AMINOSYN® II with ELECTROLYTES

in Dextrose Injection with Calcium

AN AMINO ACID INJECTION WITH ELECTROLYTES IN DEXTROSE INJECTION WITH CALCIUM

NOTE: These solutions are hypertonic. See WARNINGS and PRECAUTIONS.

Nutrimix® Dual-chamber Flexible Container

The Upper Chamber Contains 500 mL of Aminosyn II with Electrolytes (An Amino Acid Injection with Electrolytes)

The Lower Chamber Contains 500 mL of Dextrose Injection with Calcium

R_x only

DESCRIPTION

Upper Chamber: Contains 500 mL of Aminosyn II with Electrolytes (an amino acid injection with electrolytes) — a sterile, nonpyrogenic solution for intravenous infusion. Formulations are described below.

Lower Chamber: Contains 500 mL of Dextrose Injection with 5 mEq Calcium — a sterile, nonpyrogenic, hypertonic solution of Dextrose, USP in water for injection with added Calcium Chloride, USP dihydrate. The table below indicates the characteristics of this concentrated solution.

The container must be used only after removing the clamp and thoroughly mixing the contents of the two chambers. Mixing the contents of the upper and lower chambers yields a concentrated source of amino acids and carbohydrate calories for intravenous infusion. Headspace contains Nitrogen gas. The composition of this admixture is described in the table below.

SOLUTION COMPOSITION BEFORE ADMIXTURE

UPPER CHAMBER COMPOSITION (500 mL)

Essential Amino Acids (mg/100 mL)

Aminosyn II	7% w/ Electrolytes	8.5% w/ Electrolytes
Isoleucine	462	561
Leucine	700	850
Lysine (acetate)*	735	893
Methionine	120	146
Phenylalanine	209	253
Threonine	280	340
Tryptophan	140	170
Valine	350	425

*Amount cited is for lysine alone and does not include the acetate salt.

Nonessential Amino Acids (mg/100 mL)

Aminosyn II	7% w/ Electrolytes	8.5% w/ Electrolytes
Alanine	695	844
Arginine	713	865
L-Aspartic Acid	490	595
L-Glutamic Acid	517	627
Glycine	350	425
Histidine	210	255
Proline	505	614
Serine	371	450
N-Acetyl-L-Tyrosine	189	230

Electrolytes (mEq/L) [a]

Aminosyn II	7% w/ Electrolytes	8.5% w/ Electrolytes
Sodium[b] (Na^+)	80	84
Potassium (K^+)	66	66
Chloride (Cl^-)	86	86
Magnesium (Mg^{++})	10	10
Phosphorus (P)	30 mM	30 mM
Acetate [c] ($C_2H_3O_2^-$)	50.3	61.1
Sodium Hydrosulfite ($Na_2S_2O_4$) added (mg/100 mL)	60	60
Other Characteristics		
Osmolarity (actual mOsmol/L)	806	896
pH [d]	5.8	5.8
range	5.0 — 6.5	5.0 — 6.5

[a] Electrolyte concentrations cited in mEq/L must be divided by two in order to derive the amounts present in the 500 mL upper chamber.

[b] Includes sodium from the pH adjustor, sodium hydroxide, and from the antioxidant, sodium hydrosulfite.

[c] From lysine acetate.

[d] pH adjusted with sodium hydroxide.

LOWER CHAMBER COMPOSITION (500 mL)

Dextrose Injection w/Added Calcium	D50-W w/Ca^{++}	D40-W w/Ca^{++}
Dextrose, hydrous (g/100 mL)	50	40
Energy (kcal/100 mL)	170	136
Osmolarity (actual mOsmol/L)	1916	1720
pH	4.2	4.2
(range)	3.5 — 6.5	3.5 — 6.5
Electrolytes (in mEq/L)*		
Calcium (Ca^{++})	10	10
Chloride (Cl^-)	10	10

* The electrolyte concentrations cited in mEq/L must be divided by two in order to derive the amounts present in the 500 mL lower chamber.

COMBINED ADMIXTURE COMPOSITION (1000 mL)

Essential Amino Acids (mg/100 mL)

Aminosyn II	3.5% w/E in D25-W w/Ca^{++}	4.25% w/E in D20-W w/Ca^{++}	4.25% w/E in D25-W w/Ca^{++}
Isoleucine	231	280	280
Leucine	350	425	425
Lysine (acetate)*	368	446	446
Methionine	60	73	73
Phenylalanine	104	126	126
Threonine	140	170	170
Tryptophan	70	85	85
Valine	175	212	212

*Amount cited is for lysine alone and does not include the acetate salt.

