PRODUCT INFORMATION

NAME OF MEDICINE
KABIVEN® G11%

KABIVEN is a three chamber bag of amino acid solution with electrolytes, glucose solution and lipid emulsion for intravenous infusion.

The active ingredients are:

AMINO ACIDS 2.4%: alanine (CAS No.:56-41-7), arginine (CAS No.:74-79-3), aspartic acid (CAS No.:6899-03-2), glutamic acid (CAS No.:56-86-0), glycine (CAS No.:56-40-6), histidine (CAS No.:71-00-1), isoleucine (CAS No.:73-32-5), leucine (CAS No.:61-90-5), lysine hydrochloride (CAS No.:657-27-2), methionine (CAS No.:63-68-3), phenylalanine (CAS No.:63-91-2), proline (CAS No.:147-85-3), serine (CAS No.:56-45-1), threonine (CAS No.:72-19-5), tryptophan (CAS No.:73-22-3), tyrosine (CAS No.:60-18-4) and valine (CAS No.:72-18-4).

LIPIDS 3.5%: soya oil (CAS No.:8001-22-7).

GLUCOSE 6.8%: glucose monohydrate (CAS No.:5996-10-1)

ELECTROLYTES 0.7%: calcium chloride dihydrate (CAS No.:10035-04-8), magnesium sulfate heptahydrate (CAS No.:10034-99-8), potassium chloride (CAS No.:7447-40-7), sodium acetate trihydrate (CAS No.:6131-90-4) and sodium glycerophosphate (CAS No.:1334-74-3).

DESCRIPTION
Kabiven G11% is available in a three chamber bag in an overpouch. An oxygen absorber is placed between the inner bag and the overpouch. The inner bag is separated into three chambers by seals which can be separated for mixing. The individual chambers contain glucose, amino acid solutions, and fat emulsion, respectively. The glucose and amino acid solutions are clear solutions while the fat emulsion is white.

Each bag contains the following different volumes depending on the three pack sizes.

<table>
<thead>
<tr>
<th>Component</th>
<th>2400 mL</th>
<th>1920 mL</th>
<th>1440 mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucose (11%)</td>
<td>1475 mL</td>
<td>1180 mL</td>
<td>885 mL</td>
</tr>
<tr>
<td>Amino acids and electrolytes (Vamin 18 Novum)</td>
<td>500 mL</td>
<td>400 mL</td>
<td>300 mL</td>
</tr>
<tr>
<td>Triglycerides (Intralipid 20%)</td>
<td>425 mL</td>
<td>340 mL</td>
<td>255 mL</td>
</tr>
</tbody>
</table>

This corresponds to the following compositions.

<table>
<thead>
<tr>
<th>Active Ingredients (g)</th>
<th>2400 mL</th>
<th>1920 mL</th>
<th>1440 mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soya Oil (g)</td>
<td>85</td>
<td>68</td>
<td>51</td>
</tr>
</tbody>
</table>
Glucose monohydrate 178 143 107
  Corresponding to Glucose (anhydrous) 162 130 97
Alanine 8.0 6.4 4.8
Arginine 5.6 4.5 3.4
Aspartic acid 1.7 1.4 1.0
Glutamic acid 2.8 2.2 1.7
Glycine 4.0 3.2 2.4
Histidine 3.4 2.7 2.0
Isoleucine 2.8 2.2 1.7
Leucine 4.0 3.2 2.4
Lysine hydrochloride 5.6 4.5 3.4
  Corresponding to Lysine 4.5 3.6 2.7
Methionine 2.8 2.2 1.7
Phenylalanine 4.0 3.2 2.4
Proline 3.4 2.7 2.0
Serine 2.2 1.8 1.4
Threonine 2.8 2.2 1.7
Tryptophan 0.95 0.76 0.57
Tyrosine 0.12 0.092 0.069
Valine 3.6 2.9 2.2

