2//13/17

Lisa Brines
National List Manager
USDA/AMS/NOP, Standards Division
1400 Independence Ave. SW
Room 2648-So., Ag Stop 0268
Washington, DC 20250

Dear Lisa,

Enclosed please find a revised petition requesting the inclusion of the non-organically produced agricultural substance Tamarind Seed Gum onto the National List 205.606.

We have addressed the suggestions you made in your letter of 2/9/17. These changes included clarifying that we are only applying to have 'Tamarind Seed Gum' added to the National List 205.606. The petition is not intended to include alternative terms such as 'Tamarind Gum' or any ancillary substances. We also removed the Confidential Business Information Sheet as suggested.

Please contact me if you have any questions or if I can provide additional information. We appreciate your consideration of our request.

Sincerely

Conor Buckley

Vice President

Socius Ingredients

1033 University Place,

Suite 110,

Evanston, IL 60201

NOP petition for Tamarind Seed Gum

Item A.1

Indicate which section or sections the petitioned substance will be included on and/or removed from the National List. The current National List may be viewed at www.ams.usda.gov/NOPNationalList.
• Synthetic substances allowed for use in organic crop production (§ 205.601).
• Nonsynthetic substances prohibited for use in organic crop production (§ 205.602).
• Synthetic substances allowed for use in organic livestock production (§ 205.603).
• Nonsynthetic substances prohibited for use in organic livestock production (§ 205.604).
• Nonagricultural (nonorganic) substances allowed in or on processed products labeled as "organic" or "made with organic (specified ingredients)" (§ 205.605).
• Nonorganic agricultural substances allowed in or on processed products labeled as "organic" (§ 205.606).

Tamarind Seed Gum is a Nonorganic agricultural substance allowed in or on processed products labeled as "organic," 205.606.

Item A.2- OFPA Category - Crop and Livestock Materials
For substances petitioned for use in crop or livestock production, eligible substances must contain an active synthetic ingredient in one of the following OFPA categories (7 U.S.C. § 6517(c)(1)(B)(i)):
• Copper and sulfur compounds;
• Toxins derived from bacteria;
• Pheromones;
• Soaps;
• Horticultural oils;
• Fish emulsions;
• Treated seed;
• Vitamins and minerals;
• Livestock parasiticides and medicines; and
• Production aids.
Petitioners should indicate which OFPA category applies to their petitioned material. The OFPA categories referenced above do not apply to materials petitioned for use in organic handling or processing.

Not applicable

Item A.3 — Inert Ingredients

If the substance is a synthetic inert ingredient intended for use in a pesticide product, please see NOP Notice 11-6 for more information.

Not applicable

Item B

1. **Substance name:**

   Socius Ingredients is petitioning to have Tamarind Seed Gum on the National List of Allowed Substances. The CAS. No. 39386-78-2. The substance is manufactured under the brand name GLYLOID® by DSP Gokyo Japan and sold in the USA by Socius Ingredients.

We note that customers have incorrectly labelled this product as 'Tamarind Gum'. We do not seek to have 'Tamarind Gum' included as an alternative term or name in section 205.606 of the National Organic Program's (NOP) National List of Allowed and Prohibited Substances (National List). We are contacting these customers to advise that they identify 'Tamarind Seed Gum' correctly on their labels.

2. **Petitioner Name:**

   Conor Buckley
   Vice President
   Socius Ingredients,
   1033 University Place, Suite 110,
   Evanston, IL 60201, USA.
   Telephone 847 448 4888
   Email: cbuckley@sociusingredients.com

   Manufacturer Name:

   DSP Gokyo Food & Chemical Co. Ltd,
   Herbis Osaka 20th Floor,
   2-5-25 Umeda, Kita-ku,
   Osaka 530-0001, Japan.
   Telephone 81-6-7177-6866

3. Intended or Current Use:

Tamarind Seed Gum is used as a thickener, stabilizer, or gelling agent for various foods as defined by 21 CFR 170.3 (0)(28). The following is a list of uses in the food industry including the function of the gum in products.

	Function	**Applications to foods**
Thickening and stabilizing function	Provides good viscosity Smooth Newtonian fluidity Free of pasty texture, low Stringiness Low Stickiness Acid, salt, and heat resistance properties Stability in a wide range of pH Good Adhesiveness	Sauces, mayonnaise-like dressings, dressings, batter mixes, beverages
Texture enhancing function	Adds an addition of richness	Sauces, dressings, beverages
Emulsion stabilizing function	Inhibit creaming and coalescence of particles Adds viscosity Decrease oil droplet size	Mayonnaise-like dressings, dressings, beverages
Water holding capacity	High water retentive because of high molecular weight Higher surface glossiness because of its water holding capacity	Sauces, desserts
Starch modification	Suppresses starch ageing. Confers heat resistance upon starch, for protection. Improves wheat flour product texture. Confers mechanical strength upon starch, for protection.	Custard creams, flour pastes, noodles
Gelling	Forms an elastic gel with sugar at 40% or higher sugar concentration Forms a gel with alcohol Forms a soft, easily melt-in-the-mouth gel with polyphenol	Jelly, pudding Wine jelly Green tea jelly

Ice crystal stabilization	Forms fine ice crystals form, thereby making the texture smooth The shape and retention property is improved in combination with locust bean gum	Ice stabilizers

4. **Intended Activities and Application Rate:**
   Provide a list of the crop, livestock, or **handling activities** for which the substance will be used. If used for crops or livestock, the substance's rate and method of application must be described.

Intended use and level of Tamarind Seed Gum in the US

Usage depends on its purpose and application to specific foods. Generally about 0.1% to 1% is added to products.

Category	**Examples**	**Use Level (%)**
Ice cream	Ice cream, sorbet, gelato, frozen yogurt	0.5
Sauces and condiments	Sauces such as barbecue, steak, demi-glace, chili, tabasco, curry, teriyaki, ketchup; gravy	1.0
Mayonnaise and dressings	Mayonnaise, reduced fat mayonnaise; Caesar, Dressing such as French, Italian, ranch, thousand island	1.0
Fruit preserves	Fruit spread, jam, jelly, apple sauce	1.0
Desserts	Pudding, mousse	0.2
Pickles	Pickled foods, kimchi, sauerkraut	1.0
Spreads and fillings	Custard cream, spreads	0.5
Flour products	Bread, pastry, cake, instant noodles, ramen, udon, dough, batter	0.5
Soups	Broth, consommé, creamy soups	0.2
Beverages	Fruit juice, reduced-fat milk, cocoa drink	0.4
All other food categories		0.5

5. **Manufacturing Process:**
   Provide the source of the substance and a detailed description of its manufacturing or processing procedures from the basic component(s) to the final product.

