

METHOD STATEMENT



Determinand:

Leaching of inorganic components with the diffusion test - 'The Tank test'

Matrix:

Waste materials

Principle of Method:

The purpose of the diffusion test is to simulate the leaching of inorganic components from moulded and monolithic materials under aerobic conditions as a function of time over a period of 64 days.

The test determines the nature and properties of the material matrix under investigation by placing a complete sample in a leaching fluid, deionised water, and replenishing the eluate at specified times. The concentrations of the leached components in the eluate fractions are measured. The pH value at which the leach takes place is determined by the material itself.

On the basis of the diffusion test results, the leached quantity per unit area can be calculated for each component analysed. Parameters can be deduced from the development of the release of components over time, including the extent of surface rinsing and the effective diffusion coefficient that can be used to estimate the leaching over longer periods.

Sampling and Sample Preparation:

The diffusion test requires at least one test piece, the structure, homogeneity and composition of which are representative for the material or product to be tested. The smallest dimension of the test piece (P) must be greater than 40mm and the volume (V_p) must be known.

If the material to be tested is produced in a product format of which the smallest dimension is less than 40mm, then this product may only be used as a test piece if one side has a geometric surface area (A) of at least 75cm².

To increase the representivity of material under test, it is acceptable to aggregate a number of test pieces from a batch for the diffusion test. The volume (V_p) and the geometric surface area (A) are then taken as the total volume and total geometric area of the collective pieces.

If the diffusion test is being undertaken to determine the effective diffusion coefficient and/or the emission per unit mass, an extra test piece is required for an availability test (WSM003). The mass (m) in kg and the density (ρ) in kg/m³ of test piece must then be known.

Interferences:

None known

Performance of Method:

Performance characteristics have not been determined for this method

References:

EA NEN 7375:2004 - Leaching characteristics of moulded or monolithic building and waste materials
- Determination of leaching of inorganic components with the diffusion test - 'The Tank test'