

## Professional Information for Medicines for Human Use:

### PANTOPRAZOLE MR AUSTELL

#### SCHEDULING STATUS

S4

#### 1. NAME OF THE MEDICINE

**PANTOPRAZOLE MR 20 mg AUSTELL gastro-resistant tablets**

**PANTOPRAZOLE MR 40 mg AUSTELL gastro-resistant tablets**

#### 2. QUALITATIVE AND QUANTITATIVE COMPOSITION

PANTOPRAZOLE MR 20 mg AUSTELL gastro-resistant tablet

Each gastro-resistant tablet contains 20 mg pantoprazole (as sodium sesquihydrate).

PANTOPRAZOLE MR 40 mg AUSTELL gastro-resistant tablet

Each gastro-resistant tablet contains 40 mg pantoprazole (as sodium sesquihydrate).

Excipient with known effect:

Contains sugar, mannitol.

Each 20 mg gastro-resistant tablet contains 37,5 mg mannitol.

Each 40 mg gastro-resistant tablet contains 75 mg mannitol.

Contains less than 1 mmol sodium per dose.

Each 20 mg gastro-resistant tablet contains 7,998 mg (0,348 mmol) sodium.

Each 40 mg gastro-resistant tablet contains 15,996 mg (0,696 mmol) sodium.

For the full list of excipients, see section 6.1.

### 3. PHARMACEUTICAL FORM

Gastro-resistant tablet.

PANTOPRAZOLE MR 20 mg AUSTELL gastro-resistant tablet

Yellow to pale yellow coloured, oval, biconvex gastro-resistant tablets plain on both the sides.

PANTOPRAZOLE MR 40 mg AUSTELL gastro-resistant tablet

Yellow to pale yellow coloured, oval, biconvex gastro-resistant tablets plain on both the sides.

### 4. CLINICAL PARTICULARS

#### 4.1 Therapeutic indications

- PANTOPRAZOLE MR 20 mg AUSTELL is indicated for the symptomatic improvement (e.g. heartburn, acid regurgitation, pain on swallowing) and healing of mild gastro-oesophageal reflux disease. In patients with healed reflux disease, recurring symptoms can be controlled using an on-demand regimen of 20 mg once daily when required.
- PANTOPRAZOLE MR 20 mg AUSTELL indicated for long-term management and prevention of relapse in gastro-oesophageal reflux disease.
- PANTOPRAZOLE MR 20 mg AUSTELL is indicated for the prevention of gastroduodenal lesions and dyspeptic symptoms induced by non-selective non-steroidal anti-inflammatory drugs (NSAID's) in patients at risk, and with a need for continuous NSAID treatment.
- PANTOPRAZOLE MR 40 mg AUSTELL is used for the short-term treatment of duodenal ulcer, gastric ulcer, and reflux oesophagitis. If the duodenal ulcer has been demonstrated to be associated with *Helicobacter pylori* infection, PANTOPRAZOLE MR 40 mg AUSTELL should be used in combination with appropriate antibiotics.

- PANTOPRAZOLE MR 40 mg AUSTELL is indicated in adults for the treatment of Zollinger-Ellison syndrome.

## **4.2 Posology and method of administration**

### **Posology**

#### **Mild gastro-oesophageal reflux disease**

The recommended oral dose is PANTOPRAZOLE MR 20 mg AUSTELL per day. A 4-week period is usually required for healing of mild gastro-oesophageal reflux disease. If this is not sufficient, healing will usually be achieved within a further 4 weeks. In patients with healed reflux disease, reoccurring symptoms can be controlled using an on-demand regimen of PANTOPRAZOLE MR 20 mg AUSTELL once daily when required.

#### **Long-term management and prevention of relapse in gastro-oesophageal reflux disease**

For long-term management a maintenance dose of one PANTOPRAZOLE MR 20 mg AUSTELL tablet per day is recommended, increasing to PANTOPRAZOLE MR 40 mg AUSTELL per day if a relapse occurs. After healing of the relapse, the dose can be reduced to PANTOPRAZOLE MR 20 mg AUSTELL. Experience with long-term administration is limited.