Phase 1: Extraction of Tamarind Kernel Powder

Tamarind seed gum is obtained from the endosperm of the seeds of the tamarind tree. The seed has about 70% kernel or endosperm and is enclosed by about 30% testa. Manufacture of the tamarind seed gum consists of separating the endosperm from the testa and then pulverization of the creamy white endosperm. The black tamarind seeds are sieved and roasted. After cooling, the roasted seeds are placed in a rotary mixer, which removes the black testa and leaves a light brown to white endosperm

This endosperm is visually sorted removing any off-color endosperm. The endosperm is then polished in a rotary mixer and cut. The cut endosperm then passes through a hammer mill and is sifted with a 200-mesh filter. This produces a tamarind kernel powder consisting primarily of polysaccharide with residual protein, lipid, and minerals. It contains no more than 10.0% moisture

Phase 2: Separating and Refining of Polysaccharide

This powdered tamarind kernel powder is stirred into a solution of food-grade methyl alcohol. After stirring, food-grade sodium hydroxide is added and the mixture is again stirred at a controlled temperature. The polysaccharide is separated from the protein, lipid, and minerals by centrifugation and food-grade citric acid is added as needed to adjust the pH to the desired level. The polysaccharide is dried, pulverized, and sieved through a screen.

6. **Ancillary Substances:**
   For substances petitioned for use in organic handling or processing, provide information about the ancillary substances (including, but not limited to, carriers, emulsifiers, or stabilizers) that may be included with the petitioned substance, including function, type of substance, and source, if known

Tamarind Seed Gum only needs uniform hydration in water to prevent lumps. The direct method involves dissolving the gum gradually in water using a high mixing rate. Ancillary substances such as alcohol, oil or sugar can aid in the dispersion, but water alone is sufficient once the powder is dispersed quickly and uniformly before hydration occurs and viscosity increases.

We do not seek to have any of these ancillary substances included in this petition. This petition is limited to Tamarind Seed Gum.

7. **Previous Reviews:**

Provide a summary of any available previous reviews of the petitioned substance by State or private certification programs or other organizations. If this information is not available, this should be stated in the petition.

This is the first petition of Tamarind Seed Gum by Socius Ingredients. To our knowledge there has never been a NOSB petition on tamarind seed gum

8. **Regulatory Authority:**

Provide information regarding EPA, FDA, and State regulatory authority registrations, including registration numbers. The information provided must confirm that the intended use of the substance is permitted under EPA or FDA regulations, as applicable.

For food ingredients and processing aids, the substance must be approved by FDA for the petitioned use. For pesticide active ingredients, the substance must have an EPA tolerance or tolerance exemption, as applicable. If this information does not exist or is not applicable, the petitioner should state this in the petition.

In 2013 Tamarind Seed Gum was evaluated as Generally Recognized as Safe (GRAS) based on scientific procedures. As the substance is GRAS, it is not subject to the premarket review and approval requirement by FDA (21 CFR 170.36). The link to the complete GRAS evaluation is below

Determination of the GRAS Status of the Addition of Tamarind Seed Polysaccharide to Conventional Foods as a Stabilizer and Thickener
http://www.fda.gov/downloads/Food/IngredientsPackagingLabeling/GRAS/NoticeInventory/UCM403104

9. **CAS Number & Product Labels:**

Provide the CAS number or other product numbers of the substance. If the substance does not have an assigned product number, the petitioner should state so in the petition. For food additives, the International Numbering System (INS) number should also be provided.

The CAS. No. 39386-78-2. CAS name: Tamarind Seed Gum
There isn't an International Numbering System (INS) for this substance in the EU

This item should also include labels of products that contain the petitioned substance. If a product label does not apply to this substance, please provide a brief explanation. Product specification sheets, product data sheets, non-retail labels, or other product information may be substituted for the product label, if appropriate.

Labels are attached in *appendix 1:*
Little Venice Restaurant Italian Dressing
Saratoga Poppyslaw Dressing/Dip/Spread

10. Physical & Chemical Properties:

Provide the substance's physical properties and chemical mode of action including the following:

(a) Chemical interactions with other substances, especially substances used in organic production;

(b) Toxicity and environmental persistence;

(c) Environmental impacts from its use and/or manufacture;

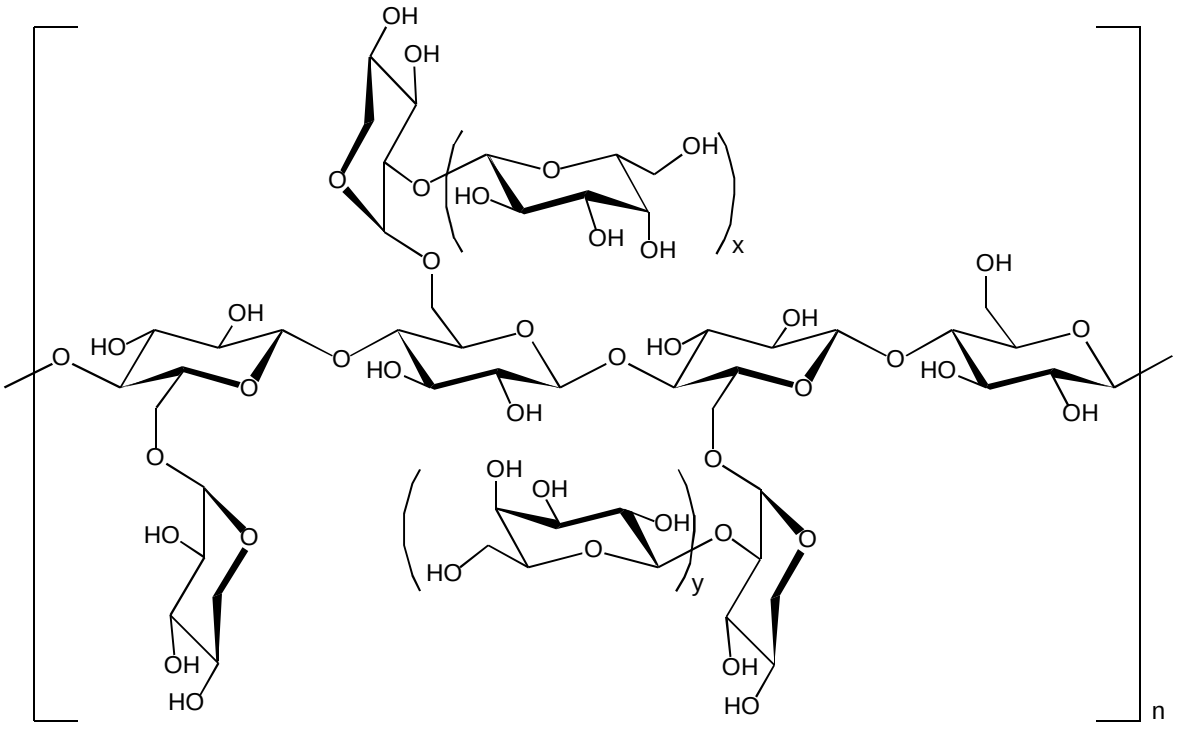
(d) Effects on human health; and

(e) Effects on soil organisms, crops, or livestock.

