EXPERTISECENTRUM PFAS

Rijkswaterstaat
Ministry of Infrastructure and Water Management

An operational framework on PFAS

Klik om een subtitel in te voegen

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Ministry of Infrastructure and Water Management, Rijkswaterstaat

Status quo

- Polyfluorinated compounds at fire training facilities, Norway, Kine Martinsen CF 2012…
- https://www.emergingcontaminants.eu/
- Concawe report, June 2016
  Environmental fate and effects of poly and perfluoroalkyl substances (PFAS)
- https://www.qld.gov.au/environment/pollution/management/investigation-pfas/management-plan; January 2018
- https://www.rivm.nl/Documenten_en_publicaties/Wetenschappelijk/Rapporten/2018/september/Mixture_exposure_to_PFAS_A_Relative_Potency_Factor_approach
- September 2018 EFSA wg discussion on daily intake. Decision?

Why additional research PFAS in NL

- Spatial development Schiphol. PFAS concentrations caused by fire and activities lead to problems soil reuse. High costs for landfilling, absence of juridical framework
- Diffuse PFAS contamination in soil and groundwater in the surroundings of the city of Dordrecht caused by Du Pont/Chemours

→ Competent authorities need guidance to cope with PFAS in soils, ground water, sediment and for the handling of excavated soils

Roadmap towards an operational framework

- Collection of general information about contaminants, behaviour, toxicity Identification of sources and pathways
- Inventory of PFAS in soil and groundwater at 29 locations
- Sampling/analysis protocol
- Research: blood serum measurements by employees of and inhabitants in the environment of the plant as well as reference measurements (RIVM)
- Development of a method (Reference Potency Factor) to determine the toxicity of mixtures of PFAS for soil, sediment and groundwater (RIVM)
- Standards for remediation of soil, sediment and groundwater and for handling of excavated soils (RIVM)
- Options for remediation, including test phase

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Prevention measures for sample contamination

Congeneer	Congeneer	RPF
Perfluorobutanesulfonate	(PFBS, C4)	0.001
Perfluoropentane sulfonic acid	(PFPeS, C5)	0.001 ≤ RPF ≤ 0.6
Perfluorohexanesulfonate	(PFHxS, C6)	0.6
Perfluoroheptane sulfonic acid	(PFHpS, C7)	0.6 ≤ RPF ≤ 2
Perfluorooctanesulfonate	(PFOS, C8)	2
Perfluorodecane sulfonic acid	(PFDS, C10)	2
Perfluorobutyrate	(PFBA, C4)	0.05
Perfluoropentanoic acid	(PFPeA, C5)	0.01 ≤ RPF≤ 0.05
Perfluorohexanoate	(PFHxA, C6)	0.01
Perfluoroheptanoic acid	(PFHpA, C7)	0.01 ≤ RPF≤ 1
Perfluorooctanoic acid	(PFOA, C8)	1
Perfluorononaoic acid	(PFNA, C9)	10
Perfluorodecanoic acid	(PFDA, C10)	4 ≤ RPF≤ 10
Perfluoroundecanoic acid	(PFUnDA, C11)	4
Perfluorododecanoic acid	(PFDoDA, C12)	3
Perfluorotridecanoic acid	(PFTrDA, C13)	0.3 ≤ RPF≤ 3
Perfluorotetradecanoic acid	(PFTeDA, C14)	0.3
Perfluorohexadecanoic acid	(PFHxDA, C16)	0.02
Perfluorooctadecanoic acid	(PFODA, C18)	0.02
FRD-902/-903	(GenX)	0.06

Screening values for PFOS, PFOA en GenX

Medium	Objective / medium	PFOS	PFOA**	GenX
Soil	Intervention value soil	6600 µg/kg	900 µg/kg	-
	Housing with garden	11 µg/kg	900 µg/kg	-
	Housing with kitchen garden	-	86 µg/kg	-
	Other green, buildings, infrastructure, industry	8 µg/kg	1137 µg/kg	-
Groundwater	Intervention value groundwater	4,7 µg/l	0,39 µg/l	0,66 µg/l*
	Housing with garden	310 µg/l	130 µg/l	-
	Housing with kitchen garden	-	12 µg/l	-
Surface water	Annual mean quality value	0,00065 µg/l	0,048 µg/l	0,048 – 0,12 µg/l*
Drinking water	Drinking water	0,53 µg/l	0,0875 µg/l	0,15 µg/l

* No definite evaluation
** Screening values PFOA recently updated (May 2018): https://www.rivm.nl/Documenten_en_publicaties/Algemeen_Actueel/Nieuwsberichten/2018/Aangepaste_risicogrenzen_PFOA_voor_grond_en_grondwater

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Handling of excavated soils

- In the Netherlands soil policy and implementation decentralized
- Local authorities in the lead
- The Netherlands have a policy for handling of slightly contaminated soils based on back ground values
- For PFAS no baseline available and no general back ground values determined
- Local authorities have to determine their own base line, back ground values and screening values
  - → Without framework high costs, limitations on spatial development and no reuse
  - → Local authorities have to derive their own standards (costly and ineffective)
  - → Balance between protection and reuse (CE)
  - → **National government takes the lead for a general framework**