



MX-80 microstructure at different densities



BELBaR project meeting

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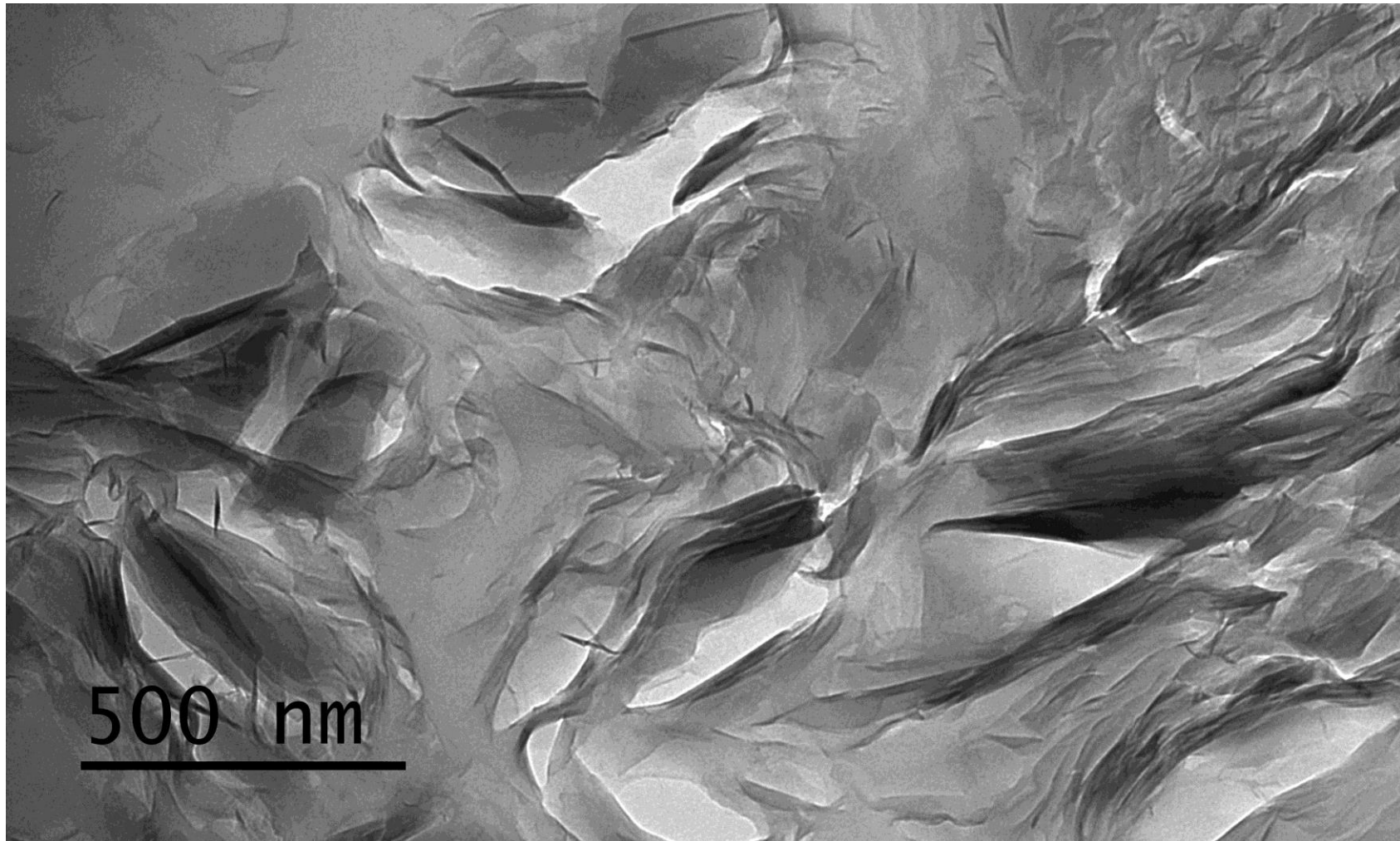
Outline

