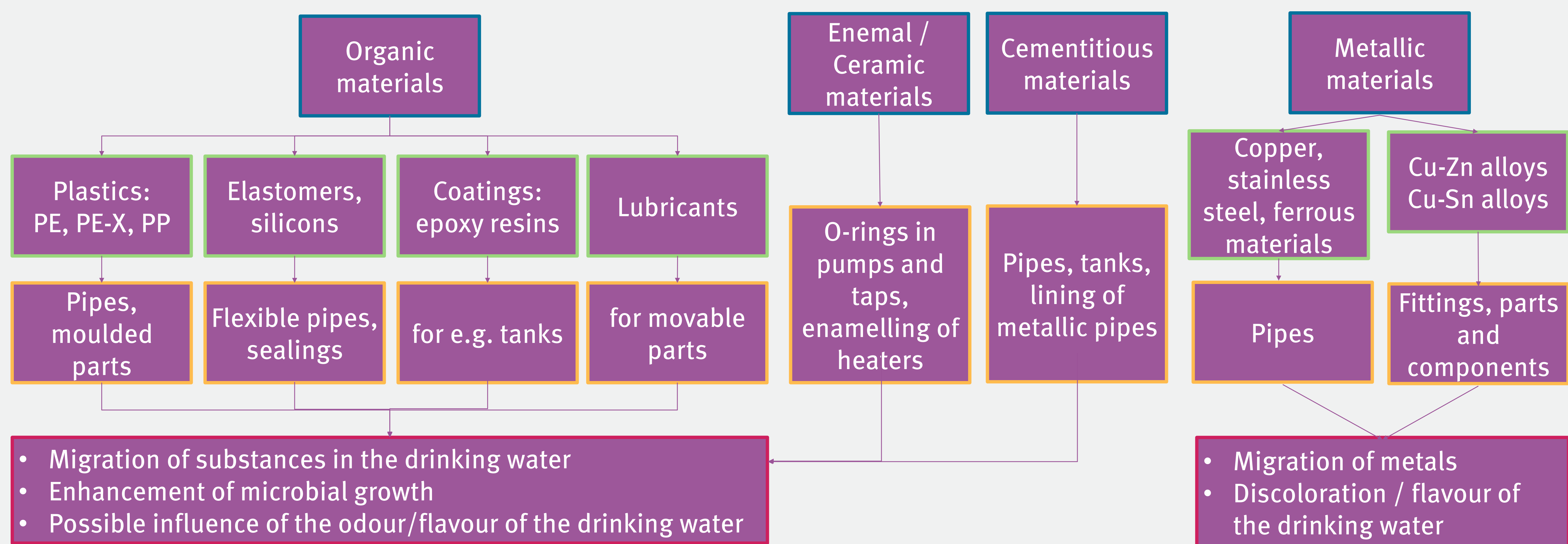


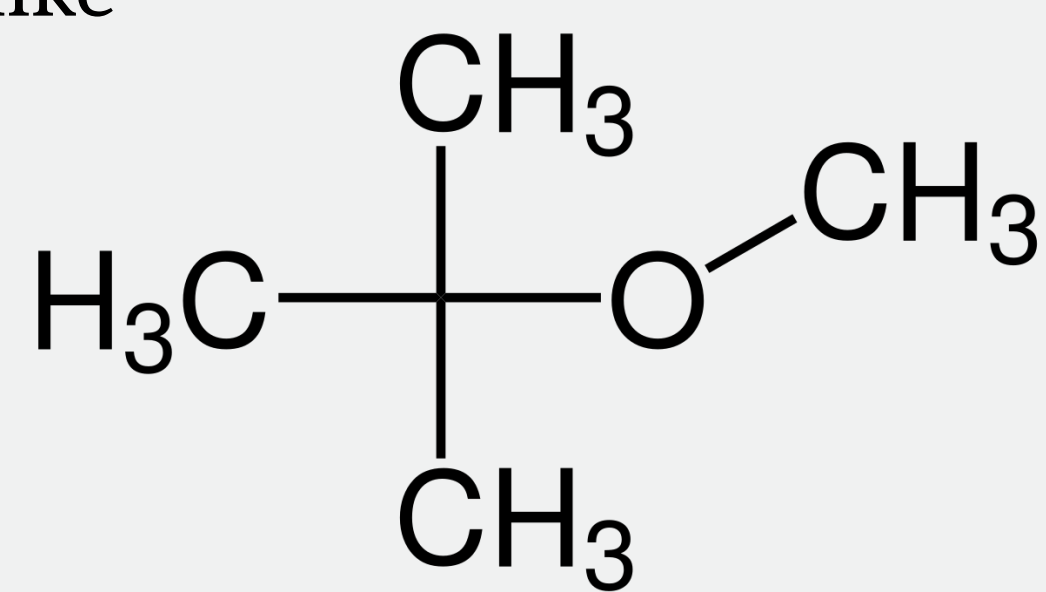
Materials in Contact with Drinking Water

