



Since 1884

ACACIA GUM BENEFITS FOR BEVERAGES

AGENDA

- Concentrates for Carbonated Soft Drinks and Powdered Beverages
- Flavored Waters & Teas,
 Smoothies & Juices, Healthy
 Drinks & Shakes
- Wine & Oenology



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Introduction about Alland & Robert

1/ What is Acacia Gum?

2/ Concentrates for Carbonated Soft Drinks and Powdered Beverages

> 3/Flavored Waters & Teas, Smoothies & Juices, Healthy Drinks & Shakes

Who is Alland & Robert?





MANUFACTURED in France!

1884

Foundation of the company

6TH

Generation family company

100

Employees in 2019

3

Spraydrying towers

70

Countries
Alland & Robert
sells to

95%

Export



1

What is Acacia Gum?

Acacia Gum Sourcing



A NATURAL RESOURCE

...SOURCED SUSTAINABLY DIRECTLY FROM NATURE...

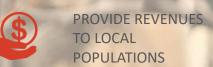
Exudate of African wild Acacia trees World production

60 000 MT /year



HAND MADE HARVEST IN THE GUM BELT





TREE FRIENDLY HARVEST

What is Acacia Gum?



...WITH STRONG RELATIONSHIPS WITH FARMERS TO ENSURE THE HIGHEST RAW MATERIAL QUALITY

NO
CHEMICALS
PESTICIDES
GMOs
PRESERVATIVE

100%

VEGETAL, GLUTEN FREE

AND ALLERGEN FREE

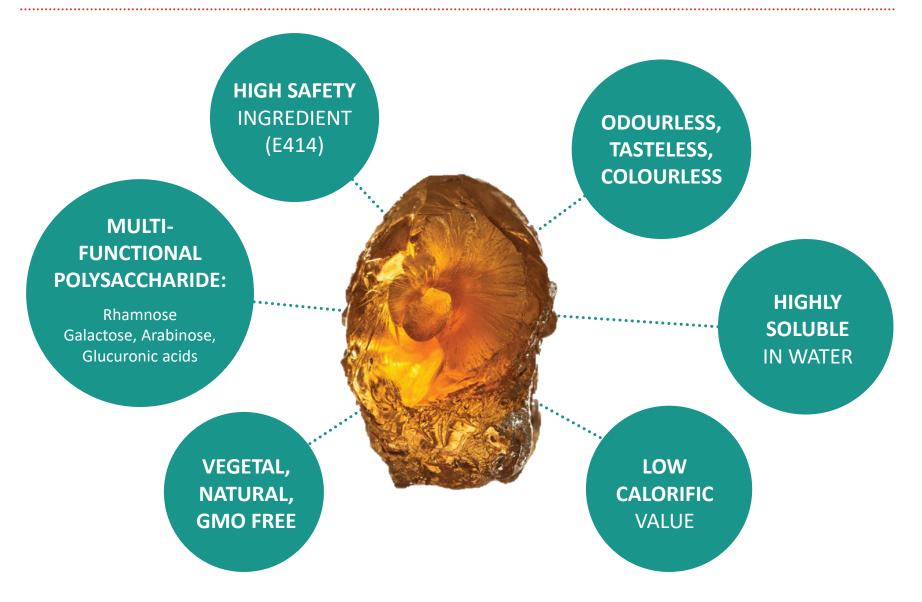
FULL TRACEABILITY

THROUGH ORGANIC

CERTIFICATION

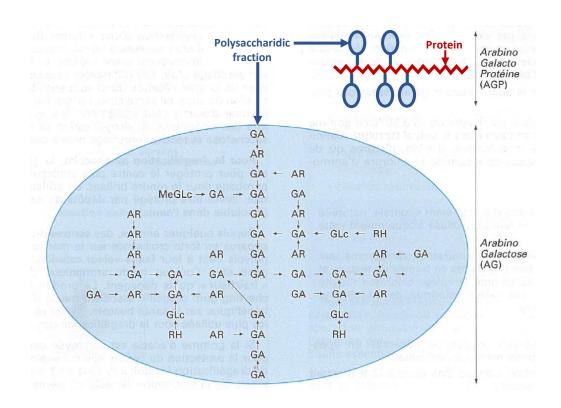
What is Acacia Gum?







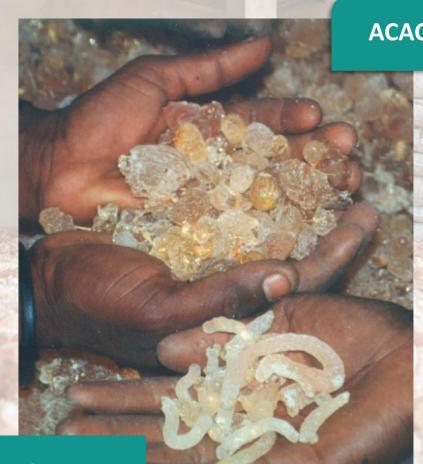
ACACIA GUM CHEMICAL STRUCTURE



What is Acacia Gum?



THERE ARE 2 GRADES OF ACACIA GUM WITH IDENTICAL LABELLING



ACACIA SENEGAL

ACACIA SEYAL



SAME LABELLING BUT DIFFERENT FUNCTIONAL PROPERTIES



Protein content

2%

Laevorotatory optical rotation

-20 to -35°

DIFFERENCES
IN FUNCTIONAL
PROPERTIES



Protein content

1%

Dextrorotatory optical rotation

+35 to +60°

What is Acacia Gum?



ACACIA GUM CHEMICAL STRUCTURE

SUGARS

Component	A. Senegal	A. Seyal
Galactose (%molar)	34.9	32.9
Arabinose (%molar)	31.7	53.1
Rhamnose (%molar)	16.3	2.7
Glucuronic acid (%molar) Negative cha	16.3	6.1
4-O-Me-Glucuronic acid (%molar)	0.8	5.2

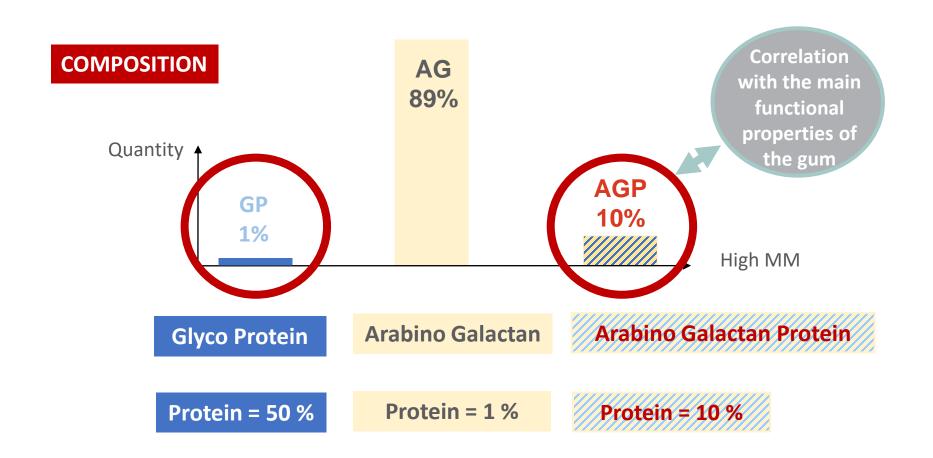
Same sugars but in different proportions → optical rotation

More negative charges in Acacia senegal → behaviour in products

What is Acacia Gum?



ACACIA GUM CHEMICAL STRUCTURE





2

Carbonated Soft Drinks (CSD) and Powdered Beverages



PRODUCT DESCRIPTION



i → Essential oils for the taste + colour



Citrus, orange, cola oils + ß carotene

→ Acacia gum



Emulsification of oils + stability



- → Carbonated water
- → Sucrose or sweeteners

Regular soda, sugar reduced



or sugar free



- Many factors impact the stability of both emulsions and final beverages
 - → Acacia gum quality and amount, nature of the oils, process etc...



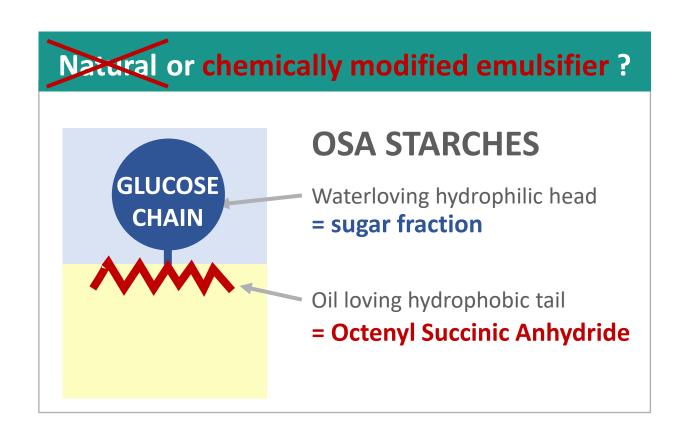
WHAT IS THE EMULSION, NECESSARY TO THE FORMULATION OF SOFT DRINKS?