Structural Formula

Tamarind Seed Gum is a water-soluble, high molecular-weight polysaccharide categorized as xyloglucan, with glucose as the main chain and xylose and galactose as side chains.

Chemical structure of Tamarind Seed Gum



x = 0 or 1, y = 0 or 1

Tamarind Seed Gum Typical Product Attributes

Appearance	Powder
Color phase	White to grayish white
Loss on drying	≤ 7.0%
Viscosity	400-800 mPa·s
Jelly strength	≥ 2.0 N
Ash content	≤ 5%
Protein	≤ 3%
Fat	≤ 1%
Lead	≤ 2µg/g
Arsenic	≤ 1µg/g

Chemical interactions with other substances, especially substances used in organic production:

No toxicity, environmental persistence, or detrimental health effects on humans, soil organisms, crops, or livestock are expected as xyloglucan is ubiquitous in plant cell walls of all vegetation and is, therefore, a naturally occurring fiber which adds viscosity in the small intestine and is fermented by symbiotic bacteria in the colon part of human and livestock diets. Specifically in humans, it is known that xyloglucan is a fiber which adds viscosity in the small intestine and is fermented by symbiotic bacteria in the colon.

Toxicity and environmental persistence:

Several studies for toxicity were evaluated and the conclusions are outlined in section 5.2 Toxicity of the GRAS report page 20-28

Acute Oral Toxicity: Refer to GRAS report 5.2.1 (page 20-21) for studies completed on acute oral toxicity. No deaths occurred and no abnormalities were seen in either sex of either mice or rats.

Subacute Oral Toxicity: Refer to GRAS report 5.2.2 (page 21-23), no toxicologically significant effects.

Sub chronic Oral Toxicity: Refer to GRAS report 5.2.3 (page 23), no toxicologically significant effects.

Chronic Oral Toxicity: Refer to GRAS report 5.2.4 (page 23-25), no evidence of chronic oral toxicity at the highest level tested.

Carcinogenicity: Refer to GRAS report 5.2.5 (page 25-26), non-carcinogenic.

Mutagenicity: Refer to GRAS report 5.2.6 (page 26-27), non-mutagenic.

Environmental impacts from its use and/or manufacture:

The structure of tamarind seed gum xyloglucan is the same as that of cellulose and is easily degraded by cellulase enzymes. Soil bacterium existing in the natural environment have cellulase enzymes. As tamarind seed gum can be degraded by such bacterium it has low impact if it is discarded into the environment.

Effects on human health:

Tamarind seed gum is produced from the endosperm obtained by husking and pulverizing the seeds of the leguminous plant *Tamarindus indica L.* The Grassland Species Profiles published by the Food and Agriculture Organization (FAO) includes the profile of *Tamarindus indica L.*, and its Products & uses section says, "Seeds have various uses, including human food and livestock feed."

Tamarind seed gum has been available as a food additive for more than 50 years in Japan, with its use approved by the Ministry of Health and Welfare.

In South Korea, tamarind seed gum is marketed as one of the food additives included in the Korea Food Additive Code published by the Ministry of Food and Drug Safety.

In China, it is included in the National Food Safety Standard for Food Additive Use published by the National Health and Family Planning Committee of China, and used as a thickener for frozen drinks, cocoa products, chocolate and chocolate products, candies and jelly.

In Taiwan, it is not marketed as a food additive but as one of the raw materials for food included in the (tentative translation) List of Raw Materials for Food Products).

In the US, it is marketed, with Generally Recognized as Safe (GRAS) status. This was granted by the US Food and Drug Administration (FDA) in 2014.

Medical devices containing xyloglucan, extracted from the seeds of the tamarind tree (Tamarindus indica), have been developed and have recently received European approval (MED class IIa and III). The representative products Xilaplus® /Tasectan Plus® were administered orally at a dose of 1 to 2 capsules (100 mg of xyloglucan per capsule) every 6 to 8 hours. *(*Xyloglucan for the treatment of acute diarrhea Gnessi, 2015). A total of 150 patients were included the trial (n = 50 in each group), and given a 3-day treatment. A faster onset of action was observed in the xyloglucan group (administered two capsules including 100 mg of xyloglucan and 250 mg of gelatin every 6 hour) compared with the diosmectite and Saccharomyces groups. All treatments were well tolerated, without reported adverse events.

11. Safety Information Provide safety information about the substance including a Material Safety Data Sheet (MSDS) and a substance report from the National Institute of Environmental Health Studies. If this information does not exist or is not applicable, the petitioner should state so in the petition.

MSDS is attached in *appendix 2*

A National Institute of Environmental Health Study of tamarind seed gum does not exist.

12. Research Information

This item should include research information about the substance. The research should include comprehensive substance research reviews and research bibliographies, including reviews and bibliographies that present contrasting positions to those presented by the petitioner in supporting the substance's inclusion on or removal from the National List.

For petitions to include nonorganic agricultural substances on the National List for organic handling, this information should include research on why the substance should be permitted in the handling of an organic product, including the availability of organic alternatives.

If research information does not exist for the petitioned substance or for the contrasting position, the petitioner should state so in the petition

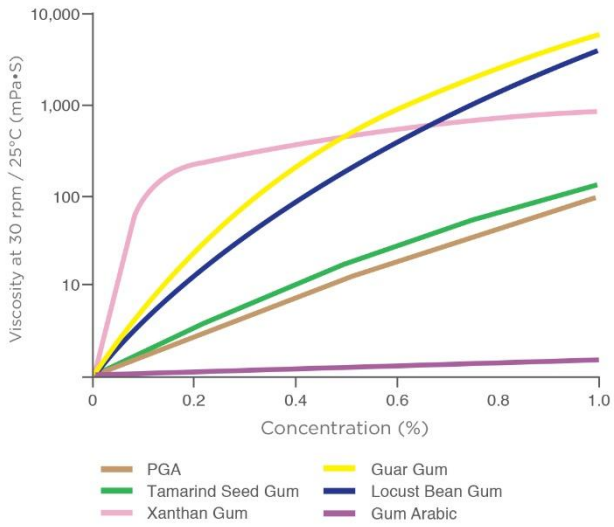
Benefits of tamarind seed gum when compared with other hydrocolloids

In this section, the advantages of tamarind seed gum over other common hydrocolloids in terms of basic physical properties and expected functions in food applications are listed.

