

# SUMMARY OF PRODUCT CHARACTERISTICS

## 1 NAME OF THE MEDICINAL PRODUCT

Furosemide 40 mg tablets

## 2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each tablet contains 40mg Furosemide.

Excipient with known effects:

Each tablets contains 79.025 mg of lactose monohydrate.

For full list of excipients, see section 6.1

## 3 PHARMACEUTICAL FORM

Tablet Flat white / creamy white bevelled tablets, marked MP22 on one side and scored on the other

## 4 CLINICAL PARTICULARS

### 4.1 Therapeutic indications

Furosemide is a diuretic recommended for use in all indications where a prompt and effective diuresis is required.

- 1) The treatment of oedema associated with congestive heart failure, cirrhosis of the liver and renal disease, including nephrotic syndrome and pulmonary oedema.
- 2) The treatment of peripheral oedema due to mechanical obstruction, venous insufficiency, mild to moderate hypertension.

### 4.2 Posology and method of administration

#### *Posology*

Adults and children over 12 years:

Oedema: Initially 40 mg daily in the morning; ordinarily a prompt diuresis ensues, and the starting dose can then be maintained or even reduced. Diuresis lasts for approximately four hours following administration and hence the time of administration can be adjusted to suit the patient's requirements. Maintenance dose is 20mg daily or 40mg on alternate days, increased in resistant oedema to 80mg daily.

Hypertension: 20-40mg twice daily; if 40mg twice daily does not lead to a clinically satisfactory response, the addition of other antihypertensive agents, rather than an increase in the dose of furosemide should be considered.

Children under 12 years: A more suitable dosage form should be used in this age group.

Elderly: Furosemide is generally eliminated more slowly. The dosage should be titrated until the required response is achieved.

*Method of administration:*

For oral administration

*Dosage adjustment may be required (see also section 4.4)*

Dosage adjustment may be necessary in patients with

- hypoproteinaemia
- liver congestion/dysfunction

*Concomitant administration of the following with furosemide should be considered (see section 4.4):*

Colestyramine and colestipol – Administer 2 to 3 hours apart.

### **4.3 Contraindications**

Furosemide is contraindicated in the following circumstances

- Hypersensitivity to the active substance, sulfonamides, sulfonamide derivatives/amiloride or to any of the excipients listed in section 6.1
- Anuria and impaired renal function (creatinine clearance below 30mL/min per 1.73 m<sup>2</sup> body surface area) and renal failure resulting from poisoning by nephrotoxic and/or hepatotoxic agents
- Electrolyte disturbances (severe hyponatraemia: severe hypokalaemia, hypovolaemia), dehydration and/or hypotension(see section 4.4)
- Concomitant potassium supplements or potassium sparing diuretics (see section 4.5)
- Pre-coma/coma associated with hepatic cirrhosis or encephalopathy
- Addison's disease
- Digitalis intoxication (see also section 4.5)
- Breast-feeding women (see section 4.6)

### **4.4 Special warnings and precautions for use**

Condition requiring correction before furosemide is started (see also section 4.3)

- hypotension
- hypovolaemia
- severe electrolyte disturbances – particularly hypokalaemia, hyponatraemia and any acid-base disturbances.

Symptomatic hypotension leading to dizziness, fainting or loss of consciousness can occur in patients treated with furosemide, particularly in the elderly, patients on other medications which can cause hypotension and patients with other medical conditions that are risks for hypotension.

