Plastics & Natural Cosmetics: Reuse, renew, recycle, or replace?

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Dr. Hana Mušinović

NATRUE Scientific & Regulatory Officer
Overview

1. NATRUE association
2. Terminology
3. Regulatory update
4. Plastics in cosmetics
5. URBIOFIN EU project

Plastics
Biodegradable plastics
Compostable plastics
Microplastics
Bio-based industries
Bioeconomy
Circular economy
Linear economy
Bioplastics
Bioeconomy
Bioplastics
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NATRUE association

• International Natural and Organic Cosmetics Association

• **Mission:** protect and promote natural and organic cosmetics for the benefit of consumers worldwide

• Brussels-based, **founded in 2007 by** the pioneers of the sector including….
NATRUE: Areas of Activity

1. Advocacy
   • No official legal definition - voice for the authentic sector

2. Label
   • Internationally applicable, founded in 2008
   • > 6000 certified products, 250 brands, 32 countries

3. Research
   • Involved in scientific projects
1. **NATRUE association**

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• Polymeric material that may contain other substances to improve performance and/or reduce costs (IUPAC)

• In the 1960s – from fossil fuels and their derivatives

• Today - plastics make up 85% of beach litter

Linear economy

• Finite resources + growing human population
Circular economy

From waste to new products - Waste valorisation contributes to the transition: linear renewable circular economy
• **Bioeconomy** – the renewable segment of the circular economy, including:

• **Bio-based industries** - industries that produce products and services from natural, **renewable resources**, as well as waste, rather than from finite petrochemical sources.
Bioplastics

• Plastics derived from **renewable biological substances** (biomass) rather than the traditional methods using petroleum

<table>
<thead>
<tr>
<th></th>
<th># biodegradable plastics</th>
<th># compostable plastics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Degraded by</strong></td>
<td>naturally occurring microorganisms (bacteria, fungi and algae)</td>
<td></td>
</tr>
<tr>
<td><strong>Time needed</strong></td>
<td>no reference</td>
<td>consistent with other compostable materials</td>
</tr>
</tbody>
</table>
| **End products**     | no reference             | • CO2, H2O, inorganic compounds  
                                      • no visible, distinguishable or toxic residues |
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EU strategies

- Part of the transition towards a more circular economy
- To improve the sustainability of the EU economy

1. EU Circular Economy Strategy – aims to transform EU linear to circular economy (December 2015)

2. EU Plastics Strategy – aims to transition plastics economy to respect 3R – reduce, reuse, recycle (January 2018)

3. EU Bioeconomy Strategy – aims to develop EU sustainable and circular bioeconomy (October 2018)
1. EU Circular Economy Strategy

- December 2015
- Covering the whole life cycle from production and consumption to waste management
- Targets to recycle 75% of packaging waste by the year 2030
2. EU Strategy for Plastics

• January 2018

• Every year EU generates 25 M tonnes of plastic waste

• Less than 30% is collected for recycling.

• EU Strategy for Plastics provides a basis for:
  ✓ Transforming the way plastics and plastics products are designed, produced, used and recycled
  ✓ Ensuring that all plastic packaging recyclable by 2030
  ✓ Reducing the use of single-use plastics (March 2019)
  ✓ Action that could restrict intentional use of microplastics

addressing 10 single-use plastic products most often found on European beaches
3. EU Bioeconomy Strategy

- **October 2018**

- 14 concrete measures in 2019 under 3 key objectives:
  1. Strengthening the bio-based sectors
  2. Deploying bioeconomies across Europe
  3. Protecting the ecosystem and understanding the ecological limitations of the bioeconomy

- EU total bioeconomy creates a turnover of €2 trillion and provides more than 18 million jobs
EEA report - The circular economy and the bioeconomy

• August 2018

• 3rd in a series of reports on the circular economy evaluating EU circular economy policy from an environmental perspective

• Addresses circularity aspects of bio-based products and the sustainable use of renewable natural resources, also applied to cosmetics
Why is this of interest to NOCs?

