| | | |
|---|---|---|
| | **PRODUCT NAME** | Bro-Zedex Cough Syrup |
| | **GENERIC NAME** | Terbutaline Sulphate, Bromhexine HCL, Guaifenesin & Menthol syrup |

# SUMMARY OF PRODUCT CHARACTERISTICS

## 1. NAME OF THE MEDICINAL PRODUCT

**BRO-ZEDEX** Cough Syrup

(Terbutaline Sulphate, Bromhexine HCl, Guaiphenesin and Menthol Syrup)

## 2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each 10 ml contains:

| | |
|---|---|
| Terbutaline Sulphate | BP 2.5 mg |
| Bromhexine Hydrochloride | BP 8.0 mg |
| Guaiphenesin | BP 100.0 mg |
| Menthol | BP 5.0 mg |

Also contains: Sucrose, Liquid glucose, Benzoic acid, Sodium Benzoate, Saccharin Sodium, Propylene Glycol, Vanillin, Liquid Sorbitol, Colour orange red, Flavour RSW 786, Purified water.

## 3. PHARMACEUTICAL FORM

Liquid Oral- Orange coloured solution having menthol flavour with sweet mentholated taste in a 100ml transparent PET bottle

## 4. CLINICAL PARTICULARS

### 4.1 Therapeutic Indications

Bro-Zedex is indicated in the symptomatic treatment of cough associated with expectoration and/or bronchospasm. This includes cough associated with respiratory infections, bronchitis, pulmonary congestion, where retention of tenacious and viscid, mucoid secretions is a problem.

### 4.2 Posology and method of administration

Adults : 10ml to be taken 3-4 times a day.

Children : 2.5ml to be taken 3-4 times a day.

or as directed by the physician

### 4.3 Contra-indications

Hypersensitivity to sympathomimetic amines, thyrotoxosis, cardiac patients with arrhythmias, first trimester of pregnancy, hepatic damage, peptic ulcer, patients with bleeding problems.

### 4.4 Special warnings and special precautions for use

The preparation should be administered with caution in patients who are hypertensive or those who are suffering from cardiovascular disease. It should also be used cautiously in patients who have uncontrolled diabetes mellitus, history of gastric ulceration severe hepatic or renal impairment.

**4.5 Interactions with other medicaments and other forms of Interaction**

There are no known significant interactions with other medicines.

**4.6 Pregnancy and Lactation**

Bromhexine has been taken by a large number of pregnant women and women of child bearing age without any proven increase in the frequency of malformations or other direct or indirect harmful effects on the foetus having been observed.

It is not known whether bromhexine is excreted in breast milk or whether it has a harmful effect on the breastfeeding infant.

Therefore it is not recommended for breastfeeding mothers unless the potential benefits to the patient are weighed against the possible risk to the infant.

**4.7 Effects on ability to drive and use machines**

No adverse effects known.

**4.8 Undesirable effects**

The adverse effects of terbutaline are produced because of stimulation of $\beta_2$ receptors in other sites of the body. Careful instruction to the patient prior to initiating treatment can help in achieving optimal therapy.

Tremor, irritability, headache, dizziness particularly in the elderly may be seen. The problem is reduced if the patient is warned in advance about these side-effects and if it is explained that tolerance is likely to develop in 3-4 weeks.

Palpitation has been reported with higher dose, hypokalemia.

There are few side effects caused by guaiphenesin apart from nausea and vomiting. Excessive dosage can cause drowsiness.

Gastrointestinal side effects may occur occasionally with bromhexine and a transient rise in serum aminotransferase values has been reported. Other reported adverse effects include headache, vertigo (dizziness), sweating and allergic reactions.

**4.9 Overdose**

In massive overdosage the stomach should be emptied (emesis and/or gastric lavage) and further absorption prevented. Treatment is symptomatic and supportive.

The acute toxicity of guaifensin is low and overdosage is unlikely to produce serious toxic effects. In laboratory animals no toxicity resulted when guaifenesin was administered by stomach t.b. in doses up to 5 grams/kg.

Severe intoxication with codeine may result in dyspnea, vertigo, double vision, delusions, hallucinations, speech disturbances, excitement, restlessness, delirium, constricted pupils, respiratory depression (slow and shallow breathing), Cheyne-Stokes respiration, circulatory collapse, stupor and coma.

Treatment of overdosage consists primarily of support of vital functions, especially management of codeine-induced respiratory depression. The narcotic antagonist naloxone is a specific antidote for respiratory depression that may result from overdose or unusual sensitivity from narcotics.

| | | |
|---|---|---|
| | **PRODUCT NAME** | Bro-Zedex Cough Syrup |
| | **GENERIC NAME** | Terbutaline Sulphate, Bromhexine HCL, Guaifenesin & Menthol syrup |

Overdosage with dextromethorphan may produce excitement and mental confusion. Very high doses may produce respiratory depression. One case of toxic psychosis (hyperactivity, marked visual and auditory hallucinations) after ingestion of a single 300 mg dose of dextromethorphan has been reported.

