Colonial Chemical

Unique Cold Process Surfactant Additives

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Hand Hygiene - Gloves

Why Cold Process?

- Reducing or removing heat from finished goods processing improves efficiency in a variety of ways:
  - Lower energy usage
  - Reduced production cycle times
  - Reduced hazards in production
  - Improved production cost
  - Improved reliability
  - Improved quality

Higher Melt Ingredients Are Becoming More Common

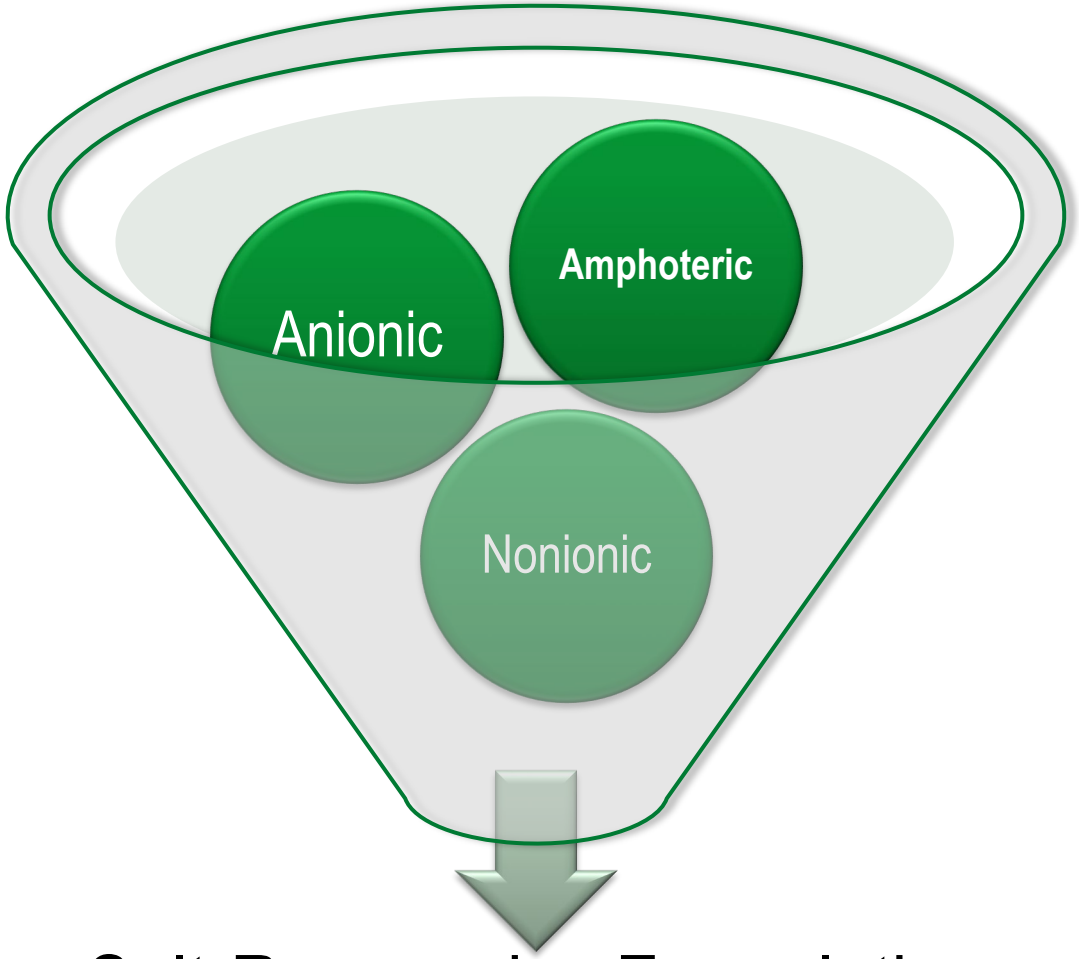
- A wide variety of traditional surfactants are being substituted with higher melting analogs
  - SLES -> SCI
  - Laureth-4 -> Sodium Lauroyl Lactylate
  - Disodium Laureth Sulfosuccinate -> Disodium Lauryl Sulfosuccinate
  - Cocamide DEA -> Cocamide MEA/MIPA
  - Cocamide DEA -> Lauryl Glucoside

- Even traditional pearl blends are being replaced, using the Glycol Distearate alone to avoid unwanted ingredients

A Retro Solution to Modern Problems

- Just like those traditional pearl blends, we have realized a variety of useful ingredient combinations
- These products allow formulators to more easily and reliably incorporate higher melting ingredients
- They are designed to optimally deliver a higher melting product into a formulation
- Cold-process benefits are easily achieved
  - Lower energy use
  - Faster cycle times
  - Increased reliability
  - *Without sacrificing performance*

The Components of a “Conventional” System



Suga®Det LSDG MB

Powerful Foam Booster for Sulfate-free Formulations	
INCI Name	Decyl Glucoside, Disodium Lauryl Sulfosuccinate
Global Clearances	Globally approved, REACH registered
Physical Form	Clear liquid, 40% solids
Key Features	**High foam** volume with excellent detergency **Easy to use liquid format** for Disodium Lauryl Sulfosuccinate **Low irritation** profile **Can be combined** with a wide variety of additional surfactants Can be used to create **clear, high active, gentle** formulations
Suggested Applications	All types of gel cleansers Pump foaming applications Aerosol foams
Certifications	RSPO Mass Balanced ISO 16128 (0.86) USDA Biopreferred (86% Biobased)