Nonessential Amino Acids (mg/100 mL)

Aminosyn II	3.5% w/E in D25-W w/Ca^{++}	4.25% w/E in D20-W w/Ca^{++}	4.25% w/E in D25-W w/Ca^{++}
Alanine	348	422	422
Arginine	356	432	432
L-Aspartic Acid	245	298	298
L-Glutamic Acid	258	314	314
Glycine	175	212	212
Histidine	105	128	128
Proline	252	307	307
Serine	186	225	225
N-Acetyl-L-Tyrosine	94	115	115

Electrolytes (mEq/L)

Aminosyn II	3.5% w/E in D25-W w/Ca^{++}	4.25% w/E in D20-W w/Ca^{++}	4.25% w/E in D25-W w/Ca^{++}
Sodium [a] (Na^+)	40	42	42
Potassium (K^+)	33	33	33
Chloride (Cl^-)	48	48	48
Magnesium (Mg^{++})	5	5	5
Calcium (Ca^{++})	5	5	5
Phosphorus (P)	15mM	15 mM	15 mM
Acetate[b] ($C_2H_3O_2^-$)	25.2	30.6	30.6
Sodium Hydrosulfite ($Na_2S_2O_4$) added (mg/100 mL)	30	30	30
Other Characteristics			
Dextrose, hydrous (g/100 mL)	25	20	25
Osmolarity (actual mOsmol/L)	1556	1353	1563
pH[c]	5.8	5.8	5.8
(range)	5.0 — 6.5	5.0 — 6.5	5.0 — 6.5
Total Amino Acids (g/L)	35	42.5	42.5
Protein Equivalent (g/L)	35	42.5	42.5
Total Nitrogen (g/L)	5.35	6.5	6.5

[a] Includes sodium from the pH adjustor, sodium hydroxide, and from the antioxidant, sodium hydrosulfite.
[b] From lysine acetate.
[c] pH adjusted with sodium hydroxide.

The electrolyte content (in mg/100 mL) of each admixed formulation (not including ions for pH adjustment) is listed as follows:

Aminosyn II 3.5% with Electrolytes in 25% Dextrose Injection with Calcium
Aminosyn II 4.25% with Electrolytes in 20% Dextrose Injection with Calcium
Aminosyn II 4.25% with Electrolytes in 25% Dextrose Injection with Calcium

Sodium chloride, 205 mg; potassium chloride, 22.4 mg; calcium chloride, dihydrate, 36.8 mg; magnesium chloride, hexahydrate, 51 mg; potassium phosphate, dibasic, 261 mg; and sodium hydrosulfite added, 30 mg.

Sodium Chloride, USP is chemically designated NaCl, a white, crystalline powder freely soluble in water.

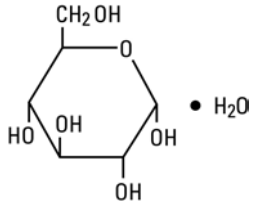
Potassium Chloride, USP is chemically designated KCl, a white granular powder freely soluble in water.

Calcium Chloride, USP (dihydrate) is chemically designated $CaCl_2 \cdot 2H_2O$, deliquescent, white granules freely soluble in water.

Magnesium Chloride, USP (hexahydrate) is chemically designated $MgCl_2 \cdot 6H_2O$, deliquescent crystals very soluble in water.

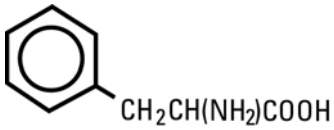
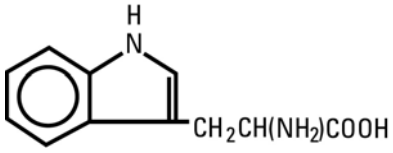
Dibasic Potassium Phosphate, USP (anhydrous) is chemically designated K_2HPO_4, white granules very soluble in water.

Dextrose, USP is chemically designated D-glucose, monohydrate ($C_6H_{12}O_6 \cdot H_2O$), a hexose sugar freely soluble in water.

