

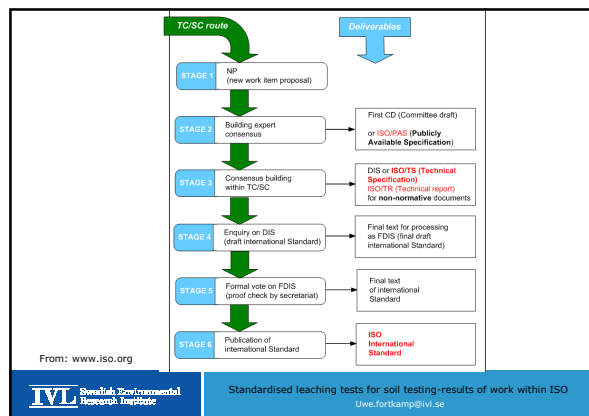
Standardised leaching tests for soil testing-results of work within ISO  
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### Do we need standards for leaching tests?

- Comparable results
- Existing leaching test standards not reliable for soil (can cause problems for organic compounds)

### Standardisation groups for soil leaching tests

- Sweden:
  - SIS TK 427 soil testing
- ISO:
  - TC 190 SC7 WG 6



### Test categories

- "Basic characterisation"
  - information on the short and long term leaching behaviour and characteristic properties of materials. E.g. factors controlling leachability such as pH, redox potential, complexing capacity, are addressed in these defined tests.
- "Compliance"
  - determine if the material complies with a specific behaviour or with specific reference values. Focus on key variables and leaching behaviour previously identified by basic characterisation tests.
- "On-site verification"
  - rapid check to confirm that material is the same as at the compliance test(s). On-site verification tests are not necessarily leaching tests.

### Actual working items

ISO/TS 21268-1	Soil quality - Leaching procedures - liquid to solid ratio of 2 l to 1 kg (Compliance)
ISO/TS 21268-2	Soil quality - Leaching procedures - liquid to solid ratio of 10 l/kg dry matter (Compliance)
ISO/TS 21268-3	Soil quality - Leaching procedures - Up-flow percolation test (Basic characterisation)
ISO/TS 21268-4	Soil quality - Leaching procedures for - Influence of pH on leaching with initial acid/base addition (Basic characterisation)
ISO/DIS 18772	Soil quality - Guidance on leaching procedures for subsequent chemical and ecotoxicological testing of soils and soil materials

### General outline of the batch test methods

- 3 tests: different liquid/solid ratio, and pH varied
- Steps:
  - Sample pre-treatment and dry weight determination
  - Leaching step: water with low Calcium Chloride content, usually 24 hours
  - (pH test: 8 values between pH 4-12, pH adjustment in advance)
  - Separation step: centrifuge or filter
  - Determination of pH, redox, turbidity (or DOC and conductivity)
  - Analysis of leachate and reporting.

### Batch equipment example



### General outline for column test

- Sample pre-treatment and dry weight determination
- Packing of the cleaned column and connection of column to the system with filters and pump
- Pumping of water at about 15cm/d
- Collecting of leachate at 7 different LS from 0.1 to 10
- Solid liquid separation of leachate: centrifuge and filter
- Analysis of leachate and reporting.

### Column test equipment

