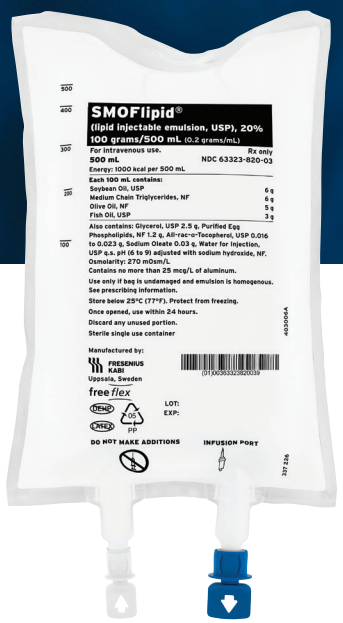
FRESENIUS KABI




# Admixture Stability Reference Guide

## Adults and Pediatrics

**The data presented within was obtained from the Medical Affairs Department at Fresenius Kabi USA.**

**How to use this guide:**

- Admixture tables are ordered from the lowest concentration of SMOFlipid® to the highest concentration and show the final concentrations of macronutrients of the tested admixtures.
- The admixture formulations with SMOFlipid and adult amino acid solutions were tested in the additives table and were found to be physically stable for the reported conditions. Only those formulations that were stable are included in this reference guide. Please contact Fresenius Kabi Medical Affairs Department for any unstable admixtures.
- Each formulation represents the minimum concentration required of each individual macronutrient to ensure stability. For example, for an admixture to be stable with a final concentration of SMOFlipid 0.9%, the final concentration of Travasol® must be at least 5.3% and the final concentration of dextrose must be at least 18.9%.
- SMOFlipid-containing parenteral nutrition (PN) admixtures with Travasol 10%, Clinisol® 15%, Plenamine™ 15%, ProSol® 20%, or TrophAmine® 10% have an 11-day stability (9 days refrigerated at 2°C to 8°C [36°F to 46°F] followed by 48 hours at room temperature from 20°C to 25°C [68°F to 77°F]). SMOFlipid-containing PN admixtures with Premasol® 10% have a 10-day stability (9 days refrigerated at 2°C to 8°C [36°F to 46°F] followed by 24 hours at room temperature from 20°C to 25°C [68°F to 77°F]). Multivitamins (Sandoz Inc.) were added after the 9-day refrigeration period prior to room temperature storage.
- Admixture stability with SMOFlipid was tested by visual inspection, pH, lipid globule size distribution, and mean lipid droplet diameter in compliance with USP ‹729› standards. No microbiological or chemical tests were conducted. Results are only valid for the branded products listed at the time of testing.
- Additions to the PN admixtures should be evaluated by a pharmacist for compatibility. If it is deemed advisable to introduce additives, use strict aseptic techniques to avoid microbial contamination.
- For detailed information on the data presented in this guide, please contact the Fresenius Kabi Medical Affairs Department at 1-800-551-7176 (option 4) or email nutrition.medinfo.usa@fresenius-kabi.com.

- **This guide is intended for US audiences only.**
- **Please SEE IMPORTANT SAFETY INFORMATION for SMOFlipid at the end of this guide.**
- **This guide is intended for admixture stability purposes only.**
- **Clinical decisions regarding additions are the responsibility of the relevant healthcare provider.**

**SMOFlipid®**
(lipid injectable emulsion),
for intravenous use

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Fresenius Kabi:
Bringing more **options**
to parenteral nutrition (PN)

# Adult Amino Acids

## Admixtures tested with **SMOFlipid** and **Travasol®** 10%: macronutrient final concentrations (%)

*11-day admixture stability (9 days refrigerated followed by 48 hours at room temperature)*

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SMOFlipid 20%[a]** | 0.9% | 1.1% | 1.2% | 1.3% | 1.4% | 1.4% | 1.5% | 2% | 2.2% | 2.2% | 2.6% | 3.4% | 4.1% | 5.7% |
| **Travasol 10%[b]** | 5.3% | 6% | 6.8% | 7.4% | 3.4% | 7.9% | 4.7% | 7.3% | 2.1% | 5.1% | 5.7% | 5.8% | 2.9% | 4% |
| **Dextrose 70%[c]** | 18.9% | 14.1% | 7.9% | 8.7% | 29.7% | 9.3% | 30% | 9.8% | 8% | 14.7% | 10.3% | 6.9% | 24.7% | 11.3% |

[a] SMOFlipid 20% tested at 14-50 g (0.9%-5.7% final ILE concentration in admixtures above).
[b] Travasol 10% tested at 21-86 g (2.1%-7.9% final amino acid concentration in admixtures above).
[c] Dextrose 70% tested at 80-305 g (6.9%-30% final dextrose concentration in admixtures above).

