**ATTACHMENT 2B**

# AUSTRALIAN PRODUCT INFORMATION

## OLIMEL®/PERIOLIMEL®
Emulsion for Intravenous Infusion

## 1. NAME OF THE MEDICINE

OLIMEL/PeriOLIMEL with Electrolytes

Alanine, arginine, aspartic acid, glutamic acid, glycine, histidine, isoleucine, leucine, lysine acetate, methionine, phenylalanine, proline, serine, threonine, tryptophan, tyrosine, valine, sodium acetate trihydrate, sodium glycerophosphate hydrate, potassium chloride, magnesium chloride hexahydrate, calcium chloride dihydrate, glucose monohydrate, olive oil and soya oil.

OLIMEL without Electrolytes

Alanine, arginine, aspartic acid, glutamic acid, glycine, histidine, isoleucine, leucine, lysine acetate, methionine, phenylalanine, proline, serine, threonine, tryptophan, tyrosine, valine, glucose monohydrate, olive oil and soya oil.

## 2. QUALITATIVE AND QUANTITATIVE COMPOSITION

OLIMEL/PeriOLIMEL is presented in the form of a 3-compartment bag. The individual compartments contain a glucose solution, a lipid emulsion and an amino acid solution (with/without electrolytes). In products containing electrolytes, calcium is included in the glucose solution compartment and other electrolytes are in the amino acid solution compartment. There are 7 different formulations of OLIMEL (4 with electrolytes and 3 without electrolytes) and one formulation of PeriOLIMEL. The general composition of the formulations are summarised below:

| With electrolytes (E) | Without electrolytes | Nitrogen[1] | Amino acid solution[2] | Glucose solution[3] | Lipid emulsion[4] |
|---|---|---|---|---|---|
| PeriOLIMEL N4-600E | - | 4.0g/L | 6.3% | 18.75% | 15% |
| OLIMEL N5-860E | - | 5.2g/L | 8.2% | 28.75% | 20% |
| OLIMEL N7-960E | OLIMEL N7-960 | 7.0g/L | 11.1% | 35% | 20% |
| OLIMEL N9-840E | OLIMEL N9-840 | 9.0g/L | 14.2% | 27.5% | 20% |
| OLIMEL N12-640E | OLIMEL N12-640 | 12g/L | 14.2 % | 27.5 % | 17.5 % |

[1] prefixes N4, N5, N7, N9 refer to approx nitrogen content in g/L

[2] contains 17 amino acids (and electrolytes if present)

[3] contains calcium if present

[4] contains refined olive oil (80%) and refined soya oil (20%)

OLIMEL/PeriOLIMEL contains egg lecithin. For the full list of excipients, see *6.1 List of excipients*.

For the detailed formulations, refer to Appendix 1.

## 3. PHARMACEUTICAL FORM

OLIMEL/PERIOLIMEL is an emulsion for intravenous infusion.

Appearance before reconstitution:

- The amino acid and glucose solutions are clear and colourless or slightly yellow
- The lipid emulsion is a homogeneous liquid with a milky appearance.

After reconstitution/mixing of the contents of the 3 compartments, OLIMEL/PeriOLIMEL is a milk-like homogeneous liquid. The composition of the 3- in-1 admixture for each of the bag presentations are provided in Appendix 1.

OLIMEL/PeriOLIMEL is a hypertonic emulsion. The osmolarity, osmolality and energy contents of the formulations are as follows

| **OLIMEL/ PeriOLIMEL** | **N4-600E** | **N5-860E** | **N7-960E** | **N7-960** | **N9-840E** | **N9-840** | **N12-640E** | **N12-640** |
|---|---|---|---|---|---|---|---|---|
| **Osmolarity approx (mOsm/L)** | 760 | 1120 | 1360 | 1220 | 1310 | 1170 | 1270 | 1130 |
| **Energy content approx (kcal/L)** | 700 | 990 | 1140 | 1140 | 1070 | 1070 | 950 | 950 |
| **Osmolality (mOsm/kg water)** | 860 | 1340 | 1680 | 1490 | 1580 | 1410 | 1470 | 1310 |

## 4. CLINICAL PARTICULARS

### 4.1 THERAPEUTIC INDICATIONS

OLIMEL/PeriOLIMEL is indicated for parenteral nutrition for adults when oral or enteral nutrition is impossible, insufficient or contraindicated.

### 4.2 DOSE AND METHOD OF ADMINISTRATION

Use in one patient on one occasion only. It is recommended that after opening the bag, the contents should be used immediately, and not stored for subsequent infusion.

Due to its low osmolarity (760 mOsmol/L), PeriOLIMEL N4-600E can be administered through a peripheral or central vein. Due to its high osmolarity (1120- 1360 mOsmol/L), OLIMEL N5-860E, N7-960E, N7-060, N9-840E, N9-840, N12-640 and N12-640E must only be administered through a central vein.

Although there is a natural content of trace elements and vitamins in the product, the levels are insufficient to meet body requirements. Trace elements and vitamins should be added in sufficient quantities to meet individual patient requirements and to prevent deficiencies from developing.

*Adults*

The dosage depends on the patient's energy expenditure, clinical status, body weight and ability to

metabolise constituents of OLIMEL/PeriOLIMEL, as well as on additional energy or proteins given orally/enterally. Thus, the bag size should be then chosen with regard to the patient's body weight.

The average daily requirements for adults are:

- *Protein:* 0.16 to 0.35 g nitrogen/kg body weight (1 to 2 g of amino acids/kg) depending on the patient's nutritional status and degree of catabolic stress. Special populations may require up to 0.4 g nitrogen/kg body weight (2.5 g of amino acids/kg).
- *Energy:* 20 to 40 kcal/kg.
- *Fluid:* 20 to 40 mL fluid/kg or 1 to 1.5 mL per expended kcal.

*MAXIMUM DAILY DOSE*

The maximum daily dose varies with the clinical condition of the patient and may even change from day to day.

PERIOLIMEL N4-600E

For PeriOlimel, the maximum daily dose is defined by fluid intake, 40 mL/kg, corresponding to 1 g/kg amino acids, 3 g/kg glucose, 1.2 g/kg lipids, 0.8 mmol/kg sodium, and 0.6 mmol/kg potassium.

For example, for a 70 kg patient, this would be equivalent to 2,800 mL PERIOLIMEL per day, resulting in an intake of 71 g amino acids, 210 g glucose, and 84 g lipids (i.e., 1,680 non-protein kcal and 1,960 total kcal).

OLIMEL N5-860E

For OLIMEL N5E, the maximum daily dose is defined by fluid intake, 40 mL/kg, corresponding to 1.3 g/kg amino acids, 4.6 g/kg glucose, 1.6 g/kg lipids, 1.4 mmol/kg sodium, and 1.2 mmol/kg potassium.

For example, for a 70 kg patient, this would be equivalent to 2,800 mL OLIMEL per day, resulting in an intake of 92 g amino acids, 322 g glucose, and 112 g lipids (i.e., 2,408 non-protein kcal and 2,772 total kcal).

OLIMEL N7-960E

For OLIMEL N7E, the maximum daily dose is defined by total caloric intake, 40 kcal/kg provided in a volume of 35 mL/kg, corresponding to 1.5 g/kg amino acids, 4.9 g/kg glucose, 1.4 g/kg lipids, 1.2 mmol/kg sodium, and 1.1 mmol/kg potassium.

For example, for a 70 kg patient, this would be equivalent to 2,450 mL OLIMEL per day, resulting in an intake of 108 g amino acids, 343 g glucose, and 98 g lipids (i.e., 2,352 non-protein kcal and 2,793 total kcal).

OLIMEL N9-840E

For OLIMEL N9E, the maximum daily dose is defined by amino acids intake, 35 mL/kg corresponding to 2.0 g/kg amino acids, 3.9 g/kg glucose, 1.4 g/kg lipids, 1.2 mmol/kg sodium, and 1.1 mmol/kg potassium.

For example, for a 70 kg patient, this would be equivalent to 2,450 mL OLIMEL per day, resulting in an intake of 140 g amino acids, 270 g glucose, and 98 g lipids (i.e., 2,058 non-protein kcal and 2,622 total kcal).