*Dose titration/adjustment (see section 4.2)*

- Patients with hypoproteinaemia (such as that associated with the nephrotic syndrome) require careful dose titration (reduced furosemide effect: increased risk of ototoxicity)
- In moderate liver congestion dosage adjustment may be needed

*Caution required:*

Caution needed in the following circumstances

- impaired hepatic function (see sections 4.2 & 4.3 and below – monitoring required)
- impaired renal function and hepato-renal syndrome (see section 4.3 and below – monitoring required)
- diabetes mellitus (latent diabetes may become overt: insulin requirements in established diabetes may increase : stop furosemide before a glucose tolerance test)
- elderly patients
- difficulty with micturition/potential obstruction in the urinary tract including prostatic hypertrophy (increased risk of acute retention).
- gout (increased risk of hyperuricaemia)
- patients at risk of pronounced falls in blood pressure

*Avoidance with other medicines (see also section 4.5 for other interactions):*

- concurrent NSAIDs should be avoided – if not possible diuretic effect of furosemide may be attenuated
- ACE-inhibitors & Angiotensin II receptor antagonists – severe hypotension may occur – dose of furosemide should be reduced/stopped (3 days) before starting or increasing the dose of these.

*Clinical monitoring requirements (see also section 4.8):*

Regular monitoring for

- blood dyscrasias. If these occur, stop furosemide immediately
- liver damage
- idiosyncratic reactions

In premature infants there is a risk of development of nephrocalcinosis/nephrolithiasis. Renal function must be monitored and renal ultrasonography performed.

*Laboratory monitoring requirements:*

- Serum sodium  
Particularly in the elderly or in patients liable to electrolyte deficiency.

- Serum potassium  
The possibility of hypokalaemia should be taken into account, in particular in patients with cirrhosis of the liver, those receiving concomitant treatment with corticosteroids, those with an unbalanced diet and those who abuse laxatives. Regular monitoring of the potassium, and if necessary treatment with a potassium supplement, is recommended in all cases, but is essential at higher doses and in patients with impaired renal function. It is especially important in the event of concomitant treatment with digoxin, as potassium deficiency can trigger or exacerbate the symptoms of digitalis intoxication (see section 4.5). A potassium-rich diet is recommended during long-term use.

Frequent checks of the serum potassium are necessary in patients with impaired renal function and creatinine clearance below 60ml/min per 1.73m<sup>2</sup> body surface area as well as in cases where furosemide is taken in combination with certain other drugs which may lead to an increase in potassium levels (see section 4.5 & refer to section 4.8 for details of electrolyte and metabolic abnormalities).

- **Renal function**  
Frequent BUN in first few months of treatment, periodically thereafter. Longterm/high-dose BUN should regularly be measured. Marked diuresis can cause reversible impairment of kidney function in patients with renal dysfunction. Adequate fluid intake is necessary in such patients. Serum creatinine and urea levels tend to rise during treatment.
- **Glucose**  
Adverse effect on carbohydrate metabolism - exacerbation of existing carbohydrate intolerance or diabetes mellitus. Regular monitoring of blood glucose levels is desirable.
- **Other electrolytes**  
Patients with hepatic failure/alcoholic cirrhosis are particularly at risk of hypomagnesia (as well as hypokalaemia). During long-term therapy (especially at high doses) magnesium, calcium, chloride, bicarbonate and uric acid should be regularly measured.
- serum electrolytes with replacement as appropriate

*Other alterations in lab values*

- Serum creatinine and urea levels tend to rise during treatment
- Serum cholesterol and triglycerides may rise but usually return to normal within 6 months of starting furosemide
- Furosemide should be discontinued before a glucose tolerance test

This medicine contain lactose:

Patients with rare hereditary problems of galactose intolerance, the Lapp lactase deficiency or glucose-galactose malabsorption should not take this medicine.

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

***ACE Inhibitors*** - enhanced hypotensive effect when given with diuretics. A marked fall in blood pressure and deterioration in renal function may be seen when ACE inhibitors are added to furosemide therapy. The dose of furosemide should be reduced for at least three days, or the drug stopped, before initiating the ACE inhibitor or increasing the dose of an ACE inhibitor.

***Alpha-blockers*** - enhanced hypotensive effect when diuretics are given with alphablockers, also increased risk of first dose hypotension with post-synaptic alphablockers such as prazosin.

**Beta-blockers** - there is an enhanced hypotensive effect when diuretics are given with beta-blockers. Hypokalaemia caused by loop diuretics increases the risk of ventricular arrhythmias with sotalolol.