✓ **New innovation** - supporting increased natural share ingredients, replacement of petrochemicals, sustainable sourcing

✓ **Less waste** - Use of side streams for cosmetics (food by-products); optimising of manufacturing processes

✓ **Growing consumer interest** – increased awareness of a product’s total environmental impact

**Advantages** – improvements to a product’s environmental footprint, its sustainability profile & fostering innovation for greener solutions

- Microplastics restrictions & new packaging materials
Bio-based products development – drivers and constraints

- Improved profitability
- Improved product competitiveness
- Potential for the development of innovative products
- Improved environmental performance
- Sales growth potential
- Product diversification
- Market demand increase
- Improved product properties or performance
- Production related to current competencies
- Availability of public funding
- Opportunity to contribute toward company
- Policies relating to bio-based products
- Potential to increase market share

- Higher production costs compared to existing fossil...
- Increased or variable feedstock costs
- Availability of funds to invest in production capacity
- Availability of funds for necessary R&D
- Technology maturity or risk associated with new...
- Increased capital costs
- Product properties or performance
- Increase energy demand and/or cost
- Barriers to achieving product certification
- Other operational costs
- Existing patents of competitors, or other restrictions...
- Other (please specify)
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Plastics IN cosmetics - microplastics

- Small, water-insoluble particles (< 5 mm) from synthetic plastic polymers (non-biodegradable)
- **Microbeads** in cosmetics - exfoliation in skin care or tooth polishing
- Enter water waste and pass unfiltered ending up in the sea
- Banned in the UK
- **NATRUE Label criteria prohibited**
- **Natural alternatives:**
  - ✓ Inorganic minerals (quartz sand)
  - ✓ Plant Isolates and derivatives:
    - Abrasives (sucrose from sugar cane); exfoliants (finely milled fruit seeds or shells e.g. from apricot, olive, walnut); cellulose beads; waxes (Carnauba Wax); hydrogenated oils (castor oil)
Microplastics control

- **October 2015** Cosmetics Europe recommended to its members to discontinue microplastics usage by 2020

- EU Commission requested **ECHA** to prepare a proposal for possible restrictions concerning *intentionally* added microplastic particles under the scope of REACH – expected in January 2019

- NATRUE was invited to attended an ECHA workshop in May 2018, providing information on behalf of the natural cosmetics sector

- Some countries already ban (UK, France, Sweden, Canada, Taiwan, NZ) or are preparing it (Belgium, Italy, India, South Africa)
Plastics AROUND Naturals - Cosmetic Packaging

- NATRUE Packaging requirements
  1. Kept to a minimum
  2. Designed for multiple uses
  3. Recyclable packaging materials, possibly of renewable raw materials
  4. Halogenated plastics prohibited
  5. Pressurised gas packs only with Air, N₂, O₂, CO₂, Ar

- NATRUE Scientific Committee is currently reviewing new/updates to the Label criteria
Reuse, renew, recycle, or replace?

- **Practical** considerations – glass?

- **Sustainability** considerations - glass vs. plastics?

- **Safety** considerations – migration between product and packaging

- **Reuse** - not all plastics are (easily) recyclable & not all post-consumer material is 100% reusable for the necessary (cosmetic) quality

- **Drivers** for change - changes in legislation and consumers demands

Source: Cosmetics Europe
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NATRUE for sustainability

- Rapid population growth, especially in the cities → increase of urban waste
- EU inhabitant generates 0.5 tonnes MSW (municipal solid waste) / year
- 40-50% is organic waste - useful raw materials
- → 100 million tonnes of biomass / year in the EU
- NATRUE involvement in the EU industry consortium

“… to help solve environmental pollution and contribute to the transition to a renewable circular bio-economy through sustainably converting municipal waste into targeted products like cosmetic packaging.”
EU project URBIOFIN

• From municipal solid waste to → cosmetic packaging

• Funded by BBI JU under EU Horizon 2020 (2017-2021)

• www.urbiofin.eu
URBIOFIN objective

- **Biorefinery** converting 10 tonnes of OFMSW (organic portion of the municipal solid waste) per day into different **bioproducts with a high industrial interest**:

  ➢ Contributing to:
    ✓ Solving environmental pollution
    ✓ Transition to a renewable circular bio-economy
    ✓ Reduction of the biodegradable fraction of MSW sent to landfill
    ✓ Environmental and socio-economical sustainability
    ✓ Implementation of the EU Bioeconomy Strategy
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Videos:

EN - https://www.youtube.com/watch?v=8eSFaY39AdE

DE - https://www.youtube.com/watch?v=IeVvWdsRFVM

FR - https://www.youtube.com/watch?v=cuWIN-sRFlo

IT - https://www.youtube.com/watch?v=9DchZRnYHPc
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Dr. Hana Musinovic
NATRUE Scientific & Regulatory Officer
NATRUE ·
International Natural and
Organic Cosmetics Association
Floor 2 · Rue Washington 40 · 1050
Brussels  Belgium
Phone +32 (0) 2 613 29 30
info@natrue.eu

www.natrue.org