Innovation for biocides: downstream users’ perspectives
The case of detergents

Elodie Cazelle, A.I.S.E.

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www.aise.eu
A broad product range to be preserved

Both Household and Professional Cleaning

- Laundry liquid detergents
- Shoes cleaners
- Bathroom cleaners
- All purpose cleaners
- Insecticides
- Machine dishwashing liquids
- Air care products
- Window cleaners
- Fabric conditioners
- Car cleaners
- Hand dish washing liquid detergents
- Cleaning wipes

50% of the total A.I.S.E. product portfolio (= €18 bn turnover) relies on in-can preservatives

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R&D efforts from the sector

- Attempt to eliminate / reduce use of in-can preservatives in the past years
- Some companies have dedicated R&D programs (Millions EUR invested)
- Reduction of the level of preservatives is possible in some cases
Options explored by the sector

1. Optimisation of products composition: water level, compaction, ingredients’ level
2. pH increase/decrease
3. Powder or solid formats
1. Optimisation of product composition?

- Reduction of water level, increase of surfactants level
- Elimination of preservatives is possible in some cases
  - Professional products
  - Laundry detergent capsules
- Issues/ limitations:
  - More hazardous products (more severe CLP classification)
  - Capsules: many consumers prefer ‘normal’ liquid detergents (e.g. due to flexibility in dosing, cost)
2. pH increase / decrease?

- pH range conducive to microbial growth: $3 < \text{pH} < 10$
- Very limited number of products can be formulated at extreme pH’s
  - Some all purpose cleaners (e.g. acidic descalers)
  - Some professional products
- Drawback: more hazardous products (more severe CLP classification, e.g. Skin/Eye corrosive)
3. Powder or solid formats?

- Market preference: liquid format
- End-users needs better addressed by liquid form
  - Convenient & accurate dosing/ use: e.g. window cleaners in spray, automatic dosing systems for professional uses
  - Ready-to-use products
- Sustainability aspects:
  - Powder detergents are more energy intensive to produce than liquids
  - Liquid detergents enable energy savings (cold wash cycles)
3. Powder or solid formats?

- A few attempts on the market to move to powder/ solid form
  - Very specific product categories, e.g. fragrance boosters in “pearl” form (alternative to fabric conditioners, but deliver only the perfume benefits)
  - Incidental in terms of products range to be preserved
Attempts to find alternatives
“GC3 Preservatives challenge”

• Aim: identify and support innovators developing new preservatives for household & personal care products

• Sponsored by preservatives’ suppliers and downstream users

• Outcome (household care):
  • Led to interesting science
  • Did not identify any technology that would be usable in the short/medium term
Conclusions

• Major R&D efforts in the past years
• A few solutions exist, BUT
  • Only for specific products; limited portion of A.I.S.E. liquid products range
  • Always associated with drawbacks: e.g. more hazardous products, sustainability
• Total elimination of in-can preservatives is not possible for the majority of products
Way forward?

• The detergent and cleaning products industry is committed to pursue R&D efforts

• Long-term innovation?
  • R&D investments - challenging for SME’s
  • Requires time
Thank you for your attention!