

**ADULT INFUVITE MULTIPLE VITAMINS FOR INFUSION- asorbic acid, vitamin a palmitate, cholecalciferol, thiamine hydrochloride, riboflavin 5-phosphate sodium, pyridoxine hydrochloride, niacinamide, dexpanthenol, alpha-tocopherol acetate, vitamin k1, folic acid, biotin, cyanocobalamin injection, solution**  
**Sandoz Canada Inc**

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**INFUVITE® ADULT**  
**Multiple Vitamins for Infusion**

**For intravenous infusion after dilution only.**

**Description**

**INFUVITE ADULT** is a sterile product consisting of two 5 mL single-dose vials labeled Vial 1 and Vial 2.

**Each 5 mL of Vial 1 contains:**

Ascorbic acid (Vitamin C) ..... 200 mg  
Vitamin A\* (as palmitate) ..... 3,300 IU  
Vitamin D<sub>3</sub>\* (cholecalciferol) ..... 200 IU  
Thiamine (Vitamin B<sub>1</sub>)  
(as the hydrochloride) ..... 6 mg  
Riboflavin (Vitamin B<sub>2</sub>)  
(as riboflavin 5-phosphate sodium)..... 3.6 mg  
Pyridoxine HCl (Vitamin B<sub>6</sub>) ..... 6 mg  
Niacinamide ..... 40 mg  
Dexpanthenol  
(as d-pantothenyl alcohol)..... 15 mg  
Vitamin E\* (*dl*- $\alpha$ -tocopheryl acetate).....10 IU  
Vitamin K<sub>1</sub>\* ..... 150 mcg

Inactive ingredients: 1.4% polysorbate 80, sodium hydroxide and/or hydrochloric acid for pH adjustment, and water for injection.

\*Polysorbate 80 is used to water solubilize the oil-soluble vitamins A, D, E, and K.

**Each 5 mL of Vial 2 contains:**

Folic acid..... 600 mcg  
Biotin..... 60 mcg  
Vitamin B<sub>12</sub> (cyanocobalamin)..... 5 mcg

Inactive ingredients: 30% propylene glycol, citric acid and/or sodium citrate for pH adjustment, and water for injection.

**“Aqueous” multiple vitamin preparation for intravenous infusion:**

**INFUVITE ADULT**(Multiple Vitamins for Infusion) makes available a combination of important oil-soluble and water-soluble vitamins in an aqueous solution, formulated for incorporation into intravenous solutions. The liposoluble vitamins A, D, E, and K have been solubilized in an aqueous medium with polysorbate 80, permitting intravenous administration of these vitamins.

Contains no more than 70 mcg/L of aluminum (combined Vials 1 and 2).

## **Indications and Usage**

**INFUVITE ADULT** is indicated as a daily multivitamin maintenance supplement for adults and children aged 11 and older receiving parenteral nutrition.

**INFUVITE ADULT** is also indicated in other situations where administration by the intravenous route is required. Such situations include surgery, extensive burns, fractures and other trauma, severe infectious diseases, and comatose states, which may provoke a “stress” situation with profound alterations in the body’s metabolic demands and consequent tissue depletion of nutrients.

The physician should not await the development of clinical signs of vitamin deficiency before initiating vitamin therapy.

**INFUVITE ADULT** (administered in intravenous fluids under proper dilution) contributes intake of necessary vitamins toward maintaining the body’s normal resistance and repair processes.

Patients with multiple vitamin deficiencies or with markedly increased requirements may be given multiples of the daily dosage for two or more days, as indicated by the clinical status.

Some patients do not maintain adequate levels of certain vitamins when a multiple vitamin preparation, such as **INFUVITE ADULT**, in recommended amounts, is the sole source of vitamins. Blood levels of vitamins A, C, D, and folic acid may decline in patients receiving parenteral multivitamins as their sole source of vitamins for 4 to 6 months. Therefore, in patients for whom total parenteral nutrition will be continued for long periods of time blood vitamin concentrations should be monitored to ensure maintenance of adequate levels. If deficiencies appear to be developing, multiples of the formulation (1.5 to 3 times) may be needed for a period of time. When multiples of the formulation are used for more than a few weeks, vitamins A and D should be monitored occasionally to be certain that an excess accumulation of these vitamins is not occurring.

## **Contraindications**

**INFUVITE ADULT** is contraindicated where there is a preexisting hypervitaminosis, or a known hypersensitivity to any of the vitamins or excipients in the product.

Allergic reactions have been known to occur following intravenous administration of thiamine and vitamin K. The formulation is contraindicated prior to blood sampling for detection of megaloblastic anemia, as the folic acid and the cyanocobalamin in the vitamin solution can mask serum deficits.

## **Warnings**

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 solution, 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**

If this formulation is the only source of vitamins for long periods of time, blood concentration of each of the vitamins should be monitored, particularly vitamins A, C, D, and folic acid, to determine if deficiencies are occurring. If deficiencies are developing or when long-standing vitamin deficiencies

are present, it may be necessary to add therapeutic amounts of certain vitamins to supplement the maintenance vitamins provided in **INFUVITE ADULT**.

