SUMMARY OF PRODUCT CHARACTERISTICS

1. Name of the medicinal product
SANDOX – 200
Cefpodoxime Proxetil Tablets USP 200mg

2. Qualitative and quantitative composition
Label Claim:
Each film coated tablet contains:
Cefpodoxime Proxetil USP equivalent to anhydrous Cefpodoxime 200mg

Raw material	Specification	Qty / tab (mg)	Rationale
Cefpodoxime Proxetil (micronized) *****	USP	297.20	Active ingredient

Remarks:
***** The above quantity is based on 69.0% w/w assay as Cefpodoxime and 2.50% w/w water content of Cefpodoxime Proxetil.

3. Pharmaceutical form
Film coated tablet
Description: Off white colored, oblong shaped, slightly biconvex film coated tablets with scoring in the middle one side.

4. Clinical particulars
4.1 Therapeutic indications
Cefpodoxime Proxetil tablets are indicated for use in the short-term treatment of upper and lower respiratory tract infections due to susceptible micro-organisms

- Acute bronchitis due to: *Haemophilus influenzae*, *Streptococcus pneumoniae*, *Moraxella catarrhalis.*
- Pharyngitis and tonsillitis due to: *Streptococcus pyogenes.*
- Acute exacerbations of chronic bronchitis due to: *Haemophilus influenzae*, *Streptococcus pneumoniae, Moraxella catarrhalis.*
- Bacterial pneumonia and community-acquired bronchopneumonia due to: *Haemophilus influenza, Streptococcus pneumoniae, Moraxella catarrhalis.*
- Acute sinusitis due to: *Haemophilus influenzae* (non-typeable), *Streptococcus pneumoniae*, Methicillin-sensitive *Staphylococcus aureus, Moraxella catarrhalis.*

4.2 Posology and method of administration
Route of administration: oral.
In adults:
Each film-coated tablet contains 100 mg or 200 mg of Cefpodoxime. The dosage depends on the condition being treated.
Tonsillitis, pharyngitis and acute bronchitis:
One Cefpodoxime Proxetil Tablets USP 100mg every 12 hours with meals (200 mg/day). As is the case with all beta-lactam antibiotics in the treatment of beta-haemolytic streptococcal infections, a therapeutic dose has to be administered for at least 10 days.
Acute sinusitis, acute exacerbations of chronic bronchitis, pneumonia:
One Cefpodoxime Proxetil Tablets USP 200mg every 12 hours with meals (400 mg/day)
Elderly patients:
Where renal function is normal, it is not necessary to adjust the dose.

Hepatic insufficiency in adults and children:
No dosage adjustment necessary.
Renal insufficiency in adults and children:
When the creatinine clearance is above 40 ml/min, it is not necessary to adjust the dose. For values below 40 ml/min, the daily dosage regimen should be reduced by half and administered as a single daily dose for values 10 - 39 ml/min, every second day for values below 10 ml/min and after each dialysis session for haemodialysis patients.

4.3 Contraindications
• Hypersensitivity to Cefpodoxime, any other cephalosporins or to any of the excipients.
• Previous history of immediate and / or severe hypersensitivity reaction (anaphylaxis) to penicillin or other beta-lactam antibiotic.

4.4 Special warnings and precautions for use
Anaphylactic reactions:
Preliminary enquiry as to an allergic diathesis and particularly hypersensitivity of beta-lactam antibiotics should precede treatment with Cefpodoxime Proxetil.
The use of Cefpodoxime Proxetil is strictly contraindicated in subjects with a previous history of immediate type hypersensitivity to cephalosporins.
Cefpodoxime Proxetil should be used with extreme caution in patients sensitive to penicillin and other ß-lactam antibiotics as cross-allergy may develop. Strict medical supervision is required throughout the treatment.
Hypersensitivity reactions (anaphylaxis) observed with Cefpodoxime Proxetil can be serious and occasionally fatal. Treatment should be stopped immediately, should an allergic reaction occur.
***Clostridium difficile* – associated disease:**
Diarrhoea, particularly if severe and/or persistent, occurring during treatment or in the initial weeks following treatment with Cefpodoxime Proxetil, may be symptomatic of *Clostridium difficile*-associated disease, the most severe form of which is pseudomembranous colitis. The diagnosis of this possibly fatal condition is confirmed by endoscopy and/or histology. Screening of faeces for this pathogen, and its cytotoxin is the best way to diagnose *Clostridium difficile* associated disease.
If a diagnosis of pseudomembranous colitis is suspected, Cefpodoxime Proxetil should be stopped immediately and appropriate specific therapy should be started without delay (e.g. vancomycin or metronidazole).
Clostridium difficile-associated disease can be favoured by faecal stasis.
Renal impairment:
Use with care in patients with renal impairment. Changes in renal function have been observed with antibiotics of the same class as Cefpodoxime Proxetil, particularly when given concurrently with potentially nephrotoxic agents such as aminoglycosides and/or potent diuretics. In such cases, renal function should be monitored.
Positive Coombs' test:
Cefpodoxime Proxetil may be absorbed onto the surface of red cell membranes and react with antibiotics directed against the medicine. This can produce a positive antiglobulin test and haemolytic anaemia. Cross-reactivity may occur with penicillin for this reaction.
Superinfection:
The use of Cefpodoxime Proxetil especially if prolonged may result in overgrowth of non-susceptible organisms. Repeated evaluation of the patient's condition is essential. If superinfection occurs during therapy, appropriate measures should be taken.

