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Antifoams

Antifoams

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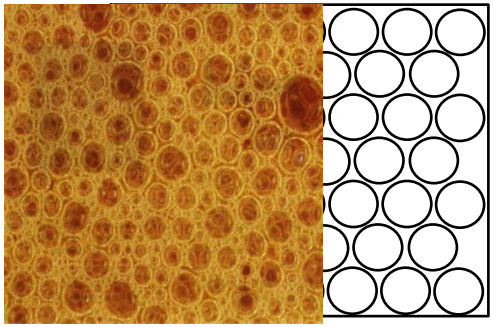
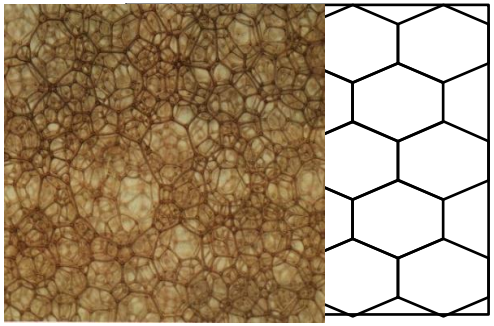
Foam Theory - What is foam?

- Definition : A concentrated dispersion of air or gas bubbles in a liquid medium, stabilized by impurities
- Properties:
  - Low density and large surface area
  - Liquid in bubble-wall thinned to a lamella
- Structures:



Spherical
Wet
Less stable
- Beer
- Detergent



Polyhedral
Dry
Highly stable
- Fire fighting
- Shaving

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Foam Theory – How it's formed

Chemical

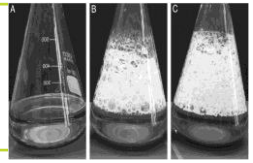
- Reaction (curing, neutralization, redox, effervescence)

Biological

- Bacteria & yeast (degradation, metabolism, fermentation)

Physical

- Handling (blending, extraction, centrifuging, pouring)



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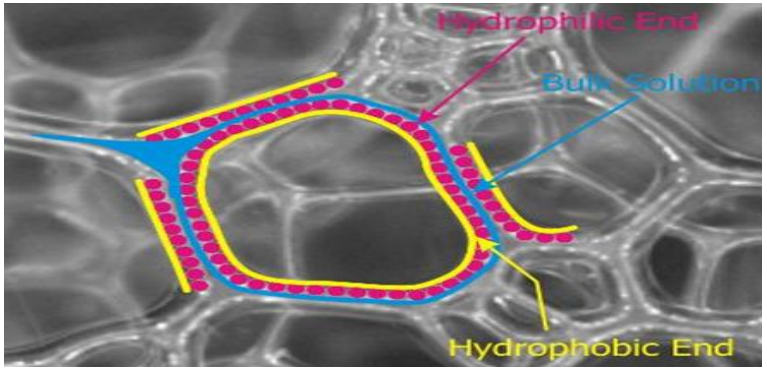
Foam Theory - Stability

High Concentration
Low Temperature
High viscosity
High pH



Surface Elasticity – Marangoni ‘self-heal’
Surface Viscosity – Slows bubble drainage
Bulk Viscosity – Maintains trapped air
Electrical Repulsion – Prevents wall thinning
Gas Diffusion – Otswald Ripening