### **Drug – Drug/Solution Interactions :**

**Caution should be exercised when administering INFUVITE ADULT to patients on warfarin sodium-type anticoagulant therapy. In such patients, vitamin K may antagonize the hypoprothrombinemic response to anticoagulant drugs, such as warfarin and its congeners. Therefore, periodic monitoring of prothrombin/INR response is essential in determining the appropriate dosage of anticoagulant therapy.**

**INFUVITE ADULT** (Multiple Vitamins for Infusion) is not physically compatible with alkaline solutions or moderately alkaline drugs such as acetazolamide, chlorothiazide sodium, aminophylline or sodium bicarbonate. Tetracycline HCl and ampicillin may not be physically compatible with **INFUVITE ADULT**. Also, it has been reported that folic acid is unstable in the presence of calcium salts such as calcium gluconate. Direct addition to intravenous fat emulsions is not recommended. Consult appropriate references for listings of physical compatibility of solutions and drugs with the vitamin infusion. In such circumstances, admixture or Y-site administration with vitamin solutions should be avoided.

A number of interactions between vitamins and drugs have been reported which may affect the metabolism of either agent. The following are examples of these types of interactions.

Folic acid may lower the serum concentration of phenytoin resulting in increased seizure activity. Conversely, phenytoin may decrease serum folic acid concentrations and, therefore, should be avoided in pregnancy. Folic acid may decrease the patient's response to methotrexate therapy.

Pyridoxine may decrease the efficacy of levodopa by increasing its metabolism. Concomitant administration of hydralazine or isoniazid may increase pyridoxine requirements.

In patients with pernicious anemia, the hematologic response to vitamin B<sub>12</sub> therapy may be inhibited by concomitant administration of chloramphenicol.

Several vitamins have been reported to decrease the activity of certain antibiotics. Thiamine, riboflavin, pyridoxine, niacinamide, and ascorbic acid have been reported to decrease the antibiotic activity of erythromycin, kanamycin, streptomycin, doxycycline, and lincomycin. Bleomycin is inactivated *in vitro* by ascorbic acid and riboflavin.

Vitamin K may antagonize the hypoprothrombinemic effect of oral anticoagulants (*see bolded statement above*).

Consult appropriate references for additional specific vitamin-drug interactions.

Some of the vitamins in **INFUVITE ADULT** may react with vitamin K bisulfite or sodium bisulfite; if bisulfite solutions are necessary, patients should be monitored for vitamin A and thiamine deficiencies.

### **Drug-Laboratory Test Interactions :**

Ascorbic acid in the urine may cause false negative urine glucose determinations.

### **Carcinogenesis, Mutagenesis, and Impairment of Fertility:**

Carcinogenicity, mutagenicity, and fertility studies have not been performed with **INFUVITE ADULT**.

### **Pregnancy:**

Pregnancy Category C:

Animal reproduction studies have not been conducted with **INFUVITE ADULT** (Multiple Vitamins for Infusion).

**INFUVITE ADULT** should be given to a pregnant woman only if clearly needed. Pregnant women should follow the U.S. Recommended Daily Allowances for their condition, because their vitamin requirements may exceed those of nonpregnant women. The use of **INFUVITE ADULT** has not been studied in human pregnancy.

### **Nursing Mothers:**

Lactating women should follow the U.S. Recommended Daily Allowances for their condition, because their vitamin requirement may exceed those of nonlactating women. It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when **INFUVITE ADULT** is administered to a nursing mother.

### **Pediatric Use:**

Safety and effectiveness in children below the age of 11 years have not been established.

### **Adverse Reactions**

There have been rare reports of anaphylactic reactions following parenteral multivitamin administration. Rare reports of anaphylactoid reactions have also been reported following large intravenous doses of thiamine. However, the risk is negligible if thiamine is coadministered with other vitamins of the B group.

There have been rare reports of the following types of reactions:

Dermatologic – rash, erythema, pruritis

CNS – headache, dizziness, agitation, anxiety

Ophthalmic – diplopia

Allergic – urticaria, shortness of breath, wheezing and angioedema.

### **Overdosage**

The fat-soluble vitamins A, D, and E can accumulate to harmful levels. The possibility of hypervitaminosis A or D should be borne in mind. Clinical manifestations of hypervitaminosis A have been reported in patients with renal failure receiving 1.5 mg/day retinol. Therefore, vitamin A supplementation of renal failure patients should be undertaken with caution.

Water-soluble vitamins are readily excreted in the urine. Treatment of vitamin overdosage usually consists of withdrawal of the vitamin.

### **Dosage and Administration**

**INFUVITE ADULT** is ready for immediate use in adults and children aged 11 years and older when added to intravenous infusion fluids.

