May 23-24
2023

CLEAN LABEL CONFERENCE

NuTek Natural Ingredients Presents NuForm

NuForm®
NATURAL
TEXTURE

NuTek Natural Ingredients

What We Do

Created by nature, nurtured in science and brought to life by expertise in R&D, manufacturing and sourcing, we create cost effective, clean label ingredient solutions for our customers and partners.

Our Clean Label Platforms Today

BEYOND SALT™

Salt for Life — Nature's Alternative Salt

NuSavor® Natural Flavor

Flavor

NuXtend® Natural Preservative

Preservatives

NuForm® Natural Texture

Texture

Our Core Competencies

- R&D expertise and IP development
- Manufacturing and scaling new processes
- Sourcing and global supply chain

Why We Do It

Aligned with our core values of simplicity, transparency, and sustainability, our mission is to create solutions that support the nutritional demands of our growing global community.

Agenda

01

NuForm 100 Introduction

02

Functional properties

03

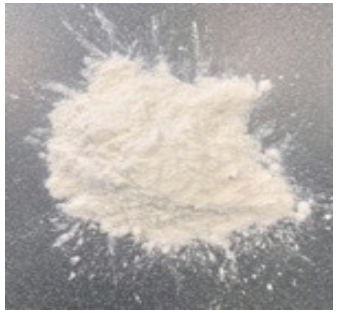
Application examples

NuForm 100 (Tamarind Seed Gum)

Fruit

Kernel

Kernel powder



Tamarind Seed gum

The tamarind tree (Tamarindus Indica) is popular in tropical regions of the world (i.e. Africa, India and its subcontinent, South America, parts of Australia and North America).

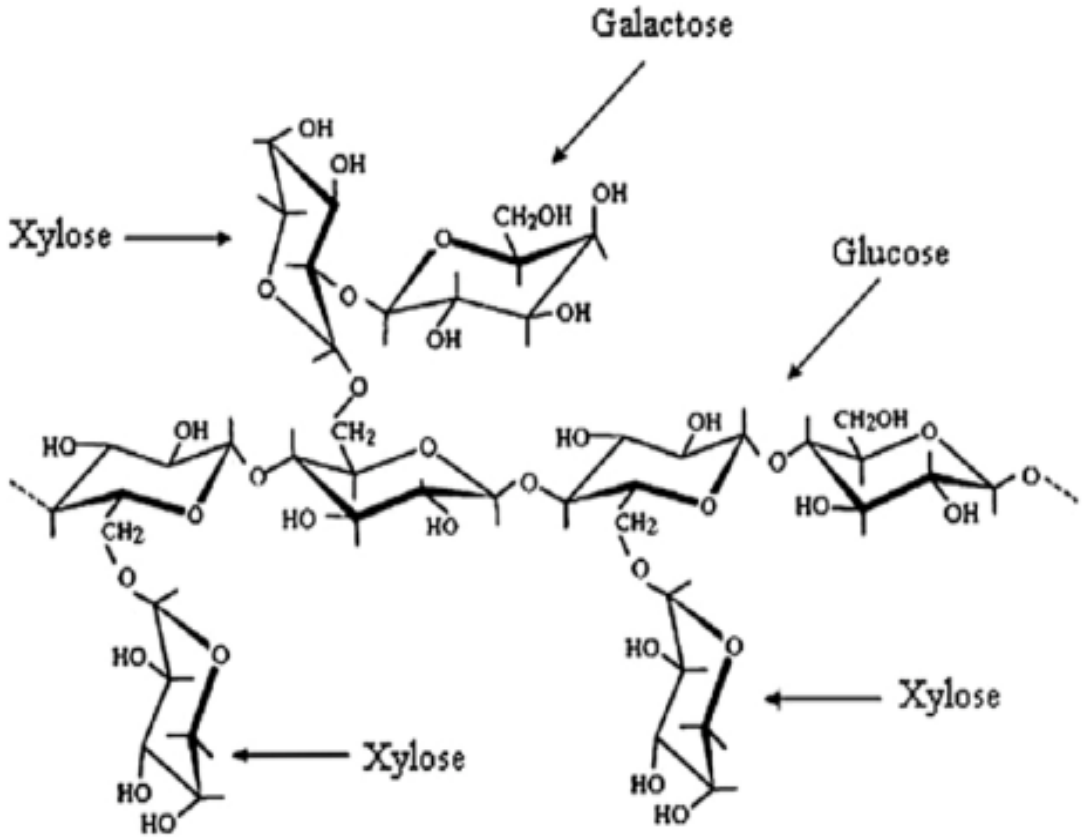
Tamarind fruits/pulps are used for fresh consumption and in cuisines.