## Admixtures tested with **SMOFlipid** and **Clinisol®** 15%: macronutrient final concentrations (%)

*11-day admixture stability (9 days refrigerated followed by 48 hours at room temperature)*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SMOFlipid 20%[a]** | 0.6% | 0.7% | 0.8% | 1.2% | 1.3% | 1.4% | 1.4% | 1.5% | 1.6% | 1.7% | 1.7% | 2.1% |
| **Clinisol 15%[b]** | 9.5% | 8.8% | 3.2% | 6.7% | 6.4% | 1.1% | 7.7% | 8.5% | 9.1% | 1.3% | 4% | 4.9% |
| **Dextrose 70%[c]** | 13.5% | 15.7% | 7% | 23.8% | 25.5% | 10% | 18.2% | 10% | 10.7% | 10% | 34.2% | 28.1% |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SMOFlipid 20%[a]** | 2.4% | 2.7% | 3% | 3.3% | 3.4% | 3.8% | 4.4% | 4.5% | 4.6% | 5.3% | 5.5% | 5.5% | 6.7% |
| **Clinisol 15%[b]** | 7.9% | 6.4% | 2.6% | 7.3% | 5.8% | 6.5% | 7.5% | 6.7% | 3.3% | 5% | 6.5% | 3.8% | 4.7% |
| **Dextrose 70%[c]** | 10% | 18.3% | 8.5% | 13.2% | 20.5% | 15.4% | 8.8% | 12.7% | 27.8% | 17.6% | 9.3% | 21.9% | 13.4% |

[a] SMOFlipid 20% tested at 6.4-90 g (0.6%-6.7% final ILE concentration in admixtures 1-25 above).
[b] Clinisol 15% tested at 11.2-150 g (1.1%-9.5% final amino acid concentration in admixtures 1-25 above).
[c] Dextrose 70% tested at 56-300 g (7%-34.2% final dextrose concentration in admixtures 1-25 above).

## Admixtures tested with **SMOFlipid**, **Plenamine™** 15%, and **ProSol®** 20%: macronutrient final concentrations (%)

*11-day admixture stability (9 days refrigerated followed by 48 hours at room temperature)*

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SMOFlipid 20%[a]** | 1.2% | 1.4% | 1.6% | 1.6% | 1.7% | 2.1% | 2.7% | 3.3% | 3.4% | 3.8% | 4.4% | 4.6% | 5.5% | 6.7% |
| **Plenamine 15%[b]** | 6.7% | 7.7% | 9.1% | 9.2% | 4% | 4.9% | 6.4% | 7.3% | 5.8% | 6.5% | 7.5% | 3.3% | 3.8% | 4.7% |
| **ProSol 20%[c]** | 6.7% | 7.7% | 9.1% | 9.2% | 4% | 4.9% | 6.4% | 7.3% | 5.8% | 6.5% | 7.5% | 3.3% | 3.8% | 4.7% |
| **Dextrose 70%[d]** | 23.8% | 18.2% | 10.7% | 10.8% | 34.2% | 28.1% | 18.3% | 13.2% | 20.5% | 15.4% | 8.8% | 27.8% | 21.9% | 13.4% |

[a] SMOFlipid 20% tested at 15-50 g (1.2%-6.7% final ILE concentration in admixtures above).
[b] Plenamine 15% tested at 35-85 g (3.3%-9.2% final amino acid concentration in admixtures above).
[c] ProSol 20% tested at 35-85 g (3.3%-9.2% final amino acid concentration in admixtures above).
[d] Dextrose 70% tested at 100-300 g (8.8%-34.2% final dextrose concentration in admixtures above).



