

# New Zealand Data Sheet

## CILICAINE VK

*Phenoxymethyl penicillin capsules 250 mg & 500 mg*

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### Presentation

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CILICAINE VK 250mg capsules: Size 2 hard gelatine capsule shell, opaque rusty red cap and body containing 250mg phenoxymethyl penicillin.

CILICAINE VK 500mg capsules: Size 0 hard gelatine capsule shell, opaque rusty red cap and body containing 500mg phenoxymethyl penicillin.

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### Uses

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#### **Actions**

Penicillin V exerts a bactericidal action against penicillin sensitive micro-organisms during the stage of active multiplication. It is not active against the penicillinase producing bacteria, which include many strains of staphylococci.

Sensitive organisms include the following:

- Gram-positive cocci, e.g. Streptococci (groups A,C,G,H,L and M), and non-penicillinase producing *Staphylococcus pyogenes*.
- Gram-positive bacilli, e.g. Clostridium tetani, Cl. Perfringens, Corynebacterium diphtheriae and Bacillus anthracis.
- Gram-negative bacteria, both *Neisseria meningitidis* and *N. gonorrhoeae* are sensitive to a degree but *Haemophilus influenzae* is moderately resistant and other aerobic Gram-negative bacilli are highly resistant.
- *Treponema pallidum* is sensitive, but treatment of syphilis with oral penicillins is not recommended.

Phenoxymethylpenicillin produces a bacterial effect on penicillin sensitive organisms during the stage of active multiplication through inhibition of biosynthesis of cell wall mucopeptides. The antibacterial spectrum of phenoxymethylpenicillin is similar to that of benzyl penicillin, however, it has the advantage of being acid stable and hence better absorbed from the gastrointestinal tract than benzyl penicillin. It is resistant to inactivation by gastric acid. It may be given with meals; however, blood levels are slightly higher when given on an empty stomach. Average blood levels are two to five

times higher than the levels following the same dose of oral penicillin G and show much less individual variation.

### ***Pharmacokinetics***

Usually, up to 60% of the medicine is absorbed into the blood stream after oral administration. Absorption is usually rapid and may produce peak serum concentrations within 30 minutes and demonstrable levels are maintained for 4 hours.

Approximately 80% of phenoxymethylpenicillin is serum protein bound. About 56% of a 500mg oral dose of the medicine is metabolised into inactive metabolite and about 23 to 36% of the medicine is rapidly excreted in the unchanged form in the urine. Bile excretion depends on renal function, being low in normal renal function and high in renal impairment. The oral plasma half-life is about 30 minutes in healthy adults and about 1 to 3 hours in neonates. The half life is greatly extended in patients with renal or hepatic impairment.

The medicine is excreted as rapidly as it is absorbed in individuals with normal kidney function; however, recovery of the medicine from the urine indicates that only about 25% of the dose given is absorbed. In neonates, young infants and individuals with impaired kidney function, excretion is considerably delayed.

Tissue levels are highest in the kidneys with lesser amounts in the liver, skin and intestines. Small amounts are found in all other body tissues and the cerebrospinal fluid.

### ***Indications***

When oral therapy is required in the treatment of mild to moderately severe infections due to penicillin sensitive organisms. Therapy should be guided by bacteriological studies, including sensitivity tests, and by clinical response.

For prophylactic use in recurrent streptococcal infections including the prevention of recurrence following rheumatic fever and/or Sydenham's chorea and to prevent bacterial endocarditis in patients with rheumatic fever and/or congenital heart disease who are about to undergo dental or upper respiratory surgery or instrumentation.

Note: Oral penicillin should not be used as adjunctive prophylaxis for genitourinary instrumentation or surgery, lower intestinal tract surgery, sigmoidoscopy or complications of childbirth.

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## **Dosage and Administration**

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### ***Adults***

250mg to 500mg every four to six hours, preferably one hour before food. The dosage should be determined according to sensitivity of the organisms and severity of the infection.

Prevention of recurrence following rheumatic fever: 250mg twice a day continuously.