For prevention of gastro-duodenal lesions and dyspeptic symptoms induced by non-selective nonsteroidal anti-inflammatory drugs (NSAID's) in patients at risk and with a need for continuous NSAID treatment, the recommended oral dose is one PANTOPRAZOLE MR 20 mg AUSTELL per day.

### **Duodenal ulcer**

The recommended dose is PANTOPRAZOLE MR 40 mg AUSTELL once daily. The total treatment should be 2 to 4 weeks. If the duodenal ulcer has been demonstrated to be associated with *Helicobacter pylori* infection, PANTOPRAZOLE MR AUSTELL should be used in combination with appropriate antibiotics.

### **Gastric ulcer**

The recommended dose is PANTOPRAZOLE MR 40 mg AUSTELL once daily for 4 to 8 weeks. In the case of a suspected gastric ulcer, malignancy of the gastric ulcer should be excluded, as treatment could conceal the symptoms and may delay diagnosis.

### **Reflux oesophagitis**

The recommended dose is PANTOPRAZOLE MR 40 mg AUSTELL once daily for 4 to 8 weeks. If gastroesophageal reflux disease (GORD) symptom control has not been achieved after four weeks of treatment with the prescribed daily dose, especially where differentiation of diagnosis of GORD with angina and congestive heart failure is present, further investigation is recommended.

### **Zollinger-Ellison Syndrome**

For management of Zollinger-Ellison Syndrome patients should start their treatment with a daily dose of 80 mg (2 tablets of PANTOPRAZOLE MR 40 mg AUSTELL). Thereafter, the dosage can be titrated up or down as needed using measurements of gastric acid secretion as a guide. With doses above 80 mg daily, the dose should be divided and given twice daily.

### **Special populations**

#### ***Elderly population***

No dosage adjustment is necessary in the elderly.

### ***Renal impairment***

No dosage adjustment is required in the presence of impaired renal function.

### ***Hepatic impairment***

A daily dose of PANTOPRAZOLE MR 20 mg AUSTELL should not be exceeded in patients with mild to moderately severe liver impairment.

### **Paediatric population**

PANTOPRAZOLE MR AUSTELL is not recommended for use in children due to limited data on safety and efficacy.

### **Method of administration**

PANTOPRAZOLE MR AUSTELL tablets should be taken in the morning, swallowed whole with little water either before or during breakfast.

The gastro-resistant tablet should not be crushed because coating prevents pH sensitive degradation in the gut.

### **4.3 Contraindications**

- Hypersensitivity to the pantoprazole or to any of the excipients listed in section 6.1.
- Safety and efficacy in children have not been established.
- Severely impaired liver function (see section 4.4).
- PANTOPRAZOLE MR AUSTELL should not be co-administered with HIV protease inhibitors, such as atazanavir or nelfinavir absorption (see sections 4.4 and 4.5).

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

#### **Combination therapy for the eradication of *H. pylori***

In the case of combination therapy for the eradication of *H. pylori*, the professional information for the antibiotics used in the combination should be observed.

### **Gastric malignancy**

Symptomatic response to pantoprazole may mask the symptoms of gastric malignancy and may delay diagnosis. In the presence of any alarm symptom (e.g., significant unintentional weight loss, recurrent vomiting, dysphagia, haematemesis, anaemia or melaena) and when gastric ulcer is suspected or present, malignancy should be excluded as treatment with pantoprazole may alleviate symptoms and delay diagnosis. Further investigation is to be considered if symptoms persist despite adequate treatment.

### **Hepatic impairment**

In patients with severe liver impairment the liver enzymes should be monitored regularly during treatment with PANTOPRAZOLE MR AUSTELL, particularly on long-term use. In the case of a rise of the liver enzymes, PANTOPRAZOLE MR AUSTELL should be discontinued (see section 4.2).

