Encapsulation Technologies
What is Microencapsulation?

Lambson Microencapsulation Technologies

- Size: typically 1µm- 1mm
- Active ingredients are entrapped in a shell or matrix
- This renders them temporarily inactive
- Release of the active is “triggered” by a stimulus
Leading the way

Why Encapsulate?

Isolate, Protect and Stabilise

Controlled Release

Appearance
Isolate, Protect and Stabilise

- Prevents degradation
- Flavour and odour masking
- Separates reactive components
- Manipulation of encapsulate (Oil & water)
- “Plug and play” add to formulation without changing it
- Flavour /Fragrance burst or slow over time release
Controlled Release

Shear
pH
Temperature
Other
Appearance

Visual cues
Aesthetic appeal
Colour changes
Premier branding
Consumer Markets

**Personal & Home Care**
- Shampoo and Shower gels
- Cosmetic Creams
- Hand Sanitisers
- Deodorants
- Toothpaste
- Detergent & Fabric conditioner

**Food, Beverages & Nutrition**
- Vitamins, minerals, amino acids & unsaturated fatty acids
- Animal & Plant extracts, Flavours & Fragrances

**Pharma & Medicine**
- Targeted release
- Self-healing actives
**Construction & coatings**

- Paints, antimicrobials & protection coatings
- Self-healing actives
- Phase changing materials
- Breakage markers
- Inkjet pigment
- Thermochromic dyes

**Agriculture & Environment**

- Pesticides & repellents
- Fertilisers

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-Invo-Caps containing Concrete healing active\(^1\)

Selecting the right technology

**Consider:**

- **Core Material**
  - Physical state, size, hydrophobicity
  - Concentration of active

- **Wall material**
  - Market: Consumer or industrial
  - Application: Isolate, protect, stabilise
  - Regulatory: grade, FDA, etc.
  - Release mechanism

- **Process**
  - Stability of core material
  - Particle size and distribution
  - Feasibility
# Invo-Cap

<table>
<thead>
<tr>
<th>Core/Shell</th>
<th>Matrix</th>
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<tbody>
<tr>
<td><strong>Technology</strong></td>
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<tr>
<td><strong>Material encapsulated</strong></td>
<td>Oils, some aqueous actives</td>
</tr>
<tr>
<td><strong>Encapsulation material</strong></td>
<td>Gelatine + Gum Arabic</td>
</tr>
<tr>
<td><strong>% loading of active</strong></td>
<td>90%</td>
</tr>
<tr>
<td><strong>Trigger mechanism</strong></td>
<td>Pressure, Digestion</td>
</tr>
<tr>
<td><strong>Particle size</strong></td>
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<tr>
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<td>✔️</td>
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## Vida-Caps

<table>
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<tr>
<td>Encapsulation material</td>
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<td>Chitosan + Gum Arabic</td>
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<td>Particle size</td>
<td>5-1500µm</td>
<td>20-1500µm</td>
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<td>Hydro-alcoholic stability</td>
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<td>✓</td>
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<td>Vegan</td>
<td></td>
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Why Choose Vida-Caps?

- Vegan
- Plastic Free
- Bio-degradable
- Pressure release
- Hydro-alcoholic Stability
- Bespoke Design
- Encapsulates hydrophobic materials
- High Loading (90%)
- 20–1500µm
Lambson are proud to offer a wide range of encapsulation products, customised to suit your requirements, and created to help take your formulations and developments to the next level.
With offices and facilities in England, Europe, China, Japan and America we offer a truly Global Supply Network.

Thank you for your attention
Any Questions?