- → A blend of 2 phases that are <u>not miscible</u>: oil-in-water (o/w), water-in-oil (w/o), airin-water (a/w), etc...
- → When the non-miscible phases are mixed, energy is necessary to allow the repartition of a dispersed phase into a continuous phase (dressing or mayonnaise principles)
- → To be stable, a lot of energy <u>and</u> an <u>emulsifying agent</u> are at least mandatory



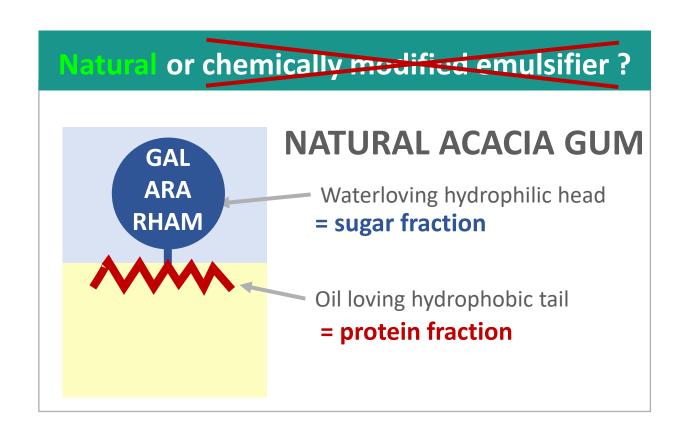


THE EMULSIFIER MAKES THE BRIDGE BETWEEN THE OIL AND THE WATER



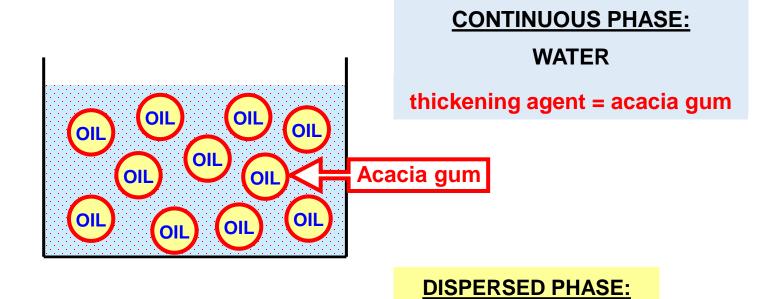


THE EMULSIFIER MAKES THE BRIDGE BETWEEN THE OIL AND THE WATER





THE PRODUCTION OF CONCENTRATES



OIL

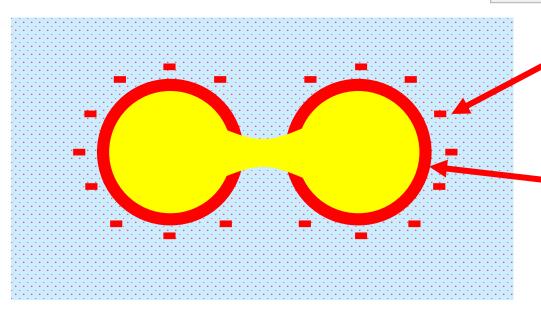
with flavours/colours



THE PRODUCTION OF CONCENTRATES

→ Acacia gum: quantity and quality

Component		A. Senegal	A. Seyal
Galactose (%molar)		3 ⁴ .9	32.9
Arabinose (%molar)		3:17	53.1
Rhamnose (%molar)	entive charges	1 3	2.7
Glucuronic acid (%molar)	gative charges	16.3	6.1
4-O-Me-Glucuronic acid (9	%molar\	0.8	5.2

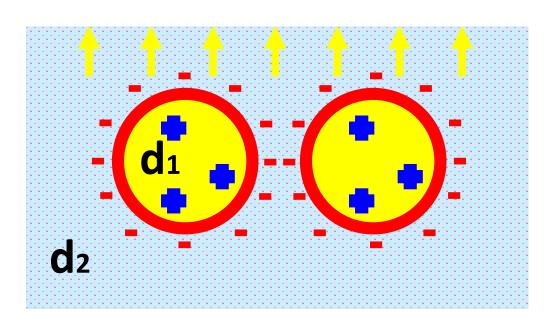


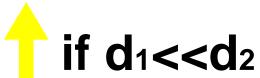
High quality film due to viscoelastic properties of acacia gum



THE PRODUCTION OF CONCENTRATES

→ Physical law: separation when densities are different





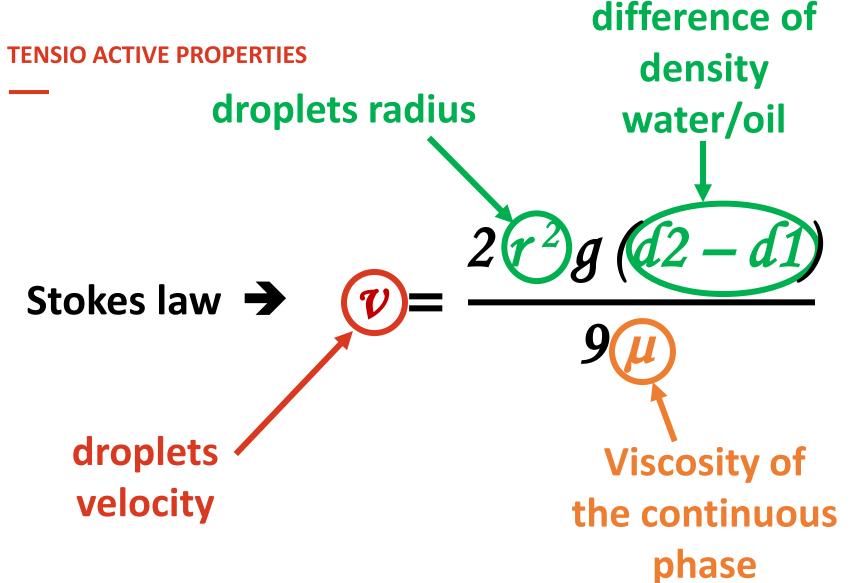
Weighting Agents Estergum

S.A.I.B.
B.V.O.
MCT

[**Estergum** = glycerol ester of wood rosin, E445 / **S.A.I.B.** = Sucrose Acetate Iso Butyrate, E444].

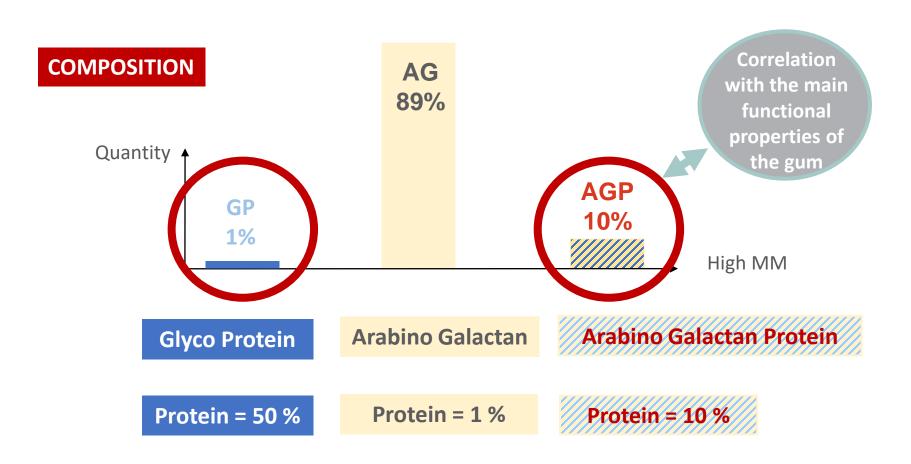
[B.V.O.: Brominated vegetable Oils / M.C.T. = Medium Chain Triglycerides]





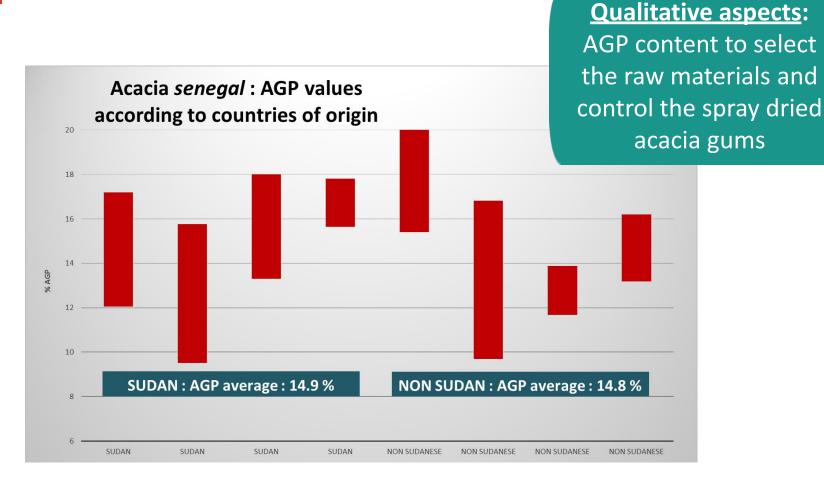


ACACIA GUM CHEMICAL STRUCTURE: correlated to the viscosity and the quality of the interfacial film