**Per the SMOFlipid Prescribing Information: Infuse admixtures containing SMOFlipid immediately. Infusion must be complete within 24 hours after removal from refrigeration. Discard any remaining admixture.**

## Electrolytes and additives in SMOFlipid-containing PN admixtures with Travasol 10% and Clinisol 15%

| Travasol 10% Electrolytes and Additives | Travasol 10% Range | Clinisol 15% Electrolytes[d] and Additives | Clinisol 15% Range |
|---|---|---|---|
| **Sodium**[a] | 0-167 mEq/L | **Sodium** | 0-151 mEq/L |
| **Potassium acetate** | 0-150 mEq/L | **Potassium** | 0-150 mEq/L |
| **Calcium gluconate**[b] | 0-10 mEq/L | **Calcium** | 0-10 mEq/L |
| **Magnesium sulfate** | 0-16 mEq/L | **Magnesium** | 0-16 mEq/L |
| **(Inorganic) Phosphate** | 0-15 mmol/L | **(Inorganic) Phosphate**[e] | 0-15 mmol/L |
| **INFUVITE® ADULT** (Vial 1 and Vial 2) (Sandoz Inc.) | 10 mL | **INFUVITE ADULT** (Vial 1 and Vial 2) (Sandoz Inc.) | 10 mL |
| **Tralement®**[c] (Trace Elements) (American Regent, Inc.) | 1 mL | **Tralement**[c] (Trace Elements) (American Regent, Inc.) | 1 mL |

[a] The total sodium content includes sodium chloride and sodium phosphates.
[b] Maximum divalent cations (calcium and magnesium) tested 26 mEq/L.
[c] Tralement: Each 1 mL contains zinc (3 mg), copper (0.3 mg), manganese (55 mcg), and selenium (60 mcg).
[d] The electrolyte salts were sodium chloride, potassium acetate, calcium gluconate, magnesium sulfate, and sodium phosphates. Maximum divalent cations (calcium and magnesium) tested 26 mEq/L.
[e] The same limits are valid when additions of organic phosphate, sodium glycerophospate (Glycophos®) are used.

Any significant change in pH from additives not listed compared to what has been evaluated in this study may affect compatibility.

## Electrolytes and additives in SMOFlipid-containing PN admixtures with Plenamine 15% and ProSol 20%

| Plenamine 15% Electrolytes and Additives | Plenamine 15% Maximum Amount Tested | ProSol 20% Electrolytes and Additives | ProSol 20% Maximum Amount Tested |
|---|---|---|---|
| **Sodium**[a] | 151 mEq/L | **Sodium**[a] | 151 mEq/L |
| **Potassium acetate** | 151 mEq/L | **Potassium acetate** | 150 mEq/L |
| **Calcium gluconate**[b] | 10 mEq/L | **Calcium gluconate**[b] | 10 mEq/L |
| **Magnesium sulfate** | 16 mEq/L | **Magnesium sulfate** | 16 mEq/L |
| **(Inorganic) Phosphate** | 15 mmol/L | **(Inorganic) Phosphate** | 15 mmol/L |
| **INFUVITE ADULT** (Vial 1 and Vial 2) (Sandoz Inc.) | 10 mL | **INFUVITE ADULT** (Vial 1 and Vial 2) (Sandoz Inc.) | 10 mL |
| **Tralement**[c] (Trace Elements) (American Regent, Inc.) | 1 mL | **Tralement**[c] (Trace Elements) (American Regent, Inc.) | 1 mL |

[a] The total sodium content includes sodium chloride and sodium phosphates.
[b] Maximum divalent cations (calcium and magnesium) tested 26 mEq/L.
[c] Tralement: Each 1 mL contains zinc (3 mg), copper (0.3 mg), manganese (55 mcg), and selenium (60 mcg).

Any significant change in pH from additives not listed compared to what has been evaluated in this study may affect compatibility.

INFUVITE ADULT is manufactured by Sandoz Inc. and distributed by Baxter Healthcare Corporation.

INFUVITE is a registered trademark of Sandoz Canada Inc. Tralement is a registered trademark of American Regent, Inc.

