

**VARIBAR THIN LIQUID- barium sulfate powder, for suspension**  
**E-Z-EM Canada Inc**

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**HIGHLIGHTS OF PRESCRIBING INFORMATION**

**These highlights do not include all the information needed to use VARIBAR THIN LIQUID safely and effectively. See full prescribing information for VARIBAR THIN LIQUID.**

**VARIBAR THIN LIQUID (barium sulfate) for oral suspension**

**Initial U.S. Approval: 2016**

----- **INDICATIONS AND USAGE** -----

VARIBAR THIN LIQUID is a radiopaque contrast agent indicated for use in modified barium swallow examinations to evaluate the oral and pharyngeal function and morphology in adult and pediatric patients (1)

----- **DOSAGE AND ADMINISTRATION** -----

For oral use only— once reconstituted, administer by infant bottle, syringe, spoon, or cup. The recommended dose is:

- ☐● Adults: 5 mL
- ☐● Pediatric patients 6 months and older: 1 mL to 3 mL
- ☐● Pediatric patients younger than 6 months of age: 0.5 mL to 1 mL
- During a single modified barium swallow examination, multiple doses may be administered
- Maximum cumulative dose: 80 mL (2.1)
- Must reconstitute supplied powder with water prior to use. See Full Prescribing Information for reconstitution instructions (2.2)

----- **DOSAGE FORMS AND STRENGTHS** -----

For oral suspension: 120 g barium sulfate (81% w/w) supplied in a multiple-dose bottle for reconstitution (3)

----- **CONTRAINDICATIONS** -----

- Known or suspected perforation of the gastrointestinal (GI) tract (4)
- Known obstruction of the GI tract (4)
- Conditions associated with high risk of GI perforation or aspiration (4)
- Known hypersensitivity to barium sulfate or any of the excipients of VARIBAR THIN LIQUID (4)

----- **WARNINGS AND PRECAUTIONS** -----

- Hypersensitivity reactions: Emergency equipment and trained personnel should be immediately available (5.1)
- Intra-abdominal leakage: May occur in conditions such as GI fistula, ulcer, inflammatory bowel disease, appendicitis or diverticulitis, severe stenosis or obstructing lesions of the GI tract (5.2)
- Delayed GI transit and obstruction: Patients should maintain adequate hydration in days following barium sulfate procedure to avoid obstruction or impaction (5.3)
- Aspiration pneumonitis: Aspiration may occur during the modified barium swallow examination, monitor the patient for aspiration (5.4)

----- **ADVERSE REACTIONS** -----

Common adverse reactions include nausea, vomiting, diarrhea and abdominal cramping (6)

**To report SUSPECTED ADVERSE REACTIONS, contact Bracco Diagnostics Inc at 1-800-257-5181 or FDA at 1-800-FDA-1088 or [www.fda.gov/medwatch](http://www.fda.gov/medwatch)**

**See 17 for PATIENT COUNSELING INFORMATION.**

**Revised: 4/2019**

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\* Sections or subsections omitted from the full prescribing information are not listed.

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## **FULL PRESCRIBING INFORMATION**

### **1 INDICATIONS AND USAGE**

VARIBAR THIN LIQUID is indicated for modified barium swallow examinations to evaluate the oral and pharyngeal function and morphology in adult and pediatric patients.

### **2 DOSAGE AND ADMINISTRATION**

#### **2.1 Recommended Dosing and Administration Instructions**

- The recommended dose of reconstituted VARIBAR THIN LIQUID administered orally by infant bottle, syringe, spoon, or cup is:
  - Adults: 5 mL
  - Pediatric patients 6 months and older: 1 mL to 3 mL
  - Pediatric patients younger than 6 months of age: 0.5 mL to 1 mL
- During a single modified barium swallow examination, multiple doses of VARIBAR THIN LIQUID may be administered, to assess the patient during multiple swallows and different radiographic views.
- The maximum cumulative dose is 80 mL.
- For oral use only
- Advise patients to hydrate following the barium sulfate procedure.

