## 1. NAME OF THE MEDICINAL PRODUCT

Ringer-Acetat Baxter Viaflo solution for infusion.

## 2. QUALITATIVE AND QUANTITATIVE COMPOSITION

| | | | |
|---|---|---|---|
| 1000 ml contains: | 5.86 | g | Sodium Chloride |
| | 0.30 | g | Potassium Chloride |
| | 0.29 | g | Calcium Chloride dihydrate |
| | 0.20 | g | Magnesium Chloride hexahydrate |
| | 4.08 | g | Sodium Acetate trihydrate |

| | $Na^+$ | $K^+$ | $Ca^{++}$ | $Mg^{++}$ | $Cl^-$ | $C_2H_3O_2^-$ (acetate) |
|---|---|---|---|---|---|---|
| mmol/l | 130 | 4 | 2 | 1 | 110 | 30 |
| mEq/l | 130 | 4 | 4 | 2 | 110 | 30 |

For a full list of excipients, see section 6.1

## 3. PHARMACEUTICAL FORM

Solution for infusion.
Clear solution, free from visible particles.
Osmolarity: 277 mOsm/l (approx.)
pH: 5.0 – 6.0

## 4. CLINICAL PARTICULARS

### 4.1. Therapeutic indications

Replacement of extracellular fluid and electrolyte loss or short-term volume replacement (alone or in association with colloid).

### 4.2. Posology and Method of Administration

Posology
The infusion rate and volume depend on the age, weight, clinical condition (e.g. burns, surgery, head-injury, infections), and concomitant therapy should be determined by the consulting physician experienced in paediatric intravenous fluid therapy (see sections 4.4. and 4.8). Fluid

balance and serum electrolytes should be monitored before and during administration (see sections 4.4, 4.5, 4.6 and 4.8).

Recommended dosage:
The amount of Ringer-Acetat Baxter Viaflo solution needed to temporary restore blood volume is 3 to 5 times the volume of lost blood.

*Adults, Adolescents and older patients (age 12 years and over):*
The recommended dosage for longer treatment is:

- For adults, the elderly and adolescents (age 12 years and over): 500 ml to 3 litres/24h.

*Paediatric population*

- 0 - 10 kg body weight: 100 ml/kg/24 h
- 10-20 kg body weight:1000 ml + (50 ml/ kg over 10 kg) / 24h
- > 20 kg body weight: 1500 ml + (20 ml/ kg over 20 kg) / 24h

Administration rate:
The infusion rate is usually 40 ml/kg/24h in adults.
In paediatric patients, the infusion rate is 5 ml/kg/h in average but the value varies

- 6-8 ml/kg/h for 0 - 10 kg body weight
- 4-6 ml/kg/h for 10-20 kg body weight
- 2-4 ml/kg/h for > 20 kg body weight

Plasma electrolyte concentrations should be closely monitored in the paediatric population as this population may have impaired ability to regulate fluids and electrolytes.

Method of administration :
The administration is performed by intravenous route. Due to its iso-osmolality, this solution can be administered through a peripheral vein.

Use only if the solution is clear, without visible particles and if the container is undamaged. Administer immediately following the insertion of infusion set. Do not remove unit from overwrap until ready for use. The inner bag maintains the sterility of the product.

Do not use plastic containers in series connections. Such use could result in air embolism due to residual air being drawn from the primary container before the administration of the fluid from the secondary container is completed. Pressurizing intravenous solutions contained in flexible plastic containers to increase flow rates can result in air embolism if the residual air in the container is not fully evacuated prior to administration. Use of a vented intravenous administration set with the vent in the open position could result in air embolism. Vented intravenous administration sets with the vent in the open position should not be used with flexible plastic containers.

The solution should be administered with sterile equipment using an aseptic technique. The equipment should be primed with the solution in order to prevent air entering the system.

Additives may be introduced before infusion or during infusion through the injection site.
For instructions on preparing the product for administration, see section 6.6.

**4.3. Contra-indications**

The solution is contraindicated in patients presenting with:

- Known hypersensitivity to the product or any ingredients in the formulation.
- Extracellular hyperhydration or hypervolemia.

As for other calcium-containing infusion solutions, treatment with ceftriaxone and Ringer-Acetat Baxter Viaflo is contraindicated in preterm newborn infants and term newborn infants (≤28 days of age), even if separate infusion lines are used (risk of fatal ceftriaxone calcium salt precipitation in the neonate's bloodstream).

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

Cases of fatal reactions with calcium-ceftriaxone precipitates in lungs and kidneys in premature and full-term newborn infants aged less than 1 month have been described.
In patients of any age ceftriaxone must not be mixed or administered simultaneously with any calcium-containing IV solutions even via different infusion lines or different infusion sites

However, in patients older than 28 days of age ceftriaxone and calcium-containing solutions may be administered sequentially one after another if infusion lines at different sites are used or if the infusion lines are replaced or thoroughly flushed between infusions with physiological salt-solution to avoid precipitation. Sequential infusions of ceftriaxone and calcium-containing products must be avoided in case of hypovolaemia.

