DEXTROSE, USP VS GLUCOSE: PART 2

Baxter: Hurricane Helene Recovery Resource

Baxter Medical Affairs

November 2024

TEMPORARY IMPORTATION: GLUCOSE

Glucose injection products have been authorized for temporary importation into the US due to supply challenges stemming from Hurricane Helene.

Glucose and Dextrose are both manufactured with glucose as the source ingredient.

The **active component is chemically identical**, however it is measured differently:

Note: As glucose is approved for temporary importation, AB and/or AP ratings are not available

- In the US/Canada, Dextrose is measured and labeled as the hydrated form of glucose (D-glucose monohydrate)
- In Europe, the glucose product measured and labeled as the anhydrous form of glucose (D-glucose)

Therefore -

- **Compatibility and stability are expected to be the same**[1]
- **Concentrations are not interchangeable**
- From a **caloric standpoint (energy content), glucose and dextrose are not directly interchangeable**

1. Applying Stability Data in Compounding Parenteral Nutrition in: Extended Stability for Parenteral Drugs

Why?

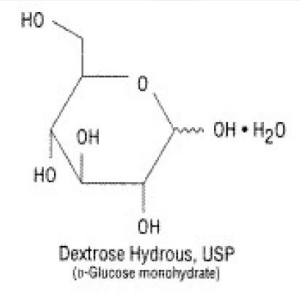
DEXTROSE, USP
DEXTROSE = D-GLUCOSE MONOHYDRATE

In the US and Canada, labeling is expressed in percent Dextrose, USP.

It is measured as a hydrous form of dextrose.

- Dextrose is coupled with a water molecule.

Chemically it is classified as “D-glucose monohydrate” ($C_6H_{12}O_6 \cdot H_2O$)

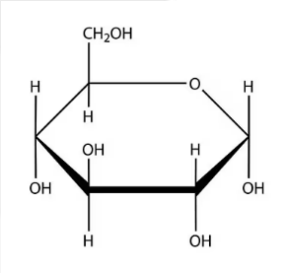


GLUCOSE, PhEUR
GLUCOSE = D-GLUCOSE

In Europe, labeling is expressed in percent of glucose.

It is measured as the anhydrous form of glucose.

- No water molecule; only glucose (D-glucose)



Thus,

- Glucose has a **HIGHER osmolarity** content per gram than Dextrose, USP
- Glucose has a **HIGHER energy** content per gram than Dextrose, USP.

COMPARATIVE CONCENTRATIONS

- Glucose injection products have been authorized for temporary import into the US due to supply challenges stemming from Hurricane Helene.

- Key Point: Glucose 50% and Dextrose 50% are both manufactured with glucose as source ingredient. Therefore, active component is chemically identical.

- Key Point: Measured and labeled differently
  - Glucose 50% based on D-glucose anhydrous
  - Dextrose 50% based on D-glucose hydrous

- Key Point: The concentrations of dextrose and glucose are not 1:1 interchangeable

To compare the concentrations:

Glucose 50% ≠ Dextrose 50%

Glucose 50% = Dextrose 55%

Glucose 70% ≠ Dextrose 70%

Glucose 70% = Dextrose 77%

HOW DOES THIS IMPACT COMPOUNDING?

Glucose and Dextrose are chemically identical therefore compatibility and stability are expected to be the same.

Per the ASHP Applying Stability Data in Compounding Parenteral Nutrition in: Extended Stability for Parenteral Drugs

- Drugs that are generically and chemically identical are expected to have the same results as those studied.
- Prediction of similar stability for a concentration falling within the range of studied concentrations is reasonable.
- When several concentrations of an ingredient are studied with similar stability results, it is reasonable to expect the stability to be the same for concentrations falling within the ones tested.

Key Point: Admixture studies are based on final concentration of Dextrose, therefore the same clinical resources to assess stability and compatibility may be used when applying the principles of Dextrose.