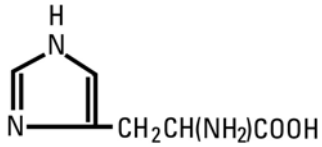
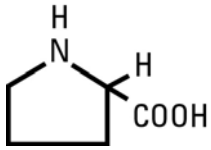
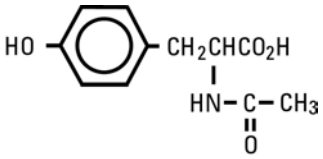


The formulas for the individual amino acids are as follows:

Essential Amino Acids

Isoleucine	$CH_3CH_2CH(CH_3)CH(NH_2)COOH$
Leucine	$(CH_3)_2CHCH_2CH(NH_2)COOH$
Lysine Acetate	$H_2N(CH_2)_4CH(NH_2)COOH \cdot CH_3COOH$
Methionine	$CH_3S(CH_2)_2CH(NH_2)COOH$
Phenylalanine	
Threonine	$CH_3CH(OH)CH(NH_2)COOH$
Tryptophan	
Valine	$(CH_3)_2CHCH(NH_2)COOH$

Nonessential Amino Acids

Alanine	$CH_3CH(NH_2)COOH$
Arginine	$H_2NC(NH)NH(CH_2)_3CH(NH_2)COOH$
L-Aspartic Acid	$HOOCCH_2CH(NH_2)COOH$
L-Glutamic Acid	$HOOC(CH_2)_2CH(NH_2)COOH$
Glycine	H_2NCH_2COOH
Histidine	
Proline	
Serine	$HOCH_2CH(NH_2)COOH$
N-Acetyl-L-Tyrosine	

The flexible plastic container is fabricated from a specially formulated nonplasticized thermoplastic co-polyester (CR3). Water can permeate from inside the container into the overwrap but not in amounts sufficient to affect the solution significantly. Solutions in contact with the container ports can leach out certain of their chemical components in very small amounts within the expiration period, e.g., di-2-ethylhexyl phthalate (DEHP), up to 5 parts per million. However, the safety of the plastic has been confirmed in tests in animals according to USP biological tests for plastic containers as well as by tissue culture toxicity studies.

CLINICAL PHARMACOLOGY

Aminosyn II with Electrolytes in Dextrose Injection with Calcium, obtained upon mixing thoroughly the contents of the two chambers, provides carbohydrate calories and crystalline amino acids to stimulate protein synthesis, to limit protein catabolism, to minimize liver glycogen depletion and to promote wound healing. The infusion of this admixture through a central venous line should be considered to meet the protein and calorie requirements for patients receiving prolonged total parenteral nutrition. I.V. lipids may be infused simultaneously to provide adequate calories, if desired.

INDICATIONS AND USAGE

Aminosyn II with Electrolytes in Dextrose Injection with Calcium is indicated for central vein infusion in the prevention of nitrogen loss and negative nitrogen balance in cases where (a) the gastrointestinal tract by the oral, gastrostomy or jejunostomy route cannot or should not be used,

(b) gastrointestinal absorption of nutrients is impaired or (c) metabolic requirements for protein and calories are substantially increased as with extensive burns and (d) morbidity and mortality may be reduced by replacing amino acids lost from tissue breakdown, thereby preserving tissue reserves, as in acute renal failure. In such patients intravenous feeding for more than a few days would be expected.

The addition of supplemental trace metal additives and multivitamin additives will be in accordance with the prescription of the attending physician.

CONTRAINDICATIONS

This preparation should not be used in patients with hepatic coma or metabolic disorders involving impaired nitrogen utilization. These solutions are too concentrated for use in infants.

WARNINGS

Solutions of Aminosyn II in dextrose with a final concentration of 20% or 25% are hypertonic and may not be administered by peripheral vein.

Concentrated dextrose solutions, if administered too rapidly, may result in significant hyperglycemia and possible hyperosmolar syndrome, characterized by mental confusion and loss of consciousness.

Intravenous infusion of amino acids may induce a rise in blood urea nitrogen (BUN), especially in patients with impaired hepatic or renal function. Appropriate laboratory tests should be performed periodically and infusion discontinued if BUN levels exceed normal postprandial limits and continue to rise. It should be noted that a modest rise in BUN normally occurs as a result of increased protein intake.

Administration of amino acid solutions to a patient with hepatic insufficiency may result in serum amino acid imbalances, metabolic alkalosis, prerenal azotemia, hyperammonemia, stupor and coma.

