

## AUSTRALIAN PRODUCT INFORMATION

### GASTROGRAFIN® (Sodium amidotrizoate / Amidotrizoate meglumine)

#### 1 NAME OF THE MEDICINE

Sodium amidotrizoate / Amidotrizoate meglumine

#### 2 QUALITATIVE AND QUANTITATIVE COMPOSITION

100 mL Gastrografin solution contains 10 g sodium amidotrizoate and 66 g amidotrizoate meglumine.

For the full list of excipients, see Section 6.1 List of excipients.

#### 3 PHARMACEUTICAL FORM

Oral Solution

#### 4 CLINICAL PARTICULARS

##### 4.1 THERAPEUTIC INDICATIONS

Gastrografin is a contrast medium for examination of the gastrointestinal tract. It can be administered orally and as an enema and is primarily indicated in cases in which the use of barium sulfate is unsatisfactory, undesirable or contraindicated. Among these are:

- suspected partial or complete stenosis
- acute haemorrhage
- threatening perforation (peptic ulcer, diverticulum)
- other acute conditions which are likely to require surgery
- after resection of the stomach or the intestine (danger of perforation or leak)
- megacolon
- visualisation of a foreign body or tumour before endoscopy
- visualisation of gastrointestinal fistula

In addition to these conditions Gastrografin can generally be used for the same purposes as barium sulfate with the exception of the visualisation of mucosal diseases. Due to the insufficient coating properties of Gastrografin, barium sulfate should be used for single or double contrast techniques.

In combination with barium sulfate, Gastrografin has considerably improved routine investigation of the gastrointestinal tract both from a diagnostic and from an organisational point of view - the latter by speeding up the examination. It is unsuitable only for the diagnosis of enteritis.

Further indications:

- a) Early diagnosis of a radiologically undetectable perforation or anastomotic defect in the oesophagus or gastrointestinal tract.
- b) Treatment of meconium ileus.

- c) Computerised tomography in the abdominal region. The danger of false diagnoses is significantly reduced if the intestine is opacified with Gastrografin, especially for differential diagnoses in the minor pelvis. Gastrografin facilitates delimitation of the intestine from neighbouring organs and permits an assessment of changes in the shape of the pancreas.

## 4.2 DOSE AND METHOD OF ADMINISTRATION

### General information

Because of the additives (flavourings and a wetting agent), Gastrografin must not be used intravascularly. Contrast medium solution not used within 72 hours after opening the bottle must be discarded.

- Dietary suggestions

A preceding cleansing of the bowels facilitates the diagnostic validity.

- Hydration

Adequate hydration must be assured before and after contrast medium administration. This applies especially to patients with multiple myeloma, diabetes mellitus and nephropathy, polyuria, oliguria, hyperuricaemia, as well as to newborns, infants, small children and elderly patients. Disturbances of water and electrolyte balance must be corrected before the examination.

- Newborns (<1 month), infants (1 month – 2 years) and children (2 – 11 years)

Young infants (age <1 year) and especially newborns are susceptible to electrolyte imbalance and haemodynamic alterations. Care should be taken regarding: the dose of contrast medium to be given, the technical performance of the radiological procedure and the patient status. Because of its high osmotic pressure and tendency to absorption from the intestine, Gastrografin should not be administered to newborns, infants and young children in higher doses than those recommended. In newborns and infants low osmolar contrast media can often be used more safely than the high osmolar Gastrografin.

### Dosage of Gastrografin

- Oral administration

The dosage is dependent on the type of examination and the age of the patient.

#### Adults and children 10 years of age and over

Visualisation of the stomach: 60 mL.

Follow-through examination of the gastrointestinal tract: a maximum of 100 mL.

For elderly and cachectic patients a dilution with an equal volume of water is recommended.

For the early diagnosis of a perforation or anastomosis in the oesophagus or gastrointestinal tract, the patient should drink up to 100 mL Gastrografin. After 30-60 minutes (later, if the defect is suspected of being in the distal gut), a urine specimen should be taken and 5 mL mixed with 5 drops of concentrated hydrochloric acid. The contrast medium, which has undergone renal excretion, will appear within 2 hours as a typical crystal formation in the precipitate.

#### Children

Babies and young children: 15-30 mL (diluted with 3 times its volume of water).

Children (up to 10 years of age): 15-30 mL (can be diluted with twice its volume of water).

- Computerised tomography (CT)

The examination can be made after the administration of 1.0–1.5 L of an approx. 3% Gastrografin solution (30 mL Gastrografin/1 L water).

- Rectal administration

Adults

Up to 500mL Gastrografin dilution (diluted with 3 - 4 times its volume of water).

In general, unlike a barium-enema, not more than 500 mL of this dilute Gastrografin solution is required.

Children

Children (up to 5 years of age): up to 500 mL Gastrografin dilution (diluted with 5 times its volume of water).

Children (over 5 years of age): up to 500 mL Gastrografin dilution (diluted with 4 - 5 times its volume of water).

- Therapy of meconium ileus

It is possible to cure an uncomplicated meconium ileus by using Gastrografin. Advantage is taken of the high osmotic pressure of the contrast medium: the surrounding tissue is forced to release considerable amounts of fluid, which then flows into the gut and dissolves the hardened meconium.

Note: The procedure must be carried out slowly and only under fluoroscopic control. Injection should stop as soon as Gastrografin is seen to enter the ileum. Owing to its high osmolarity, Gastrografin may cause the loss of a large amount of fluid into the intestines.

An intravenous drip must therefore be set up before the enema is given and plasma should be infused as required. If the Gastrografin is not expelled during the first hour after removal of the rectal catheter, an X-ray should be taken to ensure that over distension of the bowel as a result of the high osmolarity of Gastrografin has not occurred.

## **Dosage of Gastrografin in combination with barium sulfate**

Adults

In addition to the usual dose of barium sulfate: 30 mL Gastrografin

In adult patients, addition of approximately 30 mL Gastrografin to the usual dose of barium sulfate has proved most satisfactory.

Children

In addition to the usual dose of barium sulfate

Children (up to 5 years of age): 2 - 5 mL Gastrografin to 100 mL barium sulfate suspension

Children (from 5 – 10 years of age): 10 mL Gastrografin to 100 mL barium sulfate suspension

If necessary (in cases of pylorospasm or pyloric stenosis), the portion of Gastrografin in the suspension may be further increased. This does not affect the contrast.

## **Exposures**

Exposures of the stomach are taken in the usual way whether Gastrografin is used alone or in combination with barium sulfate.

The time taken for emptying of the stomach is the same as for barium sulfate whereas that for filling of the intestine is shorter. When Gastrografin alone is used, the contrast medium has

generally reached the rectum after 2 hours, while the Gastrografin/barium-sulfate mixture may take up to 3 hours and, in individual cases, longer. The most favourable time for taking exposures of the colon is indicated by the urge to defaecate which all patients experience.

### **4.3 CONTRAINDICATIONS**

Manifest hyperthyroidism.

Gastrografin must not be administered undiluted in patients with low plasma volume, as for example in newborns, infants, children, and in dehydrated patients since hypovolemic complications can be particularly serious in these patients.

Gastrografin must not be administered undiluted in patients with suspected possibility of aspiration or broncho-oesophageal fistula, since hyperosmolarity may cause acute pulmonary oedema, chemical pneumonia, respiratory collapse and death.

### **4.4 SPECIAL WARNINGS AND PRECAUTIONS FOR USE**

The following risks are higher in intravascular administration of iodinated contrast media; however they are also relevant for the enteral use of Gastrografin.

#### Hypersensitivity

Particularly careful risk-benefit assessment is required in patients with known hypersensitivity to Gastrografin or any of its ingredients due to an increased risk for anaphylaxis/hypersensitivity reactions.

As with other contrast agents, Gastrografin can be associated with anaphylaxis /hypersensitivity or other idiosyncratic reactions, characterised by cardiovascular (e.g. hypotension), respiratory (e.g. wheeze), gastrointestinal (nausea, vomiting), or dermatological or mucosal (urticaria, pruritis) manifestations, and ranging to severe reactions including shock.

#### Management of anaphylaxis and emergency measures

Before any contrast medium is administered, the patient should be questioned for a history of allergy (e.g. seafood allergy, hay fever, hives), sensitivity to iodine or to radiographic media and bronchial asthma as the reported incidence of adverse reactions to contrast media is higher in patients with these conditions. Pre-medication with antihistamines and/or glucocorticoids may be considered.

If hypersensitivity reactions occur (see Section 4.8 Adverse Effects), administration of the contrast medium must be discontinued immediately and, if necessary, specific therapy instituted via a venous access.

Medication for the treatment of hypersensitivity reactions as well as preparedness for institution of emergency measures is necessary e.g. Cardiopulmonary Resuscitation (CPR). Prompt and early treatment of anaphylaxis may prevent the aggravation of symptoms and the involvement of other organ systems.