QUALITY CONTROL OF ACACIA GUM: evaluation by CHROMATOGRAPHY

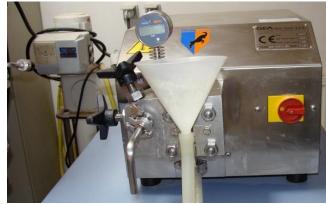




QUALITY CONTROL OF ACACIA GUM: EFFICIENCY AND CONSISTENCY

PRACTICAL TESTS IN A&R LAB









FLAVORS and SOFT DRINKS

RECIPES



- Reduces the surface tension between the dispersed and the continuous phases
- Maintains small oil droplets in suspension with electrostatic and steric effects
- Assures the stability of the system for many years in both concentrated and diluted conditions (flavors, beverages)

RECIPE SHEET

✓ Acacia gum SENEGAL	20%
✓ Water	64.5%
✓ Citric acid	0.5%
✓ Preservatives	qs

✓ Oil phase	7.5%
✓ Estergum 8BG (weighting agent)	7.5%

MANUFACTURING PARAMETERS

Mix the 2 parts with a high speed mixer and then with a high pressure homogeneisor

ADDITIONAL INFORMATION

Wait for the complete hydration of the gum before emulsification

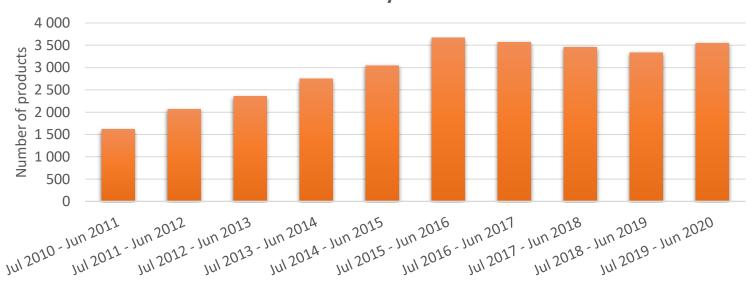
2 stages minimum for the high pressure step (5500 PSI) and the last one at low pressure (700 PSI) to smooth the emulsion and separate possible aggregates



WORLDWIDE CARBONATED SOFT DRINKS MARKET

Less than 15% of products mention Acacia Gum in the ingredients list

Worldwide Carbonated Soft Drinks Market: new products launched since July 2010





PRODUCT EXAMPLES: Regular CSD



Lemonade Carbonated Flavoured Drink	Superior Peach Drink
Myanmar	Serbia
Sunkist Growers	Knjaz Milos
Sunkist	ReMix Knjaz
Carbonated water, sugar, citric acid, sodium citrate, sodium benzoate, natural flavours, nature-identical flavours, acacia gum, sucrose acetate isobutyrate, calcium disodium EDTA, vegetable oil (coconut oil and/or palm kernel oil), yellow #5, ester gum, dioctyl sodium sulfosuccinate, dlalpha-tocopherol, butylated hydroxyanisole	Water, sugar, fruit juice concentrate (peach juice from concentrate (11%), orange juice from concentrate (3.5%), lemon juice from concentrate (0.5%)), citric acid, carbon dioxide, antioxidant (ascorbic acid), preservatives (potassium sorbate, sodium benzoate), stabilizer (acacia gum, flavourings), color (carotene)





PRODUCT EXAMPLES: CSD with fruits juice



Sparkling Juice Variety Pack	Cucumber Mint Sparkling Lemonade
USA	Canada
Izze Beverage, USA	PepsiCo, Canada
Izze	7Up Lemon Lemon
Sparkling grapefruit: sparkling water, apple juice concentrate, white grape juice concentrate, clarified orange juice concentrate, clarified grapefruit juice concentrate, natural flavor, citric acid, gum arabic, red radish juice (color)	Carbonated water, sugar, concentrated lemon juice (sulphites), malic acid, natural flavour, sodium citrate, purified stevia leaf extract, potassium sorbate, gum arabic, sodium benzoate, ester gum





PRODUCT EXAMPLES: Original flavors



Cold Brew Coffee Lemonade	Blue Agave Flavoured Carbonated Drink
Germany	Russia
Madmonk Beverages	Stalkom, Russia
Madmonk	Formen Stalcom Collection
Water, strong coffee infusion* (10%) (water, coffee), sugar, lemon juice from concentrate (1%), carbonic acid, acidifier (citric acid), stabiliser (gum arabic), natural caffeine, caramel sugar syrup, antioxidant (ascorbic acid), flavour (quinine), natural flavour *cold brewed	Prepared drinking water, sugar, acidity regulator (citric acid), flavouring (orange oil flavouring, lemon flavouring, neutral emulsion flavour, agave and lemon flavour, grapefruit flavour, cool flavour), sparkling blue FCF colour, stabiliser (gum arabic), preservative (sodium benzoate)





PRODUCT EXAMPLES: Original flavors



Bubblegum Flavoured Soft Drink	Blood Orange Turmeric Drink
Netherland	UK
Real Tropical Food, Netherlands	Nix & Kix, UK
Uggo	Nix and Kix
Carbonated water, sugar, food acid (citric acid), stabilizer (E414, E445), colouring food (blackberry concentrate, carrot concentrate), flavours	Carbonated water, fruit juices from concentrate (45%) (apple juice from concentrate, lime juice from concentrate, blood orange juice from concentrate), turmeric, blood orange extracts, chilli extracts, natural flavouring, natural colour (anthocyanins), stabiliser (gum arabic)





PRODUCT EXAMPLES: CSD to relax



Lightly Sparkling Mixed Fruit Flavoured Drink	Relaxation Drink
UK	South Korea
Green Monkey, UK	Lotte Chilsung Beverage, South Korea
Green Monkey CBD	Lotte Sweet Sleep
Carbonated water, sugar, acid (citric acid), flavourings, acidity regulator (sodium citrate), sweeteners (acesulfame K, aspartame), CBD (Cannabis sativa L.), colours (riboflavin, brilliant blue)	Water, carbon dioxide, citric acid, theanine, xylitol, artificial flavours (artificial peach flavour, artificial mixed fruit flavour), trisodium citrate, glycerin, gum arabic, Dsorbitol, sucrose fatty acid ester, coconut oil, gardenia blue colour, rosehip extract, lemon balm extract, glucose syrup, vitamin C, dextrin, carthamus yellow colour, sucralose, enzymatically modified rutin, acesulfame potassium, vitamin B6 hydrochloride, calcium pantothenate, nicotinic acid amide





PRODUCT EXAMPLES: Sophisticated CSD

MADE WITH CANE SUGAR

Soda Variety Pack	Batch No. 01 Sparkling Soft Drink with Smoky Notes
USA	UK
Jones Soda, USA	Coca-Cola, France
Jones	Coca-Cola Signature Mixers
Orange and cream soda: carbonated water, invert cane sugar, citric acid, natural and artificial flavours, modified corn starch, sodium benzoate, potassium sorbate, ester gum, calcium disodium EDTA, colour	Carbonated water, sugar, colour (E150d), acid (E338), natural flavourings (caffeine)





PRODUCT EXAMPLES: Alcohol free CSD



Virgin Mojito Non-Alcoholic Carbonated Soft Drink	Root Beer
Nigeria	Canada
Nigerian Bottling Company	Canada Dry Mott's
Schweppes	Original Stewart's Fountain Classics
Carbonated water, sugar, acidulant (citric acid, trisodium citrate), mint flavour, lemon flavour, stabilisers (E414, E444, E1450), preservative (potassium sorbate), antioxidant (ascorbic acid), non-nutritive sweeteners (acesulfame-K, sucralose), colourant (beta-carotene)	Carbonated water, cane sugar, colour, sodium benzoate, natural flavour, artificial flavour, citric acid, quillaia extract, acacia gum, saponin