Administration of amino acid solutions in the presence of impaired renal function may augment an increasing BUN, as does any protein dietary component.

Solutions containing sodium ion should be used with great care, if at all, in patients with congestive heart failure, severe renal insufficiency and in clinical states in which there exists edema with sodium retention.

Solutions containing potassium ions should be used with great care, if at all, in patients with hyperkalemia, severe renal failure and in conditions in which potassium retention is present.

Solutions containing acetate ion should be used with great care in patients with metabolic or respiratory alkalosis. Acetate should be administered with great care in those conditions in which there is an increased level or an impaired utilization of this ion, such as severe hepatic insufficiency.

Aminosyn with Electrolytes in Dextrose Injection with Calcium contains sodium hydrosulfite, a sulfite that may cause allergic-type reactions including anaphylactic symptoms and life-threatening or less severe asthmatic episodes in certain susceptible people. The overall prevalence of sulfite sensitivity in the general population is unknown and probably low. Sulfite sensitivity is seen more frequently in asthmatic than in nonasthmatic people.

Admixtures of Aminosyn II with Electrolytes in Dextrose Injection with an amino acid concentration greater than 2.5% are too concentrated for administration to infants.

Instances of asymptomatic hyperammonemia have been reported in patients without overt liver dysfunction. The mechanisms of this reaction are not clearly defined, but may involve genetic defects and immature or subclinically impaired liver function.

WARNING: This product contains aluminum that may be toxic. Aluminum may reach toxic levels with prolonged parenteral administration if kidney function is impaired. Premature neonates

are particularly at risk because their kidneys are immature, and they require large amounts of calcium and phosphate solutions, which contain aluminum.

Research indicates that patients with impaired kidney function, including premature neonates, who receive parenteral levels of aluminum at greater than 4 to 5 mcg/kg/day accumulate aluminum at levels associated with central nervous system and bone toxicity. Tissue loading may occur at even lower rates of administration.

PRECAUTIONS

Special care must be taken when administering glucose to diabetic or prediabetic patients. To control and minimize hyperglycemia and consequent glycosuria, it is desirable to monitor blood and urine glucose and, if necessary, add insulin.

Because of its antianabolic activity, concurrent administration of tetracycline may reduce the nitrogen sparing effects of infused amino acids.

Intravenously administered amino acids should be used with caution in patients with history of renal disease, pulmonary disease, or with cardiac insufficiency so as to avoid excessive fluid accumulation.

Nitrogen intake should be carefully monitored in patients with impaired renal function.

Aminosyn II with Electrolytes in 20% or 25% Dextrose Injection with Calcium are indicated for long-term total parenteral nutrition and whenever it is essential to provide, together with amino acids, adequate amounts of exogenous calories. Concentrated dextrose is an effective source of such calories. Such strongly hypertonic nutrient solutions should be administered only through an indwelling catheter with the tip located in a large vein: i.e., the superior vena cava.

SPECIAL PRECAUTIONS FOR CENTRAL INFUSIONS

ADMINISTRATION BY CENTRAL VENOUS CATHETER SHOULD BE USED ONLY BY THOSE FAMILIAR WITH THIS TECHNIQUE AND ITS COMPLICATIONS.

Central vein infusion of nutrient solutions requires a knowledge of nutrition as well as clinical expertise in recognition and treatment of complications. Attention must be given to solution preparation, administration and patient monitoring. IT IS ESSENTIAL THAT A CAREFULLY PREPARED PROTOCOL BASED ON CURRENT MEDICAL PRACTICES BE FOLLOWED, PREFERABLY BY AN EXPERIENCED TEAM.

SUMMARY HIGHLIGHTS OF COMPLICATIONS
(See also Current Medical Literature).

1. Technical:

The placement of a central venous catheter should be regarded as a surgical procedure. One should be fully acquainted with various techniques of catheter insertion. For details of technique and placement sites, consult the medical literature. X-ray is the best means of verifying catheter placement. Complications known to occur from the placement of central venous catheters are pneumothorax, hemothorax, hydrothorax, artery puncture and transection, injury to the brachial plexus, malposition of the catheter, formation of arteriovenous fistula, phlebitis, thrombosis and air and catheter emboli.

2. Septic:

The constant risk of sepsis is present during administration of total parenteral nutrition. It is imperative that the preparation of the solution and the placement and care of catheters be accomplished under strict aseptic conditions.