- Samples
- TEM imaging
- Porosity:
 - SAXS
 - Ion exclusion
 - NMR
- Summary

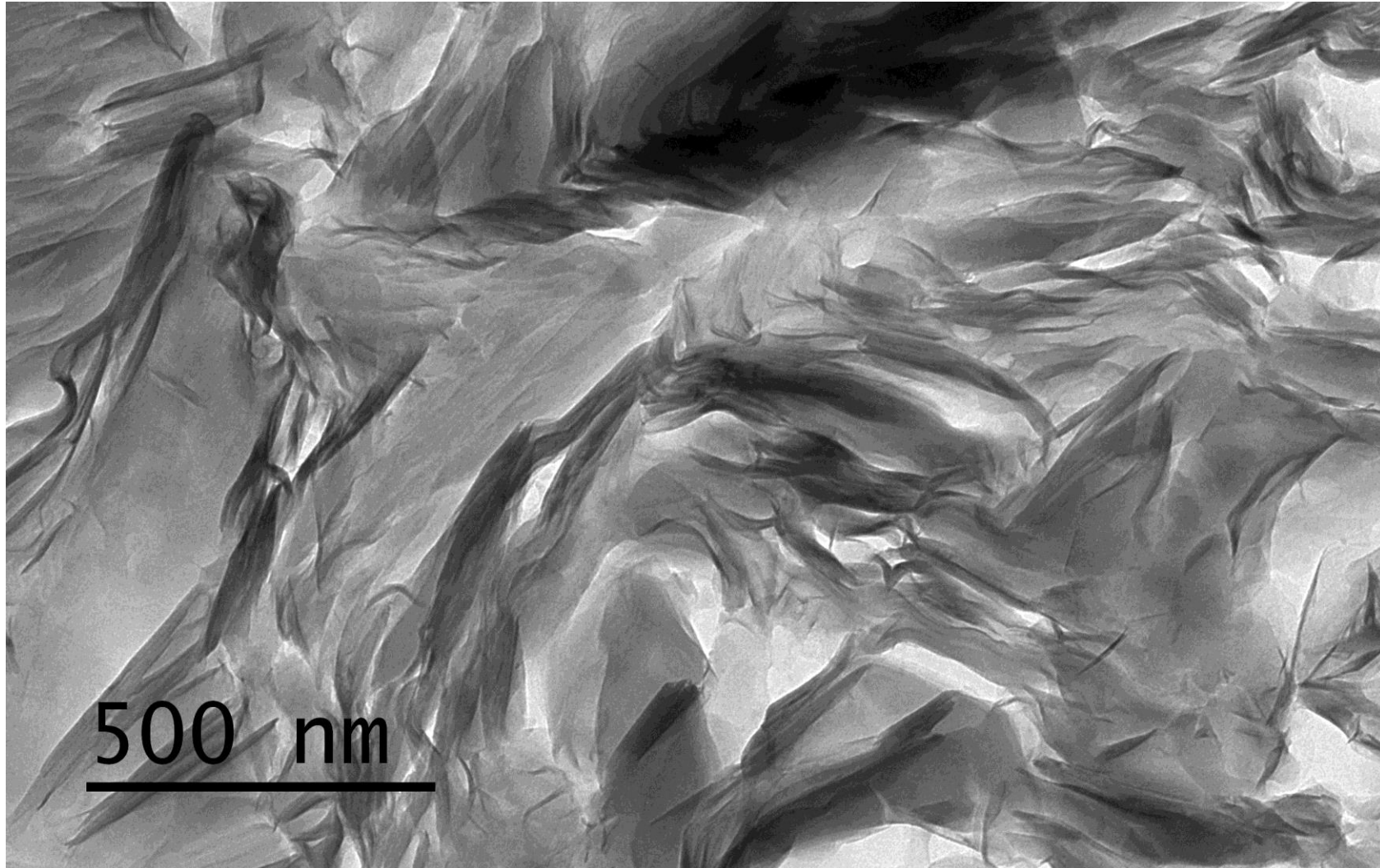
Samples

- MX-80 bentonite (CETCO, UK)
- Compacted to 0.7-1.6 g/cm³ dry density
- Water saturated
- Equilibrated with
 - De-ionized water
 - 0.1 M sodium perchlorate

