

Evaluation of **B**est **a**vailable **t**echnologies in waste handling using LCA considerations

Requirements for BAT in waste handling:

Maximum performance - minimum environmental burden

... less emissions, waste and waste water
... less energy and raw material input
... more material recovery and recycling

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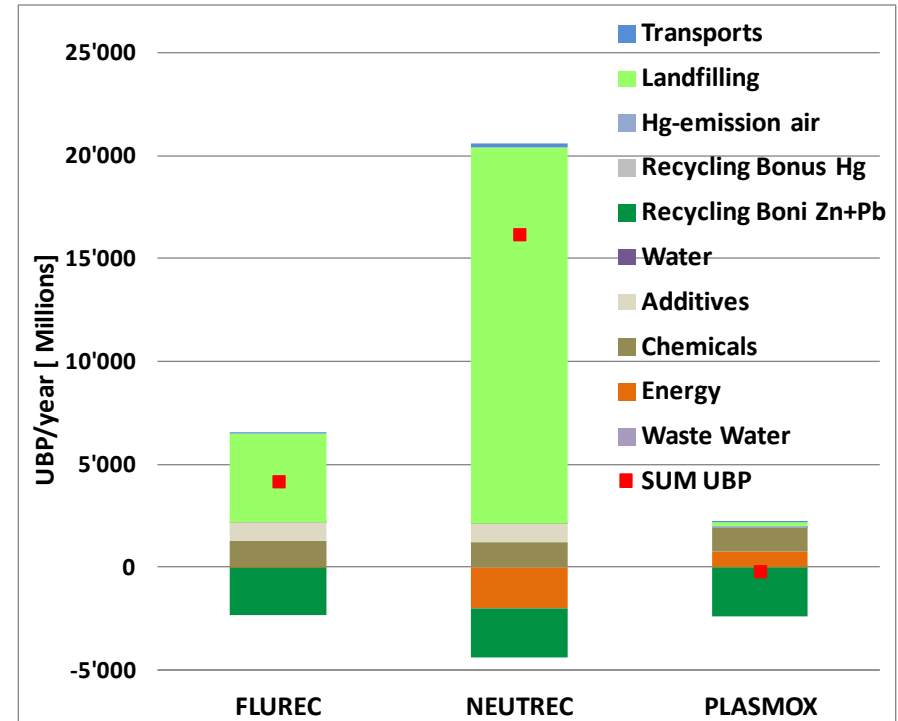
→ LCA considerations required for the evaluation of BAT

Kt. Zürich (AWEL):

- incinerator filter ashes: Hg, Zn ...
- incinerator slag: Fe, Cu, Al ...
- excavated soils: hydrocarbons

Graph: Treatment of incinerator filter ashes, comparison of several techniques by a simplified LCA .

200'000 t waste/y → 2'800 t ashes/y



Result: Requirements that have to be fulfilled for the BAT:
(treatment of incinerator filter ashes in Switzerland)

- separation rate of Hg: > 99% of input into flue gas cleaning AND re-use OR deposition in underground depot
- separation rate of Zn (Pb): > 65% (> 30%) of mass in non-treated ashes AND re-use

Challenge: Correct quantification of the environmental impact from leached metals in landfilled waste

Dilemma: which time frame should be considered in the LCA? „cutoff“

100 years → leaching of only a part of the metals is considered
 → opposition to sustainability criteria: pollution emerging later is considered insignificant

unlimited → leaching of 100% of the metals is considered
 → maximum mass flow of pollutants: landfilling is insignificant

Time frame is set to 60'000 years (natural erosion, next ice age)

Aspects on leaching are based on work by S. Hellweg, A. Johnson and G. Doka.