Solutions should be used promptly after mixing. Storage should be under refrigeration and limited to a brief period of time, preferably less than 24 hours.

Administration time for a single container and set should never exceed 24 hours.

3. Metabolic:

The following metabolic complications have been reported: metabolic acidosis and alkalosis, hypophosphatemia, hypocalcemia, osteoporosis, hyperglycemia, hyperosmolar nonketotic states and dehydration, glycosuria, rebound hypoglycemia, osmotic diuresis and dehydration, elevated liver enzymes, hypo- and hypervitaminosis, electrolyte imbalances and hyperammonemia in children. Frequent evaluations are necessary especially during the first few days of therapy to prevent or minimize these complications.

Administration of glucose at a rate exceeding the patient's utilization rate may lead to hyperglycemia, coma and death.

Pregnancy Category C. Animal reproduction studies have not been conducted with Aminosyn II with Electrolytes in Dextrose Injection with Calcium. It is not known whether this admixture can cause fetal harm when administered to a pregnant woman or can affect reproductive capacity. Aminosyn II with Electrolytes in Dextrose Injection with Calcium should be given to pregnant women only if clearly needed. Not for use in infants. See CONTRAINDICATIONS and DOSAGE AND ADMINISTRATION.

Geriatric Use

Clinical studies of Aminosyn II with Electrolytes in Dextrose Injection with Calcium have not been performed to determine whether patients over 65 years respond differently from younger subjects. Other reported clinical experience has not identified differences in responses between elderly and younger patients. In general, dose selection for elderly patients should be cautious, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy. This drug is known to be substantially excreted by the kidney, and the risk of toxic reactions to this drug may be greater in patients with impaired renal function. Because elderly patients are more likely to have decreased renal function, care should be taken in dose selection, and it may be useful to monitor renal functions.

CLINICAL EVALUATION AND LABORATORY DETERMINATIONS, AT THE DISCRETION OF THE ATTENDING PHYSICIAN, ARE NECESSARY FOR PROPER MONITORING DURING ADMINISTRATION. Do not withdraw venous blood for blood chemistries through the infusion site, as interference with estimations of nitrogen-containing substances may occur. Blood studies should include glucose, urea nitrogen, serum electrolytes, ammonia, triglycerides, acid-base balance, serum proteins, kidney and liver function tests, osmolarity and hemogram. White blood count and blood cultures are to be determined if indicated. Urinary osmolality and glucose should be determined as necessary.

Do not use unless the solutions are clear and container is undamaged. Discard unused portion.

This product contains no more than 25 mcg/L aluminum.

ADVERSE REACTIONS

Hyperosmolar syndrome, resulting from excessively rapid administration of concentrated dextrose may cause mental confusion and/or loss of consciousness.

Reactions which may occur because of the solution or the technique of administration include febrile response, infection at the site of injection, venous thrombosis or phlebitis extending from the site of injection, extravasation and hypervolemia.

Generalized flushing, fever and nausea also have been reported during peripheral infusions of amino acid solutions. Also see WARNINGS and PRECAUTIONS.

If an adverse reaction does occur, discontinue the infusion, evaluate the patient, institute appropriate therapeutic countermeasures and save the remainder of the fluid for examination if deemed necessary.

OVERDOSAGE

In the event of overhydration or solute overload, re-evaluate the patient and institute appropriate corrective measures. See WARNINGS and PRECAUTIONS.

DOSAGE AND ADMINISTRATION

The total daily dose of Aminosyn II with Electrolytes in Dextrose Injection with Calcium to be infused depends on daily protein and caloric requirements and on the patient's metabolic and clinical response. In many patients, provision of adequate calories in the form of hypertonic dextrose may require the administration of exogenous insulin to prevent hyperglycemia and glycosuria. To prevent rebound hypoglycemia, a solution containing 5% dextrose should be administered when hypertonic dextrose infusions are abruptly discontinued.

