Für Mensch & Umwelt

Umwelt Bundesamt

Workshop: PMT and vPvM substances under REACH

Voluntary measures and regulatory options to protect the sources of drinking water

in Berlin, 13th to 14th March 2018

Welcome and Introduction

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Section IV 2.3 – Chemicals

German Environment Agency (UBA), Germany

2006 EU chemical regulation REACH enters into force

- Aim of REACH: The safe use of chemicals
  - **High level of protection** for human health and the environment
  - **Precautionary principle**
  - **Substitution** of critical substances and critical uses
- New role for industry
  - Assessment of the **risk**
  - Identification of **hazardous substance properties**
  - **Communication** within the supply chain about safe uses
- New role for authorities & ECHA
  - **Supporting** industry with guidelines, tools and methods
  - Identification of those substances and uses that **require** a regulation
  - Initiation of **necessary** regulatory measures

Registration, **E**valuation, **A**uthorisation and Restriction of **CH**emicals

Enters into force on 18.12.2006

Substitute previous individual chemical laws

REACH introduces hazard based regulation

- Whenever
  - Hazard is **too high**
    to be controlled
  - High **uncertainty** regarding
    long-term enrichment & **effect**
  - Quantitative risk assessment
    is **not sufficient**
- Aim
  - Apply the **precautionary principle**
    because risk can not be controlled
  - Protection of **remote areas** and ocean
    from persistent chemicals
  - Protection of species
    otherwise **not covered** by risk assessment

2008: First PBT/vPvB substances on the Candidate List

- Hazard is caused by **intrinsic properties** and contamination of environment is **irrepairable**
- Emissions into the environment and their effects are **separated both in space and time**
- No safe environmental concentration can be derived and **no quantitative risk assessment** is possible
- **Exposures via food chain** difficult or impossible to predict quantitatively

Substances of very high concern (SVHC)

- Article 57 of REACH defines the criteria for

Substances of very high concern (SVHC)

  – carcinogenic, mutagenic or reproductive toxic substances (**CMR**)

  – persistent, bioaccumulative, toxic substances (**PBT**)

  – very persistent, very bioaccumulative substances (**vPvB**)

  – **equivalent level of concern**

    - Substances with **endocrine** disrupting properties
    - Sensitisers
    - **PBT-like**

