
**Nanazoxid (nitazoxanide) Tablets, 500 mg**
**Nanazoxid (nitazoxanide) Oral Suspension, 100 mg/ 5 mL**

## DESCRIPTION

Nanazoxid Tablets and Nanazoxid for Oral Suspension contain the active ingredient, nitazoxanide, a synthetic antiprotozoal agent for oral administration.

Nanazoxid Tablets contain 500 mg of nitazoxanide and the following inactive ingredients: Povidone k30, Avicel, Croscarmellose sodium, Sodium starch glycolate, Colloidal silicon dioxide, Talc, Magnesium stearate, Hydroxypropyl methylcellulose E15, PEG 6000, Titanium dioxide, Tween 80, Yellow ferric oxide.

Nanazoxid for Oral Suspension, when reconstituted with 48 mL of water, produces 60 ml, contains 100 mg nitazoxanide per 5 mL and the following inactive ingredients: Sucrose crystal, Maize starch, Citric acid anhydrous, Avicel, Xanthan gum, Sodium benzoate, Aerosil 200, Erythrosine lake, strawberry flavor.

## CLINICAL PHARMACOLOGY

**Absorption:** Following oral admnistration of Nanazoxid Tablets or Oral Suspension, maximum plasma concentrations fo the active metabolites tizoxanide and tizoxanide glucuronide are observed within 1-4 hours. The parent nitazoxanide is not detected in plasma.

## MICROBIOLOGY

### Mechanism of Action

The antiprotozoal activity of nitazoxanide is believed to be due to interference with the pyruvate:ferredoxin oxidoreductase (PFOR) enzyme-dependent electron transfer reaction which is essential to anaerobic energy metabolism. Studies have shown that the PFOR enzyme from *Giardia lamblia* directly reduces nitazoxanide by transfer of electrons in the absence of ferredoxin. The DNAderived PFOR protein sequence of *Cryptosporidium parvum* appears to be similar to that of *Giardia lamblia*. Interference with the PFOR enzyme-dependent electron transfer reaction may not be the only pathway by which nitazoxanide exhibits antiprotozoal activity.

**Drug Resistance**
A potential for development of resistance by *Cryptosporidium parvum* or *Giardia lamblia* to nitazoxanide has not been examined.

**INDICATIONS AND USAGE**

**Diarrhea caused by *Giardia lamblia* or *Cryptosporidium parvum:***
Nanazoxid for Oral Suspension (patients 1 year of age and older) and Nanazoxid Tablets (patients 12 years and older) are indicated for the treatment of diarrhea caused by *Giardia lamblia* or *Cryptosporidium parvum*.
Nanazoxid for Oral Suspension and Nanazoxid Tablets have not been shown to be superior to placebo for the treatment of diarrhea caused by *Cryptosporidium parvum* in HIV-infected or immunodeficient patients

**CONTRAINDICATIONS**
Nanazoxid Tablets and Nanazoxid for Oral Suspension are contraindicated in patients with a prior hypersensitivity to nitazoxanide or any other ingredient in the formulations.

**PRECAUTIONS**

**General**: The phamacokinetics of nitazonxide in patients with the compromised renal or hepatic function have not been studied. Therefore, nitazoxanide must be administered with caution to patients with hepatic and biliary disease, to patients with renal disease and to patients with combined renal and hepatic disease.

**Information for Patients**
Nanazoxid Tablets and Nanazoxid for Oral Suspension should be taken with food.
Diabetic patients and caregivers should be aware that the oral suspension contains sucrose.
If you have been told by your doctor that you have an intolerance to some sugars, contact your doctor before taking this medicinal product.

**Drug Interactions**
Tizoxanide is highly bound to plasma protein (>99.9%). Therefore, caution should be used when administering nitazoxanide concurrently with other highly plasma protein-bound drugs with narrow therapeutic indices, as competition for binding sites may occur (e.g., warfarin).

**Pregnancy:**
No adequate and well-controlled studies in pregnant women.

**Nursing Mothers**
It is not known whether nitazoxanide is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when nitazoxanide is administered to a nursing woman.

**Pediatric Use**
A single Nanazoxid Tablet contains a greater amount of nitazoxanide than is recommended for pediatricdosing and should therefore not be used in pediatric patients 11 years or younger.
Nanazoxid for Oral Suspension should be used for dosing nitazoxanide in pediatric patients (see **DOSAGE AND ADMINISTRATION**).
Safety and effectiveness of Nanazoxid for Oral Suspension in pediatric patients less than 1 year of age have not been studied.

**Geriatric Use**

The greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy in elderly patients should be considered when prescribing Nanazoxid. As stated in the PRECAUTIONS section, this therapy must be administered with caution to patients with renal and or hepatic impairment.