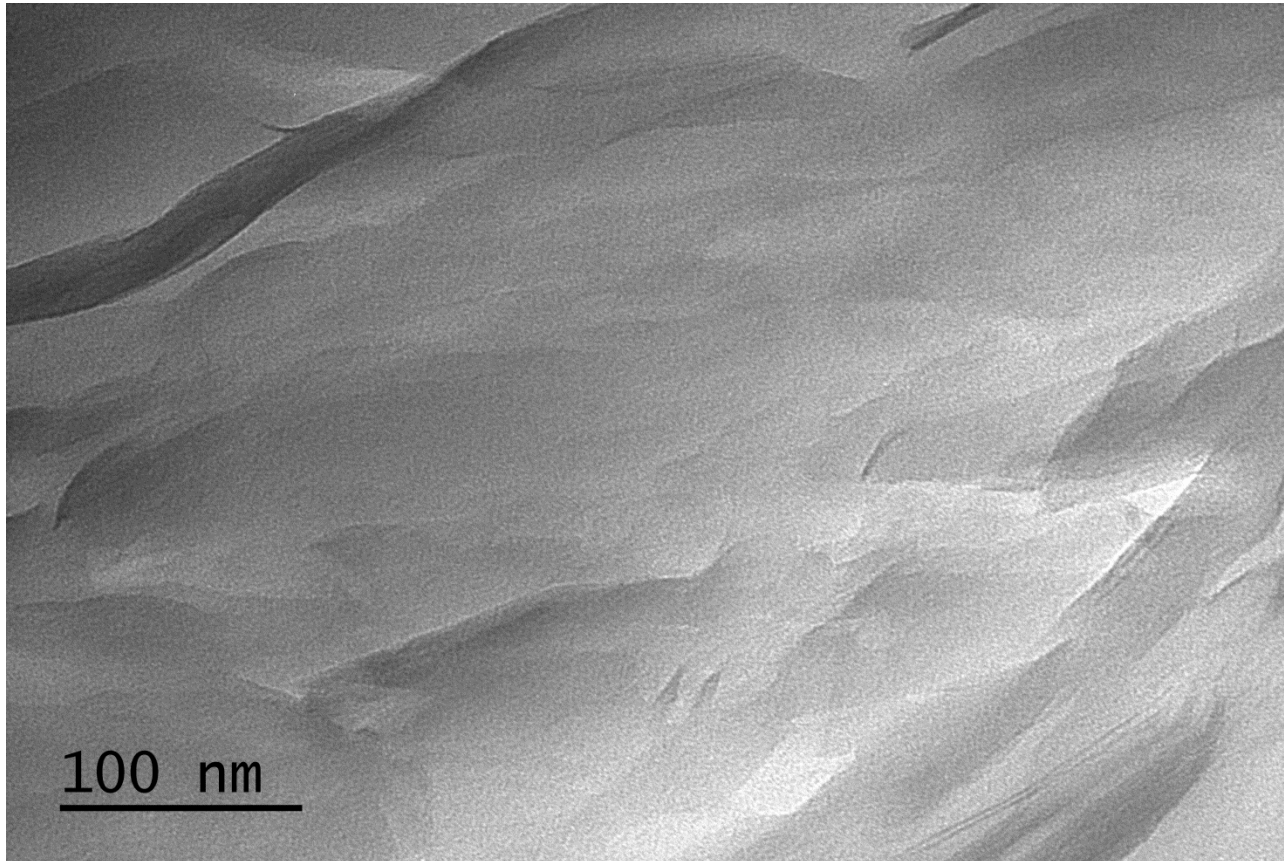
TEM imaging



TEM imaging

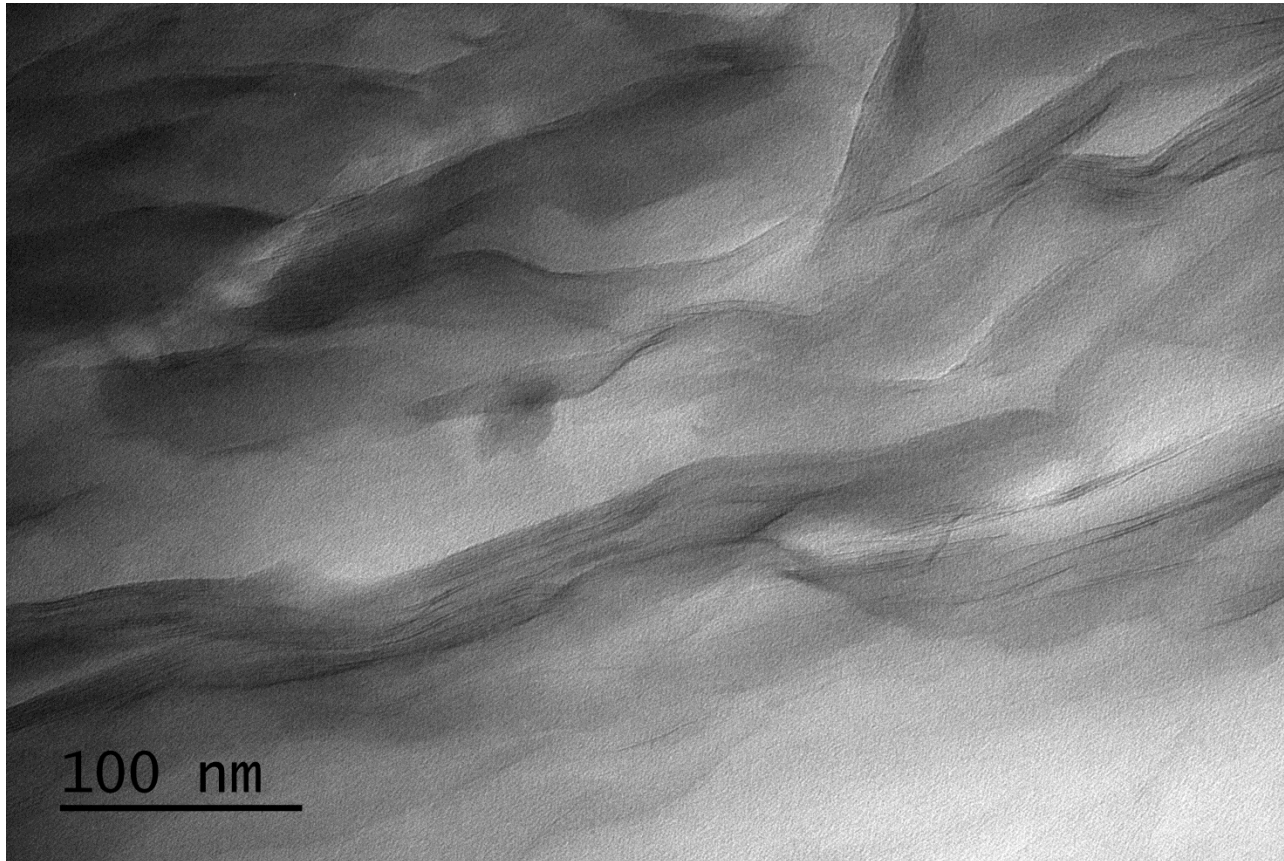


TEM imaging



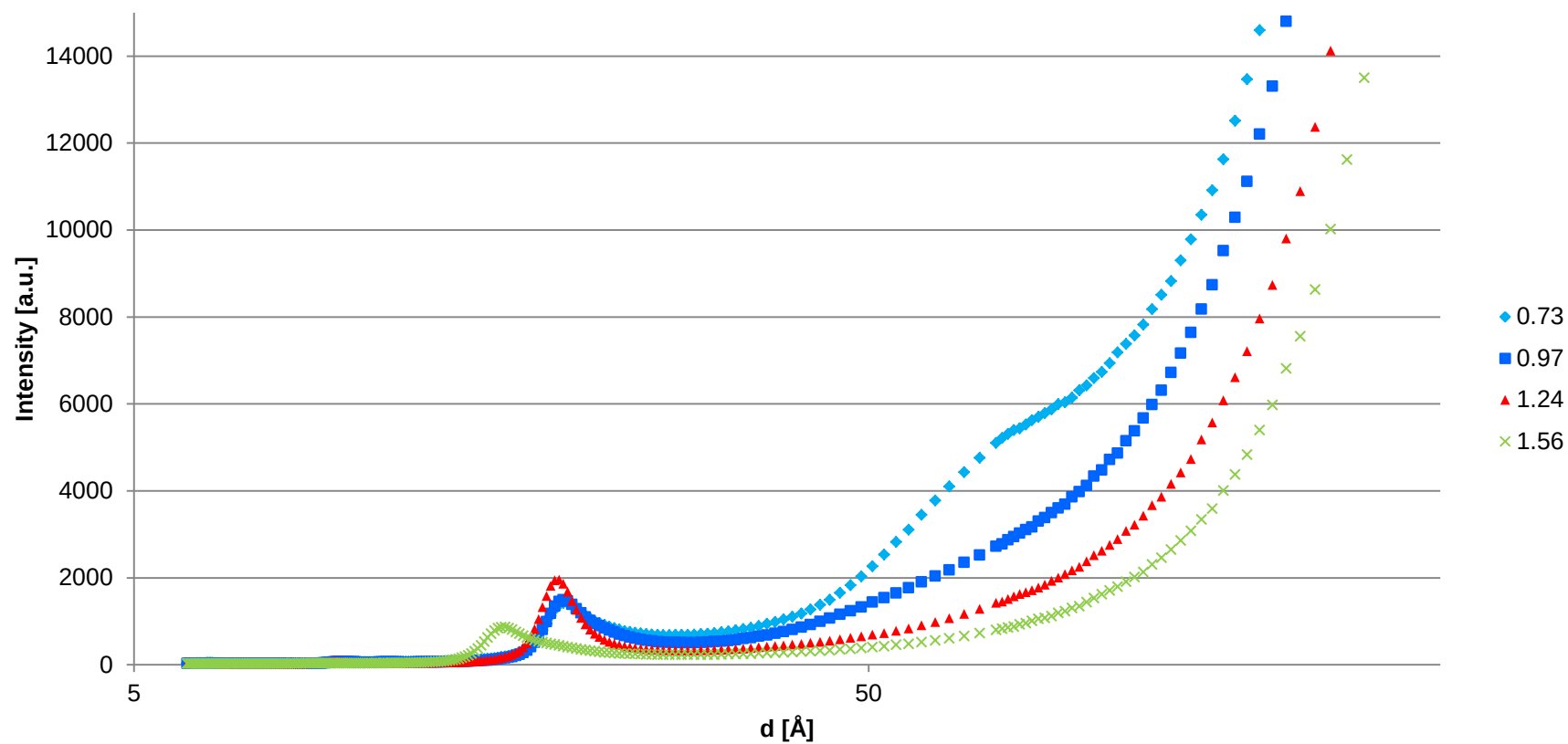
Dry density 0.73 g/cm³, equilibrated with water

