Comparison:
Total Decomposition versus XRF-Analysis

Franz Mutsch – Department of Forest Ecology and Soil

Gerhard Hobiger – Geological Survey of Austria

Meeting of the Head of Laboratories

Warswa

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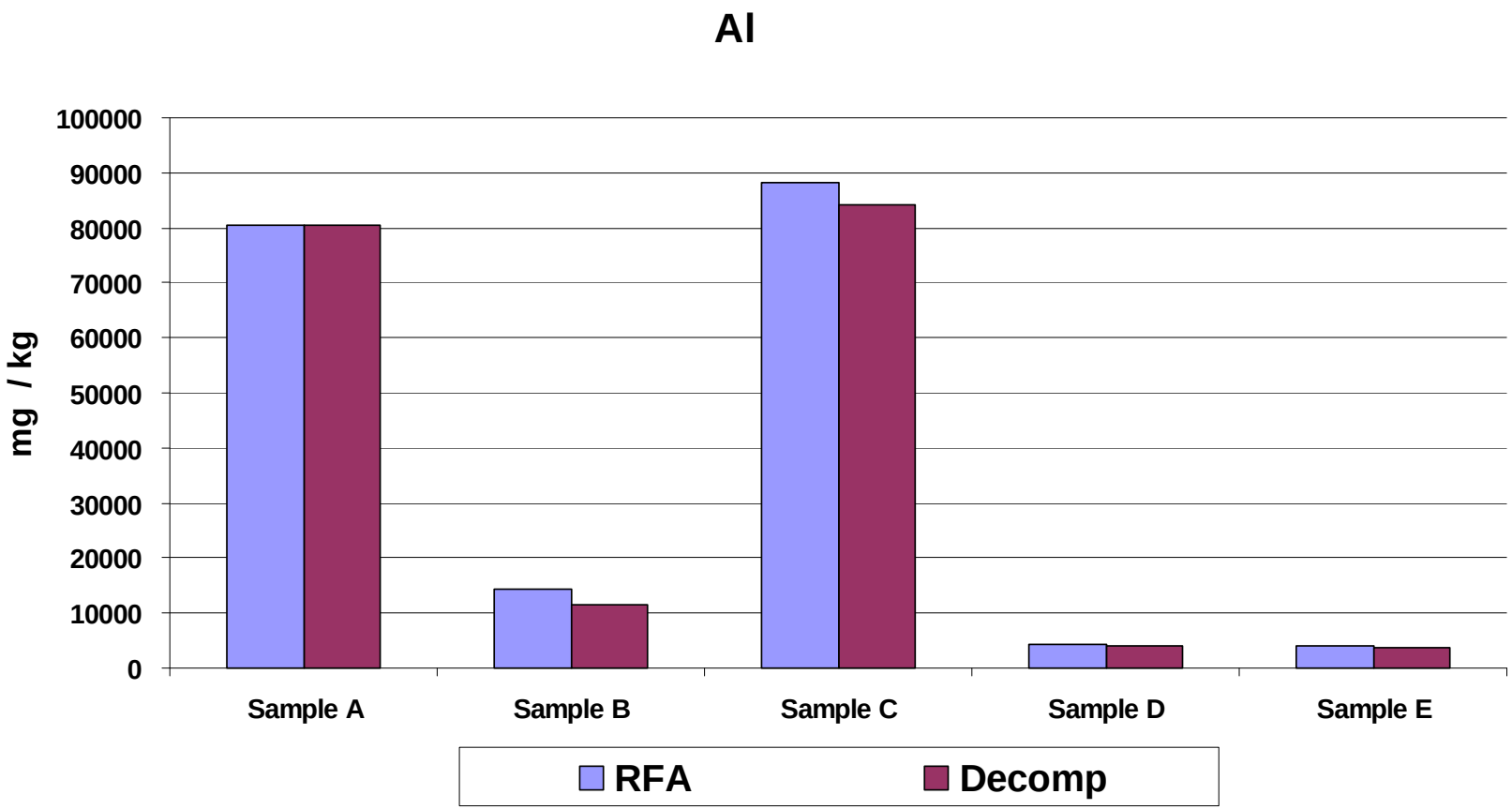
Total Decomposition *versus* XRF