High volume infusion must be used under specific monitoring in patients with cardiac or pulmonary failure and in patients presenting with oedema, ascitic cirrhosis or renal insufficiency.

<u>Hyponatraemia</u>
Treatment with intravenous fluids having a lower sodium concentration than the patient's serum sodium may cause hyponatremia (see section 4.2). Children, patients with reduced cerebral compliance, patients with non-osmotic vasopressin release (e.g. in acute illness, trauma, post-operative stress, central nervous system diseases), and patients exposed to vasopressin agonists and other drugs that can lower serum sodium (see section 4.5) are at particular risk of acute hyponatraemia. Acute hyponatraemia can lead to acute brain oedema and life-threatening brain injury.

The patient's clinical status and laboratory parameters (fluid balance, blood and urine electrolytes as well as acid-base balance) must be monitored during use of this solution. The plasma electrolyte levels such as natraemia, chloraemia, kalaemia, magnesaemia, calcaemia must be closely monitored.

Paediatric population:
Plasma electrolyte concentrations should be closely monitored in the paediatric population as this population may have impaired ability to regulate fluids and electrolytes.

Solutions containing potassium salts should be administered with caution to patients with cardiac diseases, hyperkalaemia or conditions that can lead to hyperkalaemia such as renal or adrenocortical insufficiency, acute dehydration, or extensive tissue destruction as occurs with severe burns (see also in 4.5 “Interactions with other medicinal products and other forms of interaction”).

Although Ringer-Acetat Baxter Viaflo has a potassium concentration similar to the concentration in plasma, it is insufficient to produce a useful effect in case of severe potassium insufficiency and therefore it should not be used for this purpose.

Calcium chloride is irritant; therefore care should be taken to prevent extravasation during intravenous injection. Solutions containing calcium should be given cautiously to patients with hypercalcemia or patients with impaired renal function, or disease associated with elevated vitamin D concentrations such as sarcoidosis or calcium renal calculi or history of such calculi to patients receiving digitalis therapy (see also in 4.5 “Interactions with other medicinal products and other forms of interaction”). In case of concomitant blood transfusion and because of the presence of calcium, Ringer-Acetat Baxter Viaflo must not be administered via the same infusion system because of the risk of coagulation.

Solutions containing magnesium salts should be used with caution in patients with or at risk of hypermagnaesemia, such as renal impairment, severe heart rate disorders and in patients with myasthenia gravis. Patients should be monitored for clinical signs of excess magnesium, particularly when being treated with magnesium, e.g. for eclampsia (see also in 4.5 “Interactions with other medicinal products and other forms of interaction”).
Administration in the postoperative period after neuromuscular block should be used with caution since magnesium salts can lead to a recurarisation effect.

Infusion of Ringer-Acetat Baxter Viaflo may cause metabolic alkalosis because of the presence of acetate ions and should be administered with particular caution to patents with alkalosis or at risk for alkalosis. However; it is not suitable to treat severe metabolic or respiratory acidosis.

During long-term parenteral treatment, a convenient nutritive supply must be given to the patient.

Geriatric use:
When selecting the type of infusion solution and the volume/rate of infusion for a geriatric patient, consider that geriatric patients are generally more likely to have cardiac, renal, hepatic, and/or other diseases, and/or concomitant drug therapy.

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

*Interaction with ceftriaxone*

- Concomitant treatment with ceftriaxone and Ringer-Acetat Baxter Viaflo is contraindicated in preterm new born infants and term new born infants (≤28 days of age), even if separate infusion lines are used (risk of fatal ceftriaxone-calcium salt precipitation in the neonate's bloodstream) (see Section 4.3).
- In patients of any age ceftriaxone must not be mixed or administered simultaneously with any calcium-containing IV solutions even via different infusion lines or different infusion sites (See Section 4.4).

*Drugs that can increase the risk for hyponatremia*
Drugs that can lower serum sodium may increase the risk of acquired hyponatraemia following treatment with intravenous fluids inappropriately balanced to the need of the patient in terms of fluid volume and sodium content (see sections 4.2, 4.4, 4.6 and 4.8). Examples are diuretics, non-steroid anti-inflammatory drugs (NSAIDs), antipsychotics, selective serotonin reuptake inhibitors, opioids, antiepileptics, oxytocin, and chemotherapy

Suxamethonium and potassium, when administered concomitantly, may result in considerable hyperkalaemia, thereby intensifying their negative effects on cardiac rhythm. Magnesium salts may potentiate the effect of depolarising neuromuscular blocker such as suxamethonium, vecuronium or tubocurarine. Therefore, concomitant administration of Ringer-Acetat Baxter Viaflo and drugs containing the above mentioned substances, is not recommended.

