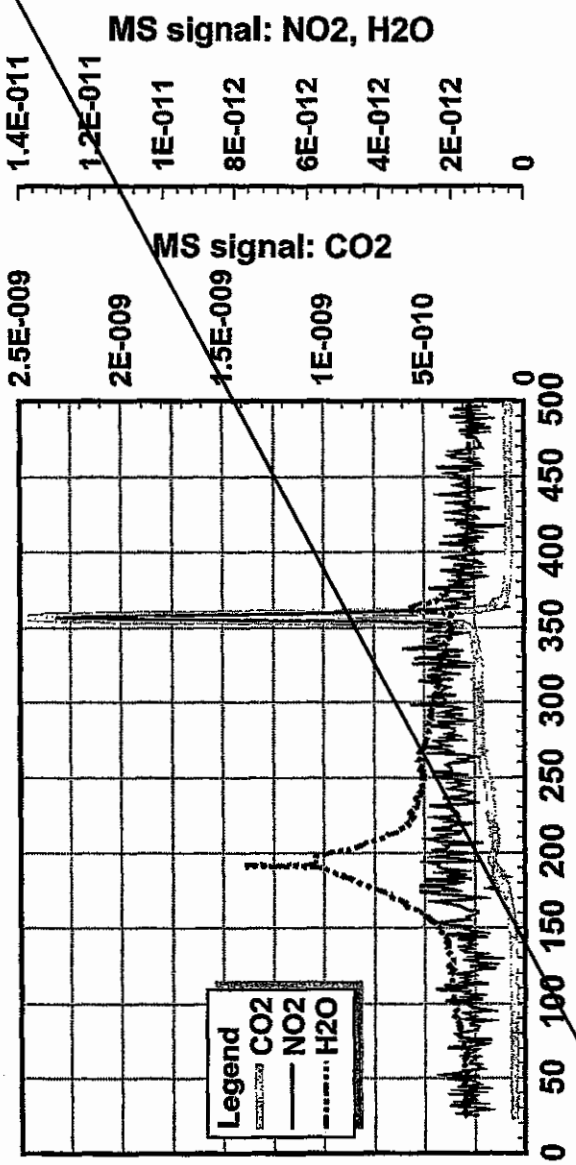

MS signal: NO2, H2O
1.4E-011
1.2E-011
1E-011
8E-012
6E-012
4E-012
2E-012
0
MS signal: CO2
2.5E-009
2E-009
1.5E-009
1E-009
5E-010
0
Legend
CO2
NO2
H2O
0 50 100 150 200 250 300 350 400 450 500
temperature (deg C)

Figure 1

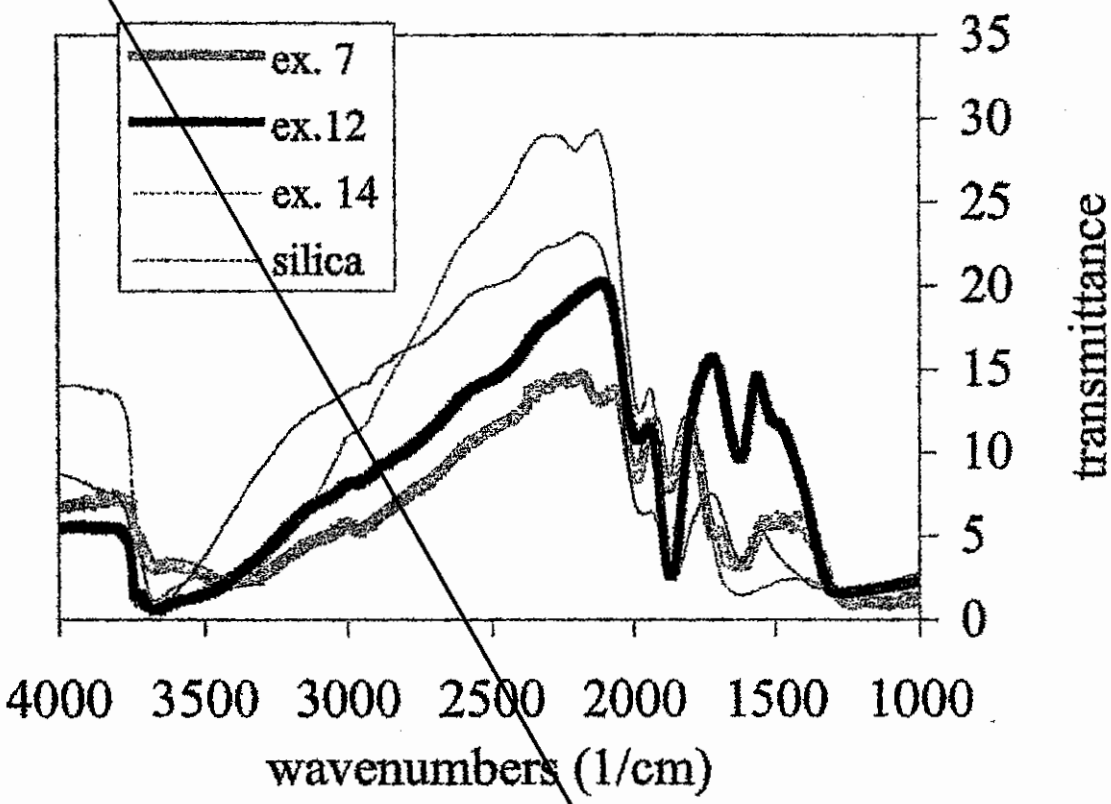

ex. 7
ex.12
ex. 14
silica
35
30
25
20
15
10
5
0
transmittance
4000 3500 3000 2500 2000 1500 1000
wavenumbers (1/cm)