Overview of the Materials – Examples – Potential Risks



Example: MtBE (methyl-tert-butyl ether)

- Odour-active substance, which migrates from cross-linked polyethylene pipes (PE-X) into drinking water
- Causes off-flavours of PE-X pipes
- Odour: ethereal, solvent-like, plastic-like
- Volatile substance,
- Release of MtBE into warm water is higher,
- General: only few substances are identified to cause odour



Example: Lead

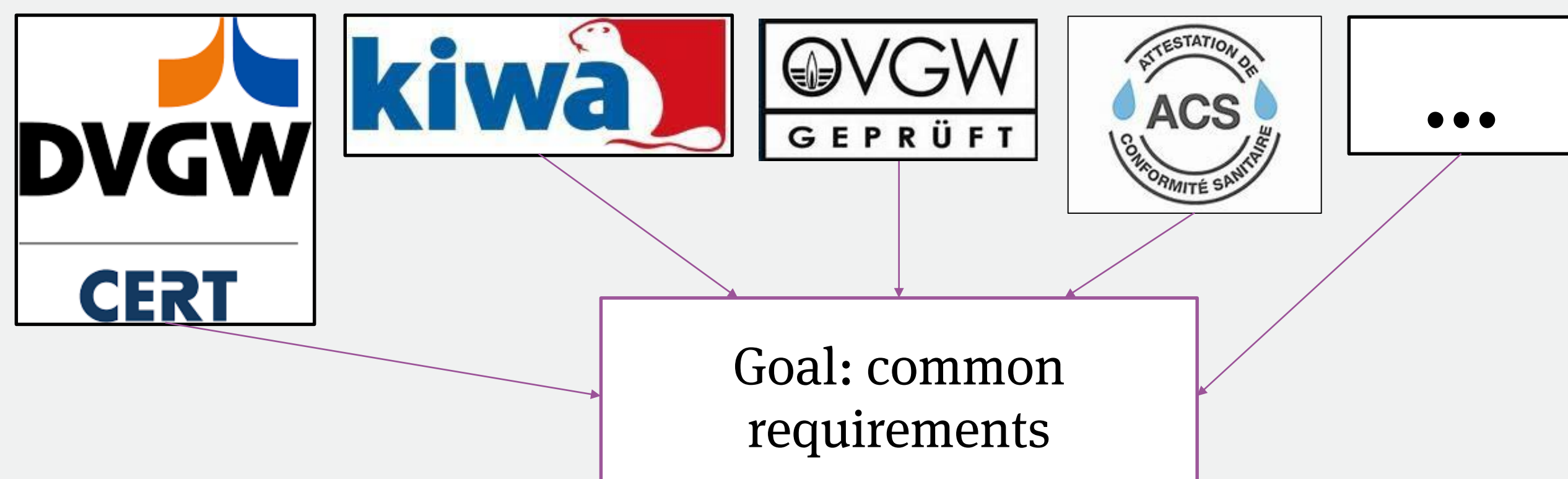
- Source: old remaining lead pipes and lead-containing copper alloys
- Toxicology: neurotoxin and blood poison, which affects the development of the nervous system
- Especially dangerous for infants/toddlers, pregnant women and unborn babies
- Parametric value of the Drinking Water Directive: 10 resp. 5 µg/l