XRF: Geological Survey of Austria

Decomposition: mean of 6th FSCC ring test



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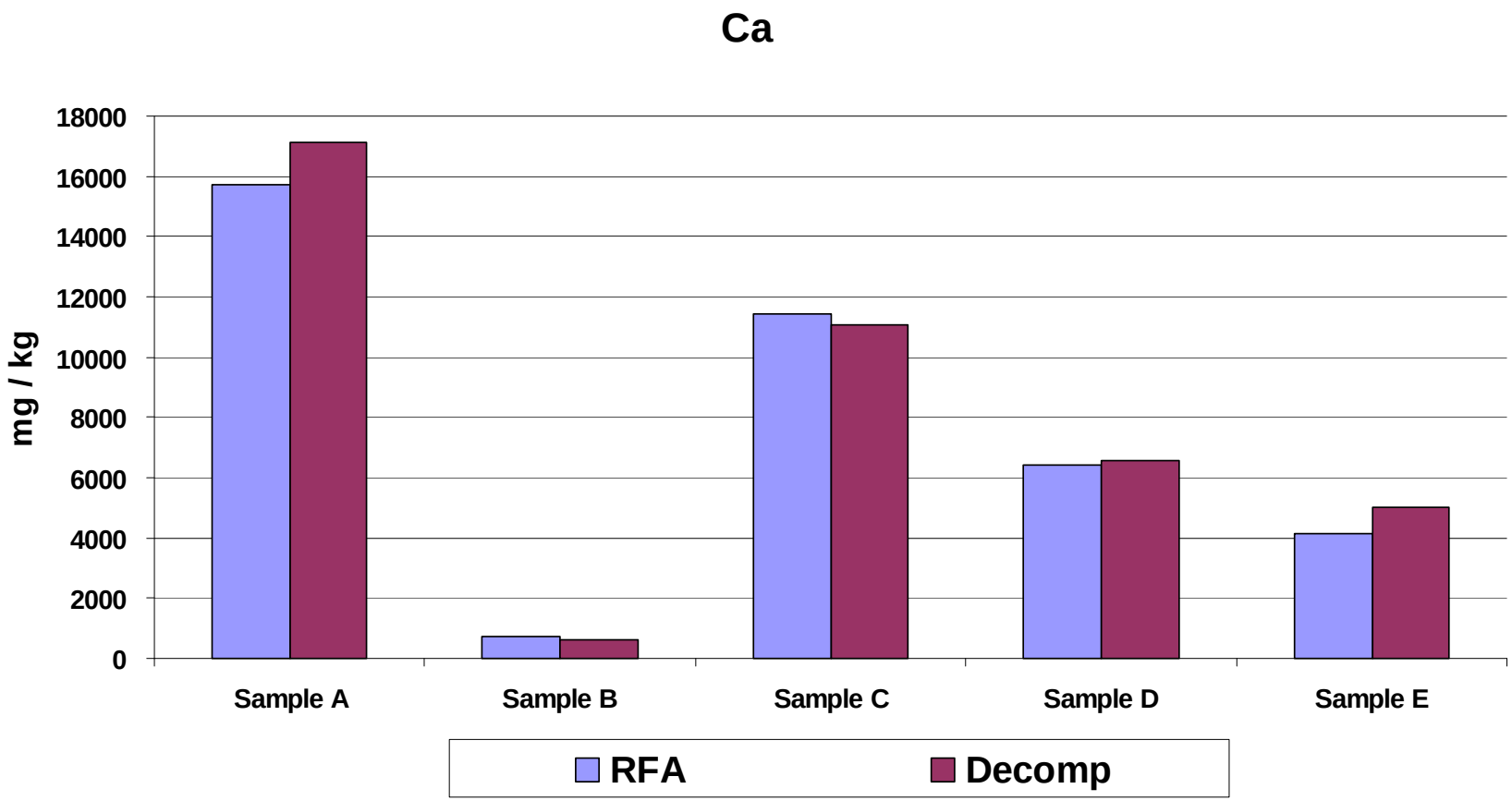

