Summary of Product Characteristics

1 NAME OF THE MEDICINAL PRODUCT

Solferol 20,000 IU Soft Capsules

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each capsule contains:
20,000 IU Colecalciferol (equivalent to 500 micrograms Vitamin D3)
Excipients with known effect:
Each capsule also contains 16.5 milligrams of sorbitol
For the full list of excipients, see section 6.1

3 PHARMACEUTICAL FORM

Capsule, soft (Capsule)
Light yellow coloured clear transparent round shaped gelatin capsule.

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

The prevention and treatment of vitamin D deficiency. As an adjunct to specific therapy for osteoporosis in patients at risk of vitamin D insufficiency or with vitamin D deficiency.

Solferol 20,000 IU Capsules is indicated in adults.

4.2 Posology and method of administration

Posology

Adults
Dose should be established on an individual basis depending on the extent of the necessary vitamin D supplementation. The patient's dietary habits should be carefully evaluated and artificially added vitamin D content of certain food types should be taken into consideration.

Prevention of Vitamin D deficiency:

- Starting dose of 1 capsule (20,000 IU) once a month, higher doses may be required in certain situations, see below
- As an adjunct to specific therapy for osteoporosis: 1 capsule (20,000IU) once a month

Treatment of Vitamin D deficiency:

- 2 capsules (40,000 IU) once weekly for 7 weeks, followed by maintenance therapy (equivalent to 1400 - 2000 IU/day, such as 2-3 capsules per month, as directed by your doctor. Follow-up 25(OH)D measurements should be made approximately three to four months after initiating maintenance therapy to confirm that the target level has been achieved).

Medical supervision is necessary as dose requirements may vary dependent on patient response (see section 4.4).

Certain populations are at high risk of vitamin D deficiency, and may require higher doses and monitoring of serum 25(OH)D:

- Institutionalised or hospitalised individuals
- Dark skinned individuals

- Individuals with limited effective sun exposure due to protective clothing or consistent use of sun screens
- Obese individuals
- Patients being evaluated for osteoporosis
- Use of certain concomitant medications (e.g., anticonvulsant medications, glucocorticoids)
- Patients with malabsorption, including inflammatory bowel disease and coeliac disease
- Those recently treated for vitamin D deficiency, and requiring maintenance therapy.

Special populations:

Patients with hepatic impairment

No posology adjustment is required in patients with hepatic impairment

Paediatric population

Solferol 20,000 IU Capsules should not be used in children.

Method of administration

Oral

The capsules should be swallowed whole (not chewed) with water.

Patients should be advised to take Solferol 20,000 IU Capsules preferably with meal (see section 5.2 Pharmacokinetic properties -"Absorption").

4.3 Contraindications

- Hypersensitivity to the active substance or to any of the excipients listed in section 6.1.
- Diseases or conditions resulting in hypercalcemia and / or hypercalciuria.
- Pseudohypoparathyroidism.
- Hypervitaminosis D.
- Nephrolithiasis.
- Severe renal impairment.

4.4 Special warnings and precautions for use

Solferol 20,000 IU Capsules should be used with caution in patients with impaired renal function,impaired renal calcium and phosphate excretion, a tendency to form kidney stones (calculi), treatment with benzothiadiazine derivatives and in immobilized patients with caution (risk of hypercalcemia, hypercalciuria). In these patients, the calcium levels in plasma and urine are monitored. The risk of soft tissue calcification should be taken into account. In patients with severe renal insufficiency, vitamin D in the form of colecalciferol is not metabolised normally and other forms of vitamin D should be used (see section 4.3, contraindications).

The active metabolite of vitamin D_3(1, 25-dihydroxycholecalciferol) may affect the phosphate balance. Therefore, in conditions with increased phosphate levels, treatment with a phosphate binder may be considered. Caution should be taken in patients who are suffering from sarcoidosis or other granulomatous disorders because of the risk of increased conversion of vitamin D to its active metabolite. These patients should be monitored with regard to the calcium content in serum and urine.