	Kernel powder % (dry basis)	Gum % (dry basis)
Carbohydrate	73	81
Fat	6	0
Protein	17.5	4.6
Ash	3.5	10.5

Tamarind Seed Gum (NuForm 100)

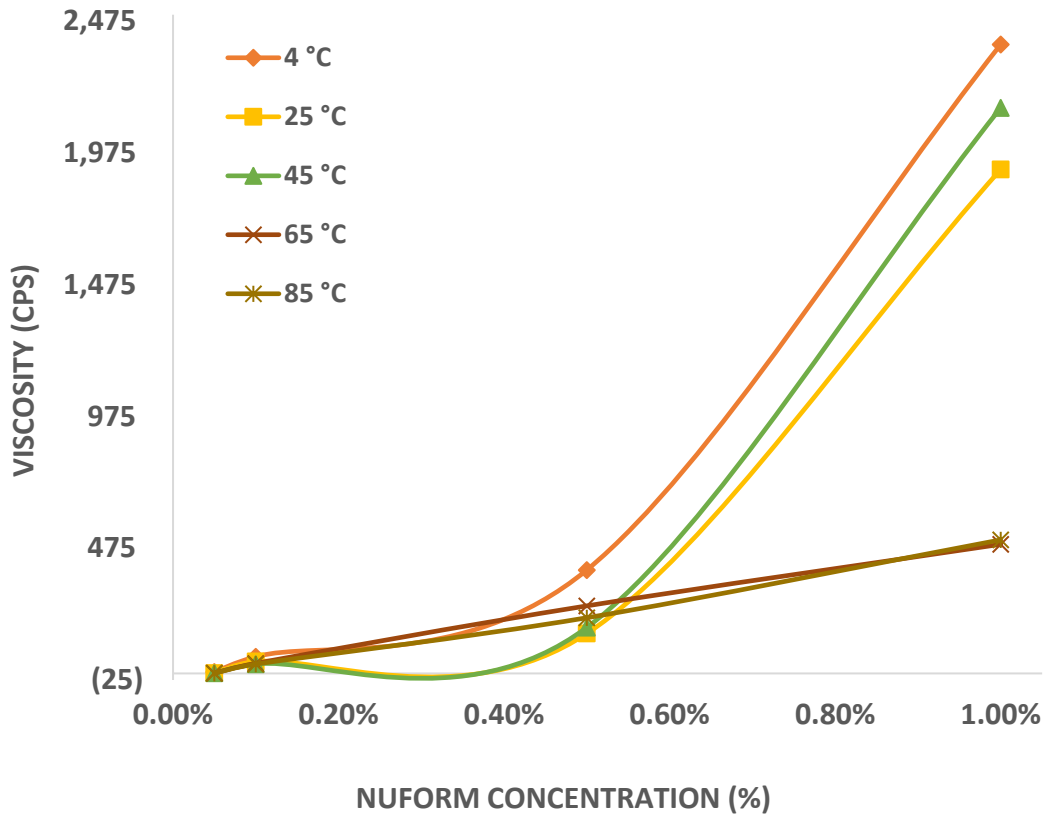
- Xyloglucans
  - Storage polysaccharide
  - High solubility and water holding capacity due to glucose, mannose, and galactose substitution.
  - Heat, acid, and shear stability.
  - Form thermo-reversible gel with other polysaccharides, sugar, alcohol, and small molecules.