#### **2.2 Instructions for Reconstitution**

The VARIBAR THIN LIQUID powder must be reconstituted prior to administration by a healthcare provider according to the following instructions:

- Add water to the fill line on the bottle label
- Replace the lid securely
- Invert the bottle and tap with fingers to mix the powder into the water
- Shake vigorously for 30 seconds. Let stand for 5 minutes
- Refill with water to the fill line on the bottle label and reshake thoroughly.
- Once reconstituted, write the discard after date on the immediate container label. After reconstitution, store in refrigerator at 2°C to 8°C (36°F to 46°F) for up to 72 hours.
- Reconstitution yields approximately 300 mL of VARIBAR THIN LIQUID oral suspension containing 0.4 grams of barium sulfate per mL (40% w/v) and should be homogeneous and white to lightly colored.

### **3 DOSAGE FORMS AND STRENGTHS**

For oral suspension: 120 grams of barium sulfate supplied as a white to lightly colored powder (81% w/w) in a multiple-dose plastic bottle for reconstitution.

### **4 CONTRAINDICATIONS**

VARIBAR THIN LIQUID is contraindicated in patients with:

- known or suspected perforation of the gastrointestinal (GI) tract
- known obstruction of the GI tract
- high risk of GI perforation such as those with a recent GI perforation, acute GI hemorrhage or ischemia, toxic megacolon, severe ileus, post GI surgery or biopsy, acute GI injury or burn, or recent radiotherapy to the pelvis
- high risk of aspiration such as those with known or suspected tracheo-esophageal fistula or obtundation
- known severe hypersensitivity to barium sulfate or any of the excipients of VARIBAR THIN LIQUID

### **5 WARNINGS AND PRECAUTIONS**

#### **5.1 Hypersensitivity Reactions**

Barium sulfate preparations contain a number of excipients, including natural and artificial flavors and may induce serious hypersensitivity reactions. The manifestations include hypotension, bronchospasm and other respiratory impairments, and dermal reactions including rashes, urticaria and itching. A history of bronchial asthma, atopy, food allergies, or a previous reaction to a contrast agent may increase the risk for hypersensitivity reactions. Emergency equipment and trained personnel should be immediately available for treatment of a hypersensitivity reaction.

#### **5.2 Intra-abdominal Barium Leakage**

The use of VARIBAR THIN LIQUID is contraindicated in patients at high risk of perforation of the GI tract [see *Contraindications (4)*]. Administration of VARIBAR THIN LIQUID may result in leakage of barium from the GI tract in the presence of conditions such as carcinomas, GI fistula, inflammatory bowel disease, gastric or duodenal ulcer, appendicitis, or diverticulitis, and in patients with a severe stenosis at any level of the GI tract, especially if it is distal to the stomach. The barium leakage has been associated with peritonitis and granuloma formation.

#### **5.3 Delayed Gastrointestinal Transit and Obstruction**

Orally administered barium sulfate may accumulate proximal to a constricting lesion of the colon,

causing obstruction or impaction with development of baroliths (inspissated barium associated with feces) and may lead to abdominal pain, appendicitis, bowel obstruction, or rarely perforation. Patients with the following conditions are at higher risk for developing obstruction or baroliths: severe stenosis at any level of the GI tract, impaired GI motility, electrolyte imbalance, dehydration, on a low residue diet, taking medications that delay GI motility, constipation, pediatric patients with cystic fibrosis or Hirschsprung disease, and the elderly [see *Use in Specific Populations* (8.4, 8.5)]. To reduce the risk of delayed GI transit and obstruction, patients should maintain adequate hydration after the barium sulfate procedure.

