  0.000007  0.05  1269
```

In [384]:
```
p.calcul()
```

```
[3.0906164383561645e-06 6.584657534246575e-06 8.635616438356165e-06
 1.63013698630137e-05 8.199999999999999e-07 6.584657534246575e-06
 6.058947368421054e-06 1.6400000000000002e-05 6.684931506849316e-06
 6.058947368421054e-06]
```

Out[384]:
```
array([1.115510936772821, 1.0542169426645587, 1.041340418781726, 1.0219,
       1.4353658536585368, 1.0542169426645587, 1.058921125781793,
       1.0217682926829268, 1.05340368852459, 1.058921125781793],
      dtype=object)
```

In [385]:
```
p.Graphique()
```

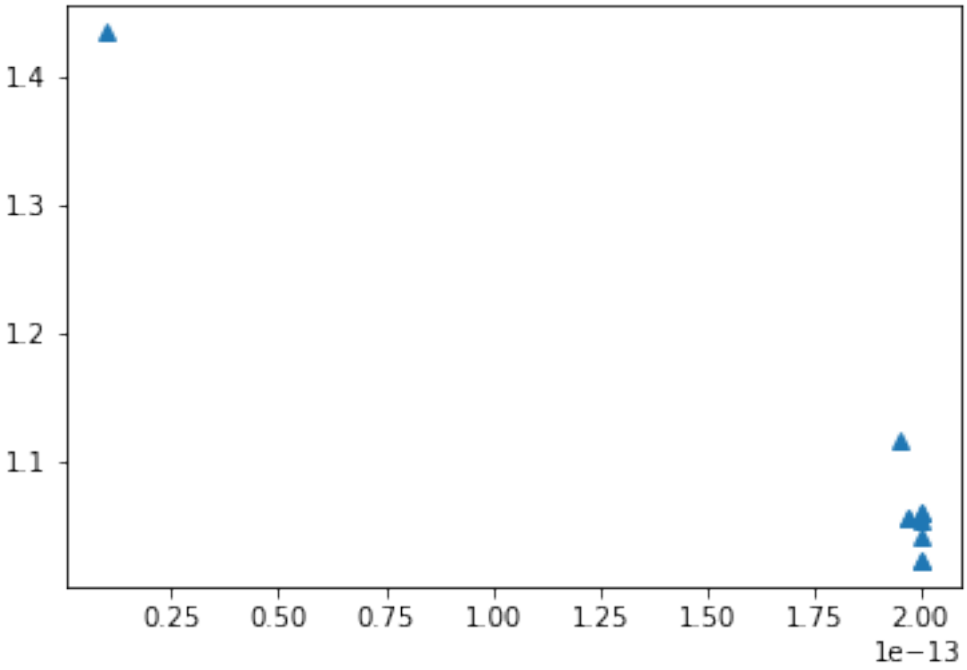


In [386]:
```
table = p.Garder()
table
```

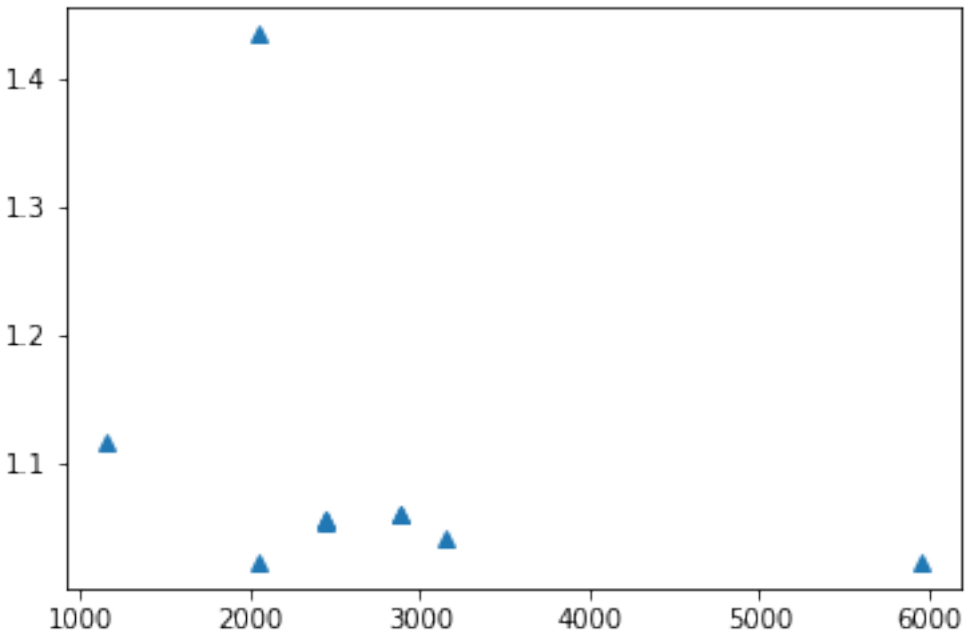
Out[386]:

	résultat
1	1.115511
2	1.054217
3	1.041340
4	1.021900
5	1.435366
6	1.054217
7	1.058921
8	1.021768
9	1.053404
10	1.058921

In [387]:
```
p.Graphique2()
```



In [388]: p.Graphique3()



In [ ]:

In [ ]: