

PRODUCT INFORMATION

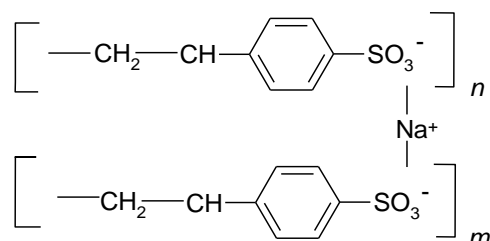
RESONIUM A

NAME OF THE MEDICINE

AUSTRALIAN APPROVED NAME

Sodium polystyrene sulfonate

CHEMICAL STRUCTURE



CAS REGISTRY NUMBER

28210-41-5 [9003-59-2]

DESCRIPTION

Resonium A contains 99.93% sodium polystyrene sulfonate as a finely ground powder. The sodium content is approximately 4.1mmol (100 mg) per gram of Resonium A.

Resonium A also contains saccharin sodium and vanillin.

PHARMACOLOGY

PHARMACODYNAMICS

Sodium polystyrene sulfonate is a cation exchange resin prepared in the sodium phase.

Mechanism of Action

It has an *in vitro* exchange capacity of approximately 3.1 mmol of potassium per gram of resin. However, *in vivo* the actual amount of potassium bound is closer to 1 mmol of potassium per gram.

PHARMACOKINETICS

Absorption

Sodium polystyrene sulfonate is not absorbed from the gastrointestinal tract.

Distribution

Sodium polystyrene sulfonate removes potassium from the body by exchanging it within the gut for sodium.

Excretion

For the most part, this action occurs in the large intestine, which excretes potassium to a greater degree than does the small intestine.

The efficiency of potassium exchange is unpredictable and variable.

INDICATIONS

Treatment of hyperkalaemia.

CONTRAINDICATIONS

- History of hypersensitivity to polystyrene sulfonate resins.
- Serum potassium levels less than 5 mmol/L
- Obstructive bowel disease
- Resonium A should not be administered orally to neonates and is contraindicated in neonates with reduced gut motility (eg. post-operatively or drug induced)

PRECAUTIONS

Serious potassium deficiency can result from Resonium A therapy. It is imperative to determine serum potassium levels at least daily and more frequently when indicated, especially in patients on digoxin. Therapy should be discontinued when serum potassium falls below 5 mmol/L.

Caution is advised when Resonium A is administered to patients who cannot tolerate even a small increase in sodium loads (ie severe congestive heart failure, severe hypertension, renal damage or marked oedema). In such instances, adequate clinical and biochemical control is essential.

Like all cation-exchange resins, Resonium A is not totally selective for potassium in its actions and small amounts of other cations such as magnesium and calcium can also be lost during treatment. Accordingly patients receiving Resonium A should be monitored for all applicable electrolyte disturbances.

In the event of clinically significant constipation, treatment with the resin should be discontinued until normal bowel habit is resumed. Magnesium containing laxatives should not be used (see Interactions with Other Medicines).

With oral administration, care should be taken to avoid aspiration, which may lead to bronchopulmonary complications.

Gastrointestinal stenosis, intestinal ischaemia and its complications (necrosis and perforation) may occur in patients treated with polystyrene sulfonate, especially in patients using sorbitol. Therefore, concomitant use of sorbitol with sodium polystyrene sulfonate is not recommended (see INTERACTIONS WITH OTHER MEDICINES and ADVERSE EFFECTS).

Since effective lowering of serum potassium with Resonium A may take hours to days, treatment with this drug alone may be insufficient to rapidly correct severe hyperkalaemia, often associated with states of rapid tissue breakdown eg burns or trauma. In such instances, some form of dialysis may be imperative. If hyperkalaemia is so marked as to constitute a medical emergency, immediate treatment with intravenous glucose and insulin or intravenous sodium bicarbonate may be necessary as a temporary measure to lower serum potassium while other long-term potassium lowering therapy is being prepared.

USE IN PREGNANCY (CATEGORY B2)

No data are available regarding the use of polystyrene sulfonate resins in pregnancy. The administration of Resonium A in pregnancy is not advised unless the potential benefits outweigh any potential risks.

USE IN LACTATION

No data are available regarding the use of polystyrene sulfonate resins in lactation. The administration of Resonium A during breast-feeding therefore, is not advised unless the potential benefits outweigh any potential risks.

PAEDIATRIC USE

In neonates, Resonium A should not be given by the oral route.

In children and neonates particular care should be observed with rectal administration, as excessive dosage or inadequate dilution could result in impaction of the resin.

Due to the risk of digestive haemorrhage, colic necrosis or sodium overload, particular care should be observed in premature infants or low birth weight infants.

INTERACTIONS WITH OTHER MEDICINES

Concomitant use of sorbitol with sodium polystyrene sulfonate is not recommended due to cases of intestinal necrosis, and other serious gastrointestinal adverse reactions, which may be fatal (see PRECAUTIONS and ADVERSE EFFECTS).

Cation donating agents may reduce the effectiveness of the resin in binding potassium.

Non-absorbable cation containing antacids and laxatives (such as magnesium hydroxide); and concomitant oral use of cation exchange resins has been reported to cause systemic alkalosis.

Aluminium hydroxide: intestinal obstruction due to concretions of aluminium hydroxide has been reported when aluminium hydroxide was combined with the resin.

Digoxin: the toxic effects of digoxin on the heart, especially various ventricular arrhythmias and AV nodal depression are likely to be exaggerated if hypokalaemia is allowed to develop.

Lithium: Possible decrease of lithium absorption.

Thyroxine: Possible decrease of thyroxine absorption.

ADVERSE EFFECTS

Metabolism and nutrition disorders

In accordance with its pharmacological actions, the resin may give rise to sodium retention, hypokalaemia and hypocalcaemia and their related clinical manifestations (see PRECAUTIONS). Cases of hypomagnesaemia, have been reported.

Gastrointestinal disorders

Gastric irritation, anorexia, constipation, nausea, vomiting and occasionally diarrhoea may also occur. Large doses in elderly individuals may cause faecal impaction. These effects may be obviated through usage of the resin in enemas. Faecal impaction following rectal administration in children, and gastrointestinal concretions following oral administration to neonates have been reported.

Gastrointestinal stenosis and intestinal obstruction have also been reported possibly due to co-existing pathology or inadequate dilution of the resin.

Gastrointestinal ischemia, ischemic colitis, gastrointestinal tract ulceration or necrosis which could lead to intestinal perforation have been reported following administration of sodium polystyrene sulfonate, which is sometimes fatal. (see also PRECAUTIONS).

The majority of cases has been reported with concomitant use of sorbitol (see Interactions with Other Medicines and PRECAUTIONS).

Respiratory, thoracic and mediastinal disorders

Some cases of acute bronchitis and/or bronchopneumonia associated with inhalation of particles of sodium polystyrene sulfonate have been described.

DOSAGE AND ADMINISTRATION

Resonium A is for oral or rectal administration only. The dosage recommendations detailed below are a guide only; the precise requirements should be determined on the basis of regular clinical and serum electrolyte monitoring.

Adults

Oral

15 g three to four times daily. Each dose should be given as a suspension in a small amount of water or, for greater palatability, in syrup (but not fruit juices, which contain potassium), in the ratio of 3-4 mL per gram of resin.

Rectal

In cases where vomiting or upper gastrointestinal problems, including paralytic ileus, may make oral administration difficult, Resonium A may be given rectally in a suspension of 30 g to 50 g resin in 150 mL water or 10% dextrose in water, given as a daily retention enema. In the initial stages, administration by this route as well as orally may help to achieve a more rapid lowering of the serum potassium level.

The enema should if possible be retained for at least nine hours, following which the colon should be irrigated to remove the resin. If both routes are used at first, it is probably unnecessary to continue rectal administration once the oral resin has reached the rectum.

Infants and children

Oral

Lower doses should be employed using, as a guide, a rate of 1 mmol potassium per gram of resin as the basis for calculation. An appropriate initial dose is 1 g/kg body weight daily in divided doses, in acute hyperkalaemia. For maintenance therapy, dosage may be reduced to 0.5 g/kg body weight daily in divided doses. Each dose should be given as a suspension in a small amount of water or, for greater palatability, in syrup (but not fruit juices, which contain potassium), in the ratio of 3-4 mL per gram of resin.

Rectal

When the resin cannot be given by mouth, it may be given rectally using a dose at least as great as that which would have been given orally, diluted in the same ratio as described for adults. Following retention of the enema, the colon should be irrigated to ensure adequate removal of the resin.

In the initial stages, administration by this route as well as orally may help to achieve a more rapid lowering of the serum potassium level. If both routes are used at first, it is probably unnecessary to continue rectal administration once the oral resin has reached the rectum.

OVERDOSAGE

Biochemical disturbances resulting from overdose may give rise to clinical signs and symptoms of hypokalaemia, including irritability, confusion, delayed thought processes, muscle weakness, hyporeflexia or paralysis. Apnoea may be a serious consequence of this progression. ECG changes may be consistent with hypokalaemia; cardiac arrhythmia may occur. Hypocalcaemic tetany may occur. Appropriate measures should be taken to monitor and correct serum electrolytes, and the resin should be removed from the alimentary tract by appropriate use of laxatives or enemas.

For information on the management of overdose, contact the Poison Information Centre on 131126 (Australia) or the New Zealand National Poison's Information Centre on 0800 POISON or 0800 764 766.

PRESENTATION AND STORAGE CONDITIONS

Powder 454 g

Store below 30°C.

Suspensions of the resin should be freshly prepared and not stored beyond 24 hours. Once reconstituted, Resonium A is a cream to light brown coloured suspension in which small white particulates may remain visible.

NAME AND ADDRESS OF THE SPONSOR

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Macquarie Park NSW 2113

New Zealand

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Level 8, James and Wells Tower
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Ellerslie
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POISON SCHEDULE OF THE MEDICINE

Schedule 4 (Prescription Only Medicine)

DATE OF FIRST INCLUSION IN THE ARTG

10 September 1991

DATE OF MOST RECENT AMENDMENT

28 January 2014