STABILITY AND COMPATIBILITY

- In the US, compatibility and stability, including calcium-phosphate, are expressed in the dextrose form of measurement (final admixture concentration)
  - *Remember that Glucose 50% is equivalent to Dextrose 55%*
  - *Remember that Glucose 70% is equivalent to Dextrose 77%*

- Therefore, the same clinical resources to assess stability and compatibility may be used – however:
  - Remember to utilize the dextrose form of measurement
  - Ensure evaluating correct dextrose concentration

BACKGROUND ON ENERGY CONTENT
FACTS AND HOW TO DERIVE THE VALUES

- **Glucose provides 3.75 kcal/gram**

(Ref: Merrill AL, Watt BK. Energy value of foods- basis and derivation. Human Nutrition Research Branch Agricultural Research Service US Department of Agriculture. Agriculture Handbook No 74. 1973)

- Glucose makes up ~90.9% of weight of d-glucose monohydrate (dextrose)

- Therefore, d-glucose monohydrate (dextrose) = 3.4 kcal/g (i.e., 3.75 kcal/g x 0.909)

Dextrose (d-glucose monohydrate)	Glucose*
3.4 kcal/g	3.75 kcal/g

*Note: Label on Glucose 50% indicates 500 g = 2000 kcal (approx. 4 kcal/g). This is based on the Atwater convention. However, most precise value is 3.75 kcal/g.

EXAMPLE 1 (NEONATAL PATIENT)

VIGNETTE #1

Neonatal patient (3 kg) with a DIR of 12 mg/kg/min

If using Dextrose 70% for compounding (or any concentration of dextrose):

Step 1: Determine how many grams of dextrose needed

12 mg/kg/min = 51.84 grams (52 g) of dextrose/day

Step 2: Calculate the amount of calories provided by dextrose

51.84 g/dextrose/day x 3.4 kcal/g = 176.3 kcal

To provide the equivalent amount of calories from glucose 50% (or any concentration of glucose)…

Step 1: Determine the grams of glucose to provide equivalent # of calories

176.3 kcal ÷ 3.75 kcal/g = 47.01 (47 g) grams of glucose/day

This means that to provide equivalent calories, you need EITHER 52 grams dextrose or 47 grams glucose (which are equivalent)

VIGNETTE #1 (CONTINUED)

Neonatal patient (3 kg) with a DIR of 12 mg/kg/min

What does this mean for PN compounding?

- Can not do a 1:1 conversion of grams of dextrose to grams of glucose
- However, remember glucose 50% is equivalent to dextrose 55%
- To do a 1:1 conversion, think of glucose 50% as dextrose 55% and think in grams of dextrose

☑ Check your math!

- Compare Glucose 50% to Dextrose 55% to confirm the two are equivalent

Compare the volume (mL) needed to compound PN

Dextrose 70%	Glucose 50%	*Compare to Dextrose 55%
51.84 g/dextrose = 74.1 mL	47.01 g/glucose = 94 mL	51.84 g/dextrose = 94 mL

G50% = D55%

D-glucose monohydrate (Dextrose)

06-Nov-24 General Hospital 9:13 PM

Acct : TESTB

TEST, BABY

Location: /

Order Volume: 200 mL

Patient Bag Number: 5

Order No: 100286

Compound Volume: 250 mL

AA Neo 10%	3.2 gram	Calcium	1 mEq/Kg
Dextrose	52 gram	Magnesium	1 mEq/Kg
L-Cysteine(40mg/gm	128 mg	Phosphate	1 mMol/Kg
Sodium	1 mEq/Kg	Acetate	1 mEq/Kg
Potassium	1 mEq/Kg	Chloride	0.58 mEq/Kg

** Approximate Electrolyte Totals **

Sodium	15 mEq/L	Phosphate	15 mMol/L
Potassium	15 mEq/L	Acetate	15.04 mEq/L
Calcium	15 mEq/L	Chloride	8.64 mEq/L
Magnesium	15 mEq/L	Aluminum	0 mcg/L