PRODUCT EXAMPLES: Fermented CSD



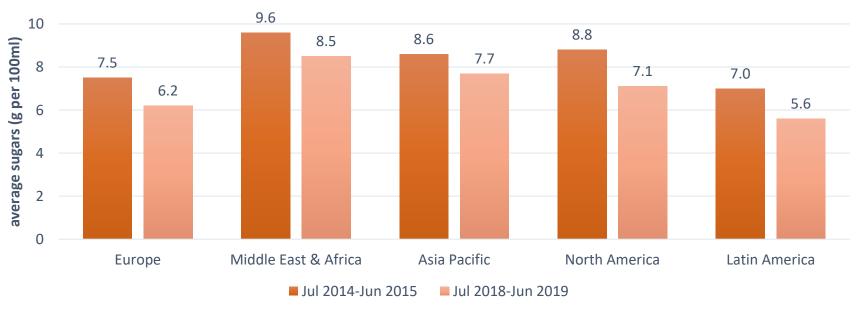
Original Sparkling Fermented Lemonade	Millet Fermented Drink
Portugal	China
Asteriscos e Reticências, Portugal	De Mo Li Mineral Water, China
MyGutness	De Mo Li
Purified water, organic cane sugar, organic apple juice, organic white grape juice, natural bergamot flavouring, water kefir cultures*, Bacillus coagulans MTCC 5856 *100 million living cultures at the time of bottling	Natural low-alkaline mineral water, millet fermented liquid, white granulated sugar, lactobacillus, yeast, food additives (titanium dioxide, citric acid, aspartame (phenylalanine), flavouring, potassium sorbate)





High consumer expectation: Sugar reduction

Global: average sugar content (g per 100ml) in CSDs, Jul 2014-Jun 2015 vs Jul 2018-Jun 2019



Major claims related to sugar reduction

Low/no/reduced calorie

Sugar free

No added sugar

Diet/light

Low/reduced sugar



PRODUCT EXAMPLES: Sugar free CSD



Ginger Flavoured Aperitif	Bergamot-Hibiscus Flavoured Sugar Free Lemonade
Italy	Greece
<u>Sanpellegrino</u>	Coca-Cola 3E, Greece
Sanbitter	Schweppes
Water, sugar, carbon dioxide, flavourings, ginger extract (0.35%), acidifier (citric acid), sweeteners (sodium cyclamate, acesulfame K, aspartame), stabilizers (E414, E445), colouring (E110)	Water, lemon juice from concentrate (3%), carbon dioxide, acidifiers (citric acid, malic acid), sweeteners (sodium cyclamate, acesulfame K, neohesperidin DC, sucralose, steviol glycosides), acidity regulator (sodium citrate), natural flavourings, preservative (potassium sorbate), stabilizers (acacia gum, E445), antioxidant (ascorbic acid), colouring (carotenes)





PRODUCT EXAMPLES: Healthy CSD

Doctor with Probiotics Zero Calorie Soda	Sparkling Citrus Health Drink
USA	Nigeria
LIVE Soda, USA	Lotte Chilsung Beverage, South Korea
Live Soda	Alibi
Carbonated water, erythritol, natural flavors, monk fruit extract, citric acid, tartaric acid, live probiotic (Bacillus subtilis)	Sparkling water, fruit juices from concentrates (39%), concentrated lemon juice (6%), botanicals (dandelion leaf, artichoke, grape seed, schizandra, sarsaparilla, elderberry), natural flavouring, vitamin blends (vitamin D, vitamin E, vitamin K, vitamin C, thiamin (vitamin B1), niacin (vitamin B3), vitamin B6, folic acid (B9), vitamin B12, biotin (B7), pantothenic acid (B5)), concentrated lemon extract, acidity regulator (citric acid), stabilisers (pectins, locust bean gum), vegetable extract (safflower extract), sweetener (steviol glycosides)

"Support normal functioning of the immune system"



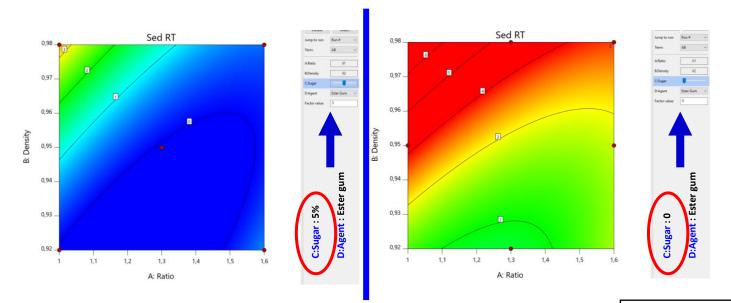


SUGAR REDUCED OR SUGAR FREE DRINKS PUT INTO QUESTION STABILITY

- → Rings at the surface of the beverage = coalescence
 - → oil droplets merge together => larger droplets moving at the surface creating a white and sticky creamy ring
- → Sedimentation = precipitation in the soft drink
 - the weighting agent separates from the oil
- → A&R R&D lab has more than 20 years of experience in emulsions
 - Technical assistance to support customers for formulation
 - → Evidence and explain instability



SEDIMENTS IN SUGAR REDUCED OR SUGAR FREE DRINKS

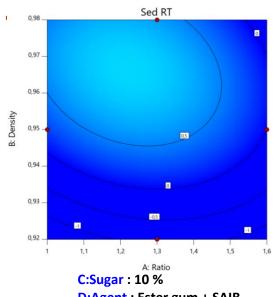


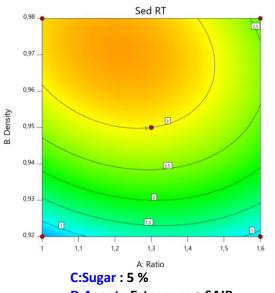
→ Formulated with Ester gum, the reduction of sucrose generates risks of sediments

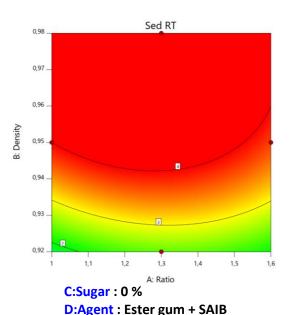




SEDIMENTS IN SUGAR REDUCED OR SUGAR FREE DRINKS

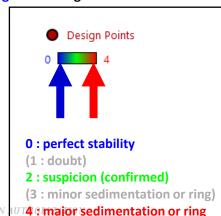






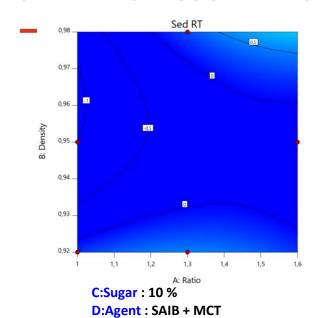
D:Agent: Ester gum + SAIB

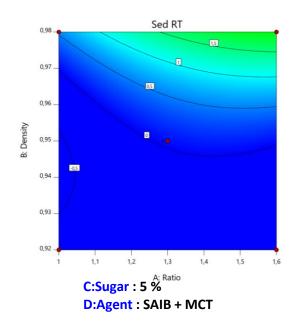
- D:Agent: Ester gum + SAIB
- → Sugar free formulation: the addition of SAIB increases sediments unless density is low
- Ratio of acacia gum is not involved in the phenomenon

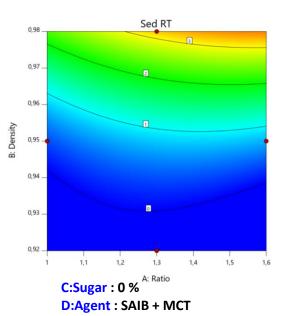




SEDIMENTS IN SUGAR REDUCED OR SUGAR FREE DRINKS

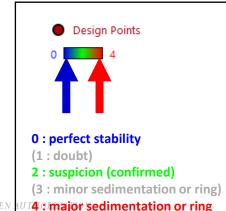






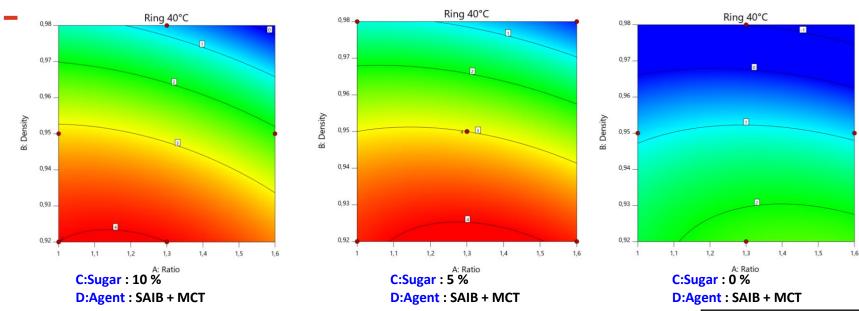
→ Sugar free formulation: the addition of MCT to the oil phase decreases sediments occurrence

