

Table of contents

1	Introduction.....	1
2	Characterization of the studied claystone	5
2.1	Sampling	5
2.2	Mineralogical composition.....	7
2.3	Petrophysical properties	8
2.3.1	Definitions.....	8
2.3.2	Measured results	9
3	Mechanical deformation and strength	19
3.1	Experimental methodology	19
3.2	Load paths.....	21
3.2.1	Triaxial compression.....	23
3.2.2	Triaxial extension.....	24
3.2.3	Triaxial cyclic compression	24
3.2.4	Triaxial creep	25
3.3	Results and discussions	27
3.3.1	Triaxial compression.....	27
3.3.2	Triaxial extension.....	38
3.3.3	Triaxial cyclic compression	44
3.3.4	Strength in dependence on load path	54
3.3.5	Time-dependent behaviour	58
4	Moisture effects	67
4.1	Water uptake and free swelling	67
4.1.1	Samples	68
4.1.2	Test methodology	70
4.1.3	Test results.....	71
4.2	Strain response to humidity change under load	87
4.3	Influences of water content on stiffness and strength.....	90

5	Summary	97
5.1	Main characteristics	97
5.2	Deformation and strength	97
5.3	Moisture effects	98
5.4	Outlook	99
6	Acknowledgements	101
	References	103
	List of tables	111
	List of figures.....	113