

Annex 1. Existing standard methods for PAH-Determination in solid matrices

Standard	Applicable for matrix	Pretreatment	Extraction	Clean up + concentration	Analytical method	Nr. of PAH	LOD mg/kg (dm)	Remarks
DIN 38414 S23: 02.02	Sludge Sediment	A. original sample	(acetone+NaCl +H ₂ O + PE) shaking 6h (washing ??)	No clean up + DMF rot. evap.	HPLC/FLD	15	> 0.05	
		B. freeze dried or air dried	THF shaking 0.5h soni. at 40°C 0.5h	No clean up rot. evap. + methanol	HPLC/FLD	15	> 0.05	
								* if necessary
ISO 13877 :98 ISO/TC 190	A. less contamin. soil	original sample	acetone ;shaking15min; dekant.;acetone/PE shaking15min; washing	chromtogr. Alox 10%desact.. + ACN evap.	HPLC/DAD/FLD	16	> 0.01	Int.std 6-methyl-chrysene if approp.
	B. contamin. soil	air dried	toluene; soxhlet 4-8 h	No clean up direct analysis of extract	HPLC/DAD/FLD	16	> 0.1	
ISO DIS 18287: 09:02 ISO/TC 190	A. soil	original sample or chem. dried (ISO 14507)	acetone ;shaking15min; dekant.;acetone/PE shaking15min; washing	*chromtogr. Si- gel 10%desact.+ isooctane; evap.	GC/MS	16	> 0.01	Int.std(D-PAH) add to sample before Extr.
	B. soil (high organic)	original sample	(acetone + NaCl +H ₂ O + PE) shaking 6h (washing ??)	*chromtogr. Si- gel 10%desaact.+ isooctane; evap	GC/MS	16	> 0.01	Int.std(D-PAH) add to sample before Extr.
ÖNORM L1200 01:03	soil sewage-sludge compost	A. moist sample	(acetone + NaCl +H ₂ O + PE) shaking 16h *washing + keeper; evap.	*GPC, Si-gel + keeper ; evap.	HPLC/DAD/FLD GC/MS	15/16	> 0.02	Int.std(D-PAH) before Extr.
		B. dried sample	toluene, hexane or DCM; soxhlet 4-8 h	*GPC, Si-gel + keeper ; evap.	HPLC/DAD/FLD GC/MS	15/16	> 0.02	Int.std(D-PAH) before Extr.

Standard	Applicable for matrix	Pretreatment	Extraction	Clean up + concentration	Analytical method	Nr. of PAH	LOD mg/kg (dm)	Remarks
DANISH Standard	Thick sludge (dm>10%) Thin sludge (dm<10%)	original sample	(pH 10-12) with NaOH; 150 ml DCM 5 min. soni shaking 2h	decant.; drying with Na ₂ SO ₄ ; no clean up; evap.	GC/MS	9	> 0.02	3 Int.std. (D-PAH) add to sample before Extr.
Flanders Reference method	soil sludge solid waste	dried samples, chem. with Na ₂ SO ₄ ; with diatom. earth; or lyophilisation	acetone/hexane hot extraction, soxhlet, ASE or MWAE	evap.; Si.-gel 3% desact. (hexane/DCM 80/20) Alox actv. (hexane/DCM 50/50)	GC/MS	16	?	5 Int.std. (D-PAH) add to sample before Extr.
					HPLC/DAD/FLD;Acc. NVN5731:98	16	?	3-methyl-chrysene add to sample before Extr.
French Standard XP X 33-012 CEN/TC308/1/4	sludge	different pretreatment depending on water content	Hexane/acetone	different clean up	HPLC/DAD/FLD GC/MS	6	0.5	
US EPA 8100	waste			different clean up	GC/FID	16	?	
US EPA 8310	waste			different clean up	HPLC/DAD/FLD	16		
US EPA 8270 B	solid waste, soil		different extraction techn.	different clean up	GC/MS		0.7	D-PAH
Italian Standard UNI no.??	Waste, soil, sediment aqueous sludge	Original sample	Acetone +hexane or DCM	Silica gel	Silica gel	16	16	D-PAH added before extraction
	Others ??	Original sample	DCM or toluene+ methanol	Silica gel	Silica gel	16	16	D-PAH added before extraction
	other national	standards will	be added for	discussion when	available			