The effect on potassium and/or sodium retention of certain drugs should be considered such as: Corticoids/Steroids, Potassium-sparing diuretics, Angiotensin converting enzyme inhibitors (ACEi) angiotensin II receptor antagonists, Tacrolimus, Cyclosporin.

Calcium increases the risk of toxic effects of digitalis glycosids.
Alkalisation of the urine by bicarbonate resulting from acetate metabolism, will increase the elimination of certain drugs (such as - salicylates, lithium, barbiturates) and will decrease elimination of kinidin and sympathomimetics (such as amphetamine, dextro amphetamine sulfate, ephedrine and pseudoephedrine).

Ringer-Acetat Baxter Viaflo solution should be administered with caution in patients treated with thiazide diuretics or vitamin D, as these can increase the risk of hypercalcemia.

### 4.6. Fertility, pregnancy and lactation

Ringer-Acetat Baxter Viaflo can be used during pregnancy and lactation.

When Ringer-Acetat Baxter Viaflo is administrated to pregnant women during labour, particularly if administered in combination with oxytocin, there may be an increased risk for hyponatraemia (see section 4.4, 4.5 and 4.8).

### 4.7. Effects on the ability to drive and use machines

There is no information on the effects of Ringer –Acetat Baxter Viaflo on the ability to operate an automobile or other heavy machinery.

### 4.8. Undesirable effects

During administration of Ringer-Acetat Baxter Viaflo, the following adverse reactions have been reported in the post-marketing experience, listed by MedDRA System Organ Class, then by preferred term in order of severity, where feasible:

**Tabulated list of adverse reactions**

| MedDRA System Organ Class | Common (>1/100, <1/10) | Rare (>1/10000, <1/1000) | Very rare (<1/10000) | Not known |
|---|---|---|---|---|
| **Immune system disorders** | - | | - | Hypersensitivity reactions, allergic reactions or anaphylactic/anaphylactoid symptoms; Urticaria |
| **Metabolism and nutrition disorders** | | - | | Hyponatremia Overhydration Electrolyte disturbances |
| **Nervous system disorders** | - | - | Seizure that may be precipitated by the alkalosis induced by acetate | Hyponatraemic encephalopathy |
| **Cardiac disorders** | Heart failure in patient with cardiac disorder | Tachycardia, bradycardia | - | - |
| **Respiratory, thoracic and mediastinal disorders** | Pulmonary oedema | - | - | - |
| **General disorders and administration site conditions** | Febrile reaction, infection at the site of injection, local pain or reaction, vein irritation, venous thrombosis or | Chest tightness, chest pain. | - | - |

| | | | | |
|---|---|---|---|---|
| | phlebitis extending from the site of injection, extravasation, | | | |

Adverse reactions may be associated with medications added to the solution.

*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 national reporting system listed in Appendix V*.

### 4.9. OVERDOSE

Excessive administration of Ringer-Aectat Baxter Viaflo can cause:

- Fluid and sodium overload with a risk of edema (peripheral and/or pulmonary), particularly when renal sodium excretion is impaired,
- Hyperkalemia, especially in patients with severe renal impairment,
- Hypercalcemia,
- Hyperchloremia,
- A loss of bicarbonate with an acidifying effect.
- Hypermagnesemia.

When assessing an overdose, any additives in the solution must also be considered.

**THE EFFECTS OF AN OVERDOSE MAY REQUIRE IMMEDIATE MEDICAL ATTENTION AND TREATMENT.**

**INTERVENTIONS INCLUDE DISCONTINUATION OF RINGER-ACETAT BAXTER VIAFLO ADMINISTRATION, DOSE REDUCTION, AND OTHER MEASURES AS INDICATED FOR THE SPECIFIC CLINICAL CONSTELLATION.**

## 5. PHARMACOLOGICAL PROPERTIES

### 5.1. Pharmacodynamic properties

Pharmacotherapeutic group: Electrolytes - ATC code: B05BB01

Ringer-Acetat Baxter Viaflo has approximately the same electrolyte composition as the extracellular fluid. The product is used for corrections of disturbances in the serum electrolyte balance and in the acid-base balance. Electrolytes are given to receive or to keep normal osmotic conditions in the extracellular as well as the intracellular compartment. Acetate is oxidized into bicarbonate, mainly in the muscles and peripheral tissues and gives a weak alkalising effect. Due to the amount of metabolisable anions, Ringer-Acetat Baxter Viaflo is suitable for patients with a tendency to acidosis.