## 5. PHARMACOLOGICAL PROPERTIES

### 5.1 Pharmacodynamic properties:

Terbutaline sulphate is a direct acting sympathomimetic agent with a selective action on $\beta_2$ receptors. Stimulation of $\beta_2$ receptors of the bronchus results in bronchodialation due to relaxation of bronchial smooth muscles. Terbutaline alleviates the bronchospasm that leads to irritation and coughing.It also makes breathing easier by dialating the airways.

Bromhexine is an oral mucolytic agent with a low level of associated toxicity. Bromhexine acts on the mucus at the formative stages in the glands, within the mucus-secreting cells. Bromhexine disrupts the structure of acid mucopolysaccharide fibres in mucoid sputum and produces a less viscous mucus, which is easier to expectorate.

Bromhexine is a derivative of the alkaloid vasicine obtained from the plant Adhatoda vasica. It is mucolytic and mucokinetic. Bromhexine reduces sputum viscocity by breaking down the tenacious network of mucopolysaccharide fibres abundant in mucoid sputum. It depolymerizes mucopolysaccharides directly as well as by liberating lysosomal enzymes. It is particularly useful when mucous plugs are present. Bromhexine is thus facilitates ciliary clearance of the sputum.Bromhexine creates an environment in the bronchial tree condusive to the removal of sticky mucous, thuspromoting expectoration without excess straining.

Guaifenesin (glyceryl guaiacolate) has the chemical name 3-(2- methoxyphenoxy)-1,2-propanediol. Its molecular formula is C10H14O4 with a molecular weight of 198.21. It is a white or slightly gray crystalline substance with a slightly bitter aromatic taste. One gram dissolves in 20 mL water at 25° C; it is freely soluble in ethanol. Guaifenesin is readily absorbed from the GI tract and is rapidly metabolized and excreted in the urine. Guaifenesin has a plasma half- life of one hour. The major urinary metabolite is b-(2-methoxyphenoxy) lactic acid.

Guaiphenesin is an expectorant, which acts by enhancing the output of respiratory tract fluid. By increasing the volume of secretions in the respiratory tract , to facilitate sputum removal by ciliary action and coughing. As a result, non-productive cough becomes more productive and less frequent.

Menthol acts as a soothing agent and a demulcent.

### 5.2 Pharmacokinetic properties

Bromhexine hydrochloride is rapidly absorbed from the gastrointestinal tract and undergoes extensive first-pass metabolism in the liver. Its oral bioavailability is stated to be only about 20%. It is widely distributed to body tissues and is highly bound to plasma proteins. About 85 to 90% of a dose is excreted in the urine mainly as metabolites. It has a terminal elimination half-life of up to about 12 hours. Bromhexine crosses the blood brain barrier and small amounts cross the placenta.

Guaifenesin is well tolerated and has a wide margin of safety. Side effects have been generally mild and infrequent. Nausea and vomiting are the side effects that occur most commonly. Dizziness, headache, and rash (including urticaria) have been reported rarely.

- Absorption: well absorbed
- Half-life elimination is app. 1 hour
- Excretion is unchanged drug and metabolites in the urine
- Onset of Action: Oral: anti-tussive: 15-30 minutes

### 5.3 Preclinical safety data

There are no pre-clinical data of relevance to the prescriber which are additional to that already included in other sections of the SPC.

## 6. PHARMACEUTICAL PARTICULARS

### 6.1 List of excipients

Sucrose, Liquid glucose, Benzoic acid, Sodium Benzoate, Saccharin Sodium, Propylene Glycol, Vanillin, Liquid Sorbitol, Colour orange red, Flavour RSW 786, Purified water.

### 6.2 Incompatibilities

None known

### 6.3 Shelf Life

24 months

### 6.4 Special precautions for storage

Store below 30°C. Keep out of reach of children

### 6.5 Nature and contents of container

100 ml in a transparent PET bottle with printed label, measuring cup and ROPP cap with logo. One bottle packed in a printed carton with package insert.

### 6.6 Instruction for use/handling

Store below 30°C. Keep out of reach of children

## 7. MARKETING AUTHORISATION HOLDER

Wockhardt Limited

## 8. MARKETING AUTHORISATION NUMBER(S)

-

## 9. DATE OF FIRST AUTHORISATION / RENEWAL OF THE AUTHORISATION

-