As with all intravenous fluid therapy, the parenteral administration of a solution of amino acids and dextrose requires an accurate estimate of the total fluid and electrolytes needed to compensate for the patient's measurable urinary and other (i.e., nasogastric suction, fistula drainage, diarrhea) daily losses. After estimating the total daily fluid (water) requirements, the appropriate volume to be infused to meet the daily protein requirement of the patient can be determined. The daily determination of nitrogen balance and accurate body weights, corrected for fluid balance, are probably the best means of assessing individual protein requirements. The balance of fluid needed beyond the volume of the amino acid/dextrose solution can be provided by other solutions suitable for intravenous infusion. I.V. lipid emulsions may also be infused to deliver additional calories if required. Lipid emulsion can be administered to provide up to 3 g fat/kg/day, infused simultaneously with Aminosyn II with Electrolytes in Dextrose Injection with Calcium by means of a Y-connector located near the infusion site, using separate flow controls for each solution. Vitamins and trace minerals may be added to the amino acid/dextrose solution as needed.

Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration, whenever solution and container permit.

Adult Patients

The daily nutrient requirements of an average adult patient, not hypermetabolic, in an acceptable weight range and with restricted physical activity, are about 30 kcal/kg of body weight, 12 to 18 grams of nitrogen (or 1.0 to 1.5 g amino acids/kg/day) and between 2500 and 3000 mL of fluids. In depleted and severely traumatized patients such as burned patients or patients who have received major surgery with complications, the requirements for nutrients and fluids may be significantly higher. In such cases, 4000 calories and 25 grams of nitrogen or more may be required daily to achieve nitrogen balance. The fluid losses through drainages and wound surface must be taken into account in calculating the fluid requirements of these patients.

Fat emulsion administration should be considered when prolonged parenteral nutrition is required in order to prevent essential fatty acid deficiency (EFAD). Serum lipids should be monitored for evidence of EFAD in patients maintained on fat-free TPN.

The infusion rate for central vein admixtures of Aminosyn II with Electrolytes in Dextrose Injection with Calcium should be 2 mL/min initially and may be gradually increased to deliver the required amounts of amino acids and calories. If nutrient administration falls behind schedule, under no circumstances should an attempt to ''catch up'' to planned intake be made. The rate of nutrient infusion is governed by the protein requirements and by the patient's glucose tolerance estimated by glucose levels in plasma and urine. The maximum rate at which dextrose can be infused without producing glycosuria is 0.5 g/kg/hour; at a rate of 0.8 g/kg/hour, about 95% of the

infused dextrose is retained. Administration of exogenous insulin may be required in order to control hyperglycemia and glycosuria which may occur upon infusion of concentrated glucose solutions. When concentrated dextrose infusion is abruptly interrupted rebound hypoglycemia may occur, which can be prevented by the administration of 5% or 10% dextrose solutions. Part of the caloric requirements may be met by the infusion of I.V. fat emulsions.

SERUM ELECTROLYTES SHOULD BE MONITORED AS INDICATED. Electrolytes should be added to the nutrient solution as indicated by the patient's clinical condition and laboratory determinations of plasma values. Major electrolytes are sodium, chloride, potassium, phosphate, magnesium and calcium. All of the aforementioned electrolytes are contained in the Aminosyn II with Electrolytes in Dextrose Injection with Calcium. Supplemental electrolyte additives may be used at the clinician's discretion.

Vitamins, including folic acid and vitamin K, are required additives. Vitamin K_1 (Phytonadione Injection, USP) is given intramuscularly or added to the solution as desired. The trace element supplements should be given when long-term parenteral nutrition is undertaken. Iron is added to the solution or given intramuscularly in depot form as indicated.

In patients with hyperchloremic or other metabolic acidosis, supplemental sodium and potassium may be added as the acetate or lactate salts to provide bicarbonate alternates.

In adults, hypertonic mixtures of amino acids and dextrose may be safely administered by continuous infusion through a central venous catheter with the tip located in the vena cava.

Pediatric Patients

Pediatric requirements for parenteral nutrition are constrained by the greater relative fluid requirements of the child and greater caloric requirements per kilogram. These solutions are too concentrated for use in infants, but older pediatric patients can tolerate amino acids in concentrations of up to 5%. Dosage is usually prescribed on a g/kg body weight/day basis and patient age as follows: ages 1 to 3 years, 2 to 2.5 g/kg/day; ages 4 to 12 years, 2 g/kg/day; ages 13 to 15 years, 1.7 g/kg/day; ages 16 and above, 1.5 g/kg/day. Energy requirements for children between 1 and 7 years of age are approximately 75 to 90 kcal/kg/day; for children 7 to 12 years of age, 60 to 75 kcal/kg/day; and for ages 12 to 18 years, 30 to 60 kcal/kg/day. Energy intake may be supplemented with intravenous fat emulsion. In cases of malnutrition or stress, these requirements may be increased.