**Active Ingredients (g)**

<table>
<thead>
<tr>
<th></th>
<th>2400 mL</th>
<th>1920 mL</th>
<th>1440 mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium chloride dihydrate</td>
<td>0.49</td>
<td>0.39</td>
<td>0.29</td>
</tr>
<tr>
<td>Corresponding to calcium chloride</td>
<td>0.37</td>
<td>0.30</td>
<td>0.22</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>3.0</td>
<td>2.4</td>
<td>1.8</td>
</tr>
<tr>
<td>Magnesium sulfate</td>
<td>1.6</td>
<td>1.3</td>
<td>0.99</td>
</tr>
<tr>
<td>Corresponding to magnesium sulfate</td>
<td>0.80</td>
<td>0.64</td>
<td>0.48</td>
</tr>
<tr>
<td>Sodium acetate trihydrate</td>
<td>4.1</td>
<td>3.3</td>
<td>2.5</td>
</tr>
<tr>
<td>Corresponding to sodium acetate</td>
<td>2.4</td>
<td>2.0</td>
<td>1.5</td>
</tr>
<tr>
<td>Sodium glycerophosphate</td>
<td>2.5</td>
<td>2.0</td>
<td>1.5</td>
</tr>
</tbody>
</table>

- Amino acids 57 45 34
- Nitrogen 9.0 7.2 5.4
- Triglycerides 85 68 51
- Carbohydrates : glucose (dextrose) equivalent to glucose anhydrous 162 130 97
- Energy content
  - approx. total (kJ) 7140 5880 4200
  - approx. total (kcal) 1700 1400 1000
  - approx. non protein (kJ) 6300 5040 3780
  - approx. non protein (kcal) 1500 1200 900
• Electrolytes (mmol)
  – sodium 53 43 32
  – potassium 40 32 24
  – magnesium 6.7 5.3 4.0
  – calcium 3.3 2.7 2.0
  – phosphate 18 14 11
  – sulfate 6.7 5.3 4.0
  – chloride 78 62 47
  – acetate 65 52 39

• Osmolality
  Approx. 830 mosm/kg water

• Osmolarity
  Approx. 750 mosmol/L

• pH
  Approx. 5.6

Excipients:
Egg lecithin
Glycerol
Sodium hydroxide
Glacial acetic acid
Water for injections

PHARMACOLOGY
Fat emulsion
Intralipid, the fat emulsion used in Kabiven G11% provides essential and non-essential long chain fatty acids for energy metabolism and the structural integrity of cell membranes.

Intralipid in the recommended dosage does not cause haemodynamic changes. No clinically significant changes in pulmonary function have been described when Intralipid is used properly. The transient increase in liver enzymes seen in some patients on parenteral nutrition is reversible and disappears when parenteral nutrition is discontinued. Similar changes are also seen in parenteral nutrition without fat emulsions.

Amino acids and electrolytes
The amino acids, constituents of protein in ordinary food, are utilised for tissue protein synthesis and any surplus is channelled to a number of metabolic pathways. Studies have shown a thermogenic effect of amino acid infusion.

Glucose
Glucose should have no pharmacodynamic effects apart from contributing to maintain or replete the normal nutritional status.

Pharmacokinetics
Fat emulsion
Intralipid has biological properties similar to those of endogenous chylomicrons. Unlike chylomicrons, Intralipid does not contain cholesterol esters or apolipoproteins, while its phospholipid content is significantly higher.
Intralipid is eliminated from the circulation via a pathway similar to that of endogenous chylomicrons, at least early on in the catabolism. The exogenous fat particle is primarily hydrolysed in the circulation and taken up by the LDL receptors peripherally and by the liver. The elimination rate is determined by the composition of the fat particles, the nutritional status, the disease and the rate of infusion. In healthy volunteers, the maximum clearance rate of Intralipid after fasting overnight is equivalent to $3.8\pm1.5$ g of triglyceride per kg body weight per 24 hours.

Both the elimination and the oxidation rates are dependent on the patient’s clinical condition; elimination is faster and utilisation is increased in postoperative patients and in trauma, while patients with renal failure and hypertriglyceridaemia show lower utilisation of exogenous fat emulsions.