Nitrogen	0.5 gram	Protein	12.8 KCal
Non-Protein	176.8 KCal	Carbohydrates	176.8 KCal
Total	189.6 KCal	Lipid	0 KCal

Total KCals / Nitrogen	382.26
Protein KCals / Nitrogen	25.81
Non-Protein KCals / Nitrogen	356.45
Protein KCals / Non-Protein KCals	0.07
Lipid KCals / Total KCals	0
Osmolarity Concentration	1,541 mOsm/L

*** CENTRAL LINE ONLY ***

Administer: 11/06/2024 15:00 Discard After: 11/07/2024 15:00

Flow Rate: 200 mL at 8.33 mL/hr for 24 hours

Bag Hung At:_____ By:_____RN

Serial Number: 100286

D-glucose (Glucose)

06-Nov-24 General Hospital 9:30 PM

Acct : 000123

DOE, BABY JOHN

Location: NICU/3

Order Volume: 200 mL

Patient Bag Number: 15

Order No: 100287

Compound Volume: 250 mL

AA Neo 10%	3.2 gram	Calcium	1 mEq/Kg
Glucose	47 gram	Magnesium	1 mEq/Kg
L-Cysteine(40mg/gm	128 mg	Phosphate	1 mMol/Kg
Sodium	1 mEq/Kg	Acetate	1 mEq/Kg
Potassium	1 mEq/Kg	Chloride	0.58 mEq/Kg

** Approximate Electrolyte Totals **

Sodium	15 mEq/L	Phosphate	15 mMol/L
Potassium	15 mEq/L	Acetate	15.04 mEq/L
Calcium	15 mEq/L	Chloride	8.64 mEq/L
Magnesium	15 mEq/L	Aluminum	0 mcg/L

Nitrogen	0.5 gram	Protein	12.8 KCal
Non-Protein	176.25 KCal	Carbohydrates	176.25 KCal
Total	189.05 KCal	Lipid	0 KCal

Total KCals / Nitrogen	381.15
Protein KCals / Nitrogen	25.81
Non-Protein KCals / Nitrogen	355.34
Protein KCals / Non-Protein KCals	0.07
Lipid KCals / Total KCals	0
Osmolarity Concentration	1,533 mOsm/L

*** CENTRAL LINE ONLY ***

Administer: 11/06/2024 15:00 Discard After: 11/07/2024 15:00

Flow Rate: 200 mL at 8.33 mL/hr for 24 hours

Bag Hung At:_____ By:_____RN

Serial Number: 100287

Note: slight differences reflect rounding

Nutrition Summary

Ingredient	Volume-ml	Cal-KCal	Prot-gm	Carbo-gm	Lipid-gm	NPCal-KCal	Nitrogen-gm	Protein-KCal
PremaSol 10%	32	12.8	3.2				0.5	12.8
Dextrose 55%	94.55	176.8		52		176.8		
Requested volume	200							
Overfill	50							
Total in bag	200	189.6	3.2	52		176.8	0.5	12.8
Total per dl		94.8	1.6	26		88.4	0.25	6.4
Total per liter		948	16	260		884	2.48	64
Total per day		189.6	3.2	52		176.8	0.5	12.8
Total per kg		63.2	1.07	17.33		58.93	0.17	4.27
NpCal/g-N	356.45 KCal/g							
Dextrose rate	12.04 mg/kg/min							

Nutrition Summary

Ingredient	Volume-ml	Cal-KCal	Prot-gm	Carbo-gm	Lipid-gm	NPCal-KCal	Nitrogen-gm	Protein-KCal
PremaSol 10%	32	12.8	3.2				0.5	12.8
Glucose 50%	94	176.25		47		176.25		
Requested volume	200							
Overfill	50							
Total in bag	200	189.05	3.2	47		176.25	0.5	12.8
Total per dl		94.52	1.6	23.5		88.12	0.25	6.4
Total per liter		945.25	16	235		881.25	2.48	64
Total per day		189.05	3.2	47		176.25	0.5	12.8
Total per kg		63.02	1.07	15.67		58.75	0.17	4.27
NpCal/g-N	355.34 KCal/g							
Glucose rate	10.88 mg/kg/min							

