

Thickener	Ingredients	Price	Contraindication	Nutrition	Instructions/Concentrations
<p>Nestle Resource: ThickenUp Clear</p> <p>Gel-based</p> <p><i>Manufacturer Age Recommendation</i></p> <p>> 3 years of age¹</p>	<p>Maltodextrin, xanthan gum, potassium chloride¹</p>	<p>\$10.09/can (Amazon) \$9.99/can (Nestle website)</p> <p>1 can = 89 scoops (125 g)¹</p>	<ul style="list-style-type: none"> Boost Breeze does not thicken with ThickenUp Clear¹ Watch with milk allergy: Possibility for cross contact due to equipment¹ Not verified Halal on website 	<p>1 scoop: 1.4 g (5 kcal)¹ 1 packet: 1.4 g (5 kcal)¹</p> <hr/> <p>Carbohydrate: 1 g per 1.4 g¹ Potassium: 5 mg per 1.4 g¹ Sodium: 15 mg per 1.4 g¹</p> <hr/> <p>Kosher (Circle U), gluten free, lactose free¹</p>	<p>Instructions¹:</p> <ol style="list-style-type: none"> Add powder to cup/bottle first Add pre-measured liquid into the cup/bottle with powder Stir briskly until powder is dissolved. Let it sit for 5 minutes before serving.* Opened can must be thrown out after 8 weeks. <p>*15 minutes for milk/oral supplements to thicken to higher consistency due to higher protein content</p> <p>Concentrations¹:</p> <ul style="list-style-type: none"> 1 scoop/packet to 4 oz = Level 2 (Mildly Thick) 2 scoops/packets to 4 oz = Level 3 (Moderately Thick) 3 scoops/packets to 4 oz = Level 4 (Extremely Thick)
<p>Simply Thick</p> <p>Gel-based</p> <p><i>Manufacturer Age Recommendation</i></p> <p>Not for children < 12 years²</p>	<p>Water, soluble fiber, xanthan gum, glucono delta-lactone, gellan gum, potassium sorbate, calcium chloride, citric acid, sodium citrate, guar gum and pectin²</p>	<p>Level 2 sticks \$0.34/stick (Amazon)</p> <p>Level 2 sticks \$0.37/stick (SimplyThick)</p>	<ul style="list-style-type: none"> Has added fiber which can cause GI discomfort Certain supplements are not compatible, Boost Breeze and Resource 2.0 are examples. High protein and fruit flavor interacts with the thickening agent² 	<p>1 packet: 4 g (3 kcal) Level 1, Slightly Thick²</p> <p>1 packet: 6 g (5 kcal) Level 2, Mildly Thick²</p> <p>1 packet: 12 g (10 kcal) Level 3, Moderately Thick²</p> <hr/> <p>Carbohydrate: 1 g per 6 g² Fiber: 1 g per 6 g² Potassium: 3 mg per 6 g² Calcium: 7 mg per 6 g² Sodium: 20 mg per 6 g²</p> <hr/> <p>Kosher (Kashrut Authority or The Scroll K)², Halal, corn free, gluten free</p>	<p>Instructions² (Instruction handout (English and Spanish)):</p> <ol style="list-style-type: none"> Comes as individual serving packets and in an EasyMix bottle with pump that dispenses 6 g at a time. Individual packets are added to 4 oz of liquid. Come in IDDSI Level 1, 2 and 3 packets. Stir for 30 seconds. Ready to serve immediately. Thickness stability is not an issue. Discard thickened beverage after 48-72 hours Instructions for carbonated beverages are different (review website). <p>Supplements with low water availability will not require as much gel to thicken and may take longer.²</p> <p><i>When disposing, it is not recommended to pour gel directly down the drain, should be diluted 10x the volume of the concentrated gel.² It is okay to pour thickened liquids down the drain, but recommended to run water when disposing.²</i></p> <p>Safe for use 12 months after manufacturing date, after this time the product may not thicken as effectively.²</p>