### ***Clostridium difficile* associated diarrhoea (CDAD)**

PPI therapy such as PANTOPRAZOLE MR AUSTELL may be associated with an increased risk of CDAD.

Pantoprazole, like all proton pump inhibitors, might be expected to increase the counts of bacteria normally present in the upper gastrointestinal tract. Treatment with pantoprazole may lead to a slightly increased risk of gastrointestinal infections caused by bacteria such as *Salmonella*, *Campylobacter* and *Clostridium difficile*.

### **Influence on vitamin B12 absorption**

Daily treatment with any acid-blocking medicines such as PANTOPRAZOLE MR AUSTELL over a long period of time may lead to malabsorption of cyanocobalamin (vitamin B12) caused by hypo- or achlorhydria. Cases of cyanocobalamin deficiency under acid-blocking therapy have been reported. This should be considered in patients with reduced body stores or risk factors for reduced vitamin B12 absorption on long-term therapy or if respective clinical symptoms are observed.

### **Co-administration with non-steroidal anti-inflammatory drugs (NSAIDs)**

The use of pantoprazole for prevention of gastroduodenal ulcers and dyspeptic symptoms associated with non-selective non-steroidal anti-inflammatory drugs (NSAIDs) should be restricted to patients who require continued NSAID treatment and have an increased risk to develop gastrointestinal complications. The increased risk should be assessed according to individual risk factors, e.g., high age (> 65 years), history of gastric or duodenal ulcer or upper gastrointestinal bleeding.

### **Subacute cutaneous lupus erythematosus (SCLE)**

Proton pump inhibitors are associated with very infrequent cases of SCLE. If lesions occur, especially in sun exposed areas of the skin, and if accompanied by arthralgia, the patient should seek medical help promptly and the healthcare professional should consider stopping Pantoprazole. SCLE after previous treatment with a proton pump inhibitor may increase the risk of SCLE with other proton pump inhibitors.

### **Bone fractures**

PPI such as PANTOPRAZOLE MR AUSTELL may be associated with an increased risk for osteoporosis-related fractures of the hip, wrist, or spine. The risk of fracture was increased

in patients who received high doses; defined as multiple daily doses, and long-term PPI therapy (a year or longer).

### **Acute Interstitial Nephritis (AIN)**

Acute interstitial nephritis has been observed in patients taking PPIs including pantoprazole. Acute interstitial nephritis may occur at any point during PPI therapy and is generally associated to an idiopathic hypersensitivity reaction which may progress to kidney injury and/or chronic renal failure. Discontinue PANTOPRAZOLE MR AUSTELL if acute interstitial nephritis develops. Symptoms of AIN may persist even when treatment is discontinued.

### **Co-administration with HIV protease inhibitors**

Co-administration of pantoprazole is not recommended with HIV protease inhibitors for which absorption is dependent on acidic intragastric pH such as atazanavir and nelfinavir, due to significant reduction in their bioavailability (see sections 4.3 and 4.5).

### **Hypomagnesaemia**

Severe hypomagnesaemia has been rarely reported in patients treated with PPIs like pantoprazole for at least three months (in most cases for a year of therapy). Serious consequences of hypomagnesaemia include tetany, dysrhythmia, seizure, delirium, fatigue and dizziness, but they may begin insidiously and be overlooked. In most affected patients, hypomagnesaemia improved after magnesium replacement and discontinuation of the PPI.

Measuring magnesium levels before starting treatment and periodically during treatment is recommended in patients who are expected to require treatment long-term (3 months or longer) and particularly in patients who are taking digoxin or other medicines that may cause hypomagnesaemia (e.g., diuretics).



### **Long-term treatment**

In long-term treatment, especially when exceeding a treatment period of 1 year, patients should be kept under regular surveillance.

### **Interference with laboratory tests**

Increased Chromogranin A (CgA) level may interfere with investigations for neuroendocrine tumours. To avoid this interference, PANTOPRAZOLE MR AUSTELL treatment should be stopped for at least 5 days before CgA measurements (see section 5.1). If CgA and gastrin levels have not returned to reference range after initial measurement, measurements should be repeated 14 days after cessation of proton pump inhibitor treatment.