**Angiotensin-II Receptor Antagonists** - enhanced hypotensive effect when diuretics given with angiotensin-II receptor antagonists.

**Antipsychotics** – hypokalaemia caused by diuretics increase the risk of ventricular arrhythmias with amisulpride or sertindole. An enhanced hypotensive effect may be seen when diuretics are given with phenothiazines. Hypokalaemia caused by diuretics increases risk of ventricular arrhythmias with pimozone (avoid concomitant use).

**Risperidone** - when administering risperidone, caution should be exercised and the risks and benefits of the combination or co-treatment with furosemide or with other potent diuretics should be considered prior to the decision to use. Increased mortality has been observed in elderly patients with dementia concomitantly receiving risperidone.

**Anti-arrhythmics** – (including amiodarone, disopyramide, flecainide and sotalolol) - risk of cardiac toxicity (because of furosemide-induced hypokalaemia). The effects of lidocaine, tocainide or mexiletine may be antagonised by furosemide.

**Drugs associated with QT prolongation** – cardiac toxicity may be increased by furosemide-induced hypokalaemia and/or hypomagnesaemia.

**Cardiac glycosides** – hypokalaemia and electrolyte disturbances (including magnesium) increase the risk of cardiac toxicity.

**Vasodilators** – enhanced hypotensive effect with moxisylyte (thymoxamine) or hydralazine.

**Other diuretics** – there is an increased risk of hypokalaemia when loop diuretics are given with acetazolamide. Profound diuresis is possible when metolazone is given with furosemide. There is an increased risk of hypokalaemia when loop diuretics are given with thiazides and related diuretics.

**Renin inhibitors** – aliskiren reduces plasma concentrations of furosemide given orally. Reduced effect of furosemide might be observed in patients treated with both aliskiren and oral furosemide, and it is recommended to monitor for reduced diuretic effect and adjust the dose accordingly.

**Nitrates** – enhanced hypotensive effect.

**Lithium** – Furosemide reduces lithium excretion with increased plasma lithium concentrations (risk of toxicity). Therefore, it is recommended that lithium levels are carefully monitored and where necessary the lithium dosage is adjusted in

patients receiving this combination. Avoid concomitant administration unless plasma levels are monitored.

**Potassium salts** - there is an increased risk of hyperkalaemia when given with potassium salts.

**Chelating agents** – sucralfate may decrease the gastro-intestinal absorption of furosemide – the 2 drugs should be taken at least 2 hours apart.

**Lipid regulating drugs – Bile acid sequestrants** (e.g., colestyramine: colestipol) – reduced absorption of furosemide –administer 2 to 3 hours apart.

**Analgesics (NSAIDs)** – increased risk of nephrotoxicity (especially if there is hypovolaemia). Indometacin and ketorolac may antagonise the effects of furosemide. In patients with dehydration or hypovolaemia, NSAIDs may cause acute renal insufficiency.

**Salicylates** – effects may be potentiated by furosemide.

**Antibiotics.**

avoid the use of diuretics in lymecycline treatment. There is an increased risk of ototoxicity when loop diuretics are given with aminoglycosides, polymyxins or vancomycin. Since this may lead to irreversible damage, these drugs must only be used with furosemide if there are compelling medical reasons. Impairment of renal function may develop in patients receiving concurrent treatment with furosemide and high doses of certain cephalosporins.

**Ciclosporin** - there is an increased risk of nephrotoxicity and possibly hypermagnesaemia when diuretics are given with ciclosporin.

**Antidepressants** – enhanced hypotensive effect with MAOIs. Increased risk of postural hypotension with TCAs (tricyclic antidepressants). Possible increased risk of hypokalaemia with reboxetine.