OLIMEL N7-960

For OLIMEL N7, the maximum daily dose is defined by total caloric intake, 40 kcal/kg provided in a volume of 35 mL/kg, corresponding to 1.5 g/kg amino acids, 4.9 g/kg glucose, and 1.4 g/kg lipids.

For example, for a 70 kg patient, this would be equivalent to 2,450 mL OLIMEL per day, resulting in an intake of 108 g amino acids, 343 g glucose, and 98 g lipids (i.e., 2,352 non-protein kcal and 2,793 total kcal).

OLIMEL N9-840

For OLIMEL N9, the maximum daily dose defined by amino acids intake, 35 mL/kg corresponding to 2.0 g/kgamino acids, 3.9 g/kg glucose, and 1.4 g/kg lipids.

For example, for a 70 kg patient, this would be equivalent to 2,450 mL OLIMEL per day, resulting in an intake of 140 g amino acids, 270 g glucose, and 98 g lipids (i.e., 2,058 non-protein kcal and 2,622 total kcal).

OLIMEL N12-640E/N12-640

For OLIMEL N12-640E/N12-640, the maximum daily dose defined by amino acids intake, 26 mL/kg corresponding to 2.0 g/kg amino acids, 1.9g/kg glucose, and 0.9 g/kg lipids.

For example, for a 70 kg patient, this would be equivalent to 1,820 mL OLIMEL per day, resulting in an intake of 138 g amino acids, 133 g glucose, and 64 g lipids (i.e., 1,171 non-protein kcal and 1,723 total kcal).

In Continuous Renal Replacement Therapy (CRRT) and patients with morbid obesity

For OLIMEL N12-640E/N12-640, the maximum daily dose is defined by amino acids intake, 33 mL/kg corresponding to 2.5 g/kg amino acids, 2.4 g/kg glucose, 1.2 g/kg lipids.

For example, for a 70 kg patient, this would be equivalent to 2,310 mL OLIMEL N12-640E/N12-640 per day, resulting in an intake of 175 g amino acids, 169 g glucose, and 81 g lipids (i.e., 1,486 non-protein kcal and 2,187 total kcal).

The maximum daily dose should not be exceeded. Due to the static composition of the multi-chamber bag, the ability to simultaneously meet all nutrient needs of the patient may not be possible. Clinical situations may exist where patients require amounts of nutrients varying from the composition of the static bag. In this situation the impact of any volume (dose) adjustments must be taken into consideration the resultant effect this will have on the dosing of all other nutrient components of OLIMEL.

The flow rate should be increased gradually during the first hour. The administration flow rate must be adjusted taking into account the dose being administered, the daily volume intake and the duration of the infusion.

PERIOLIMEL N4-600E

For PERIOLIMEL N4E, the maximum infusion rate is 3.2 mL/kg/hour, corresponding to 0.08 g/kg/hour amino acids, 0.24 g/kg/hour glucose, and 0.10 g/kg/hour lipids.

OLIMEL N5-860E

For OLIMEL N5E, the maximum infusion rate is 2.1 mL/kg/hour, corresponding to 0.07 g/kg/hour

amino acids, 0.24 g/kg/hour glucose, and 0.08 g/kg/hour lipids.

OLIMEL N7-960E/N7-960

For OLIMEL N7E/N7, the maximum infusion rate is 1.7 mL/kg/hour, corresponding to 0.08 g/kg/hour amino acids, 0.24 g/kg/hour glucose, and 0.07 g/kg/hour lipids.

OLIMEL N9-840E/N9-840

For OLIMEL N9E/N9, the maximum infusion rate is 1.8 mL/kg/hour, corresponding to 0.10 g/kg/hour amino acids, 0.19 g/kg/hour glucose, and 0.07 g/kg/hour lipids.

OLIMEL N12-640E/N12-640

For OLIMEL N12-640/N12-640E, the maximum infusion rate is 1.3 mL/kg/hour, corresponding to 0.10 g/kg/hour amino acids, 0.10 g/kg/hour glucose, and 0.05 g/kg/hour lipids.

The recommended duration of infusion for a parenteral nutrition bag is between 12 and 24 hours. Treatment with parenteral nutrition may be continued for as long as is required by the patient's condition.

*Method of preparation*

Before opening the overpouch, check the colour of the oxygen indicator. Compare it to the reference colour printed next to the OK symbol and depicted in the printed area of the indicator label. Do not use the product if the colour of the oxygen indicator does not correspond to the reference colour printed next to OK symbol.

*Preparation for administration*

*a) To open*

Remove the protective overpouch.

Discard the oxygen absorber / oxygen indicator sachet.

Confirm the integrity of the bag and of the non-permanent seals.

Use only if the bag is not damaged, if the non-permanent seals are intact (i.e. no mixture of the contents of the three compartments), if the amino acids solution and the glucose solution are clear, colourless or slightly yellow, practically free of visible particles, and if the lipid emulsion is a homogeneous liquid with a milky appearance.

*b) Mixing the solutions and the emulsion*

Ensure that the product is at room temperature when breaking the non- permanent seals.

Manually roll the bag onto itself, starting at the top of the bag (hanger end). The non-permanent seals will disappear from the side near the inlets. Continue to roll until the seals are open along approximately half of their length.
Mix by inverting the bag at least 3 times.

After reconstitution, the mixture is a homogeneous emulsion with a milky appearance.

*c) Additions*

The capacity of the bag is sufficient to enable additions such as vitamins, electrolytes and trace elements. Any addition (including vitamins) may be made into the reconstituted mixture (after the non-permanent seals have been opened and after the contents of the three compartments have been mixed). Vitamins may also be added into the glucose compartment before the mixture is reconstituted (before opening the non-permanent seals and before mixing the 3 compartments).

When making additions to the formulation, the final osmolarity of the mixture should be measured before administration via a peripheral vein.

The maximum total levels of sodium, magnesium, potassium and calcium listed in the table below were demonstrated by stability data and should not be considered dosage recommendations.

Electrolyte supplementation should be dictated by the patients clinical needs and should not exceed nutritional guidelines. When making additions to formulations containing electrolytes, the amount of electrolytes already present in the bag should be taken into account.

Additions must be performed by qualified personnel under aseptic conditions.

OLIMEL/PeriOLIMEL may only be added to medicinal or nutritional solutions for which compatibility has been documented.

PeriOLIMEL N4-600E may be supplemented with electrolytes according to the table below:

| **Additions to PeriOLIMEL N4-600E per 1000 mL** | | | |
|---|---|---|---|
| | **Included level** | **Maximum further addition** | **Maximal total level** |
| Sodium | 21 mmol | 129 mmol | 150 mmol |
| Potassium | 16 mmol | 134 mmol | 150 mmol |
| Magnesium | 2.2 mmol | 3.4 mmol | 5.6 mmol |
| Calcium | 2.0 mmol | 3.0 mmol | 5.0 mmol |
| Phosphate | 8.5 mmol(*) | Inorganic Phosphate 8.0 mmol<br>Organic Phosphate 15.0 mmol | 16.5 mmol (*)<br>23.5 mmol (*) |

(*) including phosphate provided by the lipid emulsion

The OLIMEL formulations containing electrolytes – OLIMEL N5-860E, N7-960E and N9-840E may be supplemented with electrolytes according to the table below:

| **Additions to OLIMEL N5-860E, N7-960E and N9-840E per 1000 mL** | | | |
|---|---|---|---|
| | **Included level** | **Maximal further addition** | **Maximal total level** |
| Sodium | 35 mmol | 115 mmol | 150 mmol |
| Potassium | 30 mmol | 120 mmol | 150 mmol |
| Magnesium | 4.0 mmol | 1.6 mmol | 5.6 mmol |
| Calcium | 3.5 mmol | 1.5 mmol | 5.0 mmol |
| Phosphate | 15 mmol (#) | Inorganic Phosphate 3.0 mmol<br>Organic Phosphate 10.0 mmol | 18 mmol(#)<br>25 mmol(#) |

