Summary of Product Characteristics

1 NAME OF THE MEDICINAL PRODUCT

Glucosamine Pharma Nord 400 mg Capsules

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

400 mg glucosamine, corresponding to 509 mg glucosamine hemisulphate, corresponding to 676 mg glucosamine hemisulphate-potassium chloride complex (1:1).
Each capsule contains 2.2 mmol (87 mg) potassium.
For a full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Capsule, hard

Yellow-coloured, hard capsule (size 0).

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

Relief of symptoms of mild to moderate osteoarthritis of the knee.

4.2 Posology and method of administration

400 mg glucosamine (1 capsule) three times daily. Alternatively, the daily dose can be taken on one occasion.

The capsule(s) should be taken with a full glass of water. The capsules can be taken with or without food.

Glucosamine Pharma Nord is not indicated for acute relief of osteoarthritis pain. Relief of symptoms (especially pain relief) may not be experienced until after several weeks of treatment and in some cases even longer. If no relief of symptoms is experienced after 2-3 months, continued treatment with glucosamine should be re-evaluated.

Elderly: No adjustment of dose is required with the treatment of elderly patients.

Children: Glucosamine Pharma Nord is not receommended for use in children or adolescents under the age of 18 years due to insufficient experience.

Reduced kidney and/or liver function: As patients with reduced kidney and/or liver function have not been specifically studied, no recommendations regarding dose can be given. The potassium content of Glucosamine Pharma Nord should be taken into consideration by patients with reduced kidney function (see section 4.4).

4.3 Contraindications

Persons allergic to shellfish should not use Glucosamine Pharma Nord as the active substance is extracted from shellfish.
Hypersensitivity to glucosamine or to any of the excipients.

4.4 Special warnings and precautions for use

A doctor should exclude the presence of joint diseases for which an alternative treatment should be considered.
Caution should be exercised in the treatment of patients with diabetes mellitus. Closer monitoring of blood glucose and insulin requirements may be necessary at the start of treatment with Glucosamine Pharma Nord. Hypercholesterolaemia has been observed in rare cases in patients treated with glucosamine. Control of cholesterol level is advised before and during treatment.

A report on exacerbated asthma symptoms triggered after initiation of glucosamine therarpy has been described (symptoms resolved after withdrawal of glucosamine). Asthmatic patients starting on glucosamine should therefore be aware of potential worsening of symptoms.

Caution should be exercised if glucosamine is combined with other medicines, as limited data is available regarding interactions (see section 4.5).
Glucosamine Pharma Nord contains 2.2 mmol (87 mg) potassium per capsule, corresponding to 6.6 mmol (262 mg) potassium for the recommended daily dose of three capsules. This should be taken into consideration by patients with reduced kidney function or patients on a controlled potassium diet.

4.5 Interaction with other medicinal products and other forms of interaction

Data on possible drug interactions with glucosamine is limited, but increased INR with coumarin anticoagulants (warfarin and acenocoumaro) has been reported. Patients treated with coumarin anticoagulants should therefore be monitored closely when initiating or ending glucosamine therapy. Concurrent treatment with glucosamine may increase the absorption and serum concentration of tetracyclines, but the clinical relevance of this interaction is probably limited. No interaction studies have been preformed. It is not known whether glucosamine affects the pharmacokinetics of other medicines. As the possibility of interactions cannot be excluded, caution should be exercised when glucosamine is used together with other medicines.

4.6 Fertility, pregnancy and lactation

Pregnancy:
There are no adequate data for the use of glucosamine in pregnant women. Animal studies are insufficient with respect to effects on pregnancy, embryonal/foetal development, parturition, and post-natal development (see section 5.3). The potential risk for humans is unknown. Glucosamine Pharma Nord should therefore not be used during pregnancy.

Lactation:
There are no data available on the excretion of glucosamine in mother's milk. Glucosamine Pharma Nord should therefore not be used during lactation as there are no data on the safety of the newborn.

4.7 Effects on ability to drive and use machines

No studies on the effects of glucosamine on the ability to drive and use machines have been performed. Glucosamine Pharma Nord is not expected to affect ability to drive a motor vehicle or operate machinery.

4.8 Undesirable effects

The most common adverse reactions associated with treatment with glucosamine are nausea, abdominal pain, indigestion, constipation, and diarrhoea. In addition, headache, tiredness, rash, itching, and flushing have been reported. The reported adverse reactions are usually mild and transitory.