**Per the SMOFlipid Prescribing Information: Infuse admixtures containing SMOFlipid immediately. Infusion must be complete within 24 hours after removal from refrigeration. Discard any remaining admixture.**

**SMOFlipid®**
(lipid injectable emulsion),
for intravenous use

Fresenius Kabi:
Bringing more **choices**
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# Pediatric Amino Acids

## Admixtures tested with **SMOFlipid** and **TrophAmine®** 10%: macronutrient final concentrations (%)

*11-day admixture stability (9 days refrigerated followed by 48 hours at room temperature)*

| Admixtures[a] | | | |
|---|---|---|---|
| **SMOFlipid 20%** | 2.1% | 3.2% | 3.6% |
| **TrophAmine 10%** | 2.9% | 4.3% | 4.8% |
| **Dextrose 70%** | 17.2% | 21.6% | 10.3% |
| **Volume (mL)** | 280 | 280 | 250 |
| **Micronutrients** | | | |
| **Sodium chloride (mEq/kg/day)** | 5 | 2 | 2 |
| **Potassium acetate (mEq/kg/day)** | 4 | 2 | 2 |
| **Calcium gluconate (mEq/kg/day)** | 8 | 2 | 2 |
| **Magnesium sulfate (mEq/kg/day)** | 0.5 | 0.3 | 0.3 |
| **Sodium phosphate (mmol/kg/day)** | 2 | 1 | 1 |
| **INFUVITE® PEDIATRIC (mL/day)** (Sandoz Inc.) | 3.25 | 3.25 | 3.25 |
| **Selenium (selenious acid) (mcg/kg/day)** (American Regent, Inc.) | 2 | 2 | 2 |
| **Zinc sulfate (mcg/kg/day)** (American Regent, Inc.) | 400 | 250 | 250 |
| **Copper (cupric chloride) (mcg/kg/day)** (Hospira) | 20 | 20 | 20 |
| **Chromium (chromic chloride) (mcg/kg/day)** (Hospira) | 0.3 | 0.2 | 0.2 |
| **Manganese sulfate (mcg/kg/day)** (American Regent, Inc.) | 1 | 1 | 1 |
| **Cysteine hydrochloride[b] (mg/kg/day)** (Exela® Pharma Sciences) | 160 | 0 | 0 |

[a] SMOFlipid admixture 2.1% concentration was based on a 2-kg infant; SMOFlipid admixtures 3.2% and 3.6% concentrations were based on a 3-kg infant.
[b] Cysteine was only added to SMOFlipid admixture 2.1% concentration; only evaluated in admixture based on a 2-kg infant.

Any significant change in pH from additives not listed compared to what has been evaluated in this study may affect compatibility.

INFUVITE PEDIATRIC is manufactured by Sandoz Inc. and distributed by Baxter Healthcare Corporation.

TrophAmine is a registered trademark of B. Braun Medical Inc.

## Admixtures tested with SMOFlipid and Premasol® 10%: macronutrient final concentrations (%)

*10-day admixture stability (9 days refrigerated followed by 24 hours at room temperature)*

| Admixtures[a] | | | |
|---|---|---|---|
| **SMOFlipid 20%** | 2.3% | 3% | 3.2% |
| **Premasol 10%** | 3% | 3% | 4.3% |
| **Dextrose 70%** | 10.9% | 25% | 21.6% |
| **Volume (mL)** | 200 | 360 | 280 |
| **Micronutrients** | | | |
| **Sodium chloride 23.4% (mEq/kg/day)** | 2 | 5 | 2 |
| **Potassium acetate (mEq/kg/day)** | 2 | 4 | 2 |
| **Calcium gluconate 10% (mEq/kg/day)** | 2 | 4 | 2 |
| **Magnesium sulfate 50% (mEq/kg/day)** | 0.3 | 0.5 | 0.3 |
| **Sodium phosphate (mmol/kg/day)** | 1 | 2 | 1 |
| **INFUVITE PEDiatric (mL/day)** (Vial 1 and Vial 2) (Sandoz Inc.) | 3.25 | 5 | 3.25 |
| **Multitrace-4® Neonatal[b] (Trace Elements) (mL/day)** (American Regent, Inc.) | 0.3 | 0.4 | 0.6 |

[a] SMOFlipid admixture 2.3% concentration was based on a 1.5-kg infant; SMOFlipid admixture 3% concentration was based on a 3.6-kg infant; SMOFlipid admixture 3.2% concentration was based on a 3-kg infant.