4.5 Interaction with other medicinal products and other forms of interaction

The bioavailability of Cefpodoxime Proxetil is increased if the product is administered during meals (acid pH).
Histamine H2 antagonists (such as ranitidine) and antacids reduce the bioavailability of Cefpodoxime Proxetil.
Probenecid reduces the excretion of Cefpodoxime Proxetil. Cefpodoxime Proxetil potentially enhances the anticoagulant effect of warfarin and reduces the contraceptive effect of oestrogens.
Cases showing development of a positive Coombs' test have been reported.
A false positive reaction for glucose in the urine may occur with Benedict's or Fehling's solution or with copper sulphate test tablets, but not with tests based on enzymatic glucose oxidase reactions.

4.6 Fertility, pregnancy and lactation
Safety of Cefpodoxime Proxetil in pregnant women has not been established, it is therefore advisable not to administer Cefpodoxime Proxetil Tablets USP 200mg during pregnancy.
Since Cefpodoxime Proxetil is excreted in human breast milk, either breastfeeding or treatment of the mother should be discontinued in mothers who are breastfeeding their infants.

4.7 Effects on ability to drive and use machines
Dizziness has been reported during treatment with Cefpodoxime and may affect the ability to drive and use machines.

4.8 Undesirable effects
The following side effects have been reported:
Blood and the lymphatic system disorders
Less frequent: reduction of haemoglobin, thrombocytosis, thrombocytopenia, leucopenia, haemolytic anaemia and eosinophilia. Neutropenia and agranulocytosis may occur during treatment with Cefpodoxime Proxetil.
Immune system disorders
less frequent: anaphylactic reactions: e.g. angioedema, bronchospasm, malaise, possibly culminating in shock may occur.

Nervous system disorders
less frequent: headache, dizzy sensations, paraesthesia
Ear and labyrinth disorders
less frequent: tinnitus
Gastrointestinal disorders
frequent: diarrhoea, nausea, vomiting, abdominal pains
less frequent: diarrhoea may sometimes be a symptom of enterocolitis, which may, in some cases, be accompanied by blood in stools. A particular form of enterocolitis than can occur with antibiotics is pseudomembranous colitis (in most cases due to *Clostridium difficile*).
Hepato-biliary disorders
less frequent: increases in liver enzymes (AST, ALT and alkaline phosphatase), and/or bilirubin. These laboratory abnormalities exceed twice the upper limit of the normal range and elicit a pattern of drug induced hepatitis, usually cholestatic.
Skin and subcutaneous tissue disorder
less frequent: cutaneous eruptions, rash, pruritus, urticaria and purpura. Cases of bullous eruptions (erythema multiforme, Stevens-Johnson Syndrome, toxic epidermal necrolysis) have been reported.
Renal and urinary disorders
less frequent: increase of blood urea and creatinine.

Changes in renal function have been observed with antibiotics from the same group as Cefpodoxime Proxetil, particularly when co-prescribed with aminoglycosides and/or potent diuretics.

General disorders and administrative site conditions

less frequent: asthenia

Infections and Infestations

frequent: super infections, overgrowth of non-susceptible organisms.

4.9 Overdose

In the event of overdosage with Cefpodoxime, supportive and symptomatic therapy is indicated.

In cases of overdosage, particularly in patients with renal insufficiency, encephalopathy may occur. The encephalopathy is usually reversible once Cefpodoxime plasma levels have fallen.