Suga®Det LSLG MB

Powerful Foam Booster for Sulfate-free Formulations	
INCI Name	Lauryl Glucoside, Disodium Lauryl Sulfosuccinate
Global Clearances	Globally approved, REACH registered
Physical Form	Clear liquid, 30% solids
Key Features	**High foam** volume with excellent detergency **Easy to use liquid format** for Disodium Lauryl Sulfosuccinate **Low irritation** profile **Can be combined** with a wide variety of additional surfactants Can be used to create **clear, gentle** formulations
Suggested Applications	Shampoos Body Washes Facial Cleansers
Certifications	RSPO Mass Balanced ISO 16128 (0.87) USDA Biopreferred (87% Biobased)

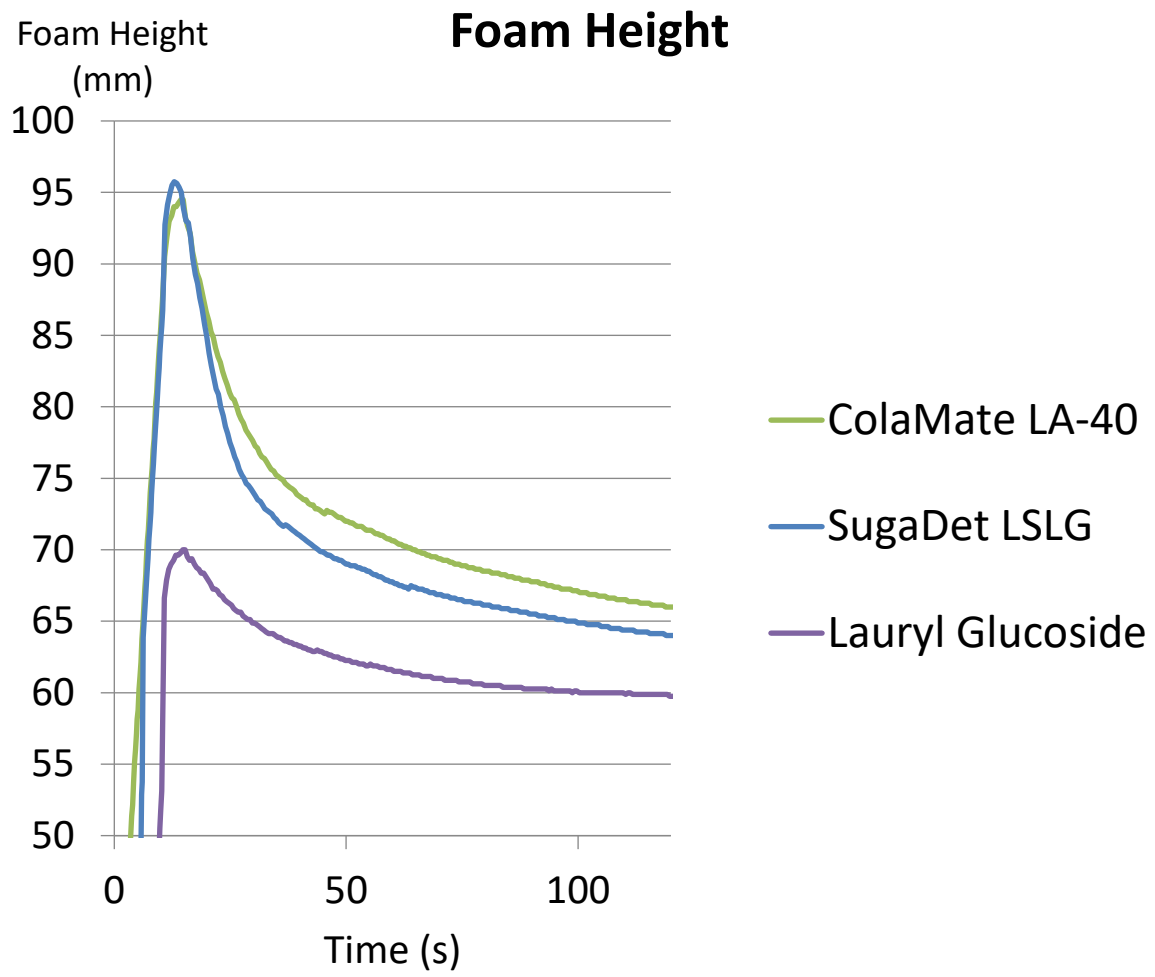
Cola®Liquid SCMPA

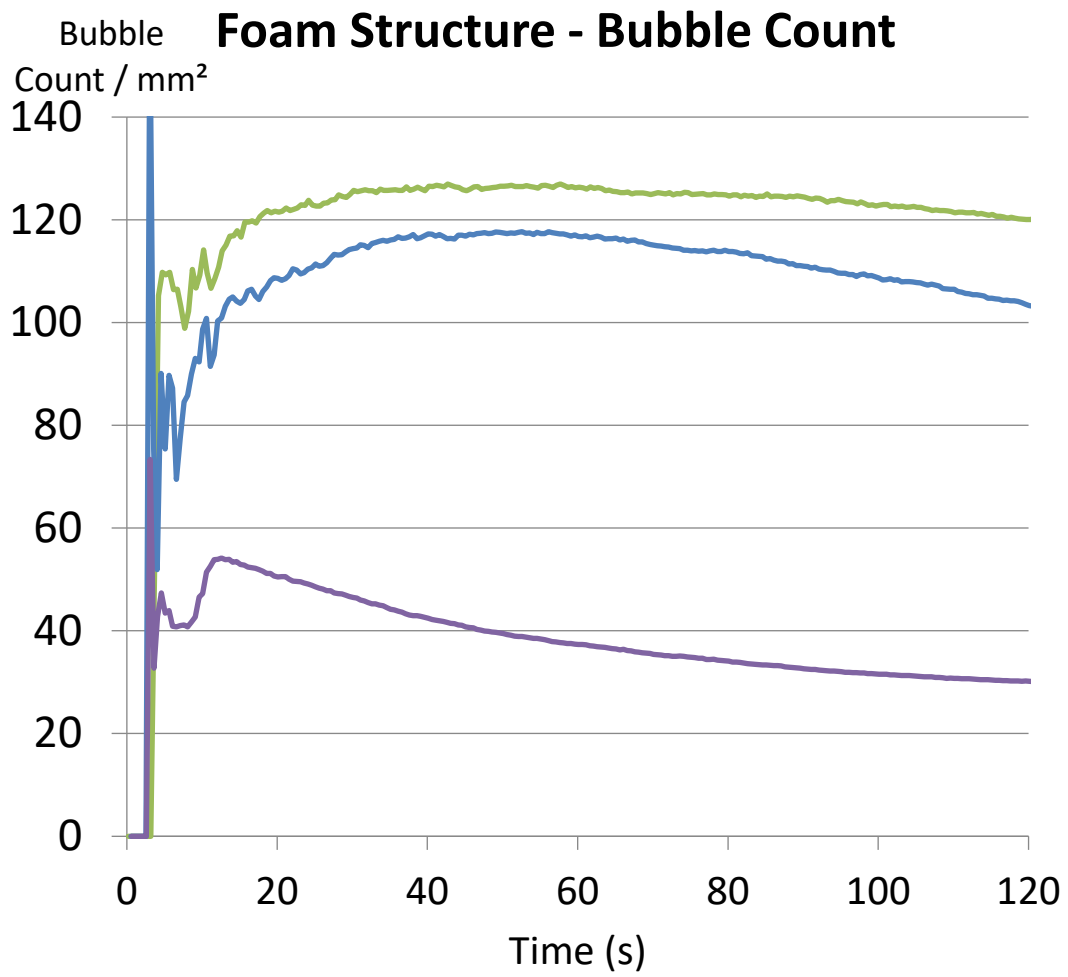
Cold-Process Sultaine/Amide Blend	
INCI Name	Cocamidopropyl Hydroxysultaine, Cocamide MIPA
Global Clearances	Global, REACH
Physical Form	Transparent liquid