Figure 2

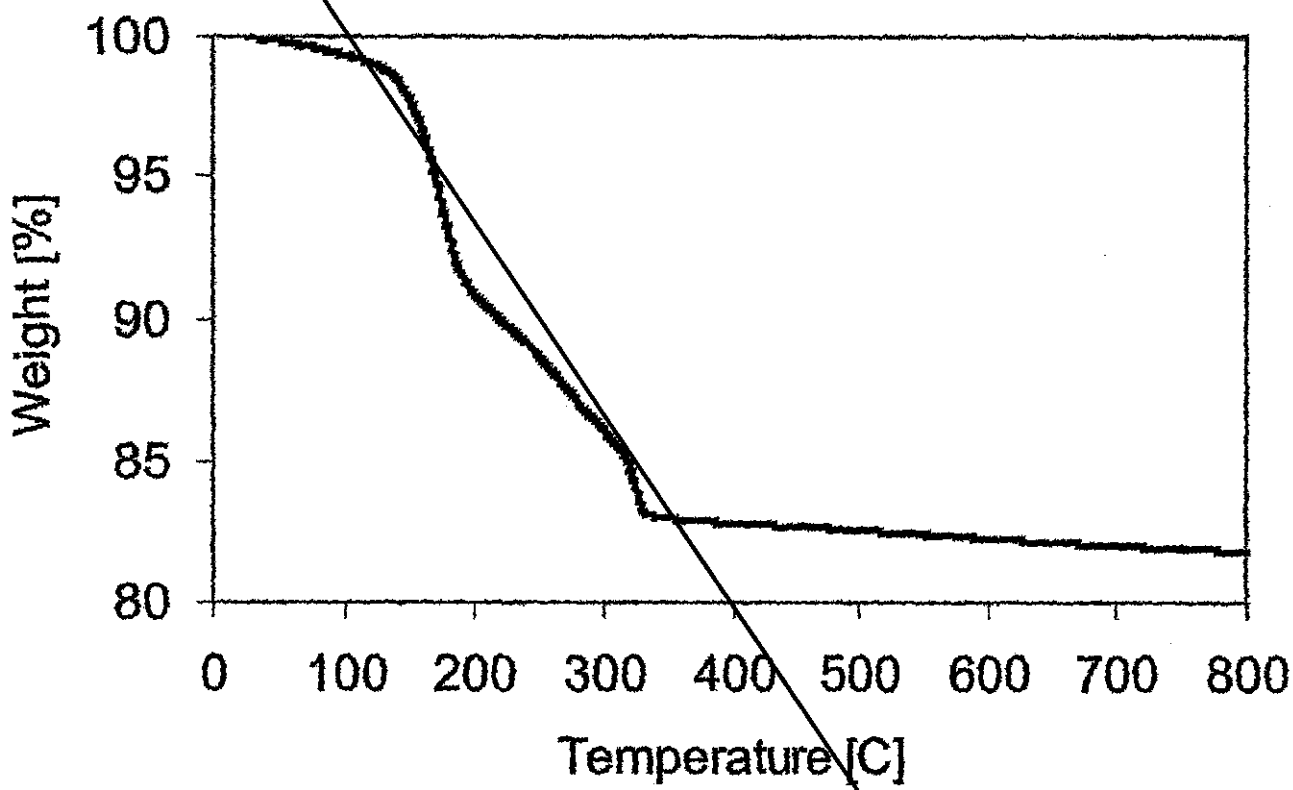
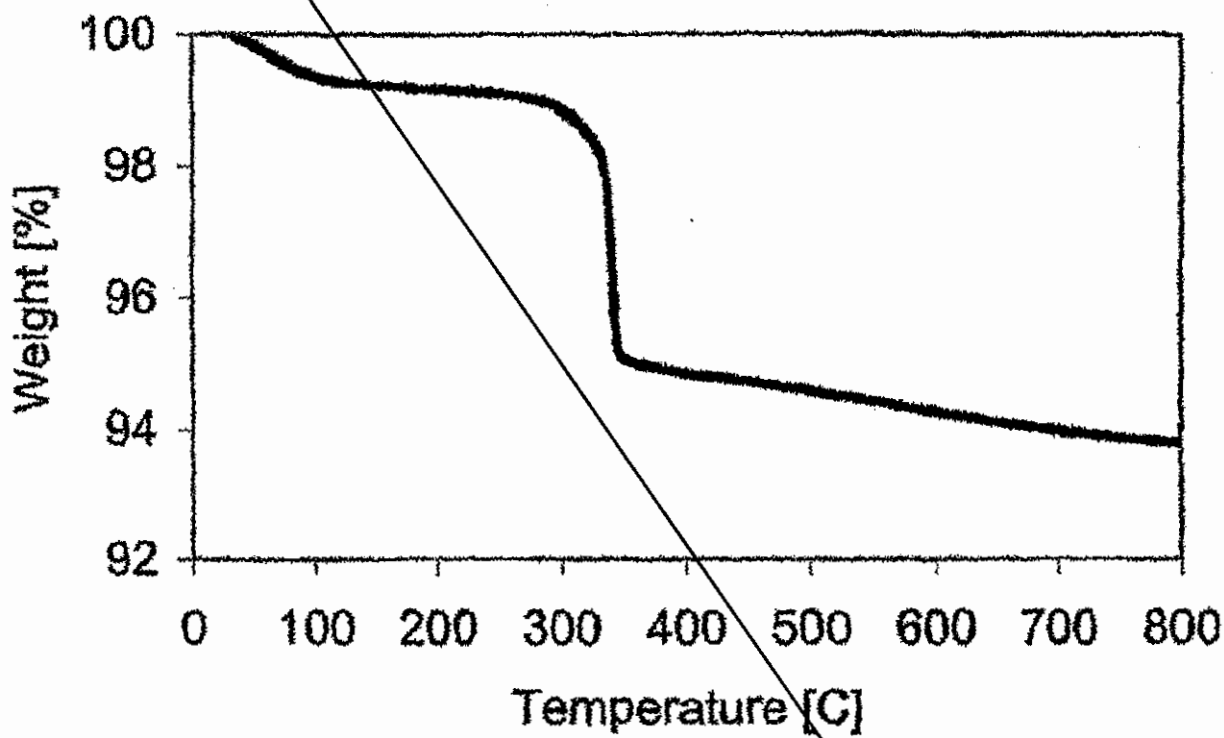

100
95
90
85
80
Weight [%]
0
100
200
300
400
500
600
700
800
Temperature [C]

Figure 3


100
98
96
94
92
Weight [%]
0
100
200
300
400
500
600
700
800
Temperature [C]

