SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE MEDICINAL PRODUCT

ZINCO 15 mg/5 ml syrup

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Active ingredient:
Each 5 ml syrup (one dose) contains 15 mg of zinc as zinc sulphate heptahydrate.

Excipients:

Sucrose	2.75 g
Methyl paraben	5.00 mg
Glycerin	100.0 mg
Sunset yellow (E110)	0.03 mg

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Syrup
Yellow colored, aromatic odor (orange) solution.

4. CLINICAL PARTICULARS

4.1. Therapeutic indications

ZINCO is used for the treatment or prevention of zinc deficiency and the treatment of diarrhea.

4.2. Posology and method of administration

Posology/ frequency and duration of administration
Unless recommended otherwise by doctor, use as specified below:

Age	Elementary zinc (mg)	Tolerated dose (mg)	Dose
6-12 months	3	5	With 1.5 ml pipette
1-3 years	3	7	With 2 ml pipette
4-8 years	5	12	With 4 ml pipette
9-13 years	8	20	With 6 ml pipette
14-18 years	10	30	With 10 ml pipette or 2 spoon
≥19 years adults	10	40	With 13 ml pipette

Method of administration
For oral use only.
ZINCO may be given before, after, or during the meals using a spoon or pipette.

Additional information for special populations:

Renal/liver failure:
The safety and efficacy of ZINCO in patients with renal or hepatic failure have not been

tested.
Due to an increased risk of zinc accumulation in the body in patients with renal failure, care should be exercised when administrating zinc.

Pediatric population: Pediatric use is as shown in the posology.

Geriatric population: The safety and efficacy of ZINCO in elderly have not been tested.

4.3. Contraindications

ZINCO is contraindicated in patients who are allergic to zinc salts or any of the other ingredients of the ZINCO.

4.4. Special warnings and precautions for use

ZINCO can be used with foods, but concomitant intake of zinc with food rich in calcium, phosphorus or phytate should be avoided. The use of the drug should be discontinued and a doctor should be consulted in patients who develop severe nausea, vomiting or acute dyspepsia.

Long-term or high dose intake may be associated with copper deficiency.

This medicinal product contains sucrose. Patients with rare hereditary problems of fructose intolerance, glucose-galactose malabsorption or sucrase-isomaltase deficiency should not take this medicinal product.

The glycerin contained in it may lead to headache, nausea and diarrhea at doses more than 10 g/dose, a threshold value.

This medicinal product contains methyl paraben which may cause allergic reactions (possibly delayed).

This medicinal product contains sunset yellow (E110) which may cause allergic reactions.

4.5. Interaction with other medicinal products and other forms of interaction

Concomitant intake of zinc salts with tetracyclines and penicillamine may reduce the efficacy of zinc; therefore a 3-hour interval should be allowed between the intake of these agents and zinc.

High dose iron preparations inhibit the zinc absorption and zinc may reduce iron absorption.

Zinc may reduce the absorption of fluoroquinolones (ciprofloxacin, levofloxacin, moxifloxacin, norfloxacin, and ofloxacin).

Calcium salts may reduce zinc absorption.

Oral contraceptives may reduce plasma zinc levels.

Food rich in bran or fiber as well as dairy products may reduce zinc absorption.

Penicillamine and trientin may reduce zinc absorption; also zinc may reduce the absorption of

these two agents.

Antacids may reduce the bioavailable of zinc sulfate.

Food rich in phytic acid (inositol) and coffee-zinc compound forms chelate. In order to ensure maximum absorption, zinc salts should not be orally taken with foods and drinks (except for water).

Additional information on special populations
There were no interaction studies for special populations.

Pediatric population
There were no interaction studies for pediatric population.

4.6. Pregnancy and lactation

General recommendation
Pregnancy category C

Women of childbearing potential/Birth control (contraception)
Oral contraceptives may reduce plasma zinc levels.
Zinc supplementation in women of childbearing potential should be supervised by a physician.

Pregnancy
ZINCO during pregnancy should be supervised by a physician as it crosses the placenta.

Animal studies are not adequate with respect to effects on pregnancy, embryonic/fetal development and/or birth and/or postnatal development. The potential risk for humans is unknown.

ZINCO should not be used during pregnancy unless it is necessary.

Lactation
ZINCO during breastfeeding should be supervised by a physician as it is excreted in breast milk.

Reproduction/Fertility
There is no impact on the reproductive capability.

4.7. Effects on the ability to drive and use machines

There were no investigations on the ability to drive and use machines for the target population.

4.8. Adverse effects

The specified adverse effects were classified according to the following frequencies: Very common (≥ 1/10), common (≥ 1/100 to ≤1/10), uncommon (≥ 1/1000 to ≤ 1/100), rare (≥ 10000 to ≤1/1000), very rare (≤ 1/10000), and unknown (cannot be estimated based on the data available).

Blood and lymphatic system disorders:
Uncommon: Neutropenia, leukopenia, anemia
Immune system disorders:
Very rare: Allergic reactions

Nervous system disorders:
Uncommon: Dizziness, headache, nervousness, drowsiness

Vascular disorders:
Very rare: Hypotension, arrhythmia, electrocardiographic changes in potassium deficiency

Gastrointestinal disorders:
Common: Vomiting
Uncommon: Nausea, abdominal pain, dyspepsia, gastric irritation, gastritis, diarrhea

General disorders and administration site conditions
Unknown: irritability, lethargy and headache
Long-term intake may be associated with copper deficiency.