Solution Properties

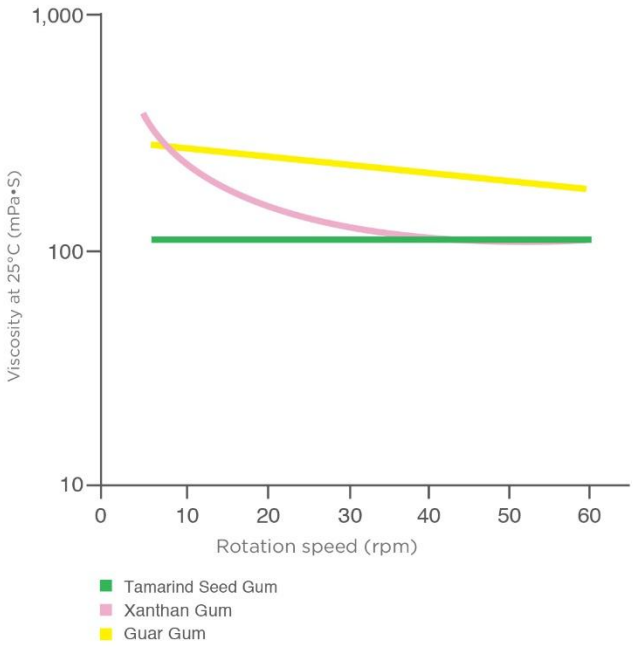
Tamarind Seed Gum can add a naturally viscous property like starch to various foods

A. **Viscosity:** The viscosity level of Tamarind Seed Gum solution is moderate compared to other typical hydrocolloids. This property allows Tamarind Seed Gum to deliver stability without excess viscosity and a rich pleasant mouthfeel rather than the gummy or pasty textures associated with other hydrocolloids.

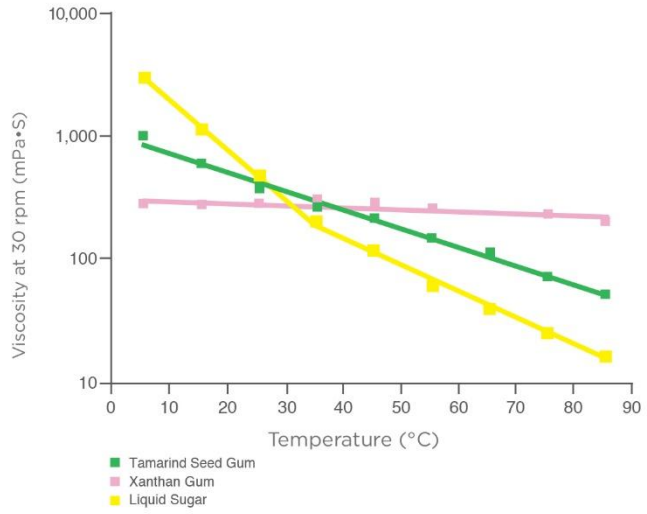


B. **Fluidity:** Most polysaccharides, show non-Newtonian flow behavior as shown in the figure below. (A non-Newtonian fluid is a fluid whose viscosity is variable based on applied stress). However, Tamarind Seed Gum solutions show Newtonian behavior, which means that the viscosity is independent of shear rate. This property makes it easy to pour a Tamarind Seed Gum containing product from a container because the solution flows smoothly (uniformly).

   Tamarind Seed Gum also has less stringiness (thread-forming property, to be described later), which gives improved handling when subdividing and filling liquid products. Furthermore, while increasing viscosity, Tamarind Seed Gum can achieve a lighter texture than other polysaccharides.



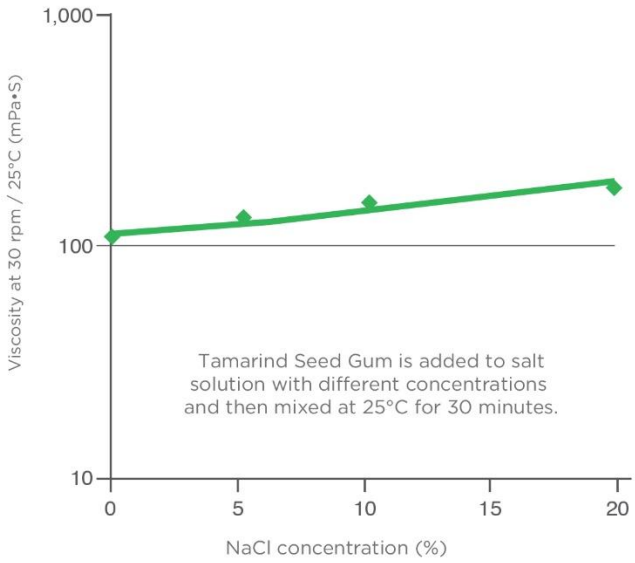
C. **Effect of temperature on viscosity:** The viscosity of a Tamarind Seed Gum solution is temperature dependent and, as the temperature rises, the viscosity decreases. This property allows solution to be mixed and processed easily. On the other hand, some polysaccharides, including xanthan gum, maintain constant viscosity regardless of temperature.



D. **Effect of salts on viscosity:** Tamarind Seed Gum can be dissolved in solution, with and without salt. The graph below shows a change of viscosity of salt solution to which Tamarind Seed Gum was added. The results shows that Tamarind Seed Gum can be

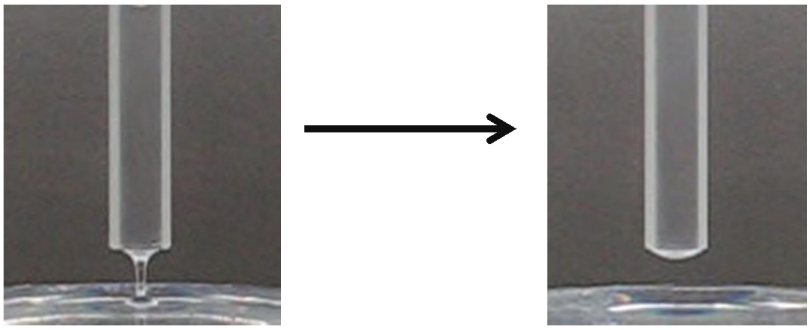
dissolved directly in a high salt concentration solution, such as soy sauce.

As the graph below shows, the higher the salt concentration, the higher the viscosity. This is because the concentration of Tamarind Seed Gum relative to water increases, and not because of any other reasons, such as the interaction with salt.