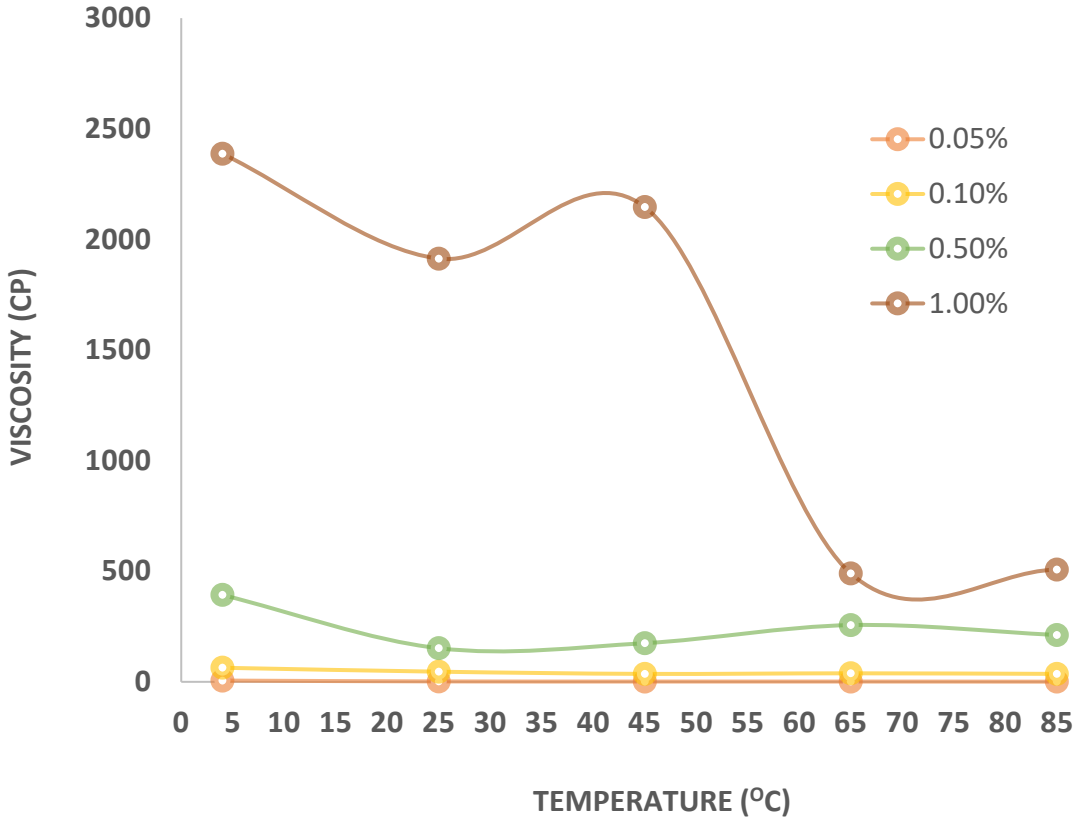
- Regulatory
  - CAS# 393878-2
  - Food Grade 9FDA GRAS – GRN#503 and 7CFR205.606 for organic products
  - JECFA has determined safe and ECHA has classified it as no hazard material
  - INCI: Tamarindus Indica Seed Gum



