



FOAMATION® foaming agents
Clean Label Conference
March 28th-29th

Dinah Diaz



Naturally sourced FOAMATION[®] foaming agents

Quillaja extract from the Chilean
soapbark tree



Yucca extract from the Mohave
yucca plant



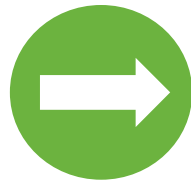
Unique properties of quillaja and yucca as foaming agents



- Natural extracts
- High surface-active component: Saponins
- Saponins are strong surfactants, foaming agents
- Fast dynamic, low molecular weight
- Saponin content standardized for batch-to-batch consistency
- Creates long-lasting, stable foam & froth



FOAMATION[®] foaming agents in soft drinks & alcoholic beverages



KEY BENEFITS

- Low usage of foaming agent
- Dense and high froth
- Long-lasting foam
- Appealing lacing
- Aromatics enhanced by foaming agent
- Can be used at lower use levels than PGA



What are foams?

Foam: A substance that is formed by trapping many gas bubbles in a liquid or solid.

Liquid foams

Wet foam

slushy, ice cream,
frozen beverages



Dry foam (froth)

Ciders, perries
flavoured drinks, etc.



Other foams

NOT IN SCOPE

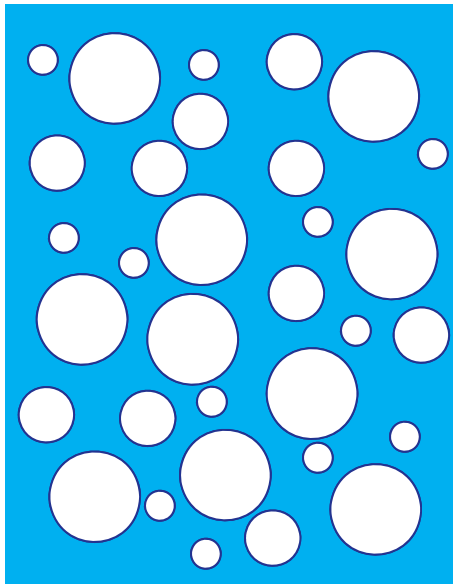
Solid foam - consists
of a gas dispersed in a
solid (e.g. styrofoam
or marshmallow)

**Free floating
bubbles** - consists of
a gas dispersed in
another gas phase



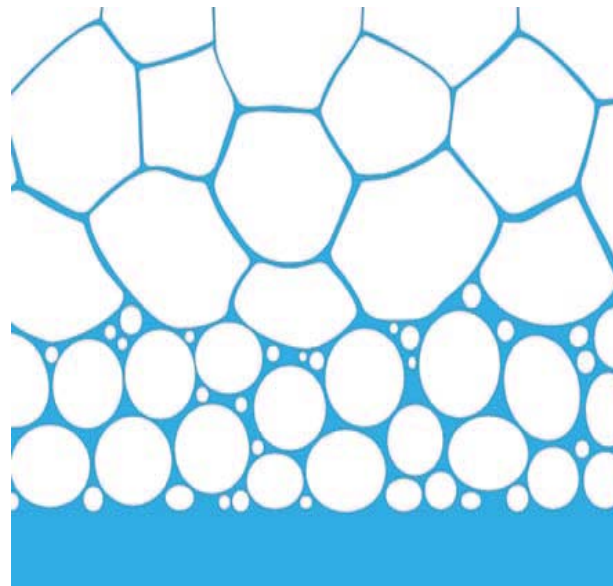
Ingredion

FOAMATION[®] foaming agents stabilize froth



FRESH FOAM

- Uniform bubble size
- Spherical bubble shape

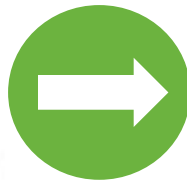


DRAINED FOAM

- Bubble shape changes from spherical to polyhedral which increases surface area leading to instability
- Liquid drains through foam channels via gravity
- Without foaming agent, bubbles burst and foam disappears

