**Summary Product Characteristics (SmPC)**

## 1. Name of the medicinal product

**PHYGOOD (Phytomenadione Injection BP 10mg/ml)**

## 2. Qualitative and quantitative composition

Each ml contains:

| | |
|---|---|
| Phytomenadione BP | 10mg |
| Water for Injection BP | q.s. |

## 3. Pharmaceutical form

Solution for Infusion

## 4. Clinical particulars

### 4.1 Therapeutic indications

PHYGOOD is indicated in the treatment of haemorrhage or threatened haemorrhage associated with a low blood level of prothrombin or factor VII. The main indication is: indicated as an antidote to anticoagulant drugs of the coumarin type.

### 4.2 Posology and method of administration

PHYGOOD are for intravenous injection or oral use. The ampoule solution should not be diluted or mixed with other parenteral medicines, but may be injected, where appropriate, into the lower part of the infusion set (via Y-site or 3-way tap), during continuous infusion of sodium chloride 0.9% or 5% dextrose.

The dosage recommendations detailed in the tables below are provided for therapeutic guidance only.

The dose selection for a specific patient should be based not only on the INR value, but various other risk factors and clinical determinants such as patient

characteristics, comorbid conditions and concomitant medications should also be appropriately considered. Hence the actual dose selection should be at the discretion of the treating physician.

**Adults: As an antidote to anticoagulant drugs**

**Severe or life-threatening haemorrhage, e.g. during anticoagulant therapy**: The coumarin anticoagulant should be withdrawn and an intravenous injection of PHYGOOD given slowly in a dose of 5-10 mg together with fresh frozen plasma (FFP) or prothrombin complex concentrate (PCC). The dose of vitamin K1can be repeated as needed. The prothrombin level should be estimated three hours later and, if the response has been inadequate, the dose should be repeated. Not more than 40 mg of PHYGOOD should be given intravenously in 24 hours.

Dose recommendations for vitamin K1 therapy in patients with major and life-threatening bleeding

| Anticoagulant | Condition | Intravenous vitamin K1 | Concomitant therapy |
|---|---|---|---|
| Warfarin | Major bleeding | 5.0 to 10.0 mg | FFP or PCC |
| | Life-threatening bleeding | 10.0 mg | FFP, PCC or recombinant factor VIIa |
| Acenocoumarol | Major bleeding | 5.0 mg | FFP, PCC or prothrombin concentrates and factor VIIa |
| Phenprocoumon | Major bleeding with INR < 5.0 | 5.0 mg | PCC |
| | Major bleeding with INR > 5.0 | 10.0 mg | PCC |

FFP, fresh frozen plasma

PCC, prothrombin complex concentrate

**Less severe haemorrhage:**

In patients with less severe haemorrhage or in patients with asymptomatic high International Normalized Ratio (INR) without haemorrhage PHYGOOD can be given orally or intravenously.

Dose recommendations for vitamin K1 therapy in patients with asymptomatic high International Normalized Ratio (INR) with or without mild haemorrhage:

| **Anticoagulant** | **INR** | **Oral vitamin K1** | **Intravenous vitamin K1** |
|---|---|---|---|
| Warfarin | 5.0 - 9.0 | 1.0 to 2.5 mg for initial reversal<br>2.0 to 5.0 mg for rapid reversal<br>(add 1.0 to 2.0 mg if INR remains high after 24 h) | 0.5 to 1.0 mg |
| | > 9.0 | 2.5 to 5.0 mg (up to 10 mg) | 1.0 mg |
| Acenocoumarol | 5.0 - 8.0 | 1.0 to 2.0 mg | 1.0 to 2.0 mg |
| | > 8.0 | 3.0 to 5.0 mg | 1.0 to 2.0 mg |
| Phenprocoumon | 5.0 - 9.0 | 2.0 to 5.0 mg | 2.0 to 5.0 mg |
| | > 9.0 | 2.0 to 5.0 mg | 2.0 to 5.0 mg |
| | > 10.0 | not recommended | Individually adapted doses |

Vitamin K therapy is considered more effective than simple warfarin withdrawal in reversing elevated INR values. Nevertheless, simple withholding of one or several VKA doses is a possible therapeutic option.

For small doses one or more ampoules of PHYGOOD Paediatric (2 mg/0.2 ml: same solution) can be used.