Note: slight differences reflect rounding

ASSESSING COMPATIBILITY: CALCIUM PHOS CURVES

D-glucose (Glucose)

06-Nov-24 General Hospital 9:30 PM

Acct : 000123

DOE, BABY JOHN

Patient Bag Number: 15

Location: NICU/3 Order No: 100287

Order Volume: 200 mL Compound Volume: 250 mL

AA Neo 10%	3.2 gram	Calcium	1 mEq/Kg
Glucose	47 gram	Magnesium	1 mEq/Kg
L-Cysteine(40mg/gm [illegible]		Phosphate	1 mMol/Kg
Sodium	1 mEq/Kg	Acetate	1 mEq/Kg
Potassium	1 mEq/Kg	Chloride	0.58 mEq/Kg

** Approximate Electrolyte Totals **

Sodium	15 mEq/L	Phosphate	15 mMol/L
Potassium	15 mEq/L	Acetate	15.04 mEq/L
Calcium	15 mEq/L	Chloride	8.64 mEq/L
Magnesium	15 mEq/L	Aluminum	0 mcg/L

Nitrogen	0.5 gram	Protein	12.8 KCal
Non-Protein	176.25 KCal	Carbohydrates	176.25 KCal
Total	189.05 KCal	Lipid	0 KCal

Total KCals / Nitrogen	381.15
Protein KCals / Nitrogen	25.81
Non-Protein KCals / Nitrogen	355.34
Protein KCals / Non-Protein KCals	0.07
Lipid KCals / Total KCals	0
Osmolarity Concentration	1,533 mOsm/L

*** CENTRAL LINE ONLY ***

Administer: 11/06/2024 15:00 Discard After: 11/07/2024 15:00

Flow Rate: 200 mL at 8.33 mL/hr for 24 hours

Bag Hung At:_____ By:_____RN

Serial Number: 100287

D-glucose monohydrate (Dextrose)

06[illegible]ov-24 General Hospital 9:13 PM

Acct: TESTB

[illegible] BABY

Patient Bag Number: 5

Location: / Order No: 100286

Order Volume: 200 mL Compound Volume: 250 mL

AA Neo 10%	3.2 gram	Calcium	1 mEq/Kg
Dextrose	52 gram	Magnesium	1 mEq/Kg
L-Cysteine(40mg/gm [illegible]		Phosphate	1 mMol/Kg
Sodium	1 mEq/Kg	Acetate	1 mEq/Kg
Potassium	1 mEq/Kg	Chloride	0.58 mEq/Kg

** Approximate Electrolyte Totals **

Sodium	15 mEq/L	Phosphate	15 mMol/L
Potassium	15 mEq/L	Acetate	15.04 mEq/L
Calcium	15 mEq/L	Chloride	8.64 mEq/L
Magnesium	15 mEq/L	Aluminum	0 mcg/L

Nitrogen	0.5 gram	Protein	12.8 KCal
Non-Protein	176.8 KCal	Carbohydrates	176.8 KCal
Total	189.6 KCal	Lipid	0 KCal

Total KCals / Nitrogen	382.26
Protein KCals / Nitrogen	25.81
Non-Protein KCals / Nitrogen	356.45
Protein KCals / Non-Protein KCals	0.07
Lipid KCals / Total KCals	0
Osmolarity Concentration	1,541 mOsm/L

*** CENTRAL LINE ONLY ***

Administer: 11/06/2024 15:00 Discard After: 11/07/2024 15:00

Flow Rate: 200 mL at 8.33 mL/hr for 24 hours

Bag Hung At:_____ By:_____RN

Serial Number: 100286

Assess using compatibility curves for dextrose

How?

