A concept of a database for results of laboratory tests on soil and rock

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Why …?

- In Germany several 1000 ground investigation reports are commissioned by state authorities per year
  - several 10.000 borings and
  - about 100.000 laboratory test are performed
- For the borings it is prescribed by law to deliver
  - the samples and
  - the sampling records

  to the geological survey, which develop geological maps
- There is no systematic collection, evaluation and release of the results of the laboratory tests.

Content of the database

Samples:

- origin, sampling and storage

Test method:

- typical characteristics, test standard

Test device:

- typical design features, specific equipment

Test procedure:

- sample preparation, load steps, test standard

Data of measurements and evaluations

Reliability classes (RC) for ground properties

RC 1 All data of the test are available to understand all steps of the determination of the value of the ground property e. g. information of the origin of the specimen and its preparation, test device, original measurements, evaluations etc..

RC 2 ….

RC 3 ….

RC 4 ….

RC 5 …

RC 6 The original measurements are not available. However the formula for the evaluation of the value of the ground property is known.

RC 7 Only the value of the ground property is known.

Definition of the reliability classes for φ' und c' determined by a direct shear test

Data and information characterising the reliability classes	Reliability class						
	1	**2**	**3**	**4**	**5**	**6**	**7**
Measurement (force, length)	**x**						
Assumption of the area of the shear surface	**x**	**x**					
results: stresses: σ, τ	**x**	**x**	**x**				
Assumption of the failure: e. g. τ_{max} or ε = 20%	**x**	**x**	**x**	**x**			
result: τ_f and σ_f	**x**	**x**	**x**	**x**	**x**		
Assumption: Coulomb´s friction with c´= 0	**x**	**x**	**x**	**x**	**x**	**x**	
result: ground properties: φ', c'	**x**	**x**	**x**	**x**	**x**	**x**	**x**

Thank you for your attention