**Special dosage instructions**

**Elderly**

Elderly patients tend to be more sensitive to reversal of anticoagulation with PHYGOOD; dosage in this group should be at the lower end of the ranges recommended.

Elderly patients with asymptomatic high International Normalized Ratio (INR) with or without mild haemorrhage

For an INR of 5.0 – 9.0, small doses of 0.5 to 1 mg intravenous or oral Vitamin K1 have been shown to effectively reduce the
INR to < 5.0 within 24 hours.

**Children**

There are few data regarding the use of PHYGOOD in children over 1 year. There have been no dose ranging studies in children with haemorrhage. The optimal dose should therefore be decided by the treating physician according to the indication, clinical situation and weight of the patient. However, based on clinical experience, the following recommendations are suggested:

Children with major and life-threatening bleeding

A dose of 5 mg vitamin K1 by intravenous injection is suggested (together with FPP or PCC if appropriate)

Children with asymptomatic high International Normalized Ratio (INR) with or without mild haemorrhage

Intravenous vitamin K1 in doses of 30 micrograms/kg have been reported to be effective in reversing asymptomatic high (>
8.0) INR in clinically well children.

**Infants and Neonates**

PHYGOOD must not be given to infants less than one year old, since no data are yet available on this patient group. For infants under one year of age, PHYGOOD Paediatric should be used (see separate prescribing information).

**Administration for oral use**

PHYGOOD solution can be given orally with a syringe (e.g. 1 ml syringe).
The ampoule solution should not be diluted. Withdraw the required amount from the ampoule using a syringe with attached needle. Remove the needle from the syringe and administer the contents of the syringe directly into the patient's mouth. Wash down with fluid.

**4.3 Contraindications**

Use in patients with a known hypersensitivity to any of the constituents.
PHYGOOD should not be administered intramuscularly because the intramuscular route exhibits depot characteristics and continued release of vitamin K1 would lead to difficulties with the re-institution of anticoagulation therapy.
Furthermore, intramuscular injections given to anticoagulated subjects cause a risk of haematoma formation.

**4.4 Special warnings and precautions for use**

Careful monitoring of the INR is necessary after administration of PHYGOOD in patients with severely impaired liver function.
At the time of use, the ampoule contents should be clear. Following incorrect storage, the contents may become turbid or present a phase-separation. In this case, the ampoule must no longer be used.
In potentially fatal and severe haemorrhage due to overdosage of coumarin anticoagulants, intravenous injections of PHYGOOD must be administered slowly, and not more than 40 mg should be given during a period of 24 hours.
PHYGOOD therapy should be accompanied by a more immediate effective treatment such as transfusion of whole blood or blood clotting factors.
When patients with prosthetic heart valves are given transfusions for the treatment of severe or potentially fatal haemorrhages, fresh frozen plasma should be used.
Care should be taken when selecting the dose of PHYGOOD to ensure that a sub-therapeutic INR is not produced, as these can be associated with either thrombosis or subsequent resistance to re-initiation of anticoagulant therapy.
Smaller doses of 1 mg have been found to reduce the INR effectively with less risk of over-correction than larger doses.

If haemorrhage is severe, a transfusion of fresh whole blood may be necessary whilst awaiting the effect of the vitamin K1
Vitamin K1 is not an antidote to heparin.

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

Vitamin K1 antagonises the effect of coumarin-type anticoagulants.
Anticonvulsants, such as phenobarbital and phenytoin, may cause vitamin K deficiency bleeding on the first day of life in new-borns whose mothers have taken these anticonvulsants during pregnancy. The exact mechanism is still unclear.

**4.6 Fertility, pregnancy and lactation**

There is no specific evidence regarding the safety of PHYGOOD in pregnancy but, as with most drugs, administration during pregnancy should only occur if the benefits outweigh the risks.
PHYGOOD is not recommended for pregnant women as prophylaxis of vitamin K deficiency bleeding in the newborn.

**4.7 Effects on ability to drive and use machines**

None known

**4.8 Undesirable effects**

The too rapid intravenous administration of vitamin K1 has caused reactions, including flushing of the face, sweating, a sense of chest constriction, cyanosis and peripheral vascular collapse.
There are only a few unconfirmed reports on the occurrence of possible anaphylactoid reactions after intravenous injection of PHYGOOD. Very rarely, venous irritation or phlebitis has been reported in association with intravenous administration of PHYGOOD (mixed micelle) solution.