Amino acids and electrolytes
The pharmacokinetic properties of the infused amino acids and electrolytes are essentially the same as for amino acids and electrolytes supplied by ordinary food. However, the amino acids of dietary protein first enter the portal vein and then the systemic circulation, while intravenously infused amino acids reach the systemic circulation directly. This difference results only in a marginal change of kinetics and does not change the bioavailability of the amino acids.

Glucose
The pharmacokinetic properties of infused glucose are essentially the same as those of glucose supplied by ordinary food.

CLINICAL TRIALS
There was an open, randomised, comparative clinical study comparing the safety/tolerance of Kabiven G11% with a compounded intravenous TPN preparation. A total of 46 subjects requiring total parenteral nutrition and appropriate for infusion in a peripheral vein were evaluated. One bag of Kabiven G11% 2400 mL or trial medication was administered over 12-24 hours daily at an infusion rate not exceeding 4.2 mL/kg bw/hour. Moderate or worse venous reactions (pain, swelling, redness, palpable vein cord) were seen in fifteen patients who received Kabiven G11% versus nine who received the compounded preparation. The evaluation of clinical and laboratory safety parameters, adverse events and local tolerance demonstrated that the two trial products were equally safe and well tolerated.

INDICATIONS
Parenteral nutrition for patients when oral or enteral nutrition is impossible or insufficient or contraindicated.

CONTRAINDICATIONS
- Hypersensitivity to egg-, soya- or peanut protein or to any of the ingredients.
- Severe hyperlipaemia
- Severe liver insufficiency
- Severe blood coagulation disorders
- Inborn errors of amino acid metabolism
- Severe renal insufficiency without access to haemofiltration or dialysis
- Acute shock
- Hyperglycaemia, which requires more than 6 units insulin/h
- Pathologically elevated serum levels of any of the included electrolytes
- General contraindications to infusion therapy: acute pulmonary oedema, hyperhydration, decompensated cardiac insufficiency and hypotonic dehydration
- Haemophagocytic syndrome
- Unstable conditions (e.g. severe post-traumatic conditions, uncompensated diabetes, acute myocardial infarction, metabolic acidosis, severe sepsis and hyperosmolar coma)
- Due to composition, Kabiven G11% is not suitable for use in new-borns or infants under 2 years of age.

PRECAUTIONS
The ability to eliminate fat should be monitored. It is recommended that this is done by measuring serum triglycerides after a fat-free period of 5-6 hours. The serum concentration of triglycerides should not exceed 3mmol/L during infusion.

Disturbances of the electrolyte and fluid balance (e.g. abnormally high or low serum levels of the electrolytes) should be corrected before starting the infusion.

Special clinical monitoring is required at the beginning of any intravenous infusion. Should any abnormal sign occur, the infusion must be stopped. Since an increased risk of infection is associated with the use of any central vein, strict aseptic precautions should be taken to avoid any contamination during catheter insertion and manipulation.

Kabiven G11% should be given with caution in conditions of impaired lipid metabolism, such as in renal insufficiency, uncompensated diabetes mellitus, pancreatitis, impaired liver function, hypothyrodism (with hypertriglyceridaemia) and sepsis. If Kabiven G11% is given to patients with these conditions, close monitoring of serum triglycerides is mandatory.

Serum glucose, electrolytes and osmolarity as well as fluid balance, acid-base status and liver enzyme tests (alkaline phosphatase, ALT, AST) should be monitored.

Blood cell count and coagulation should be monitored when fat is given for a longer period.

In patients with renal insufficiency, the phosphate and potassium intake should be carefully controlled to prevent hyperphosphataemia and hyperkalaemia.

The amount of individual electrolytes to be added is governed by the clinical condition of the patient and by frequent monitoring of serum levels.

Parenteral nutrition should be given with caution in metabolic acidosis, lactic acidosis, insufficient cellular oxygen supply and increased serum osmolarity.

Kabiven G11% should be given with caution to patients with a tendency towards electrolyte retention.