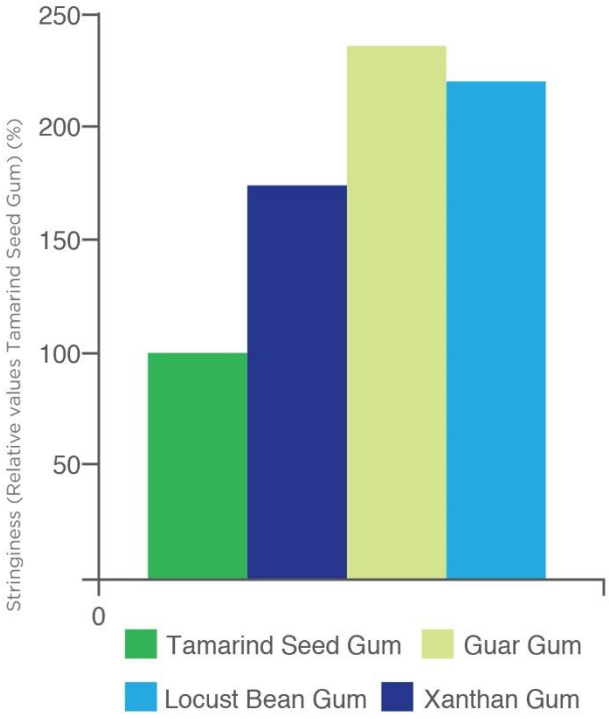


E. Stringiness: The stringiness (thread-forming property) of Tamarind Seed Gum solution is lower than that of other polysaccharides, which ensures high performance when liquid products are subdivided and filled into containers. Stringiness also significantly affects food texture. If stringiness is too strong, people find the product 'sticky' or 'gummy'.

The photos below explain the test methods to compare stringiness. The cylinder-shaped device that is attached to the surface of the heated 1% solution is pulled up at a constant speed.



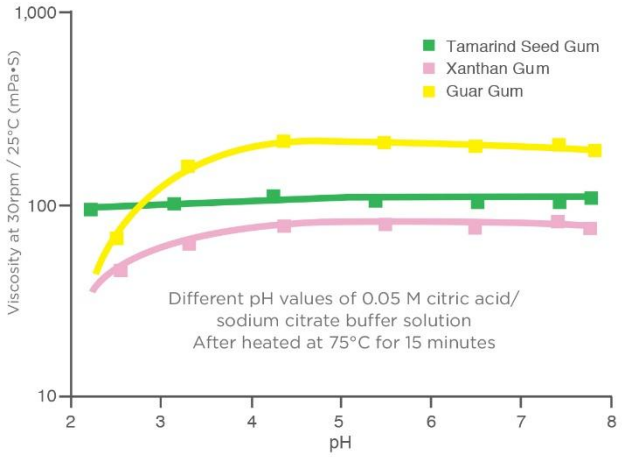
The figure below shows a relative comparison between Tamarind Seed Gum and three other polysaccharides. If the relative value exceeds 100%, it means that the solution has stronger stringiness than Tamarind Seed Gum. The result shows that the three polysaccharides tested have stronger stringiness than Tamarind Seed Gum.



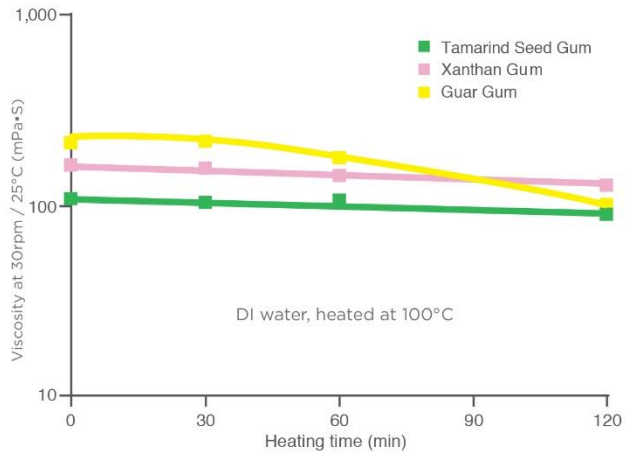
Solution Stability

Tamarind Seed Gum shows stable viscosity in a wide range of pH. Its viscosity changes only slightly by heating or freezing / thawing and it is hardly affected by salts. Owing to these properties, the viscosity can be maintained in salad dressings as well as canned, bottled, pickled and frozen foods.

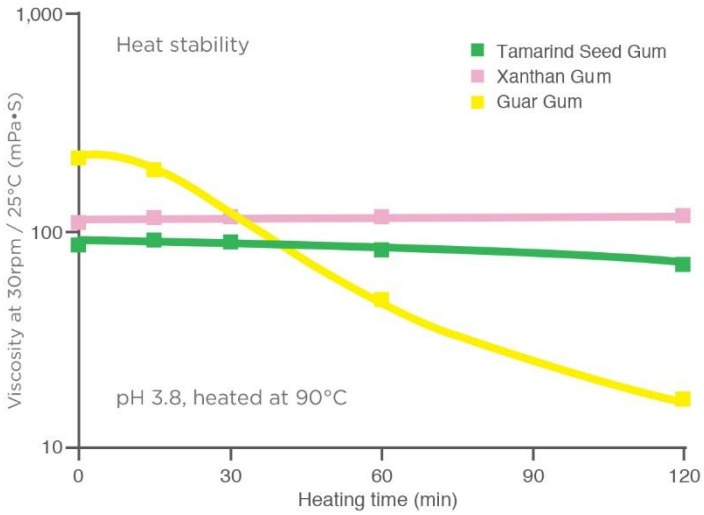
A. pH dependence Tamarind Seed Gum solution is stable in a wide range of pH values.
On the other hand, the viscosity of guar gum and xanthan gum decreases in an acidic region of pH 3 or lower. The behavior of guar gum and xanthan gum in this acidic region differs. Guar gum is susceptible to acid hydrolysis and, even after the pH level is returned, the viscosity does not return to the original level. With xanthan gum, however, when the pH level is returned, the viscosity is restored to the original.

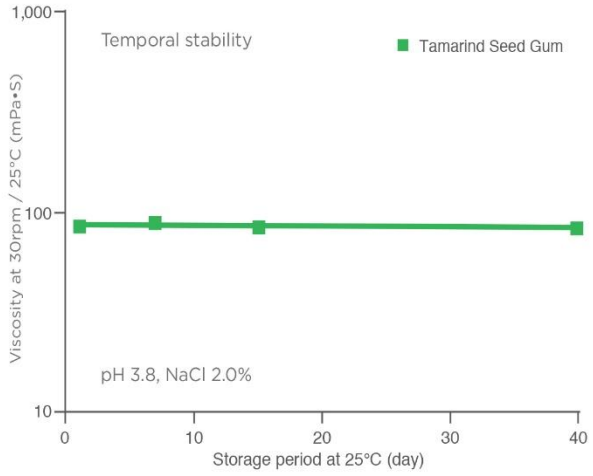


B. Heat Resistance A Tamarind Seed Gum solution is stable after being heated for prolonged periods. Its viscosity, therefore, does not change significantly in the heating process of processed food products and physical properties remain stable