2009: Idea to protect water by hazard based regulation

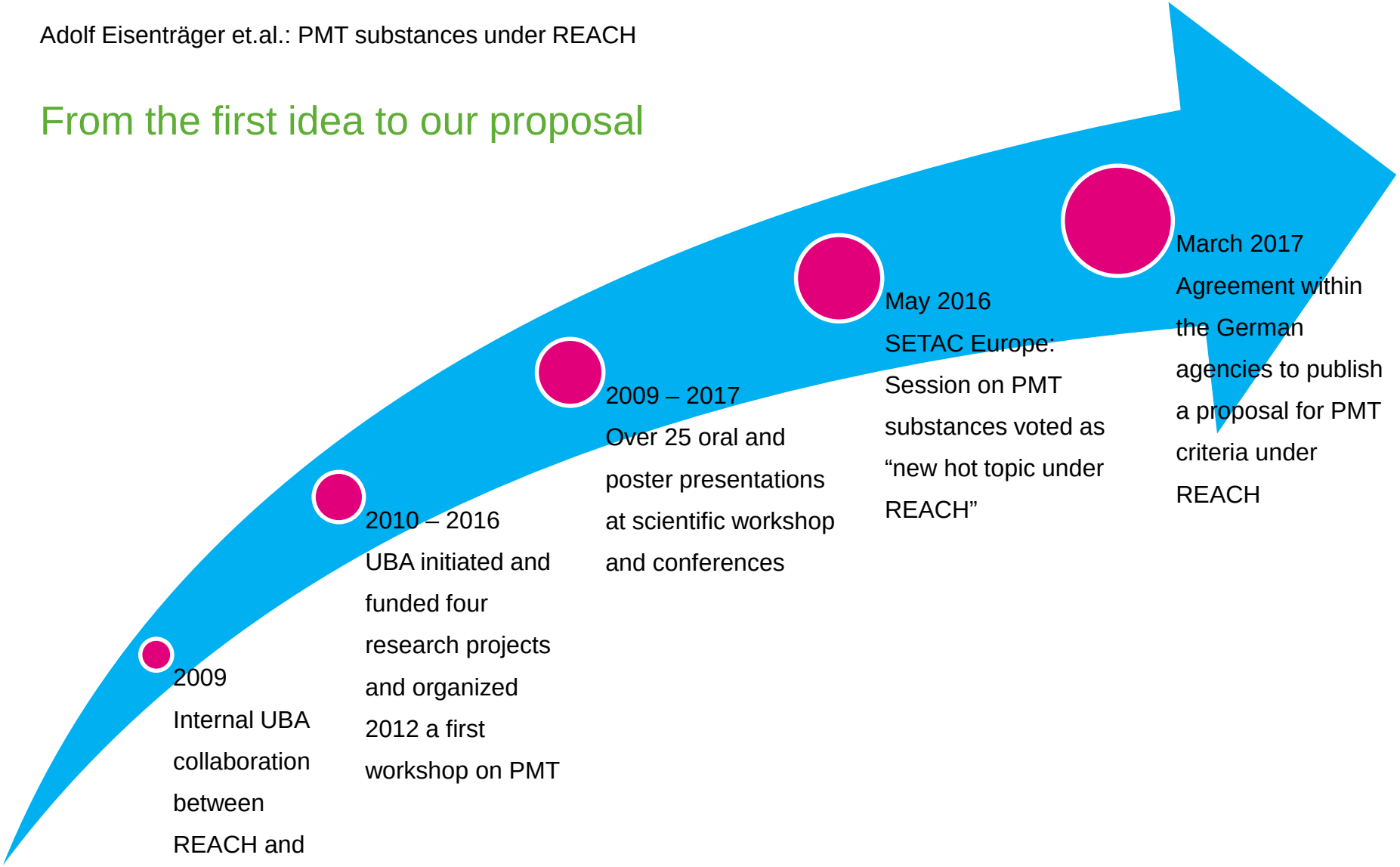
- Legal and **regulation gap** between REACH and drinking water regulation
- The protection of drinking water is **not** explicitly required within a registration under REACH.
- Within REACH there is no systematic identification of chemicals of **concern to drinking water**.
- Emissions of those chemicals, **which are of concern to drinking wate**r, into surface water and groundwater should be avoided.

=> What makes a substance a hazard to the sources of drinking water?

Our aim: protecting the provision of drinking water

- Our ground water and drinking water need **highest level of protection**
- Sustainable Development Goal 6.3: "*by 2030 to improve water quality by reducing pollution […] and **minimizing release of hazardous chemicals**"*
- EU drinking water directive: "*to protect human health from the **adverse effects of any contamination** of water"*
- EU groundwater directive: "*groundwater […] as such should be **protected from […] chemical pollution**."*
- EU water companies' memorandum: "*Nobody has a right **to pollute water bodies***"

From the first idea to our proposal



2009
Internal UBA collaboration between REACH and water protection experts

2010 – 2016
UBA initiated and funded four research projects and organized 2012 a first workshop on PMT

2009 – 2017
Over 25 oral and poster presentations at scientific workshop and conferences

May 2016
SETAC Europe: Session on PMT substances voted as “new hot topic under REACH”