Any sign or symptom of anaphylactic reaction (such as fever, shivering, rash or dyspnoea) should lead to immediate interruption of the infusion.
Intravenous infusion of amino acids is accompanied by increased urinary excretion of the trace elements copper and, in particular, zinc. This should be considered in the dosing of trace elements, especially during long-term intravenous nutrition.

In malnourished patients, initiation of parenteral nutrition can precipitate fluid shifts resulting in pulmonary oedema and congestive heart failure as well as a decrease in the serum concentration of potassium, phosphorus, magnesium and water soluble vitamins. These changes can occur within 24 to 48 hours. Careful and slow initiation of parenteral nutrition is recommended together with close monitoring and appropriate adjustments of fluid, electrolytes, minerals and vitamins.

Kabiven G11% should not be given simultaneously with blood in the same infusion set due to the risk of pseudoagglutination.

In patients with hyperglycaemia, administration of exogenous insulin might be necessary. Kabiven G11% is not recommended to neonates and infants under 2 years of age.

Kabiven G11% contains soya oil and egg lecithin which may rarely cause allergic reactions. Cross allergic reaction has been observed between soya-bean and peanut.

Peripheral infusion
As with all hypertonic solutions, thrombophlebitis may occur if peripheral veins are used for infusions. Several factors contribute to the incidence of thrombophlebitis. These include the type of cannula used and its diameter and length, the duration of infusion, pH and osmolality of infusates, infection and the number of manipulations. It is recommended that venous access sites for TPN should not be used for other intravenous additives or solutions. (See CLINICAL TRIALS)

Use in pregnancy (Category : Exempt)
Reproduction studies in animals have not been conducted with Kabiven G11%. No clinical data are currently available to assess the safety of Kabiven G11% in pregnancy. The prescriber should consider the benefit/risk relationship before administering Kabiven G11% to pregnant women.

Use in lactation
No clinical data are currently available on the use of Kabiven G11% in breast-feeding women. Following intravenous infusion, most of the active ingredients contained in Kabiven G11% are expected to be excreted into human milk, and the safety to the breast-feeding infant has not been adequately established. The prescriber should consider the benefit/risk relationship before administering Kabiven G11% to breast-feeding women.

Carcinogenicity, mutagenicity, impairment of fertility
No study has been conducted to examine the carcinogenic or mutagenic potential of Kabiven G11%. The effects of Kabiven G11% have not been investigated in animal studies.

Interaction with other drugs
Heparin given in clinical doses causes a transient release of lipoprotein lipase into the circulation. This may result initially in increased plasma lipolysis followed by a transient decrease in triglyceride clearance.

Other drugs, like insulin, may influence lipase activity but there is no evidence to suggest that this adversely affects therapeutic value.

Soya oil has a natural content of vitamin K\textsubscript{1}. This may interfere with the therapeutic effect of coumarin derivatives, which should be closely monitored in patients treated with such drugs.

There are no clinical data to show that any of the above listed interactions are of definite clinical relevance.

**Effects on ability to drive and use machines**
Not applicable.

**Effect on laboratory tests**
The fat content of Kabiven G11% may interfere with certain laboratory measurements (e.g. bilirubin, lactate dehydrogenase, oxygen saturation, and haemoglobin) if blood is sampled before fat has been adequately cleared from the bloodstream. Fat is cleared after a fat-free interval of 5-6 hours in most patients.

**ADVERSE EFFECTS**
The infusion may cause a rise in body temperature (incidence < 3%) and, less frequently, shivering, chills and nausea/vomiting (incidence < 1%). Transient increases in liver enzymes during intravenous nutrition have also been reported.

Thrombophlebitis is probably the most common adverse event in patients in general surgical wards. The cause is in most cases due to infusions of saline, glucose or similar fluids and drugs. The development of thrombophlebitis is dependent on many factors, which are listed below:

- Osmolarity of the injected substance
- pH of the injected substance
- Chemical structure of the injected substance
- Amount of blood flow
- Size of the blood vessel
- Presence of protective drugs or substances
- Duration of injection/infusion
- Speed of injection/infusion
- Material of the catheter
- Size of the catheter
- Movement of the catheter
- Microbiological agents

The rate of thrombophlebitis with Kabiven G11% from post-marketing surveillance is estimated to be common (>1/100). The risks of thrombophlebitis should be weighed against the benefits when peripheral administration is intended.
Reports of other undesirable effects in conjunction with the included components are extremely rare. Hypersensitivity reactions (anaphylactic reaction, skin rash, urticaria), respiratory symptoms (e.g. tachypnoea) and hyper/hypotension have been described. Haemolysis, reticulocytosis, abdominal pain, headache, tiredness and priapism have been reported.