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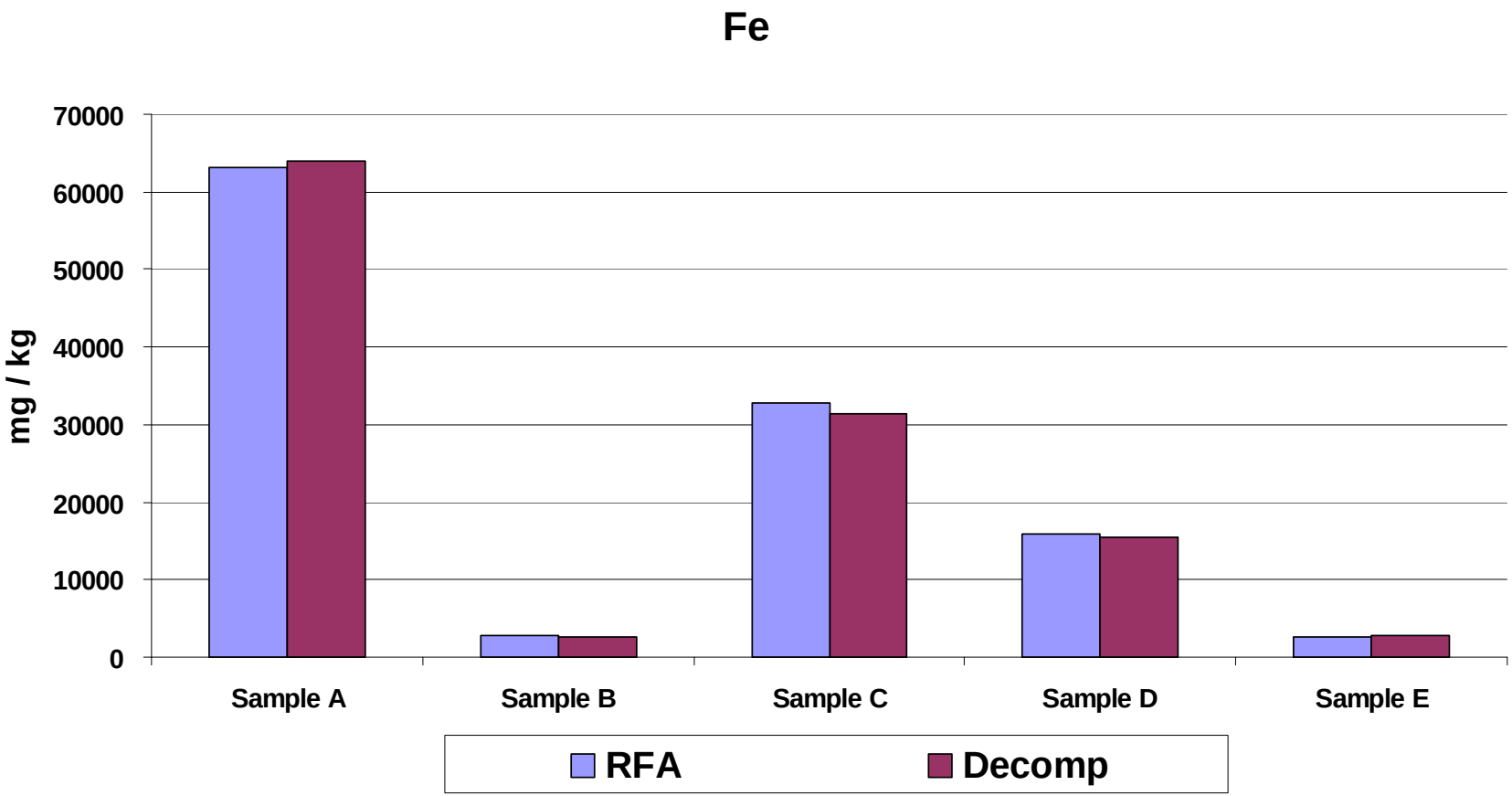

