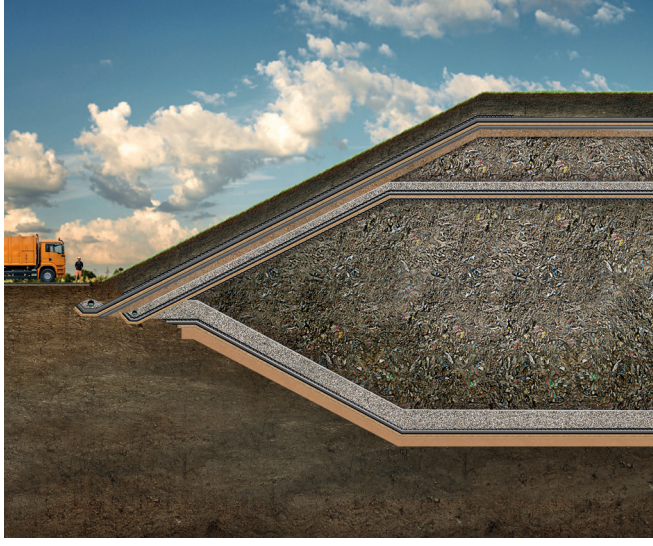


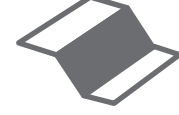
Reduction of tyre abrasion and CO₂ through the use of geotextiles

Calculation Example The Surface Sealing of Landfills

The transport of material for a fictitious landfill sealing project is compared. Comparisons are made between a geotextile bentonite mat liner project and a clay liner project.



4,500 m²
Landfill area



The construction methods in comparison

4,500 m² of bentonite mats
corresponds to 23 rolls

2,250 m³ clay mineral
corresponds to waterproofing
with 50 cm thickness

VS



1 trip
semi-trailer truck 4-axle
25,000 kg capacity/trip

203 trips
Payload dump truck 4-axle
20,000 kg capacity/trip



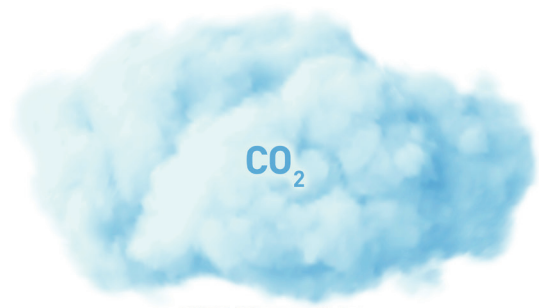
0.72 kg tyre wear
for a 600 km journey (there/back)
and a tyre wear of 0.0012 kg/km
(according to BAST 2008 for
semi-trailer tractors)

17.21 kg tyre wear
for a 50 km journey (there/back)
and a tyre wear of 0.0017 kg/km
(according BAST 2008 for construction
site trucks)



557 kg CO₂
1 truck, transport distance 600 km
CO₂ emissions per km 0.928 kg/km

9,391 kg CO₂
203 truck, transport distance 50 km
CO₂ emissions per km 0.928 kg/km



Result:

A comparison of the two solutions clearly shows that a landfill using geotextiles produces up to 96% less microplastic from tyre abrasion (under the parameters listed above) than the expansion variant with a clay liner.

In addition, 94% more CO₂ is produced during the transport of the clay mineral. Added to this, is the additional CO₂ caused by the use of machinery during paving, which is considerably lower with the geosynthetic option. In addition, the construction costs are usually lower when using a geotextile solution.



Less CO₂ emissions



Microplastic reduction



Construction time and energy saving



Space saving transport



Saving in construction costs