K. Khounvilay, W. Sittikijyothin / Food Hydrocolloids 26 (2012) 334–338

Solubility

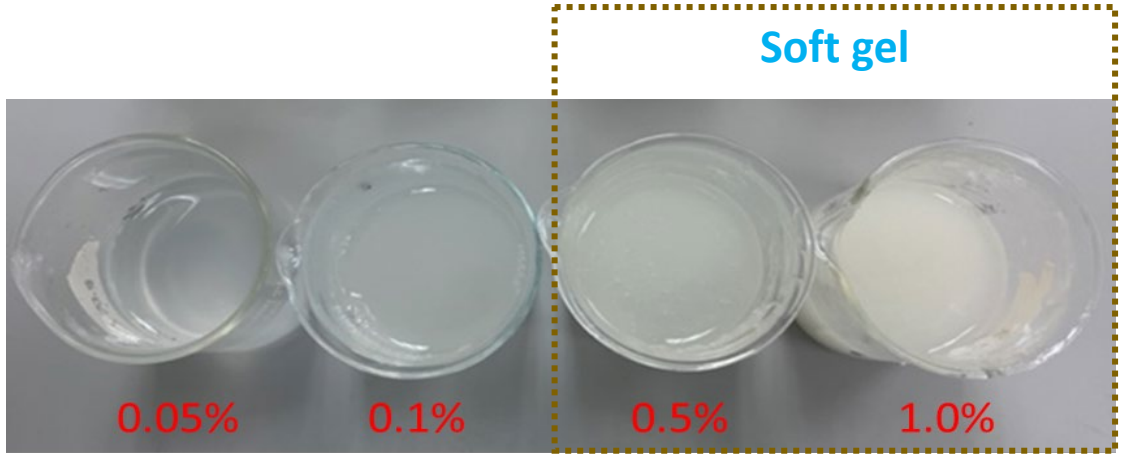




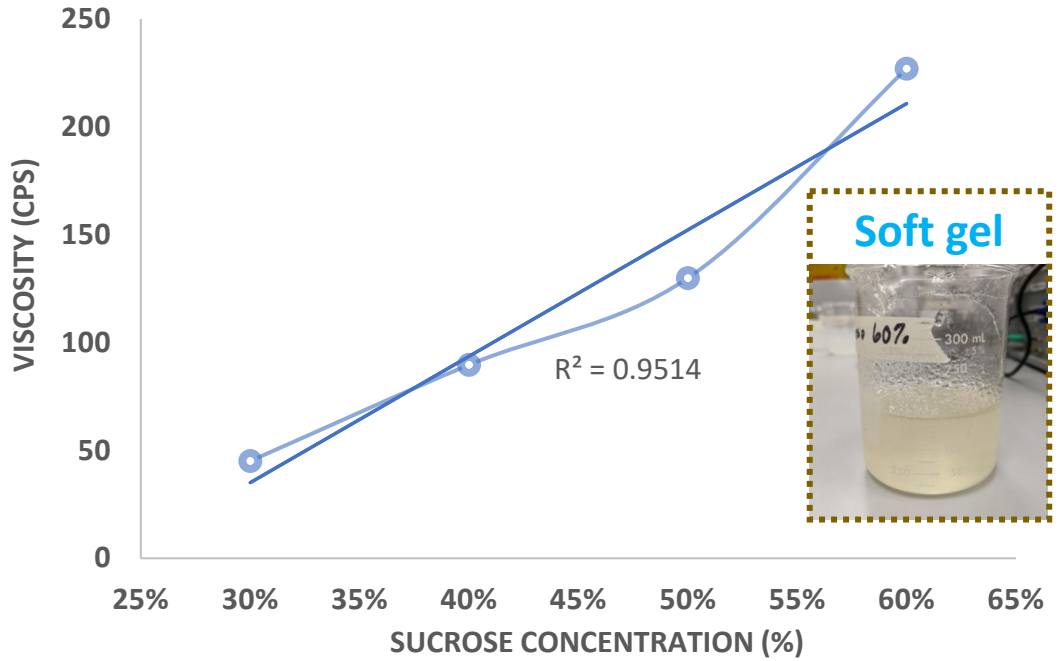
Brookfield DV2+; SC4-21 rotating spindle; 95 rpm

Water and Sucrose

Water

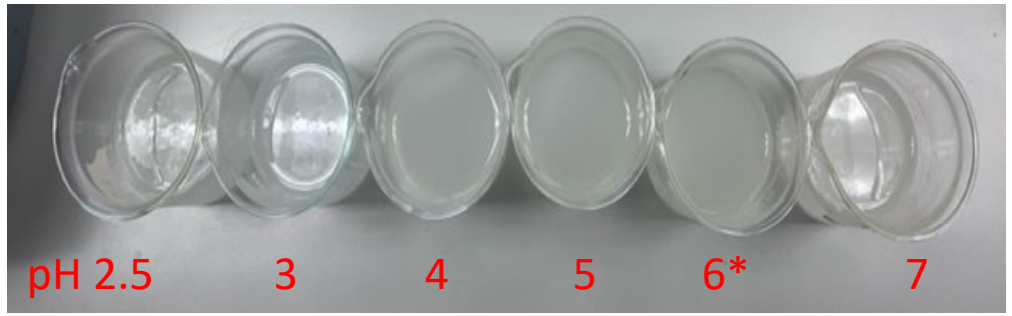


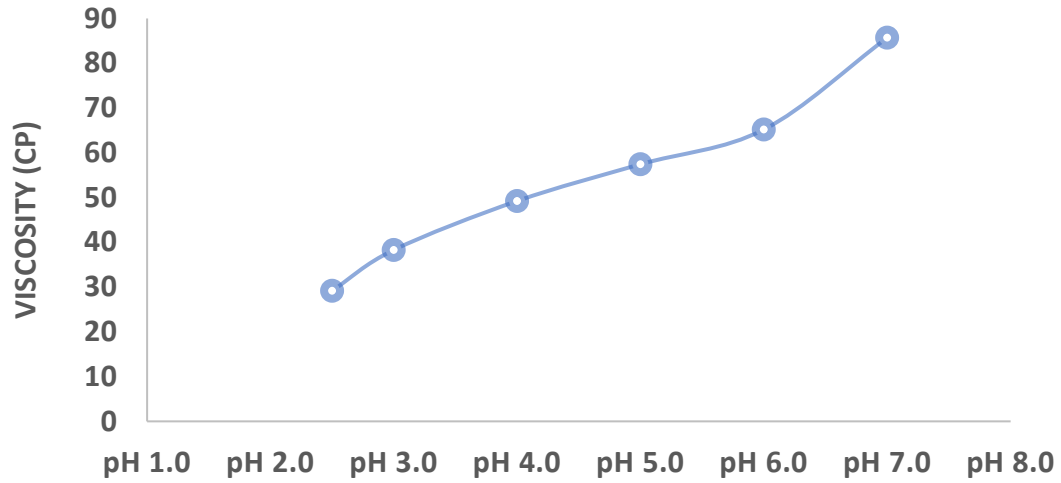
Sucrose (0.3% NuForm)