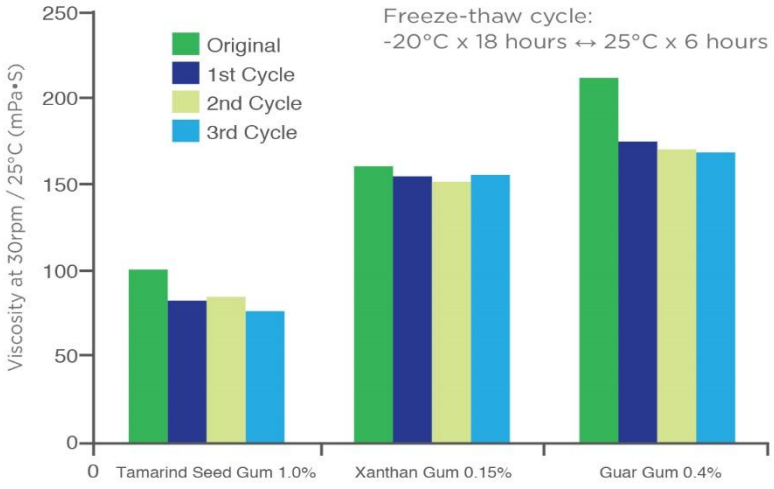


C. Acid Resistance Tamarind Seed Gum solution shows high acid resistance and stable viscosity can be maintained for a long time in low pH conditions. This property helps design acid products such as salad dressings that are stable over time.



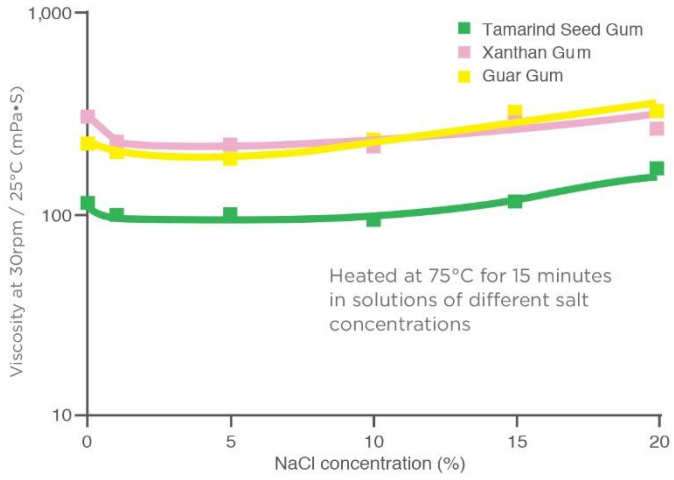


D. Freeze-thaw resistance Tamarind Seed Gum solutions are tolerant to freezing and thawing. It can be used for frozen foods.



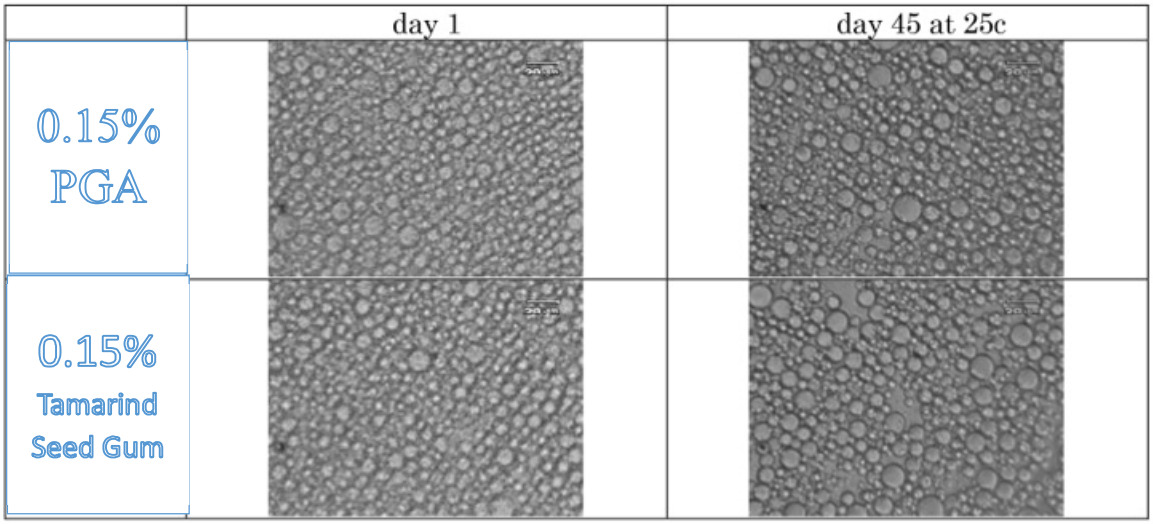
E. Salt resistance Tamarind Seed Gum solutions are stable at high salt concentrations. This

property allows it to be used for high salt concentration foods, such as sauces including soy sauce.



Emulsion Stability

Formulators of certain dressings can claim “Natural” by replacing one for one propylene glycol alginate (PGA) with Tamarind Seed Gum. The microscopic observation below shows a French dressing at day 1 and day 45. The control contains 0.15% PGA and the test sample contains 0.15% Tamarind Seed Gum.



13. A " Petition Justification Statement" which provides justification for any of the following actions requested in the petition:

Socius Ingredients believes that Tamarind Seed Gum should be included as a nonorganically produced agricultural substance on the National List (7 C.F.R. § 205.606) as it is not available in an organic form and it allows the production of high quality, stable food products without the need for chemically modified ingredients.

The starting material are the seeds of the Tamarind tree (*Tamarindus indica L.*). In India, the tamarind tree has been cultivated since ancient times. It later spread to other tropical parts of the world, such as Malaysia, Indonesia, Egypt, the West Indies and Brazil. The tamarind tree is a large evergreen tree and some grow to a height of more than 20 meters. It is resistant to low temperatures, grows well even in poor soil and is distributed throughout the tropics of the world.

Tamarind trees produce seed pods as fruit. Inside the seed pods are blackish brown seeds. From one mature tree 150-200 Kg of fruit is obtained. Trees will keep steadily producing abundant fruit for 50 to 60 years.

Pod and Seeds of Tamarind Tree

DSP Gokyo Food & Chemical Co sources their seeds from Thailand and India. The seeds are collected from native-grown tamarind trees. The multiple layers of the supply chain has meant to date that there are no organically certified tamarind seeds or tamarind kernel powder available. However the natural resistant nature of the tree to infestation and the lack of commercial plantations results in pesticide free seeds.