#### Allergy-like hypersensitivity events that have been observed after use of Gastrografin.

Nausea, vomiting, mild angioedema, conjunctivitis, coughing, pruritus, rhinitis, sneezing and urticaria have been reported. These reactions, which can occur irrespective of the amount administered and the mode of administration, may be the first signs of an incipient state of shock.

Delayed reactions may occur (hours later or up to several days) (see Section 4.8 Adverse Effects).

The need for examination merits particularly careful consideration in the case of hypersensitivity to iodinated contrast media, in dehydrated patients and in babies and young children.

#### Other High risk categories

The risk of anaphylaxis/hypersensitivity reactions is higher in the case of:

- any history of allergic disorders
- history of bronchial asthma
- a previous anaphylaxis/hypersensitivity reaction to iodinated contrast media.

Particularly careful risk-benefit assessment is required in patients with a previous anaphylaxis /hypersensitivity reaction to any other iodinated contrast medium because of an increased risk of anaphylaxis/hypersensitivity reactions in these patients.

Patients with a hypersensitivity or previous reaction to iodinated contrast media are at increased risk of experiencing a severe reaction. However, such reactions are irregular and unpredictable in nature.

In patients with an allergic disposition, known hypersensitivity to iodinated contrast media or a history of asthma, are at particular risk of experiencing bronchospasms or hypersensitivity reactions.

**Patients taking beta blockers** who experience such reactions may be resistant to treatment with beta agonists.

**Patients with cardiovascular disorders** are more susceptible to serious or even fatal outcomes of severe anaphylaxis /hypersensitivity reactions.

- Thyroid dysfunction

Particularly careful risk-benefit assessment is required in patients with known or suspected hyperthyroidism or goitre, as iodinated contrast media may interfere with thyroid function, aggravate or induce hyperthyroidism and thyreotoxic crisis. Testing of thyroid function prior to Gastrografin administration and/or preventive thyreostatic medication may be considered in patients with known or suspected hyperthyroidism.

In neonates, especially preterm infants, who have been exposed to Gastrografin, either through the mother during pregnancy or in the neonatal period, it is recommended to monitor thyroid function, as an exposure to excess iodine may cause hypothyroidism, possibly requiring treatment.

- Severe cardiovascular disease

There is an increased risk of aggravation of severe hypersensitivity reactions in individuals with severe cardiac disease and particularly in those with heart failure and coronary artery disease.

- Very poor state of health

The need for examination merits particularly careful consideration in patients with a very poor general state of health.

- Barium sulfate

If Gastrografin is used together with barium sulphate preparations, attention must be drawn to the contraindications, warnings and possible side effects relevant to the preparation.

- Gastrointestinal

In case of prolonged retention of Gastrografin in the gastrointestinal tract (e.g. obstruction, stasis), tissue damage, bleeding, bowel necrosis and intestinal perforation may occur.

- Hydration

Adequate hydration and electrolyte balance should be established and maintained in the patients, since the hyperosmolarity of Gastrografin may cause dehydration and electrolyte imbalance.

### **Use in the elderly**

No data available

### **Paediatric use**

See 'Use in paediatrics' in Section 4.6 Fertility, Pregnancy and Lactation.

### **Effects on laboratory tests**

#### Interference with diagnostic tests

Radioisotopes: Diagnosis and treatment of thyroid disorders with thyrotropic radioisotopes may be impeded for up to several weeks after administration of iodinated contrast agents due to reduced radioisotope uptake.

If iodine isotopes are to be administered for diagnosing thyroid disease, it should be borne in mind that after the administration of iodised contrast media which are excreted via the kidneys, the capacity of the thyroid tissue to take up iodine will be reduced for 2 weeks and sometimes up to 6 weeks.

## **4.5 INTERACTIONS WITH OTHER MEDICINES AND OTHER FORMS OF INTERACTIONS**

Hypersensitivity reactions can be aggravated in patients on beta-blockers, particularly in people with bronchial asthma. Patients who experience such reactions while taking beta-blockers may be resistant to treatment of anaphylaxis/hypersensitivity reactions with beta agonists.

Interleukin-2: Previous treatment (up to several weeks) with interleukin-2 is associated with an increased risk of delayed reactions to Gastrografin.

The prevalence of delayed reactions (e.g. fever, rash, flu-like symptoms, joint pain and pruritus) to contrast media is higher in patients who have received interleukin.

## **4.6 FERTILITY, PREGNANCY AND LACTATION**

### **Effects on fertility**

No data available.