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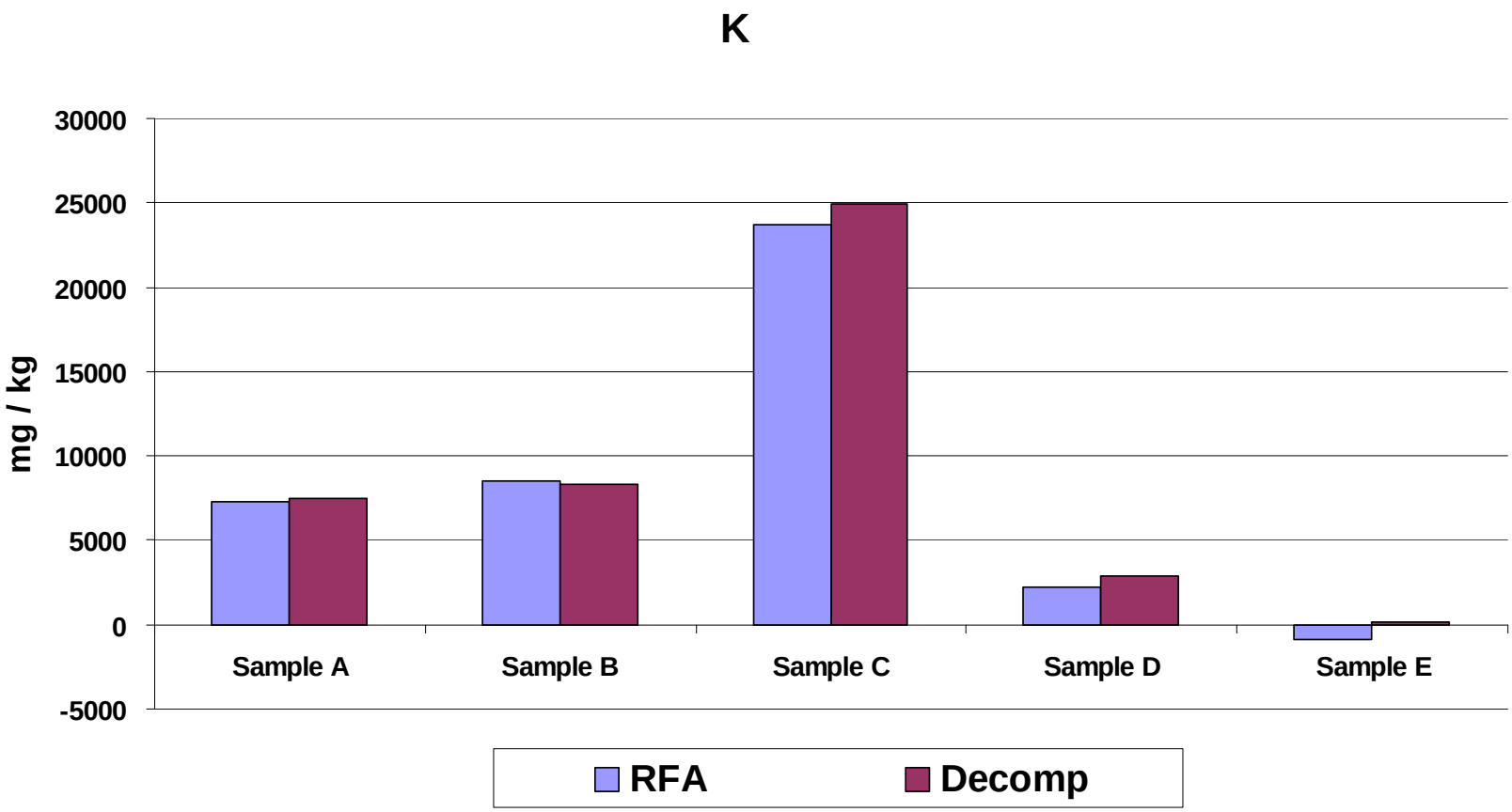
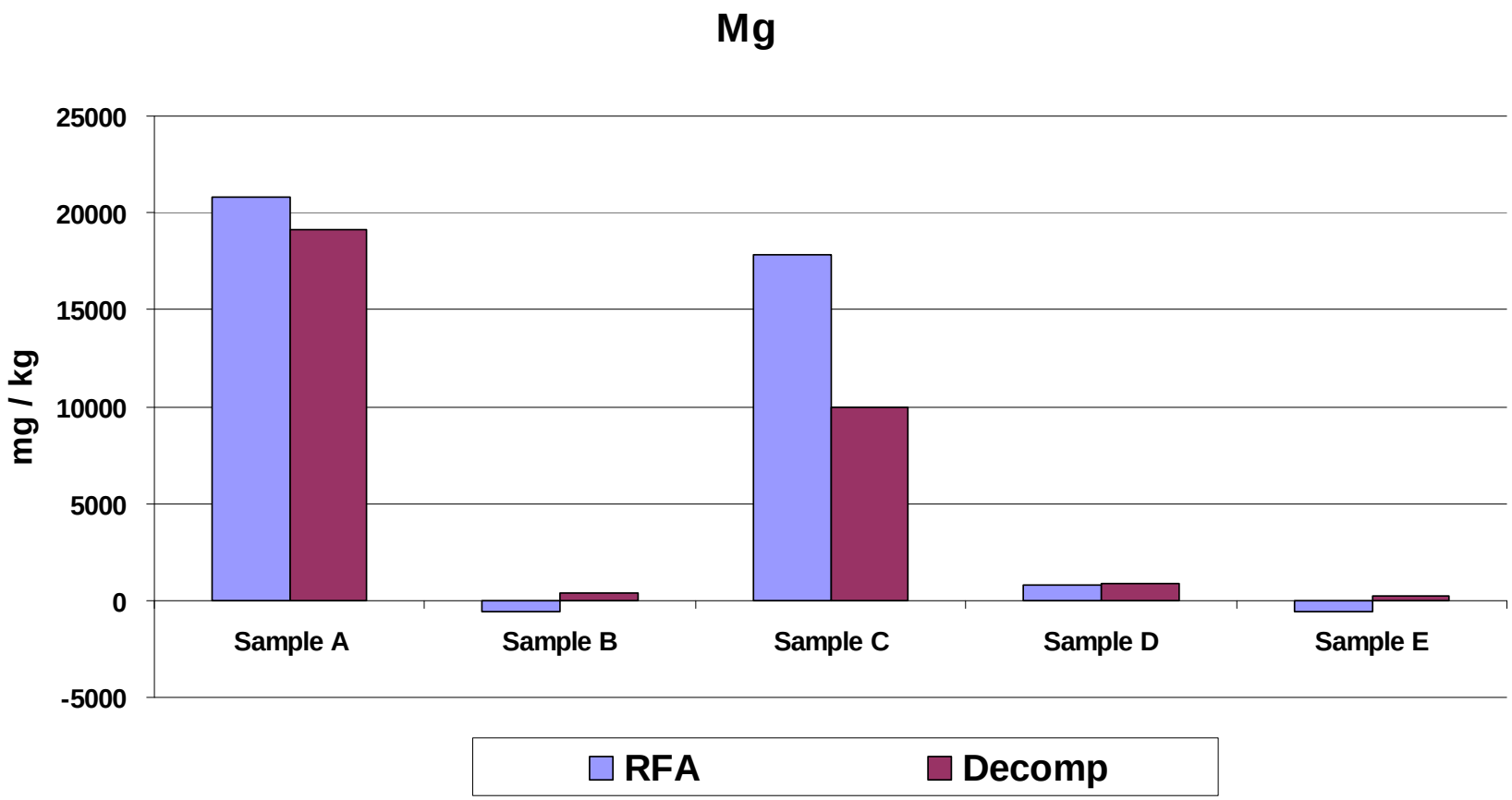