(#) including phosphate provided by the lipid emulsion

The OLIMEL formulations without electrolytes – OLIMEL N7-960 and N9-840 may be supplemented

with electrolytes according to the table below:

| Additions to OLIMEL N7-960 and N9-840 per 1000 mL | | | |
|---|---|---|---|
| | **Included level** | **Maximal further addition** | **Maximal total level** |
| Sodium | 0 mmol | 150 mmol | 150 mmol |
| Potassium | 0 mmol | 150 mmol | 150 mmol |
| Magnesium | 0 mmol | 5.6 mmol | 5.6 mmol |
| Calcium | 0 mmol | 5.0 mmol | 5.0 mmol |
| Phosphate | 3 mmol (+) | Inorganic Phosphate 8.0 mmol<br>Organic Phosphate 22 mmol | 11.0 mmol(+)<br>25 mmol(+) |

(+) Including phosphate provided by the lipid emulsion

The OLIMEL formulations - N12-640 and N12-640E may be supplemented with electrolytes, inorganic/organic phosphate according to the table below:

| Additions to OLIMEL N12-640 and N12-640E per 1000 mL | |
|---|---|
| | **Maximal Total Level** |
| Sodium | 150 mmol |
| Potassium | 150 mmol |
| Magnesium | 5.6 mmol |
| Calcium | 5.0 (3.5[a]) mmol |
| Inorganic phosphate | 10.0 mmol |
| Organic phosphate | 25 mmol[b] |

[a] Value corresponding to the addition from inorganic phosphate
[b] Including phosphate provided by the lipid emulsion

*Trace elements and vitamins:* Stability has been demonstrated with commercially available preparations of vitamins and trace elements (containing up to 1 mg of iron).

For further compatibility information with the different products and storage conditions of the different admixtures please contact Baxter Healthcare.

To perform an addition:

- Aseptic conditions must be observed.
- Prepare the injection site of the bag.
- Puncture the injection site and inject the additives using an injection needle or a reconstitution device.
- Mix content of the bag and the additives.

*d) Preparation of the infusion*

Aseptic conditions must be observed.

Suspend the bag.
Remove the plastic protector from the administration outlet.
Firmly insert the spike of the infusion set into the administration outlet.

*e) Administration*

Use in one patient on one occasion only.

Only administer the product after the non-permanent seals between the three compartments have been broken and the contents of the three compartments have been mixed. Ensure that the final emulsion for infusion does not show any evidence of phase separation.

After opening the bag, the content must be used immediately, and should not be stored for a subsequent infusion. Do not reconnect any partially used bag.

Do not connect in series in order to avoid the possibility of air embolism due to gas contained in the first bag.

Any unused product or waste material and all necessary disposable devices must be discarded.

## 4.3 CONTRAINDICATIONS

Use of OLIMEL/PeriOLIMEL is contraindicated in the following situations:

- in premature neonates, infants and children less than 2 years old
- known hypersensitivity to egg or soya proteins, peanut protein, corn (maize) and corn products, components of the container, or to any of the ingredients including active substances and/or excipients
- congenital abnormalities of amino acid metabolism
- severe hyperlipidaemia or severe disorders of lipid metabolism characterised by hypertriglyceridaemia
- severe hyperglycaemia
- unstable conditions (for example, following severe post-traumatic conditions, acute phase of circulatory shock, acute myocardial infarction, severe sepsis and hyperosmolar coma)
- OLIMEL/PeriOLIMEL formulations with electrolytes must not be administered to patients with pathologically elevated plasma concentrations of sodium, potassium, magnesium, calcium and/or phosphorus.

Use with caution in patients with severe liver insufficiency, including cholestasis or elevated liver enzymes. Liver function parameters should be closely monitored.

## 4.4 SPECIAL WARNINGS AND PRECAUTIONS FOR USE

*Allergic reactions*

The infusion must be stopped immediately if any signs or symptoms of an allergic reaction (such as fever, shivering, skin rashes or dyspnoea) develop.

OLIMEL and PeriOLIMEL contain glucose. Solutions containing glucose should be used with caution in patients with known allergy to corn or corn products.

*Pulmonary*

Pulmonary vascular precipitates causing pulmonary vascular emboli and pulmonary distress have been reported in patients receiving parenteral nutrition. In some cases, fatal outcomes have occurred. Excessive addition of calcium and phosphate increases the risk of the formation of calcium phosphate precipitates. Precipitates have been reported even in the absence of phosphate salt in the solution. Suspected precipitate formation in the blood stream have also been reported.

In addition to inspection of the solution, the infusion set and catheter should also periodically be checked for precipitates.

If signs of pulmonary distress occur, the infusion should be stopped and medical evaluation initiated.

*Compatibility*

No additions to the bag should be made without first checking the compatibility, as formation of precipitates or destabilisation of the lipid emulsion could result in vascular occlusion (see *4.5 Interactions with other medicines and other forms of interactions*).

Ceftriaxone must not be administered simultaneously with intravenous calcium- containing solutions, including OLIMEL/PeriOLIMEL, through the same infusion line (e.g., via Y-connector) because of the risk of precipitation of ceftriaxone-calcium salt.

If the same infusion line is used for sequential administration, the line must be thoroughly flushed with a compatible fluid between infusions.

*Infection and sepsis*

Infection and sepsis may occur as a result of the use of intravenous catheters to administer parenteral formulations, poor maintenance of catheters or contaminated solutions. Immunosuppression by drugs and other factors such as hyperglycaemia, malnutrition and/or their underlying disease state may predispose patients to infectious complications. Careful symptomatic and laboratory monitoring for fever/chills, leukocytosis, technical complications with the access device, and hyperglycaemia can help recognise early infections. The occurrence of septic complications can be decreased with heightened emphasis on aseptic technique in catheter placement, maintenance, as well as aseptic technique in nutritional formula preparation.

*Fat overload syndrome*

"Fat overload syndrome" has been reported with similar products. This may be caused by inappropriate administration (e.g. overdose and/or infusion rate higher than recommended, see *4.9 Overdose*); however, the signs and symptoms of this syndrome may also occur when the product is administered according to instructions. The reduced or limited ability to metabolise the lipids contained in OLIMEL/PeriOLIMEL accompanied by prolonged plasma clearance may result in a fat overload syndrome. This syndrome is associated with a sudden deterioration in the patient's clinical condition and is characterised by findings such as fever, anaemia, leucopenia, thrombocytopenia, coagulation disorders, hyperlipidaemia, liver fatty infiltration (hepatomegaly), deteriorating liver function, and central nervous system manifestations (e.g. coma). The syndrome is usually reversible when the infusion of the lipid emulsion is stopped.

*Refeeding syndrome*

Refeeding severely undernourished patients may result in the refeeding syndrome that is characterised by the shift of potassium, phosphorus and magnesium intracellularly as the patient becomes anabolic. Thiamine deficiency and fluid retention may also develop. Careful monitoring and slowly increasing nutrient intakes while avoiding overfeeding can prevent these complications. This syndrome has been reported with similar products.

*Preparation and administration*

If the final mixture is hypertonic, it may cause irritation of the vein when administered into a peripheral vein.

While PeriOLIMEL N4-600E may be administered through a peripheral vein, thrombophlebitis may develop. The catheter insertion site must be monitored daily for local signs of thrombophlebitis.

OLIMEL N5-860E, N7-960, N7-960E, N9-840, N9-840E, N12-640 and N12-640E must only be administered through a central vein.

Do not connect bags in series in order to avoid air embolism due to possible residual gas contained in the primary bag.

Do not add other medicinal products or substances to one of the three components of the bag or to the reconstituted emulsion without first confirming their compatibility and the stability of the resulting preparation (in particular, stability of the lipid emulsion).

*Extravasation*

Extravasation has been reported with the administration of OLIMEL/PeriOLIMEL. Catheter site should be monitored regularly to identify signs of extravasation.

If extravasation occurs the administration should be stopped immediately, keeping the inserted catheter or cannula in place for immediate management of the patient. If possible, aspiration should be performed through the inserted catheter/ cannula in order to reduce the amount of fluid present in the tissues before removing the catheter/ cannula.

Depending on the extravasated product (including the product(s) being mixed with OLIMEL, if applicable) and the stage/extent of any injury, appropriate specific measures should be taken. Options for management may include non-pharmacologic, pharmacologic and/or surgical intervention. In case of large extravasation, plastic surgeon advice should be sought within the first 72 hours.