### **Use in pregnancy**

It has not yet been demonstrated that Gastrografin is safe for use in pregnant patients. Adequate and well-controlled studies in pregnant women have not been conducted. Since, wherever possible, radiation exposure should be avoided during pregnancy, the benefits of any X-ray examination - whether with or without contrast material - should be carefully weighed against the possible risk.

Caution should be exercised when using Gastrografin in pregnant women. See also Section 4.4 Special Warnings and Precautions for Use, subsection 'Thyroid dysfunction', and Use in paediatrics.

### Use in lactation

It is not known whether Gastrografin enters the breast milk. See also Section 4.4 Special Warnings and Precautions for Use, subsection 'Thyroid dysfunction', and Use in paediatrics.

### Use in paediatrics

In neonates, especially preterm infants, who have been exposed to Gastrografin, either through the mother during pregnancy or in the neonatal period, it is recommended to monitor thyroid function, as an exposure to excess iodine may cause hypothyroidism, possibly requiring treatment. See also Section 4.4 Special Warnings and Precautions for Use, subsection 'Thyroid dysfunction'.

## 4.7 EFFECTS ON ABILITY TO DRIVE AND USE MACHINES

Not known

## 4.8 ADVERSE EFFECTS (UNDESIRABLE EFFECTS)

Frequency of adverse reactions from spontaneous reports and literature:

Undesirable effects in association with the use of iodinated contrast media are usually mild to moderate and transient in nature. However, severe and life-threatening reactions as well as deaths have been reported. Vomiting, nausea and diarrhoea are the most frequently recorded reactions.

The table below reports adverse reactions by MedDRA system organ classes (MedDRA SOCs)

System Organ Class	Common ( $\geq 1/100$ )	Rare ( $<1/1,000$ )
Immune system disorders		Anaphylaxis shock Anaphylaxis/hypersensitivity reaction
Endocrine disorders		Hyperthyroidism
Metabolic and nutrition disorders		Fluid and electrolyte imbalance
Nervous system disorders		Disturbances in consciousness Headache Dizziness
Cardiac disorders		Cardiac arrest Tachycardia
Vascular disorders		Shock Hypotension
Respiratory, thoracic and mediastinal disorders		Bronchospasm Dyspnoea Medication aspiration Pulmonary oedema following aspiration Aspiration pneumonia
Gastrointestinal disorders	Vomiting Nausea Diarrhoea	Intestinal perforation Abdominal pain Oral mucosal blistering

System Organ Class	Common ( $\geq 1/100$ )	Rare ( $<1/1,000$ )
Skin and subcutaneous tissue disorders		Toxic epidermal necrolysis Urticaria Rash Pruritus Erythema Oedema face
General disorders and administration site conditions		Pyrexia Sweating

The most appropriate MedDRA term is used to describe a certain reaction and its synonyms and related conditions.

- Immune system disorders, anaphylaxis reactions/hypersensitivity

Systemic hypersensitivity is rare, mostly mild and occurs generally in the form of skin reactions. However, the possibility of a severe hypersensitivity reaction cannot be totally excluded (see Section 4.4 Special Warnings and Precautions for Use).

- Gastrointestinal

The hypertonic Gastrografin solution may give rise to diarrhoea but this ceases as soon as the intestine has been emptied. Diarrhoea, nausea and vomiting occur commonly and are the most frequently recorded reactions. An existing enteritis or colitis may be temporarily exacerbated. In case of obstruction the prolonged contact with bowel mucosa can lead to bowel necrosis.

#### **Adverse drug reactions from post-marketing spontaneous reports**

- Endocrine disorders

Thyroid function tests indicative of hypothyroidism or transient thyroid suppression have been reported with unknown frequency following iodinated contrast media administration to adult and paediatric patients, including infants. Some patients were treated for hypothyroidism.

#### ***Reporting suspected adverse effects***

Reporting suspected adverse reactions after registration 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 at <http://www.tga.gov.au/reporting-problems>.

## **4.9 OVERDOSE**

Disorders of water and electrolyte balance caused by overdose should be corrected.

For information on the management of overdose, contact the Poison Information Centre on 131126 (Australia).

## **5 PHARMACOLOGICAL PROPERTIES**

### **5.1 PHARMACODYNAMIC PROPERTIES**

## **Mechanism of action**

Pharmacotherapeutic group: X-ray contrast media, iodinated and watersoluble.

ATC code: V08AA01

Gastrografin does not exert a pharmacological effect. It is an iodine containing contrast medium, iodine being radioopaque.

## **Clinical trials**

No data available.

## **5.2 PHARMACOKINETIC PROPERTIES**

No data available.

## **5.3 PRECLINICAL SAFETY DATA**

### *Genotoxicity*

No data available

### *Carcinogenicity*

No data available

## **6 PHARMACEUTICAL PARTICULARS**

### **6.1 LIST OF EXCIPIENTS**

Gastrografin also contains disodium edetate, saccharin sodium, polysorbate 80, anise oil and purified water.

### **6.2 INCOMPATIBILITIES**

This medicinal product must not be mixed with other medicinal products except those mentioned in the Section 4.2 Dose and Method of Administration.

### **6.3 SHELF LIFE**

2 years

### **6.4 SPECIAL PRECAUTIONS FOR STORAGE**

Store below 25 degrees Celsius.

Protect from light and X-rays.

At temperatures below 7°C Gastrografin tends to crystallise, but this can be reversed by gently warming and shaking the bottle. This phenomenon has no effect on the effectiveness or stability of the preparation. Unused Gastrografin in opened containers must be discarded within 72 hours after first opening the container.

### **6.5 NATURE AND CONTENTS OF CONTAINER**

Bottles of 100 mL, 250 mL.

## 6.6 SPECIAL PRECAUTIONS FOR DISPOSAL

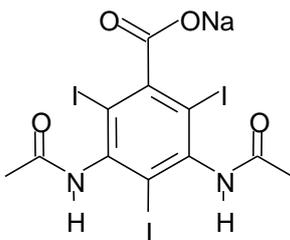
In Australia, any unused medicine or waste material should be disposed of in accordance with local requirements.

## 6.7 PHYSICOCHEMICAL PROPERTIES

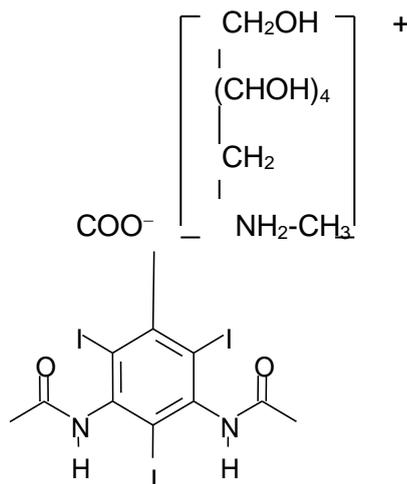
	Molecular formula	Chemical name	Molecular weight	Solubility in water
Sodium amidotrizoate (CAS No. 737-31-5)	$C_{11}H_8I_3N_2NaO_4$	Sodium 3,5-diacetamido-2,4,6-triiodobenzoate	635.90	Freely soluble
Amidotrizoate meglumine (CAS No. 131-49-7)	$C_{18}H_{26}I_3N_3O_9$	N-methylglucamine 3,5-diacetamido-2,4,6-triiodobenzoate	809.13	Freely soluble

### Chemical structure

Sodium amidotrizoate



Amidotrizoate meglumine



## Physico-chemical properties

Iodine concentration	370 mg/mL
Contrast medium concentration	760 mg/mL
Osmotic pressure at 37°C	55.1 atm
Osmolality at 37°C	2.15 osm/kg H <sub>2</sub> O

## CAS number

Sodium amidotrizoate (CAS No. 737-31-5)

Amidotrizoate meglumine (CAS No. 131-49-7)

## 7 MEDICINE SCHEDULE (POISONS STANDARD)

Unscheduled

## 8 SPONSOR

Bayer Australia Ltd  
ABN 22 000 138 714  
875 Pacific Highway  
PYMBLE NSW 2073  
[www.bayer.com.au](http://www.bayer.com.au)

## 9 DATE OF FIRST APPROVAL

19 August 1991

## 10 DATE OF REVISION

14 June 2018

## Summary table of changes

Section changed	Summary of new information
All sections	Reformatted into the SmPC format.
4.4	Addition of warning to monitor thyroid function as excess iodine may cause neonatal hypothyroidism.
4.6	Addition of a Use in paediatrics section to include a recommendation to monitor thyroid function, as an exposure to excess iodine may cause hypothyroidism.
4.8	Addition of details of reports of adverse drug reactions indicative of hypothyroidism following iodinated contrast media administration.
5.1	Addition of basic information in relation to pharmacodynamics properties.
6.2	Addition of instruction that the medicinal product is not be mixed except as instructed.
6.3	Addition of the registered shelf life.