→ Adjustment of density (between 0.92 to 0.95) is required

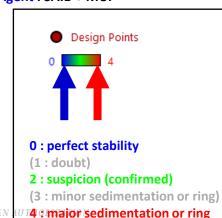




RINGS IN SUGAR REDUCED OR SUGAR FREE DRINKS



- → No ring problems with ester gum
- → Sugar free beverage : a high density adjustment decreases ring risk
- → Gum to oil ratio does not impact the result





ENCAPSULATION OF FLAVORS and POWDERED BEVERAGES

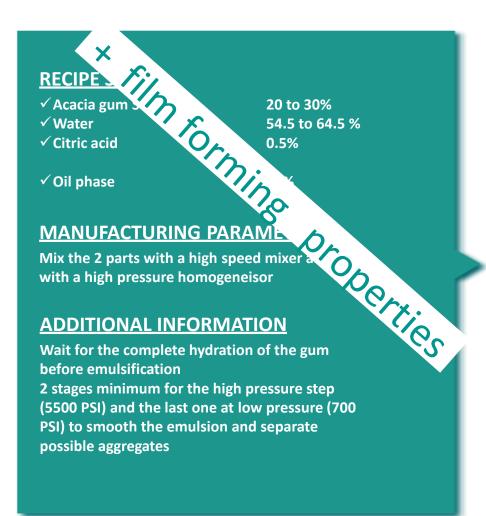
INSTANT POWDERS



- Assures the better encapsulation of oil droplets (essential oils, oleoresins, vitamins, flavors, colorings ...)
- Improves stability:

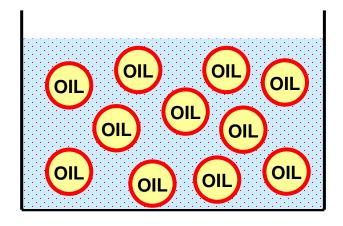
 protects final powder from
 moisture and essential oils against
 release, loss of volatile compounds

 and oxidation
- Most effective neutral binder





TENSIO ACTIVE PROPERTIES





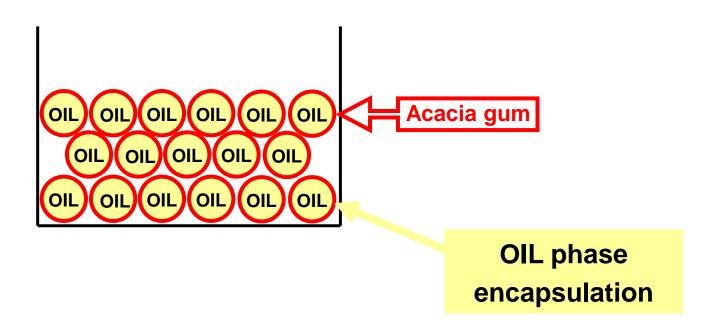
DISPERSED PHASE:

OIL

without weighting agent



TENSIO ACTIVE PROPERTIES





PRODUCT EXAMPLES: Powdered beverages



Orange Drink Mix	Banana and Açai Drink Powder
Saudi Arabia	Brazil
Kraft Foods, Morocco	Omega Market Research, Puerto Rico
Tang Singles	Drinkfinity
Sugar, acid (citric acid), colors (tartrazine, titanium dioxide, sunset yellow FCF), acidity regulator (trisodium citrate), natural orange flavourings, thickeners (gum arabic, xanthan gum, sodium carboxymethyl cellulose), vitamin C, salt, beta carotene, vitamin A acetate, folic acid (vitamin B9), vitamin B2	water, sugar, maltodextrin, ascorbic acid (vitamins C), zinc sulfate, acidifier (citric acid), flavoring, acidity regulator (sodium citrate), sweeteners (acesulfame K, sucralose), preservative (sodium benzoate, potassium sorbate), emulsifier (gum arabic), stabilizer (ester gum), artificial colourant (red 40, brilliant blue FCF)





PRODUCT EXAMPLES: Powdered beverages



Curcuma & Ginger Latté	Chia + Blackberry Hibiscus Green Tea Drink Mix
Belgium	USA
Purasana, Belgium	TRAC, USA
Purasana	Trachealth
Curcuma*, gluten-free mix (gluten-free corn*, gluten-free rice*, gluten-free millet*), acacia gum*, fibre gum*, ginger*, cinnamon*, black pepper* *organic farming	Thiamin (vitamin B1), folate (vitamin B2), calcium, iron, phosphorus, magnesium, zinc, manganese, sodium, potassium, proprietary blend (omega-3 fatty acids, green tea leaf extract (polyphenols (90%), EGCG (Epigallocatechin gallate (50%))), cranberry (Vaccinium macrocarpon) solids, pomegranate (Punica granatum L.) extract, hibiscus flower (Hibiscus sabdariffa) extract) other ingredients: chia (Salvia hispanica L) whole seed, organic dried cane syrup, gum arabic, malic acid, xanthan gum, blueberry powder, natural flavor, Stevia rebaudiana leaf extract, beet juice concentrate (color), fruit juice (color)





SUCCESS STORIES

Corpora Tresmontes - Zuko



Maltodextrin, Polydextrose, Aspartame, Malic Acid, Gum Arabic, Sodium Carboxymethyl Cellulose, Nature Identical Melon Flavour, Tricalcium Phosphate, Acesulfame Potassium, Titanium Dioxide, Vitamin C, Tartrazine, Caramel IV, Sunset Yellow FCF, Brilliant Blue FCF*phenylketonurics (L-phenylalanine)

Empesas Carozzi - Vivo



Maltodextrin, Citric Acid, Gum Arabic, Potassium Citrate, Tricalcium Phosphate, Salt, Nature Identical Peach Flavour Peach Flavour, Aspartame, Trisodium Citrate, Caramel Colour, Acesulfame Potassium, Sucralose, Titanium Dioxide

Corpora Tresmontes – Livean Elementos



Citric Acid, Maltodextrin, Glucose, Gum Arabic, Nature Identical Strawberry Flavour, Nature Identical Orange Flavour, Potassium Citrate, Aspartame, Tricalcium Phosphate, Acesulfame Potassium, Sucralose, Caramel Colour, Titanium Dioxide, Allura Red AC, Sunset Yellow FCF, Tartrazine



3

Flavored Waters & Teas, Smoothies & Juices, Healthy Drinks & Shakes

Flavored Waters & Teas



HIGH HYDRATION WITH LOWER CALORIE IMPACT

- Lower sugar content, Sugar free
- Attractive flavors and formulation > more pleasant than regular water

SIMILAR ACACIA GUM USES

- Emulsifying properties
- Beverage stability
- Improves mouthfeel

Flavored Waters & Teas





	Aqua White Flavoured Water	Apple Flavoured Natural Mineral Water
	South Korea	Spain
	Binggrae, South Korea	Font Vella, Spain
	Binggrae Day Water	Font Vella Levité
n ci	purified water, allulose, oligosaccharide, white grapefruit extract, mixed vegetable extract (lettuce extract, cabbage extract, pak choi extract, escarole extract, new green extract, crown daisy extract, green nustard extract, red chard extract, red beet concentrate, cauliflower concentrate, purple sweet potato concentrate), glucose, itric acid, sodium citrate, refined salt, malic acid, vitamin C, potassium chloride, sucralose (sweetener), calcium lactate, nagnesium chloride, acesulfame potassium (sweetener), mixed formulation (glycerin, arabic gum, D-sorbitol, sucrose esters of fatty acids, refined processed fat, natural avour), mixed formulation (natural flavour, artificial flavour, triacetin), natural grapefruit flavour	natural mineral water, apple juice concentrate (10%), sugar, acidity regulator (citric acid), stabilisers (arabic gum, E445, E444), sweeteners (steviol glycosides), malt extract, natural apple flavouring, other natural flavourings



Flavored Waters & Teas





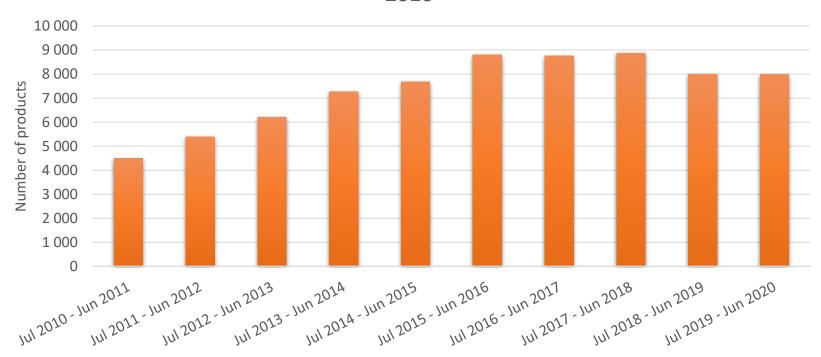
Lime and Mint Still Drink	The Rose Water
Poland	China
Zywiec Zdrój, Poland	Le Yuan Biological Engineering, China
Zywiec Zdrój Soczysty	Hua Yu Man Tian
natural mineral water (91%), sugar, lime juice from concentrate (3.4%), apple juic from concentrate (1.7%), acidity regulate (citric acid), antioxidant (ascorbic acid), stabilisers (pectin, arabic gum), coconut o natural lime flavour, natural flavour, natural mint flavour (other natural flavours), colo (chlorophyll and chlorophyllin copper complexes)	rugosa plena), white granulated sugar, fructose, food additives (gum arabic, citric acid, sodium citrate, sodium hexametaphosphate), food flavouring, concentrated black carrot juice, salt





