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Reference Material
Phenols, chlorophenols, chlorobenzenes, PCBs, and PAHs in leaching (soil)

P2538-RMLe

Summary

Reference material P2538-RMLe is validated in the ring test P2538-RT, which is organised, performed, and evaluated according to the requirements of DIN EN ISO/IEC 17043 and the "International Harmonized Protocol". ISO 13528 is considered during the evaluation of the submitted results and during homogeneity testing. Details related to the applied statistics are summarised in the full specification, which is provided after purchase of the reference material.

Reference material P2538-RMLe consists of 1000 ml of an eluate of a soil material, which is spiked with 3 phenols, 3 chlorobenzenes, 3 chlorophenols, 3 PCBs, and 6 PAHs (see table 1). Catechol and resorcinol are spiked as well, but due to degradation, catechol and resorcinol are not included in the specification of the reference material.

The reference material is validated in ring test P2538-RT with 13 laboratories. The spiked levels as well as the assigned values, which are calculated of the results of the participants of the ring test P2538-RT, are summarised in table 1. Assigned values are available for all parameters except 1,2,3,5-tetrachlorobenzene, 3-chlorophenol, and 2,3,4,6-tetrachlorophenol. The comparability criterion is not applicable to the three parameters mentioned before due to the limited number of reported results in P2538-RT. The trueness criterion is applied to chlorobenzenes and chlorophenols only, as the recoveries of the spiked levels are too low for phenols, PCBs, and PAH. The spiked levels of phenols, PCBs and PAHs are provided for information only.

Table 1. Spiked levels and assigned values

Parameter	Spiked level [µg/l]	Assigned value [µg/l]	Total number of results
Phenol	5.2	3.57	9
o-Cresol	3.8	2.82	9
p-Cresol	1.8	0.922	9
1,2,4-Trichlorobenzene	0.47	0.210	10
1,2,3,5-Tetrachlorobenzene	0.18	-	8
Hexachlorobenzene	0.033	0.0150	8
3-Chlorophenol	0.11	-	6
2,4,5-Trichlorophenol	0.23	0.178	7
2,3,4,6-Tetrachlorophenol	0.087	-	4
PCB 52	0.016	0.00574	12
PCB 138	0.062	0.0142	12
PCB 180	0.056	0.00966	12
Anthracene	0.027	0.0171	11
Benz[a]anthracene	0.083	0.0334	10
Fluoranthene	0.11	0.0746	11
Phenanthrene	0.12	0.0848	11
Pyrene	0.051	0.0319	11
Naphthalene	0.22	0.157	11