Key Features	**Easy to use** foam and viscosity booster **Reduces salt** needed to build viscosity **Increases peak viscosity** in surfactant systems **High biobased** content Sulfate-free, PEG-free, Betaine-free **Low irritation** at typical use
Suggested Applications	All gel cleansers Pump foaming applications Antiseptic hand wash
Certifications	ISO 16128 (0.72)

Cola®Teric CHGL

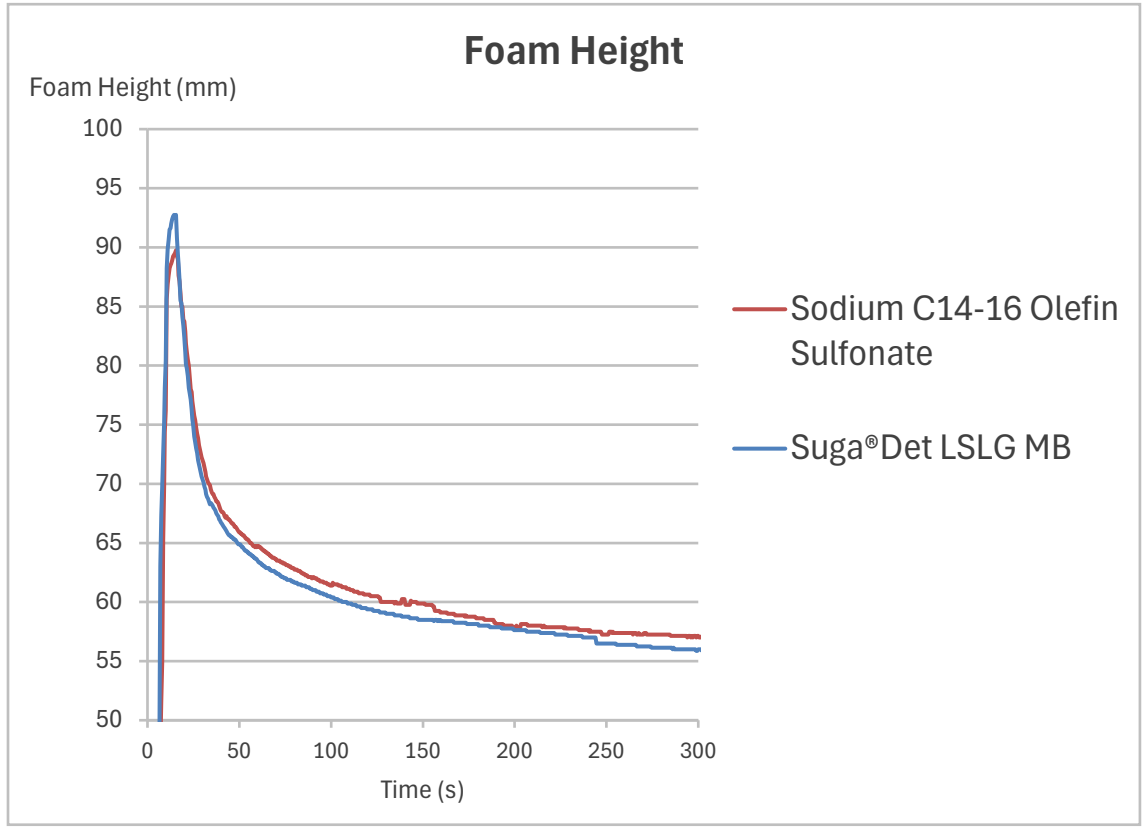
Cold-Process Sultaine/Nonionic Ester Blend	
INCI Name	Cocamidopropyl Hydroxysultaine, Glyceryl Laurate
Global Clearances	Global, REACH
Physical Form	Transparent liquid
Key Features	**Easy to use** foam and viscosity booster **Reduces salt** needed to build viscosity **Unique multifunctional** amide replacement Sulfate-free, PEG-free **Completely free** of secondary amines or amides **Non-irritating** at typical use **High Biobased** content
Suggested Applications	All gel cleansers Pump foaming applications Antiseptic hand wash Sulfate-free, slow responding surfactant systems
Certifications	ISO 16128 0.82