WORLDWIDE JUICE DRINKS MARKET

Worldwide Juice Drinks Market: new products launched since July 2010







Tropical Passion Fruit 100% Juice	Pear, Pineapple and Apple Juice
USA	Spain
Welch Foods	Eckes-Granini Ibérica
Welch's	Granini Fruta & Fibra
White grape, pineapple, apple and passion fruit juices from concentrate (filtered water, white grape, pineapple, apple and passion fruit juice concentrates), natural flavor, citric acid (for tartness), gellan gum, pectin, gum acacia, ascorbic acid (vitamin C), beta carotene (color)	Multifruit juices from concentrate (pear juice from concentrate (48%), pineapple juice from concentrate (30%), apple juice from concentrate (5%), acerola juice from concentrate (1.6%), lemon juice from concentrate), pear puree (15%), acacia fibres, natural vitamin E (from sunflowers)







Pineapple Coconut Juice	Orange Juice
USA	Argentina
L & A Juice	Bodegas Cuvillier
L & A	Del Valle
Filtered water, pineapple juice concentrate, coconut juice, acacia gum, xanthan gum, citric acid	Water, concentrated orange juice, or (sugar, HFCS), concentrated apple, acidifier (citric acid), sodium benzoate E211 (preservative), thickener (arabic gum), antioxidant (sodium erythorbate, acid ascorbic (vitamin C)), orange essence, zinc sulfate, vitamin E acetate, vitamin A palmitate 1.7 millet







Fruit Plus Veggies & Fibre Strawberry Banana Juice	Fruit & Vegetable Juice with Apple, Carrot, Fennel, Guava, Pineapple, Lemon, Lettuce, Passionfruit, Kiwi & Squash
Canada	Norway
Sun-Rype Products	Tine
SunRype Fruit Plus Veggies & Fibre	Sunniva Supri
Fruit juices from concentrate (filtered water, concentrated apple juice, concentrated pear juice, concentrated orange juice), vegetable juices from concentrate (filtered water, concentrated carrot juice, concentrated celeriac juice, concentrated lettuce juice, concentrated beet juice, concentrated parsley juice, concentrated watercress juice, concentrated spinach juice), gum acacia (natural fibre source), strawberry puree from concentrate (filtered water, concentrated strawberry puree), citric acid (for tartness), banana puree, natural flavour, vitamin C	Apple juice (48%), carrot juice* (21%), fennel puree (11%), pineapple juice* (3%), white guava puree (2.5%), white guava puree* (2.5%), lemon juice* (2.5%), lettuce juice (2%), passionfruit juice* (2%), kiwi puree (2%), squash (2%), lime juice (1%), fibre from acacia extract, thistle*, spirulina* *from concentrate







Tomato, Carrot, Peach, Lemon, Espelette Pepper and Acacia Fibres Juice	100% Apple Juice
France	Brazil
AlterFood	Leão Alimentos e Bebidas
Hugo Le Maraîcher	Del Valle
Tomato juice (60%), carrot juice (29.5%), peach puree (6%), lemon juice (3%), acacia fibres, sea salt, Espelette pepper (0.03%), pepper	Reconstituted apple juice, dietary fiber (acacia gum), flavoring







Reduced Sugar Green Smoothie	Emma & Tom's Probiotic + Prebiotic Straight Orange Juice
USA	Australia
Sam's West, USA	Emma & Tom Foods
Member's Mark	Emma & Tom's
Apple juice, coconut water, mango puree, pineapple juice, banana puree, kiwi puree, acacia gum, spirulina powder, lemon juice, natural flavors, alfalfa powder, broccoli powder, spinach powder, barley grass powder, parsley powder, ginger root powder, kale powder	Australian Valencia orange juice (98%), prebiotics (1.6%) (acacia fibre, fructooligosaccharide, galactooligosaccharide), probiotic (Lactobacillus casei)





HEALTHY DRINKS

- Healthier image than carbonated soft drinks
- Natural and nutritious > fruits and/or vegetables
- Deliver functional health benefits

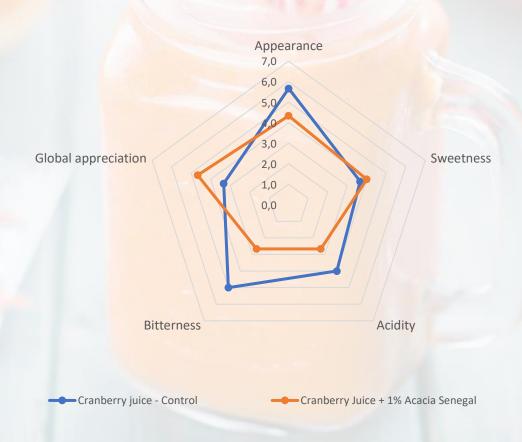
ACACIA GUM USES

- Favor the stabilization of solid compounds in aqueous systems
 Formulation of juices containing pulps
- Improve mouthfeel and bring texture
- Mask unpleasant notes like bitterness and acidity





STUDY ON ACACIA GUM IMPACT IN CRANBERRY JUICE





HEALTHY DRINKS

- Healthier image than carbonated soft drinks
- Natural and nutritious > fruits and/or vegetables
- Deliver functional health benefits

ACACIA GUM USES

- Favor the stabilization of solid compounds in aqueous systems
 Formulation of juices containing pulps
- Improve mouthfeel and bring texture
- Mask unpleasant notes like bitterness and acidity
- Fiber enrichment





FIBER ENRICHMENT

ACACIA GUM
IS A SOLUBLE FIBER.



Alland & Robert guarantees

a minimum fiber content of 90%

(measures according to the international method AOAC 985-29) for its products
Acacia Fiber 381 and Acacia Fiber 396.

Fiber enrichment with acacia gum can allow nutritional allegations according to the dosage (« source of » / « enriched in fibers ») and the regulation of every country.

AS A FIBER, ACACIA GUM OFFERS SEVERAL ADVANTAGES

RESISTANCE TO ACIDITY AND HEAT LOW CALORIFIC VALUE VERY LOW GLYCEMIC INDEX

NO SIDE EFFECT, DISCOMFORT OR STOMACH ISSUES

PH COMPATIBLE
WITH MILK
PROTEINS

SCIENTIFICALLY RECOGNIZED PREBIOTIC EFFECTS

NEUTRAL TASTE WITH VERY LOW VISCOSITY

POSITIVE EFFECT ON RHEOLOGY NON CARIOGENIC FFFFCT



SUCCESS STORIES WITH A&R GUMS

Australia: Trublu - SuPa



Apple +: Reconstituted apple juice (99%), dietary fibre (acacia), food acid (citric), natural flavour, camu camu extract, vitamin C

Philippines: Del Monte 100% Pineapple juice



Pineapple juice, acacia gum (fiber source), ascorbic acid (vitamin C)

Sweden: Kiviks - Fiber



Water, carrot juice 13%, mango puree 10%, Swedish apple puree 7%, apple extract, lime juice 2%, fiber from acacia and chicory root, chili extract, mango aroma. Juices from concentrate.

Sweden: Kiviks - Fiber shot



Beetroot juice 58%, water, passion fruit juice 8.5%, lime juice 5%, fiber from acacia and chicory root, turmeric juice 1.5%, preservative (potassium sorbate). Juice partly from concentrate.



NUTRITION & SPORT

- Formulated in order to bring:
 - Energy: carbohydrates, caffeine ...
 - Vitamins and anti-oxidants → AG to encapsulate
 - Proteins → AG to create texture
- And restore:
 - Electrolytes (sodium, potassium, magnesium salts...)
 - Mineral balance (iron, calcium...)