TEM imaging



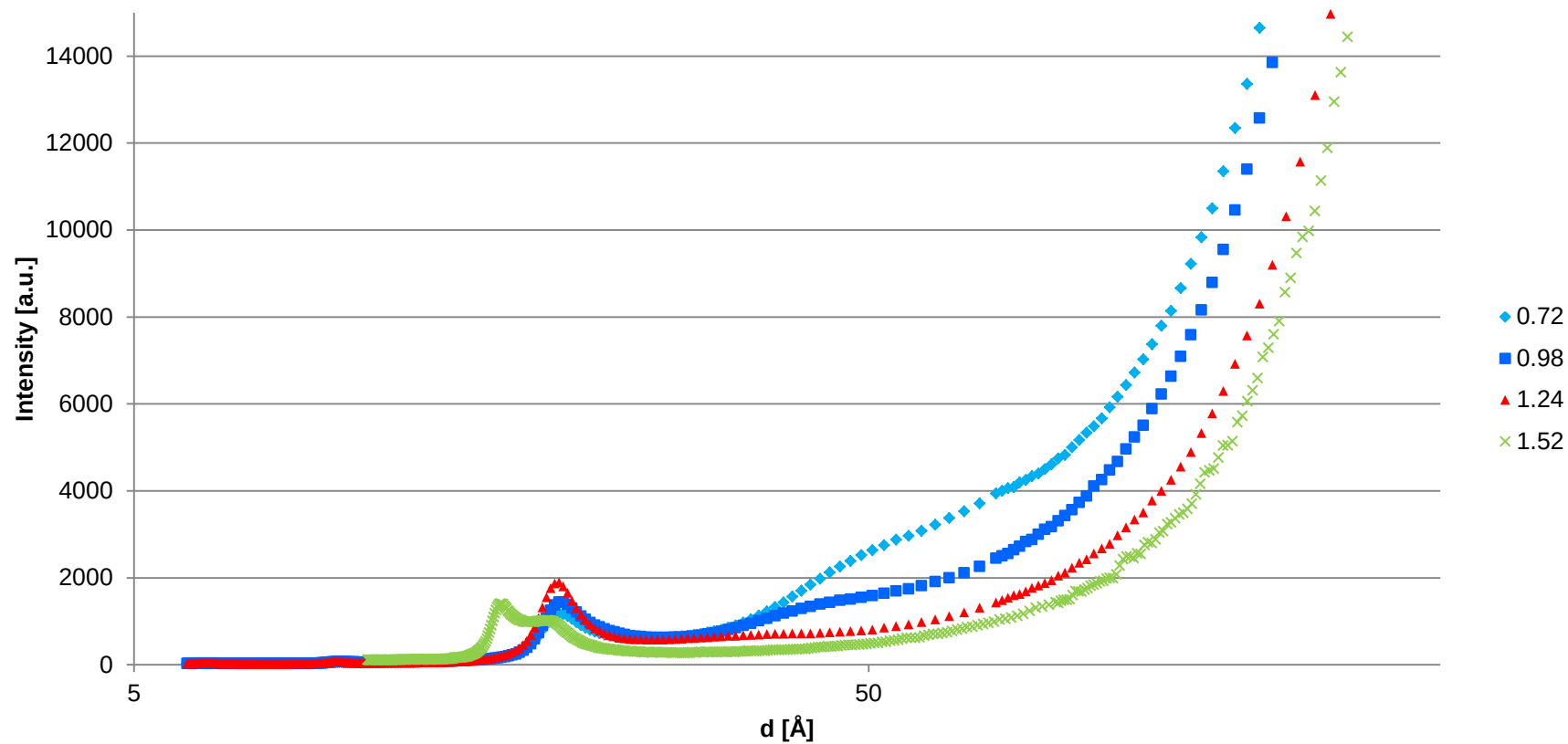
Dry density 1.56 g/cm³, equilibrated with water