Supplemental electrolytes and vitamin additives should be administered as deemed necessary by careful monitoring of blood chemistries and nutritional status. Iron supplementation is more critical in the child than the adult because of the increasing red cell mass required by the growing child. Serum lipids should be monitored for evidence of essential fatty acid deficiency in patients maintained on fat-free TPN. Bicarbonate should not be administered during infusion of the nutritional solution unless deemed absolutely necessary.

To ensure the precise delivery of the small volumes of fluid necessary for total parenteral nutrition in children, accurately calibrated and reliable infusion systems should be used.

Drug Interactions

Additives may be incompatible. Consult with pharmacist, if available. When introducing additives, use aseptic technique, mix thoroughly and do not store.

INSTRUCTIONS FOR USE

DO NOT USE IF AMINOSYN II IS DISCOLORED OR IF CLAMP IS OPEN OR MISSING. COLOR VARIATION IN THE DEXTROSE INJECTION FROM PALE YELLOW TO YELLOW IS NORMAL AND DOES NOT ALTER EFFICACY.

To Open:
Tear outer wrap at notch and remove solution container. After removing the overwrap, check for minute leaks by squeezing the container firmly. If leaks are found, discard solution, as sterility may be impaired. If supplemental medication is desired, follow directions below before preparing for administration.

To Add Medication:
(Use Aseptic Technique)
Additives may be incompatible. See DOSAGE AND ADMINISTRATION.
1. Open clamp between the two chambers. Completely drain all the solution and air into the lower chamber. To achieve this, stretch the side wall of the emptied top chamber.
2. Agitate container to assure adequate mixing.
3. Prepare lower chamber additive port.
4. Using aseptic technique, puncture the reseal additive port at target area through inner diaphragm with an 18, 19, or 20 gauge additive delivery needle of appropriate length. Inject additive medication.
5. Repeat as necessary. Mix container contents thoroughly after each additive.
6. After use, protect additive ports by covering with additive caps.

Preparation for Administration
(Use Aseptic Technique)
1. If you have not already done so in step 1 above, open clamp between the two chambers. Completely drain all the solution and air into the lower chamber. To achieve this, stretch the side wall of the emptied top chamber.
2. Close flow control clamp of administration set.
3. Remove cover from outlet port at bottom of container.
4. Insert piercing pin of administration set into port with a twisting motion until the set is firmly seated. NOTE: When using a vented administration set, replace bacterial retentive air filter with piercing pin cover. Insert piercing pin with twisting motion until shoulder of air filter housing rests against the outlet port flange.
5. If any admixed solution has refluxed to the upper chamber, squeeze upper chamber to deliver all solution to larger, lower chamber.
6. Suspend from hanger at top of container.
7. Squeeze and release drip chamber to establish proper fluid level in chamber.
8. Open flow control clamp to expel air from set. Close flow control clamp.
9. Connect to central or peripheral infusion catheter.
10. Regulate rate of administration with an electronic flow-control device.

WARNING: Do not use flexible container in series connections.

HOW SUPPLIED

The Nutrimix® dual-chamber flexible container provides 500 mL of Aminosyn II with Electrolytes in the upper chamber and 500 mL of Dextrose Injection with 5 mEq Calcium in the lower chamber. Concentrations provided in the separate chambers and in the combined 1000 mL volume after release of the clamp and mixing are shown below.

List No.	Concentrations Prior to Admixture Aminosyn II	Dextrose w/Ca^{++}	Concentrations Following Admixture Aminosyn II	Dextrose w/Ca^{++}	Total Admixture Volume
7756	7% with Electrolytes	50%	3.5% with Electrolytes	25%	1000 mL
7753	8.5% with Electrolytes	40%	4.25% with Electrolytes	20%	1000 mL
7757	8.5% with Electrolytes	50%	4.25% with Electrolytes	25%	1000 mL

Exposure of pharmaceutical products to heat should be minimized. Avoid excessive heat. Protect from freezing. Store at 20 to 25°C (68 to 77°F). [See USP Controlled Room Temperature.]

Avoid exposure to light.
To prevent breakage, handle cold or refrigerated (2°C to 8°C) co-polyester (CR3) containers with care.

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