Minus value: determination limit of XRF

Total Decomposition *versus* XRF

XRF: Geological Survey of Austria

Decomposition: mean of 6th FSCC ring test



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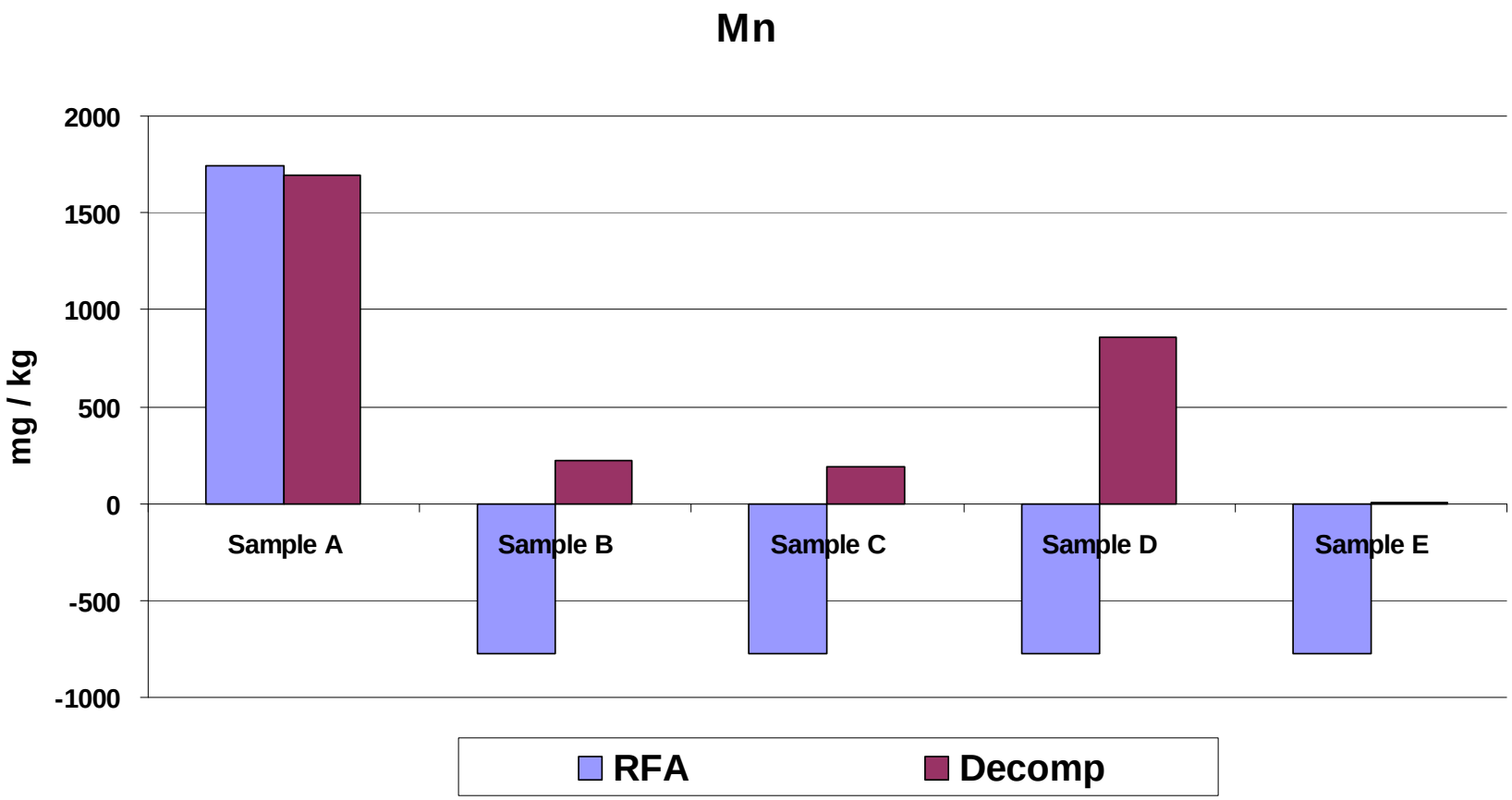