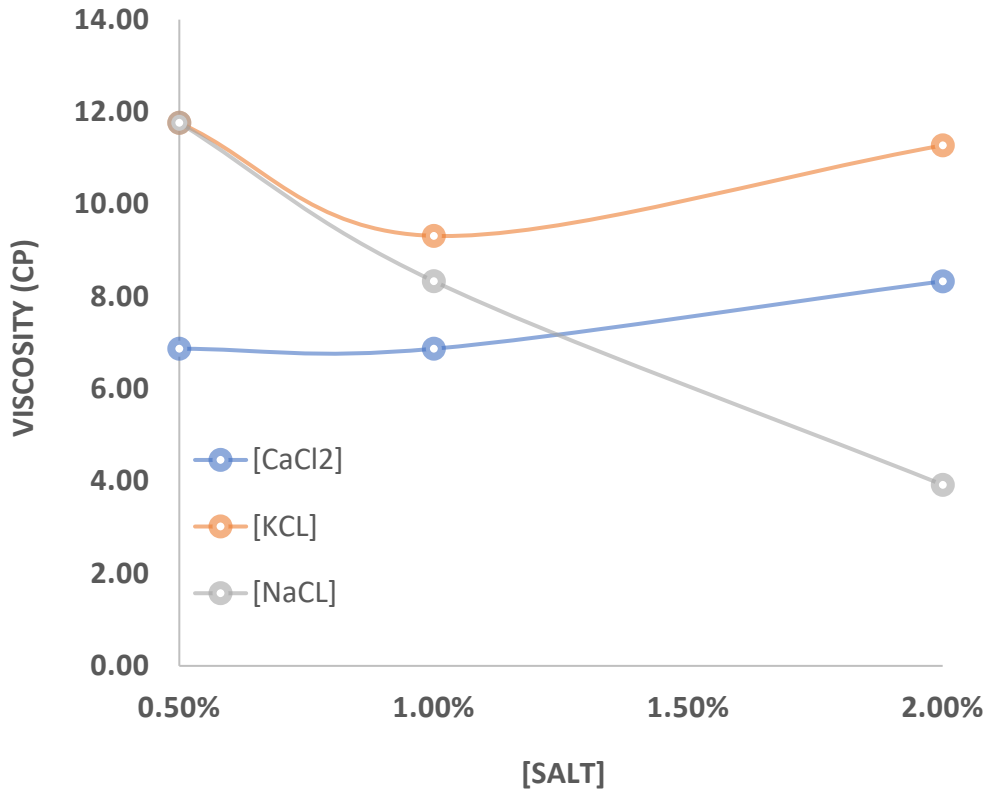
pH and Salt with 0.3% NuForm

pH





Salt (NaCl, KCl, CaCl2)



Other gums and proteins

	Interaction	Benefit
Locust bean gum (LBG)	Forms gel with up to 50% inclusion of LBG with NuForm in the blend	Replace LBG or reduce LBG use
Xanthan gum (XG)	1:1 and 1:3 blends has higher viscosity, like LBG	Replace XG or reduce XG use
Gellan gum (GG)	NuForm decreases shear thinning behavior	Small inclusion of NuForm will enhance GG performance
Pea protein isolate (PPI)	Stabilizes pea protein solution before and after heating	Stable suspension
Milk proteins (MP)	Forms complex with proteins	Stabilizes ice cream and sweetened condensed milk

Ice Cream

01 Simple ingredients – replace gum blends LBG+GG and CG+GG+ Carrageenan

02 Achieves 60% overrun and no issues in a freeze thaw cycle

03 Consumers noticed no difference over a 3 month at UNL dairy store

Other applications

01 Condensed milk and creamers

02 Sauces and dressings

03 Extruded (Breakfast Cereals) and gluten-free products (Tortilla)

04 Personal care cream

Usage guidance

Application	Benefits	% Suggested Use
Ice cream	Rich and not-stringy texture Excellent heat-shock protection Replace other gums (LBG, GG, CG..)	0.1 – 0.3%
Creamers	Good viscosity Excellent emulsion stability	0.08 - 0.2%
Fruit preps	Good binding No syneresis	0.1 – 0.2%
Sauces	Builds viscosity and maintains texture Synergistic with other gums	0.1 – 0.2%
Gum Replacement	1:1 replacement for xanthan or locust bean gum. Can also be used to lower total gum usage.	0.08 - 0.15%


Thank You!