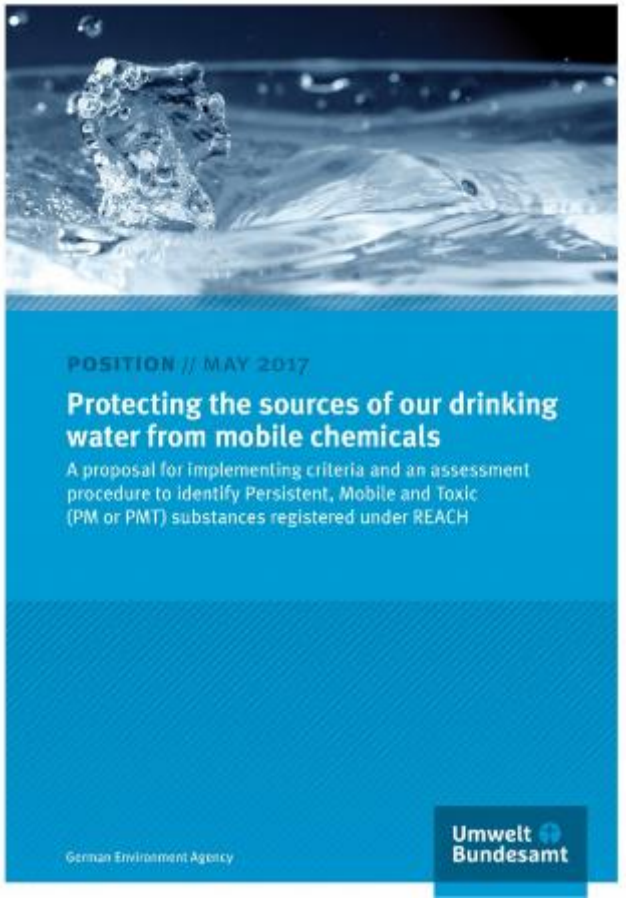
March 2017
Agreement within the German agencies to publish a proposal for PMT criteria under REACH

May 2017: Our proposal (“first version”)

- The German UBA published a **proposal** for criteria and an assessment procedure **to identify** PMT substances

=> Consultation with member states competent authorities (MSCAs), EU experts and industry

- 04.05.2017
  Workshop with German industry in Berlin, Germany
- 17.05.2017
  Member States meeting **RiME** in Łódź, Poland
- 24.05.2017
  PBT Expert Group in Helsinki, Finland



Our proposal in a nutshell

- A chemical threatens the sources of drinking water, if it is
  - **emitted** into the environment
  - **transported** from the point of emission
    through soil layers, along water courses, through riverbanks, aquifers and other natural or even artificial barriers
  - **over time** scales of weeks or more.
- A chemical will survive such a journey and enrich in the water cycle if it is both
  - **persistent (P)** in the environment and
  - **mobile (M)** in the aquatic environment
- If such a substance is **toxic (T)**, it must be considered a serious threat to ecosystem and human health.

Intrinsic substance properties of concern

These substances are well known in scientific since decades:

- **PPOP** or **polar POPs**
  - polar persistent organic pollutant (Giger et al., 2005)
- **P^3 substances** or **PPPs**
  - persistent polar pollutants (Reemtsma & Jekel, 2006)
- **PMOC**
  - Persistent mobile organic compounds (Reemtsma et al., 2016)

We propose to regulate these substances under REACH as:

- **PMT substances**
  - persistent in the environment, mobile in the water cycle and toxic (Neumann, 2017)
- **vPvM substances**
  - Very persistent in the environment and very mobile in the water cycle (Neumann & Schliebner 2017)

Challenges with PMT and vPvM substances

- **related to water treatment**
  - such substances can be both persistent and mobile through the different **treatment steps**
  - such substances can **breakthrough** in raw water, drinking water, wastewater and sewage water treatment
- **related to the analysis of water samples**
  - several mobile (polar) substances in the aquatic environment remain **undetected** and unmonitored
  - consequently **unregulated** due to the lack of existing analytical techniques.