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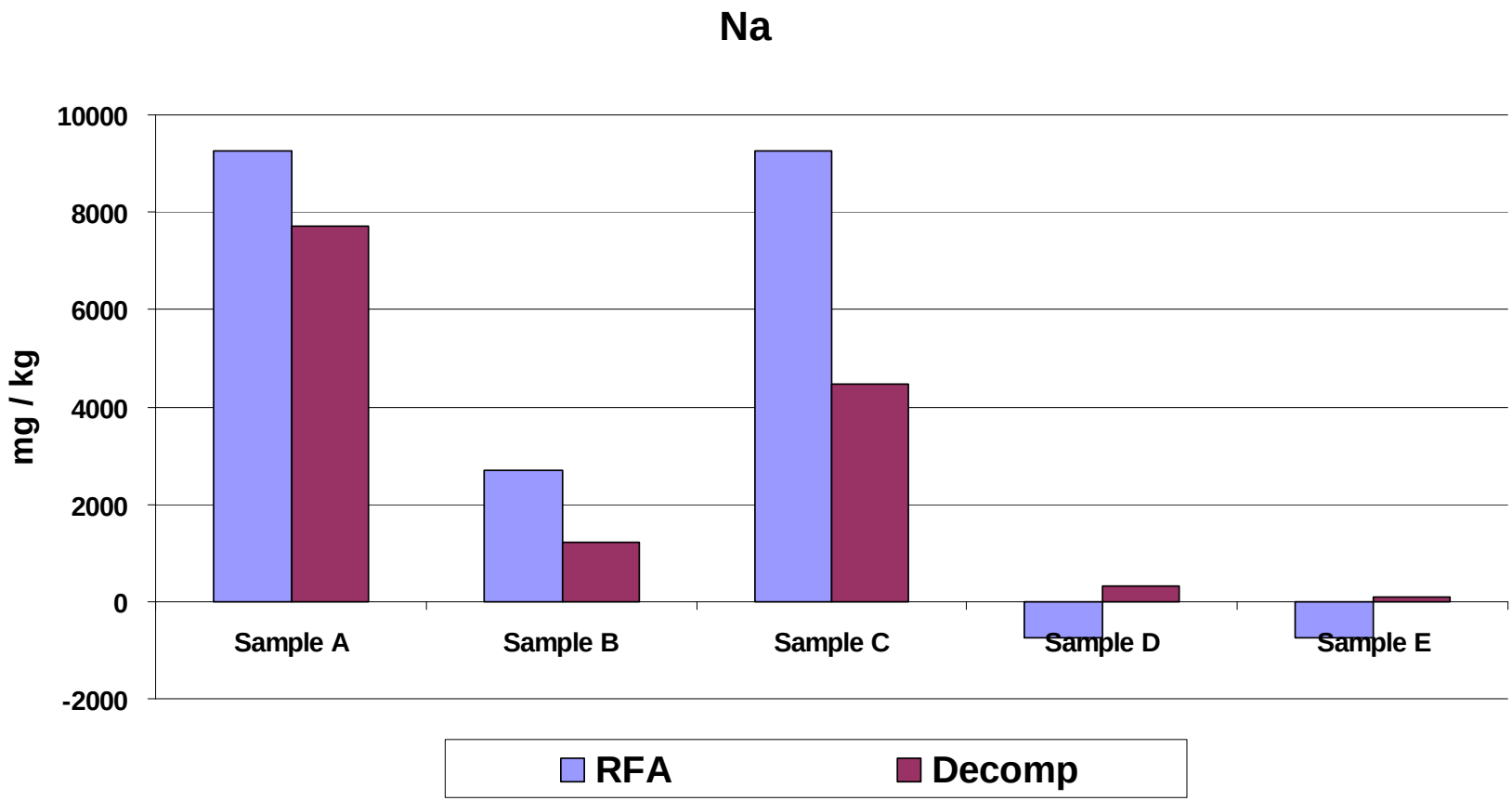
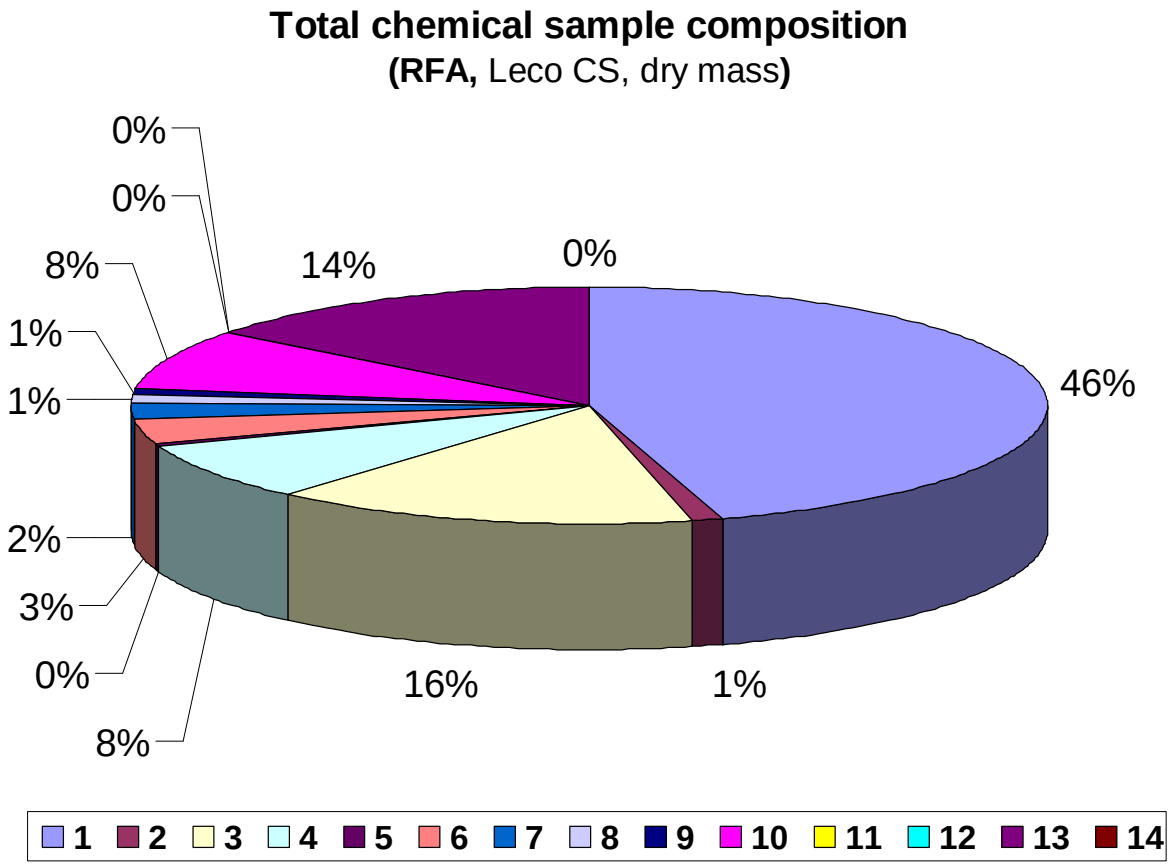


