High demands – High quality
Infusion container Ecoflac® plus

Ecoflac® plus combines the benefits of a bag with those of a bottle, generating a new performance class that adds safety features to your daily routines.

User benefits

- Versatile use in the pharmacy and on the ward
- Reduced risk from needlestick injuries through twin port cap
- PE material compatible with most pharmaceuticals
- Virtually error-resistant usage (e.g. label)
- Convenience in handling
- Break-proof
- Uncomplicated delivery and transport
- Space-saving storage
- 100% recyclable; ecological and proper disposal
B. Braun Vet Care Hartmann's Lactated Ringers
Solution for infusion for cattle, horses, sheep, goats, pigs, dogs and cats

Characteristics: Balanced Electrolyte Solution

100 ml Solution contains:

**Active substances:**
- Sodium chloride 0.600 g
- Potassium chloride 0.040 g
- Calcium chloride dihydrate 0.027 g
- Sodium (S)-lactat 0.312 g
  (as sodium lactate solution (50 % w/v) 0.624 g)

**Electrolyte concentrations (mmol/l):**
- Sodium 130.49
- Potassium 5.37
- Calcium 1.84
- Chloride 111.70
- Lactate 27.84

**Theoretical osmolarity:** 277 mOSm/l

Titration acidity <1 mmol/l
pH 5.0–7.0

**Excipient:**
Water for injection, q. s.

Indications
- Isotonic and hypotonic dehydration
- Metabolic acidosis
- Maintenance of extracellular fluid levels
- Electrolyte replacement in burns

User benefits
- Volume and electrolyte replacement
- Treatment of mild to moderate acidosis; stabilisation of blood-pH

Dosage, route and method of application
For intravenous infusion.

The volume and rate of infusion will depend upon the clinical condition, existing deficits of the animal, maintenance needs and continuing losses.

Contraindications
- Alkalosis
- Oedema (hepatic, renal, cardiac)
- Overhydration
- Hyperkalaemia, Hypernatraemia, Hyperlactataemia
- Hepatic insufficiency

Adverse reactions
This product contains calcium, thus an effect on the heart cannot be ruled out.

For animal treatment only. To be supplied only on veterinary prescription.
Withdrawal periods: Meat and offal: 0 days; Milk: 0 hours

<table>
<thead>
<tr>
<th>Size</th>
<th>Container</th>
<th>B. Braun code</th>
<th>Sales unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 ml</td>
<td>Ecoflac® plus</td>
<td>3574070</td>
<td>10 x 500 ml</td>
</tr>
<tr>
<td>1000 ml</td>
<td>Ecoflac® plus</td>
<td>3574071</td>
<td>10 x 1000 ml</td>
</tr>
<tr>
<td>5000 ml</td>
<td>Ecobag®</td>
<td>FVA07457</td>
<td>2 x 5000 ml</td>
</tr>
</tbody>
</table>

Version August 2013; Marketing authorisation holder: B. Braun Melsungen AG, 34209 Melsungen, Germany
Sodium Chloride 0.9 g / 100 ml B. Braun Vet Care
Solution for infusion for cattle, horse, sheep, goat, pig, dog and cat

Characteristics: Balanced Electrolyte Solution, Carrier Solution

<table>
<thead>
<tr>
<th>100 ml Solution contains:</th>
<th>Electrolyte concentration (mmol/l):</th>
<th>Theoretical osmolarity:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active substance: Sodium chloride 0.9 g</td>
<td>Sodium 154</td>
<td>308 mOsm/l</td>
</tr>
<tr>
<td>Excipient: Water for injections</td>
<td>Chloride 154</td>
<td>pH value: 4,5 - 7,0</td>
</tr>
</tbody>
</table>

Indications
- States of dehydration and hypovolaemia
- Deficiency of sodium (hyponatraemia) and chloride (hypochloraemia)
- Hypochloraemic alkalosis management
- Vehicle solution for compatible drugs
- External use for wound irrigation and moistening of compresses

User benefits
- For internal and external use
- Fast redistribution into the extracellular area
- Treatment in cases of hypovolaemic shock
- Mixing with many electrolyte solutions and pharmaceuticals

Dosage, route and method of application
For intravenous infusion.
Administration by intravenous route. Topical use for wound irrigation and moistening of compresses.
The dosage and duration of treatment must be adjusted according to the specific fluid and electrolyte requirements under control of a veterinarian to prevent any possible side effects due to overdose.