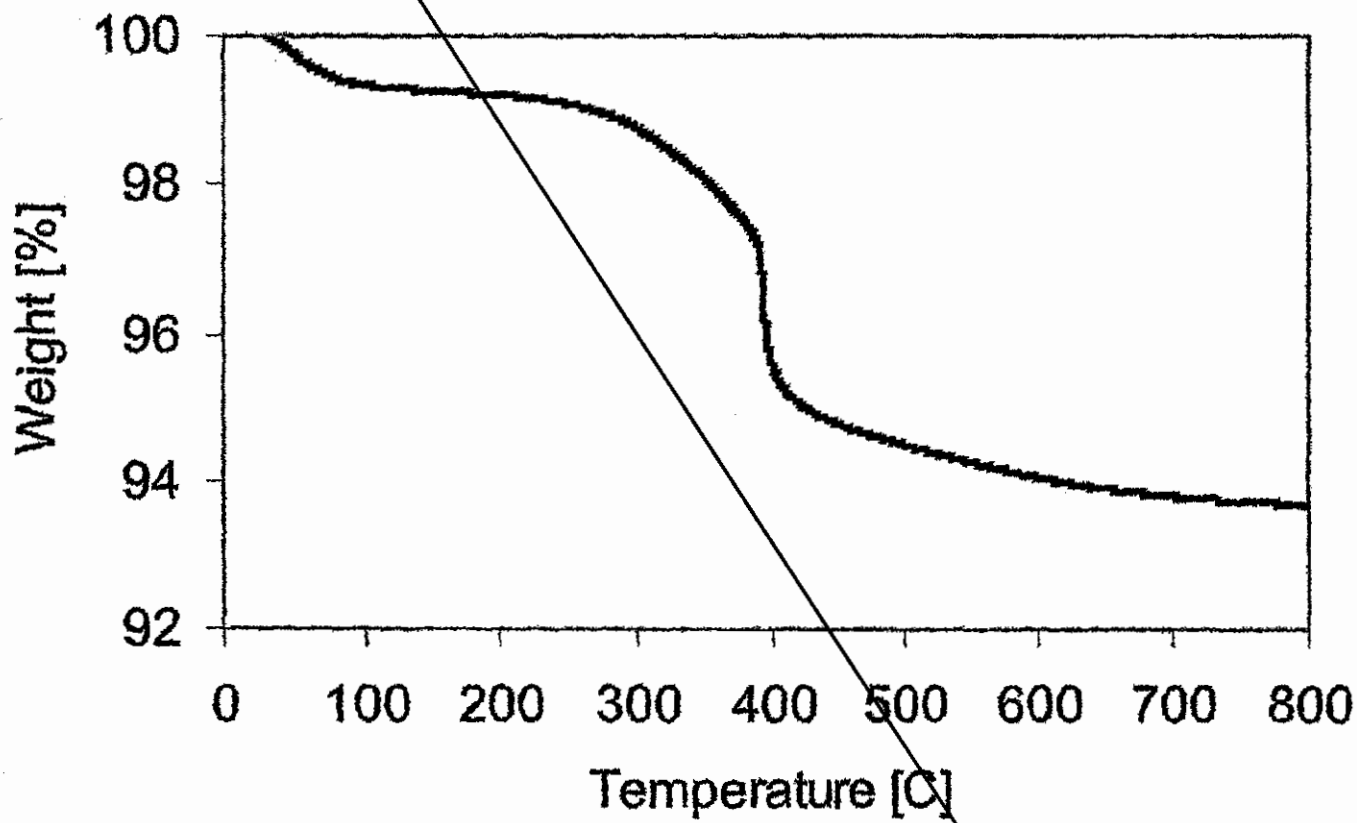

100
98
96
94
92
Weight [%]
0
100
200
300
400
500
600
700
800
Temperature [C]

Figure 5

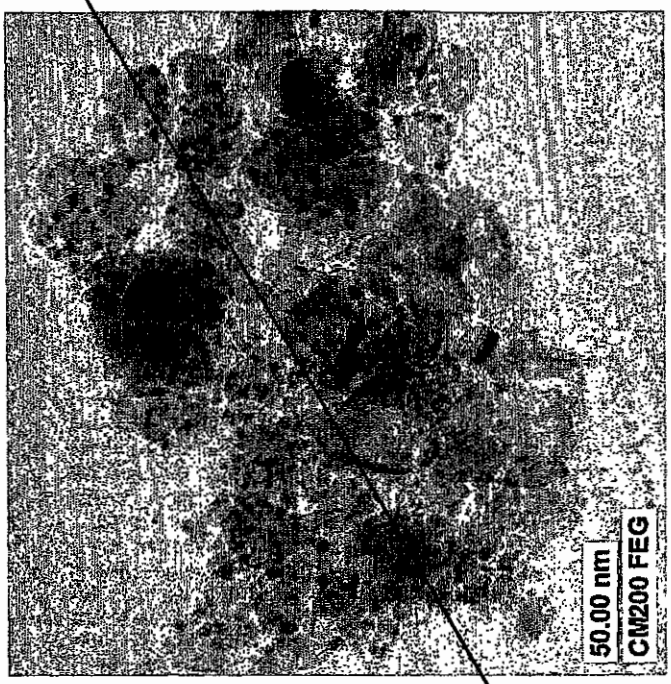


Figure 6 (b)

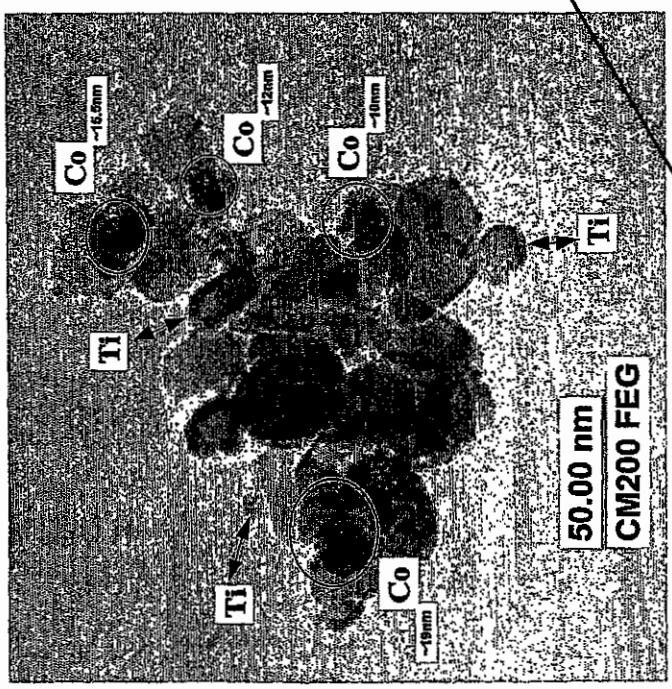


Figure 6 (a)

