



DRINKING WATER TREATMENT GUIDANCE

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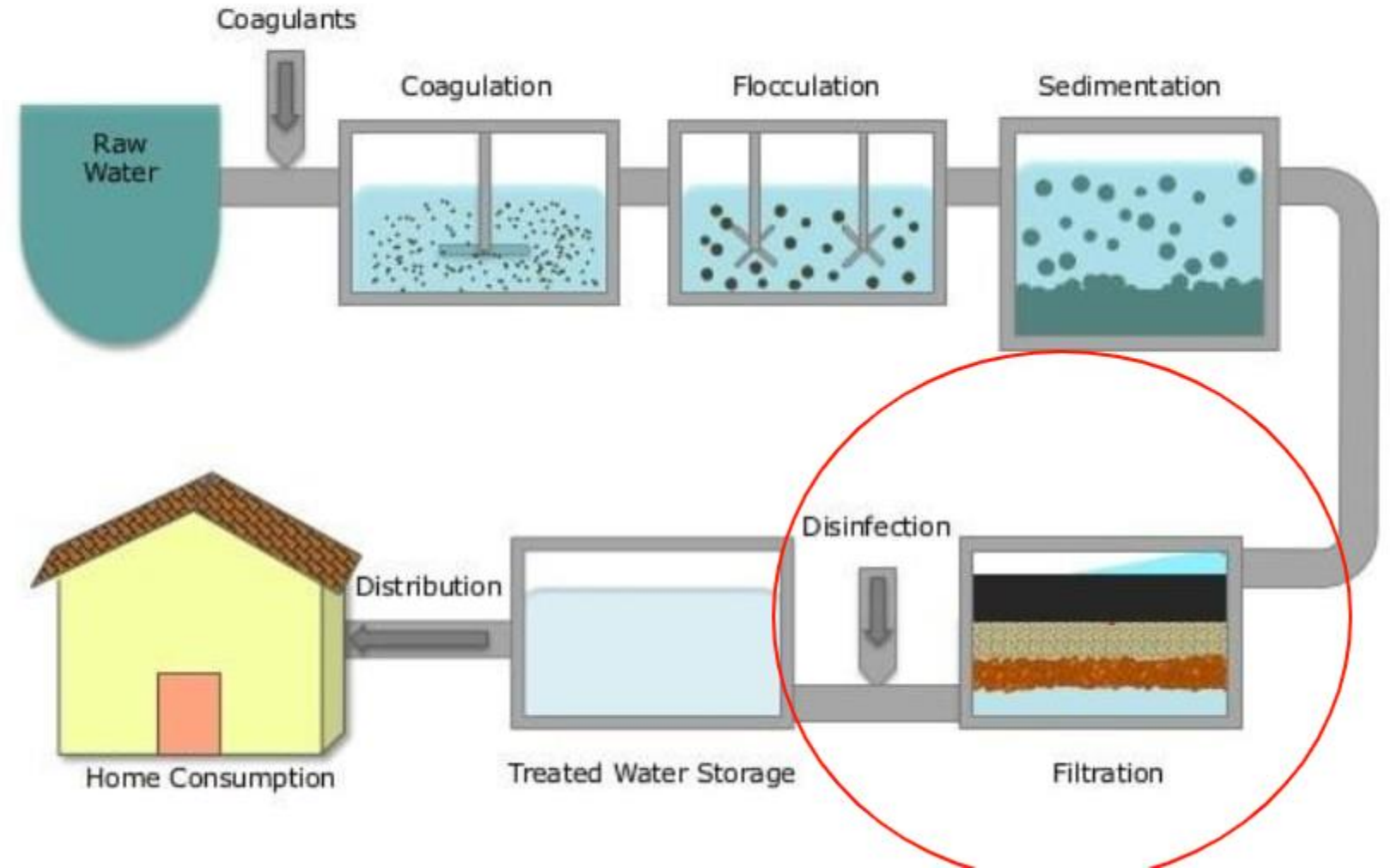
BACKGROUND

- In EFSA conclusions, typically the overall consumer risk assessment could not be completed as the nature of residues resulting from drinking water intake was not known.
- A corresponding data gap for information to address the effect of water treatment processes on the nature of residues present in surface water and/or groundwater is typically identified, – analogous to processing study requirements for residues in food commodities
- Following discussion at the PSN and SCoPAFF a mandate was sent to EFSA and ECHA to provide joint guidance covering the water treatment disinfection methods that are frequently used. At least chlorination had to be covered. The employment of sand filtration (or any other means used in practice to remove organic impurities) prior to the water treatment disinfection methods (e.g. chlorination) needed to be considered as standard practice in surface water treatment.
- Draft guidance had a public consultation October 2022
- Risk manager comments were also provided on the draft update produced following public consultation July 2023
- Guidance published August 2023



ALL ABOUT WATER TREATMENT PROCESS

Water Treatment Process



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- Exposure estimates for residues of Plant Protection Products (PPP) and Biocidal Products (BP) in surface water and groundwater. Existing approaches need to be followed including exposure mitigation approaches
- For PPP, dilution factors for small ditches and streams adjacent to treated fields are provided, accounting for the fact that water abstraction is only from larger rivers or lakes
- Stepwise approach to be used to identify the water treatment transformation products
 - The type of reactions that can occur during each of the treatment processes and the types of transformation products that can be formed based on the literature and some QSAR approaches
 - That a compound will be stable based on the literature
 - Approaches to be used for analysis and identification of the transformation products



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- Lab scale experimental methods for disinfection processes:
 - chlorination with sodium hypochlorite or chlorine
 - chlorination with chloramine
 - pre-oxidation with chlorine dioxide
 - the combination of pre-oxidation with chlorine dioxide and chlorination with sodium hypochlorite, chlorine or chloramine
 - Ozonation
 - UV disinfection.



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- A tiered risk assessment scheme covering human and domesticated animal oral intakes, considering the residues in both the treated drinking water and food and feed commodities.
- This risk assessment scheme follows the hazard and risk assessment approaches of EFSA PPR 2016 guidance on the establishment of the residue definition for dietary risk assessment / draft update to the OECD Guidance Document on the Definition of Residues for pesticides
- The risk assessment is a tiered approach involving
 - i. genotoxicity screening (Tier 1)
 - ii. general toxicity assessment (Tier 2)
 - iii. toxicity assessment for endpoints other than genotoxicity and general toxicity (Tier 3).
- *In silico* approaches including TTC, QSAR, grouping and read-across are recommended to be applied first. The situations needing *in vivo* testing in the tiered scheme are outlined.



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- Due to concentration triggers prescribed in the guidance, additional assessments can be needed when different uses are requested.
- This is in line with other assessment guidance (e.g. relevant metabolites in groundwater).
- Therefore, additional assessments to those provided at EU level may need to be made for product authorisations (zonal and national levels). This aspect is covered in the guidance.
- Selection of representative uses and exposure mitigation measures presented for EU level assessment (as for other areas of assessment), are therefore important factors that will contribute to the efficiency of the assessment of subsequent applications for product authorisation.



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