

REACH restriction on intentional uses of microplastics

Micro2018

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Peter SIMPSON



Overview

- Background to restriction preparation
- What is a REACH restriction?
- What is a microplastic?
- Sectors and uses
- Estimating releases
- Summary

Background

- Extensive media and NGO interest in plastics/microplastics
 - *'beat the microbead'*; *'plastic soup foundation'*
- Member State and third country bans on 'microplastics', typically microbeads, in cosmetic products: US, FR, IT, UK, SE.....
- Voluntary measures in EU cosmetics sector
- Study by AMEC for the Commission (2017)
- EU plastics strategy (2018)
 - REACH restriction **'intentionally added microplastics'**

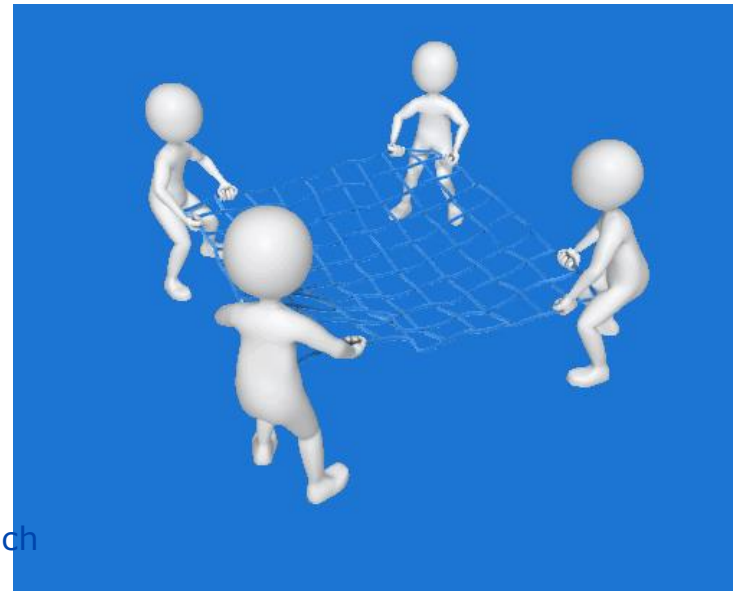
REACH

- **R**egistration
 - **E**valuation
 - **A**uthorisation
 - Restriction, of
 - **C**hemicals
-
- Polymers are exempt from registration and evaluation aspects of REACH



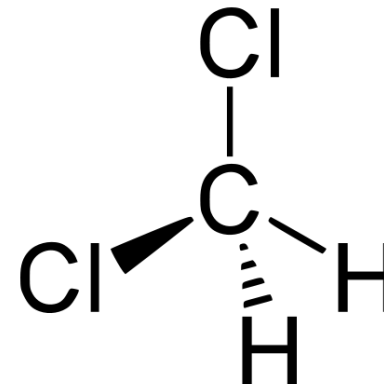
When is a restriction needed?

- **'Safety net'** for addressing unacceptable union-wide risks to human health or the environment from chemicals that cannot or have not been addressed by means of other REACH processes or Community actions
- **Annex XV Report**
 - Member State
 - ECHA (via Commission)



<https://echa.europa.eu/substances-restricted-under-reach>

An example



- *Dichloromethane* (DCM) – entry 59
- Restriction on ‘placing on the market’ as a constituent in mixtures for the general public or professionals
- Unless:
 - MS allowed to derogate use as a paint stripper by ‘specifically trained professionals’
- Continued use in ‘industrial installations’
 - Requires minimum standard operational conditions and risk management measures (i.e. ventilation requirements, minimisation of evaporation, PPE etc)

Microplastic concern

- Small (typically microscopic) synthetic polymer particles in the environment
- Extensive evidence of ingestion at many trophic levels
 - Some evidence for adverse effects
 - Some evidence for food chain (trophic) transfer
- Very resistant to (bio)degradation
 - No appreciable degradation in the environment
 - Leading to accumulation in the environment that is difficult to reverse