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## Contraindications

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Hypersensitivity to penicillins and/or cephalosporin.

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## Warnings and Precautions

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Serious and occasionally fatal hypersensitivity (anaphylactoid) reactions have been reported in patients on penicillin therapy. Although anaphylaxis is more frequent following parenteral therapy, it has occurred in patients on oral penicillins. These reactions are more likely to occur in individuals with a history of penicillin hypersensitivity and/or history of sensitivity to multiple allergens. There have been reports of individuals with a history of penicillin hypersensitivity who have experienced severe reactions when treated with cephalosporins. Before initiating therapy with any penicillin, careful inquiry should be made concerning previous hypersensitivity reactions to penicillins, cephalosporins or other allergens. If an allergic reaction occurs, the medicine should be discontinued and the appropriate therapy instituted. Serious anaphylactoid reactions require immediate emergency treatment with adrenaline. Oxygen, intravenous steroids, and airway management, including intubation, should also be administered as indicated.

Antibiotic associated pseudomembranous colitis has been reported with many antibiotics including phenoxymethylpenicillin. A toxin produced with *Clostridium difficile* appears to be the primary cause. The severity of the colitis may range from mild to life threatening. It is important to consider this diagnosis in patients who develop diarrhoea of colitis in association with antibiotic use (this may occur up to several weeks after cessation of antibiotic therapy). Mild cases usually respond to medicine discontinuation alone. However, in moderate to severe cases appropriate therapy with a suitable oral antibacterial agent effective against *Clostridium difficile* should be considered.

Fluids, electrolytes and protein replacement should be provided when indicated.

Agents which delay peristalsis, e.g. opiates and diphenoxylate with atropine (Lomotil) may prolong and/or worsen the condition and should not be used.

Phenoxymethylpenicillin is not recommended for chronic, severe or deep seated infections as therapeutic concentrations may not be achieved in the relevant tissues.

Oral administration should not be relied upon to achieve therapeutic levels in some patients with severe illness or with nausea, vomiting, gastric dilation, cardio-spasm or intestinal hypermotility. Occasionally patients will not absorb therapeutic amounts of oral penicillin. Parenteral administration of suitable antibiotics is recommended in these patients.

In a streptococcal infection, therapy should continue for a minimum of ten days. Cultures should be taken following completion of treatment to determine whether Streptococci have been eradicated.

Use of an alternative or additional method of contraception is strongly recommended if an oestrogen containing contraceptive is taken concurrently (see **Interactions** below).

### ***History of Bleeding Disorders***

Some penicillins may cause platelet dysfunction and haemorrhage.

### ***Renal Function Impairment***

Because most penicillins are excreted through the kidneys, a reduction in dosage, or increase in dosing interval, is recommended in patients with renal function impairment; and the potassium content of high doses of phenoxymethylpenicillin potassium, should be considered in patients with severe renal function impairment.

### ***Prolong Use***

Prolonged use of penicillins may lead to the development of oral candidiasis.

### ***Carcinogenicity***

Long term studies have not been performed in animals

### ***Genotoxicity***

The genotoxic potential of phenoxymethylpenicillin has not been examined.

### ***Effect on Fertility***

Reproductive studies performed in the mouse, rat and rabbit have revealed no evidence of impaired fertility due to phenoxymethylpenicillin.

### ***Use in Pregnancy and Lactation***

Human experience with the penicillins during pregnancy has not shown any positive evidence of adverse effects on the fetus. There are, however, no adequate and well controlled studies in pregnant women showing conclusively that harmful effects of these drugs on the fetus can be excluded. Because

animal reproduction studies are not always predictive of human response, penicillin should be used during pregnancy only if clearly needed.

The medicine is excreted in breast milk in concentrations lower than plasma levels. As safety to newborn infants has not been established, it is not recommended for breast-feeding mothers unless the benefits outweigh any potential risk.

### ***Use in Children***

The half-life of Phenoxyethylpenicillin is prolonged in premature infants and neonates up to 3 months of age. Consequently only three doses a day may be adequate to maintain plasma levels in these infants.