Step 1: calculate dextrose %

- 52 g/200 mL = 26%

Step 2: calculate AA %

- 3.2 g/200 mL = 1.6%

Step 3:

- Assess compatibility using Ca-Phos curve for appropriate dextrose and amino acid concentrations

EXAMPLE 2 (ADULT PATIENT)

VIGNETTE #2

Adult patient (70 kg); Desired Dextrose: 500 g

If using Dextrose 70% for compounding (or any concentration of dextrose):

Step 1: Determine how many grams of dextrose needed

500 g

Step 2: Calculate the amount of calories provided by dextrose

500 g/dextrose/day x 3.4 kcal/g = 1700 kcal/day

To provide the equivalent amount of calories from glucose 50% (or any concentration of glucose)…

Step 1: Determine the grams of glucose to provide equivalent # of calories

1700 kcal/day ÷ 3.75 kcal/g = 453.33 g/glucose/day

This means that to provide equivalent calories, you need EITHER 500 grams dextrose or 453.33 grams glucose (which are equivalent)

VIGNETTE #2 (CONTINUED)

Adult patient (70 kg); Desired Dextrose: 500 g

What does this mean for compounding PN?

- Can not do a 1:1 conversion of grams of dextrose to grams of glucose
- However, remember glucose 50% is equivalent to dextrose 55%
- To do a 1:1 conversion, think of glucose 50% as dextrose 55% and think in grams of dextrose

☑ Check your math!

- Compare Glucose 50% to Dextrose 55% to confirm the two are equivalent

Compare the volume (mL) needed to compound

Dextrose 70%	Glucose 50%	*Compare to Dextrose 55%
500 g/dextrose = 714.3 mL	453.33 g/glucose = 907 mL	500 g/dextrose = 909 mL

G50% = D55%

D-glucose monohydrate (Dextrose)

06-Nov-24 General Hospital 9:04 PM

Acct : D55ADULT

D55, ADULT

Patient Bag Number: 4
Location: /
Order No: 100289
Order Volume: 2,000 mL
Compound Volume: 2,050 mL

AA Adult 10%	100 gram	Phosphate	15 mMol/L
Dextrose	500 gram	Acetate	68 mEq/L
Sodium	35 mEq/L	Chloride	39 mEq/L
Potassium	30 mEq/L	Adult Vitamins	10 mL
Calcium	4.5 mEq/L	M.T.E.-5 Conc	1 mL
Magnesium	5 mEq/L		

** Approximate Electrolyte Totals **

Sodium	35 mEq/L	Phosphate	15 mMol/L
Potassium	30 mEq/L	Acetate	68 mEq/L
Calcium	4.5 mEq/L	Chloride	39 mEq/L
Magnesium	5 mEq/L	Aluminum	0 mcg/L

Nitrogen	16.5 gram	Protein	400 KCal
Non-Protein	1,700 KCal	Carbohydrates	1,700 KCal
Total	2,100 KCal	Lipid	0 KCal

Total KCals / Nitrogen	127.27
Protein KCals / Nitrogen	24.24
Non-Protein KCals / Nitrogen	103.03
Protein KCals / Non-Protein KCals	0.24
Lipid KCals / Total KCals	0
Osmolarity Concentration	1,895 mOsm/L

*** CENTRAL LINE ONLY ***

Administer: 11/06/2024 16:00 Discard After: 11/07/2024 16:00

Flow Rate: 2,000 mL at 83.33 mL/hr for 24 hours

Bag Hung At:_____ By:_____RN

Serial Number: 100289

D-glucose (Glucose)

06-Nov-24 General Hospital 9:31 PM

Acct : G50ADULT

G50, ADULT

Patient Bag Number: 4
Location: /
Order No: 100288
Order Volume: 2,000 mL
Compound Volume: 2,050 mL