**Fat overload syndrome**

An impaired capacity to eliminate fat may lead to the fat overload syndrome. This may occur as a result of overdosage, but also at recommended rates of infusion, in association with a sudden change in the patient’s clinical condition resulting in severe renal or hepatic impairment.

The fat overload syndrome is characterised by hyperlipaemia, fever, fat infiltration, hepatomegaly, splenomegaly, anaemia, leucopenia, thrombocytopenia, blood coagulation disorders and coma. These changes are invariably reversible on discontinuation of the fat infusion.

**DOSAGE AND ADMINISTRATION**

The ability to eliminate fat and metabolise glucose should govern the dosage and infusion rate. See “PRECAUTIONS”.

**Dosage**

The dose should be individualised and the choice of bag size should be made with regard to the patient’s clinical condition, body weight and nutritional requirements.

The nitrogen requirements for maintenance of body protein mass depend on the patient’s condition (e.g. nutritional state and degree of catabolic stress). The requirements are 0.10-0.15 nitrogen/kg body weight (b.w.)/day in the normal nutritional state or in conditions with mild metabolic stress. In patients with moderate to high metabolic stress with or without malnutrition, the requirements are in the range of 0.15-0.30 g nitrogen/kg b.w./day (1.0-2.0 g amino acid/kg b.w./day). The corresponding commonly accepted requirements are 2.0-6.0 g for glucose and 1.0-2.0 g for fat.

The total energy requirement depends on the patient’s clinical condition and is most often between 20-30 kcal/kg b.w./day. In obese patients the dose should be based on the estimated ideal weight.

Kabiven G11% is produced in three sizes intended for patients with moderately increased, basal or low nutritional requirements. To provide total parenteral nutrition, the addition of trace elements, vitamins and supplemental electrolytes may be required.

The dose range of 0.10-0.15 g nitrogen/kg b.w./day (0.7-1.0 g amino acid/kg b.w./day) and a total energy of 20-30 kcal/kg b.w./day corresponds to approximately 27-40 mL Kabiven G11%/kg b.w./day.

**Infusion rate:**

The maximum infusion rate for glucose is 0.25 g/kg/h.

Amino acid dosage should not exceed 0.1 g/kg/h.

Fat dosage should not provide more than 0.15 g/kg/h.
The infusion rate should not exceed 3.7 mL/kg b.w./hour (corresponding to 0.25 g glucose, 0.09 g amino acid and 0.13 g fat/kg b.w.). The recommended infusion period for individual bags of Kabiven G11% is 12-24 hours.

Maximum daily dose
40 mL/kg b.w./day. This is equal to one bag (largest size) to a 64 kg-patient and will provide 0.96 g amino acids/kg b.w./day (0.16 g N/kg b.w./day), 25 kcal/kg b.w./day non-protein energy (2.7 g glucose/kg b.w./day and 1.4 g fat/kg b.w./day).
The maximum daily dose varies with the clinical condition of the patient and may even change from day to day.

Method and duration of administration
Intravenous infusion into a central or peripheral vein (see CLINICAL TRIALS and ADVERSE REACTIONS). Infusion may be continued for as long as required by the patient's clinical condition. Kabiven G11% should be used within 24 hours of preparation.

In order to minimise the risk of thrombophlebitis, daily rotation of infusion site is recommended.

Instructions for use
Use in one person on one occasion only. Contains no antimicrobial preservative. Discard any unused mixture.

Do not use if package is damaged. Kabiven G11% should only be mixed and used if the solutions are clear and colourless or slightly yellow and if the emulsion is white and homogenous.