Tamarind Seed Gum or Tamarind Kernel Powder is not available in a certified organic form. However Tamarind Seed Gum can help food formulators produce higher quality cost-effective organic products by delivering functionality that is only available from

chemically modified ingredients such as propylene glycol alginate (PGA), modified food starches, polysorbates and mono-di-glycerides. The availability of higher quality products will help grow the market share of organic products and thus benefit the suppliers of the organic ingredients that will make up the bulk of the formulation.

This point is reinforced by the email attached in Appendix 3 from the Director of Product Development of Bay Valley Foods. Bay Valley Foods are one of the largest manufacturers of sauces and dressings in the USA.

Saratoga

Poppyslaw
Dressing/Dip/Spread

MUST BE KEPT UNDER REFRIGERATION

INGREDIENTS: SOYBEAN OIL, LIQUID SUGAR (SUGAR, WATER), VINEGAR, WATER, EGG YOLK, SALT, MUSTARD FLOUR, ONION, POPPY SEED, SPICE, XANTHAN GUM, POTASSIUM SORBATE (PRESERVATIVE), TAMARIND GUM, OLEORESIN PAPRIKA, BETA CAROTENE (COLOR), CALCIUM DISODIUM EDTA ADDED TO PROTECT FLAVOR.

1 GALLON (3.78 L)

7 39505 11821 6

PEARLCO OF BOSTON, INC., CANTON, MA 02021

NUTRITION FACTS

Serving Size 2 Tbsp. (30g)
Servings Per Container 128

Amount Per Serving	
Calories 140	Calories from Fat 110
	% Daily Value*
Total Fat 13g	**20%**
Saturated Fat 2g	**9%**
Trans Fat 0g	
Cholesterol 5mg	**2%**
Sodium 170mg	**7%**
Total Carbohydrate 6g	**2%**
Dietary Fiber 0g	**0%**
Sugars 6g	
Protein 0g	

Vitamin A 0% • Vitamin C 0% • Calcium 0% • Iron 0%

*Percent Daily Values are based on a 2,000 calorie diet.

A Family Tradition Since 1946!

No visit to Little Venice would be complete without sampling our legendary Italian dressing! This classic, made with only the finest ingredients, has been served at our landmark restaurant in Binghamton, NY since 1946. Enjoy, and when you're in town, stop by — we'd love to serve you!

LittleVeniceRestaurant.com

8 50012 00601 5

HOUSE-MADE

Little Venice RESTAURANT

EST. 1946

Italian

– DRESSING –

NET WT 12 FL OZ (354mL)

Nutrition Facts

Serv: Size: 2 TBSP (29g), Servings Per Container: 12,

Amount Per Serving: **Calories** 140, **Fat Cal** 140, **Total Fat** 16g (25% DV), Sat. Fat 2.5g (13% DV), Trans Fat 0g, **Cholest.** 0g (0% DV), **Sodium** 270mg (11% DV), **Total Carb.** 1g (0% DV), Dietary Fiber 0g (0% DV), Sugars 1g, **Protein** 0g, Vitamin A (0% DV), Calcium (0% DV), Vitamin C (0% DV), Iron (0% DV).

Percent Daily Values (DV) are based on 2000 calorie diet.

INGREDIENTS: SOYBEAN OIL, APPLE CIDER VINEGAR, WATER, OLIVE OIL, SUGAR, SALT, GARLIC POWDER, BLACK PEPPER, TAMARIND GUM, SPICE, LESS THAN 0.1% SODIUM BENZOATE AND POTASSIUM SORBATE, DISODIUM EDTA.

NO MSG

ALLERGENS: SOY

SHAKE WELL BEFORE USING

REFRIGERATE AFTER OPENING

GF Gluten Free

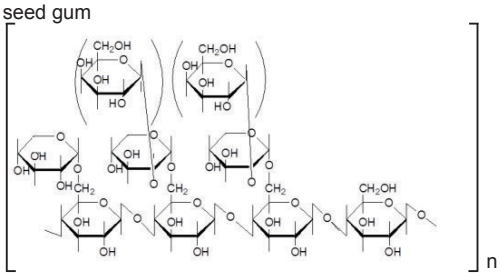
Crafted for:
Little Venice Retail, LLC
111 Chenango Street
Binghamton, NY 13901 USA
(607) 724-2513

PLEASE RECYCLE

Section-1. PRODUCT AND COMPANY IDENTIFICATION	
Product name	GLYLOID 3S
Company name	DSP GOKYO FOOD & CHEMICAL Co., Ltd.
Address	HERBIS OSAKA 20th Fl., 2-5-25 Umeda, Kita-ku, Osaka 530-0001, Japan
Division in charge	Chemical Sales
Telephone & facsimile	TEL 81-6-7177-6866 FAX 81-6-6453-0941
EMERGENCY TELEPHONE NUMBER	**81-6-7177-6866**
General use	GLYLOID 3S is used as a thickener, stabilizer or gelling agent for various foods.
SDS number	0121-US

Section-2. HAZARDS IDENTIFICATION	
GHS classification	
Physical hazards	Not classified
Health hazards	Not classified
Environmental hazards	Not classified
GHS label elements	
Symbols	None
Signal words	None
Hazard statements	None
Precautionary statements	None

Section-3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS. No.	CAS name	Percentage	EC No. (EINECS)
Tamarind seed gum	39386-78-2	Tamarind seed gum	90.0% ～ 99.99%	254-442-6
Chemical formulas		Tamarind seed gum 		

Section-4. FIRST AID MEASURES	
Inhalation	Move to fresh air. Get medical attention if symptoms develop or persist.
Skin contact	Wash off with soap and water. Get medical attention if irritation develops or persists.
Eyes contact	Flush with large amounts of water for at least 15 minutes. Get medical attention if eye irritation develops.
Ingestion	Induce vomiting immediately. If it is not possible, swallow with plenty of water. Get medical attention if symptoms occur.
Protection of first-aiders	A rescuer should wear personal protective equipment, such as rubber gloves and air-tight goggles.

Section-5. FIRE-FIGHTING MEASURES	
Suitable extinguishing media	Carbon dioxide, non-flammable powder, foam, or water spray
Specific hazards	Burning of the product may generate carbon monoxide.
Special protective equipment and precautions for firefighters	When extinguishing fire, be sure to wear personal protective equipment.

Section-6. ACCIDENTAL RELEASE MEASURES	
Personal precautions, protective equipment, and emergency procedures	Avoid inhalation of dust. Wear suitable protective equipment (musk, gloves, and so on).
Environmental precautions	Create a dike or trench around spillage. Containerize and label all spill materials properly.

Methods and materials for containment and cleaning up	Decontaminate all clothing and the spill area using soap solution and flush with large amount of water.

Section-7. HANDLING AND STORAGE

Handling	Avoid contact with skin, eyes, wounds, and inhalation of dust. Wear appropriate protective equipment (musk, gloves, and so on). Wash hands after handling. For further information, please refer to the section-10 of the SDS.
Storage	Keep containers tightly closed in a cool, dry and dark place.