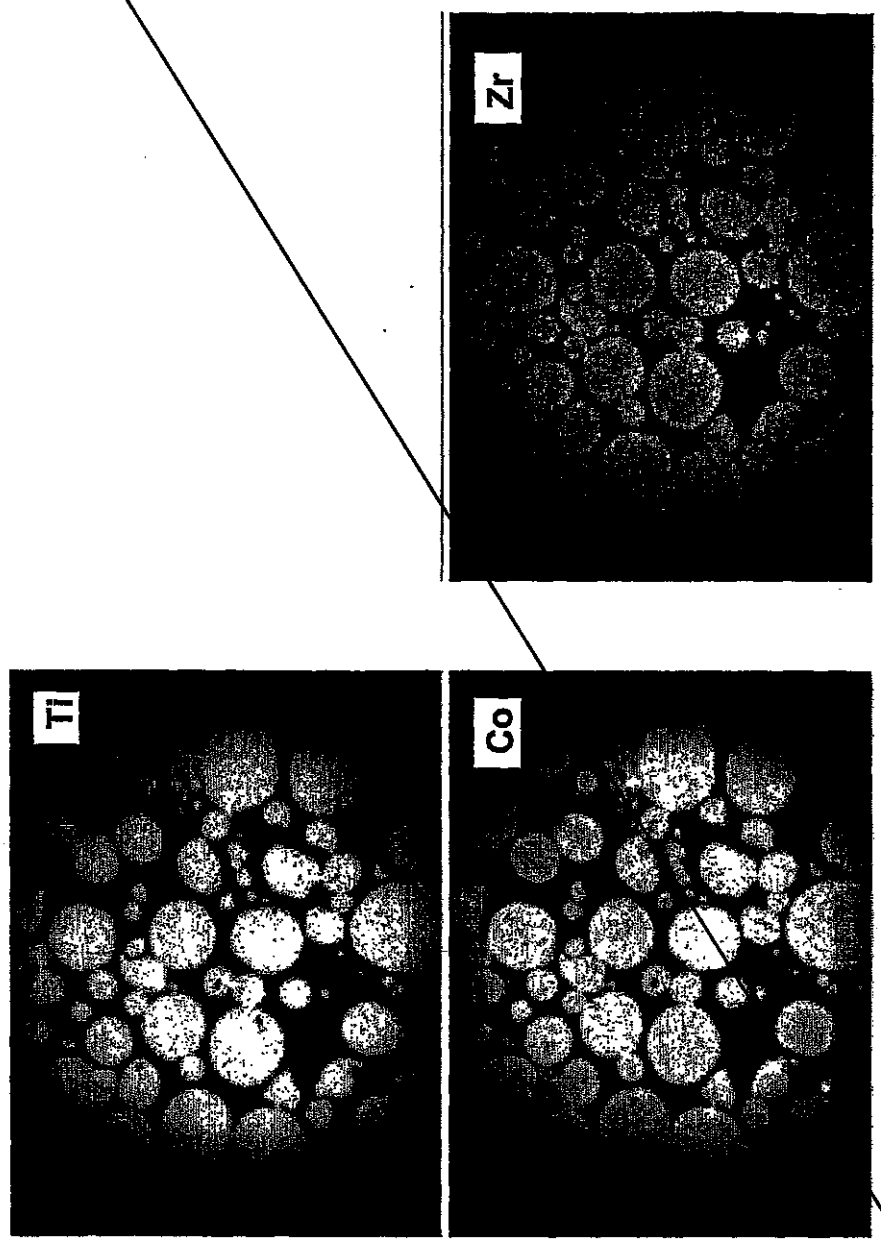


Figure 7

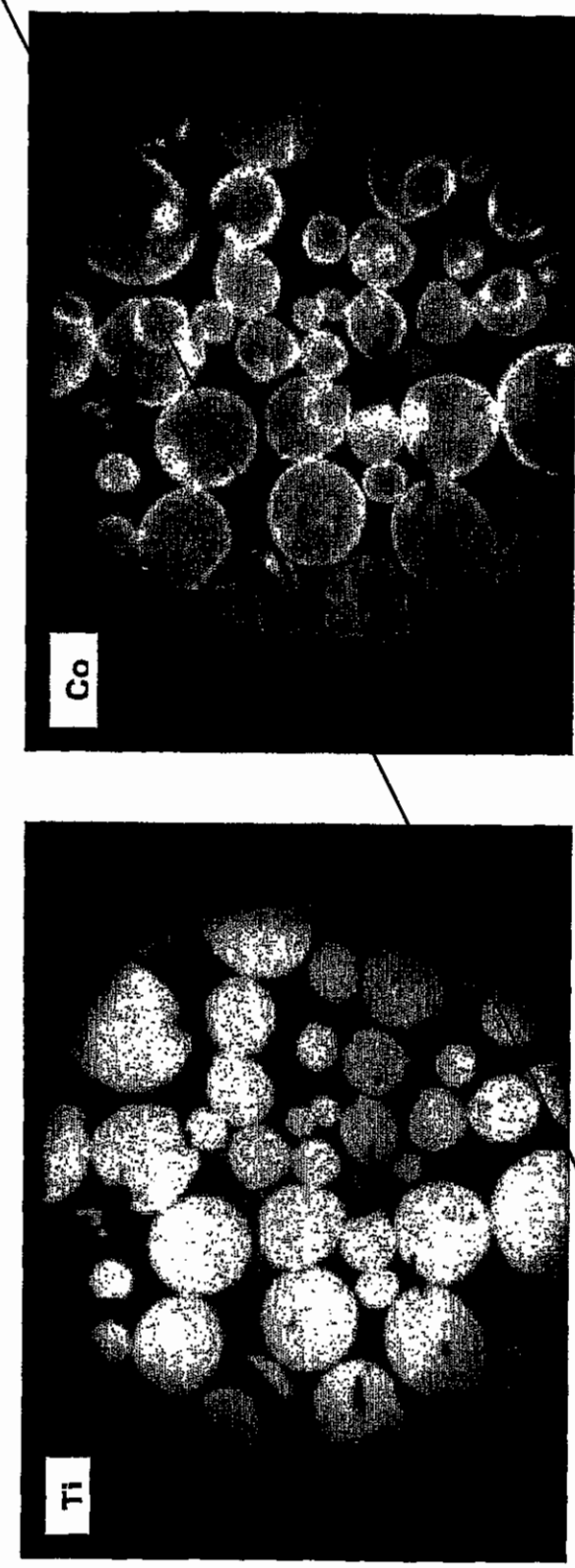


Figure 8

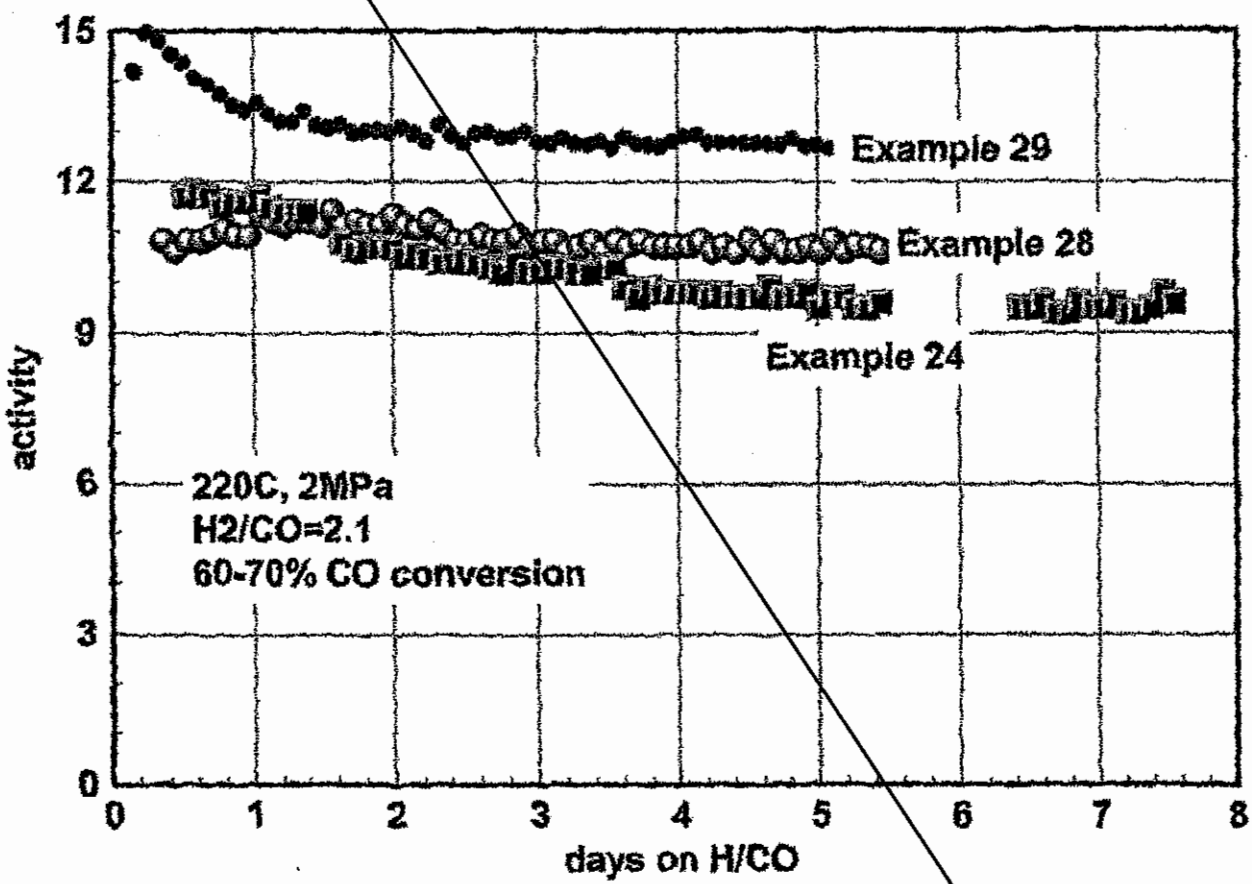
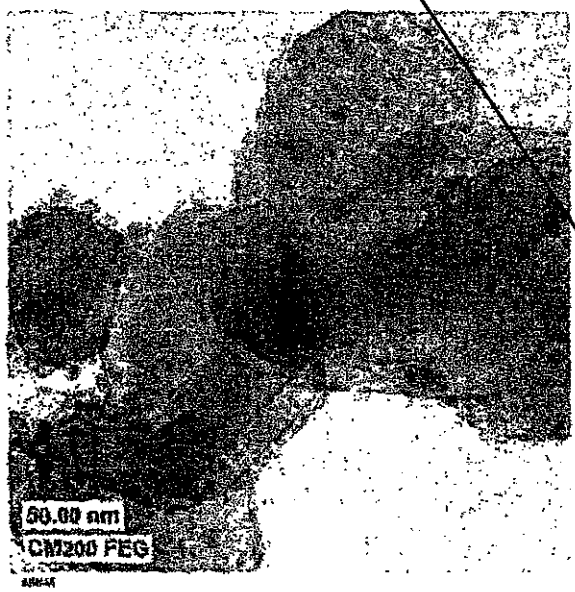

15
12
9
6
3
0
activity
0
1
2
3
4
5
6
7
8
days on H/CO
Example 29
Example 28
Example 24
220C, 2MPa
H2/CO=2.1
60-70% CO conversion

Figure 9


50.00 nm