<p>Hormel: Thick & Easy Clear</p> <p>Gel-based</p> <p><i>Manufacturer Age Recommendation</i></p> <p>> 3 years of age³</p>	<p>Maltodextrin, xanthan gum, carrageenan, erythritol</p>	<p>Level 2 Sticks \$0.34/stick (Amazon)</p> <p>Level 2 Sticks \$0.35/stick (Hormel)</p>	<ul style="list-style-type: none"> Contains erythritol (sugar alcohol) which could cause GI distress Not verified Halal on website 	<p>1 packet: 1.4 g (5 kcal) Level 2, Mildly Thick³</p> <p>1 packet: 3.2 g (10 kcal) Moderately Thick³</p> <hr/> <p>Carbohydrate: 1 g per 1.4 g³ Fiber: 0 g per 1.4 g³ Sodium: 25 mg per 1.4 g³</p> <hr/> <p>Kosher (Circle U)³, Halal, no allergens present</p>	<p>Instructions for Individual Sticks of Powder³ (Instruction handout):</p> <ol style="list-style-type: none"> Empty powder from stick into empty container (each stick thickens 4 oz of liquid) Pour desired liquid over thickener in container Stir briskly with fork until dissolved and let stand 5-10 minutes. <p><i>Nutritional supplements, dairy products, carbonated and high acid beverages may take slightly longer and may require additional Thick & Easy to thicken.³</i></p> <p>Instructions for Container of Powder³ (Instruction handout English): (Instruction handout Spanish)</p> <ul style="list-style-type: none"> 1/4 tsp to 4 oz = Level 1 (Slightly Thick) 3/4 tsp to 4 oz = Level 2 (Mildly Thick) 1 1/4 tsp to 4 oz = Level 3 (Moderately Thick)

<p><u>Gelmix</u></p> <p>Gel-based</p> <p><i>Manufacturer Age Recommendation:</i></p> <p>Corrected age of 42 weeks EGA and minimum weight of 6 lbs⁴</p>	<p>Tapioca maltodextrin, carob bean gum, calcium carbonate⁴</p>	<p>\$29.95/can (Amazon)</p> <p>\$0.80/stick (30 single serve packets)</p> <p>Patient assistance program available</p> <p>1 can = 52 scoops (125 g)</p>	<ul style="list-style-type: none"> Gassiness and loose stools are a common side effect among infants using Gelmix and usually subsides within two weeks of use or reducing amount used⁴ Manufacturing plant does not carry kosher certification (no hechsher mark on label)⁵ Do not use if patient has galactosemia 	<p>2 scoops: 2.4 g (1 tsp) (10 calories)⁴</p> <p><i>Scoop in container is a ½ scoop (1.2 g)⁴</i></p> <hr/> <p>Carbohydrate: 2 g per 2.4 g⁴ Fiber: <1 g per 2.4 g⁴ Calcium: 10 mg per 2.4 g⁴</p> <hr/> <p>Kosher (Kosher Organics), Halal, vegan, free of all common allergens⁴</p>	<p>Instructions⁴ (Instruction handout):</p> <ol style="list-style-type: none"> Mix Gelmix powder into lukewarm liquid (100 degrees) Mix well until powder is completely dissolved. Allow to thicken for 5 minutes, then mix again before feeding. Discard leftover preparation. Can be stored for 24 hours. <p>Concentrations⁴:</p> <ul style="list-style-type: none"> 2 scoops or 1 tsp (2.4 g) to 5-6 fl oz = Level 1 (Slightly Thick) 2 scoops or 1 tsp (2.4 g) to 3-4 fl oz = Level 2 (Mildly Thick) 2 scoops or 1 tsp (2.4 g) to 2 fl oz = Level 3 (Moderately Thick)⁵ <p><i>Liquids must be warm when used with Gelmix. Hot liquids (>120 degrees) may cause Gelmix to clump.⁴</i></p>
<p><u>Purathick</u></p> <p>Gel-based</p> <p><i>Manufacturer Age Recommendation:</i></p> <p>Adults and children over 12 months⁶</p>	<p>Tapioca maltodextrin, tara gum, calcium carbonate⁶</p>	<p>\$24.95/can (Amazon)</p> <p>\$0.67/stick (Amazon)</p> <p>Patient assistance program available</p> <p>1 can = 52 scoops (125 g)</p>	<ul style="list-style-type: none"> Not recommended for carbonated beverages⁶ Not halal⁶ Manufacturing plant does not carry kosher certification (no hechsher mark on label)⁶ Do not use if patient has galactosemia 	<p>1 scoop: 2.4 g (1 