

**LACTULOSE- lactulose solution**  
**Sun Pharmaceutical Industries, Inc.**

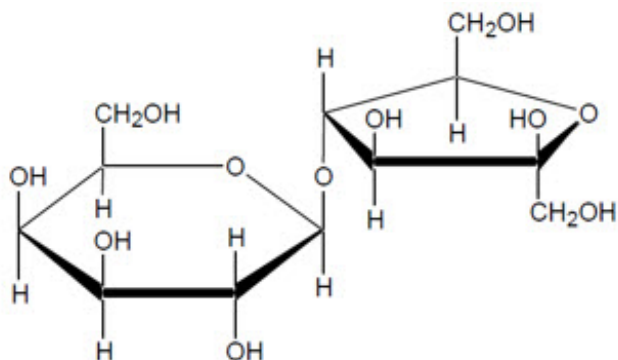
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**LACTULOSE ORAL SOLUTION, USP**  
**FOR ORAL ADMINISTRATION**

**DESCRIPTION**

Lactulose is a synthetic disaccharide in solution form for oral administration. Each 15 mL of lactulose solution contains; 10 g lactulose (and less than 1.6 g galactose, less than 1.2 g lactose, and 1.2 g or less of other sugars). Also contains water. The pH range is 3.0 to 5.5.

Lactulose is a colonic acidifier which promotes laxation.

The chemical name for lactulose is 4-O-β-D-galactopyranosyl-D-fructofuranose. The molecular formula is C<sub>12</sub>H<sub>22</sub>O<sub>11</sub>. It has the following structural formula:



The molecular weight is 342.3 g/mole. It is freely soluble in water, sparingly soluble in methanol, practically insoluble in toluene, insoluble in ether.

**CLINICAL PHARMACOLOGY**

Lactulose is poorly absorbed from the gastrointestinal tract and no enzyme capable of hydrolysis of this disaccharide is present in human gastrointestinal tissue. As a result, oral doses of lactulose solution reach the colon virtually unchanged. In the colon, lactulose is broken down primarily to lactic acid, and also to small amounts of formic and acetic acids, by the action of colonic bacteria, which results in an increase in osmotic pressure and slight acidification of the colonic contents. This in turn causes an increase in stool water content and softens the stool.

Since lactulose does not exert its effect until it reaches the colon, and since transit time through the colon may be slow, 24 to 48 hours may be required to produce the desired bowel movement.

Lactulose solution given orally to man and experimental animals resulted in only small amounts reaching the blood. Urinary excretion has been determined to be 3% or less and is essentially complete within 24 hours.

## **INDICATIONS AND USAGE**

For the treatment of constipation. In patients with a history of chronic constipation, lactulose solution therapy increases the number of bowel movements per day and the number of days on which bowel movements occur.

## **CONTRAINDICATIONS**

Since lactulose solution contains galactose (less than 1.6 g/15 mL), it is contraindicated in patients who require a low galactose diet.

## **WARNINGS**

A theoretical hazard may exist for patients being treated with lactulose solution who may be required to undergo electrocautery procedures during proctoscopy or colonoscopy. Accumulation of H<sub>2</sub> gas in significant concentration in the presence of an electrical spark may result in an explosive reaction. Although this complication has not been reported with lactulose, patients on lactulose therapy undergoing such procedures should have a thorough bowel cleansing with a non-fermentable solution. Insufflation of CO<sub>2</sub> as an additional safeguard may be pursued but is considered to be a redundant measure.

## **PRECAUTIONS**

### **General**

Since lactulose solution contains galactose (less than 1.6 g/15 mL) and lactose (less than 1.2 g/15 mL) it should be used with caution in diabetics.

### **Information for Patients**

In the event that an unusual diarrheal condition occurs, contact your physician.

### **Laboratory Tests**

Elderly, debilitated patients who receive lactulose solution for more than six months should have serum electrolytes (potassium, chloride, carbon dioxide) measured periodically.

### **Drug Interactions**

Results of preliminary studies in humans and rats suggest that nonabsorbable antacids given concurrently with lactulose may inhibit the desired lactulose-induced drop in colonic pH. Therefore, a possible lack of desired effect of treatment should be taken into consideration before such drugs are given concomitantly with lactulose solution.

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

There are no known human data on long-term potential for carcinogenicity, mutagenicity, or impairment of fertility.

There are no known animal data on long-term potential for mutagenicity.

Administration of lactulose solution in the diet of mice for 18 months in concentrations of 3 and 10 percent (v/w) did not produce any evidence of carcinogenicity.

In studies in mice, rats, and rabbits, doses of lactulose solution up to 6 or 12 mL/kg/day produced no deleterious effects in breeding, conception, or parturition.

## **Pregnancy**

### **Teratogenic Effects**

Reproduction studies have been performed in mice, rats, and rabbits at doses up to 3 or 6 times the usual human oral dose and have revealed no evidence of impaired fertility or harm to the fetus due to lactulose. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

## **Nursing Mothers**

It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when lactulose solution is administered to a nursing woman.

## **Pediatric Use**

Safety and effectiveness in pediatric patients have not been established.

## **ADVERSE REACTIONS**

Precise frequency data are not available.

Initial dosing may produce flatulence and intestinal cramps, which are usually transient. Excessive dosage can lead to diarrhea with potential complications such as loss of fluids, hypokalemia, and hypernatremia.

Nausea and vomiting have been reported.

To report SUSPECTED ADVERSE REACTIONS, contact Sun Pharmaceutical Industries, Inc. at 1-886-923-4914 or FDA at 1-800-FDA-1088 or [www.fda.gov/medwatch](http://www.fda.gov/medwatch).