5. Pharmacological properties

5.1 Pharmacodynamic properties

Cefpodoxime Proxetil is a semisynthetic ß-lactam antibiotic belonging to the third generation oral cephalosporin group. Cefpodoxime Proxetil is the prodrug of the bactericidal antibiotic Cefpodoxime.

Cefpodoxime possesses *in vitro* bactericidal activity against a broad spectrum of Gram-positive and Gram-negative bacteria. *In vitro* sensitivity does not necessarily imply *in vivo* efficacy. Therefore sensitivity tests must be performed. The mechanism of action is bactericidal through inhibition of bacterial cell wall biosynthesis enhanced by a high affinity for proteins at the cytoplasmic membrane.

The following organisms are not sensitive: Group D streptococci, Methicillin-resistant staphylococci (S. aureus and S. epidermidis), Staphylococcus saprophyticus, Corynebacteria, groups J and K, Listeria monocytogenes, Pseudomonas aeruginosa and Pseudomonas spp., Acinetobacter baumanii, Clostridium difficile, Bacteroides fragilis and related species.

5.2 Pharmacokinetic properties

The bioavailability of Cefpodoxime Proxetil is increased when the product is administered with meals, or when there is a decrease in gastric pH. An increase in gastric pH results in decreased bioavailability.

Absorption:

After oral administration, Cefpodoxime Proxetil is absorbed in the gastrointestinal tract and rapidly hydrolysed by non-specific esterases in the gastrointestinal wall to Cefpodoxime, the active acid.

Distribution:

In adults:

After oral administration of a single dose of 100 mg of Cefpodoxime, the maximum plasma concentration (Cmax) obtained is 1 to 1,2 mg/l and after administration of a
dose of 200 mg of Cefpodoxime, the maximum plasma concentration (Cmax) obtained is 2,2 to 2,5 mg/l. In both cases the time (Tmax) taken to reach the maximum concentration is 2 to 3 hours.

Following administration of 100 and 200 mg twice daily for 14,5 days, the pharmacokinetic parameters of Cefpodoxime remain unchanged, indicating that there is no accumulation of the active principle.

The binding of Cefpodoxime to plasma proteins is about 40 %. This binding is principally to albumin and is of the non-saturable type.

In children:

After oral administration of a single 5 mg/kg dose (200 mg maximum) of Cefpodoxime to subjects between 4 and 12 years of age, the maximum plasma concentration (Cmax) is on average 2,6 mg/l. The time taken to reach the maximum concentration (Tmax) is 2 to 4 hours. The average plasma concentrations observed 8 and 12 hours after administration (residual) are 0,39 and 0,08 mg/l respectively.

Diffusion in fluids and tissues:

Cefpodoxime Proxetil diffuses well in lung parenchyma, bronchial mucosa, pleural fluid and tonsils.

Metabolism and elimination:

The main metabolite is Cefpodoxime, resulting from the hydrolysis of Cefpodoxime Proxetil.
The elimination half-life of Cefpodoxime is 2,4 hours. 80 % of unchanged Cefpodoxime is excreted in the urine.

5.3 Preclinical safety data

Preclinical data based on conventional studies on acute toxicity, repeated dose toxicity, reproduction toxicity and genotoxicity reveal no special hazard for humans not already considered in other sections of the SPC.

6. Pharmaceutical particulars

6.1 List of excipients

Maize Starch, Sodium Lauryl Sulfate, Hydroxypropyl cellulose (Low substituted), Pregelatinized Starch, Croscarmellose sodium, Colloidal silicon dioxide, Magnesium Stearate, Instacoat universal, Isopropyl alcohol, Methylene Chloride.

6.2 Incompatibilities

Not applicable

6.3 Shelf life

36 Months

6.4 Special precautions for storage

Store at temperature below 30ºC. Protect from light.

6.5 Nature and contents of container

Cefpodoxime film-coated tablets are available in 1 x 10’s, Alu/Alu pack of blisters packed in a monocarton along with leaflet.

6.6 Special precautions for disposal and other handling

No special requirements

7. Marketing authorisation holder

SANCE LABORATORIES PVT LTD
VI/51B, P.B No.2, Kozhuvanal, Pala,
Kottayam – 686573, Kerala, India

8. Marketing authorisation number(s)

SAN/IND/768

9. Date of first authorisation/renewal of the authorization
Date of registration: 16/08/2017

10. Date of revision of the text
25/07/2023