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Leaching Test Methods of CEN/TC 351 and CEN/TC 444

Assessment of Products and Wastes

Austrian Recycled Construction Materials
Ordinance including End-of-Waste Criteria

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CEN/TC 351 Conference
Vilnius, 17th October 2019

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Status quo

- European Waste Law
 - Council Directive 1999/31/EC on the landfill of waste
 - Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC
 - Standards of CEN/TC 444 (former CEN/TC 292)

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Status quo

- European Waste Law
 - Sampling plan, sampling: EN 14899 (sampling plan), TR 15310/1-5 (sampling)
 - Leaching tests: ENV 14405 (up-flow percolation test), EN 12457/1-4 (compliance tests)
 - Handling of leachate for organic substances is missing?
 - Digestions: EN 13657 (aqua regia), EN 13656 (HF/HNO₃/HCl, microwave)
 - Limit values for L/S=2 l/kg, 10 l/kg, up-flow percolation test
 - Criteria for disposal of waste (different landfill types)

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Status quo

- Austrian Waste Law
 - Landfill Ordinance 2008, BGBl. II 2008/39
 - Standards of CEN/TC 444 (former CEN/TC 292)
 - Sampling plan, sampling: EN 14899 (sampling plan), TR 15310/1-5 (sampling), Annex 4 Landfill Ordinance (sampling waste streams), ÖNORM S 2126 (sampling in-situ), ÖNORM S 2127 (sampling waste heaps)
 - Leaching tests: EN 12457/4 (compliance test)

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Status quo

- Austrian Waste Law
 - Handling of leachate for organic substances: Annex 4 Landfill Ordinance, ÖNORM S 2117 (new)
 - Digestions: EN 13657 (aqua regia)
 - Limit values for L/S=10 l/kg, total content
 - Criteria for disposal of waste (different landfill types)

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Status quo

- Austrian Waste Law
 - Recycled Construction Materials Ordinance, BGBl. II 2015/181 (manufacture and use of recycled construction materials as a natural, recycled or industrially manufactured aggregate)
 - Standards of CEN/TC 444 (former CEN/TC 292)
 - Sampling plan, sampling: EN 932/1 (sampling aggregates), Annex 3 Recycled Construction Materials Ordinance (declaration test, factory production control FPC), Annex 4 Landfill Ordinance (sampling waste streams), ÖNORM S 2126 (sampling in-situ), ÖNORM S 2127 (sampling waste heaps)

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Status quo

- Austrian Waste Law
 - Leaching tests: EN 12457/4 (compliance test)
 - Handling of leachate for organic substances: Annex 4 Landfill Ordinance, ONORM S 2117 (new)
 - Digestions: EN 13657 (aqua regia)
 - Limit values for L/S=10 l/kg, total content
 - Criteria for use of recycled construction materials as waste
 - Criteria for use of recycled construction materials as products (end-of-waste criteria)

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Status quo

- So far...

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Status quo

- European Product Law
 - Regulation (EU) 305/2011 laying down harmonised conditions for the marketing of construction products – construction products regulation (CPR)
 - Basic requirement 3 (hygiene, health and the environment) -> mandate 366, [basic requirement 7 (sustainable use of natural resources) -> mandate?]
 - Standards of CEN/TC 351
 - Sampling plan, sampling: Annex V CPR (assessment and verification of constancy of performance), standards of CEN/TC 351 (environmental compatibility): CEN/TR 15858 (assessment, WT/WFT/FT), CEN/TR 16220 (sampling), product standards (technical compatibility)

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Status quo

- European Product Law
 - Leaching tests: CEN/TS 16637-2 (dynamic surface leaching test), CEN/TS 16637-3 (up-flow percolation test), [EN 12457/1-4 (compliance tests)]
 - Handling of leachate for organic substances is in work
 - Digestions: CEN/TS 17196 (aqua regia)
 - No limit values concerning environmental compatibility yet (delegated acts, product standards)

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Status quo

- Questions / conclusions...

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Questions / conclusions

- How recycled construction materials have to be assessed when they are no waste any more?
- How (recycled) construction materials have to be assessed when they are no products any more (due to a lack of quality) and stay waste or become waste again?
 - Assessment one time by waste law and another time by product law?
 - Quality assurance one time regarding environmental compatibility and another time regarding technical compatibility?
 - Added value?

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Questions / conclusions

- Methods for the assessment of waste and products have to be the same!
- Sampling plan and sampling for the assessment regarding environmental and technical compatibility have to be the same!

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Questions / conclusions

- Which methods are needed?
- Which factors have to be considered (in use, after use)?
 - Leaching tests, compliance tests (simple, fast)
 - Handling of leachate for organic substances
 - Long term behaviour tests (multiple recycling causes changes in leaching behaviour due to oxidation or other physical processes including size reduction)
 - pH-dependence tests (heavy metals, ...)
 - Determination of total content (asbestos, other fibres, POP, VOC, ...)
 - Determination of contaminations (plastics, ...)

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Future

- Summary...
 - For climate protection we need circular economy.
 - Basis for circular economy is the recyclability of products (that means dismantling in components and collection of components): product development
 - For this reason
 - producers and waste management, DG GROW and DG ENV, CEN/TC 351 and CEN/TC 444, ministries of economy and ministries of environment, competent management authorities, ...
 - have to cooperate in a much closer way!

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Thank you for your attention!

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