During long-term treatment with Solferol 20,000 IU Capsules, or in patients with renal insufficiency serum and urine levels of calcium should be monitored and the renal function monitored by measurement of serum creatinine.

Allowances should be made for vitamin D supplements from other sources. Vitamin D is fat soluble and may accumulate in the body. This may cause toxic effects in case of overdose and long term treatment with excessive doses. Recommended treatment should therefore not be exceeded.

In case of hypercalcaemia or signs of impaired renal function the dose should be reduced or treatment interrupted. It is advisable to reduce the dose or interrupt treatment if the calcium content in the urine exceeds 7.5 mmol/24 hours (300 mg/24 hours).

Caution is required in patients receiving treatment for cardiovascular disease (see Section 4.5 – cardiac glycosides including digitalis or diuretics).

In patients with renal insufficiency treated with Solferol 20,000 IU Capsules close medical supervision is required to monitor the calcium and phosphate balance.

Oral administration of high-dose vitamin D (500,000 IU by single annual bolus) was reported to result in an increased risk of fractures in elderly subjects, with the greatest increase occurring during the first 3 months after dosing.

The need for additional calcium supplementation should be considered for individual patients. Calcium supplements should be given under close medical supervision.

Medical supervision is required whilst on treatment to prevent hypercalcaemia. In such cases, the calcium levels monitored in serum and urine (see above).

Paediatric population

Solferol 20,000 IU Capsules is not indicated for use in children.

This product contains sorbitol liquid partially dehydrated. The additive effect of concomitantly administered products containing sorbitol (or fructose) and dietary intake of sorbitol (or fructose) should be taken into account.

The content of sorbitol in medicinal products for oral use may affect the bioavailability of other medicinal products for oral use administered concomitantly.

Patients with rare hereditary problems of fructose intolerance should not take this medicine.

4.5 Interaction with other medicinal products and other forms of interaction

Concomitant treatment with phenytoin or barbiturates can decrease the effect of vitamin D because of metabolic activation.
Concomitant use of glucocorticoids can decrease the effect of vitamin D.

Rifampicin may also reduce the effectiveness of vitamin D^3 due to hepatic enzyme induction.
Isoniazid may reduce the effectiveness of vitamin D_3due to inhibition of the metabolic activation of vitamin D.
Thiazide diuretics may result in hypercalcaemia due to the reduction of the renal calcium excretion. The calcium levels in plasma and urine should be monitored during long-term therapy.
Vitamin D^3 might increase the intestinal absorption of aluminium.

The toxicity effects of digitalis and other cardiac glycosides may be accentuated (risk of cardiac arrhythmias) with the oral administration of calcium combined with Vitamin D. Strict medical supervision is needed and, if necessary monitoring of ECG and calcium levels in plasma and urine.

Simultaneous treatment with ion exchange resins such as cholestyramine, colestipol hydrochloride, orlistat or laxatives such as paraffin oil may reduce the gastrointestinal absorption of vitamin D.

The cytotoxic agent actinomycin and imidazole antifungal agents interfere with vitamin D activity by inhibiting the conversion of 25-hydroxyvitamin D to 1, 25-dihydroxyvitamin D by the kidney enzyme, 25-hydroxyvitamin D-1-hydroxylase.

4.6 Fertility, pregnancy and lactation

This formulation is not suitable for use in pregnancy or during lactation and a low strength formulation should be used.

Pregnancy

There are no or limited amount of data from the use of colecalciferol in pregnant women. Studies in animals have shown reproductive toxicity (see section 5.3). The recommended daily intake for pregnant women is 400 IU, however, in women who are considered to be vitamin D deficient a higher dose may be required (up to 2000 IU/day). During pregnancy women should

follow the advice of their medical practitioner as their requirements may vary depending on the severity of their disease and their response to treatment.