### 5.2. Pharmacokinetic properties

The acetates in Ringer-Acetat Baxter Viaflo are metabolised by muscles and peripheral tissues to bicarbonate.

When medication is added to Ringer-Acetat Baxter Viaflo, the overall pharmacokinetics of the solution will depend on the nature of the drug used.

### 5.3. Preclinical safety data

There are no preclinical data considered relevant to clinical safety beyond data included in other sections of the SPC.

## 6. PHARMACEUTICAL PARTICULARS

### 6.1. List of excipients

Water for Injections
Hydrochloric acid

### 6.2. Incompatibilities

Incompatibility of the medicinal product to be added with the solution in Viaflo container must be assessed before addition.
The instruction for use of the medicinal product to be added must be consulted.
Before adding a drug, verify it is soluble and stable in water at the pH of Ringer-Acetat Baxter Viaflo (pH 5.0 to 6.0).

Ringer-Acetat Baxter Viaflo should not be mixed with products containing carbonates, sulfates or phosphates.
Ceftriaxone: See sections 4.3 and 4.4 for more information

Ringer-Acetat Baxter Viaflo is incompatible with the following agents due to precipitate formation (includes but is not limited to):

- Amphotericin B
- Cortisone
- Erythromycin lactobionate
- Etamivan
- Ethyl alcohol
- Thiopental sodium
- Disodium edetate

### 6.3. Shelf life

Shelf life as packaged:

18 months for 500 ml bags
30 months for 1000 ml bags

In-use shelf-life:
Chemical and Physical stability of any additive at the pH of Ringer-Acetat solution in the Viaflo container should be established prior to use.
From a microbiological point of view, the diluted product must be used immediately. If not used immediately, in-use storage times and conditions are the responsibility of the user and would normally not be longer than 24 hours at 2 to 8°C unless reconstitution has taken place in controlled and validated aseptic conditions.

**6.4. Special Precautions for Storage**
No special precautions for storage.

**6.5. Nature and contents of containers**
The bags known as Viaflo are composed of polyolefin/polyamide co-extruded plastic (PL 2442).
Bag sizes: 500ml and 1000ml

| | | | |
|---|---|---|---|
| Outer carton contents: | 20 | bags of | 500 ml |
| | 10 | bags of | 1000 ml |
| | 12 | bags of | 1000 ml |

Not all pack sizes may be marketed.

**6.6. Special precautions for disposal and other handling**
When additive is used, verify isotonicity prior to parenteral administration. Thorough and careful aseptic mixing of any additive is mandatory. Solutions containing additives should be used immediately and not stored.

Adding other medication or using an incorrect administration technique might cause the appearance of fever reactions due to the possible introduction of pyrogens. In case of adverse reaction, infusion must be stopped immediately.
Discard after single use.
Discard any unused portion.
Do not reconnect partially used bags.

1. Opening

a. Remove the Viaflo container from the overwrap just before use.
b. Check for minute leaks by squeezing inner bag firmly. If leaks are found, discard solution, as sterility is broken.
c. Check that the solution is clear and does not contain foreign particles. If so, discard the solution.

2. Preparation for administration

Use sterile material for preparation and administration.

a. Suspend container from eyelet support.
b. Remove plastic protector from outlet port at bottom of container:
   - Grip the small wing on the neck of the port with one hand.
   - Grip the large wing on the cap with the other hand and twist.
   - The cap will pop off.
c. Use an aseptic method to set up the infusion.
d. Attach administration set. Refer to complete directions accompanying set for connection, priming of the set and administration of the solution.

3. Techniques for injection of additive medications

*Note that additives may be incompatible.*

*To add medication before administration*

a. Disinfect medication site.
b. Use a syringe with 19 gauge (1,10 mm) to 22 gauge (0,70 mm) needle. Puncture resealable medication port and inject.
c. Mix solution and medication thoroughly. For high-density medication such as potassium chloride, tap the ports gently while ports are upright and mix.

Caution: Do not store bags containing added medications.

*To add medication during administration*

a. Close clamp on the set.
b. Disinfect medication site.
c. Use a syringe with 19 gauge (1,10 mm) to 22 gauge (0,70 mm) needle. Puncture resealable medication port and inject.
d. Remove container from IV pole and/or turn to an upright position.
e. Evacuate both ports by tapping gently while the container is in an upright position.
f. Mix solution and medication thoroughly.
g. Return container to in use position, re-open the clamp and continue administration.

## 7. MARKETING AUTHORISATION HOLDER

**<[To be completed nationally]>**

## 8. MARKETING AUTHORISATION NUMBER

**<[To be completed nationally]>**

## 9. FIRST AUTHORISATION / RENEWAL OF THE AUTHORISATION

**<[To be completed nationally]>**

## 10. DATE OF REVISION OF THE TEXT

2023-08-31