tsp) (10 calories)⁶</p> <hr/> <p>Carbohydrate: 2 g per 2.4 g⁶ Fiber: <1 g per 2.4 g⁶ Calcium: 10 mg per 2.4 g⁶</p> <hr/> <p>Kosher (Kosher Organics), vegan, free of all common allergens⁶</p>	<p>Instructions⁶ (Instruction handout):</p> <ol style="list-style-type: none"> Pour desired amount of liquid into a shaker and sprinkle powder into liquid. Shake in blender bottle for 30 seconds or until powder is completely dissolved (whisk, fork or blender may also be used). Allow cold liquids to thicken for 5 minutes and warm liquids to thicken for 1 minute. Mix again before serving Can be stored for 24 hours. Freeze/thaw stable. Thickened water may be stored at room temperature. <p>Concentrations:⁶</p> <ul style="list-style-type: none"> 1 scoop or 1 tsp 2.4 g to 7-8 fl oz = Level 1 (Slightly Thick) 1 scoop or 1 tsp 2.4 g to 5-6 fl oz = Level 2 (Mildly Thick) 1 scoop or 1 tsp 2.4 g to 3-4 fl oz = Level 3 (Moderately Thick) 1 scoop or 1 tsp 2.4 g to 2 fl oz = Level 4 (Extremely Thick)
<p><u>DysphagiAide</u></p> <p>Gel-based</p> <p><i>Manufacturer Age Recommendation:</i></p> <p>> 3 years of age</p>	<p>Maltodextrin, xanthan gum, erythritol</p>	<p>\$16.30/jar (Website)</p> <p>1 jar = 180 scoops (252 g)</p>	<ul style="list-style-type: none"> Adding milk, sugar, or creamer to prepared thickened drink may result in clumping⁷ Contains erythritol (sugar alcohol) which could cause GI distress Not verified Halal on website 	<p>1 scoop: 1.4 g (5 calories)⁷</p> <hr/> <p>Carbohydrate: 1 g per 1.4 g⁷ Fiber: 0 g per 1.4 g⁷ Sodium: 20 mg per 1.4 g⁷ Potassium: 5 mg per 1.4 g⁷</p> <hr/> <p>Kosher (Circle U), gluten free, lactose free⁷</p>	<p>Instructions:⁷</p> <ol style="list-style-type: none"> Use included scoop and pour thickener into a dry cup. Pour beverage onto the dry thickener while stirring briskly for 30 seconds. Let sit for 4 minutes (water, tea, coffee, soda, MiraLAX, Benefiber) Let sit for 10 minutes (milk, supplements, juices, broth) <p>Concentrations:⁷</p> <ul style="list-style-type: none"> 1 scoop (1.4 g) to 4 fl oz = Level 2 (Mildly Thick) 2 scoops (2.8 g) to 5-6 fl oz = Level 3 (Moderately Thick) 3 scoops (4.2 g) to 4 fl oz = Level 4 (Extremely Thick)

<p><u>Thick-It</u></p> <p>Corn starch based</p> <p><i>Manufacturer Age Recommendation:</i></p> <p>> 2 years of age</p>	<p>Modified Cornstarch, Maltodextrin</p>	<p>\$10.05/can (Amazon)</p> <p>1 can = 10 oz (284 g)</p>	<ul style="list-style-type: none"> Do not leave thickened liquid at room temperature any longer than 3-4 hours.⁸ Not verified Halal on website 	<p>1 serving: 3.5 tsp (6 g) (5 calories)⁸</p> <hr/> <p>Carbohydrate: 1 g per 1.4 g⁸ Fiber: 0 g per 1.4 g⁸ Sodium: 20 mg per 1.4 g⁸ Potassium: 5 mg per 1.4 g⁸</p> <hr/> <p>Kosher (Circle U), gluten free, lactose free⁸</p>	<p>Instructions⁸ (Instruction handout):</p> <ol style="list-style-type: none"> Pour 4 fl oz of cold or hot liquid into a glass Slowly add level measured thickener to liquid, stirring with fork or whisk as you pour. Stir briskly until thickener has dissolved. Before serving, let water and juices stand for at least 1 minute. Let milk and supplements stand for 5-10 minutes. Stir and serve. Consume within 30 minutes of mixing. <p>Concentrations:⁸ <i>Vary depending on type of liquid. See usage chart.</i></p> <ul style="list-style-type: none"> 3.5-4.5 tsp to 4 fl oz = Level 2 (Mildly Thick) 4.5 tsp – 2 tbsp to 4 fl oz = Level 3 (Moderately Thick) 5 tsp – 2 tbsp to 4 fl oz = Level 4 (Extremely Thick)