SAXS



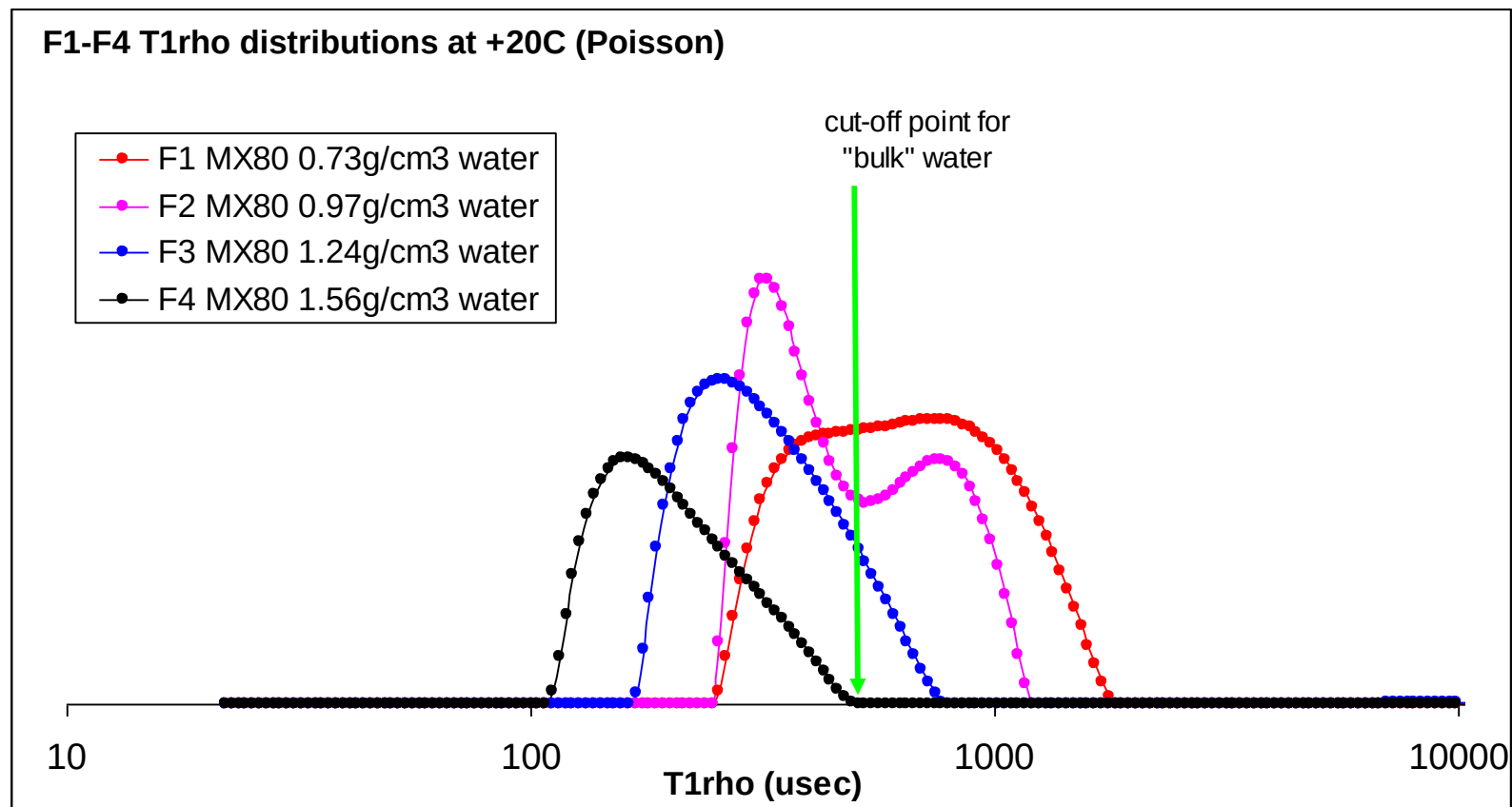
Equilibrated with de-ionized water

SAXS

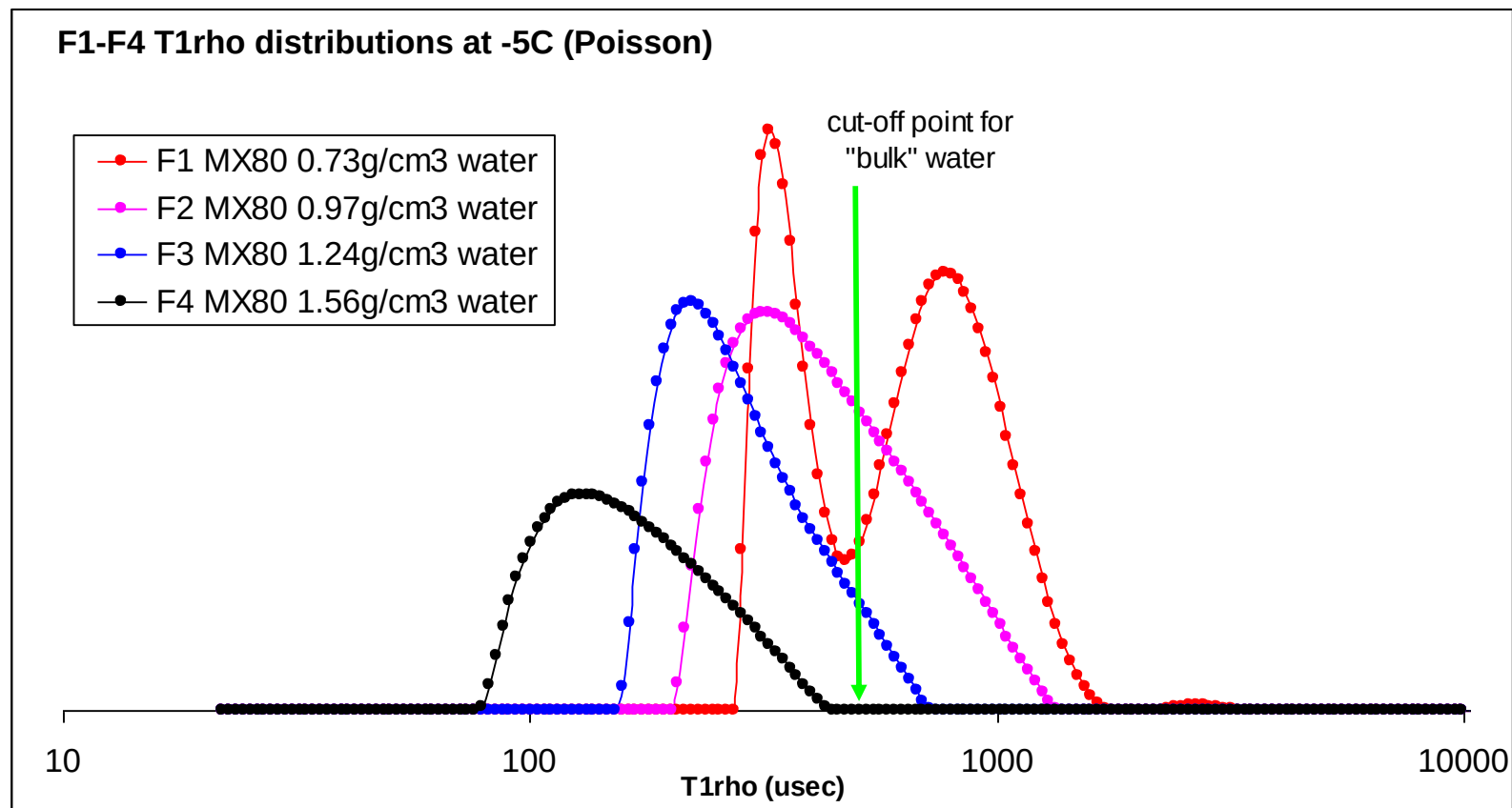


Equilibrated with 0.1M sodium perchlorate

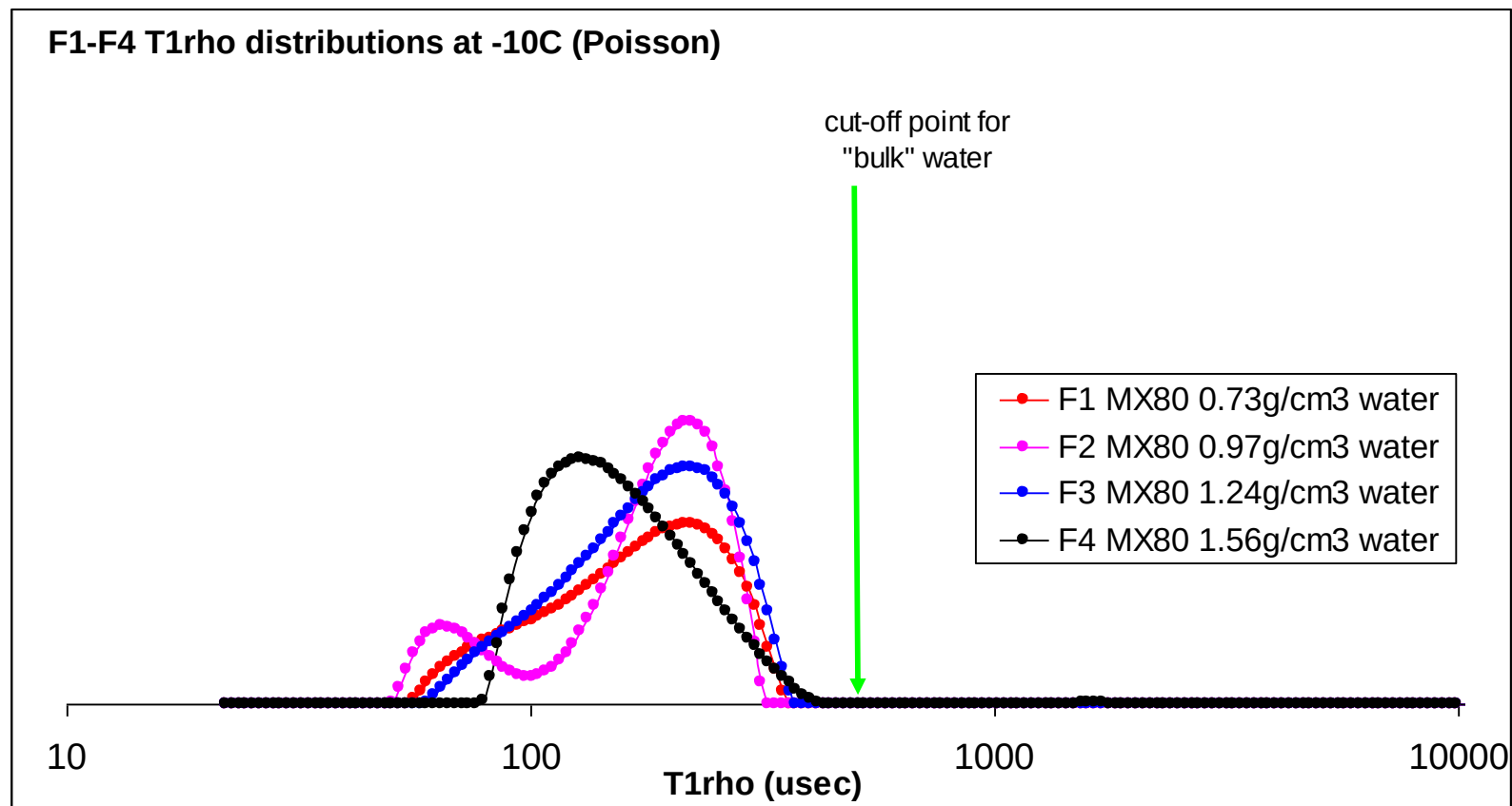