Breastfeeding

Vitamin D can be prescribed while the patient is breast-feeding if necessary. This supplementation does not replace the administration of vitamin D in the neonate. Overdose in infants induced by nursing mothers has not been observed; however, when prescribing additional vitamin D to a breast-fed child the practitioner should consider the dose of any additional vitamin D given to the mother as vitamin D and its metabolites are excreted in breast milk.

4.7 Effects on ability to drive and use machines

Solferol 20,000 IU Capsules has no or negligible influence on the ability to drive and use machines.

4.8 Undesirable effects

The frequency of possible side effects listed below are defined as:

Very common (≥ 1/10)
Common (≥ 1/100 to <1/10)
Uncommon (≥ 1/1,000 to <1/100)
Rare (≥ 1/10,000 to <1/1,000)
Very rare (<1/10,000)
Not known (cannot be estimated from the available data)

Metabolism and nutrition disorders:

Uncommon: Hypercalcaemia and hypercalciuria.

Gastrointestinal disorders:

Not known: Constipation, flatulence, nausea, abdominal pain, diarrhoea.

Skin and subcutaneous disorders:

Rare: Pruritus, rash and urticaria.

Dependent on dose and duration of treatment of serious and persistent hypercalcemia with its acute (heart rhythm disturbances, nausea, vomiting, psychiatric symptoms, loss of consciousness) and chronic (increased urination, increased thirst, loss of appetite, weight loss, kidney stones, kidney calcification, calcification may occur in tissues outside the bone) episodes occur.

Very rarely fatality has been described (see 4.4 Special warnings and precautions for use and 4.9 overdose).

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 HPRA Pharmacovigilance, Website www.hpra.ie

4.9 Overdose

Symptoms of overdose

Ergocalciferol (vitamin D2) and colecalciferol (vitamin D^3) have only a relatively narrow therapeutic index. In adults with normal function of the parathyroid glands, the threshold for vitamin D intoxication is 40,000 to 100,000 IU per day for 1 to 2 months. Infants and young children can react to much lower concentrations. Therefore, vitamin D should always be taken under medical supervision.

Acute or chronic overdose of vitamin D can cause hypercalcaemia. Symptoms of hypercalcemia are tiredness, headache, muscle and joint pain, muscle weakness, psychiatric symptoms (e.g., euphoria, dazedness, and disturbed consciousness), nausea, vomiting, lack of appetite, weight loss, thirst, polyuria, formation of renal calculi, nephrocalcinosis, extraosseous calcification and kidney failure, changes in ECG, arrhythmias, and pancreatitis. In isolated cases their course has been described as fatal. Chronic overdoses can lead to vascular and organ calcification as a result of hypercalcaemia.

Overdose in pregnancy:
Massive doses during pregnancy have been related to the occurrence of aortic stenosis syndrome and idiopathic hypercalcaemia in newborns. In addition, anomalies of the face, physical and mental retardation, strabism, enamel defects, craniosynostosis, supervalvular aortic stenosis, pulmonary stenosis, inguinal hernia, cryptorchidism in male progeny, as well as premature development of secondary sex characteristics in female progeny have been reported. See section 4.6.

However, several case reports are available of normal children born to mothers with hypoparathyroidism, receiving very high doses.

Therapeutic measures in overdose

A specific antidote does not exist. As a first measure the vitamin D preparation should be discontinued; normalisation of hypercalcemia due to vitamin D intoxication takes several weeks. Graded according to the degree of hypercalcemia, the treatment is directed to symptoms. Rehydration and treatment with diuretics, e.g. furosemide to ensure adequate diuresis. In hypercalcemia biphosphonates or calcitonin and corticosteroids may be given. If a massive dose has been ingested ventricular emptying may be considered, together with administration of carbon.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group:Vitamin D and analogues, ATC code: A11CC05

Mechanism of action
In its biologically active form vitamin D^3 stimulates intestinal calcium absorption, incorporation of calcium into the osteoid, and release of calcium from bone tissue.