Nervous System disorders
Common (>1/100, <1/10) Headaches, Tiredness

Gastrointestinal disorders
Common (>1/100, <1/10) Nausea, Abdominal Pain, Indigestion, Diarrhoea, Constipation

Skin and subcutaneous tissue disorders
Uncommon (>1/1000, <1/100) Rash, Itching, Flushing

Sporadic, spontaneous cases of hypercholesterolaemia have been reported, but causality has not been established.

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, Earlsfort Terrace, IRL - Dublin 2; Tel: +353 1 6764971; Fax: +353 1 6762517. Website:www.hpra.ie; E-mail:medsafety@hpra.ie.

4.9 Overdose

Signs and symptoms of accidental or intentional overdose with glucosamine might include headache, dizziness, disorientation, nausea, vomiting, diarrhoea, constipation or arthralgia. In case of overdose, treatment with glucosamine should be dicontinued. Vomiting may be induced under medical supervision. Standard supportive measures should be adopted as required.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Other anti-inflammatory and antirheumatic agents, non steroids.
ATC code: M01AX05.
Glucosamine (an amino-monosaccharide) is an endogenous substance in humans. Glucosamine is a precursor in the synthesis of glycosaminoglycans and hyaluronic acid, both included in the formation of articular cartilage.

Exogenous supply of glucosamine to animals may enhance proteoglycan synthesis in cartilage and reduce the degradation of cartilage. Long-term studies indicate that glucosamine may inhibit cartilage degradation, most likely by inhibition of catabolic enzymes. Clinical studies have shown that pain relief is expected to occur after several weeks of treatment with glucosamine.

The mechanism of action of glucosamine in humans is unknown.

5.2 Pharmacokinetic properties

Glucosamine is a relatively small molecule (molecular weight 179) that readily dissolves in water and hydrophilic organic solvents.
Glucosamine is the active drug, and is used in the synthesis of glycosaminoglycans.
Absorption: Following oral intake, glucosamine sulphate salts are completely ionised in the acid environment of the stomach, making free glucosamine available for absorption in the small intestine. About 80% is absorbed, but due to hepatic first pass metabolism the bioavailability is considerably lower; the exact percentage is unknown.
Distribution: Following intra venous administration the distribution volume is about 5 litres and the elimination half-life is approximately 2 hours.
Metabolism: In articular cartilage, chondrocytes utilise glucosamine in the synthesis of glycosaminoglycans.
Elimination: Glucosamine metabolised in the liver is excreted as carbon dioxide, water, and urea.

5.3 Preclinical safety data

Glucosamine has low acute toxicity.
Limited studies of the acute and chronic toxicity of glucosamine to animals have not revealed special hazards for humans beyond those already mentioned in other sections of the SPC.
Results from i*n vitro* and experimental *in vivo* studies in animals have shown that glucosamine reduces insulin secretion and induces insulin resistance, probably via an inhibition of beta cells. However, these preclinical effects were observed only at exposures considered sufficiently in excess of the maximum human exposure so as to indicate little relevance to clinical use. To date, similar findings have not been observed in humans.

Studies on mutagenicity and carcinogenicity are lacking, and studies of reproductive toxicity are limited. In the rat, adverse effects on fertility, embryonal/foetal development, and postnatal development were not observed. In the rabbit, the teratogenic potential of glucosamine was only insufficiently characterised, because the offspring were assessed for skeletal but

not for visceral malformations. An increased resorption rate was observed, so that teratogenic effects cannot be excluded in this species.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Capsule content:
Magnesium stearate

Capsule shell:
Gelatin
Iron dioxide (E 172)

6.2 Incompatibilities

Not applicable.

6.3 Shelf life

2 years.

6.4 Special precautions for storage

Do not store above 25°C.
Keep container tightly closed.

6.5 Nature and contents of container

HDPE tablet containers with a HDPE/LDPE closures.
Packaging sizes: 60, 90, 270, and 1000 capsules.

Not all pack sizes may be marketed.

6.6 Special precautions for disposal

No special requirements.

7 MARKETING AUTHORISATION HOLDER

Pharma Nord ApS
Tinglykke 4-6
DK-6500 Vojens
Denmark

8 MARKETING AUTHORISATION NUMBER

PA1242/001/001

9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorisation: 28 October 2005
Date of last renewal: 10 September 2008

10 DATE OF REVISION OF THE TEXT

November 2023