CM200 FEG

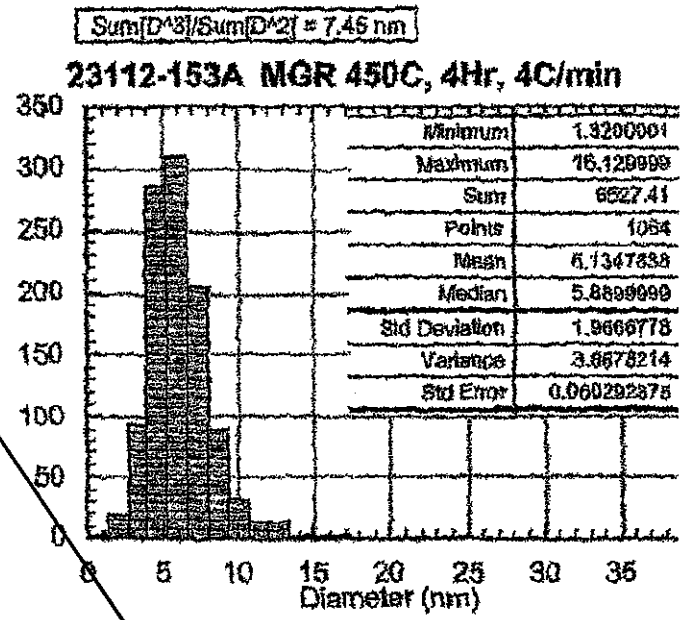

Sum[D^3]/Sum[D^2] = 7.46 nm
23112-153A MGR 450C, 4Hr, 4C/min
Minimum 1.9200001
Maximum 16.129999
Sum 6627.41
Points 1064
Mean 6.1347838
Median 5.8899999
Std Deviation 1.9666778
Variance 3.8678214
Std Error 0.060292875
Count
350
300
250
200
150
100
50
0
0 5 10 15 20 25 30 35
Diameter (nm)