Minus values: determination limit of XRF

Sample A (6th FSCC ring test) **analysed by XRF**

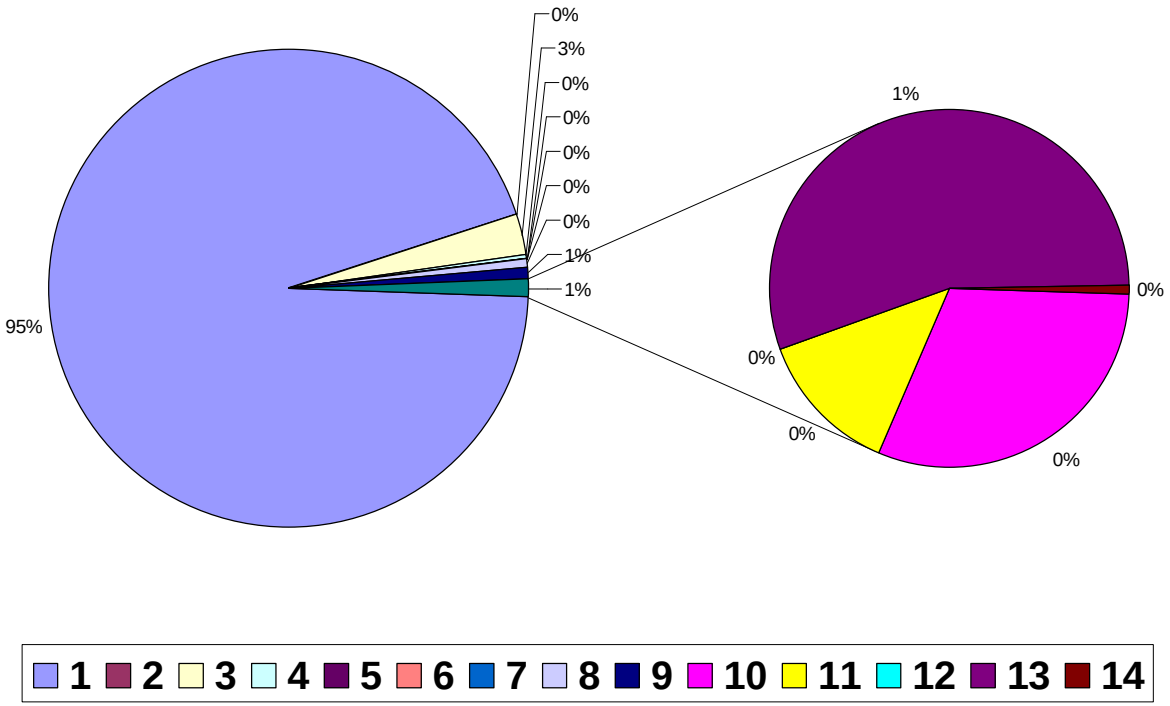
1 – SiO_2
2 – TiO_2
3 – Al_2O_3
4 – FeO
5 – MnO
6 – MgO
7 – CaO
8 – Na_2O
9 – K_2O
10 – H_2O
11 – H_2O+
12 – P_2O_5
13 – CO_2
14 – SO_3