Patients should consult their doctor before taking PANTOPRAZOLE MR AUSTELL if they are due to have an endoscopy or urea breath test.

### **Excipient mannitol**

PANTOPRAZOLE MR AUSTELL contains the sugar mannitol (37,5 mg per 20 mg tablet and 75 mg per 40 mg tablet) which, on rare occasions, may cause hypersensitivity reactions and may have a laxative effect.

### **Excipient sodium**

Contains less than 1 mmol sodium per dose.

Each 20 mg gastro-resistant tablet contains 7,998 mg (0,348 mmol) sodium.

Each 40 mg gastro-resistant tablet contains 15,996 mg (0,696 mmol) sodium.

## **4.5 Interaction with other medicines and other forms of interaction**

### **Cytochrome P450 enzyme**

Pantoprazole is extensively metabolised in the liver via the cytochrome P450 enzyme system. A study using human liver microsomes suggested that the main metabolic pathway

is demethylation by CYP2C19 and other metabolic pathways include oxidation by CYP3A4 (see section 5.2).

In addition, CYP1A2, CYP2D6, CYP2C9 – 10 and CYP2E1 were implicated in other studies. An interaction of pantoprazole with other medicines which are metabolised using the same enzyme system cannot be excluded.

However, no clinically significant interactions were observed in specific tests with a number of such medicines, namely carbamazepine, caffeine, diazepam, diclofenac, digoxin, ethanol, glibenclamide, metoprolol, naproxen, nifedipine, phenytoin, piroxicam, theophylline, and the low dose oral contraceptive (levonorgestrel and ethinyl estradiol).

There were also no interactions with concomitantly administered antacids (aluminium hydroxide and magnesium hydroxide).

Interaction studies have also been performed by concomitantly administering pantoprazole with the respective antibiotics (clarithromycin, metronidazole, amoxicillin). No clinically relevant interactions were found.

### **Clopidogrel**

Clopidogrel is metabolised to its active metabolite in part by CYP2C19. Co-administration of clopidogrel and proton pump inhibitors like pantoprazole as in PANTOPRAZOLE MR AUSTELL, which inhibits CYP2C19 metabolism may result in a significant decreased exposure to the active metabolite of clopidogrel with a resultant decrease in inhibition of platelet aggregation and thus reduce the antiplatelet effect of clopidogrel.

As a precaution, concomitant use of pantoprazole and clopidogrel should be discouraged.

### **Coumarin anticoagulants (phenprocoumon or warfarin)**

Co-administration of pantoprazole with warfarin or phenprocoumon did not affect the pharmacokinetics of warfarin, phenprocoumon or International Normalised Ratio (INR). However, there have been reports of increased INR and prothrombin time in patients receiving PPIs and warfarin or phenprocoumon concomitantly. Increases in INR and prothrombin time may lead to abnormal bleeding, and even death. Patients treated with pantoprazole and warfarin or phenprocoumon may need to be monitored for increase in INR and prothrombin time.

### **Medicines with pH-dependent absorption pharmacokinetics**

The absorption of medicines whose bioavailability is pH dependent (e.g., ketoconazole, itraconazole, posaconazole, erlotinib), might be altered by co-administration with pantoprazole due to the profound and long-lasting inhibition of gastric acid secretion and resultant decrease in gastric acidity.

### **HIV protease inhibitors**

Co-administration of pantoprazole is not recommended with HIV protease inhibitors for which absorption is dependent on acidic intragastric pH such as atazanavir and nelfinavir due to significant reduction in their bioavailability (see sections 4.3 and 4.4).

If the combination of HIV protease inhibitors with a proton pump inhibitor is judged unavoidable, close clinical monitoring (e.g., virus load) is recommended. A pantoprazole dose of 20 mg per day should not be exceeded. Dosage of the HIV protease inhibitor may need to be adjusted.