The extravasation site should be monitored at least every 4 hours during the first 24 hours, then once daily.

The infusion should not be restarted in the same central vein.

*Monitoring*

Monitor water and electrolyte balance, serum osmolarity, serum triglycerides, acid/base balance, blood glucose, liver and kidney function, and blood count, including platelets and coagulation parameters throughout treatment.

Hypercalciuria may occur in high-protein dose PN, and patients should be monitored for metabolic consequences. In particular, calcium and phosphate levels should be monitored.

In addition, regular clinical and laboratory tests are required particularly in cases of:

- amino acid metabolism disorders (see *4.3 Contraindications*)
- hepatic insufficiency because of the risk of developing or worsening neurological disorders associated with hyperammonaemia
- renal insufficiency, particularly if hyperkalaemia is present; risk of developing or worsening metabolic acidosis and hyperazotaemia if extra-renal waste removal is not being performed
- metabolic acidosis (administration of carbohydrates is not recommended in the presence of lactic acidosis)
- diabetes mellitus: monitoring of glucose concentrations, glucosuria, ketonuria and, where applicable, adjustment of insulin dosages

- coagulation disorders
- anaemia
- hyperlipidaemia (because of the presence of lipids in the emulsion for infusion).

The blood count and coagulation factors must be monitored more carefully during long-term administration (several weeks).

*Cardiovascular*

Use with caution in patients with pulmonary oedema or heart failure. Fluid status should be closely monitored.

*Endocrine and metabolism*

Metabolic complications may occur if the nutrient intake is not adapted to the patient's requirements, or the metabolic capacity of any given dietary component is not accurately assessed. Adverse metabolic effects may arise from administration of inadequate or excessive nutrients or from inappropriate composition of an admixture for a particular patient's needs.

Serum triglyceride concentrations and the ability of the body to metabolise lipids must be checked regularly. If a lipid metabolism abnormality is suspected, monitoring of serum triglycerides is recommended as clinically necessary.

In the event of hyperglycaemia, the infusion rate of OLIMEL/PeriOLIMEL must be adjusted and/or insulin administered.

*Hepatobiliary disorders*

Hepatobiliary disorders including cholestasis, hepatic steatosis, fibrosis and cirrhosis, possibly leading to hepatic failure, as well as cholecystitis and cholelithiasis are known to develop in some patients on parenteral nutrition. The etiology of these disorders is thought to be multifactorial and may differ between patients. Patients developing abnormal liver function parameters or other signs of hepatobiliary disorders should be assessed early by a clinician knowledgeable in liver diseases in order to identify possible causative and contributory factors, and possible therapeutic and prophylactic interventions.

*Use in hepatic impairment*

Use with caution in patients with hepatic insufficiency because of the risk of developing or worsening neurological disorders associated with hyperammonaemia. Regular clinical and laboratory tests are required, particularly liver function parameters, blood glucose, electrolytes and triglycerides.

*Use in renal impairment*

Use with caution in patients with renal insufficiency, particularly if hyperkalaemia is present, because of the risk of developing or worsening metabolic acidosis and hyperazotaemia if extra-renal waste removal is not being performed. Fluid, triglycerides and electrolyte status should be closely monitored in these patients.

Severe water and electrolyte equilibration disorders, severe fluid overload states, and severe metabolic disorders should be corrected before starting the infusion.

*Use in the elderly*

In general, dose selection for an elderly patient should be cautious, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or drug therapy. Due to the risk of azotaemia, appropriate monitoring (e.g of urine urea nitrogen and blood urea nitrogen) should be considered in elderly patients.

*Paediatric use*

This product is contraindicated in premature neonates, infants and children less than 2 years old (see *4.3 Contraindications*).

There have been no studies performed in the paediatric population.

*Effects on laboratory tests*

The lipids contained in this emulsion may interfere with the results of certain laboratory tests (for example, bilirubin, lactate dehydrogenase, oxygen saturation, blood haemoglobin) if the blood sample is taken before the lipids are eliminated (these are generally eliminated after a period of 5 to 6 hours without receiving lipids).

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

No interaction studies have been performed with OLIMEL/PeriOLIMEL.

Do not add other medicinal products or substances to one of the three compartments of the bag or to the reconstituted solution/emulsion without firstly confirming their compatibility and the stability of the resulting preparation (in particular stability of the lipid emulsion or formation of precipitates).

As with any parenteral nutrition admixture, calcium and phosphate ratios must be considered. Excess addition of calcium and phosphate, especially in the form of mineral salts, may result in the formation of calcium phosphate precipitates.

OLIMEL/PeriOLIMEL must not be administered simultaneously with blood through the same infusion tubing because of the risk of pseudoagglutination.

Due to the risk of precipitation, OLIMEL/PeriOLIMEL should not be administered through the same infusion line or admixed together with ampicillin or fosphenytoin.

OLIMEL/PeriOLIMEL contains calcium ions which pose additional risk of coagulation precipitated in citrate anticoagulated/preserved blood or components. This only applies to products containing electrolytes.

Soya oil has a natural content of vitamin K1 that may counteract the anticoagulant activity of coumarin derivatives, including warfarin.

Due to the potassium content of OLIMEL/PeriOLIMEL (with electrolyte formulations), special care should be taken in patients simultaneously treated with potassium sparing diuretics with ACE inhibitors, angiotensin II receptor antagonists, or the immunosuppressants tacrolimus and cyclosporin in view of the risk of hyperkalaemia.

## 4.6 FERTILITY, PREGNANCY AND LACTATION

*Effect on fertility*

No studies have been conducted to assess the effects of OLIMEL/PeriOLIMEL on fertility

*Use in pregnancy (Category – exempt)*

There are no adequate data on the use of OLIMEL/PeriOLIMEL in pregnant women. Physicians should carefully consider the potential risks and benefits for each specific patient before prescribing OLIMEL/PeriOLIMEL.

*Use in lactation*

There are no adequate data on the use of OLIMEL/PeriOLIMEL in lactating women. Following intravenous infusion, most of the active ingredients contained in OLIMEL/PeriOLIMEL are expected to be excreted in human milk and the safety of the breastfeeding infant has not been established. Physicians should carefully consider the potential risks and benefits for each specific patient before prescribing OLIMEL/PeriOLIMEL.

## 4.7 EFFECTS ON ABILITY TO DRIVE AND USE MACHINES

The effects of this medicine on a person's ability to drive and use machines were not assessed as part of its registration.

## 4.8 ADVERSE EFFECTS (UNDESIRABLE EFFECTS)

The safety and clinical efficacy of OLIMEL N9-840 was assessed in one double- blind randomised study with an active control over five days. Twenty-eight patients with different medical conditions (post-surgery fasting, severe malnutrition, enteral intake insufficient or forbidden) were included in the OLIMEL group and received the drug at up to 40 mL/kg/day.

The investigator judged the following seven adverse reactions as related to OLIMEL:

| **Clinical Trial Adverse Reactions** | |
|---|---|
| **System Organ Class (SOC)** | **Preferred MedDRA Term** |
| Cardiac disorders | Tachycardia |
| Gastrointestinal disorders | Abdominal pain<br>Diarrhoea Nausea |
| Metabolism and nutritional disorders | Decreased appetite<br>Hypertriglyceridaemia |
| Vascular disorders | Hypertension |

*Post-marketing experience*

The following adverse reactions have been reported in the Post-marketing experience, listed by MedDRA System Organ Class (SOC), then by Preferred Term in order of severity.

- GASTROINTESTINAL DISORDERS: Vomiting
- SKIN AND SUBCUTANEOUS SKIN DISORDERS: Rash
- GENERAL DISORDERS AND ADMINISTRATION SITE CONDITIONS:

  Injection site extravasation, Pyrexia, Chills.

The following adverse reactions have been reported with other similar products:

- Fat overload syndrome,
- Cholestasis, elevated liver enzymes and Azotaemia,
- Pulmonary vascular precipitates (pulmonary vascular emboli and pulmonary distress).

*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 https://www.tga.gov.au/reporting-problems.