Figure 10

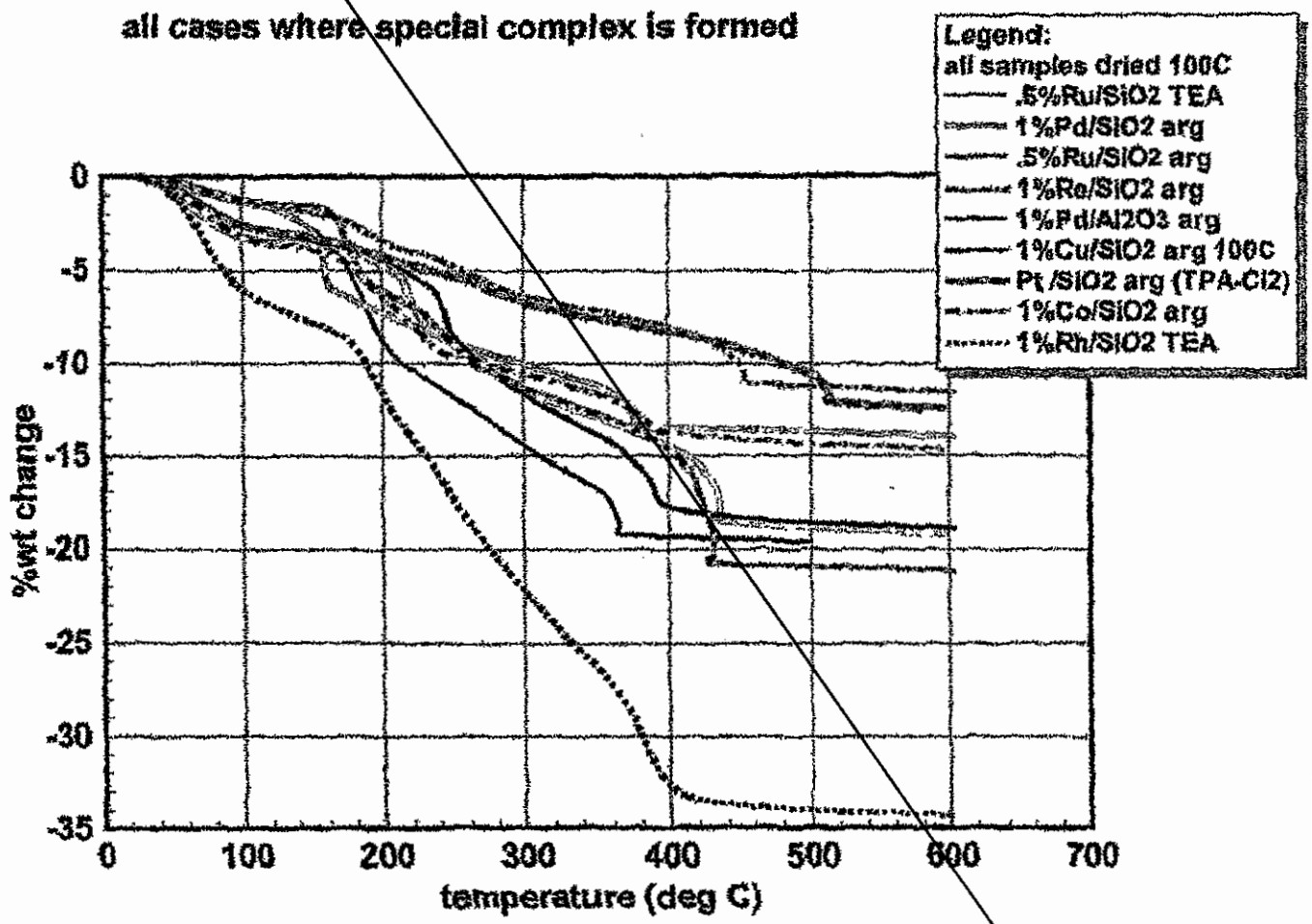

all cases where special complex is formed
Legend:
all samples dried 100C
.5%Ru/SiO2 TEA
1%Pd/SiO2 arg
.5%Ru/SiO2 arg
1%Re/SiO2 arg
1%Pd/Al2O3 arg
1%Cu/SiO2 arg 100C
Pt /SiO2 arg (TPA-Cl2)
1%Co/SiO2 arg
1%Rh/SiO2 TEA
%wt change
0
-5
-10
-15
-20
-25
-30
-35
0
100
200
300
400
500
600
700
temperature (deg C)

Figure 11

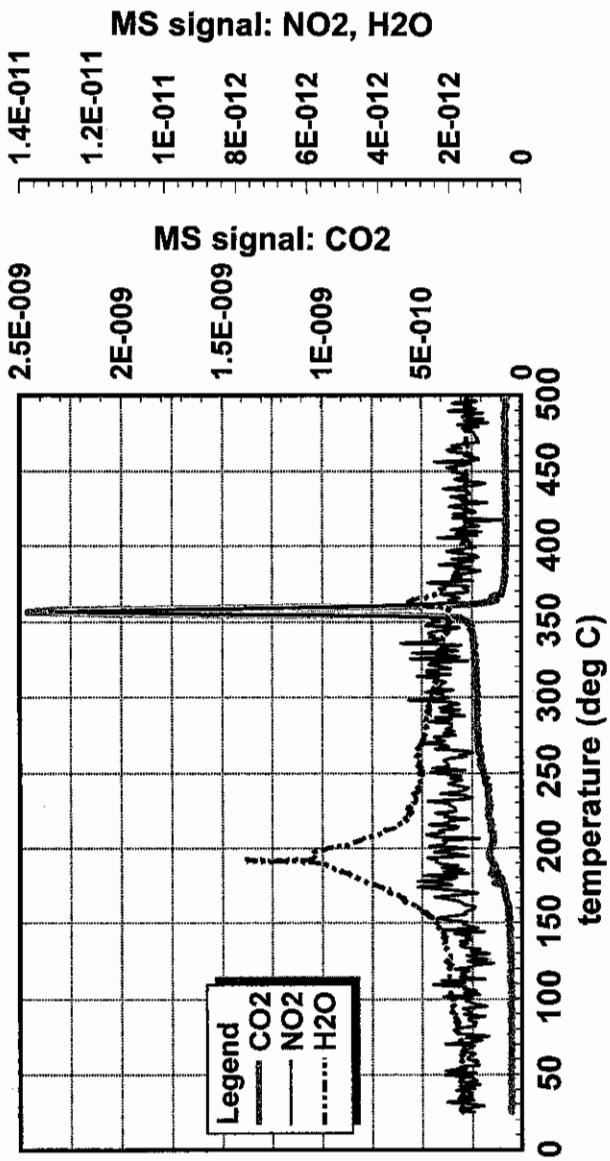

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1.4E-011
1.2E-011
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6E-012
4E-012
2E-012
0
MS signal: CO2
2.5E-009
2E-009
1.5E-009
1E-009
5E-010
0
0 50 100 150 200 250 300 350 400 450 500
temperature (deg C)
Legend
CO2
NO2
H2O

Figure 1

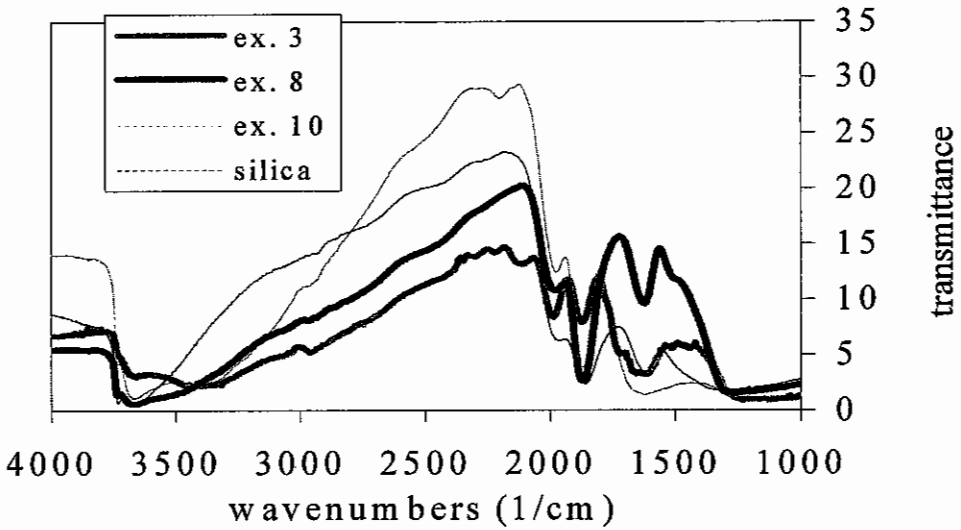

ex. 3
ex. 8
ex. 10
silica
35
30
25
20
15
10
5
0
transmittance
4000
3500
3000
2500
2000
1500
1000
wavenumbers (1/cm)