The contents of the three separate chambers have to be mixed before use. Mixing of the solutions by opening the seals between the chambers results in the ready-to-use solution. For that purpose pressure must be exerted on one solution chamber by rolling up the bag from one of the side edges until the middle seal opens. After separation of the seals the bag should be inverted on a number of occasions to ensure a homogenous mixture, (please also refer to section “SPECIAL HANDLING INSTRUCTIONS”).

Compatibility
Additives
Only medicinal or nutritional solutions for which compatibility has been documented may be added to Kabiven G11%.

Additions should be made aseptically.

<table>
<thead>
<tr>
<th>Additions</th>
<th>2400 mL</th>
<th>1920 mL</th>
<th>1440 mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soluvit N</td>
<td>1 vial</td>
<td>1 vial</td>
<td>1 vial</td>
</tr>
<tr>
<td>Vitalipid N Adult</td>
<td>10 mL</td>
<td>10 mL</td>
<td>10 mL</td>
</tr>
</tbody>
</table>

Up to a total of:

<table>
<thead>
<tr>
<th>Sodium</th>
<th>360 mmol</th>
<th>288 mmol</th>
<th>216 mmol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium</td>
<td>360 mmol</td>
<td>288 mmol</td>
<td>216 mmol</td>
</tr>
</tbody>
</table>
Magnesium  
12 mmol  
9.6 mmol  
7.2 mmol  

Calcium  
12 mmol  
9.6 mmol  
7.2 mmol  

Phosphate  
36 mmol  
29 mmol  
22 mmol  

Any mixture remaining after infusion must be discarded.

**Incompatibilities**
Kabiven G11% may only be mixed with other medicinal products for which compatibility has been documented. See “DOSAGE AND ADMINISTRATION – Compatibility”.

**OVERDOSAGE**
See “Fat overload syndrome” under “ADVERSE REACTIONS”.

Nausea, vomiting and sweating have been observed during infusion of amino acids at rates exceeding the recommended maximum rate.

If symptoms of overdose occur, the infusion should be slowed down or discontinued.

Additionally, overdose might cause fluid overload, electrolyte imbalances, hyperglycaemia, and hyperosmolality.

In some rare serious cases, haemodialysis, haemofiltration or haemo-diafiltration may be necessary.

**PRESENTATION AND STORAGE CONDITIONS**
Store below 25°C. Store in overpouch. Do not freeze.

After breaking the seals, chemical and physical in-use stability of the mixed three chamber bag has been demonstrated for 24 hours at 25°C.

Aseptic technique must be used to inject additives and the product must be used within 24 hours.

The container consists of a multichamber inner bag and an overpouch. The inner bag is separated into three chambers by peelable seals. An oxygen absorber is placed between the inner bag and the overpouch.

The inner bag is made of a multilayer polymer film, alternatively Excel or Biofine.

The **Excel** inner bag film consists of three layers. The inner layer consists of poly(propylene/ethylene) copolymer and styrene/ethylene/butylene/styrene thermoplastic elastomer (SEBS). The middle layer consists of SEBS and the outer layer consists of copolyester-ether. The infusion port is equipped with a polyolefine cap. The additive port is equipped with a synthetic polyisoprene (latex-free) stopper.

The **Biofine** inner bag film consists of poly(propylene-co-ethylene), synthetic rubber poly[styrene-block-(butylene-co-ethylene)] (SEBS) and synthetic rubber poly(styrene-block-isoprene)(SIS). The infusion and additive ports are made of polypropylene and synthetic rubber poly[styrene-block-(butylene-co-ethylene)] (SEBS) equipped with synthetic polyisoprene (latex-free) stoppers. The blind port, which is only used during
manufacturing, is made of polypropylene equipped with a synthetic polyisoprene (latex-free) stopper.