Contraindications
- Hypertonic dehydration
- Hypernatraemia
- Hyperchloroeraemia
- Hyperhydration
- Acidosis
- Syndrome of oedema and ascites
- In cases when sodium restriction are indicated

Adverse reactions
Intravenous infusion carries a risk of thrombosis.

For animal treatment only. To be supplied only on veterinary prescription.
Withdrawal periods: Meat and offal: 0 days; Milk: 0 hours

<table>
<thead>
<tr>
<th>Size</th>
<th>Container</th>
<th>B.Braun code</th>
<th>Sales unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 ml</td>
<td>Ecoflac® plus</td>
<td>3574190</td>
<td>10 x 500 ml</td>
</tr>
<tr>
<td>1000 ml</td>
<td>Ecoflac® plus</td>
<td>3574200</td>
<td>10 x 1000 ml</td>
</tr>
</tbody>
</table>

Version July 2013; Marketing authorisation holder: B. Braun Melsungen AG, 34209 Melsungen, Germany
Dosage, route and method of application

For intravenous infusion.

This product should not be administered at a rate in excess of 10 ml/kg/hour, otherwise glycosuria and osmotic diuresis may result.

Infusion rates should be calculated according to the presenting condition, bodyweight and degree of dehydration of the animal being treated. The total fluid volume to be administered should consider existing deficits, maintenance requirements and ongoing losses.

Contraindications

- Hyperglycaemia
- Hypotonic dehydration
- Peripheral oedema caused by reduced intravascular oncotic pressure
- Do not use as a sole source of calorie requirements and/or nutrition

Adverse reactions

Administration of products by intravenous infusion may increase the risk of thrombosis.

Characteristics: Carbohydrate Solution, Carrier Solution

<table>
<thead>
<tr>
<th>100 ml Solution contains:</th>
<th>Excipient:</th>
<th>Theoretical osmolarity:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active substance:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glucose monohydrate 5.5 g (equivalent to anhydrous glucose 5.0 g)</td>
<td>Water for injections</td>
<td>278 mOsm/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pH value 3.5 – 5.5</td>
</tr>
</tbody>
</table>

User benefits

- Therapy of hypertonic dehydration
- Provides free water for the extra- and intracellular space
- Partial coverage of energy requirements
- Correction of certain electrolyte imbalances

Indications

- Dehydration in the absence of shock
- Free water replacement
- Hypernatraemia
- Correction of hyperkalaemia
- Transient improvement of hypoglycaemia

For animal treatment only. To be supplied only on veterinary prescription.

Withdrawal periods: Meat and offal: 0 days; Milk: 0 hours

<table>
<thead>
<tr>
<th>Size</th>
<th>Container</th>
<th>B.Braun code</th>
<th>Sales unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 ml</td>
<td>Ecoflac® plus</td>
<td>3574140</td>
<td>10 x 500 ml</td>
</tr>
</tbody>
</table>
B. Braun Vet Care Hypertonic NaCl-Solution (7.5 g / 100 ml)
Solution for infusion for horses, cattle, sheep, goats, pigs, dogs and cats

Characteristics: Hypertonic Electrolyte Solution

<table>
<thead>
<tr>
<th>100 ml Solution contains:</th>
<th>Electrolyte concentrations (mmol/l):</th>
<th>Theoretical osmolarity:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active substance: Sodium chloride 7.5 g</td>
<td>Sodium 1283</td>
<td>2566 mOsm/l</td>
</tr>
<tr>
<td>Excipient: Water for injection</td>
<td>Chloride 1283</td>
<td></td>
</tr>
</tbody>
</table>

User benefits
- Small-volume resuscitation
- Rapid intravascular volume expansion
- Helps restore or maintain vital organ functions

Indications
- Haemorrhagic shock
- Septic shock
- Endotoxic shock
- Hypovolaemic shock

Dosage, route and method of application

For intravenous infusion.

3 to 5 ml/kg body weight, administered over a period of maximum 15 minutes (without exceeding a rate of 1 ml/kg body weight/min). Administration of hypertonic sodium chloride should be followed by infusion of isotonic fluids in order to restore the hydration state of the interstitial space.