<p><u>Gerber Rice Cereal</u></p> <p><i>Manufacturer Age Recommendation:</i></p> <p>N/A</p>	<p>Rice flour, soy lecithin, potassium phosphate, calcium carbonate, iron, vitamin C, zinc sulfate, vitamin E, niacinamide, vitamin B2, vitamin B1, vitamin B6, vitamin B12, folic acid</p>	<p>\$4.79/container (Amazon)</p> <p>1 container = ~360 tsp (454g)</p>	<ul style="list-style-type: none"> Contains soy lecithin 	<p>1 tsp: ~1.25 g (5 calories)⁹</p> <hr/> <p>Fat: 0.042 g per tsp⁹ Carbohydrate: 1 g per tsp⁹ Fiber: 0 g⁹ Sodium: 0.417 g per tsp⁹ Potassium: 3.75 g per tsp⁹ Protein: 0.083 g per tsp⁹</p> <hr/> <p>Kosher (Circle U), Halal, gluten free, lactose free⁹</p>	<p>The general recommendation for thickening with infant cereal or infant oatmeal is to develop an individualized standard recipe for the patient that would result in the desired viscosity.</p>
<p><u>Beech-Nut Oatmeal Cereal</u></p> <p><i>Manufacturer Age Recommendation:</i></p> <p>N/A</p>	<p>Whole grain oat flour (contains wheat), sunflower lecithin, tricalcium phosphate, electrolytic iron, d-alpha-tocopheryl acetate (vitamin E), zinc sulfate, niacinamide, calcium d-pantothenate, pyridoxine hydrochloride (vitamin B6), riboflavin (vitamin B2), thiamine mononitrate (vitamin B1), folic acid, cyanocobalamin (vitamin B12), cholecalciferol (vitamin D3)</p>		<ul style="list-style-type: none"> Not gluten free¹⁰ Not Kosher 	<p>1 tsp: ~1.25 g (5 calories)¹⁰</p> <hr/> <p>Fat: 0.125 g per tsp¹⁰ Carbohydrate: 0.83 g per tsp¹⁰ Fiber: 0.17 g¹⁰ Sodium: 0 g per tsp¹⁰ Potassium: 4.5 g per tsp¹⁰ Protein: 0.167 g per tsp¹⁰</p> <hr/> <p>Halal, gluten free, lactose free¹⁰</p>	<p>The general recommendation for thickening with infant cereal or infant oatmeal is to develop an individualized standard recipe for the patient that would result in the desired viscosity.</p> <p style="text-align: center;"><u>Thickening Recipes from Le Bonheur Children’s Hospital</u>¹⁶</p>

Thickening Agents General Pros/Cons:

Corn Starch Thickeners	Gel Based Thickeners	Infant Cereal	Puree Infant Foods
<p>Pros:</p> <ul style="list-style-type: none"> Easily accessible and less expensive than gel-based thickeners <p>Cons:</p> <ul style="list-style-type: none"> Continue to thicken over time Thicker at colder temperatures Not stable in human milk, a mylase enzyme in breast milk breaks down the thickening action of starches Reports of a “grainy” texture 	<p>Pros:</p> <ul style="list-style-type: none"> Stable over time Stable in human milk <p>Cons:</p> <ul style="list-style-type: none"> Manufacturers do not recommend for infants < 12 months corrected or older due to NEC concerns Mixing requires following careful instructions. Must be mixed with a fork or whisk to evenly disperse the gel Adds volume to feeds without calories or other nutrient needs Can be expensive and not covered by insurance 	<p>Pros:</p> <ul style="list-style-type: none"> Often used in infants < 1 year of age Cost effective and a food available through Georgia WIC <p>Cons:</p> <ul style="list-style-type: none"> Rice cereal: Arsenic concerns with large quantities Oat/Other Grains: Because of larger flakes, recipes are less standardized, and thickening can be inconsistent <ul style="list-style-type: none"> May be more likely to clog the nipple May require additional manual grinding down of the grain Not stable in human milk, a mylase enzyme in breast milk breaks down the thickening action of starches Can cause constipation Can provide excessive calories 	<p>Pros:</p> <ul style="list-style-type: none"> Can be used around 4-6 months of corrected age^{11,14} A food available through Georgia WIC <p>Cons:</p> <ul style="list-style-type: none"> Could potentially exacerbate reflux symptoms due to acidity¹⁷ Can create imbalances in the diet; medical team and dietitian should be consulted to ensure diet is nutritionally complete Could cause constipation or loose stools