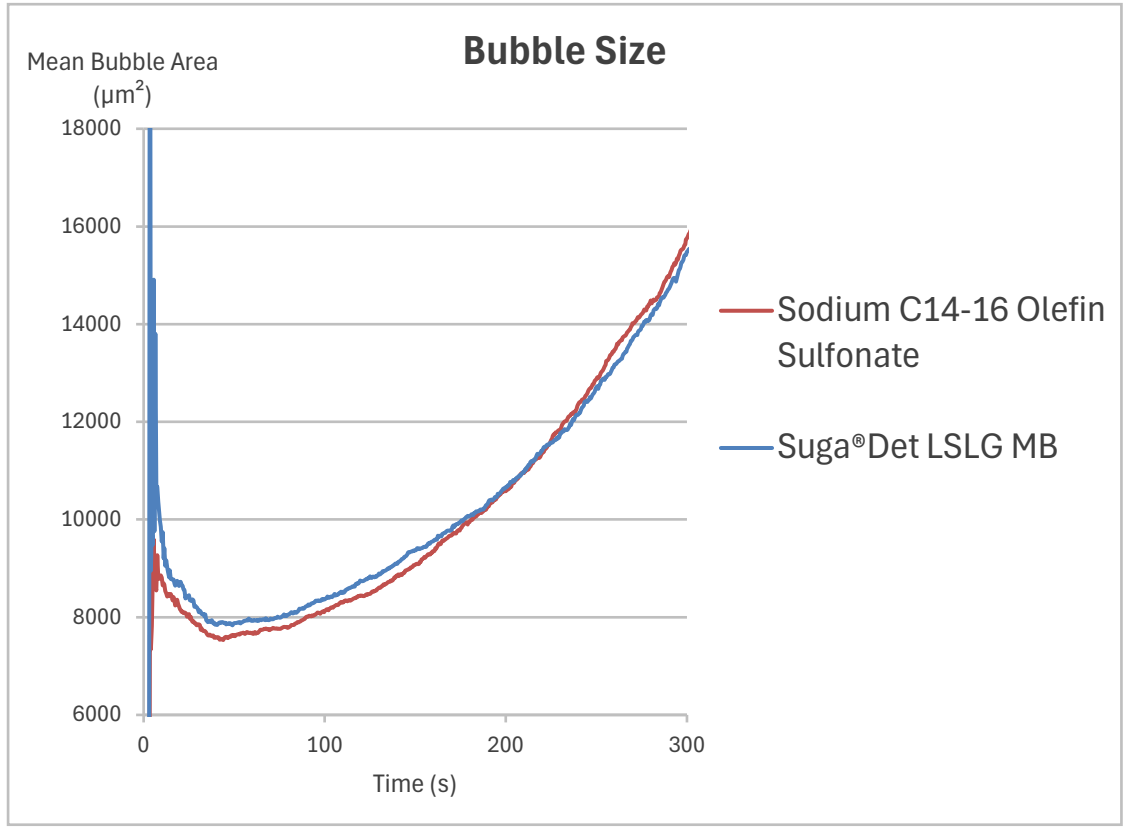
Foam Performance





Foam Performance vs Olefin Sulfonate

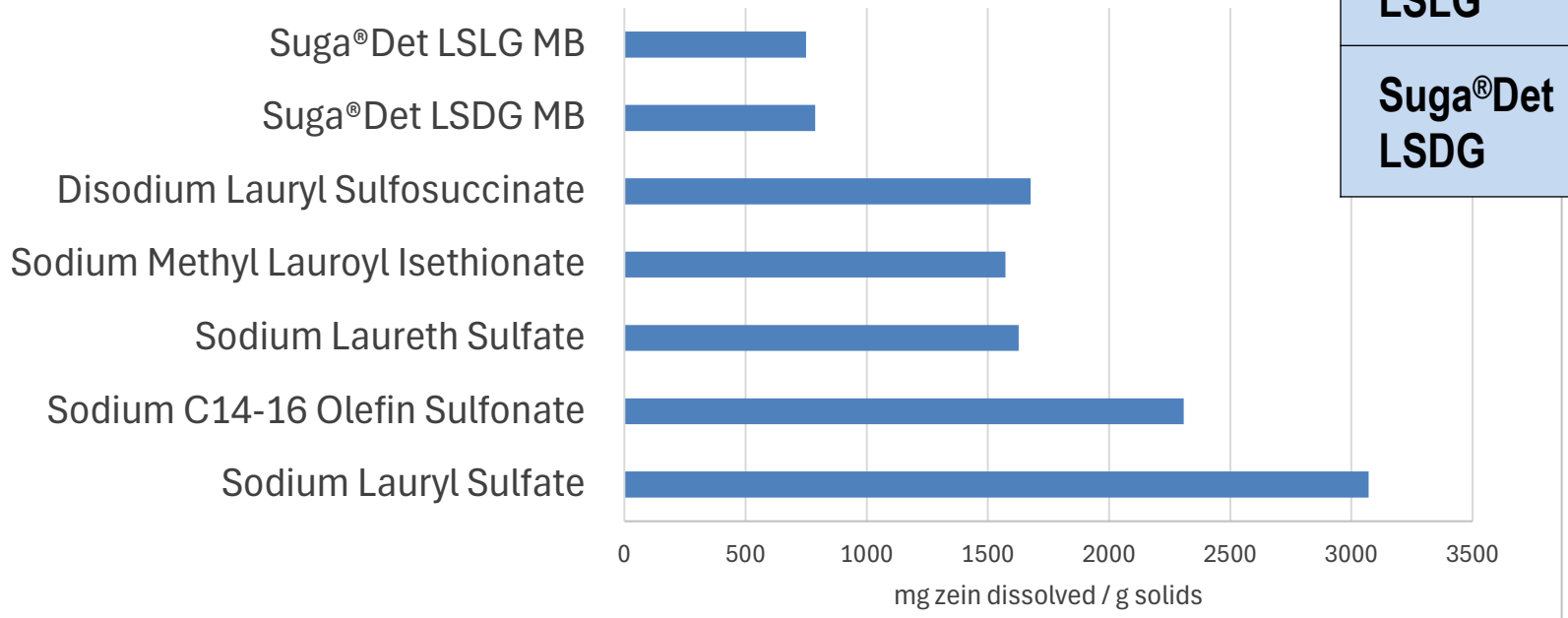




Test Formula: 8.0 / 4.5 Primary / Cola®Liquid SCMPA, pH 6

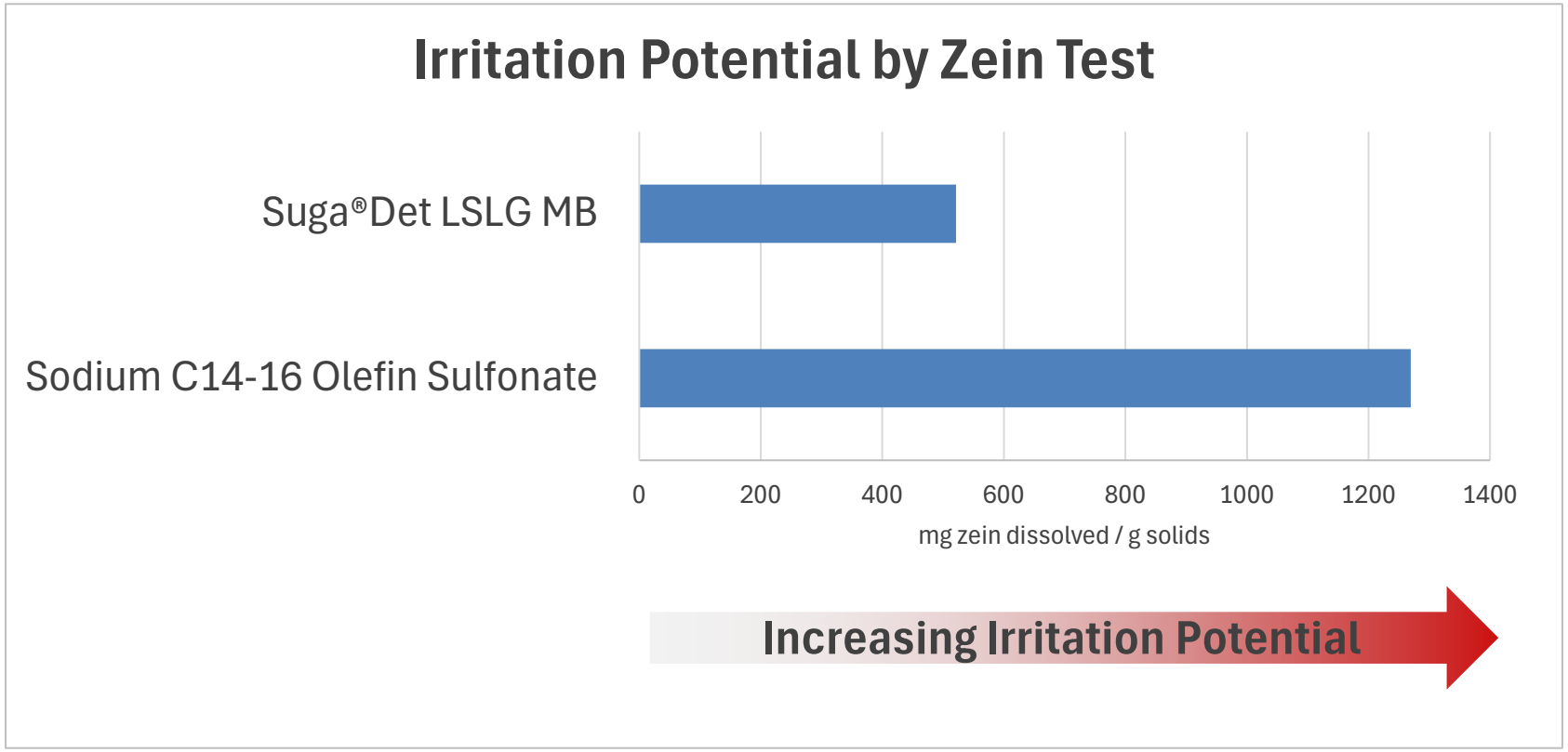
Irritation Potential

- **Primary Surfactant: Suga®Det LSLG MB/LSDG MB vs Typical Anionics**



Suga®Det LSLG	Lauryl Glucoside (and) Disodium Lauryl Sulfosuccinate
Suga®Det LSDG	Decyl Glucoside (and) Disodium Lauryl Sulfosuccinate