Picture: UBA

Legal Context

- So far only national requirements for materials in contact with drinking water
- Problem: different systems in the different member states and the recognition of products certified / approved in one country
- But voluntary cooperation of 4 member states since 2011
- Revision of the Drinking Water Directive (Dir. 98/83/EC) in 2020 with the goal of uniform requirements for materials and mutual recognition of products in contact with drinking water in the EU



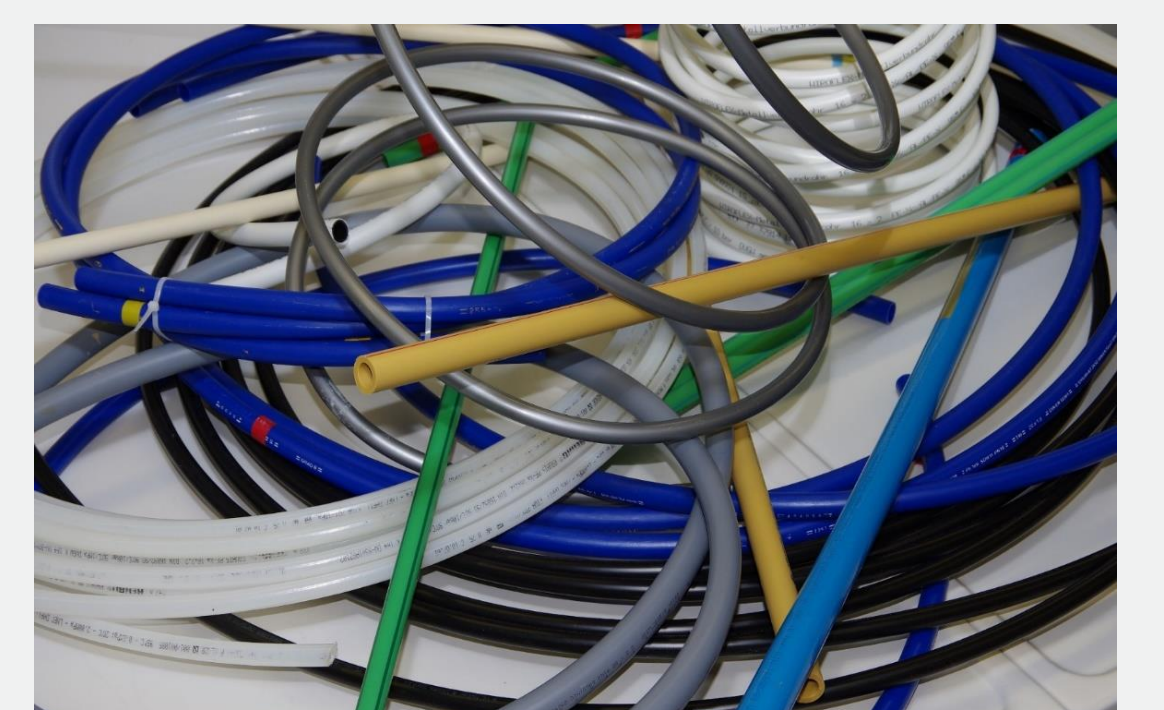
Further Reading

Kalweit, C., Stottmeister, E., Rapp, T., 2019. Contaminants migrating from cross-linked polyethylene pipes and their effect on drinking water odour, Water Res. 161, 341-353

Domestic Installation System

Risk of contamination of the drinking water is high, because of:

- Wide range of different materials
- Water is in contact with large surface (due to small pipe diameters)
- Increased times of stagnation
- Higher water temperatures



Picture: UBA

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Claudia Brunner, Section II 3.4 Distribution of Drinking Water
www.umweltbundesamt.de/en/topics/water/drinking-water/distributing-drinking-water