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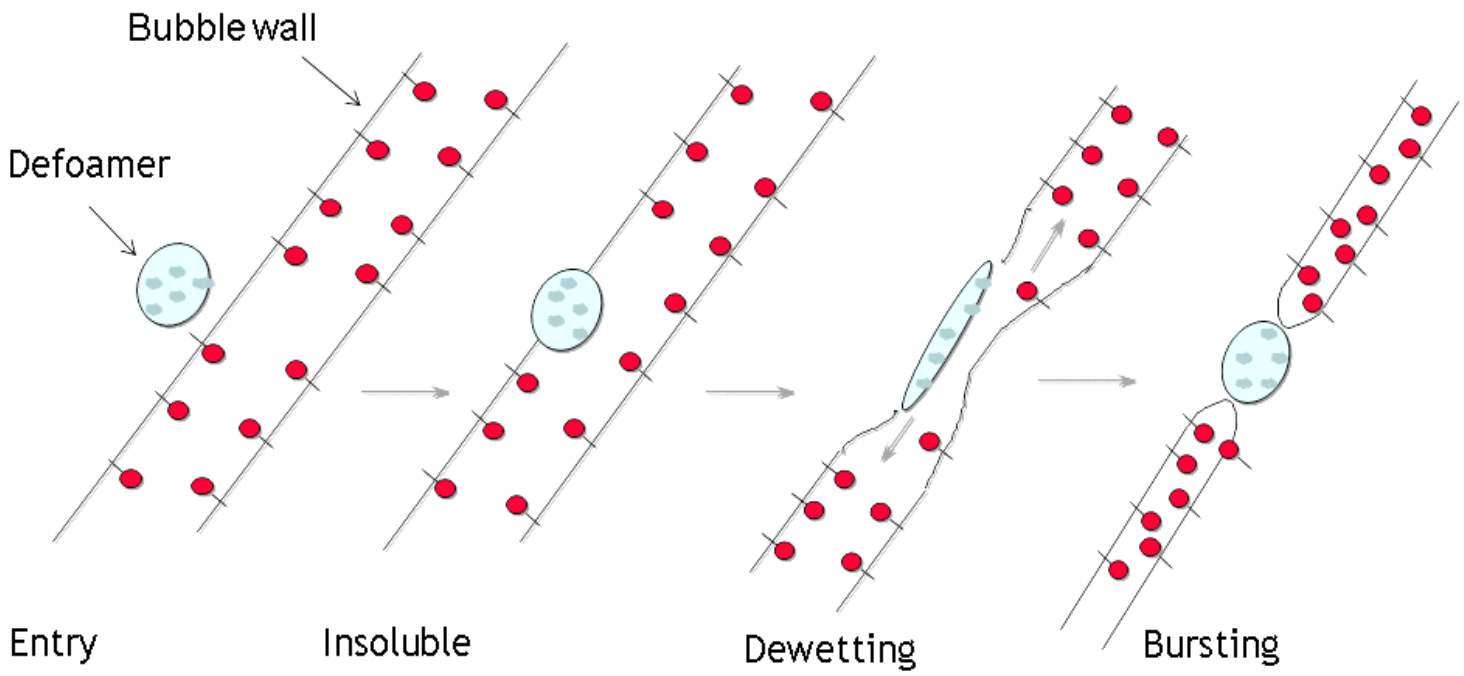
Foam Control Theory – Mechanism



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Foam Control Practise – Antifoam Characteristic

- Be neither soluble or insoluble in foaming media
- Disperse to the surface quickly and evenly
- Cause no unwanted secondary effects
  - Oil spotting
  - Reticulation
  - Separation
  - Poisoning
- Meet regulatory protocol

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Foam Control Practise

- The ideal antifoam

Rapid knockdown

Long lasting effect

Cost effective

Low addition rates

Easy to dose

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Foam Control Application
- Application testing

- Basic measuring cylinder shake-test
- Ross Miles test – Diesel fuel
- Rudin test – Fermented beers
- Hamilton Beech test – Latex emulsions
- Wascator test – Detergent antifoams
- Contifoam test – Knockdown & durability

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Foam Control

BRB Akasil® Technology

- Silicone fluids
- Silicone compounds
- Silicone emulsion

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Foam Control- Akasil® Antifoam Silicone Fluids

- Akasil® Antifoam 12,500 – 80,000 cSt Fluids
- BRB Silicone Oil 100 – 1000 cSt Food Grade
- Akasil® Antifoam 3107 – In solvent
- Akasil® Antifoam 4107 – In solvent
- Akasil® Antifoam 7107 – In solvent

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Foam Control- Akasil® Antifoam Compounds

- Akasil® ADP 100
- Akasil® ADP 300
- Akasil® ADP 500

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Foam Control- Akasil® Antifoam Silicone Emulsion

- Akasil® Antifoam TG/SP – Industrial
- Akasil® Antifoam FD/PS – Food compliant
- Akasil® Antifoam RE – pH stable
- Akasil® Antifoam 642 – Non-silicone