#### **5.4 Aspiration Pneumonitis**

The use of VARIBAR THIN LIQUID is contraindicated in patients with trachea-esophageal fistula [see *Contraindications* (4)]. Oral administration of barium is associated with aspiration pneumonitis, especially in patients with a history of food aspiration or with compromised swallowing mechanism. Vomiting following oral administration of barium sulfate may lead to aspiration pneumonitis.

In patients at risk for aspiration, begin the procedure with a small ingested volume of VARIBAR THIN LIQUID. Monitor the patient closely for aspiration, discontinue administration of VARIBAR THIN LIQUID if aspiration is suspected, and monitor for development of aspiration pneumonitis.

#### **5.5 Systemic Embolization**

Barium sulfate products may occasionally intravasate into the venous drainage of the GI tract and enter the circulation as a "barium embolus" leading to potentially fatal complications which include systemic and pulmonary embolism, disseminated intravascular coagulation, septicemia and prolonged severe hypotension. Although this complication is exceedingly uncommon after oral administration of a barium sulfate suspension, monitor patients for potential intravasation when administering barium sulfate.

### **6 ADVERSE REACTIONS**

The following adverse reactions have been identified from spontaneous reporting or clinical studies of barium sulfate administered orally. Because the reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or to establish a causal relationship to drug exposure:

- Nausea, vomiting, diarrhea and abdominal cramping
- Serious adverse reactions and fatalities include aspiration pneumonitis, barium sulfate impaction, intestinal perforation with consequent peritonitis and granuloma formation, vasovagal and syncopal episodes

### **8 USE IN SPECIFIC POPULATIONS**

#### **8.1 Pregnancy**

##### Risk Summary

VARIBAR THIN LIQUID is not absorbed systemically following oral administration, and maternal use is not expected to result in fetal exposure to the drug.

#### **8.2 Lactation**

##### Risk Summary

VARIBAR THIN LIQUID is not absorbed systemically by the mother following oral administration, and breastfeeding is not expected to result in exposure of the infant to the drug.

#### **8.4 Pediatric Use**

The efficacy of VARIBAR THIN LIQUID in pediatric patients is based on successful opacification of the pharynx during modified barium swallow examinations [see *Clinical Pharmacology (12.1)*]. Safety and dosing recommendations in pediatric patients are based on clinical experience.

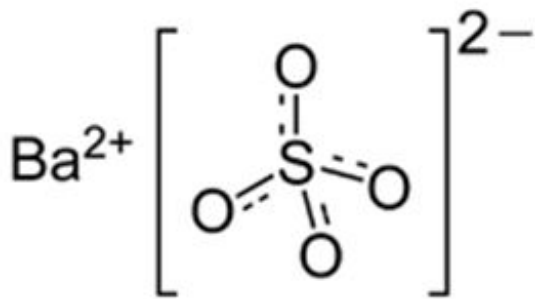
VARIBAR THIN LIQUID is contraindicated in pediatric patients with trachea-esophageal fistula. [see *Contraindications (4)*]. Pediatric patients with a history of asthma or food allergies may be at increased risk for development of hypersensitivity reactions [see *Warnings and Precautions (5.1)*]. Monitor patients with cystic fibrosis or Hirschsprung disease for bowel obstruction after use [see *Warnings and Precautions (5.3)*].

## 8.5 Geriatric Use

Clinical studies of VARIBAR THIN LIQUID did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects. Other reported clinical experience has not identified differences in responses between the elderly and younger patients. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy.

## 11 DESCRIPTION

VARIBAR THIN LIQUID (barium sulfate) is a radiographic contrast agent that is supplied as a white to lightly colored powder for suspension (81% w/w) with an apple aroma for oral administration. The active ingredient barium sulfate is designated chemically as BaSO<sub>4</sub> with a molecular weight of 233.4 g/mol, a density of 4.5 g/cm<sup>3</sup>, and the following chemical structure:



VARIBAR THIN LIQUID has a viscosity of <15 cPs when reconstituted and contains the following excipients: carboxymethylcellulose sodium, citric acid, maltodextrin, natural and artificial apple flavor, polysorbate 80, saccharin sodium, simethicone, sodium citrate, sorbitol and xylitol.

