

Solution for injection

- ▶ **Selenase** (Baxter Healthcare Ltd)
Selenium (as Sodium selenite) 50 microgram per 1 ml Selenase 100micrograms/2ml solution for injection ampoules | 10 ampoule [PoM] [X]
Selenase 500micrograms/10ml solution for injection vials | 10 vial [PoM] [X]

Solution for infusion

- ▶ **Selenium (Non-proprietary)**
Selenium (as Sodium selenite) 10 microgram per 1 ml Selenium 100micrograms/10ml solution for infusion vials | 10 vial [PoM] [X]

Oral solution

- ▶ **Selenase** (Baxter Healthcare Ltd)
Selenium (as Sodium selenite) 50 microgram per 1 ml Selenase 100micrograms/2ml oral solution 2ml unit dose ampoules | 20 unit dose [P] £20.60 DT = £20.60
Selenase 500micrograms/10ml oral solution unit dose vials | 10 unit dose [P] [X]

Capsule

- ▶ **Selenium (Non-proprietary)**
L-Selenomethionine 200 microgram Selenium 200microgram capsules | 30 capsule £3.20 | 60 capsule £5.79

3.2 Zinc deficiency

Zinc deficiency

Overview

Zinc supplements should not be given unless there is good evidence of deficiency (hypoproteinaemia spuriously lowers plasma-zinc concentration) or in zinc-losing conditions. Zinc deficiency can occur as a result of inadequate diet or malabsorption; excessive loss of zinc can occur in trauma, burns, and protein-losing conditions. A zinc supplement is given until clinical improvement occurs, but it may need to be continued in severe malabsorption, metabolic disorders, or in zinc-losing states.

Zinc is used in the treatment of Wilson's disease and acrodermatitis enteropathica, a rare inherited abnormality of zinc absorption.

Parenteral nutrition regimens usually include trace amounts of zinc. If necessary, further zinc can be added to intravenous feeding regimens.

ELECTROLYTES AND MINERALS > ZINC

Zinc sulfate

● INDICATIONS AND DOSE**Zinc deficiency or supplementation in zinc-losing conditions**

- ▶ BY MOUTH USING EFFERVESCENT TABLETS
- ▶ Child (body-weight up to 10 kg): 22.5 mg daily, dose to be adjusted as necessary, to be dissolved in water and taken after food, dose expressed as elemental zinc
- ▶ Child (body-weight 10–30 kg): 22.5 mg 1–3 times a day, dose to be adjusted as necessary, to be dissolved in water and taken after food, dose expressed as elemental zinc
- ▶ Child (body-weight 31 kg and above): 45 mg 1–3 times a day, dose to be adjusted as necessary, to be dissolved in water and taken after food, dose expressed as elemental zinc
- ▶ Adult (body-weight 31 kg and above): 45 mg 1–3 times a day, dose to be adjusted as necessary, to be dissolved in water and taken after food, dose expressed as elemental zinc

Additional elemental zinc for intravenous nutrition

- ▶ BY INTRAVENOUS INJECTION
- ▶ Adult: 6.5 mg daily (Zn²⁺ 100 micromol)

- **UNLICENSED USE** *Solvazinc*[®] is not licensed for use in acrodermatitis enteropathica.
- **INTERACTIONS** → Appendix 1: zinc
- **SIDE-EFFECTS** Diarrhoea · gastritis · gastrointestinal discomfort · nausea · vomiting
- **PREGNANCY** Crosses placenta; risk theoretically minimal, but no information available.
- **BREAST FEEDING** Present in milk; risk theoretically minimal, but no information available.
- **RENAL IMPAIRMENT** Accumulation may occur in acute renal failure.
- **PRESCRIBING AND DISPENSING INFORMATION** Each *Solvazinc*[®] tablet contains zinc sulfate monohydrate 125 mg (45 mg zinc).

- **MEDICINAL FORMS** There can be variation in the licensing of different medicines containing the same drug. Forms available from special-order manufacturers include: oral solution, solution for injection, liquid

Effervescent tablet

CAUTIONARY AND ADVISORY LABELS 13, 21

- ▶ **Solvazinc** (Galen Ltd)

Zinc sulfate monohydrate 125 mg Solvazinc 125mg effervescent tablets sugar-free | 90 tablet [P] £17.20 DT = £17.20

4 Nutrition (intravenous)

Intravenous nutrition

Overview

When adequate feeding through the alimentary tract is not possible, nutrients may be given by intravenous infusion. This may be in addition to ordinary oral or tube feeding—**supplemental parenteral nutrition**, or may be the sole source of nutrition—**total parenteral nutrition (TPN)**. Indications for this method include preparation of undernourished patients for surgery, chemotherapy, or radiation therapy; severe or prolonged disorders of the gastro-intestinal tract; major surgery, trauma, or burns; prolonged coma or refusal to eat; and some patients with renal or hepatic failure. The composition of proprietary preparations available is given under Proprietary Infusion Fluids for Parenteral Feeding p. 1134.

Parenteral nutrition requires the use of a solution containing amino acids, glucose, fat, electrolytes, trace elements, and vitamins. This is now commonly provided by the pharmacy in the form of a 3-litre bag. A single dose of vitamin B₁₂, as hydroxocobalamin p. 1085, is given by intramuscular injection; regular vitamin B₁₂ injections are not usually required unless total parenteral nutrition continues for many months. Folic acid p. 1084 is given in a dose of 15 mg once or twice each week, usually in the nutrition solution. Other vitamins are usually given daily; they are generally introduced in the parenteral nutrition solution. Alternatively, if the patient is able to take small amounts by mouth, vitamins may be given orally.

The nutrition solution is infused through a central venous catheter inserted under full surgical precautions. Alternatively, infusion through a peripheral vein may be used for supplementary as well as total parenteral nutrition for periods of up to a month, depending on the availability of peripheral veins; factors prolonging cannula life and preventing thrombophlebitis include the use of soft polyurethane paediatric cannulas and use of feeds of low osmolality and neutral pH. Only nutritional fluids should be given by the dedicated intravenous line.

Before starting, the patient should be well oxygenated with a near normal circulating blood volume and attention should be given to renal function and acid-base status.