SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE MEDICINAL PRODUCT

<Trade Name><Strength> capsules

1. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each capsule contains 220 mg zinc sulfate BP.

Excipient(s) with known effect:

<Regarding the approval>

For a full list of excipients, see section 6.1.

1. PHARMACEUTICAL FORM

Hard capsule

<Regarding the approval>

1. CLINICAL PARTICULARS
	1. Therapeutic indications

 For the treatment of zinc deficiency which can occur in individuals on an inadequate diet, in malabsorption with increased tissue loss due to trauma, burns, and protein losing conditions and during intravenous feeding.

 Zinc sulfate capsules is indicated in adults, elderly and children over 12 years.

* 1. Posology and method of administration

 Posology

 One capsule to be taken three times a day an hour before food or two hours after meals

 *Paediatric population:*

The safety and efficacy of Zinc sulfate capsules in children under the age of 12 years have not yet been established. Currently available data are described in section 5.1 and 5.2 but no recommendation on a posology can be made.

 Method of administration

 Oral use

* 1. Contraindications

 Hypersensitivity to the active substance or to any of the excipients listed in section 6.1.

 Copper deficiency (see section 4.5).

* 1. Special warnings and precautions for use

 Therapy should continue until clinical improvement occurs and be replaced by dietary measures unless there is severe malabsorption, metabolic disease or continuing zinc loss.

 Zinc capsules should be taken two hours before eating fiber containing foods and should not be taken within two hours of iron, copper or phosphorous supplements.

 Zinc levels may accumulate in acute renal failure.

 Patients with rare hereditary problems of galactose intolerance, the Lapp lactase deficiency or glucose-galactose malabsorption should not take this medicine.

* 1. Interaction with other medicinal products and other forms of interaction

 *Copper:*

 Large doses of zinc inhibit the absorption of copper in the intestine (see section 4.3).

 *Tetracycline antibacterials:*

 Zinc decreases the absorption of tetracyclines by the formation of an insoluble chelate. The absorption of zinc may be reduced by tetracyclines; when both are being given an interval of at least three hours should be allowed.

 *Quinolone antibacterials:*

 Zinc may reduce the absorption of quinolones – ciprofloxacin, levofloxacin, moxifloxacin, norfloxacin and ofloxacin.

 *Penicillamine:*

 The absorption of zinc may be reduced by penicillamine, also the absorption of penicillamine may be reduced by zinc.

 *Calcium salts:*

 The absorption of zinc may be reduced by calcium salts.

 *Food:*

 The absorption of zinc is reduced when it is taken concurrently with phytates (found in bran, whole grain breads), fiber containing foods or phosphorus containing medicinal products and foods (milk or poultry).

 *Iron:*

 The absorption of zinc may be reduced by oral iron, also the absorption of oral iron may be reduced by zinc.

 *Trientine:*

 The absorption of zinc may be reduced by trientine, also the absorption of trientine may be reduced by zinc.

* 1. Fertility, pregnancy and lactation

 Problems in humans have not been documented with intake of normal daily requirements.

 The safety of this product in human pregnancy has not been established. Zinc crosses the placenta and is present in breast milk. Therefore, like other drug preparations caution should be exercised in administering this product during pregnancy and lactation.

* 1. Effects on ability to drive and use machines

 Zinc sulfate capsules has no or negligible influence on the ability to drive and use machines.

* 1. Undesirable effects

 Gastro-intestinal disturbances such as abdominal pain, dyspepsia, epigastric pain, gastric irritation, gastritis, nausea, vomiting, diarrhoea, leukopenia (fever, chills or sore throat) and neutropenia (continuing ulcers and sores in mouths), headache, lethargy, irritation.

 Zinc may interfere with the absorption of copper, leading to reduced copper levels, and potentially copper deficiency. The risk of copper deficiency may be greater with long-term treatment (e.g. if zinc deficiency is no longer present) and/or with higher doses of zinc.

 Reporting of suspected adverse reactions

 Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions via Health Product Vigilance Center; HPVC, Thai FDA.

* 1. Overdose

 Symptoms

 Zinc sulfate is corrosive in overdose. Symptoms are corrosion and inflammation of the mucous membrane of the mouth and stomach, ulceration of the stomach followed by perforation may occur. Gastric lavage and emesis should be avoided.

 Prolonged use of large doses may interfere with the absorption of iron and copper, leading to deficiency in these minerals, causing nausea, vomiting, headache, fever, malaise and abdominal pain.

 Treatment

 Excess intake may be treated with withdrawal of zinc and symptomatic therapy. The level of zinc can be diluted by drinking plenty of milk and water or administration of intramuscular or intravenous chelating agents such as edetate calcium disodium at a dose of 50 to 75 mg per kg (mg/kg) of bodyweight per day, in 3 to 6 divided doses, for up to 5 days.

1. PHARMACOLOGICAL PROPERTIES
	1. Pharmacodynamic properties

 *Pharmacotherapeutic group:*

 Alimentary tract and metabolism, mineral supplements

 ATC code: A12CB01

 Zinc is an essential trace element involved in the activities of over 100 enzymes including carbonic anhydrase, alcoholic dehydrogenase, alkaline phosphatise and RNA polymerase. It is also required to maintain structure in nucleic acids, protein and cell membranes and is involved in the function of the hormone insulin in the utilisation of carbohydrates. It is necessary for normal rate of growth, development of the reproductive organs, normal function of the prostate gland and the healing of wounds and burns.

* 1. Pharmacokinetic properties

 Absorption

 Approximately 20 to 30% of dietary zinc is absorbed primarily from the duodenum and ileum. The amount absorbed depends on the bioavailability of the food. Zinc is the most bioavailable from red meat and oysters.

 Distribution

 After absorption zinc is bound in the intestine to the protein metallothionein. The highest concentrations occur in hair, eyes, male reproductive organs and bone. Lower levels are present in liver, kidney and muscle.

 In blood 80% is found in erythrocytes. Plasma zinc levels range from 70 to 110 µg/dl and about 50% of this is loosely bound to albumin. About 7% is amino-acid bound and the rest is tightly bound to alpha 2- macroglobulins and other proteins.

 Elimination

 Zinc is primarily eliminated (approximately 40%) in the faeces and to lesser extent in the urine and perspiration.

* 1. Preclinical safety data

 None stated.

1. PHARMACEUTICAL PARTICULARS
	1. List of excipients

<Regarding the approval>

* 1. Incompatibilities

 <Regarding the approval>

* 1. Shelf life

<Regarding the approval>

* 1. Special precautions for storage

<Regarding the approval>

* 1. Nature and contents of container

<Regarding the approval>

* 1. Special precautions for disposal

<Regarding the approval>

1. MARKETING AUTHORISATION HOLDER

<Regarding the approval>

1. MARKETING AUTHORISATION NUMBER(S)

<Regarding the approval>

1. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

<Regarding the approval>

1. DATE OF REVISION OF THE TEXT1

<Regarding the approval>