**Antidiabetics** – hypoglycaemic effects antagonised by furosemide.

**Insulin**- requirements may be increased (see section 4.4).

**Antiepileptics** – increased risk of hyponatraemia with carbamazepine. Diuretic effect reduced by phenytoin.

**Antihistamines** – hypokalaemia with increased risk of cardiac toxicity.

**Antifungals** – increased risk of hypokalaemia with amphoterecin.

**Antivirals** - plasma concentration of diuretics may be increased by nelfinavir, ritonavir or saquinavir.

**Atomoxetine** - hypokalaemia caused by diuretics increases the risk of ventricular arrhythmias with atomoxetine.

**Anxiolytics and hypnotics** – enhanced hypotensive effect. Chloral or trichlorfos may displace thyroid hormone from binding site.

**Barbiturates** - plasma concentrations of diuretics may be decreased. There may be an increased risk of osteomalacia when diuretics are taken in combination with Phenobarbital.

**CNS stimulants (drugs used for ADHD)** – hypokalaemia increases the risk of ventricular arrhythmias.

**Corticosteroids** – diuretic effect antagonised (sodium retention) and increased risk of hypokalaemia.

**Cisplatin** - there is a risk of increased ototoxic effects if cisplatin and furosemide are given concomitantly. In addition, nephrotoxicity of cisplatin may be enhanced if furosemide is not given in low doses (e.g. 40mg in patients with normal renal function) and with positive fluid balance when used to achieve forced diuresis during cisplatin treatment.

**Cytotoxics** – increased risk of nephrotoxicity and ototoxicity with platinum compounds.

**Dopaminergics** – enhanced hypotensive effect with levodopa.

**Immunomodulators** – enhanced hypotensive effect with aldesleukin.

**Muscle relaxants** – enhanced hypotensive effect with baclofen or tizanidine (see also *Anaesthetic agents* below –curare).

**Oestrogens and progestogens** – diuretic effect antagonized.

**Prostaglandins** – enhanced hypotensive effect with alprostadil.

**Sympathomimetics** – increased risk of hypokalaemia with high doses of beta2 sympathomimetics (such as bambuterol, femoterol, salbutamol, salmeterol and terbutaline).

**Tacrolimus** - there is an increased risk of hypokalaemia when given with tacrolimus.

**Theophylline** –there is an increased risk of hypokalaemia when loop diuretics are given with theophylline.

**Warfarin and clofibrate** - warfarin and clofibrate compete with furosemide in the binding to serum albumin. This may have clinical significance in patients with

low serum albumin levels (e.g. in nephrotic syndrome). Furosemide does not change the pharmacokinetics of warfarin to a significant extent, but a strong diuresis with associated dehydration may weaken the antithrombotic effect of warfarin.

*Probenecid, methotrexate and other drugs* which, like furosemide, undergo significant renal tubular secretion may reduce the effect of furosemide. Conversely, furosemide may decrease renal elimination of these drugs. In case of high-dose treatment (in particular, of both furosemide and the other drugs), this may lead to increased serum levels and an increased risk of adverse effects due to furosemide or the concomitant medication.

*Anaesthetic agents* – general anaesthetic agents may enhance the hypotensive effects of furosemide. The effects of curare may be enhanced by furosemide.

*Alcohol* – enhanced hypotensive effect.

*Carbenoxolone, prolonged use of laxatives, liquorice* - may increase the risk of developing hypokalaemia.

#### **4.6 Fertility, pregnancy and lactation**

##### Pregnancy

The teratogenic and embryotoxic potential of furosemide in humans is unknown. There is little evidence of safety of high-dose furosemide in human pregnancy, although the results of animal work, in general, show no hazardous effects.

There is clinical evidence of safety of the drug in the third trimester of human pregnancy; however, furosemide crosses the placental barrier. It must not be given during pregnancy unless there are compelling medical reasons. Treatment during pregnancy requires monitoring of foetal growth.

The drug should not be used in pregnant women unless the benefits to the patient outweigh the possible risk to the foetus which includes persistence of patent ductus arteriosus (section 4.8).