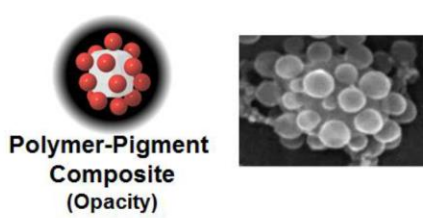
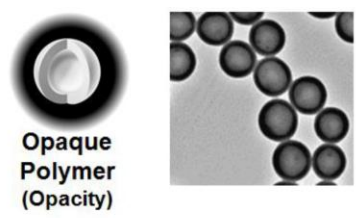
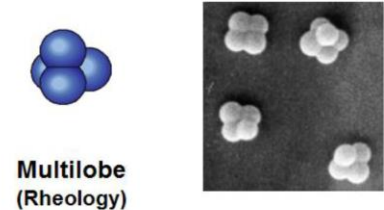
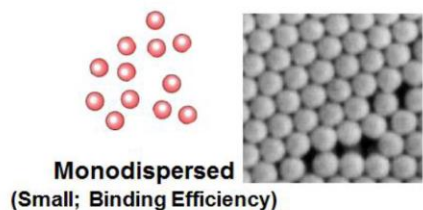
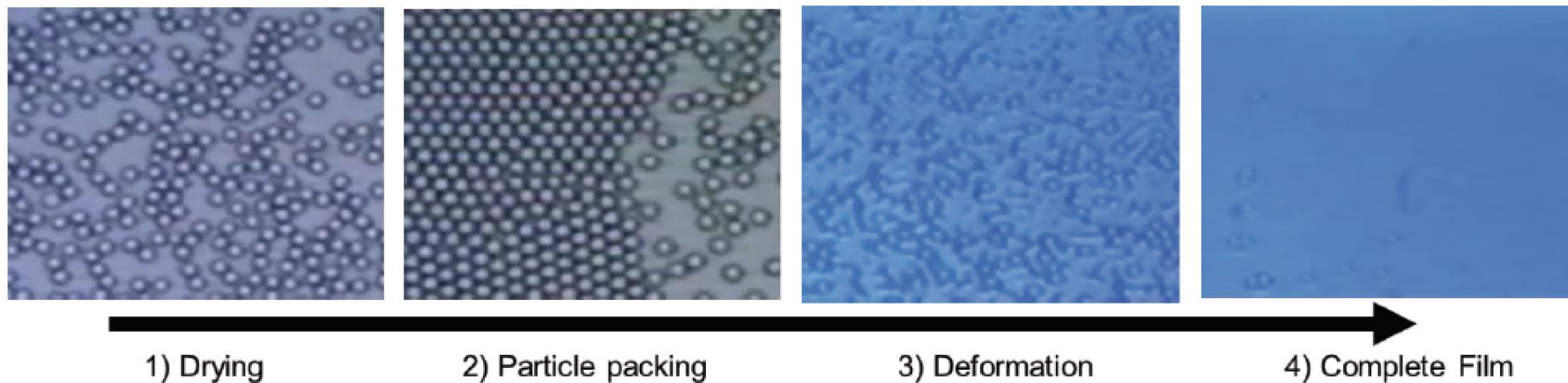
Restriction scope considerations

- Restriction considered when microplastic releases occur during **'reasonably foreseeable conditions of use'**
 - Releases to any relevant compartment
 - Not when microplastics are 'consumed' or 'contained'
 - In principle, should not restrict (bio)degradable microplastics
- Restriction not necessarily a ban
 - Labelling of products to minimise releases
- Our analysis will clearly set out what the socio-economic impacts of a restriction would be

Key uses/sectors assessed

- [Relatively] clear source/pathway/receptor linkage between use and the environment
 - Agriculture and horticulture
 - Controlled-release fertiliser/PPP, anti-caking agents
 - Cosmetic products (rinse off and leave on)
 - Multiple functions beyond exfoliating
 - Detergents and household care products
 - Fragrance encapsulation/`soft abrasion`
 - Paints and coatings
 - Film-forming and other uses (texture/glitter); X-ray films
 - Medical devices and pharmaceuticals
 - Excipient/controlled-release/reagents in IVD assays