4.9. Overdose

In cases of overdose symptoms such as hypotension, dizziness, drowsiness and vomiting may occur.

Zinc sulphate 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. Milk and water should be given immediately. Chelating agents such as sodium calcium edetate may be useful.

5. PHARMACOLOGIC PARTICULARS

5.1. Pharmacodynamic properties

Pharmacotherapeutic group: Mineral supplements
ATC code: A12CB01

Zinc is an essential trace element with the required daily amount of 0.3 mg/kg body weight. The major sources of zinc are lettuce and green salad, brewer’s yeast, liver, sea foods and milk. Milk contains about 2-3 g/liter of zinc.

Zinc is required in order to perform the function of metalloenzymes of more than 2000 such as carbonic anhydrase, carboxypeptidase A, alcohol dehydrogenase, alkaline phosphatase and RNA polymerase. Zinc is mainly used in stabilization of DNA, RNA and protein throughout the body. It is also required to form structure in nucleic acids, proteins and cell membranes and is involved in physiological functions such cell growth and division, sexual maturation and reproduction, wound healing, immunity, dark adaptation and scotopic vision, normal taste and smell perception. The biochemical functions of zinc are becoming more apparent in zinc deficiency. The most affected tissues from zinc deficiency are fast-growing tissues (connective tissue in the wound granulations, sperm, embryo, fetal cells).

The acute toxicity of oral zinc compound is low. The use of the 1-2 g of zinc sulphate (134-168 ml: 1.5-2.5 bottles of syrup) at a time and the use of the 3-5 g of zinc sulphate (403-373 ml: 4-7 bottles of syrup) at a time may lead to toxic symptoms and death, respectively.
It has been noted that symptoms of chronic toxicity which may occur with oral administration of the high therapeutic doses for a long time were not detected. It should be monitored whether the plasma copper levels are decreased.

5.2. Pharmacokinetic properties

General characteristics
Zinc sulphate heptahydrate is a water-soluble, white and crystalline powder. ZINCO is a clear solution with yellow-colored. The pH of the solution is 3.0-6.0.

Absorption:
Zinc is absorbed by a specific mechanism from the small bowel (60% in duodenum, 30% in ileum and 10% in jejunum). Like iron, it is isolated in mucosal cells by the zinc-binding proteins and then transmitted to serum albumin in the mucosal cell membrane. The dietary zinc is transferred to plasma by passing the enterocyte with intraluminal message.

Distribution:
Normal plasma concentration is between 0.7 and 1.5 g/ml. The 84% of zinc is bound to albumin in plasma, %15 bound to α2-macroglobulin and %1 bound to amino acids. The plasma concentration of a patient received 50 mg of oral zinc (equivalent to 220 mg of zinc sulphate) is reached to 2.5 g/ml in 2-3 hours. The plasma half-life is 3 hours. In human blood, 80% of the zinc is found in carbonic anhydrase enzyme in erythrocytes, 3% in leukocytes, and a small amount in platelets. Dietary zinc, hormones (glucocorticoids, glucagon, epinephrine), stress, inflammatory diseases affect the zinc level in plasma.

In case of the zinc deficiency, the loss in each tissue is different; zinc level in plasma, liver, bone and testis decreases while remains same in hair, skin, hearth and skeletal muscle.

Biotransformation:
Zinc does not undergo any biotransformation; it is excreted unchanged.

Elimination:
The 2.5-5.5 mg/day of zinc is excreted from the gastrointestinal tract. Renal excretion is the fixed amount in tubular secretion with the 300-700 microgram/day. It is also excreted in sweat.

Linearity/Non-linearity
The pharmacokinetics is linear. Plasma levels show an increase depending on the administered doses.

5.3. Preclinical safety data
Not established.

6. PHARMACEUTICAL PROPERTIES

6.1. List of excipients

Methyl paraben
Glycerin
Sucrose
Orange oil
Sunset yellow (E110)
Deionized water

6.2. Incompatibilities

There was no evidence for the incompatibilities of ZINCO 15 mg/5 ml syrup with any drug or substance.

6.3. Shelf life

24 months

6.4. Special precautions for storage

It should be stored in room temperature below 25°C.

6.5. Nature and contents of container

ZINCO 15 mg/5 ml syrup is available in amber colored glass bottles sealed with a pilfer-proof high density polyethylene (HDPE) cap.
Each carton box contains one bottle, one 5 ml spoon and 5 ml pipette with a precision of 0.1 ml.

6.6. Special precautions for disposal

Unused medicinal products or waste materials should be disposed of according to the "Regulation for the Disposal for Medicinal Waste" and "Regulation for the Control of Packaging and Packaging Waste".

7. MARKETING AUTHORISATION HOLDER

Berko İlaç ve Kimya San. A.Ş.
Yenişehir Mah. Özgür Sok. No: 16-18 Ataşehir/İstanbul-Turkey
+90 216 456 65 70 (Pbx)
+90 216 456 65 79 (Fax)
info@berko.com.tr

8. MARKETING AUTHORISATION NUMBER(S)

201/06

9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorization: 20.09.2002
Date of latest renewal: 13.01.2016

10. DATE OF THE REVISION OF THE TEXT

14/12/2016