Figure 2

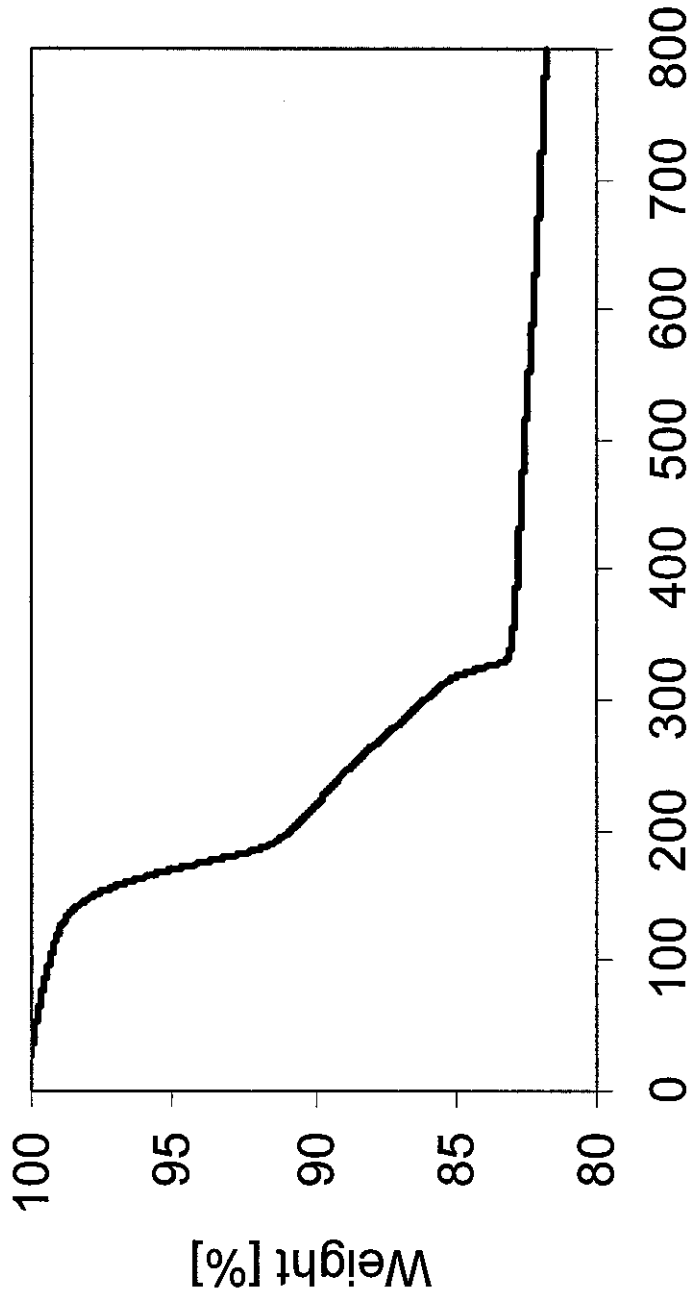

Weight [%]
100
95
90
85
80
0
100
200
300
400
500
600
700
800
Temperature [C]

Figure 3

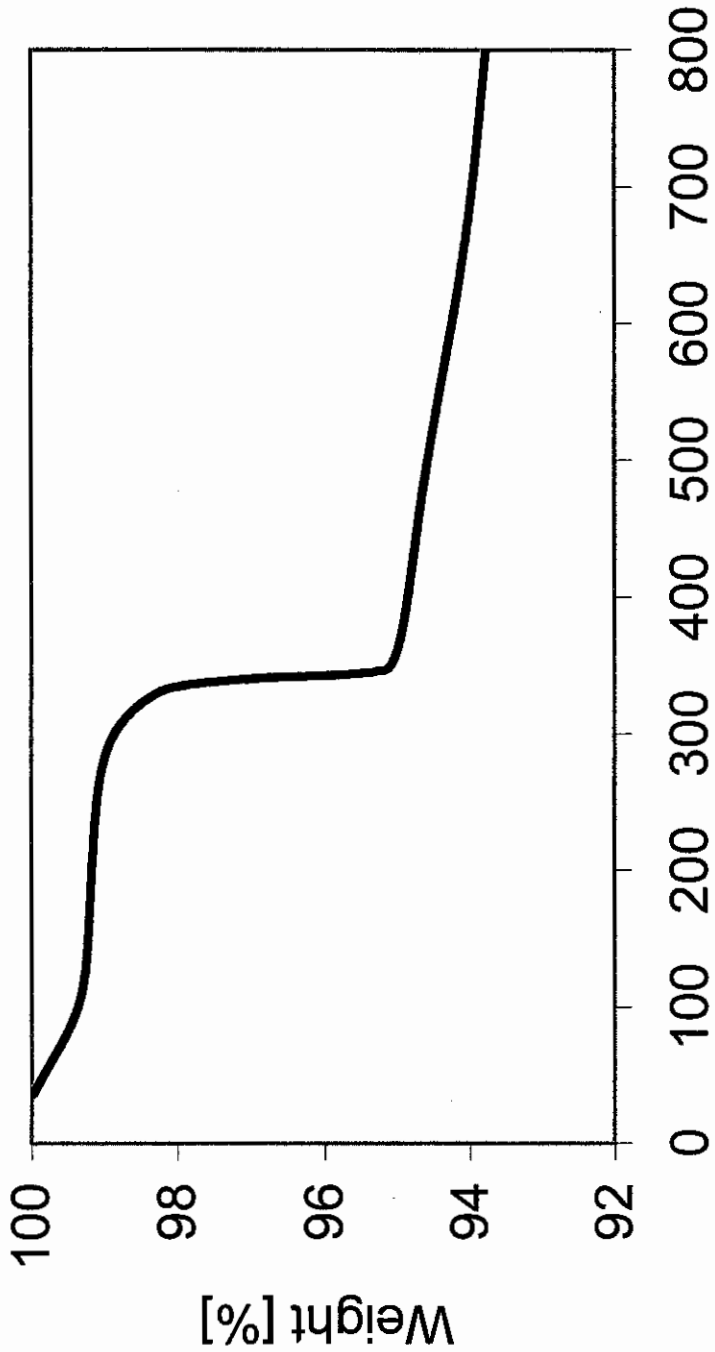

Weight [%]
100
98
96
94
92
0
100
200
300
400
500
600
700
800
Temperature [C]

