

## Minutes

### SAFER2028 Bentonite seminar 2025 by project SAGE

**Time** 5.11.2025 at 12.00 – 15.30

**Place** VTT CNS at Kivimiehentie 3, 02150 Espoo + online

<b>Participants</b>	Jukka	Kuva	GTK
	Mika	Niskanen	Posiva
	Arttu	Miettinen	Jyväskylä University
	Sami	Naumer	VTT
	Veli-Matti	Pulkkanen	VTT
	Ville	Rinta-Hiiri	VTT
	Anniina	Seppälä	VTT
	Janne	Yliharju	Jyväskylä University

#### 1. Opening of the seminar

Veli-Matti Pulkkanen chaired the seminar and opened it at 12.03. The agenda was shown (Appendix 1).

#### 2. Presentations

The seminar consisted of the following presentations and related discussion.

1. Bentonite mechanical testing – constitutive and regression model fitting (Appendix 2)
2. Experimental feasibility of dual-energy X-ray tomography for two-phase density analysis in bentonite during water infiltration (Appendix 3)
3. Bentonite modelling (Appendix 4)
4. Combining chemistry analysis and XCT (Appendix 5)
5. Bentonite electrical resistivity studies (Appendix 6)

#### 3. Discussion on the future research topics

The discussions during the presentations of the future research topics were summarised and continued. The topics covered during the discussion were, for example, different bentonite types (from different sources and differently processed bentonite: granular, grain size controlled, chemically altered, additives), the new experimental techniques and potential use of the results, new potential quality control methods, the role of machine learning and the differences in bentonite modelling approaches.

#### APPENDICES

Appendix 1	Agenda of the seminar
Appendix 2	<i>Bentonite mechanical testing – constitutive and regression model fitting</i> by Veli-Matti Pulkkanen / Anniina Seppälä, VTT
Appendix 3	<i>Experimental feasibility of dual-energy X-ray tomography for two-phase density analysis in bentonite during water infiltration</i> by Janne Yliharju, Jyväskylä University
Appendix 4	<i>Bentonite modelling</i> by Veli-Matti Pulkkanen, VTT
Appendix 5	<i>Combining chemistry analysis and XCT</i> by Jukka Kuva, GTK (available on request from Jukka Kuva)
Appendix 6	<i>Electrical resistivity studies for bentonite</i> by Sami Naumer / Ville Rinta-Hiiri, VTT