### ***Use in Elderly***

There are no age specific problems documented with the use of Phenoxyethylpenicillin, However, the elderly are more likely to have age-related renal function impairment, which may require dosage adjustment

### ***Renal or Hepatic Impairment***

The half-life is greatly extended in these patients.

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## **Adverse Effects**

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The most common reactions are nausea, vomiting, epigastric distress, diarrhoea, pruritis ani, black hairy tongue, allergic skin reactions, urticaria and other serum sickness reactions.

The hypersensitivity reactions reported are skin eruptions (macropapular to exfoliative dermatitis), urticaria and other serum sickness-like reactions, laryngeal oedema and anaphylaxis. Fever and eosinophilia may frequently be the only reaction observed.

Haemolytic anaemia, leucopenia, thrombocytopenia, neuropathy and nephropathy are uncommon reactions usually associated with high doses of parenteral penicillin.

Anaphylaxis is a less common reaction.

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## **Interactions**

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Bacteriostatic agents may antagonise the effect of penicillin.

Probenecid reduces the tubular excretion of penicillin, thereby increasing concentrations in the blood stream of concomitantly administered penicillin.

Food has a variable effect, generally delaying absorption.

Antacids may reduce absorption of the medicine.

When used concurrently with an oestrogen-containing oral contraceptive, the effectiveness of the oral contraceptive may be decreased because of stimulation of oestrogen metabolism or reduction of enterohepatic circulation of oestrogens, resulting in menstrual irregularities, intermenstrual bleeding and unplanned pregnancies. This interaction may be of greater clinical significance with long-term use of this penicillin; patients should be advised to use an alternative or additional method of contraception while taking this penicillin.

Aminoglycosides: mixing penicillins with aminoglycosides in vitro has resulted in substantial mutual inactivation.

Methotrexate: concurrent use with penicillins has resulted in decreased clearance of methotrexate toxicity; probably due to competition for renal tubular secretion; patients should be closely monitored.

### ***Laboratory value alterations***

With diagnostic test results:

Glucose, urine: High urinary concentrations of penicillin may produce false positive or elevated test results with copper sulfate tests (Benedict's, Clinitest or Fehling's).

Direct antiglobulin (Coombs' ) tests: False positive results may occur during therapy with any penicillin.

White blood cell count: leukopenia or neutropenia is associated with the use of all penicillins; the effect is more likely to occur with prolonged therapy and severe hepatic function impairment.

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## **Overdosage**

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Phenoxymethylpenicillin has low toxicity. However, if there is gross renal impairment, the medicine may accumulate in the blood, and the dose should be reduced accordingly.

### ***Treatment***

Management of overdose should include monitoring of electrolyte balance, cardiovascular status and renal function. Penicillins are generally not readily removed by dialysis.

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## **Pharmaceutical Precautions**

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Store below 25°C.

Shelf-life 36 months when stored below 25°C.

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## Medicine Classification

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Prescription Medicine.

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## Package Quantities

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CILICAINE VK capsules 250mg: packets containing 50 capsules in blisters.

CILICAINE VK capsules 500mg: packets containing 50 capsules in blisters.

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## Further Information

### Other Excipients:

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Cilicaine VK 250 mg capsules contain: Gelatin, Iron Oxide Red, Titanium Dioxide and Magnesium Stearate.

Cilicaine VK 500 mg capsules contain: Gelatin, Iron Oxide Red, Titanium Dioxide, and Magnesium Stearate.

Phenoxymethylpenicillin (or penicillin V) potassium is the potassium salt of the phenoxymethyl analogue of penicillin G. It is soluble in water and polar organic solvents but practically insoluble in vegetable oils and liquid paraffins.

Its chemical name is potassium (6R)-6-(2-phenoxyacetamido)penicillinate with an empirical formula of  $C_{16}H_{17}KN_2O_5S$  and a molecular weight of 388.5.

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## Date of Preparation

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