Irritation Potential in Formulated System

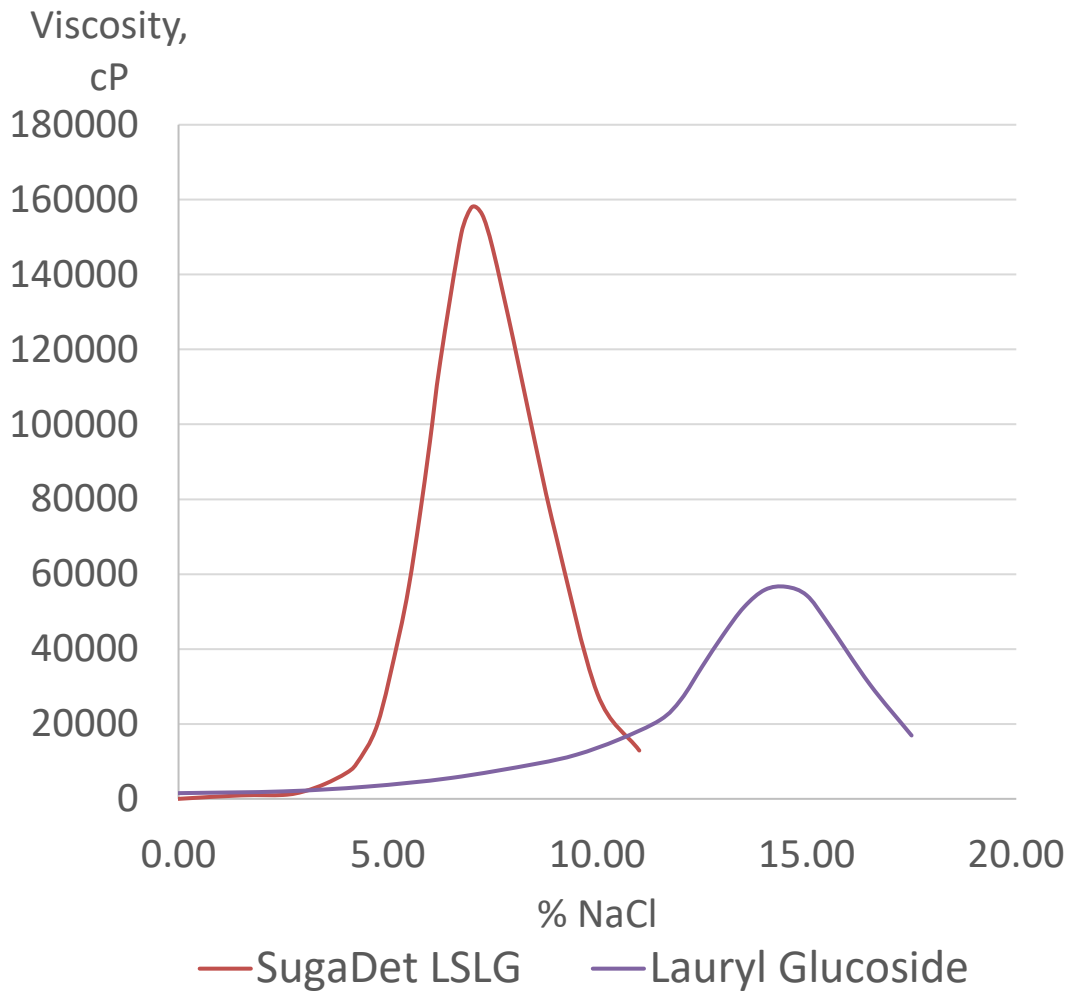


Test Formula: 8.0 / 4.5 Primary / Cola®Liquid SCMPA, solid matter, pH 6

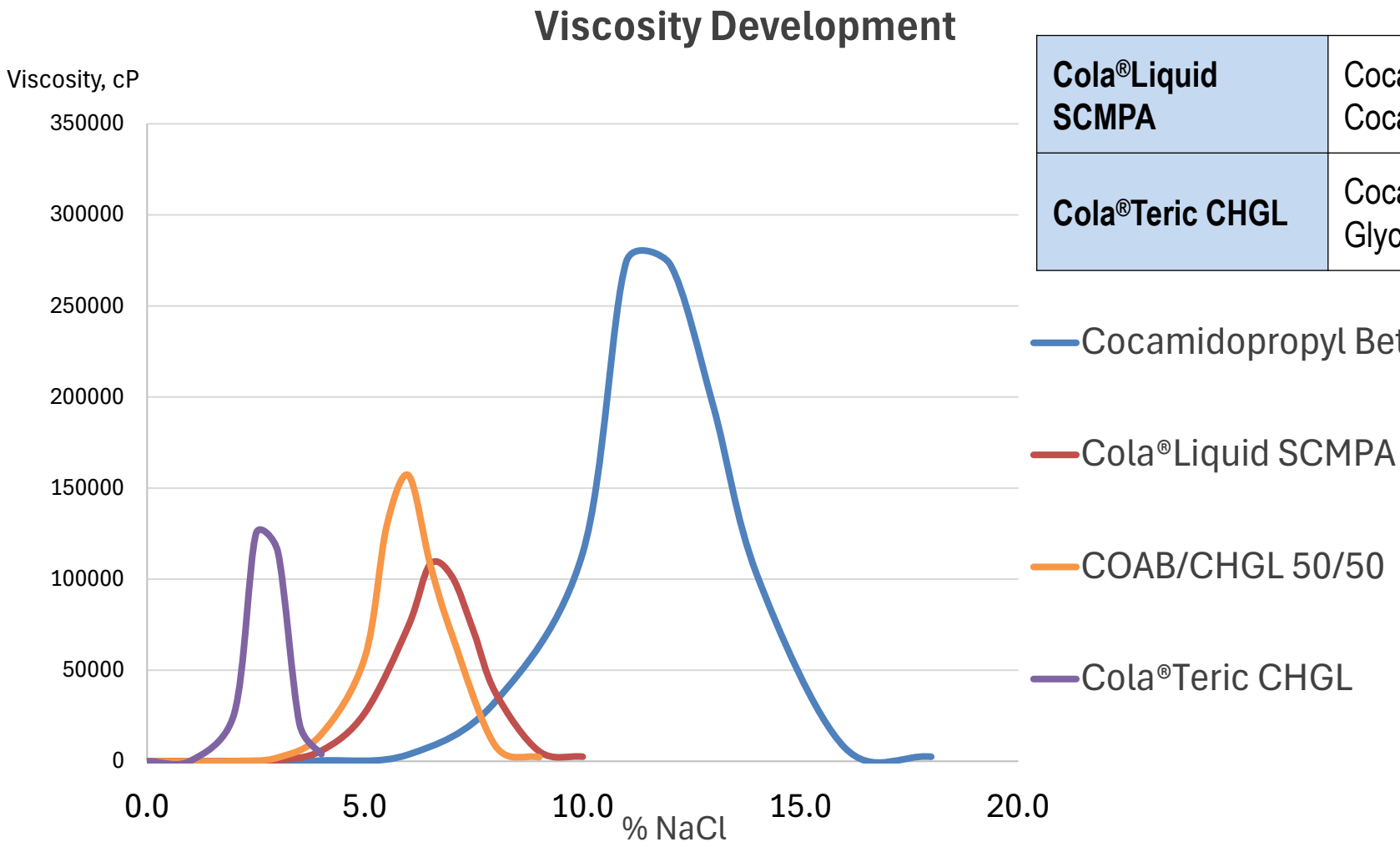
Viscosity Development

- When combined with an amphoteric surfactant, SugaDet LSLG provides much higher viscosity than Lauryl Glucoside alone
  - Reduced irritation with less overall surfactant
  - Better support of additives (like preservatives)
  - Lower cost formulations