→ AG to stabilize





Turmeric Infused Water with Berries	Red Grapefruit Energy Drink
USA	Russia
Tu Me Beverage Company, USA	PepsiCo Holdings
Natural Tu Me Sport	Nature Rush
Filtered water, turmeric extract, cane sugar, fruit juice for color, vegetable juice for color, natural flavors, malic acid, potassium citrate (electrolyte), sodium chloride (electrolyte), gum acacia, guar gum, xanthan gum, ascorbic acid (vitamin C), stevia extract	Water, sugar, red grapefruit juice concentrate, acidity regulators (citric acid, trisodium citrate), mineral salts (magnesium sulfate, zinc sulfate), natural flavours, stabilizers (pectins, gum arabic), natural caffeine, antioxidant (ascorbic acid), niacin, pantothenic acid, vitamins (vitamin B6, vitamin B12), ginseng root extract, colours (lycopene, carotene)



Mango Clementine Electrolyte Infusions



PRODUCT EXAMPLES:



Beverage	Strawberry coconac Electronyte Illiasions
Australia	Russia
Brands 4 Life, Australia	Roar Beverages, Canada
Roar Organic	Roar Organic
Filtered water, organic coconut water from concentrate (5%), organic erythritol, organic cane sugar, fruit and vegetable juice for colour, organic flavour, citric acid, sea salt, organic gum acacia, L-malic acid, ascorbic acid (vitamin C), organic rebaudioside A (stevia), niacinamide (vitamin B3), calcium D pantothenate (vitamin B5), pyridoxine hydrochloride (vitamin B6)	Water, organic coconut water from concentrate, organic natural flavour, organic lemon juice from concentrate, organic erythritol, sea salt, organic cane sugar, L-malic acid, citric acid, organic rebaudioside A (stevia), organic gum acacia, niacinamide (vitamin B3), calcium D pantothenic acid (vitamin B5), pyridoxine hydrochloride (vitamin B6)

Strawberry Coconut Elecotrolyte Infusions







Multi-Vitamin Guarana Flavoured Drink	Sparkling Glucose & Orange Drink
China	South Africa
Mingren Natural Medicine	Suntory Beverage & Food
Mingren / Ming Ren Dong Li X6	Lucozade Energy
Purified water, fructose syrup, white granulated sugar, concentrated apple juice, green tea extract, ginseng extract, food additives (citric acid, tartaric acid, sodium citrate, potassium acesulfame (acesulfame-K), sucralose, taurine, inositol, niacin, vitamin B6, gum arabic, potassium sorbate, tartrazine, allura red), flavouring (guarana extract)	Carbonated water, glucose syrup (7.93%), sugar, reconstituted orange juice concentrate (7%), citric acid, stabiliser (acacia gum), antioxidant (ascorbic acid), preservatives (potassium sorbate, sodium metabisulfite), caffeine (0.13%), flavouring, colourant (beta carotene)







Blue Thunder Sports Drink	Glow Strawberry Kiwi Flavoured Drink
Mexico	India
Gatorade	Beltek Canadian Water, India
Gatorade G Fierce	Wild Vitamin Drink
Water, high fructose corn syrup, sugar, citric acid, blueberry flavor, salt, sodium citrate, monopotassium phosphate, arabic gum, ester gum, brilliant blue FCF	Reverse osmosis water, granulated sugar, acidity regulator (330), natural flavours, vitamin C (300), minerals (327, 329, 340), vegetable juice (for colour), vitamin B3, stabiliser (414), vitamin B5, emulsifier (445(iii)), vitamin A, vitamin B6, vitamin B12, permitted natural colour, added natural flavouring substances







Ultra Paradise Energy Drink	Citrus Flavored Energy Drink
Japan	Brazil
Monster Energy	Cervejaria Petrópolis
Monster Energy	TNT
Korean ginseng roots, L-carnitine L-tartrate salts, sodium chloride, guarana seed extract, citric acid, carbonic acid, sodium citrate, preservative (sodium benzoate), L-arginine, flavouring, sweetener (acesulfame potassium, sucralose), caffeine, emulsifier, niacin, stabiliser (gum arabic), calcium pantothenate, inositol, vitamin B6, colouring (CI 15985, CI 42090), vitamin B12	Carbonated water, sugar, taurine (1076 mg/269 ml), caffeine (94 mg/269 ml), inositol (50 mg/269 ml), vitamins (vitamin B3, vitamin B5, vitamin B6, vitamin B12), acidulant (citric acid), acidity regulator (potassium citrate), preservative (sodium benzoate, potassium sorbate), stabilizer (acacia gum), guarana extract, nature identical flavor, artificial colorant (tartrazine)







Carbonated Mango Flavoured Energy Drink with Caffeine and Vitamins	Organic Matcha Energy Drink
Poland	Switzerland
MWS	Two spices
Tiger win	Zenbu
Water, sugar and/or glucose-fructose syrup, acidity regulators (citric acid, sodium citrate), carbon dioxide, caffeine (0.04%), inositol, colourant (carotenes), antioxidant (ascorbic acid), flavours, stabiliser (arabic gum), vitamins (niacin, pantothenic acid, vitamin B6, vitamin B12)	Water, sugar*, carbonic acid, acid (E300), matcha green tea powder* (0,1%), natural caffeine*, caramel sugar syrup*, stabiliser (E414), natural citrus flavouring, other natural flavourings *certified organic







Natural Energy Drink with Fruit Juices	Baobab Super Fruit Energy Drink
Italy	France
Maxi Di	Enrico Giotti, Italy
Stealth Bio	Black Mamba
Water, sugar*, acidifier (citric acid), fruit juice from concentrate* (10%) (blackcurrant juice from concentrate, apple juice from concentrate, elderberry juice from concentrate), carbon dioxide, acacia fiber*, green coffee extract*, acerola extract*, natural flavours *from organic farming	Water, sugar, glucose-fructose syrup, acidifier (citric acid), carbon dioxide, taurine (0.4%), acidity regulators (sodium citrate, magnesium carbonate), baobab fruit pulp (0.2%), caffeine (0.032%), acacia fibre, L-carnitine tartrate (0.025%), glucuronolactone, Damiana aphrodisiaca extract, flavours, vitamins (vitamin C, niacin, pantothenic acid, vitamin B2, vitamin B6, vitamin B12), colour (caramel (E150a))







Green Apple Flavoured Energy Instant Drink	Sport Dietary Supplement Powder
Spain	Belgium
Prozis, Portugal	Omega Pharma, Belgium
Prozis H2O	Davitamon Plus Sport
Maltodextrin, acids (citric acid, malic acid), flavouring, magnesium oxide, thickeners (guar gum, arabic gum), acidity regulators (tricalcium phosphate, trisodium citrate), spirulina concentrate, safflower concentrate, sweeteners (acesulfame K, sucralose, steviol glycosides), lascorbic acid, anhydrous caffeine, pyridoxine hydrochloride, cyanocobalamin	Bulking agent (maltodextrin), acidifier (citric acid), minerals (magnesium (magnesium citrate, magnesium oxide), zinc (zinc citrate), selenium (sodium selenite)), thickeners (xanthan gum, gum arabic), L-carnitine tartrate, guarana extract (Paullinia cupana, seeds), vitamins (vitamin C, vitamin E, vitamin B3, vitamin A, vitamin B5, vitamin B2, vitamin B6, vitamin B12, vitamin B1, vitamin D, folic acid, biotin), flavour (orange flavour), anti-caking (silicium dioxide), sweeteners (sucralose, acesulfame K), colouring (beta-carotene)