Section-8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit values	Not established
Engineering controls	The use of local exhaust ventilation is recommended.
Respiratory protection	Avoid inhalation of dust. The use of a dust respirator is recommended if handling generates dust levels which cause irritation.
Hand protection	The use of suitable protective gloves is recommended.
Eye protection	The use of goggles and eye-flushing equipment is recommended under heavy dust conditions.
Skin and body protection	Wear suitable protective equipment.

Section-9. PHYSICAL AND CHEMICAL PROPERTIES

Physical form	Powder
Color	White to light brown
Odor	None to slight
Freezing point	Not applicable
Specific gravity	Not available
pH	Not available
Solubility in water	Soluble
Solubility in organic solvent	Insoluble
Molecular weight	Approximately 470,000
Combustibility	Combustible
Flammability	Not applicable
Flash point	Not applicable
Auto-ignition temperature	Not available
Decomposition temperature	Not available

Section-10. STABILITY AND REACTIVITY

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport, but possesses possibility of a dust explosion, if mixed with air in the proper proportions.
Chemical stability	Stable under normal conditions
Possibility of hazardous reactions	No hazardous polymerization known
Conditions to avoid	Avoid exposure to moisture
Incompatible materials	Strong oxidizing agents
Hazardous decomposition products	Carbon dioxide, carbon monoxide

Section-11. TOXICOLOGICAL INFORMATION

Likely routes of exposure	Inhalation, ingestion, skin and eye contact
Symptoms related to the physical, chemical and toxicological characteristics	May cause eye and respiratory irritation. Prolonged contact may cause drying or chapping of the skin. Inhalation of dust may be annoying and can impede respiration.
Acute toxicity	Male and female ddY mice (9 weeks old) oral LD_{50}: >2000 mg/kg bw (no deaths)[1)] Male and female Sprague-Dawley rats (5-6 weeks old) oral LD_{50}: >5000 mg/kg bw (no deaths)[2)] Male Wistar rats (5 weeks old) oral LD_{50}: >5000 mg/kg bw (no deaths)[3)] Male and female Sprague-Dawley rats (5 weeks old) oral LD_{50}: >5000 mg/kg bw (no deaths)[3)]
Skin irritation	Not available
Eye irritation	Not available
Respiratory	Not available

sensitization	
Skin sensitization	Not available
Chronic toxicity	No evidence of chronic oral toxicity at the highest level tested—12%, equivalent to 8,300 and 9,400 mg/kg bw/day in 2-year feeding study with male and female Sprague-Dawley rats (8 weeks old)[4]
Mutagenicity	Nonmutagenic in Ames assay[5] Nonclastgenic in chromosomal aberration test[6] Non-DNA-damaging and nonmutagenic in DNA repair test (Rec assay)[7]
Carcinogenicity	Noncarcinogenic in 78-week feeding study with male and female B6C3F_1 mice (6 weeks old) at up to 5% dietary concentration[8]
Reproductive and developmental toxicity	Not available

Section-12. ECOLOGICAL INFORMATION

Ecotoxicity	
Fish	Not available
Crustacea	Not available
Algae	Not available
Persistence / Degradability	Not available
Bio accumulative potential (BCF)	Not available
Mobility in soil	
Log Pow	Not available
Soil adsorption (Koc)	Not available
Henry's law constant (PaM^3/mol)	Not available

Section-13. DISPOSAL CONSIDERATIONS

Dispose in accordance with local regulations of the country involved.

Section-14. TRANSPORTATION INFORMATION

UN number	None
ADR / RID hazards class	Not regulated
IMDG / IMO hazards class	Not regulated
ICAO / IATA hazards class	Not regulated

Section-15. REGULATORY INFORMATION

In accordance with local and national regulations

Section-16. OTHER INFORMATION

Revision date	June 8, 2016

References

1) Takizawa Y, N Hachiya, Y Birukawa. 1993. *Safety reevaluation studies for food additives in 1993: Research on acute toxicities of natural food additives.* Unpublished report by the Department of Public Health, Akita University School of Medicine.
2) Hachiya N, Y Takizawa, T Kawamura, K Tateno, Y Sakabe, M Asanoma, M Noda, M Ishizaki, T Ishibashi, K Kuroda. 1985. A review of acute toxicity and genotoxicity data on natural food additives. Toxicol Forum 8:91-105.
3) Noda T, S Morita, S Ohgaki, M Shimizu, T Yamano, A Yamada. 1988. Acute oral toxicities of natural food additives. *Seikatsu Eise*i 32:110-115.
4) Iida M, Y Matsunaga, N Matsuoka, M Abe, K Ohnishi, H Tatsumi. 1978. Two-year feeding toxicity study of tamarind seed polysaccharide in rats. *J Toxicol Sci* 3:163-192.
5) Miyabe M. 1993. *Safety evaluation studies for food additives in 1993: Mutagenicity (primary) test; Ames assay.* Unpublished report by the Nagoya City Public Health Research Institute.
6) Ishidate M, T Sofuni, M Kishi. 1985. Mutagenicity tests of food additives. *Toxicol Forum* 8:705-708.
7) Kurita T. 1993. *Safety reevaluation studies/tests for food additives in 1993: Mutagenicity (primary) tests; Rec*-assay. Unpublished report of the Institute of Environmental Toxicology.
8) Sano M, E Miyata, S Tamano, A Hagiwara, N Ito, T Shirai. 1996. Lack of carcinogenicity of tamarind seed polysaccharide in B6C3F_1 mice. *Food Chem Toxicol* 34:463-467.

END OF SAFETY DATA SHEET

Tim Missell

From: Esterline, Eric <Eric_Esterline@bayvalleyfoods.com>
Sent: Tuesday, December 13, 2016 4:51 PM
To: Tim Missell
Subject: Tamarind Gum for organic mayo and dressings

Hi Tim,

As you know we have been pushing you to get tamarind gum added to the approved organic list of non synthetic ingredients. It has a pretty unique functionality that we can't find in other organic compliant ingredient that works nearly as well. Our initial testing as an emulsifier in egg free mayonnaise has been very positive. It replaces an emulsifying modified food starch that can't be used in organic foods. We also have several pourable dressing formulas where it could be used in place of propylene glycol alginate (PGA) as an emulsifier when we make organic versions for the growing market.

If there is any additional information you need to facilitate approval for using tamarind gum in organic processed foods please let me know.

Thank you,

Eric Esterline
Director of Product Development
Bay Valley Foods, North Coast Plant
61 East Street/PO Box 472
North East, PA 16428
814-725-7134
Cell 814-449-8854
Fax: 814-725-4374
Please note my new address!