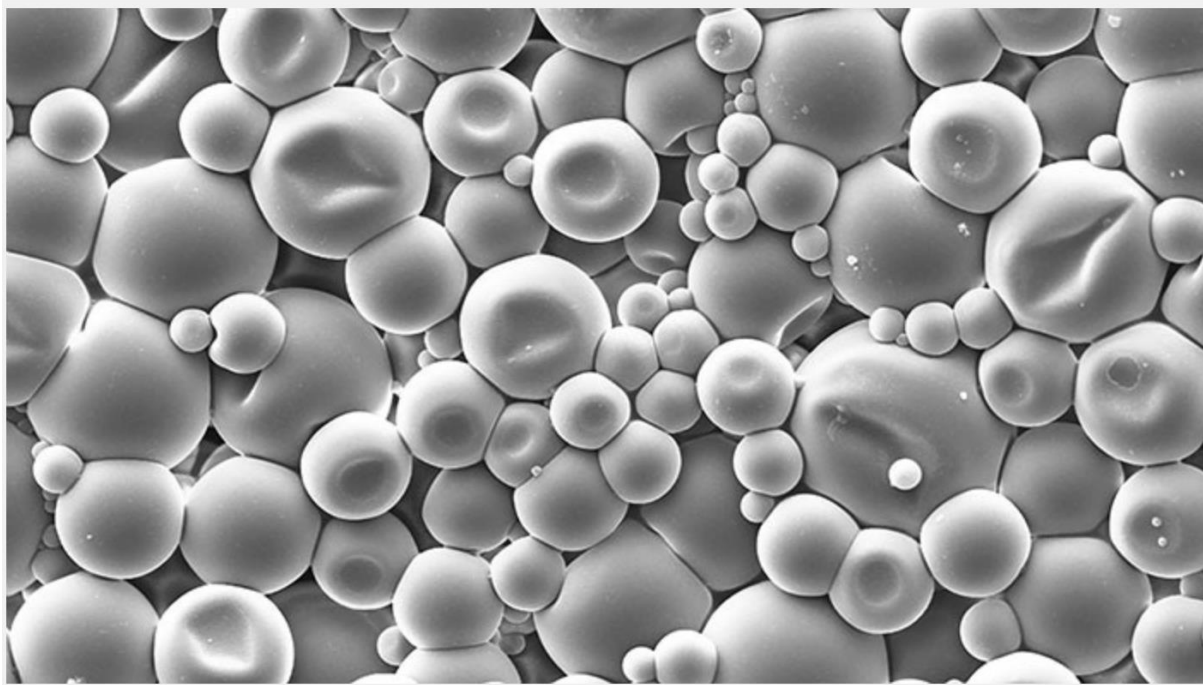
Paints and coatings



- Use as:
 - Binders
 - Rheology modifiers
 - Pigment 'extenders'

Source:
<https://www.acs.org/content/dam/acsorg/events/technology-innovation/Slides/2017-01-11-iss11-dow-paint-slides.pdf>