NMR



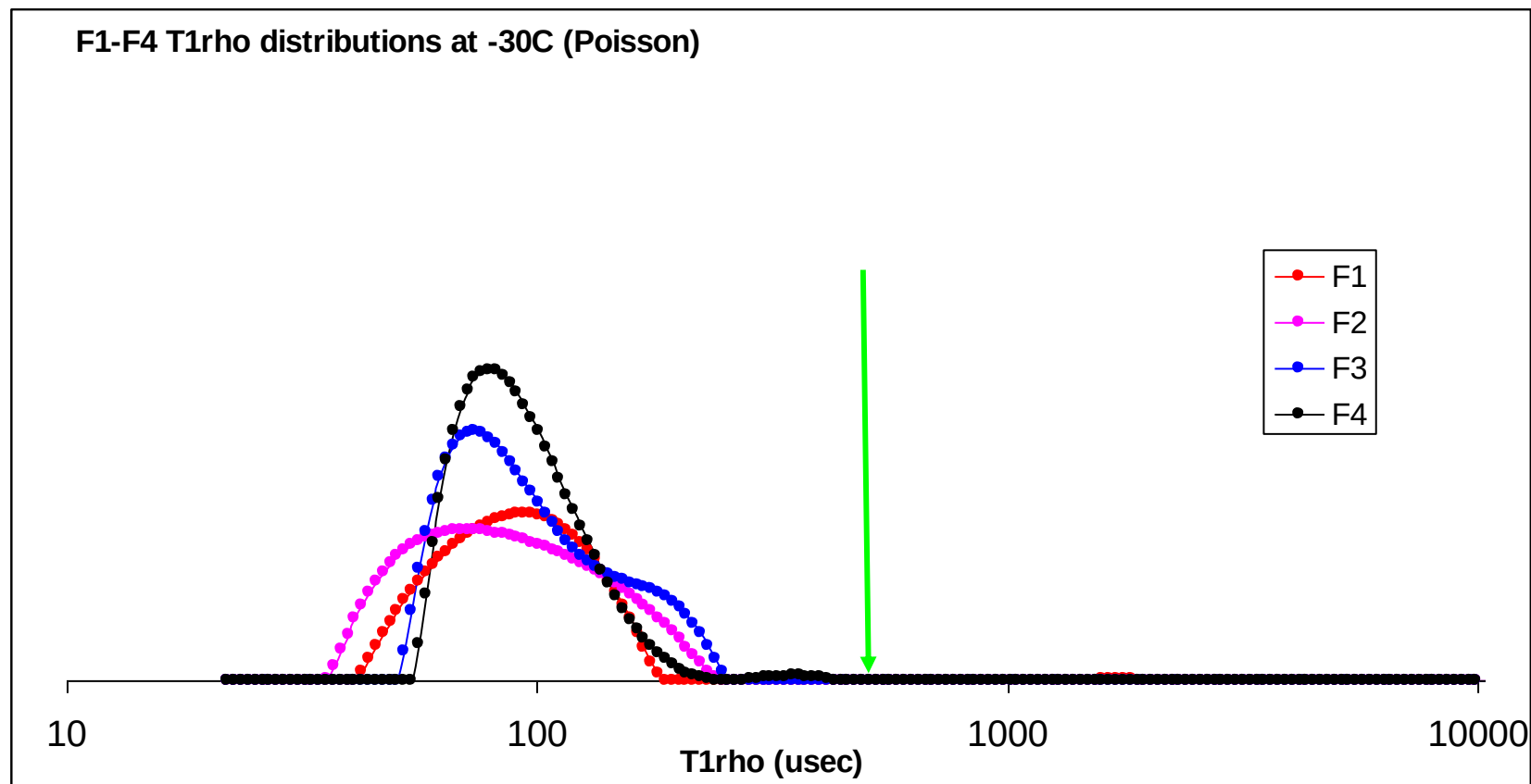
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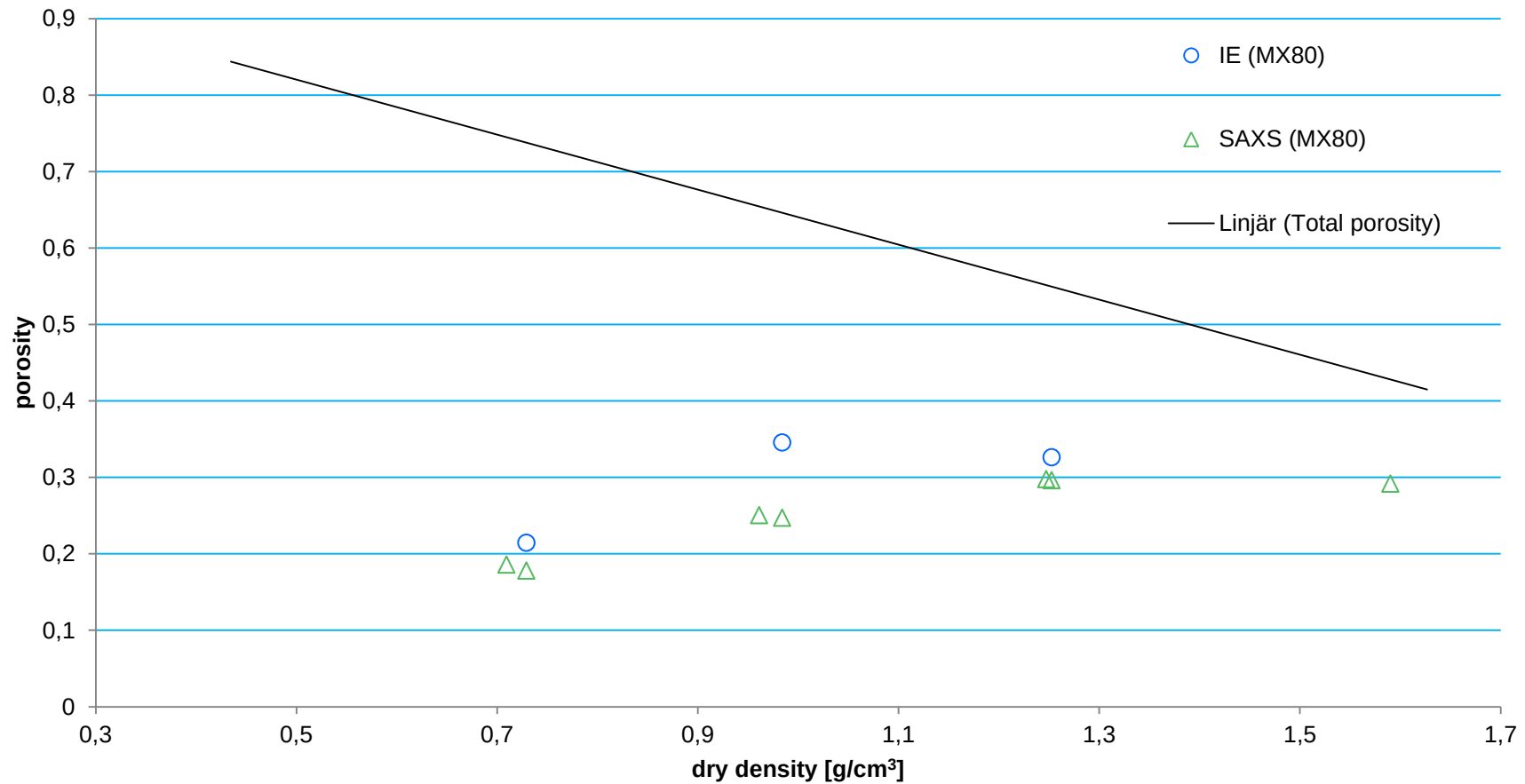
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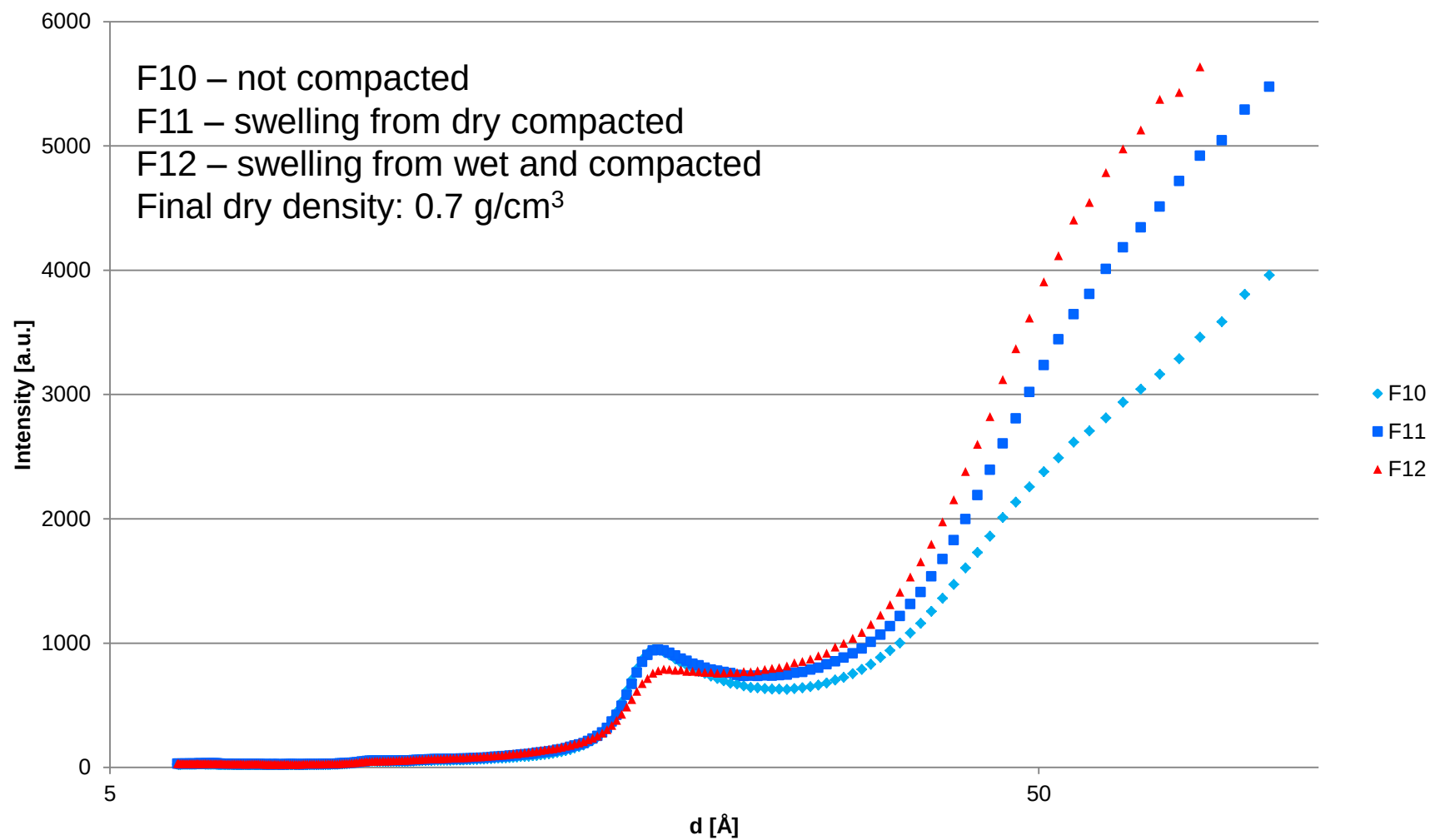


NMR



Interlamellar porosity





Summary

- With lower density the amount of large pores increase
- Interlamellar distance changes between dry density of 1.5-1.3 g/cm³
- We can distinguish water in the interlamellar pores from the water on the clay surface (?)
- Sample preparation has an influence on the structure – influences erosion?

Acknowledgements

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