### **Mycophenolate mofetil**

Co-administration of PPIs including pantoprazole receiving mycophenolate mofetil has been reported to reduce the exposure to the active metabolite, mycophenolic acid. This is possibly due to a decrease in mycophenolate mofetil solubility at an increased gastric pH. The clinical relevance of reduced mycophenolic acid exposure on organ rejection has not been established in transplant patients receiving PPIs and mycophenolate mofetil. Use pantoprazole with caution in transplant patients receiving mycophenolate mofetil.

### **Methotrexate**

Concomitant use of methotrexate (primarily at high-dose e.g., 300 mg) and proton-pump inhibitors may elevate and prolong serum levels of methotrexate and/or its metabolite, possibly leading to methotrexate toxicities. Therefore, in settings where high-dose methotrexate is used, for example cancer and psoriasis, a temporary withdrawal of pantoprazole may need to be considered.

### **Medicines that inhibit or induce CYP2C19 or CYP3A4**

#### ***Fluvoxamine***

Inhibitors of CYP2C19, such as fluvoxamine, would likely increase the systemic exposure of pantoprazole. A dose reduction may be considered for patients treated long-term with high doses of pantoprazole, or those with hepatic impairment.

#### ***Tacrolimus***

Concomitant administration of pantoprazole, as in PANTOPRAZOLE MR AUSTELL and tacrolimus may decrease the CYP3A4 metabolism and increase the whole blood levels of tacrolimus, especially in transplant patients who are intermediate to poor metabolisers of CYP2C19.

### **Enzyme inducers affecting CYP2C19 and CYP3A4**

Rifampicin and St John's wort (*Hypericum perforatum*) may reduce the plasma concentrations of PPIs that are metabolised through these enzyme systems.

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

Safety in pregnancy and during lactation has not been established.

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

Pantoprazole does not exert its pharmacological action centrally, therefore it is not expected to adversely affect the ability to drive or use machines, however, adverse drug reactions, such as dizziness and visual disturbances may occur (see section 4.8).

If affected, patients should not drive or operate machines.

## 4.8 Undesirable effects

### Summary of the safety profile

For all adverse reactions reported from post-marketing experience, it is not possible to apply any Adverse Reaction frequency and therefore they are mentioned with a “not known” frequency.

### Tabulated summary of adverse reactions

The table below lists adverse reactions reported with pantoprazole, ranked under the following frequency classification: frequent, less frequent and frequency not known.

Table 1. Adverse reactions with pantoprazole in clinical trials and post-marketing experience

<b>System Organ Class</b>	<b>Frequency</b>		
	<b>Frequent</b>	<b>Less Frequent</b>	<b>Frequency not known</b>
Infections and infestations			<i>Clostridium difficile</i> associated diarrhoea and increased risk of gastrointestinal infections caused by bacteria such as <i>Salmonella</i> and <i>Campylobacter</i> (see section 4.4)

Blood and lymphatic system disorders		Agranulocytosis, Thrombocytopenia, Leukopenia, Pancytopenia	
Immune system disorders		Hypersensitivity (including anaphylactic reactions and anaphylactic shock)	
Metabolism and nutrition disorders	Hyperlipidaemias and lipid increases (triglycerides, cholesterol), Weight changes		Hyponatraemia, Hypomagnesaemia (see section 4.4), Hypocalcaemia in association with hypomagnesemia, Hypokalaemia
Psychiatric disorders	Sleep disorders	Depression (and all aggravations), Disorientation (and all aggravations)	Hallucination, Confusion (especially in pre-disposed patients, as well as the aggravation of these symptoms in case of pre-existence)

Nervous system disorders	Headache, Dizziness	Taste disorders	Paraesthesia
Eye disorders	Disturbances in vision / blurred vision		
Gastrointestinal disorders	Fundic gland polyps (benign), Diarrhoea, Nausea /vomiting, Abdominal distension and bloating, Constipation, Dry mouth, Abdominal pain and discomfort		Microscopic colitis
Hepatobiliary disorders	Liver enzymes increased (transaminases, $\gamma$ -GT)	Bilirubin increased	Hepatocellular injury, Jaundice, Hepatocellular failure
Skin and subcutaneous tissue disorders	Rash / exanthema / eruption, Pruritus	Urticaria, Angioedema	Stevens-Johnson syndrome, Lyell syndrome, Erythema multiforme,