## 4.9 OVERDOSE

In the event of inappropriate administration (overdose and/or infusion rate higher than recommended), nausea, vomiting, chills, headache, hot flush, hyperhidrosis and electrolyte disturbances and signs of hypervolaemia or acidosis may occur and result in severe or fatal consequences. In such situations the infusion must be stopped immediately. If medically appropriate, further intervention may be indicated.

Hyperglycaemia, glucosuria, and hyperosmolar syndrome may develop if glucose infusion rate exceeds clearance.

In some serious cases, haemodialysis, haemofiltration, or haemodiafiltration may be necessary.

The reduced or limited ability to metabolise lipids may result in fat overload syndrome, the results of which are usually reversible after infusion of the lipid emulsion is stopped.

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

# 5 PHARMACOLOGICAL PROPERTIES

## 5.1 PHARMACODYNAMIC PROPERTIES

*MECHANISM OF ACTION*

*Pharmacological actions*

This is a 3-in-1 admixture enabling the nitrogen/energy balance to be maintained from the nitrogen source (L series amino acids) and energy in the form of glucose and essential fatty acids. Nitrogen and energy are required for normal functioning of all cells in the body, and are important for protein synthesis, growth, wound healing, immune function, muscle function, any other cellular activities.

The amino acids solution contains 17 amino acids (including 8 essential amino acids), which are required for protein synthesis. Amino acids also represent an energy source, their oxidation resulting in excretion of nitrogen in the form of urea. The amino acids profile is as follows:

- Essential amino acids/total amino acids: 44.8%
- Branched-chain amino acids/total amino acids: 18.3%

The formulations without electrolytes allow individual electrolyte intake to be adapted to meet specific requirements.

The lipid emulsion included in OLIMEL/PeriOLIMEL, is an association of refined olive oil and refined soya oil (ratio 80/20), with the following approximate distribution of fatty acids:
15% saturated fatty acids (SFA)
65% monounsaturated fatty acids (MUFA)
20% polyunsaturated essential fatty acids (PUFA)

The phospholipid/triglyceride ratio is 0.06. The moderate essential fatty acid (EFA) content improves the status of their upper derivatives while correcting EFA deficiency.

Olive oil contains significant amounts of alpha-tocopherol, when combined with a moderate PUFA intake, contributes to improve vitamin E status and reduce lipid peroxidation.

The carbohydrate source is glucose. Glucose is the primary source of energy in the body.

*CLINICAL TRIAL*

Study ICS1063B/P01/03/Mu.F was a prospective randomised double-blind multicenter study performed in fifty six hospitalised patients (age range 18-85 years) to evaluate safety and nutritional efficacy of OLIMEL N9-840 compared to OliClinomel N8-800 (not registered in Australia but contains the same ingredients as the OliClinomel products registered in Australia). The study was conducted in a variety of patients (primarily post-surgery and trauma) who required balanced parenteral nutrition representing at least 50% of the daily nonprotein energy requirements for 5 days. The primary nutritional efficacy endpoint was transthyretin (pre-albumin) levels. Safety was evaluated using adverse events, vital signs, and biochemical markers for renal (urea, creatinine), hepatic (AST, ALT, alkaline phosphatase, GGT, bilirubin), hematologic (RBC count, hemoglobin, hematocrit, platelets, WBCs, lymphocytes, neutrophils, monocytes, eosinophils, basophils), organ functions as well as glucose and lipid parameters (triglycerides, cholesterol).

Efficacy analysis on the per protocol (PP) and intent-to-treat (ITT) populations showed no difference between the OLIMEL and OliClinomel groups on the primary endpoint (transthyretin), which improved from baseline to Day 5/end of treatment.

**Changes in Mean Prealbumin (Transthyretin) Levels – Study ICS1063B/P01/03/Mu.F**

| **Treatment Group**<br>Study Population | **Mean ± SD Transthyretin Levels (g/L)** | |
|---|---|---|
| | **Baseline** | **Day 5/EOT** |
| **OLIMEL N9-840** | | |
| Intent-to-Treat Population (n = 24) | 0.144 ± 0.075 | 0.206 ± 0.142 |
| Per Protocol Population (n = 24) | 0.144 ± 0.075 | 0.206 ± 0.142 |
| **OliClinomel N8-800** | | |
| Intent-to-Treat Population (n = 26) | 0.146 ± 0.083 | 0.181 ± 0.082 |
| Per Protocol Population (n = 23) | 0.139 ± 0.078 | 0.172 ± 0.080 |

EOT: End of treatment. SD: Standard deviation.

The safety of the two formulations was comparable. There was no difference between the treatment groups for any clinical laboratory or vital sign parameters evaluated during the study.

## 5.2 PHARMACOKINETIC PROPERTIES

The ingredients of the emulsion for infusion (amino acids, glucose and lipids) are distributed, metabolised and eliminated in the same way as if they had been administered individually.

The pharmacokinetic properties of the amino acids administered intravenously are principally the same as those of amino acids supplied by oral feeding. Amino acids from food proteins, however, first pass through the portal vein before reaching the systemic circulation.

The elimination rate of lipid emulsions depends on particle size. Small lipid particles appear to delay

clearance whereas they increase lipolysis by lipoprotein lipase. Most of the lipid particle sizes are in the range of chylomicrons (0.08-0.6 micrometers) with the mean diameter of less than 0.35 micrometers. However, it may contain a small fraction (up to 2.5%) of particles having a diameter of more than 0.75 micrometer.

## 5.3 PRECLINICAL SAFETY DATA

*Genotoxicity*

No genotoxicity studies have been conducted with OLIMEL/PeriOLIMEL.

*Carcinogenicity*

No carcinogenicity studies have been conducted with OLIMEL/PeriOLIMEL.

# 6 PHARMACEUTICAL PARTICULARS

## 6.1 LIST OF EXCIPIENTS

OLIMEL/PeriOLIMEL contains the following excipients:

- Egg lecithin (purified egg phosphatide),
- Glycerol,
- Sodium oleate,
- Sodium hydroxide/Glacial acetic acid/Hydrochloric acid (for pH adjustment),and
- Water for injections.

## 6.2 INCOMPATIBILITIES

Refer to *4.5 Interactions with other medicines and other forms of interactions.*

## 6.3 SHELF LIFE

In Australia, information on the shelf life can be found on the public summary of the Australian Register of Therapeutic Goods (ARTG). The expiry date can be found on the packaging.

## 6.4 SPECIAL PRECAUTIONS FOR STORAGE

*Storage condition*

Store below 25°C. Do not freeze. Store in overpouch.

After reconstitution:
It is recommended that the product is used immediately after the non-permanent seals between the 3 compartments have been opened. However, the stability of the reconstituted emulsion has been demonstrated for 7 days (between 2°C and 8°C) followed by 48 hours at temperature not exceeding 25°C.

After addition of supplements (electrolytes, trace elements and vitamins; see *4.2 Dose and method of administration*).

For specific admixtures, chemical and physical in-use stability has been demonstrated for 7 days (between 2°C and 8°C) followed by 48 hours at temperature not exceeding 25°C.

From a microbiological point of view, any admixture should be used immediately. If not used immediately, in-use storage times and conditions, after mixing and prior to use, are the responsibility of the user and would normally not be longer than 24 hours at 2°C to 8°C.

## 6.5 NATURE AND CONTENTS OF CONTAINER

The three-compartment bag is a multi-layer plastic bag. The inner (contact) layer of the bag is made of a blend of polyolefinic copolymers and is compatible with amino acid solutions, glucose solutions and lipid emulsions. Other layers are made of poly- ethylene vinyl acetate (EVA) and of copolyester.

The glucose compartment is fitted with an injection site to be used for addition of supplements. The amino acid compartment is fitted with an administration site for insertion of the spike of the infusion set.

The bag is packaged in an oxygen barrier overpouch which contains an oxygen absorber/oxygen indicator sachet.

