



## Promethazine

Updated: January 16, 2017.

## OVERVIEW

### Introduction

Promethazine is first generation antihistamine that belongs to the phenothiazine class and is used predominantly as an antiemetic to treat nausea and vomiting and prevent motion sickness. Despite its phenothiazine structure, promethazine has not been linked to instances of clinically apparent acute liver injury.

### Background

Promethazine (proe meth' a zeen) is a first generation antihistamine that is used widely to treat and prevent nausea and to a lesser extent to treat allergy symptoms and as a mild sedative. Promethazine belongs to the phenothiazine class of antihistamines and is a potent antiemetic. Because of its sedating effects, promethazine is also used for anxiety, tension and as a mild sleeping aid. Promethazine was approved for use in the United States in 1957 and continues to be widely used with more than 10 million prescriptions filled yearly. Promethazine is available in multiple forms including tablets, capsules, syrups, suppositories and liquid solution for injection generically and under the brand name Phenergan. Unlike other antihistamines, promethazine is not available over-the-counter. Current indications include nausea, preoperative sedation, nighttime sedation, rhinitis and allergic symptoms, cough and respiratory symptoms, and treatment and prevention of motion sickness. The typical recommended dose in adults is 12.5 to 25 mg orally or by rectal suppository, which can be repeated every 4 to 6 hours as necessary. Common side effects include excessive sedation, impairment of motor function, confusion, dizziness, extrapyramidal symptoms, blurred vision, dry mouth and throat, palpitations, tachycardia, abdominal distress, constipation and headache. Antihistamines can worsen urinary retention and glaucoma.

### Hepatotoxicity

Despite widespread use and similarity to phenothiazines, promethazine has not been clearly linked to liver test abnormalities or to clinically apparent liver injury. The reason for its safety may relate to low daily dose and limited duration of use.

Likelihood score: E (unlikely to be a cause of clinically apparent liver injury).

References on the safety and potential hepatotoxicity of antihistamines are given together after the Overview section on Antihistamines.

Drug Class: [Antihistamines](#)

## PRODUCT INFORMATION

### REPRESENTATIVE TRADE NAMES

Promethazine – Generic, Phenergan®

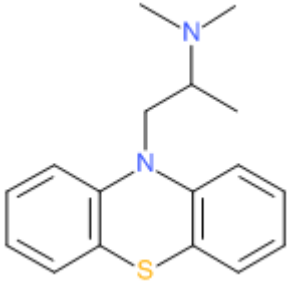
### DRUG CLASS

Antihistamines

### COMPLETE LABELING

Product labeling at DailyMed, National Library of Medicine, NIH

## CHEMICAL FORMULA AND STRUCTURE

DRUG	CAS REGISTRY NUMBER	MOLECULAR FORMULA	STRUCTURE
Promethazine	60-87-7	C <sub>17</sub> H <sub>20</sub> N <sub>2</sub> S	 The chemical structure of Promethazine is shown. It consists of a central benzothiazine ring system (a benzene ring fused to a five-membered ring containing one sulfur and one nitrogen atom). The nitrogen atom in the five-membered ring is substituted with a 2-(dimethylamino)ethyl group, which is a two-carbon chain ending in a nitrogen atom bonded to two methyl groups.