## 12 CLINICAL PHARMACOLOGY

### 12.1 Mechanism of Action

Due to its high atomic number, barium (the active ingredient in VARIBAR THIN LIQUID) is opaque to x-rays and therefore acts as a positive contrast agent for radiographic studies.

### 12.2 Pharmacodynamics

Barium sulfate is biologically inert and has no known pharmacological effects.

### 12.3 Pharmacokinetics

Under physiological conditions, barium sulfate passes through the gastrointestinal tract in an unchanged

form and is absorbed only in small, pharmacologically insignificant amounts.

## **13 NONCLINICAL TOXICOLOGY**

### **13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility**

No animal studies have been performed to evaluate the carcinogenic potential of barium sulfate or potential effects on fertility.

## **16 HOW SUPPLIED/STORAGE AND HANDLING**

### **16.1 How Supplied**

VARIBAR THIN LIQUID is supplied as a white to lightly colored powder in a multiple-dose polyethylene bottle containing 120 grams of barium sulfate (81% w/w).

Provided as: 24 x 148 g bottles (NDC 32909-105-10)

### **16.2 Storage and Handling**

Store at USP controlled room temperature 20°C to 25°C (68° F to 77° F).

## **17 PATIENT COUNSELING INFORMATION**

After administration, advise patients to:

- Maintain adequate hydration [*see Dosage and Administration (2.2) and Warnings and Precautions (5.3)*].
- Seek medical attention for worsening of constipation or slow gastrointestinal passage [*see Warnings and Precautions (5.3)*].
- Seek medical attention for any delayed onset of hypersensitivity: rash, urticaria, or respiratory difficulty [*see Warnings and Precautions (5.1)*].

### **Rx Only**

Manufactured by  
EZEM Canada Inc  
Anjou (Quebec) Canada H1J 2Z4

For  
Bracco Diagnostics Inc.  
Monroe Township, NJ 08831

VARIBAR is a registered trademark of E-Z-EM, Inc.

Varibar<sup>®</sup> Thin Liquid - Barium Sulfate for Suspension  
NDC: 32909-105-10

**Fill Line**

**Multiple-dose container – For oral use only**

See prescribing information for complete dosage and administration information. For use in modified barium swallow examinations to evaluate the oral and pharyngeal function and morphology in adult and pediatric patients.

**Reconstitution Instructions:**

Add water to the fill line on the VARIBAR THIN LIQUID bottle label. Replace the lid securely. Invert the bottle and tap with fingers to mix the powder into the water. Shake vigorously for 30 seconds. Let stand for 5 minutes. Refill with water to the fill line and replace the cap. Reshake thoroughly. After reconstitution with water as directed, each mL of suspension contains 0.4 grams barium sulfate (40% w/v).

**DO NOT USE IF INNER SEAL IS BROKEN OR MISSING**

rev. XX/XX XXXXXXXX

SWALLOWING STUDIES



Bracco Diagnostics

148 g

NDC 32909-105-XX

**VARIBAR® THIN LIQUID**

**(BARIUM SULFATE) FOR ORAL SUSPENSION, 81% w/w**



For Oral Use Only

Rx only

Manufactured by  
E-Z-EM Canada Inc  
Anjou, Quebec H1J2Z4, Canada  
for Bracco Diagnostics Inc.  
Monroe Twp., NJ 08831

Each gram contains 0.81 g barium sulfate and the following inactive ingredients: carboxymethylcellulose sodium, citric acid, maltodextrin, natural and artificial apple flavor, polysorbate 80, saccharin sodium, simethicone, sodium citrate, sorbitol, xylitol.

**Storage:** Prior to mixing, USP controlled room temperature 20° to 25°C (68° to 77°F); after reconstitution, store refrigerated (2° to 8°C) for use within 72 hours.