## **OVERDOSAGE**

### **Signs and Symptoms**

There have been no reports of accidental overdosage. In the event of overdosage, it is expected that diarrhea and abdominal cramps would be the major symptoms. Medication should be terminated.

### **Oral LD<sub>50</sub>**

The acute oral LD<sub>50</sub> of the drug is 48.8 mL/kg in mice and greater than 30 mL/kg in rats.

### **Dialysis**

Dialysis data are not available for lactulose. Its molecular similarity to sucrose, however, would suggest that it should be dialyzable.

## **DOSAGE AND ADMINISTRATION**

The usual dose is 1 to 2 tablespoonfuls (15 to 30 mL, containing 10 g to 20 g of lactulose) daily. The dose may be increased to 60 mL daily if necessary. Twenty-four to 48 hours may be required to produce a normal bowel movement.

Note: Some patients have found that lactulose solution may be more acceptable when mixed with fruit juice, water or milk.

## **HOW SUPPLIED**

Lactulose Solution, USP 10 g / 15 mL is available as follows:

8 fl oz (237 mL) bottle      NDC 51672-4243-1  
in a carton

16 fl oz (473 mL) bottle      NDC 51672-4243-9  
in a carton

Lactulose solution contains lactulose 667 mg/mL (10 g / 15 mL).

Store at controlled room temperature 15° to 30°C (59° to 86° F). Do not freeze.

Under recommended storage conditions, a normal darkening of color may occur. Such darkening is characteristic of sugar solutions and does not affect therapeutic action. Prolonged exposure to temperatures above 30°C (86° F) or to direct light may cause extreme darkening and turbidity which may be pharmaceutically objectionable. If this condition develops, do not use.

Prolonged exposure to freezing temperatures may cause change to a semi-solid, too viscous to pour. Viscosity will return to normal upon warming to room temperature.

Dispense in original container or in a tight, light-resistant container as defined in the USP, with a child-resistant closure.

Rx only

Manufactured by: Taro Pharmaceutical Industries Ltd.

Haifa Bay, Israel 2624761

Distributed by: Sun Pharmaceutical Industries, Inc.

Cranbury, NJ 08512

Revised: March 2025

5256388-0325-01

## **PRINCIPAL DISPLAY PANEL - 473 mL Bottle Label**

16 fl oz (473 mL)

NDC 51672-4243-9

NDC 51672-4243-9

16 fl oz (473 mL)

## Lactulose Solution USP

**10 g/15 mL**

**INDICATIONS:** For the treatment of constipation.

**See insert labeling for full information.**

**Each 15 mL of lactulose solution contains:**

10 g lactulose (and less than 1.6 g galactose, less than 1.2 g lactose and 1.2 g or less of other sugars). Also contains water.

**USUAL ADULT DOSAGE:** 1 to 2 tablespoonfuls (15 to 30 mL) daily.

See attached insert for full prescribing information.

Since lactulose does not exert its effect until it reaches the colon, and since transit time through the colon may be slow, 24 to 48 hours may be required to produce a normal bowel movement.

Some patients have found that lactulose solution may be more acceptable when mixed with fruit juice, water, or milk.

Dispense in original container or in a tight, light-resistant container with child-resistant closure.

Store at controlled room temperature 15° to 30°C (59° to 86°F). **Do not freeze.**

Product may darken slightly but therapeutic action is not affected.

Do not use if extreme darkening or turbidity occurs. See accompanying product information. Keep tightly closed.

**PHARMACIST:** When ordering this product, include the NDC number in the description.

Manufactured by: Taro Pharmaceutical Industries Ltd.

Haifa Bay, Israel 2624761

Distributed by: **Sun Pharmaceutical Industries, Inc.**

Cranbury, NJ 08512



**Rx only**



5248106-0125-01

# LACTULOSE

lactulose solution

## Product Information

<b>Product Type</b>	HUMAN PRESCRIPTION DRUG	<b>Item Code (Source)</b>	NDC:51672-4243
<b>Route of Administration</b>	ORAL		

## Active Ingredient/Active Moiety

<b>Ingredient Name</b>	<b>Basis of Strength</b>	<b>Strength</b>
<b>LACTULOSE</b> (UNII: 9U7D5QH5AE) (LACTULOSE - UNII:9U7D5QH5AE)	LACTULOSE	10 g in 15 mL

## Inactive Ingredients

<b>Ingredient Name</b>	<b>Strength</b>
<b>GALACTOSE</b> (UNII: X2RN3Q8DNE)	
<b>WATER</b> (UNII: 059QF0KO0R)	

## Packaging

<b>#</b>	<b>Item Code</b>	<b>Package Description</b>	<b>Marketing Start Date</b>	<b>Marketing End Date</b>
<b>1</b>	NDC:51672-4243-9	1 in 1 CARTON	12/13/2024	
<b>1</b>		473 mL in 1 BOTTLE; Type 0: Not a Combination Product		

## Marketing Information

<b>Marketing Category</b>	<b>Application Number or Monograph Citation</b>	<b>Marketing Start Date</b>	<b>Marketing End Date</b>
ANDA	ANDA218858	12/13/2024	

**Labeler -** Sun Pharmaceutical Industries, Inc. (146974886)

## Establishment

<b>Name</b>	<b>Address</b>	<b>ID/FEI</b>	<b>Business Operations</b>
Taro Pharmaceutical Industries Ltd.		600072078	manufacture(51672-4243)

Revised: 4/2025

Sun Pharmaceutical Industries, Inc.