

WHO-PQ RECOMMENDED
SUMMARY OF PRODUCT CHARACTERISTICS

This summary of product characteristics focuses on uses of the medicine covered by WHO's Prequalification Team - Medicines. The recommendations for use are based on WHO guidelines and on information from stringent regulatory authorities.
The medicine may be authorised for additional or different uses by national medicines regulatory authorities.*

1. NAME OF THE MEDICINAL PRODUCT

[DI011 trade name]†

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Each dispersible tablet contains 54.9 mg zinc sulfate monohydrate equivalent to 20 mg of zinc.

Each dispersible tablet also contains 46.43 mg of aspartame. For a full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Dispersible tablets

White to off-white, round, flat faced, bevel edge, uncoated, dispersible tablet with a break-line on one side and debossed with 'C70' on the other side.

4. CLINICAL PARTICULARS

4.1 Therapeutic indications

[DI011 trade name] is indicated for the treatment of acute and persistent diarrhoea in infants and children aged up to 5 years.

4.2 Posology and method of administration

Posology

Children aged less than 6 months: 10 mg (½ tablet) once daily for 10–14 days.

Children aged 6 months–5 years: 20 mg (1 tablet) once daily for 10–14 days.

It is recommended that doses are given between meals and the dose repeated if the child vomits within 30 minutes.

For missed doses, the missing dose can be taken as soon as possible, unless the next dose is due within 6 hours.

Method of administration

The tablet (or half-tablet) should be dispersed completely in 1 teaspoon (5 mL) clean water or breast milk and the entire amount administered orally.

4.3 Contraindications

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

Copper deficiency (see section 4.5).

4.4 Special warnings and precautions for use

Accumulation of zinc may occur in cases of renal failure.

Excipients

[DI011 trade name] contains aspartame. Aspartame is hydrolysed in the gastrointestinal tract when orally ingested. One of the major hydrolysis products is phenylalanine. It may be harmful if the patient has

† Trade names are not prequalified by WHO. This is the national medicines regulatory agency's responsibility.

phenylketonuria (PKU), a rare genetic disorder in which phenylalanine builds up because the body cannot remove it properly.

Neither non-clinical nor clinical data are available to assess aspartame use in infants below 12 weeks of age.

4.5 Interaction with other medicinal products and other forms of interaction

Antibacterials:

When taken together, zinc may reduce the absorption of tetracyclines (but not doxycycline) and quinolone antibacterials. In addition, zinc may also interfere with the absorption of cephalexin or ceftibuten. An interval of at least 3 hours should be allowed between administration of zinc and any of these medicines.

Medicines that reduce the absorption of zinc such as pencillamine should not be taken together with [DI011 trade name]. An interval of at least 3 hours should be allowed between administration of zinc and medicines such as penicillamine.

Copper:

Zinc may inhibit the absorption of copper (see section 4.3).

Calcium salts:

The absorption of zinc may be reduced by calcium salts.

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.

4.6 Fertility, pregnancy and breastfeeding

Pregnancy

This medicine is not intended for adults.

There are limited data on the use of zinc sulfate in pregnant women.

Animal studies do not indicate reproductive toxicity at the human therapeutic dose (see section 5.3).

Breastfeeding

Zinc is present in breast milk.

Fertility

No data on the effect of zinc on fertility are available.

4.7 Effects on ability to drive and use machines

[DI011 trade name] is not expected to have any effect on the ability to drive and use machines.

4.8 Undesirable effects

Gastrointestinal disorders

In clinical trials in children, administration of zinc tablets was associated with vomiting or regurgitation. In one study, vomiting attributed to the tablet was reported in 14% and regurgitation in 5.2% of the children. In most cases, vomiting or regurgitation occurred within 10 minutes of the first dose and was not recurrent.

Copper malabsorption

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 and/or with higher doses of zinc.

The adverse reactions considered related to zinc sulfate are listed below by body system, organ class and absolute frequency. Frequencies are defined as very common ($\geq 1/10$), common (1/100 to 1/10), uncommon (1/1000 to 1/100), rare (1/10 000 to 1/1000), and very rare ($< 1/10\ 000$).

Gastrointestinal disorders

Very common	vomiting
Common	Regurgitation
Frequency not known	abdominal pain, dyspepsia, nausea, gastric irritation and gastritis

Nervous system disorders

Frequency not known	Headache
---------------------	----------

General disorders

Frequency not known	irritability, lethargy
---------------------	------------------------

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. Health care providers are asked to report any suspected adverse reactions to the marketing authorisation holder, or, if available, via the national reporting system.

4.9 Overdose

Symptoms

High doses of zinc cause emesis. In addition, zinc sulfate is corrosive at high doses, and may cause irritation and corrosion of the gastrointestinal tract, including ulceration of the stomach and possible perforation. Overdose with zinc has also been associated with acute renal tubular necrosis and interstitial nephritis. Prolonged high-dose zinc supplementation may result in copper deficiency.

Treatment

For acute zinc overdose, treatment is primarily supportive, but giving milk or alkali carbonates and activated charcoal may be useful in cases of substantial ingestions of zinc tablets. Chelating agents such as sodium calcium edetate may be useful.

5. PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Other mineral supplements, ATC code: A12CB01.

Zinc is an essential trace element which is present in a wide range of foods. It is found in all tissues.