Common Parent Questions/Concerns:

1. What thickener can my child use if on the Ketogenic diet?
 - a. Simply Thick is the preferred product due to low carbohydrate content per gram. The Ketogenic dietitian should be consulted if a thickener is required for a child with carbohydrate restriction.
2. When thickening with rice cereal, should I be concerned with arsenic content?
 - a. Infant rice cereal is often recommended to thicken feeds for reflux and dysphagia management for children < 12 months of age.¹¹ It is cost effective, and a WIC approved food. Arsenic is a heavy metal that occurs naturally in our food supply in both organic (non-toxic) and inorganic forms.¹² The inorganic forms of arsenic are considered toxic and are associated with cancer and neurotoxicity.^{11,12} Inorganic arsenic is found in much higher levels in rice than other grains due to the rice being grown under flooded conditions; leading to more arsenic being absorbed into the crop from the soil.¹³ Previously, there was no set standard in the U.S. for limiting arsenic content in foods. Fortunately, in 2020 the FDA finalized industry guidance to protect public health by setting a standard of 100 ppb of inorganic arsenic allowable in food supply. FDA testing has shown that inorganic arsenic in rice cereal has slowly declined over the years.¹⁴
The general recommendation from the AAP for typical infant feeding is to provide a variety of infant cereals for consumption to limit arsenic exposure.¹² Consider the following when choosing rice cereal as a thickener:
 - Brown rice cereal should be avoided as brown rice is higher in arsenic than white rice.¹⁵
 - Organic rice cereal does not equate to lower levels of arsenic.¹⁵
 - The clinician should consider if it is possible to limit the exposure to no more than ¾ cup or 36 teaspoons per day^{11,15} If it is not possible to limit the exposure, it may be beneficial to explore developing an individual recipe for the patient to thicken with a lower arsenic level cereal, such as oat infant cereal using IDDSI flow testing to confirm viscosity. Beechnut oatmeal cereal is Georgia WIC approved and has been found to have a finer flake for more consistent thickening.¹⁶
 - Infant cereals add a significant amount of calorie content to infant feeding and coordination with a dietitian may be indicated to avoid excessive calorie provision.
3. Can the thickener effect my child's stooling pattern?
 - a. Depending on the thickener, one may notice constipation (rice cereal) or loose stools (thickeners with added fiber or fruit puree).¹¹ If a concern arises, discuss with primary care physician or gastroenterologist.
4. Will adding thickener lead to dehydration?
 - a. Studies have not shown a difference in free water absorption in thickened liquids versus thin liquids.¹¹ If a concern arises with volume consumed or changes in urine or stool output, discuss with dietitian or physician.

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