AA Adult 10%	100 gram	Phosphate	15 mMol/L
Glucose	453.33 gram	Acetate	68 mEq/L
Sodium	35 mEq/L	Chloride	39 mEq/L
Potassium	30 mEq/L	Adult Vitamins	10 mL
Calcium	4.5 mEq/L	M.T.E.-5 Conc	1 mL
Magnesium	5 mEq/L		

** Approximate Electrolyte Totals **

Sodium	35 mEq/L	Phosphate	15 mMol/L
Potassium	30 mEq/L	Acetate	68 mEq/L
Calcium	4.5 mEq/L	Chloride	39 mEq/L
Magnesium	5 mEq/L	Aluminum	0 mcg/L

Nitrogen	16.5 gram	Protein	400 KCal
Non-Protein	1,699.99 KCal	Carbohydrates	1,699.99 KCal
Total	2,099.99 KCal	Lipid	0 KCal

Total KCals / Nitrogen	127.27
Protein KCals / Nitrogen	24.24
Non-Protein KCals / Nitrogen	103.03
Protein KCals / Non-Protein KCals	0.24
Lipid KCals / Total KCals	0
Osmolarity Concentration	1,892 mOsm/L

*** CENTRAL LINE ONLY ***

Administer: 11/06/2024 16:00 Discard After: 11/07/2024 16:00

Flow Rate: 2,000 mL at 83.33 mL/hr for 24 hours

Ordered in Grams

Bag Hung At:_____ By:_____RN

Serial Number: 100288

Note: slight differences reflect rounding

Nutrition Summary

Ingredient	Volume-ml	Cal-KCal	Prot-gm	Carbo-gm	Lipid-gm	NPCal-KCal	Nitrogen-gm	Protein-KCal
Travasol 10%	1000	400	100				16.5	400
Dextrose 55%	909.09	1700		500		1700		
Requested volume	2000							
Overfill	50							
Total in bag	2000	2100	100	500		1700	16.5	400
Total per dl		105	5	25		85	0.82	20
Total per liter		1050	50	250		850	8.25	200
Total per day		2100	100	500		1700	16.5	400
Total per kg		30	1.43	7.14		24.29	0.24	5.71
NpCal/g-N	103.03 KCal/g							
Dextrose rate	4.96 mg/kg/min							

Nutrition Summary

Ingredient	Volume-ml	Cal-KCal	Prot-gm	Carbo-gm	Lipid-gm	NPCal-KCal	Nitrogen-gm	Protein-KCal
Travasol 10%	1000	400	100				16.5	400
Glucose 50%	906.66	1699.99		453.33		1699.99		
Requested volume	2000							
Overfill	50							
Total in bag	2000	2099.99	100	453.33		1699.99	16.5	400
Total per dl		105	5	22.67		85	0.82	20
Total per liter		1049.99	50	226.66		849.99	8.25	200
Total per day		2099.99	100	453.33		1699.99	16.5	400
Total per kg		30	1.43	6.48		24.29	0.24	5.71
NpCal/g-N	103.03 KCal/g							
Glucose rate	4.5 mg/kg/min							

Note: slight differences reflect rounding

ASSESSING COMPATIBILITY: CALCIUM PHOS CURVES

D-glucose (Glucose)

06-Nov-24 General Hospital 9:31 PM
Acct : G50ADULT

G50, ADULT
Location: /
Order Volume: **2,000 mL**
Patient Bag Number: **4**
Order No: **100288**
Compound Volume: **2,050 mL**

AA Adult 10%	100 gram	Phosphate	15 mMol/L
Glucose	453.33 gram	Acetate	68 mEq/L
Sodium	35 mEq/L	Chloride	39 mEq/L
Potassium	30 mEq/L	Adult Vitamins	10 mL
Calcium	4.5 mEq/L	M.T.E.-5 Conc	1 mL
Magnesium	5 mEq/L		

** Approximate Electrolyte Totals **

Sodium	35 mEq/L	Phosphate	15 mMol/L
Potassium	30 mEq/L	Acetate	68 mEq/L
Calcium	4.5 mEq/L	Chloride	39 mEq/L
Magnesium	5 mEq/L	Aluminum	0 mcg/L