**HIV-Infected or Immunodeficient Patients**

Nitazoxanide has not been studied for the treatment of diarrhea caused by *Giardia lamblia* in HIV-infected or immunodeficient patients. Nitazoxanide has not been shown to be superior to placebo for the treatment of diarrhea caused by *Cryptosporidium parvum* in HIV-infected or immunodeficient patients.

**ADVERSE REACTIONS**

**Nanazoxid Tablets :**

Adverse events occurring in less than 1% of the patients age 12 years and older are listed below:

*Body as a Whole:* asthenia, fever, pain, allergic reaction, pelvic pain, back pain, chills, chills and fever, flu syndrome.
*Nervous System:* dizziness, somnolence, insomnia, tremor, hypesthesia.
*Digestive System:* vomiting, dyspepsia, anorexia, flatulence, constipation, dry mouth, thirst.
*Urogenital System:* discolored urine, dysuria, amenorrhea, metrorrhagia, kidney pain.
*Metabolic & Nutrition:* increased SGPT.
*Hemic & Lymphatic Systems*: anemia, leukocytosis.
*Skin:* rash, pruritus.
*Special Senses:* eye discoloration, ear ache.
*Respiratory System:* epistaxis, lung disease, pharyngitis.
*Cardiovascular System:* tachycardia, syncope, hypertension.
*Muscular System:* myalgia, leg cramps, spontaneous bone fracture.

**Nanazoxid for Oral Suspension:**

Adverse events occurring in less than 1% of the pediatric patients participating are listed below:

*Digestive System:* nausea, anorexia, flatulence, appetite increase, enlarged salivary glands.
*Body as a Whole:* fever, infection, malaise.
*Metabolic & Nutrition:* increased creatinine, increased SGPT.
*Skin:* pruritus, sweat.
*Special Senses:* eye discoloration (pale yellow).
*Respiratory System:* rhinitis.
*Nervous System:* dizziness.
*Urogenital System:* discolored urine.

The adverse events seen in adult patients treated with Nanazoxid for Oral Suspension were similar to those observed in adult patients treated with Nanazoxid Tablets.

**OVERDOSAGE**

Information on nitazoxanide overdosage is not available. In the event of overdose, gastric lavage may be appropriate soon after oral administration. Patients should be carefully observed and given symptomatic and supportive treatment.

## DOSAGE & ADMINISTRATION

| Indication | Age | Dosage | Duration |
|---|---|---|---|
| Treatment of diarrhea caused by Giardia lamblia or *Cryptosporidium parvum* | 1-3 years | 5 ml of Nanazoxid 100 for Oral Suspension (100 mg nitazoxanide) every 12 hours with food | 3 days |
| | 4-11 years | 10 ml of Nanazoxid 100 for Oral Suspension (200 mg nitazoxanide) every 12 hours with food | 3 days |
| | >/= 12 years | 25 ml of Nanazoxid 100 for Oral Suspension (500 mg nitazoxanide) every 12 hours with food | |

Nitazoxanide has not been studied for the treatment of *Giardia lamblia* in HIV-infected or immunodeficient patients. Nitazoxanide has not been shown to be superior to placebo for the treatment of diarrhea caused by *Cryptosporidium parvum* in HIV-infected or immunodeficient patients.

A single Nanazoxid tablet contains a great amount of nitazoxanide that is recommended for pediatric dosing and should therefore not be used in pediatric 11 years or younger.

## DIRECTIONS FOR MIXING NANAZOXID FOR ORAL SUSPENSION

Prepare a suspension at time of dispensing as follows: The amount of water required for preparation of the suspension is 48 ml. Tap bottle until all powder flows freely. Add approximately one-half of the total amount of water required for reconstitution and shake vigorously to suspend powder. Add remainder of water and again shake vigorously. The container should be kept tightly, and the suspension should be shaken well before each administration. The suspension may be stored for 7 days, after which any unused portion must be discarded.

**Package**:
**Nanazoxid 500 mg tables:** Carton box containing 1 or 3 pvdc/alum. strips; each strip 6 film coated tablets with an insert leaflet.
**Nanazoxid for Oral Suspension:** Carton box contains an amber glass (type 3) bottle containing powder for oral suspension to make 60 ml when reconstituted + a measuring plastic cup + insert leaflet.

**Storage:**
Keep out of reach of children.
For **Nanazoxid 500 mg tables:** Keep at a temperature not exceeding 30°C in a dry place.

For **Nanazoxid for Oral Suspension:**
Keep at a temperature not exceeding 30°C. After reconstitution; keep for one week at a temperature not exceeding 30°C.

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