Discard After \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
at \_\_\_\_\_ : \_\_\_\_\_



(01) 10332909 105 102

LOT & EXPIRY (YYYY MM)  
ENCODING AREA

TXXXXX

NDC 32909-105-10

24 x 148 g each



Bracco Diagnostics

**VARIBAR® THIN LIQUID**

**(BARIUM SULFATE) FOR ORAL SUSPENSION, 81% w/w**

**Multiple-dose container – For oral use only**

For use in modified barium swallow examinations to evaluate the oral and pharyngeal function and morphology in adult and pediatric patients.

Usual dosage: See prescribing information

Each gram contains 0.81 g barium sulfate and the following inactive ingredients: carboxymethylcellulose sodium, citric acid, maltodextrin, natural and artificial apple flavor, polysorbate 80, saccharin sodium, simethicone, sodium citrate, sorbitol, xylitol.

Store at USP controlled room temperature, 20° to 25°C (68° to 77°F).

Rx only

Manufactured by  
E-Z-EM Canada Inc, Anjou, Quebec H1J2Z4, Canada  
for Bracco Diagnostics Inc., Monroe Twp., NJ 08831

rev. XX/XX XXXXXXXX



(01) 30332909 105 106

LOT

EXP

LOT AND EXPIRY (YYYY MM)  
ENCODING AREA 1" X 2"

TXXXXX



# VARIBAR THIN LIQUID

barium sulfate powder, for suspension

## Product Information

<b>Product Type</b>	HUMAN PRESCRIPTION DRUG	<b>Item Code (Source)</b>	NDC:32909-105
<b>Route of Administration</b>	ORAL		

## Active Ingredient/Active Moiety

<b>Ingredient Name</b>	<b>Basis of Strength</b>	<b>Strength</b>
<b>Barium Sulfate</b> (UNII: 25BB7EKE2E) (Barium Sulfate - UNII:25BB7EKE2E)	Barium Sulfate	.81 g in 1 g

## Inactive Ingredients

<b>Ingredient Name</b>	<b>Strength</b>
<b>anhydrous citric acid</b> (UNII: XF417D3PSL)	
<b>carboxymethylcellulose sodium</b> (UNII: K679OBS311)	
<b>dimethicone 1000</b> (UNII: MCU2324216)	
<b>maltodextrin</b> (UNII: 7CVR7L4A2D)	
<b>polysorbate 80</b> (UNII: 6OZP39ZG8H)	
<b>silicon dioxide</b> (UNII: ETJ7Z6XBU4)	
<b>sorbitol</b> (UNII: 506T60A25R)	
<b>trisodium citrate dihydrate</b> (UNII: B22547B95K)	
<b>xylitol</b> (UNII: VCQ006KQ1E)	
<b>saccharin sodium</b> (UNII: SB8ZUX40TY)	

## Product Characteristics

<b>Color</b>	WHITE	<b>Score</b>	
<b>Shape</b>		<b>Size</b>	
<b>Flavor</b>	APPLE	<b>Imprint Code</b>	
<b>Contains</b>			

## Packaging

#	Item Code	Package Description	Marketing Start Date	Marketing End Date
1	NDC:32909-105-10	24 in 1 CASE	04/30/2019	
1		148 g in 1 BOTTLE, PLASTIC; Type 0: Not a Combination Product		

## Marketing Information

Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
NDA	NDA208036	04/30/2019	



**Labeler** - E-Z-EM Canada Inc (204211163)

**Registrant** - E-Z-EM, INC. (002041226)

**Establishment**

Name	Address	ID/FEI	Business Operations
E-Z-EM Canada Inc		204211163	PACK(32909-105) , LABEL(32909-105) , MANUFACTURE(32909-105) , ANALYSIS(32909-105)

Revised: 4/2019

E-Z-EM Canada Inc