Pharmacodynamic effects
In the small intestine it promotes rapid and delayed calcium uptake. The passive and active transport of phosphate is also stimulated. In the kidney, it inhibits the excretion of calcium and phosphate by promoting tubular resorption. The production of parathyroid hormone (PTH) in the parathyroids is inhibited directly by the biologically active form of vitamin D^3. PTH secretion is inhibited additionally by the increased calcium uptake in the small intestine under the influence of biologically active vitamin D^3.

5.2 Pharmacokinetic properties

Absorption
At alimentary doses vitamin D^3 is almost completely absorbed. Vitamin D^3 is absorbed together with fat and administration with the major meal of the day might therefore facilitate absorption.

Distribution
Vitamin D^3 is stored in the fatty tissue and its biological half-life is approx. 50 days. After a single dose of vitamin D^3 maximum serum concentrations of the active metabolite 25-hydroxycholecalciferol are reached after about a week.

Biotransformation
It is hydroxylated in the liver to form 25-hydroxycolecalciferol and then undergoes further hydroxylation in the kidney to form the active metabolite 1, 25 dihydroxycolecalciferol (calcitriol).

Elimination
25-Hydroxycholecalciferol is then slowly eliminated with an apparent half-life in serum of about 50 days, due to the slow elimination of the parent compound. 25-Hydroxycholecalciferol is metabolised to the active metabolite 1, chol25-dihydroxycholecalciferol. After high vitamin D_3doses serum 25-hydroxycholecalciferol concentrations can be increased

for a month or two. Hypercalcaemia resulting from overdose can persist for several weeks. The metabolites circulate in the blood bound to a specific α - globin, Vitamin D and its metabolites are excreted mainly in the bile and faeces.

5.3 Preclinical safety data

There were no other specific toxicological hazard for humans except those who are already in the SPC section 4.6 Pregnancy and lactation and 4.9 Overdose section.

Vitamin D is well known and is a widely used material and has been used in clinical practice for many years. As such toxicity is only likely to occur in chronic overdosage where hypercalcaemia could result.

Colecalciferol has been shown to be teratogenic in high doses in animals (4-15 times the human dose). Offspring from pregnant rabbits treated with high doses of vitamin D had lesions anatomically similar to those of supravalvular aortic stenosis and offspring not showing such changes show vasculotoxicity similar to that of adults following acute vitamin D toxicity.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Capsule content:
Medium chain triglycerides
Vitamin E Acetate (α-Tocopheryl Acetate)

Capsule Shell:
Gelatin
Glycerol (E422)
Sorbitol liquid partially dehydrated (E420)
Purified water

6.2 Incompatibilities

Not applicable.

6.3 Shelf life

Aluminium PVCPVDC Blisters
3 years

HDPE Containers/ Amber Glass Bottles
2 years
HDPE Containers & Amber Glass Bottles: Once opened use within 105 days.

6.4 Special precautions for storage

Store below 30°C.

6.5 Nature and contents of container

HDPE Containers
Amber Glass Bottles
Pack sizes: 20 capsules/30 capsules/50 capsules/60 capsules/90 capsules

Aluminium PVCPVDC Blisters
Pack sizes: 4 capsules/10 capsules/20 capsules/30 capsules/50 capsules/60 capsules/90 capsules

Not all pack sizes may be marketed.

6.6 Special precautions for disposal

Any unused medicinal product or waste material should be disposed of in accordance with local requirements.

7 MARKETING AUTHORISATION HOLDER

Windzor Pharma Ireland Limited
The Office Suite
Unit 2 Holywell Commercial Centre
Swords
Co Dublin
Ireland

8 MARKETING AUTHORISATION NUMBER

PA23126/002/001

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorisation: 14th October 2016
Date of latest renewal: 15th May 2026

10 DATE OF REVISION OF THE TEXT

March 2026