We propose a two step approach

Step 1: Evaluation with the PMT and vPvM Criteria

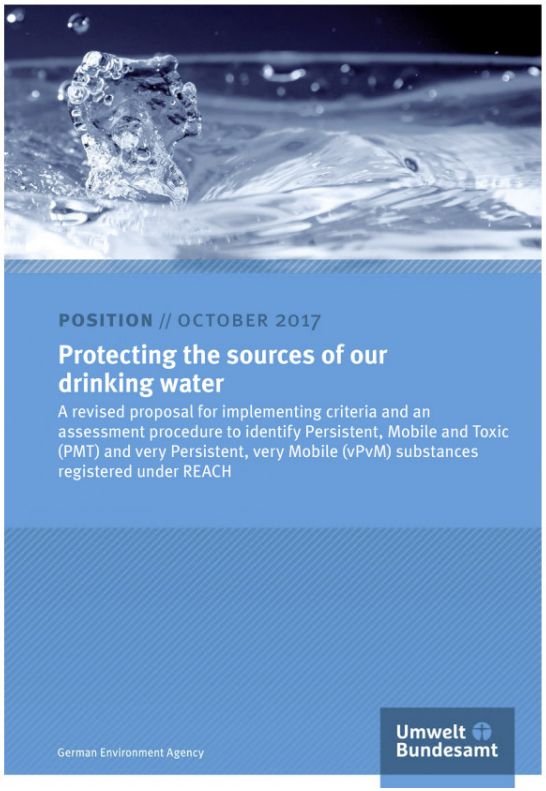
- **Identify** all PMT/vPvM substances during registration under REACH
- Registration data are used to carry out an accurate PMT or vPvM **assessment**.

Step 2: Emission Characterization

- **Minimize** emissions into the environment
  - Risk Mitigation Measures (RMM)
  - Safer alternatives

This workshop is part of the ongoing second consultation

- The **revised** proposal (“second version”) was published in October 2017
- As of today we have **received** more than 30 written comments
- This workshop is the **final step** in the ongoing second consultation
- There will be discussion on
  - The proposed criteria for P, M and T
  - The establishment under REACH
  - Emission and exposure assessment
  - Potential benefits to stakeholders
  - Voluntary solutions and regulatory options



Organisation of the workshop

Norwegian Geotechnical Institute
N-0855 Oslo
Norway

Our hosts are

- Dr. Sarah Hale
  - Ph.D. Environmental Chemistry, UK
  - Areas of interest: Chemical regulation, PFAS in the environment, remediation, passive sampling
  - F1 enthusiast
- Prof. Dr. Hans Peter H. Arp
  - Ph.D. Environmental Chemistry, Switzerland
  - Areas of interest: sorption/mobility, microplastics, alternatives assessment, circular economy
  - Former Comparative Literature Student (B.A.)
- M.Sc. Heidi Knutsen
  - M.Sc. University of Bergen, Norway
  - Areas of interest: PFAS in the environment, microplastics, ecotoxicity

We are looking forward to fruitful discussions

Adolf Eisenträger, Nannett Aust, Daniel Sättler, Lena Vierke, Ivo Schliebner, and Michael Neumann