**Reporting of suspected adverse reactions**

Reporting suspected adverse reactions: Healthcare professionals are asked to report any suspected adverse reactions via the Pharmacy and Poisons Board, Pharmacovigilance Electronic Reporting System (PvERS) https://pv.pharmacyboardkenya.org.

**4.9 Overdose**

Hypervitaminosis of vitamin K1 is unknown.

Reintroduction of anti-coagulation may be affected following overdose of this medicinal product.

**5. Pharmacological properties**

**5.1 Pharmacodynamic properties**

**Pharmacotherapeutic group: Antihaemorrhagics, vitamin K,**

**ATC code:** B02BA01

PHYGOOD is a synthetic preparation of vitamin K1. The presence of vitamin K1 is essential for the formation within the body of prothrombin, factor VII, factor IX and factor X. Lack of vitamin K leads to an increased tendency to haemorrhage. When an antidote to an anticoagulant is necessary it is essential to use vitamin K1 itself, as vitamin K analogues are much less effective.

**5.2 Pharmacokinetic properties**

Absorption

A pharmacokinetic study indicated that the MM solution of vitamin K1 given orally is rapidly and effectively absorbed.

Oral doses of vitamin K1 are absorbed primarily from the middle portions of the small intestine. Systemic availability following oral dosing is approximately 50%, with a wide range of inter individual variability. Onset of action occurs

approximately 1-3 hours after intravenous administration and 4-6 hours after oral doses.

Distribution

The primary distribution compartment corresponds to the plasma volume. In blood plasma, 90% of vitamin K1 is bound to lipoproteins (VLDL fraction). Normal plasma concentrations of vitamin K1 range from 0.4 – 1.2 nanograms/ml. After intravenousadministration of 10 mg vitamin K1 (PHYGOOD), the plasma level after 1 hour is about 500 nanograms/ml and about 50 nanograms/ml at 12 hours. Vitamin K1 does not readily cross the placenta and is poorly distributed into breast milk.

Metabolism

Vitamin K1 is rapidly converted into more polar metabolites, including vitamin K1-2,3-epoxide. Some of this metabolite is reconverted into vitamin K1.

Elimination

Following metabolic degradation, vitamin K1 is excreted in the bile and urine as glucuronide and sulfate conjugates. The terminal half-life in adults is 14 ± 6 h after intravenous administration and 10 ± 6 h after oral administration. Less than 10% of a dose is excreted unchanged in the urine.

Pharmacokinetics in special clinical conditions

Intestinal absorption of vitamin K1 is impaired by various conditions, including malabsorption syndromes, short bowel syndrome, biliary atresia and pancreatic insufficiency. The dosage for this patient group should therefore be at the lower end of the recommended range (see section 4.2 Posology and administration).

**5.3 Preclinical safety data**

LD50 (intravenous) of PHYGOOD (Phytomenadione Injection BP 10mg/ml) in mice: 12.1 - 17.7 ml/kg.

## 6. Pharmaceutical particulars

### 6.1 List of excipients

| | |
|---|---|
| Water for Injection | BP |

### 6.2 Incompatibilities

PHYGOOD should not be diluted.

### 6.3 Shelf life

36 months.

### 6.4 Special precautions for storage

Store below 30°C. Protect from light. Do not freeze.

### 6.5 Nature and contents of container

5 x 1ml White Line stickered Ampoule packed in carton with leaflet and transparent plastic tray.

## 7. Marketing Authorisation Holder and Manufacturer

**Marketing Authorisation Holder:**

**PROMED PHARMACEUTICALS LTD**

P.O BOX 22953-00100

NAIROBI, KENYA

**Manufacturer:**

**OM BIOMEDIC PVT. LTD.**

Plot No. 7 & 8,

National Highway No. 8,

Vasai Phata, Vasai (East), Thane 401208

Maharashtra State, INDIA

**8. Marketing Authorisation Number(s)**

H2025/CTD12044

**9. Date of first Authorisation/ Renewal of the Authorisation**

30 July 2025

**10. DATE OF REVISION OF THE TEXT**

03/2021