Healthy, Sports Drinks & Shakes



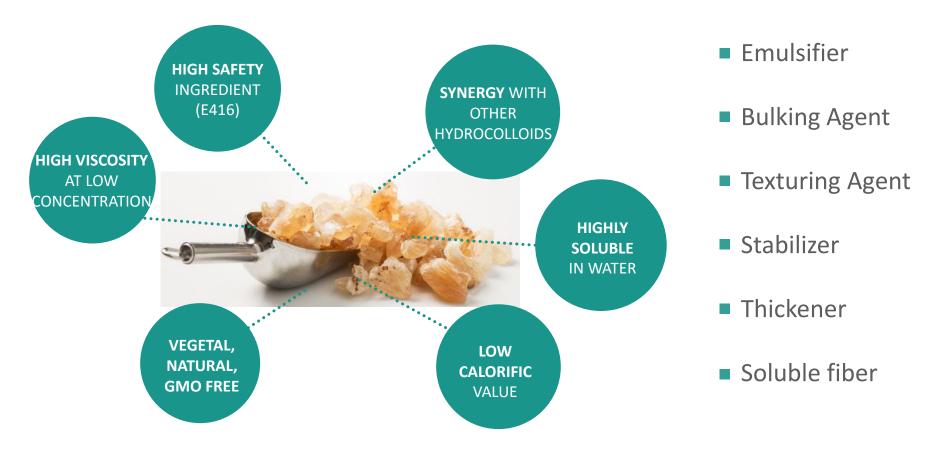


Orange Flavoured Iso Active-Sport Drink	Lemon Lime Natural Flavour Effervescent Tablets
Germany	Canada
Peeroton, Austria	Nuun & Co, USA
Peeroton	Nuun Hydration
Maltodextrin, dextrose, fructose, sweetener isomaltulose, magnesium potassium citrate, acidifier (citric acid), flavour, orange juice powder, calcium carbonate, acidifier (tartaric acid), potassium citrate, disodium phosphate, magnesium carbonate, inositol, sweetener (sodium cyclamate), sodium chloride, lascorbic acid, octacosanol 5% complex, medium chain triglycerides from coconut, iron gluconate, filling agent (gum arabic), thickener (xanthan gum), sweetener (sodium saccharin), zinc gluconate, sucrose, dl-alpha-tocopheryl acetate, niacinamide, thiamine hydrochloride, calcium-d-pantothenate, colour (beta-carotene), pyridoxine hydrochloride, riboflavin, corn starch, chromium (III) chloride hexahydrate, cholecalciferol	Medicinal ingredients: potassium (potassium bicarbonate), magnesium (magnesium oxide), calcium (calcium carbonate) Non-medicinal ingredients: dextrose, citric acid, lemon flavour*, lime flavour*, sodium bicarbonate, potassium chloride, sodium carbonate, stevia leaf extract, Persea americana (avocado) oil, Oryza sativa (rice) bran extract, Oryza sativa (rice) hull powder, gum arabic, sunflower oil, riboflavin *natural





ANOTHER NATURAL INGREDIENT OF INTEREST



Karaya Gum: another natural ingredient of interest ALLAND ROBERT



GFSA ONLINE CODEX ALIMENTARIUS

- Water-based flavoured drinks, including "sport," "energy," or "electrolyte" drinks and particulated drinks
- Aromatized alcoholic beverages (e.g. beer, wine and spirituous cooler-type beverages, low alcoholic refreshers)
- Distilled spirituous beverages containing more than 15% alcohol

No Acceptable Daily Intake specified (FAO / WHO JECFA, 1988)

Please check your own country legislation

Acacia + Karaya gum blend = 100% vegetal



SYNDEO LAUNCH

Suspending agent / beverages and alcohol drinks



To combine texture and stabilizing properties, water **retention**, **resistant** to heat, microwaves and thawing, stable on a wide range of pH.





Peach, Orange, Lemongrass, Chia Seed and Gum Karaya Tea	Gum Karaya and Chia Seed Drink
Vietnam	Vietnam
NutiFood	Vegan House
NutiGreen OYes	Ola
Water, sugar, fructose syrup, peach juice (4%), chia seed (0.25%), tea powder (0.15%), nature-identical flavour used for food, orange juice (500mg/l), acidity regulator (330), karaya gum (300mg/l), antioxidant (300), vitamins (vitamin B1, vitamin B3, vitamin B5, vitamin B6), sweetener (steviol glycoside from natural stevia), lemongrass powder (10mg/l)	Water, sugar, gum karaya (10%), chia seeds (1%)







Chia Seed, Aloe Vera and Gum Karaya Drink	Aloe Vera and Gum Koroyo Drink
Vietnam	Vietnam
Hoang Bang Ky	Thai Son Food, Vietnam
НВК	Thai Son
Water (50%), aloe vera (20%), gum karaya (20%), chia seed (4%), pineapple extract, sugar, preservative (E211), orange extract	Aloe vera, <mark>gum karaya</mark> , pandan leaves, sugar, additives







Basil Seed Drink with Apricot Flavored	Fruit Punch
Nigeria	Colombia
DSGT, United Arab Emirates	Welch Foods, USA
American Green	Welch's
Water, basil seed, sugar, gelling agent (E416), artificial apricot flavour, artificial colour (E110), natural identical flavour	Water (83%), high fructose corn syrup (14%), apple juice concentrate (1.7%), pineapple juice concentrate (0.2%), cherry juice concentrate (0.1%), acidity regulator (sodium citrate, citric acid), ascorbic acid (vitamin C), stabilizers (arabic gum, karaya gum), artificial coloring (allura red), natural flavors, artificial flavors





PRODUCT EXAMPLES:



Mango Soft Drink	
Israel	
Super Drinks	

Trip

Water, sugar, mango concentrate, acidity regulator (citric acid), modified corn starch (E1422), stabiliser (E416), flavour, food colouring (beta carotene (E160a), beta-apo carotenal (E160e), lutein (E161b)), preservatives (E211, sulphite (E223))



Wine & Oenology



A USEFUL ADDITION TO IMPROVE ORGANOLEPTIC PERCEPTIONS

■ Efficient at very low level (less than 100g / 100 L of wine)

Just before bottling

STABILIZATION

 Acacia senegal stabilizes both the coloring matters thanks to reactions with polyphenols

MOUTH FEEL

 Acacia seyal reduces aggressiveness and astringency of tanins (film forming properties / taste buds)



Wine & Oenology



A USEFUL ADDITION TO IMPROVE ORGANOLEPTIC PERCEPTIONS

- Acacia gum stable until 20% vol of alcohol
- used to PREVENT BAD ORGANOLEPTIC EVOLUTION OF WINES

LEGISLATION

- Fully authorized in all countries
- REMINDER: spirits and wines are the only ones not subjected to mandatory labelling

NOT CONFUSE

Acacia gum is not as a fining agent used for the clarification of wines: it does not replace usual fining agents (egg whites, casein, gelatine and collagen from fish or mineral materials) used to supress large suspended particles during the vinification process



FOCUS ON ACACIA SENEGAL QUALITY PROPERTIES / 2 WAYS OF ACTION

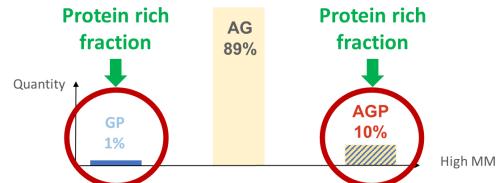
MINERAL STABILIZATION

 Acacia gum reacts with calcium preventing mineral sedimentation due to ferric iron



COLLOIDAL STABILIZATION

Acacia gum is used as a protective colloid of polyphenols: binding properties by both hydrogen bonding and hydrophobic interactions



Beer, Cider & Flavored Alcoholic Beverages





Original Lemon Flavoured Beer	Light Blond Beer
Czech Republic	Belarus
Heineken, Czech Republic	Lidskoye Pivo, Belarus
Zlatopramen Radler	Lidskaye
water, barley malt, fructose syrup, lemon juice from concentrate (2,3%), orange juice from concentrate, hops, acid regulator (citric acid), stabilizers (arabic gum, glycerol esters of wood rosins, carob bean), natural lemon aroma, natural aroma, extract from lemongrass, antioxidants (ascorbic acid, extract high in tocopherols, esters of fatty acids (ascorbic acid)), carbon dioxide	prepared water, light brewing barley malt, glucose syrup, sugar, brewing barley, complex food additive (thickeners (gum arabic, pectin), plant extracts, hops, orange extract, coriander extract, acidity regulator (citric acid)), yeast extract, CO2



Beer, Cider & Flavored Alcoholic Beverages ALLAND & ROBERT





Strawberry Premium Cider	Gin with Rhubarb & Ginger
Norway	UK
Brothers Drinks, UK	Sainsbury's, UK
Brothers	Sainsbury's
water, fermented pear juice, sugar, strawberry juice concentrate, lemon juice concentrate, carbon dioxide, citric acid (E330), flavours, colours (carmoisine (E122), quinoline yellow (E104)), clouding agent (E414), potassium sorbate (E202), potassium metabisulphite (E244)	carbonated water, Sainsbury's London dry gin (13.3%), sugar, citric acid, flavourings, acidity regulators (sodium citrate, sodium bicarbonate), preservative (potassium sorbate), concentrates (sweet potato concentrate, safflower concentrate, apple concentrate), stabilisers (acacia gum, glycerol esters of wood rosins)



Beer, Cider & Flavored Alcoholic Beverages





Strawberry Raspberry Flavored Cocktail	Mojito
Colombia	Israel
J.P. Chenet, France	M&R, Italy
J.P. Chenet Fashion	Bacardí Classic Cocktails
wine, water, sugar, carbon dioxide, natural flavourings, stabiliser (arabic gum), preservative (potassium sorbate), acidifier (citric acid)	water, Bacardí rum, sugar, lime juice, natural flavouring, acid (citric acid), acidity regulator (sodium citrate), preservatives (potassium sorbate, sodium benzoate), stabilisers (E414, E445, E444), colours (E102, E133)



Conclusion



AN INGREDIENT IN LINE WITH TODAY'S TRENDS



More fiber, less sugar



Ethic food



Clean & clear label



Vegetarian/ vegan diets



Healthy & organic food



ALLAND & ROBERT: A GLOBAL EXPERT OF NATURAL PLANT EXUDATES



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