Figure 4

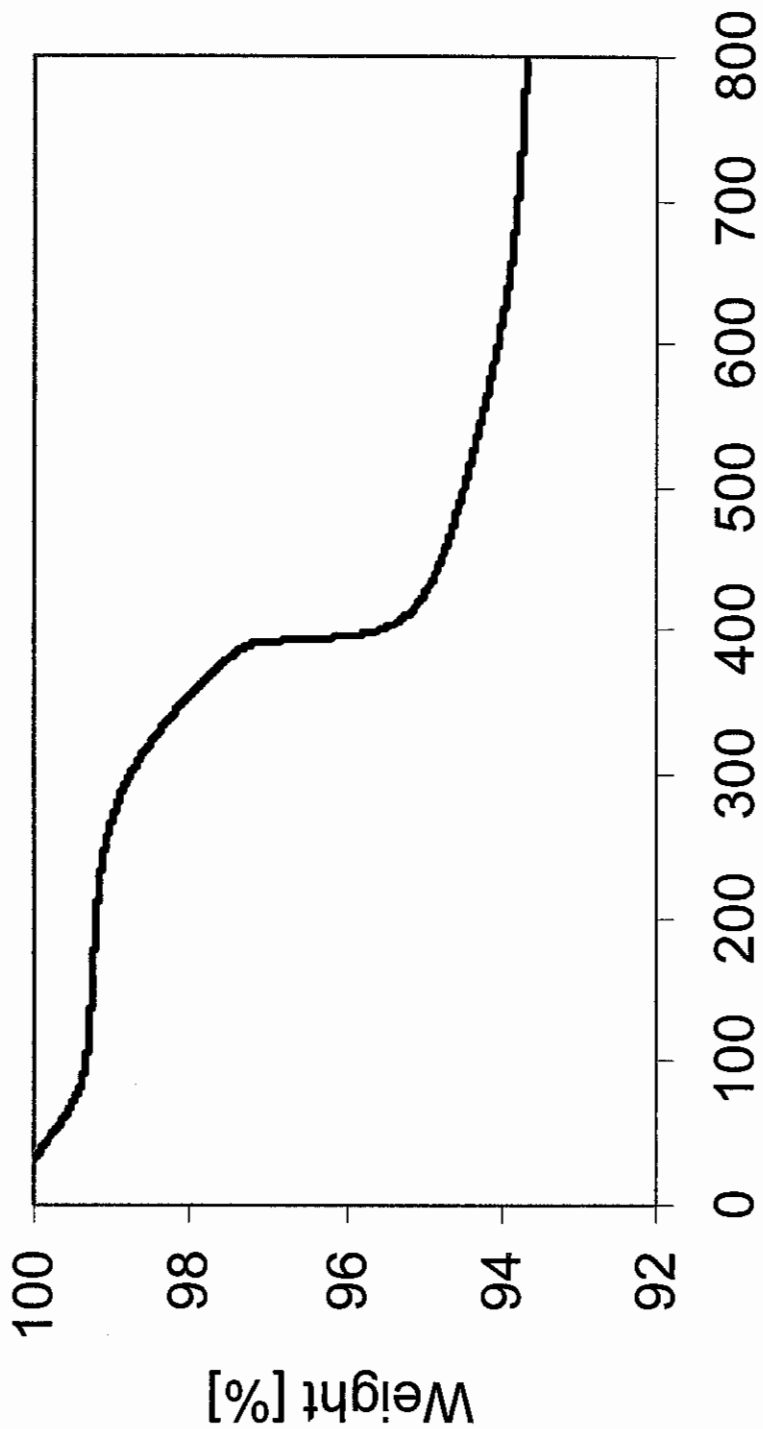

Weight [%]
100
98
96
94
92
0
100
200
300
400
500
600
700
800
Temperature [C]

Figure 5

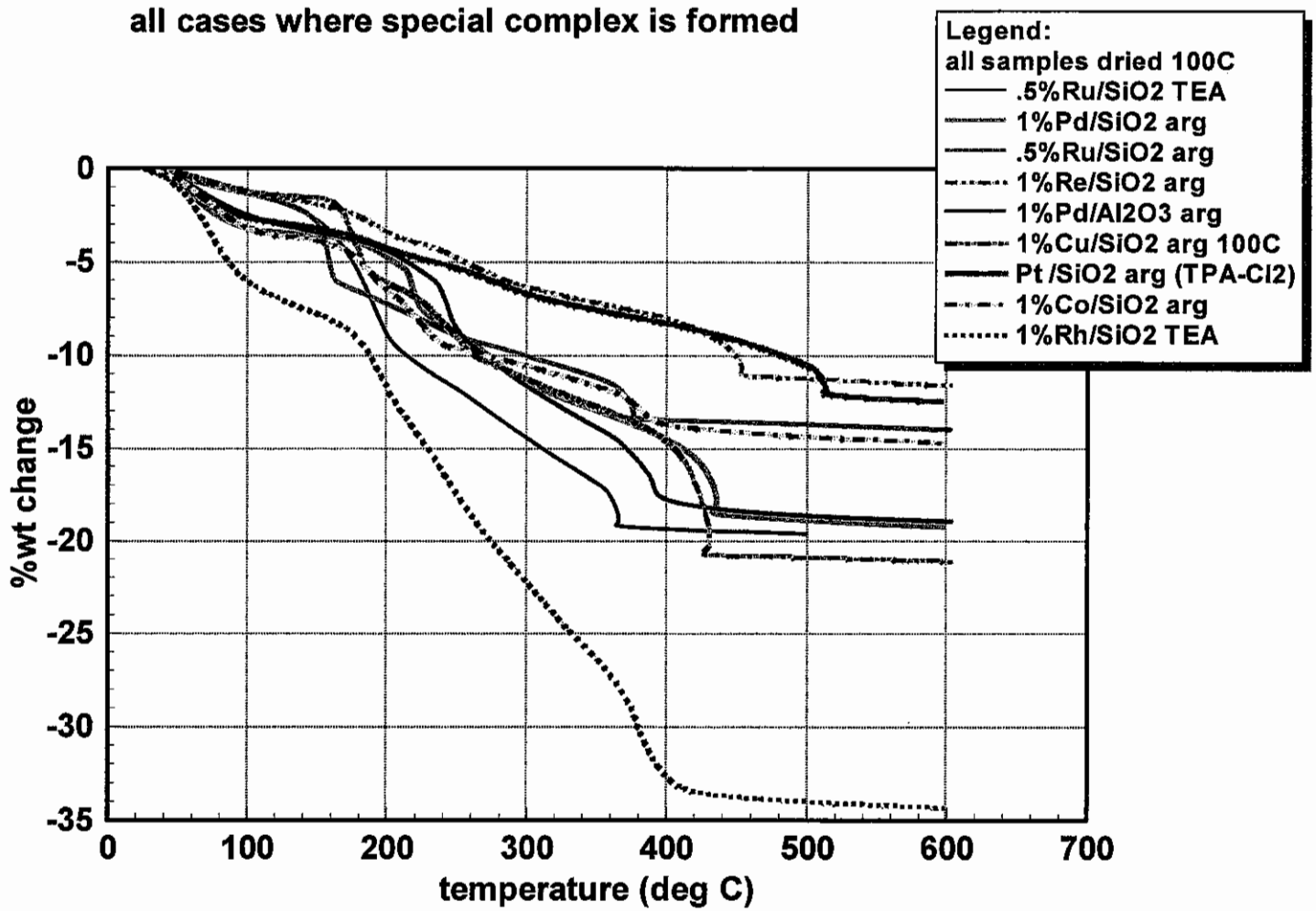

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1%Re/SiO2 arg
1%Pd/Al2O3 arg
1%Cu/SiO2 arg 100C
Pt /SiO2 arg (TPA-Cl2)
1%Co/SiO2 arg
1%Rh/SiO2 TEA
%wt change
0
-5
-10
-15
-20
-25
-30
-35
0
100
200
300
400
500
600
700
temperature (deg C)

Figure 6