Detergents and household care

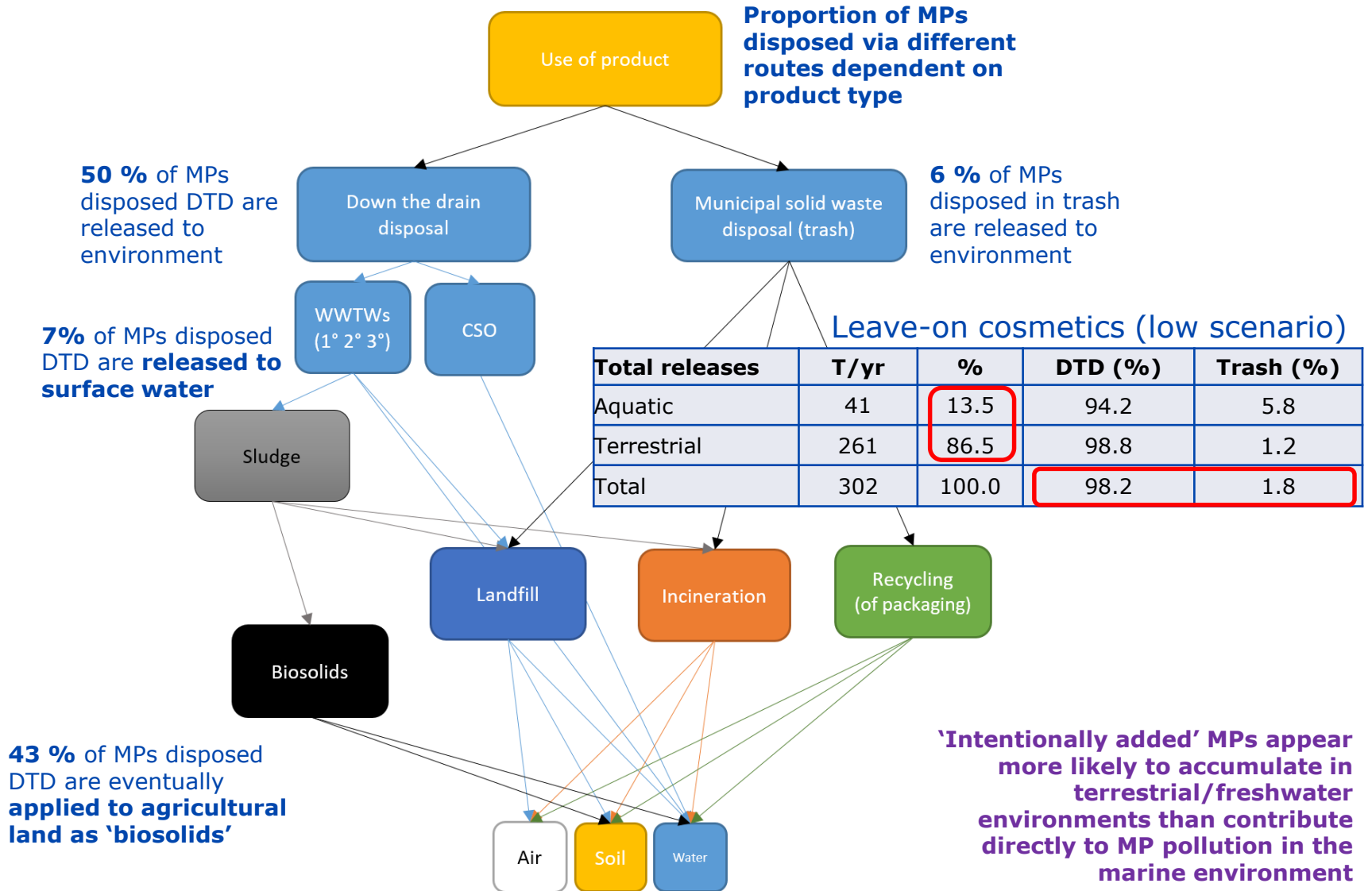


Microcapsules, which range in size from 5–30 μm , are used to deliver inks, fragrances, and more.

Credit: Encapsys

Source: <https://cen.acs.org/articles/96/i5/encapsulation-taking-root-laundry-room.html>

Estimating EU releases



Hazard and risk assessment

- Complex as an emerging area of science
 - Many uncertainties; much new knowledge
 - Focused on the marine environment (not terrestrial!)
- Three elements to be considered in a weight-of-evidence approach:
 1. Classical risk assessment using a 'no-effect' threshold
 2. Non-threshold approach where not possible to derive a threshold ('PBT/vPvB substance' paradigm)
 3. 'Case-by-case' assessment based on 'extreme persistence'
 - Half-lives in excess of 1 000 years
- *Currently lack the tools and knowledge to risk assess such long-term accumulation and exposure*

Summary

- There are intentional uses of microplastics across diverse sectors
- REACH restriction is a 'safety net'
- Our report will assess uses that result in releases under '**reasonably foreseeable conditions of use**' – submitted in Jan 2019
- Scope of restriction will be based on risks and socio-economic considerations
- Majority of releases will be to terrestrial compartment, where risks least well understood
- Extreme persistence complicates risk assessment

Thank you

For further information:

Web: <https://echa.europa.eu/hot-topics/microplastics>

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