Creating Minimally Disruptive Formulations for Rapid Development

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Overview

- What are Minimally Disruptive Formulations?
- Creating Minimally Disruptive Formulations
  - stability checks?
  - evaluations?
  - considerations?
What are minimally disruptive formulations?

- Typical development time frame:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial concept stage</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Development</td>
<td>8 – 12 weeks</td>
</tr>
<tr>
<td>Evaluation</td>
<td>12 weeks</td>
</tr>
<tr>
<td>Promotion</td>
<td>8 – 16 weeks</td>
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<tr>
<td>Packaging selection and art</td>
<td>11 – 17 weeks</td>
</tr>
<tr>
<td>Stability</td>
<td>6 months MINIMUM</td>
</tr>
<tr>
<td>Ordering and manufacture</td>
<td>12 – 16 weeks</td>
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</tbody>
</table>
What are minimally disruptive formulations?

- Standard development time does not suit ‘fast fashion innovation’
  - increasing consumer demand for new products
  - get to market first/fast
  - revolutionary actives first to maximise market opportunities
- Minimise development time using ‘predictable’ formulation chassis
- Minimise evaluation time with anticipated performance
- Minimise stability testing with relative confidence
What are minimally disruptive formulations?

<table>
<thead>
<tr>
<th></th>
<th>Development: 1-2 weeks</th>
<th>Evaluation: 2 - 4 weeks</th>
<th>Promotion: 4 – 8 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Concept Stage: 1 week</td>
<td>Organise Packaging: 2-3 weeks</td>
<td>Stability: 4 - 6 weeks</td>
<td>Production: 4 - 6 weeks</td>
</tr>
</tbody>
</table>
Creating minimally disruptive formulations

- Chassis:
  - Stability enhancing factors e.g.
    - gum/polymer – electrolyte resistant
    - multi-functional surfactants/emulsifiers
  - Broad spectrum, wide compatibility preservative
  - Appealing philosophy?
  - Other shelf life enhancing factors:
    - antioxidant?
    - chelating agent?
Creating minimally disruptive formulations

- Stability tests on chassis must be exhaustive!
  - the more resilient your chassis, the more confidence in MDF versions
- PET
- Freeze/thaw – 6 cycles
- Temp: 40°C 9-12 months, 25°C 2-3 years
- SG, viscosity, pH = +/- 10-15% without unsatisfactory change to form, visual or aroma
Creating minimally disruptive formulations

- Example chassis 1: Cheap base
  - Functional materials:
    - polymer: electrolyte tolerant
    - emulsifier: high HLB non-ionic waxy
    - lipid + humectant: cheap, readily available, non-oxidising
  - Broad spectrum, wide compatibility preservative
  - Appealing philosophy: cheap materials, good skin feel
  - Other shelf life enhancing factors:
    - antioxidant: not required, small input?
Creating minimally disruptive formulations

- Example chassis 2: Natural/green/COSMOS base
  - Functional materials:
    - natural gum, non-ionic
    - emulsifier: high HLB non-ionic waxy – *careful – need to build body without soapy effect!*
    - lipid + humectant: medium flow, cheap, readily available, green!
  - Broad spectrum, wide compatibility preservative
  - Appealing philosophy: easily sourced green materials, good skin feel
  - Other shelf life enhancing factors:
    - antioxidant: build in at 1%
Creating minimally disruptive formulations

- Test: pH compatibility – viscosity, all ingredients
- Evaluate: rub in, play time, skin feel
- Double check: all inputs COSMOS suitable?
- At end, add:
  - 5% water/glycerine based extracts
  - 1.5% essential oils + 0.5% lipid OR 2% lipid
- Preliminary stability checks:
  - 6 cycles freeze thaw
  - 4-6 weeks 40°C before manufacture – extend to min. 3 months (more if going to Europe or significant changes)
  - real time over shelf life but confidence to release
Creating minimally disruptive formulations

- Example chassis 3: Cheap foaming base
  - Functional materials:
    - anionic + amphoteric + non-ionic surfactant
    - polymer: surfactant specific
    - superfatting agent – must be interchangeable
  - Broad spectrum, wide compatibility preservative
  - Appealing philosophy: cheap materials, good skin feel, high foam, low irritancy
  - Other shelf life enhancing factors:
    - antioxidant: not required, small input?
    - chelating agent
Creating minimally disruptive formulations

- Example chassis 4: ‘Green’ foaming base
  - Functional materials:
    - anionic + amphoteric + non-ionic surfactant - blend
    - gum: high gelling
    - superfatting agent – green philosophy
  - Broad spectrum, wide compatibility preservative
  - Appealing philosophy: cheap materials, good skin feel, high foam, low irritancy, green concept

- Other shelf life enhancing factors:
  - antioxidant: not required, small input?
  - chelating agent: suit ‘green’ formulations
Creating minimally disruptive formulations

- Test: pH range
- Evaluate: foam, clean, wash off skin feel
- Double check: all inputs ‘green’?
- Consider: packaging suitabilities? Tubes vs pumps vs?
- In formula (during processing, at suitable step): interchange superfatting agent; add 1.5% essential oil
- Preliminary stability checks:
  - 6 cycles freeze thaw
  - 4-6 weeks 40°C before manufacture – extend to min. 3 months (more if going to Europe or significant changes)
  - real time over shelf life but confidence to release
Remember:

- CHECK YOUR THEORY
- Non-charge affected inputs
- Challenge your chassis
- Disruptions within tested limits
- Minimal stability testing before manufacture
- Can apply same MDF theory on multiple formulation types

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Questions?  
Comments?

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