##### Breast-feeding

Furosemide may inhibit lactation or may pass into the breast milk. Women must not breastfeed if they are treated with furosemide.

##### Fertility

No human data on the effect of furosemide on fertility are available.

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

Patients should be warned that reduced mental alertness and rarely dizziness and blurred vision have been reported. This may impair ability to drive or operate dangerous machinery.

#### 4.8 Undesirable effects

Very common ( $\geq 1/10$ ); common ( $\geq 1/100$  to  $< 1/10$ ); uncommon ( $\geq 1/1,000$  to  $< 1/100$ ); rare ( $\geq 1/10,000$  to  $< 1/1,000$ ); very rare ( $< 1/10,000$ ); Frequency not known (cannot be estimated from the available data).

<b>Blood and Lymphatic System disorders</b>	Uncommon:	aplastic anaemia
	Rare:	bone marrow depression (necessitates withdrawal of treatment), eosinophilia, leukopenia
	Very Rare:	haemolytic anaemia, agranulocytosis, thrombocytopenia
<b>Metabolism and Nutritional disorders</b>	Very common:	dehydration, hyponatraemia, hypochloremic metabolic alkalosis, hypocalcaemia, hypomagnesemia (incidences of the last three are reduced by triamterene), nephrocalcinosis in infants.
	Common:	hypovolaemia, hypochloraemia
	Uncommon:	impaired glucose tolerance (by hypokalaemia) hyperuricaemia, gout, reduction of serum HDL-cholesterol, elevation of serum LDLcholesterol, elevation of serum triglycerides, hyperglycaemia
	Very Rare:	tetany
	Frequency not known:	aggravated pre-existing metabolic alkalosis (in decompensated cirrhosis of the liver), fluid and electrolyte disturbances, excretion of potassium increased*
<b>Psychiatric disorder:</b>	Rare:	psychiatric disorder
<b>Nervous system disorders</b>	Rare:	paraesthesia, confusion, headache, dizziness
<b>Eye disorders</b>	Uncommon:	visual disturbance, blurred vision, yellow vision.
<b>Ear and Labyrinth disorders</b>		
	Rare:	Tinnitus and reversible or irreversible loss of hearing (although usually transitory, particularly in patients with renal failure, hypoproteinaemia (e.g. in nephritic

		syndrome)
<b>Cardio-Vascular disorders</b>	Uncommon:	Orthostatic intolerance, Cardiac arrhythmias, increased risk or persistence of patent ductus arteriosus in premature infants.
<b>Vascular Disorders:</b>	Very common:	hypotension, (which, if pronounced may cause signs and symptoms such as impairment of concentration and reactions, light-headedness, sensations of pressure in the head, headache, drowsiness, weakness, disorders of vision, dry mouth, orthostatic intolerance).
	Rare:	Vasculitis, thrombosis, shock
<b>Gastrointestinal disorders</b>	Uncommon:	dry mouth, thirst, nausea, bowel motility disturbances, vomiting, diarrhoea, constipation.
	Rare:	Acute Pancreatitis (in long-term diuretic treatment, including furosemide).
<b>Hepatobiliary disorders</b>	Rare:	pure intrahepatic cholestasis (jaundice), hepatic function abnormal.
<b>Skin and Subcutaneous tissue disorders</b>	Rare:	rash, pruritus, photosensitivity, toxic epidermal necrolysis.
	Frequency not known:	urticaria, erythema multiforme, purpura, exfoliative dermatitis, itching, allergic reactions, such as skin rashes, various forms of dermatitis including urticaria, bullous lesions, acute generalized exanthematous pustulosis (AGEP). When these occur treatment should be withdrawn.
<b>Musculoskeletal, Connective tissue</b>	Uncommon:	muscle cramps, muscle weakness.
<b>Renal and urinary disorders</b>		
	Uncommon:	reduced diuresis, urinary incontinence, urinary obstruction (in patients with hyperplasia of the prostate, bladder inability to empty, urethral stricture unspecified).
	Rare:	nephrocalcinosis (in pre-term infants treated with furosemide), interstitial nephritis, acute renal failure.