Nitrogen	16.5 gram	Protein	400 KCal
Non-Protein	1,699.99 KCal	Carbohydrates	1,699.99 KCal
Total	2,099.99 KCal	Lipid	0 KCal

Total KCals / Nitrogen	127.27
Protein KCals / Nitrogen	24.24
Non-Protein KCals / Nitrogen	103.03
Protein KCals / Non-Protein KCals	0.24
Lipid KCals / Total KCals	0
Osmolarity Concentration	1,892 mOsm/L

*** CENTRAL LINE ONLY ***

Administer: **11/06/2024 16:00** Discard After: **11/07/2024 16:00**
Flow Rate: 2,000 mL at 83.33 mL/hr for 24 hours
Ordered in Grams

Bag Hung At:_____ **By:**_____**RN**

Serial Number: 100288

D-glucose monohydrate (Dextrose)

6-Nov-24 General Hospital 9:04 PM
Acct : D55ADULT

ADULT
Location: /
Order Volume: **2,000 mL**
Patient Bag Number: **4**
Order No: **100289**
Compound Volume: **2,050 mL**

AA Adult 10%	100 gram	Phosphate	15 mMol/L
Dextrose	500 gram	Acetate	68 mEq/L
Sodium	35 mEq/L	Chloride	39 mEq/L
Potassium	30 mEq/L	Adult Vitamins	10 mL
Calcium	4.5 mEq/L	M.T.E.-5 Conc	1 mL
Magnesium	5 mEq/L		

** Approximate Electrolyte Totals **

Sodium	35 mEq/L	Phosphate	15 mMol/L
Potassium	30 mEq/L	Acetate	68 mEq/L
Calcium	4.5 mEq/L	Chloride	39 mEq/L
Magnesium	5 mEq/L	Aluminum	0 mcg/L

Nitrogen	16.5 gram	Protein	400 KCal
Non-Protein	1,700 KCal	Carbohydrates	1,700 KCal
Total	2,100 KCal	Lipid	0 KCal

Total KCals / Nitrogen	127.27
Protein KCals / Nitrogen	24.24
Non-Protein KCals / Nitrogen	103.03
Protein KCals / Non-Protein KCals	0.24
Lipid KCals / Total KCals	0
Osmolarity Concentration	1,895 mOsm/L

*** CENTRAL LINE ONLY ***

Administer: **11/06/2024 16:00** Discard After: **11/07/2024 16:00**
Flow Rate: 2,000 mL at 83.33 mL/hr for 24 hours

Bag Hung At:_____ **By:**_____**RN**

Serial Number: 100289

Assess using compatibility curves for dextrose

How?

Step 1: calculate dextrose %

- 500 g/2000 mL = 25%

Step 2: calculate AA %

- 100 g/2000 mL = 5%

Step 3:

- Assess compatibility using Ca-Phos curve for appropriate dextrose and amino acid concentrations

SUMMARY OF KEY POINTS

Glucose injection products have been authorized for temporary import into the US due to supply challenges stemming from Hurricane Helene.

Glucose 50% is equivalent to Dextrose 55%

Glucose 70% is equivalent to Dextrose 77%

The **active component is chemically identical**, however, it is measured differently

- In the US/Canada, Dextrose is measured and labeled as the hydrated form of glucose (D-glucose monohydrate)
- In Europe, the glucose product is measured and labeled as the anhydrous form of glucose (D-glucose)

Compatibility and stability are expected to be the same[1]

1. Applying Stability Data in Compounding Parenteral Nutrition in: Extended Stability for Parenteral Drugs

From a **caloric standpoint (energy content)**, glucose and dextrose are not directly interchangeable

DEXTROSE, USP VS GLUCOSE: PART 2

Baxter: Hurricane Helene Recovery Resource

Baxter Medical Affairs

November 2024