Creating Additive Value

Clean Label Defoamers for Food Processing

April 2020
You don’t have to sacrifice performance to use Clean Label products!
What is Foam:
Air trapped by liquid surfactants

Why is Food Foamy?
• Primarily caused by Proteins or Starch
• Mixing generates more Foam

How to get rid of Foam? Defoamer
Defoamers Break Foam
**Active:**
performs the defoaming function

**Carriers** lower the viscosity, carry and help disperse the actives into the fluid

**Emulsifiers** aid the dispersion and stability of the active. Helps set the droplet size.
MAGRABAR® Product Line: Chemistry

Product Highlights:

**Organic**
- Certified organic (>95%)
- Certified made with organic (>70%)
- WSDA reviewed organic compliant

**Non-GMO**
- Not made from genetically modified organisms
- IP = Identity Preserved
- All organic products are Non-GMO
Food Regulation Overview

USA FDA 21 CFR 173.340:
• Secondary Direct Food Additives Permitted in Food for Human Consumption
• Silicone (dimethylpolysiloxane) is limited to 10ppm in most ready to eat foods

Processing Aid:
• Added to food for technical effect in processing and present in the finished food at insignificant levels; do not have a technical effect in the food
• Exempt from labelling (21 CFR 101.100)

Food Ingredient:
• If it is not being used as a processing aid, then it is a food additive
• Must be labelled

Non-GMO Processing Aids:
• If less than 0.5% in the finished product, doesn’t need to be declared on product label
But...
• Using our certified non-GMO and Organic products can assure you that you maintain clean labels!
Experimental Case Studies

Non-GMO Options

- Acid-enzyme process
- All defoamers evaluated:
  - allergen-free
  - manufactured from non-genetically modified ingredients
- MAGRABAR® IP-3500 provided the fastest foam break
Experimental Case Studies

Knockdown Recirculation Test

Vegetable Oil Emulsion

- Soy milk production
- MAGRABAR® SPI-244 provided better knockdown and persistence than a silicone emulsion at equal dosage
100% Active Vegetable Oil

- Protein beverage
- Foam builds during bottling
- 25°C test temperature
- MAGRABAR® PD-602 and PD-3500 provided excellent foam control while permitting higher treat rates, if needed, versus a 20% silicone emulsion
# Organic Products

<table>
<thead>
<tr>
<th>Product</th>
<th>Chemistry</th>
<th>Organic Definition</th>
<th>Delivery</th>
<th>% Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAGRABAR® 4000</td>
<td>VO</td>
<td>95% Organic Certified</td>
<td>Liquid</td>
<td>100%</td>
</tr>
<tr>
<td>MAGRABAR® 4010</td>
<td>VO</td>
<td>95% Organic Certified</td>
<td>Liquid</td>
<td>100%</td>
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<tr>
<td>MAGRABAR® ORGANIC 3000</td>
<td>VO</td>
<td>WSDA Compliant</td>
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<td>100%</td>
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<tr>
<td>MAGRABAR® ORGANIC 3200</td>
<td>VO</td>
<td>WSDA Compliant</td>
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<tr>
<td>MAGRABAR® ORGANIC 3300</td>
<td>VO</td>
<td>WSDA Compliant</td>
<td>Liquid</td>
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<tr>
<td>MAGRABAR® MD-3000</td>
<td>VO</td>
<td>95% Organic Certified</td>
<td>Powder</td>
<td>20%</td>
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<tr>
<td>MAGRABAR® MD-4438</td>
<td>VO</td>
<td>95% Organic Certified</td>
<td>Powder</td>
<td>15%</td>
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## Non-GMO Products

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<tr>
<td>MAGRABAR® IP-3500</td>
<td>VO</td>
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<td>100%</td>
</tr>
<tr>
<td>MAGRABAR® J-305 IP</td>
<td>FG</td>
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<td>100%</td>
</tr>
<tr>
<td>MAGRABAR® MD-20-S-IP</td>
<td>SI</td>
<td>Powder</td>
<td>20%</td>
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Organic Certified Products

USDA: National Organic Program

“Made With” Organic
- At least 70% of the product must be certified organic
- Remaining material without excluded methods
- Nonagricultural materials must be specifically allowed on the national list

Certified as “Made with Organic” by QAI
- MAGRABAR® 3001
- MAGRABAR® 3202
- MAGRABAR® 3303

Organic
- All agricultural ingredients certified organic
- Nonorganic ingredients allowed up to 5%

Certified as “Organic” by QAI
- MAGRABAR® MD-3000
- MAGRABAR® MD-4438
- MAGRABAR® 4000
- MAGRABAR® 4010

MD products are liquid antifoams on a maltodextrin carrier

MAGRABAR® 4000 and 4010 certification is pending with QAI
Organic Compliant Products

USDA: National Organic Program

Reviewed by Washington State Department of Agriculture (WSDA)

- Verifies compliance with the USDA: National Organic Program and suitable for use in Organic food processing

  - MAGRABAR® Organic 3000
  - MAGRABAR® Organic 3200
  - MAGRABAR® Organic 3000
Summary

• **Food is foamy**
  - Proteins, starches, etc. stabilize foam during processing

• **Broad range of high-performance Clean Label products**
  - Veg oil based, Organic Compliant, Organic Certified, non-GMO Project Verified

• **Formulation flexibility**
  - 100% active liquids, emulsions, powders

Let us solve your foam problem