Zinc sulfate is used for the treatment of acute and persistent diarrhoea in children.

Normal growth and tissue repair depend on adequate zinc levels. Zinc is an integral part of several enzymes important for protein and carbohydrate metabolism. Severe zinc deficiency is associated with growth retardation, primary hypogonadism, skin disease, disturbances of taste and smell, and impaired immunity, with increased susceptibility to infection.

Zinc supplementation has been shown to reduce the duration and severity of diarrhoea in populations of children with a high incidence of zinc deficiency, and also to reduce the frequency of recurrence in the subsequent 2–3 months. The benefits of zinc are possibly associated with reconstitution of the immune response. Direct inhibitory effects of zinc on enteric pathogens have also been reported.

5.2 Pharmacokinetic properties

Absorption	
Oral bioavailability	10-40%
Food effect	Numerous dietary components can interfere with zinc absorption, particularly phytates and fibre, which bind to zinc, resulting in poorly absorbed zinc complexes.
Distribution	
Volume of distribution (mean)	NA*
Plasma protein binding	80% of serum zinc bound to albumin and the remainder to alpha2-macroglobulin and amino acids.
Tissue distribution	Zinc is distributed throughout the body. 85% of total body zinc is found in skeletal muscle and bone. The highest concentrations occur in hair, eyes, male reproductive organs and bone. Lower levels are present in liver, kidney and muscle. In blood, zinc is mainly localized within erythrocytes.
Metabolism	
	Not applicable
Elimination	
General note	Primarily excreted via the gastrointestinal tract and eliminated in the faeces. A smaller amount of zinc is excreted via the kidneys in the urine.
Elimination half life	NA*
Mean systemic clearance (Cl/F)	NA*
% of dose excreted in urine	NA*
% of dose excreted in faeces	NA*

*Information not available

5.3 Preclinical safety data

Non-clinical data have not revealed significant hazards for humans, based on standard studies of safety pharmacology, repeated-dose toxicity, genotoxicity, carcinogenic potential and reproductive toxicity. Effects in non-clinical studies were observed only at exposures sufficiently in excess of the maximum human exposure to be of little clinical relevance.

6. PHARMACEUTICAL PARTICULARS

6.1 List of Excipients

Microcrystalline cellulose
Crospovidone
Aspartame
Sucralose
Orange flavour
Colloidal silicon dioxide
Magnesium stearate

6.2 Incompatibilities:

Not applicable.

6.3 Shelf life:

PVdC/PVC-Alu blister 48 months

Alu-Alu blister strip
48 months

6.4 Special precautions for storage

Do not store above 30°C. Protect from moisture.

6.5 Nature and contents of container

Blister

PVdC/PVC-Alu blister of 10 tablets. Such 1, 3 or 10 blisters are packed in a carton along with the patient information leaflet.

Strip

Alu-Alu blister strip of 10 tablets. Such 1, 3 or 10 strips are packed in a carton along with the patient information leaflet.

6.6 Special precautions for disposal

No special requirements

7. SUPPLIER

Ipca Laboratories Limited
48 Kandivli Industrial Estate
Kandivli (West)
Mumbai 400 067
India.
Tel: +91-22-6210 5100/6210-5000
Fax: +91 -22-6210 5105/6210 5005
Email: ipca@ipca.com

8. WHO REFERENCE NUMBER (WHO Prequalification Programme)

DI011

9. DATE OF PREQUALIFICATION

25 May 2020

10. DATE OF REVISION OF THE TEXT

December 2020
Section 6 updated in November 2022

References

General references

Dietary Supplement Fact Sheet: Zinc. National Institutes of Health (US):
<http://ods.od.nih.gov/factsheets/Zinc-HealthProfessional/>

Posology

The Treatment of Diarrhoea: A manual for physicians and other senior health workers. 4th Revision, WHO, 2005. Available at: https://www.who.int/maternal_child_adolescent/documents/9241593180/en/

Clinical Management of Acute Diarrhoea. WHO/UNICEF Joint Statement, 2004: Available at https://www.who.int/maternal_child_adolescent/documents/who_fch_cah_04_7/en/

Interactions with other medicinal products

Pentilä O. et al. Effect of zinc sulphate on the absorption of tetracycline and doxycycline in man. Eur J Clin Pharmacol 1975; 19;9:131-4

Ding Y et al. The effect of staggered administration of zinc sulfate on the pharmacokinetics of oral cephalixin. Br. J Clin Pharmacol 2012; 73:422-7.

Overdose

Barceloux DG. Zinc.. J Toxicol Clin Toxicol 199; 37:279-292.

Clinical Environmental Health and Toxic Exposures. 2nd edition. Sullivan JB, Krieger GR (eds.). 1999. p 904.

Pharmacokinetics

Krebs NF. Overview of Zinc Absorption and Excretion in the Human Gastrointestinal T

Solvazinc® 45mg Effervescent Tablets {Galen Limited (UK)} SmPC, revised 14 December 2017. Available on Electronic Medicines Compendium [<https://www.medicines.org.uk/emc/product/4930/smpc>]

Zinc sulphate injection {American Regent, Inc. (USA)} Prescribing Information, revised July 2019. Available at https://www.accessdata.fda.gov/drugsatfda_docs/label/2019/209377s000lbl.pdf

Detailed information on this medicine is available on the World Health Organization (WHO) website: <https://extranet.who.int/prequal/>