Sample B (6th FSCC ring test) **analysed by XRF**

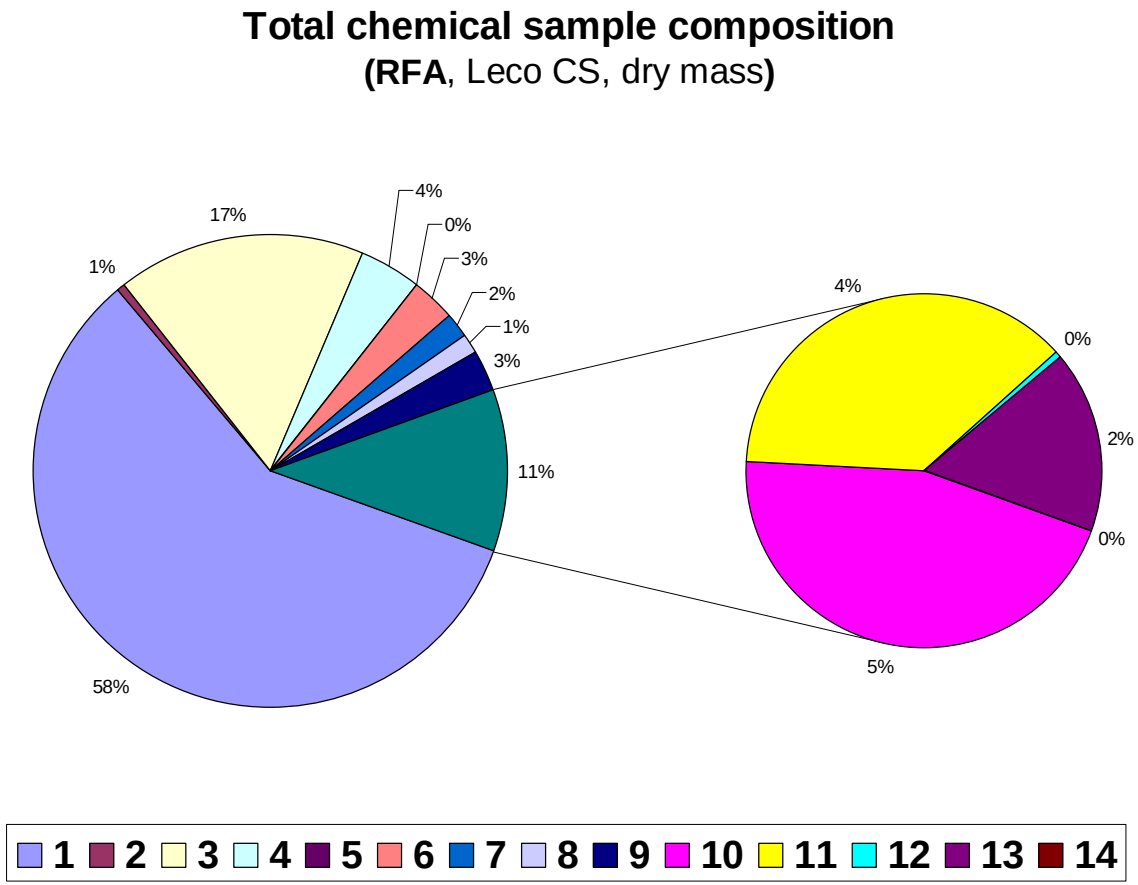
1 – SiO_2
2 – TiO_2
3 – Al_2O_3
4 – FeO
5 – MnO
6 – MgO
7 – CaO
8 – Na_2O
9 – K_2O
10 – H_2O
11 – H_2O+
12 – P_2O_5
13 – CO_2
14 – SO_3

Total chemical sample composition
(**RFA**, Leco CS, dry mass)



Sample C (6th FSCC ring test) **analysed by XRF**

1 – SiO_2
2 – TiO_2
3 – Al_2O_3
4 – FeO
5 – MnO
6 – MgO
7 – CaO
8 – Na_2O
9 – K_2O
10 – H_2O
11 – H_2O+
12 – P_2O_5
13 – CO_2
14 – SO_3



Conclusions

- **For the most elements there is a quite good correlation between „total decomposition“ and XRF-analysis.**
- **For some elements (Na, Mg) the correlation is partly not satisfactory → further investigation are necessary to find out the reasons why.**
- **Determination limits of XRF for some elements are rather high (**but this disadvantage affects mainly organic layers for which „total decomposition“ makes not much sense!**).**
- **Advatages of XRF-analysis:**
  - **Not so toxic and dangerous as HF-decomposition and easy to handle.**
  - **Also other elements can be detected (Si, Ti, …)**
  - **The total sample composition can be estimated in principle if we include other routine analyses (**total C/S and dry mass**) also.**
- **For the analysis of („real“) total contents XRF should be also permitted as alternative method.**

Thank You for Your Attention