			Photosensitivity, Subacute cutaneous lupus erythematosus (see section 4.4)
Musculoskeletal and connective tissue disorders	Fracture of the hip, wrist or spine (see section 4.4)	Arthralgia, Myalgia	Muscle spasm as a consequence of electrolyte disturbances
Renal and urinary disorders			Interstitial nephritis (with possible progression to renal failure) (see section 4.4)
Reproductive system and breast disorders		Gynaecomastia	
General disorders and administration site conditions	Asthenia, fatigue and malaise	Increased body temperature, Peripheral oedema	

### **Reporting of suspected adverse reactions**

Reporting suspected adverse reactions after authorisation of the medicine is important. It allows continued monitoring of the benefit/risk balance of the medicine. Healthcare professionals are asked to report any suspected adverse reactions to SAHPRA via the “**6.04 Adverse Drug Reaction Reporting Form**”, found online under SAHPRA’s publications:

<https://www.sahpra.org.za/Publications/Index/8>

## **4.9 Overdose**

There are no known symptoms of overdose in human.

In overdose, side effects can be precipitated and/or be of increased severity (see section 4.8). As pantoprazole is extensively protein bound, it is not readily dialysable. In case of over dosage, treatment should be symptomatic and supportive measures should be utilised.

## **5. PHARMACOLOGICAL PROPERTIES**

### **5.1 Pharmacodynamic properties**

Pharmacological classification: A 11.4.3 Medicines acting on the gastro-intestinal tract.

Pharmacotherapeutic group: Proton pump inhibitors, ATC code: A02BC02

#### **Mechanism of action**

Pantoprazole is a proton pump inhibitor, i.e., it inhibits specifically and dose-proportionally H<sup>+</sup>, K<sup>+</sup>-ATPase, the enzyme which is responsible for gastric acid secretion in the parietal cells of the stomach.

#### **Pharmacodynamic effects**

Pantoprazole is a substituted benzimidazole which accumulates in the acidic environment of the parietal cells after absorption. In the parietal cell it is converted to the active form, a cyclic sulphenamide, which binds to the H<sup>+</sup>, K<sup>+</sup>-ATPase, thus inhibiting the proton pump and causing potent and long-lasting suppression of basal and stimulated gastric acid secretion. As pantoprazole acts distal to the receptor level, it can influence gastric acid secretion irrespective of the nature of the stimulus (acetylcholine, histamine, gastrin).

Pantoprazole's selectivity for the acid secreting parietal cells of the stomach is due to the fact that it only exerts its full effect in a strongly acidic environment ( $\text{pH} < 3$ ), remaining mostly inactive at higher pH values. As a result, its complete pharmacological, and thus therapeutic effect, can only be achieved in the acid-secreting parietal cells. By means of a feedback mechanism this effect is diminished at the same rate as acid secretion is inhibited.

### **Effect on gastric acid secretion**

Treatment with pantoprazole causes a reduced acidity in the stomach and thereby an increase in gastrin in proportion to the reduction in acidity. The increase in gastrin is reversible. The effect of pantoprazole sodium oral formulations (tablets and granules) and the intravenous formulation on gastric acidity is comparable.

## **5.2 Pharmacokinetic properties**

### **Absorption**

Pantoprazole is unstable in acid and is administered orally in the form of a gastro-resistant tablet.

Pantoprazole is well absorbed from the small intestine after oral administration and the maximal plasma concentration appears after one single oral dose. After single and multiple oral doses, the median time to reach maximum serum concentrations was approximately 2,5 h, with a  $C_{\text{max}}$  of approximately 2 to 3  $\mu\text{g/mL}$  following a 40 mg pantoprazole daily in healthy volunteers.

Terminal half-life is approximately 1 h.