<b>Congenital, familial, and genetic disorders:</b>	Rare:	patent ductus arteriosus
<b>General disorders and administration site conditions:</b>	Uncommon:	Fatigue
	Rare:	malaise, fever, severe anaphylactoid or anaphylactic reactions (e.g. with shock).
<b>Investigations:</b>	Common:	creatinine increased; blood urea increased
	Rare:	Transaminases increased, blood

\*Potassium deficiency manifests itself in neuromuscular symptoms (muscular weakness, paralysis), intestinal symptoms (vomiting, constipation, meteorism), renal symptoms (polyuria) or cardiac symptoms. Severe potassium depletion can result in paralytic ileus or confusion, which can result in coma.

### **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 the Yellow Card Scheme at; [www.mhra.gov.uk/yellowcard](http://www.mhra.gov.uk/yellowcard) or search for MHRA Yellow Card in the Google Play or Apple App Store.

## **4.9 Overdose**

### a) Signs and symptoms

The clinical picture in acute or chronic over dosage depends primarily on the extent and consequences of loss of electrolytes and fluids (e.g. hypovolemia, dehydration, hemoconcentration, cardiac arrhythmia - including A-V block and ventricular fibrillation). Symptoms of these changes include: severe hypotension (and progression to shock), acute renal failure, thrombosis, delirious states, flaccid paralysis, apathy and confusion.

Symptoms include dehydration and electrolyte depletion due to excessive diuresis. In cirrhotic patients, overdosage may precipitate hepatic coma.

### b) Treatment

There is no known specific antidote for furosemide. If ingestion has only just taken place, attempts may be made to limit further systemic absorption of active substance by measures such as gastric lavage or those designated to reduce absorption (e.g. use of activated charcoal).

Changes in clinically relevant fluid and electrolyte balance must be corrected. Together with the prevention and treatment of serious complications resulting from such imbalances and other effects on the body, this corrective action may require intensive generalist and specific medical monitoring, as well as of therapeutic measures.

## 5.1 Pharmacodynamic properties

ATC code: C03CA01

Furosemide is a potent, fast-acting diuretic with a rapid onset of action. From the pharmacological point of view, furosemide inhibits co-transport system (reabsorption) of the Na<sup>+</sup>, K<sup>+</sup> and 2 Cl<sup>-</sup> electrolytes, located of the luminal cell membrane of the ascending limb of the loop of Henle consequently, the efficacy of the saluretic action of furosemide depends on the product reaches the tubular lumen through a transport mechanism anionic. Diuretic action results from the inhibition of sodium chloride reabsorption in this segment of the loop of Henle. As a result, the fraction of sodium excreted may to 35% of glomerular sodium filtration. Side effects of increased urinary excretion and increased distal secretion of potassium at the level of the distal tubule. The excretion of calcium and magnesium ions is increased.

Furosemide disrupts the tubulo-glomerular feedback mechanism in the macula dense, resulting in non-attenuation of saluretic activity. Furosemide causes dose-dependent stimulation of the renin-angiotensin-aldosterone system.

In case of heart failure, furosemide causes an acute reduction in preload (by increasing the capacitance of blood vessels). This vascular effect seems to be mediated by prostaglandins and with the activation of the renin-angiotensin system and an intact synthesis of prostaglandins. Apart from the fact that, given its furosemide decreases the vascular reactivity to catecholamines, which is increased in hypertensive patients.

The antihypertensive efficacy of furosemide is attributable to increased excretion of sodium, blood volume reduction and vascular smooth muscle response to the stimulus vasoconstrictor.

## 5.2 Pharmacokinetic properties

Furosemide is rapidly absorbed from the gastrointestinal tract. The t<sub>max</sub> is 1 to 1.5 hours in the case of Furosemide 40 mg. Absorption of the drug denotes a broad intra and interindividual variability.