*Pack sizes*

| ***Formulation*** | ***Bag size*** | | | | |
|---|---|---|---|---|---|
| PeriOLIMEL N4-600E | - | 1000 mL | 1500 mL | 2000 mL | 2500 mL |
| OLIMEL N5-860E | - | - | 1500 mL | 2000 mL | 2500 mL |
| OLIMEL N7-960 | - | 1000 mL | 1500 mL | 2000 mL | - |
| OLIMEL N7-960E | - | 1000 mL | 1500 mL | 2000 mL | - |
| OLIMEL N9-840 | - | 1000 mL | 1500 mL | 2000 mL | - |
| OLIMEL N9-840E | - | 1000 mL | 1500 mL | 2000 mL | - |
| OLIMEL N12-640 | 650 mL | 1000 mL | 1500 mL | 2000 mL | - |
| OLIMEL N12-640E | 650 mL | 1000 mL | 1500 mL | 2000 mL | - |

Note: Not all formulation and/or bag sizes may be marketed.

## 6.6 SPECIAL PRECAUTIONS FOR DISPOSAL

In Australia, any unused medicine or waste material should be disposed of by taking to your local pharmacy.

## 6.7 PHYSIOCHEMICAL PROPERTIES

**Molecular formula and CAS registry number of the active substances**

| *Active substances* | *Molecular Formula* | *CAS Number* |
|---|---|---|
| L-Alanine | $C_3H_7NO_2$ | 56-41-7 |
| L-Arginine | $C_6H_{14}N_4O_2$ | 74-79-3 |
| L-Aspartic acid | $C_4H_7NO_4$ | 56-84-8 |
| L-Glutamic acid | $C_5H_9NO_4$ | 56-86-0 |
| Glycine | $C_2H_5NO_2$ | 56-40-6 |
| L-Histidine | $C_6H_9N_3O_2$ | 71-00-1 |
| L-Isoleucine | $C_6H_{13}NO_2$ | 73-32-5 |
| L-Leucine | $C_6H_{13}NO_2$ | 61-90-5 |
| L-Lysine acetate | $C_6H_{14}N_2O_2 \cdot C_2H_4O_2$ | 57282-49-2 |
| L-Methionine | $C_5H_{11}NO_2S$ | 63-68-3 |
| L-Phenylalanine | $C_9H_{11}NO_2$ | 63-91-2 |
| L-Proline | $C_5H_9NO_2$ | 147-85-3 |
| L-Serine | $C_3H_7NO_3$ | 56-45-1 |
| L-Threonine | $C_4H_9NO_3$ | 72-19-5 |
| L-Tryptophan | $C_{11}H_{12}N_2O_2$ | 73-22-3 |
| L-Tyrosine | $C_9H_{11}NO_3$ | 60-18-4 |
| L-Valine | $C_5H_{11}NO_2$ | 72-18-4 |
| Sodium acetate, trihydrate | $C_2H_3NaO_2 \cdot 3H_2O$ | 6131-90-4 |
| Sodium glycerophosphate hydrate | $C_3H_7Na_2O_6P \cdot xH_2O$ (degree of hydration: x= 4 to 6) | 1334-74-3 (anhydrous) |
| Potassium chloride | KCl | 7447-40-7 |
| Magnesium chloride, hexahydrate | $MgCl_2 \cdot 6H_2O$ | 7791-18-6 |
| Calcium chloride, dihydrate | $CaCl_2 \cdot 2H_2O$ | 10035-04-8 |
| Glucose monohydrate | $C_6H_{12}O_6 \cdot H_2O$ | 5996-10-1 |
| Refined olive oil | Complex mixture of triglycerides; predominant fatty acids in olive oil are oleic, palmitic and linoleic. | 8001-25-0 |
| Refined soya oil | Complex mixture of triglycerides; predominant fatty acids in soya oil are linoleic, palmitic and linolenic. | 8001-22-7 |

## 7 MEDICINE SCHEDULE (POISONS STANDARD)

Not scheduled.

## 8 SPONSOR

Baxter Healthcare Pty Ltd
1 Baxter Drive
Old Toongabbie NSW 2146

## 9 DATE OF FIRST APPROVAL

9 August 2013 – AUST R 197417, 197418, 197421, 197420, 197416, 197419

1 July 2019 – AUST R 303755 and AUST R 303864

## 10 DATE OF REVISION

23 October 2019

*SUMMARY TABLE OF CHANGES*

| Section changed | Summary of new information |
|---|---|
| All | PI Format change and included information on Olimel N12-640/N12-640E. |
| Section 4.2 & 4.8 | Safety Related Changes |

## APPENDIX 1

| Composition per Litre of Reconstituted Emulsion | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Active substances** | **PeriOLIMEL N4-600E** | **OLIMEL N5-860E** | **OLIMEL N7-960E** | **OLIMEL N7-960** | **OLIMEL N9-840E** | **OLIMEL N9-840** | **OLIMEL N12-640E** | **OLIMEL N12-640** |
| Refined olive oil + refined soya oil* | 30.00 g | 40.00 g | 40.00 g | 40.00 g | 40.00 g | 40.00 g | 35.00 g | 35.00 g |
| L-Alanine | 3.66 g | 4.76 g | 6.41 g | 6.41 g | 8.24 g | 8.24 g | 10.99 g | 10.99 g |
| L-Arginine | 2.48 g | 3.22 g | 4.34 g | 4.34 g | 5.58 g | 5.58 g | 7.44 g | 7.44 g |
| L-Aspartic acid | 0.73 g | 0.95 g | 1.28 g | 1.28 g | 1.65 g | 1.65 g | 2.20 g | 2.20 g |
| L-Glutamic acid | 1.26 g | 1.64g | 2.21 g | 2.21 g | 2.84 g | 2.84 g | 3.79 g | 3.79 g |
| Glycine | 1.76 g | 2.28 g | 3.07 g | 3.07 g | 3.95 g | 3.95 g | 5.26 g | 5.26 g |
| L-Histidine | 1.51 g | 1.96 g | 2.64 g | 2.64 g | 3.40 g | 3.40 g | 4.53 g | 4.53 g |
| L-Isoleucine | 1.26 g | 1.64 g | 2.21 g | 2.21 g | 2.84 g | 2.84 g | 3.79 g | 3.79 g |
| L-Leucine | 1.76 g | 2.28 g | 3.07 g | 3.07 g | 3.95 g | 3.95 g | 5.26 g | 5.26 g |
| L-Lysine acetate (equivalent to Lysine) | 2.81 g (1.99 g) | 3.65 g (2.59 g) | 4.88 g (3.48 g) | 4.88 g (3.48 g) | 6.32 g (4.48 g) | 6.32 g (4.48 g) | 8.43 (5.97 g) | 8.43 g (5.97 g) |
| L-Methionine | 1.26 g | 1.64 g | 2.21 g | 2.21 g | 2.84 g | 2.84 g | 3.79 g | 3.79 g |
| L-Phenylalanine | 1.76 g | 2.28 g | 3.07 g | 3.07 g | 3.95 g | 3.95 g | 5.26 g | 5.26 g |
| L-Proline | 1.51 g | 1.96g | 2.64 g | 2.64 g | 3.40 g | 3.40 g | 4.53 g | 4.53 g |
| L-Serine | 1.00 g | 1.30 g | 1.75 g | 1.75 g | 2.25 g | 2.25 g | 3.00 g | 3.00 g |
| L-Threonine | 1.26 g | 1.64 g | 2.21 g | 2.21 g | 2.84 g | 2.84 g | 3.79 g | 3.79 g |
| L-Tryptophan | 0.42 g | 0.55 g | 0.74 g | 0.74 g | 0.95 g | 0.95 g | 1.26 g | 1.26 g |
| L-Tyrosine | 0.06 g | 0.08 g | 0.11 g | 0.11 g | 0.15 g | 0.15 g | 0.20 g | 0.20 g |
| L-Valine | 1.62 g | 2.10 g | 2.83 g | 2.83 g | 3.64 g | 3.64 g | 4.86 g | 4.86 g |
| Sodium acetate, trihydrate | 1.16 g | 1.50 g | 1.50 g | -- | 1.50 g | -- | 1.5 g | -- |
| Sodium glycerophosphate hydrate | 1.91 g | 3.67 g | 3.67 g | -- | 3.67 g | -- | 3.67 g | -- |
| Potassium chloride | 1.19 g | 2.24 g | 2.24 g | -- | 2.24 g | -- | 2.24 g | -- |
| Magnesium chloride, hexahydrate | 0.45 g | 0.81 g | 0.81 g | -- | 0.81 g | -- | 0.81 g | -- |
| Calcium chloride, dihydrate | 0.30 g | 0.52 g | 0.52 g | -- | 0.52 g | -- | 0.52 g | -- |
| Glucose monohydrate (equivalent to Anhydrous Glucose) | 82.50 g (75.00 g) | 126.5 g (115.0 g) | 154.0 g (140 g) | 154.0 g (140 g) | 121.0 g (110.0 g) | 121.0 g (110.0 g) | 80.7 g (73.3 g) | 80.7 g (73.3 g) |

*Mixture of refined olive oil (approximately 80%) and refined soya oil (approximately 20%), corresponding to a ratio essential fatty acids / total fatty acids of 20%. The soya oil ingredient may contain *ascorbyl palmitate* as an antioxidant in the concentration ≤0.15 mg/g of soya oil.