Ingredient	% Solids
Water	qs to 100.00
SugaDet LSLG or Lauryl APG	10.00
ColaTeric CBS-HP	5.00
Thickener	qs
Citric Acid 50%	qs to pH 6



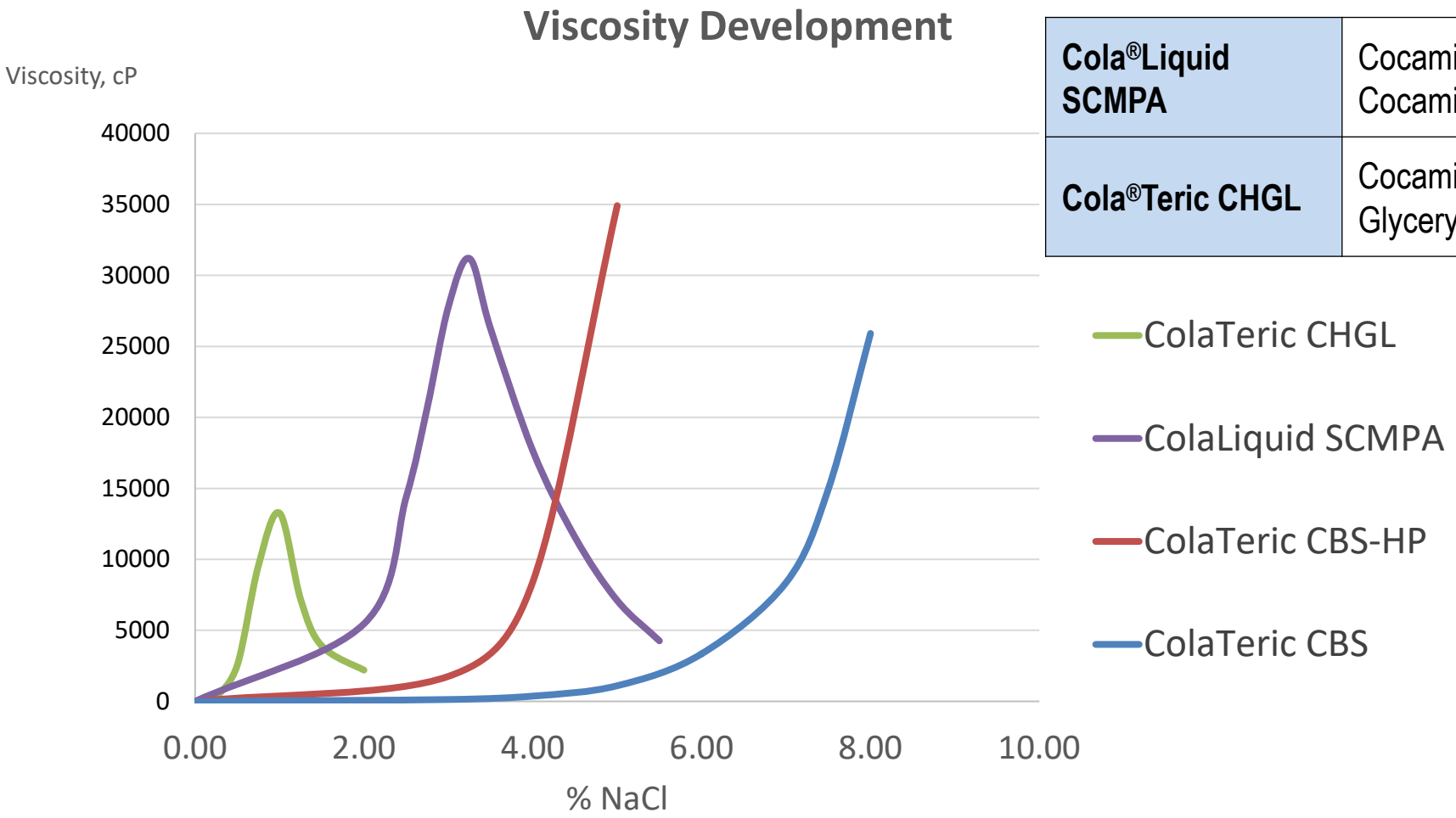
Impact of Amphoteric Mixtures on Viscosity – AOS System



Cola®Liquid SCMPA	Cocamidopropyl Hydroxysultaine (and) Cocamide MIPA
Cola®Teric CHGL	Cocamidopropyl Hydroxysultaine (and) Glyceryl Laurate

Test Formula: 2:1 AOS-40:Amphoteric, 12% solids, pH 6 with betaine replaced by weight as supplied