[b] Neonatal Multitrace: Each 1 mL contains zinc (1.5 mg), copper (0.1 mg), manganese (25 mcg), and chromium (0.85 mcg).

Any significant change in pH from additives not listed compared to what has been evaluated in this study may affect compatibility.

INFUVITE PEDIATRIC is manufactured by Sandoz Inc. and distributed by Baxter Healthcare Corporation.

Premasol is a registered trademark of Baxter International Inc.

**Per the SMOFlipid Prescribing Information: Infuse admixtures containing SMOFlipid immediately. Infusion must be complete within 24 hours after removal from refrigeration. Discard any remaining admixture.**

## INDICATIONS AND USAGE

SMOFlipid is indicated in adult and pediatric patients, including term and preterm neonates, as a source of calories and essential fatty acids for parenteral nutrition (PN) when oral or enteral nutrition is not possible, insufficient, or contraindicated.

## IMPORTANT SAFETY INFORMATION

For intravenous infusion only into a central or peripheral vein. Use a non-vented non-DEHP 1.2 micron in-line filter set during administration. Recommended dosage depends on age, energy expenditure, clinical status, body weight, tolerance, ability to metabolize and eliminate lipids, and consideration of additional energy given to the patient. The recommended dose for adults and pediatrics is shown in Table 1. For information on age-appropriate infusion rate, see the full prescribing information. SMOFlipid Pharmacy Bulk Package is only indicated for use in pharmacy admixture programs for the preparation of three-in-one or total nutrition admixtures. Protect the admixed PN solution from light.

**Table 1: Recommended Adult and Pediatric Dosage**

| Age | Nutritional Requirements | |
|---|---|---|
| | Initial Recommended Dosage | Maximum Dosage |
| Birth to 2 years of age (including preterm and term neonates) | 0.5 to 1 g/kg/day | 3 g/kg/day |
| Pediatric patients 2 to < 12 years of age | 1 to 2 g/kg/day | 3 g/kg/day |
| Pediatric patients 12 to 17 years of age | 1 g/kg/day | 2.5 g/kg/day |
| Adults | 1 to 2 g/kg/day | 2.5 g/kg/day |

SMOFlipid is contraindicated in patients with known hypersensitivity to fish, egg, soybean, peanut, or any of the active or inactive ingredients, and severe disorders of lipid metabolism characterized by hypertriglyceridemia (serum triglycerides > 1,000 mg/dL).

Clinical Decompensation with Rapid Infusion of Intravenous Lipid Emulsion in Neonates and Infants: Acute respiratory distress, metabolic acidosis, and death after rapid infusion of intravenous lipid emulsions have been reported.

Parenteral Nutrition-Associated Liver Disease: Increased risk in patients who received parenteral nutrition for greater than 2 weeks, especially preterm neonates. Monitor liver tests; if abnormalities occur, consider discontinuation or dosage reduction.

Hypersensitivity Reactions: Monitor for signs or symptoms. Discontinue infusion if reactions occur.

Risk of Infections, Fat Overload Syndrome, Refeeding Syndrome, Hypertriglyceridemia, and Essential Fatty Acid Deficiency: Monitor for signs and symptoms; monitor laboratory parameters.

Aluminum Toxicity: Increased risk in patients with renal impairment, including preterm neonates.

Most common adverse drug reactions (≥ 5%) from clinical trials in adults were nausea, vomiting, and hyperglycemia. Most common adverse drug reactions (≥ 5%) from clinical trials in pediatric patients were anemia, vomiting, increased gamma-glutamyltransferase, and nosocomial infection.

**To report SUSPECTED ADVERSE REACTIONS, contact Fresenius Kabi USA, LLC at 1-800-551-7176, option 5, or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.**

**This Important Safety Information does not include all the information needed to use SMOFlipid safely and effectively. Please see Full Prescribing Information for SMOFlipid (lipid injectable emulsion), for intravenous use at www.FreseniusKabiNutrition.com/SMOFlipidPI.**

# Notes

**If you have any questions, please contact the Medical Affairs Department at 1-800-551-7176 (option 4) or email**

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