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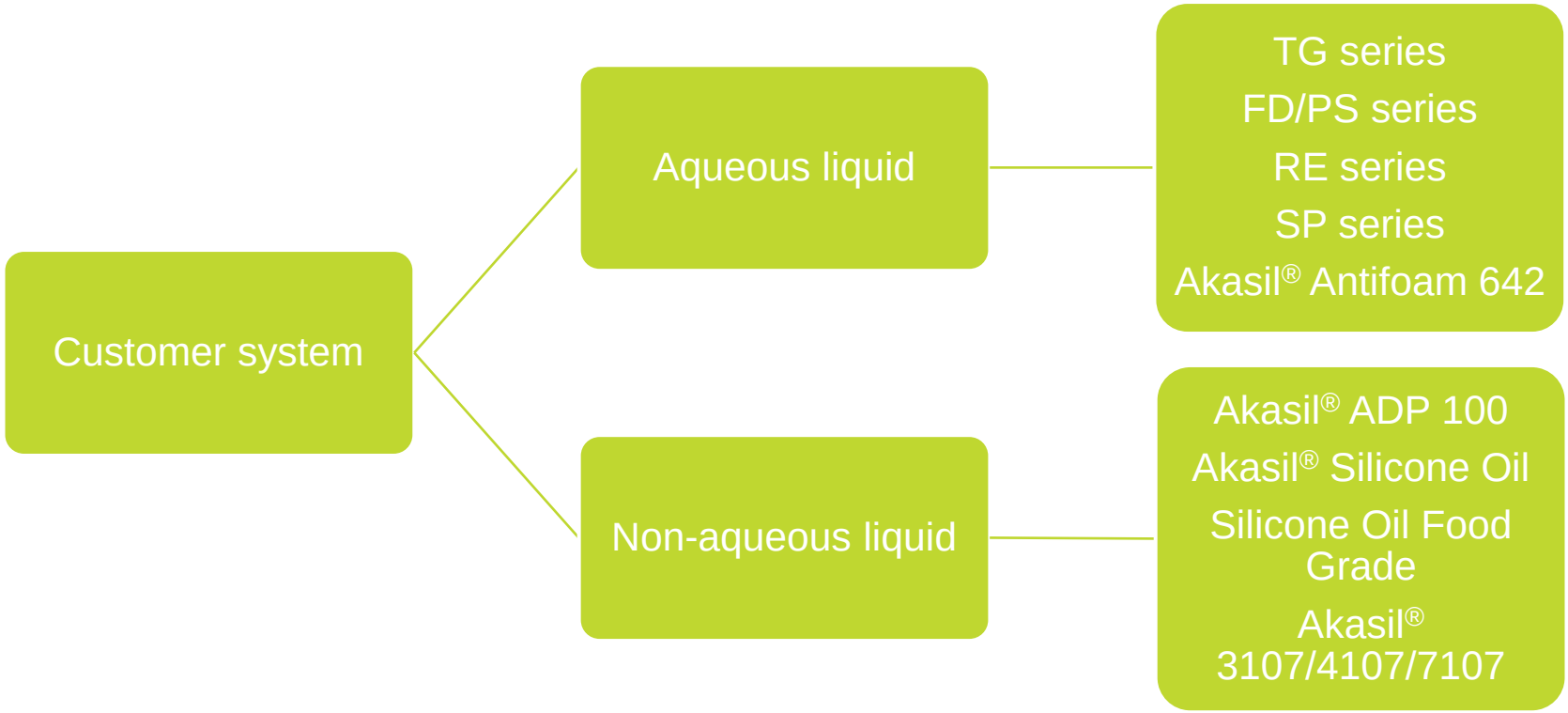
Foam Control – Choices



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Markets

- Adhesives & Sealants
- Agro-chemicals
- Coatings / inks / Varnishes
- Construction Chemicals
- Detergents & cleaning
- Fermentation
- Food and beverages
- Leather & Textile
- Metal working fluids
- Decorative paints
- Pulp & Paper
- Oil & Petrochemicals
- Starch – Sugar / Potato
- Water Treatment

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Silicone Oil based Antifoam for Refining

Viscosity (cSt)	Oil/Gas Separation	Delayed coking	Crude Distillation	Vacuum Distillation	Cracking Process	Asphalt Processing
1000				Yes	Yes	Yes
12,500	Yes			Yes		
60,000	Yes	Yes	Yes	Yes		
100,000	Yes	Yes				
600,000	Yes	Yes				
1Mil	Yes	Yes				

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BRB Solvent Based Antifoam

Product	Composition
Akasil® Antifoam 3107	30% Silicone Oil 60,000 in Solvent
Akasil® Antifoam 4107	10% Silicone Oil 600,000 in Solvent
Akasil® Antifoam 5107New	40% Silicone Oil 60,000 in Solvent
Akasil® Antifoam 6107New	25% Silicone Oil 12,500 in Solvent
Akasil® Antifoam 7107	15% Silicone Oil 100,000 & 5% Silicone Oil 600,000 in Solvent
Akasil® Antifoam 8107Trial	35% Silicone Oil 60,000 in Solvent

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Passionate about Progress