Pack sizes:

**Excel bags**
- 1 x 1440ml, 4 x 1440ml  AUST R 97893
- 1 x 1920ml, 2 x 1920ml  AUST R 97894
- 1 x 2400ml, 2 x 2400ml  AUST R 97895

**Biofine bags**
- 1 x 1440ml, 4 x 1440ml  AUST R 97893
- 1 x 1920ml, 4 x 1920ml  AUST R 97894
- 1 x 2400ml, 3 x 2400ml  AUST R 97895

**NAME AND ADDRESS OF THE SPONSOR**
Fresenius Kabi Australia Pty Limited
Level 2, 2 Woodland Way
Mount Kuring-gai NSW 2080
Australia
Telephone: (02) 9391 5555

Fresenius Kabi New Zealand Limited
60 Pavilion Drive
Airport Oaks, Auckland 2022
New Zealand
Freecall: 0800 144 892

**POISON SCHEDULE**
Australia: Not Scheduled
New Zealand: General Sale Medicine

**DATE OF FIRST INCLUSION IN THE AUSTRALIAN REGISTER OF THERAPEUTIC GOODS:** 20 July 2004

**DATE OF MOST RECENT AMENDMENT:** 8th July 2016
SPECIAL HANDLING INSTRUCTIONS
For Excel bag please refer to Diagram A
For Biofine bag please refer to Diagram B

Diagram A – Excel bag
1. To remove the cover wrap hold the bag upright and tear from the notch along the upper edge, then simply tear open the long side, pull off the plastic covering and discard it along with the oxygen absorber

2. 

To mix the contents of the bag, place your fingertips on the upper compartment just on the seal as shown on the picture.

3 a. 

Grip the sides of the upper chamber with your fingertips and your thumbs and gently roll your knuckles together until the seal breaks.

3 b. 

Alternative technique:
Put the bag, either with or without the cover wrap on a flat surface. Roll up the bag against the surface by using the handle until the seals are opened. Mix thoroughly by inverting the bag.
4. The remaining section of seal may now be gently teased apart.

5. To peel open the lower seal, use the same technique as described above. Mix thoroughly by gently inverting the bag end-over-end several times.

6. Before injecting additives swab the additive port with disinfectant.

7. Support the base of the additive port. Fully insert the needle and inject the additives (with known compatibility) through the centre of the injection site. Mix thoroughly between each addition by inverting the bag several times.
Use a non-vented infusion set or close the air-inlet on a vented set. Remove the set port cover by pulling the ring upwards. Support the base of the infusion port. Insert the spike straight into the infusion port. Twist and push the spike through the diaphragm. The spike should be fully inserted to secure it in place.

**Diagram B – Biofine bag**

1. **Removal of overpouch**
   - To remove overpouch, hold the bag horizontally and tear from the notch close to the ports along the upper edge (A).
   - Then simply tear the long side, pull off the overpouch and discard it along with the oxygen absorber (B).

2. **Mixing**
• Place the bag on a flat surface.
• Roll up the bag tightly from the handle side towards the ports, firstly with the right hand and then applying a constant pressure with the left hand until the vertical seals are broken. The vertical peel seals open due to the pressure of the fluid. The peel seals can also be opened before removing the overpouch.

**Please note:** The liquids mix easily although the horizontal seal remains closed.

![Image]

• Mix the contents of the three chambers by inverting the bag three times until the components are thoroughly mixed.

![Image]

3. Finalising the preparation:
• Place the bag on a flat surface again. Shortly before injecting the additives, break off the tamper-evident arrow flag from the white additive port (A).

**Please note:** The membrane in the additive port is sterile.
• Hold the base of the additive port. Insert the needle, inject the additives (with known compatibility) through the centre of the injection site (B).
• Mix thoroughly between each addition by inverting the bag three times. Use syringes with needles of 18-23 gauge and a length of max. 40 mm.

![Image]
• Shortly before inserting the infusion set, break off the tamper evident arrow flag from the blue infusion port (A).

**Please note:** The membrane in the infusion port is sterile.
• Use a non-vented infusion set or close the air-inlet on a vented set.
• Hold the base of the infusion port.
• Push the spike through the infusion port. The spike should be fully inserted to secure it in place.

**Please note:** The inner part of the infusion port is sterile.

4. Hanging up the bag
• Hang the bag up by the hole below the handle.