Impact of Amphoterics on Viscosity – SugaDet LSLG System



Cola®Liquid SCMPA	Cocamidopropyl Hydroxysultaine (and) Cocamide MIPA
Cola®Teric CHGL	Cocamidopropyl Hydroxysultaine (and) Glyceryl Laurate

Test Formula: 2:1 LSLG:Amphoteric, 15% solids, pH 6 with sultaine replaced by weight as supplied

Batch Time Comparison

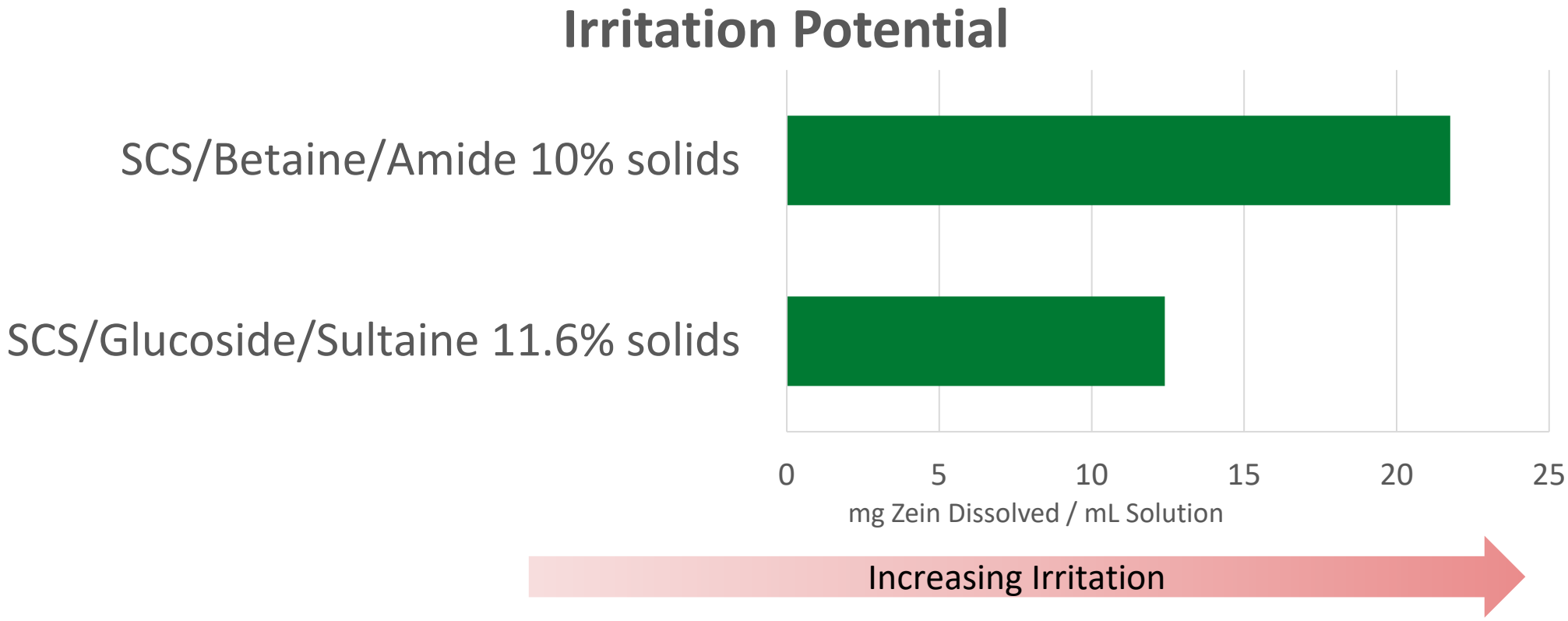
TRADENAME / INCI NAME	COLD MIX	HOT MIX
Suga®Det LSLG MB (Disodium Lauryl Sulfosuccinate, Lauryl Glucoside)	X	
Cola®Liquid SCMPA (Cocamidopropyl Hydroxysultaine, Cocamide MIPA)	X	
Lauryl Glucoside		X
Disodium Lauryl Sulfosuccinate		X
Cocamidopropyl Hydroxysultaine		X
Cocamide MIPA		X
Citric Acid 50%	X	X
NaCl	X	X
BATCH TIME (1L)	**13 Minutes**	**83 Minutes**

Cola®Det COCO

High Active, High Biobased Concentrate	
INCI Name	Sodium Coco-Sulfate, Coco-Glucoside, Cocamidopropyl Hydroxysultaine
Global Clearances	Globally approved, REACH registered
Physical Form	Lamellar phase liquid at 25C
Key Features	**60+% solids** surfactant concentrate **High biobased** content (nearly 100%!) **Low use** rate for optimal cost performance **High foam** volume with luxurious creamy feel **Optimized** for lower irritation than traditional sulfate-based systems **Disperses easily** in water for cold processing
Suggested Applications	All types of gel cleansers Pump foaming applications Aerosol foams
Certifications	ISO 16128 (0.97), 97% USDA certified biobased content, RSPO MB available upon request

Reduced Irritation

- ColaDet COCO has lower irritation potential than a more traditionally formulated SCS-based system, even at higher solids.



Suga®Det EcoPearl

Clean Beauty Pearl Concentrate	
INCI Name	Glycol Distearate, Sodium Hydroxypropylphosphate Decylglucoside Crosspolymer, Cocamidopropyl Hydroxysultaine, Sodium Stearoyl Lactylate
Global Clearances	North America, can get coverage for EU REACH
Physical Form	White pearlescent liquid
Key Features	**Easy to use** cold-process pearl concentrate Can provide **brilliant pearls** at 3-5% use level **Good tolerance** to processing conditions **High biobased** content Sulfate-free, PEG-free, Betaine-free **Non-irritant** at typical use
Suggested Applications	All pearlescent cleansers
Certifications	ISO 16128 (0.92)

Thanks!

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https://apple.co/3dUq5fh - Formula Girls Podcast