The bioavailability of furosemide in healthy volunteers is approximately 50% - 70% for tablets. In the case of sick individuals, the bioavailability of drug is influenced by several factors, including concomitant diseases, can be reduced by around 30% (for example in the case of nephrotic).

The fact that the absorption of furosemide may be affected by food intake and effect seems to depend on the pharmaceutical formulation in question. The volume of distribution of furosemide is 0.1 to 1.2 liters per kg of body weight.

The plasma protein binding (mostly to albumin) is greater than 98%. Furosemide is mostly eliminated in the non-conjugated form, mainly by secretion at the level of the proximal tubule. Following intravenous administration, 60% to 70% of the furosemide dose is excreted in this way.

The glucuronic metabolite of furosemide represents 10% to 20% of the substances recovered in the urine.

The remaining dose is excreted in the faeces, probably after biliary secretion.

The terminal half-life of furosemide after intravenous administration is approximately 1 to 1.5 hours. Furosemide is excreted in breast milk.

Furosemide crosses the barrier the placenta slowly transferring to the fetus. Furosemide reaches concentrations identical in the mother and in the fetus or newborn.

#### Renal insufficiency

In case of renal insufficiency, the elimination of furosemide is slower and its half-life is prolonged, the terminal half-life may reach 24 hours in patients with severe renal impairment.

In case of nephrotic syndrome, the lower concentration of plasma proteins leads to that higher concentrations of unconjugated (free) furosemide are achieved. On the other hand, the efficacy of furosemide is reduced in these patients, due to the intratubular albumin and decreased tubular secretion.

Furosemide is poorly dialysable in patients receiving hemodialysis, dialysis peritoneal or CAPD (Chronic Ambulatory Peritoneal Dialysis).

#### Hepatic insufficiency

In case of hepatic impairment, the half-life of furosemide in the order of 30% to 90%, mainly due to the higher volume of high. In addition, in this group of patients there is pharmacokinetic parameters. Congestive heart failure, severe hypertension, elderly Elimination of furosemide is slowed due to reduced renal function in patients with congestive heart failure, severe hypertension or in the elderly.

#### Premature and newborn infants

Depending on the maturity of the kidney, elimination of furosemide may be slower. The metabolism of the drug is also reduced in the case of children with insufficiency of glucuronization capacity. The terminal half-life is less than 12 hours in children with a post-conception age greater than 33 weeks. In children with terminal age is equal to that of adults.

### **5.3 Preclinical safety data**

There are no pre-clinical data of relevance to the prescriber which are additional to that already included in other sections of the SPC.

## **6 Pharmaceutical Particulars**

### **6.1. List of excipients**

Lactose monohydrate  
Maize starch  
Potato starch  
Silica, colloidal  
anhydrous Magnesium  
stearate

## **6.2 Incompatibilities**

Not Applicable.

## **6.3 Shelf life**

48 months for containers,  
36 months for blister packs.

## **6.4 Special precautions for storage**

Blisters packs: Do not store above 25°C. Store in the original package.  
Containers: Do not store above 25°C. Keep the container tightly closed.

## **6.5 Nature and contents of container**

High density polystyrene with polythene lids and/or polypropylene containers with polypropylene or polythene lids and polyurethane or polythene inserts. Pack sizes: 28, 30, 56, 60, 84, 100, 500 and 1000.

PVC/Aluminium blister-packs.  
Pack sizes: 28, 30, 56, 60, 84, 100, 500 and 1000.

Not all pack sizes may be marketed.

## **6.6 Special precautions for disposal**

Not applicable.

## **7 MARKETING AUTHORISATION HOLDER**

Genethics Europe Limited  
41 - 43 Klimentos  
Klimentos Tower  
Nicosia 1061  
Cyprus

## **8 MARKETING AUTHORISATION NUMBER(S)**

PL 42976/0016

**9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE  
AUTHORISATION**

15/02/2006

**10 DATE OF REVISION OF THE TEXT**

11/03/2025