After the contents of the three compartments have been mixed, the 3-in-1 admixture for each of the bag presentations provides the following:

**For PeriOLIMEL N4-600E**

| | **1000 mL** | **1500 mL** | **2000 mL** | **2500 mL** |
|---|---|---|---|---|
| Nitrogen | 4.0 g | 6.0 g | 8.0 g | 10.0 g |
| Amino acids | 25.3 g | 38.0 g | 50.6 g | 63.3 g |
| Glucose monohydrate | 82.5 g | 123.75 g | 165.0 g | 206.25 g |
| Lipids | 30 g | 45 g | 60 g | 75 g |
| ***Energy:*** | | | | |
| Total calories approx. | 700 kcal | 1050 kcal | 1400 kcal | 1750 kcal |
| Non-protein calories approx. | 600 kcal | 900 kcal | 1200 kcal | 1500 kcal |
| Glucose calories | 300 kcal | 450 kcal | 600 kcal | 750 kcal |
| Lipid calories(1) | 300 kcal | 450 kcal | 600 kcal | 750 kcal |
| Non-protein calories / nitrogen ratio | 150 kcal/g | 150 kcal/g | 150 kcal/g | 150 kcal/g |
| Glucose / lipid calories ratio | 50 / 50 | 50 / 50 | 50 / 50 | 50 / 50 |
| Lipid / total calories | 43 % | 43 % | 43 % | 43 % |
| ***Electrolytes:*** | | | | |
| Sodium | 21.0 mmol | 31.5 mmol | 42.0 mmol | 52.5 mmol |
| Potassium | 16.0 mmol | 24.0 mmol | 32.0 mmol | 40.0 mmol |
| Magnesium | 2.2 mmol | 3.3 mmol | 4.4 mmol | 5.5 mmol |
| Calcium | 2.0 mmol | 3.0 mmol | 4.0 mmol | 5.0 mmol |
| Phosphate(2) | 8.5 mmol | 12.7 mmol | 17.0 mmol | 21.2 mmol |
| Acetate | 27 mmol | 41 mmol | 55 mmol | 69 mmol |
| Chloride | 24 mmol | 37 mmol | 49 mmol | 61 mmol |
| pH | 6.4 | 6.4 | 6.4 | 6.4 |
| Osmolarity | 760 mOsm/L | 760 mOsm/L | 760 mOsm/L | 760 mOsm/L |

(1) Include calories from egg lecithin (purified egg phosphatide)

(2) Includes phosphate from lipid emulsion (egg phospholipids)

**For OLIMEL N5-860E**

| | **1500 mL** | **2000 mL** | **2500 mL** |
|---|---|---|---|
| Nitrogen | 7.8 g | 10.4 g | 13.0 g |
| Amino acids | 49.4 g | 65.8 g | 82.3 g |
| Glucose monohydrate | 189.75 g | 253.0 g | 316.25 g |
| Lipids | 60 g | 80 g | 100 g |
| ***Energy:*** | | | |
| Total calories | 1490 kcal | 1980 kcal | 2480 kcal |
| Non-protein calories | 1290 kcal | 1720 kcal | 2150 kcal |
| Glucose calories | 690 kcal | 920 kcal | 1150 kcal |
| Lipid calories (approx)(1) | 600 kcal | 800 kcal | 1000 kcal |
| Non-protein calories / nitrogen ratio | 165 kcal/g | 165 kcal/g | 165 kcal/g |
| Glucose / lipid calories ratio | 53/47 | 53 / 47 | 53 / 47 |
| Lipid / total calories | 47 % | 47 % | 47 % |
| ***Electrolytes:*** | | | |
| Sodium | 52.5 mmol | 70.0 mmol | 87.5 mmol |
| Potassium | 45.0 mmol | 60.0 mmol | 75.0 mmol |
| Magnesium | 6.0 mmol | 8.0 mmol | 10.0 mmol |
| Calcium | 5.3 mmol | 7.0 mmol | 8.8 mmol |
| Phosphate(2) | 22.5 mmol | 30.0 mmol | 37.5 mmol |
| Acetate | 55 mmol | 73 mmol | 91 mmol |
| Chloride | 68 mmol | 90 mmol | 113 mmol |
| pH | 6.4 | 6.4 | 6.4 |
| Osmolarity | 1120 mOsm/L | 1120 mOsm/L | 1120 mOsm/L |

(1) Include calories from egg lecithin (purified egg phosphatide)

(2) Includes phosphate from lipid emulsion (egg phospholipids)

**For OLIMEL N7-960**

| | **1000 mL** | **1500 mL** | **2000 mL** |
|---|---|---|---|
| Nitrogen | 7.0 g | 10.5 g | 14.0 g |
| Amino acids | 44.3 g | 66.4 g | 88.6 g |
| Glucose monohydrate | 154.0 g | 231.0 g | 308.0 g |
| Lipids | 40 g | 60 g | 80 g |
| ***Energy:*** | | | |
| Total calories | 1140 kcal | 1710 kcal | 2270 kcal |
| Non-protein calories | 960 kcal | 1440 kcal | 1920 kcal |
| Glucose calories | 560 kcal | 840 kcal | 1120 kcal |
| Lipid calories(1) | 400 kcal | 600 kcal | 800 kcal |
| Non-protein calories / nitrogen ratio | 137 kcal/g | 137 kcal/g | 137 kcal/g |
| Glucose / lipid calories ratio | 58 / 42 | 58 / 42 | 58 / 42 |
| Lipid / total calories | 35 % | 35 % | 35 % |
| ***Electrolytes:*** | | | |
| Phosphate(2) | 3.0 mmol | 4.5 mmol | 6.0 mmol |
| Acetate | 31 mmol | 46 mmol | 62 mmol |
| pH | 6.4 | 6.4 | 6.4 |
| Osmolarity | 1220 mOsm/L | 1220 mOsm/L | 1220 mOsm/L |

(1) Include calories from egg lecithin (purified egg phosphatide)

(2) Includes phosphate from lipid emulsion (egg phospholipids)

**For OLIMEL N7-960E**

| | **1000 mL** | **1500 mL** | **2000 mL** |
|---|---|---|---|
| Nitrogen | 7.0 g | 10.5 g | 14.0 g |
| Amino acids | 44.3 g | 66.4 g | 88.6 g |
| Glucose monohydrate | 154.0 g | 231.0 g | 308.0 g |
| Lipids | 40 g | 60 g | 80 g |
| ***Energy:*** | | | |
| Total calories | 1140 kcal | 1710 kcal | 2270 kcal |
| Non-protein calories | 960 kcal | 1440 kcal | 1920 kcal |
| Glucose calories | 560 kcal | 840 kcal | 1120 kcal |
| Lipid calories(1) | 400 kcal | 600 kcal | 800 kcal |
| Non-protein calories / nitrogen ratio | 137 kcal/g | 137 kcal/g | 137 kcal/g |
| Glucose / lipid calories ratio | 58 / 42 | 58 / 42 | 58 / 42 |
| Lipid / total calories | 35 % | 35 % | 35 % |
| ***Electrolytes:*** | | | |
| Sodium | 35.0 mmol | 52.5 mmol | 70.0 mmol |
| Potassium | 30.0 mmol | 45.0 mmol | 60.0 mmol |
| Magnesium | 4.0 mmol | 6.0 mmol | 8.0 mmol |
| Calcium | 3.5 mmol | 5.3 mmol | 7.0 mmol |
| Phosphate(2) | 15.0 mmol | 22.5 mmol | 30.0 mmol |
| Acetate | 45 mmol | 67 mmol | 89 mmol |
| Chloride | 45 mmol | 68 mmol | 90 mmol |
| pH | 6.4 | 6.4 | 6.4 |
| Osmolarity | 1360 mOsm/L | 1360 mOsm/L | 1360 mOsm/L |