FOAMATION[®] foaming agents in frozen carbonated beverages (FCB)

Wet Foam



KEY BENEFITS

- Enables greater than 100% overrun (air entrapment)
- By extending volume you reduce cost and calories.
- Improves ice crystal formation & mouthfeel
- Creates uniform texture



Wet foam stability

WET FOAM STABILITY

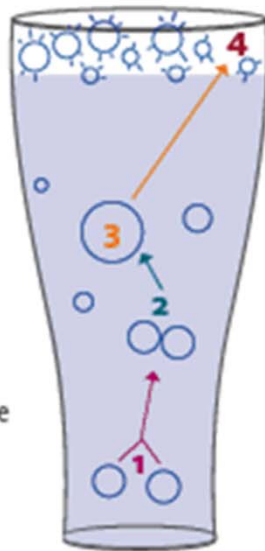
KEY:

● foaming agent

○ air bubble

1. Coalescence
small bubbles coalesce to form a larger bubble

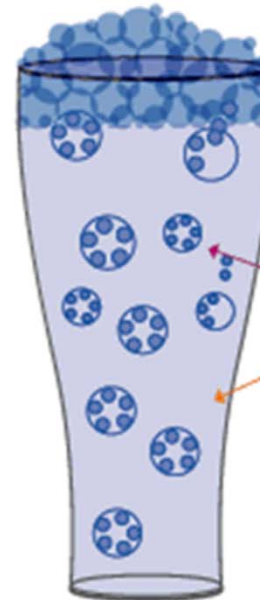
2. Buoyancy
larger bubble rises to the surface according to Stoke's law



WITHOUT FOAMATION INGREDIENTS

3. Liquid drainage
gravity drains liquid from bubble wall

4. Breakage
thinning of bubble wall



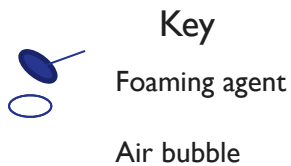
WITH FOAMATION INGREDIENTS

Stabilization

foaming agent hindered liquid drainage therefore prevents bubbles from bursting

Reduced buoyancy
smaller bubbles

Prevent coalescence
foaming agent prevents smaller bubbles from coalescing to larger ones



Foodservice – FOAMATION[®] foaming agents improve yield (overrun) for increased cost savings and much more....



No foaming agent

- Frozen beverage without foaming agent does not provide overrun
- Grittiness mouthfeel- larger ice crystals
- Wet, heavy texture



With FOAMATION QY50

- 100% overrun with FOAMATION[®] QY 50
- Finer ice crystals result in more smoother, creamy texture.
- Improved product appearance with uniform and light texture
- Stable foam throughout the mixing and drinking experience

North America Regulatory status

FOAMATION™ foaming agents

US:

- **FOAMATION Q**
foaming agent
 - Alcoholic beverages (including beer)
 - Non-alcoholic beverages
 - Variety of food applications
- **FOAMATION Y**
foaming agent
 - Alcoholic beverages (e.g. flavored wines, liqueurs)
 - Non-alcoholic beverages

Canada:

- **FOAMATION Q**
foaming agent
 - Beverage bases
 - Beverage mixes and soft drinks
 - Non-standardized (standard of identify) alcoholic beverages
except beer

Mexico:

- **FOAMATION Q**
foaming agent
 - Non-alcoholic flavored beverages
 - Chewing gum,
 - Coffee & teas
 - Sauces & dressings
 - Soups broths
 - Snacks

Refer to Regulatory tables with approved applications and maximum use levels



FOAMATION[®] foaming agents summary

Naturally sourced foaming agents

Sustainable & consistent supply

Stable and long lasting foam

Cost effective

Provide thick and frothy foam

Available in liquid and powder

Create fun foams and froths for memorable eating and drinking experiences





Let's get started!

Ingredion.us/foamation