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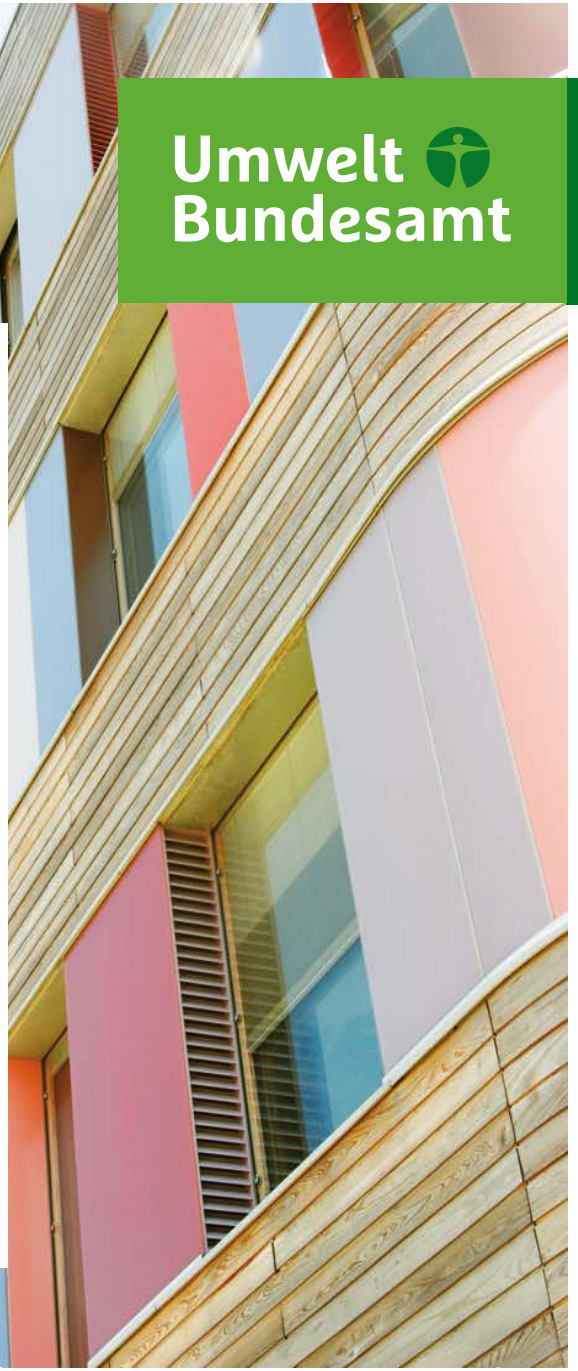
German Environment Agency (UBA)

https://www.umweltbundesamt.de/mobile-chemikalien



Day 1 of the workshop

Tuesday 13th March	Discussions towards a consensus regarding the criteria to identify PMT/vPvM substances under REACH
12:00	Registration and lunch
12:30-13:00	**Welcome and Introduction: PMT substances under REACH** Prof. Dr. Eisenträger, German Environment Agency
13:00-13:30	**Benefits of PMT criteria for substances under REACH for drinking water company Oasen** Dr.Harrie Timmer, Oasen drinkwater
13:30-14:15	**The proposed PMT criteria: how many P, M and T compounds are registered under REACH and are in drinking water?** Prof. Dr. Hans Peter H. Arp, NGI Oslo/NTNU Trondheim
14:15-15:15	**Discussion café**: Persistency, mobility and toxicity
15:15-15:35	**Industrial point of view: Reflection on the PMT criteria and proposed tools to identify and regulate such chemical** Dr. Ronald Bock, CEFIC
15:35-15:55	**Scientific point of view: Hot Target Analysis – deriving the drinking water relevance of organic substances from intrinsic properties** Dr. Karsten Nödler, TZW: DVGW-Technologiezentrum Wasser
15:55-16:15	**Voluntary Groundwater Watch List: ongoing work coordinated by EU Common Implementation Strategy Working Group Groundwater** Dr. Ronald Kozel, Bundesamt für Umwelt BAFU
16:15-17:15	**Discussion** and close of day one
18:45	Evening Program: Boat tour with dinner. Boat departs at 19.00 s.t.

Day 2 of the workshop

Wednesday 14th March	Discussion on the future outlook, voluntary action, regulatory options, and mitigation measures
9:00-9:30	**The way forward for the protection of the sources of our drinking water** Dr. Nannett Aust, German Environment Agency
9:30-10:00	**Experiences with managing PMT chemicals in industrial waste water in German from 1992-2004** Prof. Thomas Knepper, Hochschule Fresenius Idstein
10:00-10:30	**1,4-Dioxane in Surface and Ground Water: Sources, Analysis and Reduction of Emissions** Dr. Wolfgang Körner, Bayerisches Landesamt für Umwelt
10.30-11.00	**Discussion café**: Solutions, advantages and outlook
11:00-11:30	**The Role of the Member State Committee (tentative title)** Dr. Watze de Wolf, Chairman of the Member State Committee
11:30-12:00	**Current and Future Regulatory approaches for PMT substances** Dr. Sylvain Bintein, European Commission
12:00-13:00	**Break**
13:00	Close of workshop and lunch