(1) Include calories from egg lecithin (purified egg phosphatide)

(2) Includes phosphate from lipid emulsion (egg phospholipids)

**For OLIMEL N9-840**

| | **1000 mL** | **1500 mL** | **2000 mL** |
|---|---|---|---|
| Nitrogen | 9.0 g | 13.5 g | 18.0 g |
| Amino acids | 56.9 g | 85.4 g | 113.9 g |
| Glucose monohydrate | 121.0 g | 181.5 g | 242.0 g |
| Lipids | 40 g | 60 g | 80 g |
| ***Energy:*** | | | |
| Total calories | 1070 kcal | 1600 kcal | 2140 kcal |
| Non-protein calories | 840 kcal | 1260 kcal | 1680 kcal |
| Glucose calories | 440 kcal | 660 kcal | 880 kcal |
| Lipid calories[(1)] | 400 kcal | 600 kcal | 800 kcal |
| Non-protein calories / nitrogen ratio | 93 kcal/g | 93 kcal/g | 93 kcal/g |
| Glucose / lipid calories ratio | 52 / 48 | 52 / 48 | 52 / 48 |
| Lipid / total calories | 37 % | 37 % | 37 % |
| ***Electrolytes:*** | | | |
| Phosphate[(2)] | 3.0 mmol | 4.5 mmol | 6.0 mmol |
| Acetate | 40 mmol | 60 mmol | 80 mmol |
| pH | 6.4 | 6.4 | 6.4 |
| Osmolarity | 1170 mOsm/L | 1170 mOsm/L | 1170 mOsm/L |

[(1)] Include calories from egg lecithin (purified egg phosphatide)

[(2)] Includes phosphate from lipid emulsion (egg phospholipids)

**For OLIMEL N9-840E**

| | **1000 mL** | **1500 mL** | **2000 mL** |
|---|---|---|---|
| Nitrogen | 9.0 g | 13.5 g | 18.0 g |
| Amino acids | 56.9 g | 85.4 g | 113.9 g |
| Glucose monohydrate | 121.0 g | 181.5 g | 242.0 g |
| Lipids | 40 g | 60 g | 80 g |
| ***Energy:*** | | | |
| Total calories | 1070 kcal | 1600 kcal | 2140 kcal |
| Non-protein calories | 840 kcal | 1260 kcal | 1680 kcal |
| Glucose calories | 440 kcal | 660 kcal | 880 kcal |
| Lipid calories[(1)] | 400 kcal | 600 kcal | 800 kcal |
| Non-protein calories / nitrogen ratio | 93 kcal/g | 93 kcal/g | 93 kcal/g |
| Glucose / lipid calories ratio | 52 / 48 | 52 / 48 | 52 / 48 |
| Lipid / total calories | 37 % | 37 % | 37 % |
| ***Electrolytes:*** | | | |
| Sodium | 35.0 mmol | 52.5 mmol | 70.0 mmol |
| Potassium | 30.0 mmol | 45.0 mmol | 60.0 mmol |
| Magnesium | 4.0 mmol | 6.0 mmol | 8.0 mmol |
| Calcium | 3.5 mmol | 5.3 mmol | 7.0 mmol |
| Phosphate[(2)] | 15.0 mmol | 22.5 mmol | 30.0 mmol |
| Acetate | 54 mmol | 80 mmol | 107 mmol |
| Chloride | 45 mmol | 68 mmol | 90 mmol |
| pH | 6.4 | 6.4 | 6.4 |
| Osmolarity | 1310 mOsm/L | 1310 mOsm/L | 1310 mOsm/L |

[(1)] Include calories from egg lecithin (purified egg phosphatide)

[(2)] Includes phosphate from lipid emulsion (egg phospholipids)

**For OLIMEL N12-640**

| | **650 mL** | **1000 mL** | **1500 mL** | **2000 mL** |
|---|---|---|---|---|
| Nitrogen | 7.8 g | 12.0 g | 18.0 g | 24.0 g |
| Amino acids | 49.4 g | 75.9 g | 113.9 g | 151.9 g |
| Lipids | 22.8 g | 35.0 g | 52.5 g | 70.0 g |
| Glucose monohydrate | 52.4 g | 80.7 g | 121.0 g | 161.3 g |
| ***Energy*** | | | | |
| Total calories approx.. | 620 kcal | 950 kcal | 1420 kcal | 1900 kcal |
| Non-protein calories approx. | 420 kcal | 640 kcal | 960 kcal | 1280 kcal |
| Glucose calories | 190 kcal | 290 kcal | 430 kcal | 580 kcal |
| Lipid calories approx.(1) | 230 kcal | 350 kcal | 520 kcal | 700 kcal |
| Non-protein calories/nitrogen ratio | 53 kcal/g | 53 kcal/g | 53 kcal/g | 53 kcal/g |
| Glucose/lipid calories ratio | 45/55 | 45/55 | 45/55 | 45/55 |
| Lipid/total calories | 37% | 37% | 37% | 37% |
| ***Electrolytes*** | | | | |
| Phosphate(2) | 1.7 mmol | 2.6 mmol | 3.9 mmol | 5.2 mmol |
| Acetate | 35 mmol | 54 mmol | 80 mmol | 107 mmol |
| pH approx.. | 6.4 | 6.4 | 6.4 | 6.4 |
| Osmolarity approx.. | 1130 mosm/L | 1130 mosm/L | 1130 mosm/L | 1130 mosm/L |

(1) Include calories from egg lecithin (purified egg phosphatide)

(2) Includes phosphate from lipid emulsion

**For OLIMEL N12-640E**

| | **650 mL** | **1000 mL** | **1500 mL** | **2000 mL** |
|---|---|---|---|---|
| Nitrogen | 7.8 g | 12.0 g | 18.0 g | 24.0 g |
| Amino acids | 49.4 g | 75.9 g | 113.9 g | 151.9 g |
| Lipids | 22.8 g | 35.0 g | 52.5 g | 70.0 g |
| Glucose monohydrate | 52.4 g | 80.7 g | 121.0 g | 161.3 g |
| ***Energy*** | | | | |
| Total calories approx.. | 620 kcal | 950 kcal | 1420 kcal | 1900 kcal |
| Non-protein calories approx. | 420 kcal | 640 kcal | 960 kcal | 1280 kcal |
| Glucose calories | 190 kcal | 290 kcal | 430 kcal | 580 kcal |
| Lipid calories approx.(1) | 230 kcal | 350 kcal | 520 kcal | 700 kcal |
| Non-protein calories/nitrogen ratio | 53 kcal/g | 53 kcal/g | 53 kcal/g | 53 kcal/g |
| Glucose/lipid calories ratio | 45/55 | 45/55 | 45/55 | 45/55 |
| Lipid/total calories | 37% | 37% | 37% | 37% |
| ***Electrolytes*** | | | | |
| Sodium | 22.8 mmol | 35.0 mmol | 52.5 mmol | 70.0 mmol |
| Potassium | 19.5 mmol | 30.0 mmol | 45.0 mmol | 60.0 mmol |
| Magnesium | 2.6 mmol | 4.0 mmol | 6.0 mmol | 8.0 mmol |
| Calcium | 2.3 mmol | 3.5 mmol | 5.3 mmol | 7.0 mmol |
| Chloride | 30 mmol | 45 mmol | 68 mmol | 90 mmol |
| Phosphate(2) | 9.5 mmol | 15.0 mmol | 21.9 mmol | 29.2 mmol |
| Acetate | 46 mmol | 70 mmol | 105 mmol | 140 mmol |
| pH approx.. | 6.4 | 6.4 | 6.4 | 6.4 |
| Osmolarity approx.. | 1270 mosm/L | 1270 mosm/L | 1270 mosm/L | 1270 mosm/L |

(1) Include calories from egg lecithin (purified egg phosphatide)

(2) Includes phosphate from lipid emulsion