The absolute systemic bioavailability of pantoprazole is approximately 77 %. The AUC is approximately 4,0 mg/L. Concomitant intake of food had no influence on the AUC and  $C_{\text{max}}$  of the pantoprazole 40 mg tablet and thus its bioavailability.

## **Distribution**

The serum protein binding of pantoprazole is approximately 98 %. Volume of distribution is approximately 0,15 L/kg and clearance is approximately 0,1 L/h/kg.

## **Biotransformation**

Pantoprazole is extensively and almost exclusively metabolised in the liver through the cytochrome P450 (CYP) system. Pantoprazole metabolism is independent of the route of administration (intravenous or oral). The main metabolic pathway is demethylation, by CYP2C19, with subsequent sulfation; other metabolic pathways include oxidation by CYP3A4. The main metabolite is desmethylpantoprazole, which is conjugated with sulphate. There is no evidence that any of the pantoprazole metabolites have significant pharmacologic activity. CYP2C19 displays a known genetic polymorphism due to its deficiency in some sub-populations (e.g., 3 % of Caucasians and African Americans and 17 – 23 % of Asians). Although these sub-populations of slow pantoprazole metabolisers have elimination half-life values of 3,5 to 10,0 hours, they still have minimal accumulation (δ 23 %) with once daily dosing.

## **Elimination**

Pantoprazole is rapidly eliminated from serum. Renal elimination represents the most important route of excretion (approximately 80 %) for the metabolites of pantoprazole, the rest are excreted with the faeces. The half-life of the main metabolite (approximately 1,5 hours) which is not much longer than that of pantoprazole.

### **Linearity/non-linearity**

Pharmacokinetics do not vary after single or repeated administration. The plasma kinetics of pantoprazole are linear (in the dose range of 10 to 80 mg) after both oral and intravenous administration.

### **Special populations**

#### **Pharmacokinetic profile in patients with impaired liver function**

For patients with mild to moderately severe hepatic cirrhosis the elimination half-life values increase to between 7 to 9 hours. The AUC values increase by a factor of 5 to 8, while the maximum serum concentration only increases by a factor of 1,5 in comparison with healthy subjects.

#### **Pharmacokinetic profile in patients with impaired renal function**

In patients with renal impairment the half-life of the main metabolite is moderately increased but there is no accumulation at therapeutic doses. The half-life of pantoprazole in patients with renal impairment is comparable to the half-life of pantoprazole in healthy subjects. Pantoprazole is poorly dialysed. A slight increase in AUC and  $C_{max}$  occurs in elderly volunteers compared with younger people.

## **6. PHARMACEUTICAL PARTICULARS**

### **6.1 List of excipients**

*Tablet core:*

Calcium stearate

Crospovidone

Mannitol

Silica-colloidal anhydrous

Sodium carbonate anhydrous

Sodium starch glycollate

*Sub-coating:*

Hypromellose

Macrogol 6000

Sodium hydroxide

*Gastro-coating:*

Eudragit L30 D55

Macrogol 6000

*Film-coating:*

Opadry AMB 80W 52172.

## **6.2 Incompatibilities**

Not applicable.

## **6.3 Shelf life**

24 months.

## **6.4 Special precautions for storage**

Store at or below 25 °C in the original packaging.

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

PANTOPRAZOLE MR AUSTELL are packed in aluminium/aluminium blisters of 5 tablets or 14 tablets. The blisters are then packaged in an outer carton to give pack sizes of 28, 30, 56, 84 and 100 tablets.

Not all pack sizes may be marketed.

### **6.6 Special precautions for disposal**

No special requirements.

## **7. HOLDER OF CERTIFICATE OF REGISTRATION**

Austell Pharmaceuticals (Pty) Ltd

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## **8. REGISTRATION NUMBERS**

PANTOPRAZOLE MR 20 mg AUSTELL: 48/11.4.3/1011

PANTOPRAZOLE MR 40 mg AUSTELL: 48/11.4.3/1012

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

31 May 2022

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