Contraindications
- Hypertonic Hyperhydration
- Renal insufficiency
- Severe electrolyte disturbances
- Uncontrolled haemorrhage
- Pulmonary oedema

Retention of water and sodium chloride
- Cardiac insufficiency
- Hypertension
- Hypertonic dehydration

Adverse reactions

An excess of sodium may cause hypokalaemia, which may be aggravated by the existence of continued loss of potassium and hyperchloraemia. Erroneous administration of hypertonic NaCl-Solution to dehydrated animals may increase the existing extracellular hypertonia, with aggravation of existing disorders, and may cause death. Rapid infusion may cause oedema, principally pulmonary oedema, especially in case of concurrent cardiac or renal insufficiency. After rapid administration, hypotension, arrhythmias, haemolysis, haemoglobinuria, bronchoconstriction as well as hyperventilation may occur. Administration into small peripheral veins may cause signs of pain. Infusion of hypertonic sodium chloride may provoke diuresis with formation of hypertonic urine. A risk of thrombosis should be considered.

For animal treatment only. To be supplied only on veterinary prescription.
Withdrawal periods: Meat and offal: zero days; Milk: zero hours

For animal treatment only. To be supplied only on veterinary prescription.
Withdrawal periods: Meat and offal: zero days; Milk: zero hours
The solution for small-volume resuscitation.

Further reading for the use of hypertonic sodium chloride solutions:

- **Horse – Traumatic Brain Injury**

- **Calve – Neonatal Diarrhea**

- **Cattle – Displaced Abomasum**
  Roloff, N.: Randomised controlled clinical trial about the effects of hypertonic saline solution on the circulatory system in cows with right displaced abomasum. Diss. vet med, Giessen 2007

- **Dog and Cat – Traumatic Brain Injury**

<table>
<thead>
<tr>
<th>Size</th>
<th>Container</th>
<th>B. Braun code</th>
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<tr>
<td>500 ml</td>
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Version June 2012; Marketing authorisation holder: B. Braun Melsungen AG, 34209 Melsungen, Germany
## Overview – B. Braun Vet Care IV solutions

IV solutions for large and small animals

<table>
<thead>
<tr>
<th>Type</th>
<th>Product</th>
<th>Na⁺ (mmol/l)</th>
<th>K⁺ (mmol/l)</th>
<th>Cl⁻ (mmol/l)</th>
<th>Mg²⁺ (mmol/l)</th>
<th>Ca²⁺ (mmol/l)</th>
<th>Phosphate (mmol/l)</th>
<th>Buffer (mmol/l)</th>
<th>Glucose (g/l)</th>
<th>kJ/l</th>
<th>kcal/l</th>
<th>Theor. Osmolarity (mOsm/l)</th>
<th>500 ml</th>
<th>1000 ml</th>
<th>5000 ml</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Balanced Electrolyte Solution</em></td>
<td>0.9 % NaCl-Solution</td>
<td>154</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>154</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>309</td>
<td>X</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Hartmann’s Lactated Ringers</td>
<td>130.49</td>
<td>5.37</td>
<td>1.84</td>
<td>-</td>
<td>111.70</td>
<td>-</td>
<td>Lactat 27.84</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>277</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><em>Carbohydrate Solution</em></td>
<td>Glucose 5 %</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>50.0</td>
<td>837</td>
<td>200</td>
<td>277</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><em>Hypertonic Electrolyte Solution</em></td>
<td>7.5 % NaCl-Solution</td>
<td>1283</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1283</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2566</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Useful handling tips for Ecoflac® plus

**Opening**
Peel off the covering foil of port.

**Germ-free seal surface**
Both ports are germ-free, so there is no need for disinfection.

**Handling during spiking**
When inserting an infusion giving set or a needle into the port, please grip the neck of the Ecoflac® plus container with your other hand to stabilize the container.

**Using infusion giving sets**
All conventional giving sets can be used with Ecoflac® plus. When the giving set is removed, the port on Ecoflac® plus reseals automatically, even after long infusions. Please avoid rotating the spike when piercing the port.

**No venting required**
During infusion, Ecoflac® plus container collapses completely in without any need for ventilation. The venting cap of the giving set remains closed.

**Suspension**
Ecoflac® plus has an integrated suspension loop. If no infusion hook or infusion stand is available, we recommend the suspension hook with loop.

**Labeling**
It’s easy to write on Ecoflac® plus with the Ecopen. The container material, polyethylene (LO-PE), does not allow any solvents to come into contact with the container contents.

**Disposal**
Ecoflac® plus is made of 100 % pure polyolefine (the container of PE, port system of PE and PP), and is completely recyclable. Ecoflac® plus protects our natural resources and our environment.

**Pressure Infusion**

**Air removal**
Prior to a pressure infusion, and after inserting the infusion giving set, remove air by applying pressure to the container.

**Pressure cuff**
After all the air is completely removed, the container is placed in a pressure cuff and the infusion starts under pressure. We recommend that you do not place the container flat in the pressure cuff, but turned 90° (see figure).