**INFUVITE ADULT** should not be given as a direct, undiluted intravenous injection as it may give rise to dizziness, faintness, and possible tissue irritation.

**For intravenous feeding, one daily dose of INFUVITE ADULT (5 mL of Vial 1 plus 5 mL of Vial 2) added directly to not less than 500 mL, and preferably 1,000 mL, of intravenous dextrose, saline or similar infusion solutions. Discard any unused portion.**

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

After **INFUVITE ADULT** is diluted in an intravenous infusion, the resulting solution should be refrigerated unless it is to be used immediately. The solution should be used within 24 hours after

dilution. Some of the vitamins in this product, particularly A, D, and riboflavin, are light sensitive, therefore, exposure to light should be minimized.

### How Supplied

**INFUVITE ADULT** – NDC 54643-5649-1, is available in boxes containing 10 vials - 5 each of Vial 1 (5 mL) and Vial 2 (5 mL), one Vial 1 plus one Vial 2 to be used for a single dose.

**Store under refrigeration, 2-8°C (36-46°F).**

### Rx only

Manufactured by

**Sandoz Canada Inc.**

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Distributed by

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### Infuvite Adult Carton

2A9018 NDC 54643-5649-1

Baxter

INFUVITE ADULT Multiple Vitamins for Infusion

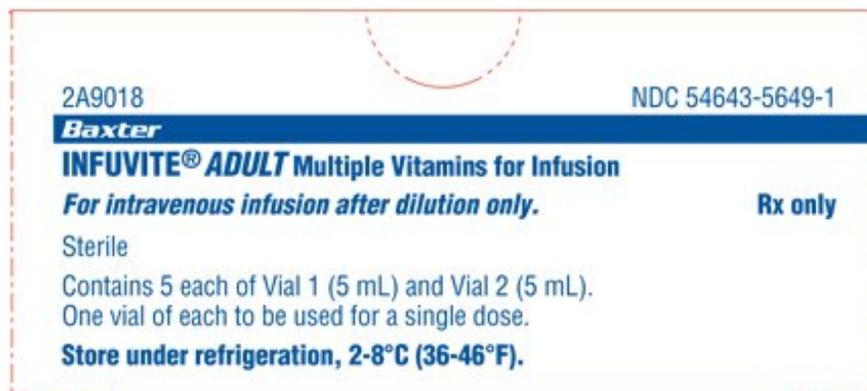
For intravenous infusion after dilution only. Rx only

Sterile

Contains 5 each of Vial 1 (5 mL) and Vial 2 (5 mL).

One vial of each to be used for a single dose.

Store under refrigeration, 2-8°C (36-46°F).



## ADULT INFUVITE MULTIPLE VITAMINS FOR INFUSION

ascorbic acid, vitamin a palmitate, cholecalciferol, thiamine hydrochloride, riboflavin 5-phosphate sodium, pyridoxine hydrochloride, niacinamide, dexpanthenol, alpha-tocopherol acetate, vitamin k1, folic acid, biotin, cyanocobalamin injection, solution

### Product Information

<b>Product Type</b>	HUMAN PRESCRIPTION DRUG	<b>Item Code (Source)</b>	NDC:54643-5649
<b>Route of Administration</b>	INTRAVENOUS		

### Active Ingredient/Active Moiety

Ingredient Name	Basis of Strength	Strength
ASCORBIC ACID (UNII: PQ6CK8PD0R) (ASCORBIC ACID - UNII:PQ6CK8PD0R)	ASCORBIC ACID	200 mg in 10 mL
VITAMIN A PALMITATE (UNII: 1D1K0N0VVC) (VITAMIN A - UNII:81G40H8B0T)	VITAMIN A	3300 [iU] in 10 mL
CHOLECALCIFEROL (UNII: 1C6V77QF41) (CHOLECALCIFEROL - UNII:1C6V77QF41)	CHOLECALCIFEROL	200 [iU] in 10 mL
THIAMINE HYDROCHLORIDE (UNII: M572600E5P) (THIAMINE - UNII:X66NSO3N35)	THIAMINE	6 mg in 10 mL
RIBOFLAVIN 5'-PHOSPHATE SODIUM (UNII: 20RD1DZH99) (RIBOFLAVIN - UNII:TLM2976OFR)	RIBOFLAVIN	3.6 mg in 10 mL
PYRIDOXINE HYDROCHLORIDE (UNII: 68Y4CF58BV) (PYRIDOXINE - UNII:KV2JZ1B16Z)	PYRIDOXINE HYDROCHLORIDE	6 mg in 10 mL
NIACINAMIDE (UNII: 25X51I8RD4) (NIACINAMIDE - UNII:25X51I8RD4)	NIACINAMIDE	40 mg in 10 mL
DEXPANTHENOL (UNII: 106C93RI7Z) (DEXPANTHENOL - UNII:106C93RI7Z)	DEXPANTHENOL	15 mg in 10 mL
ALPHA-TOCOPHEROL ACETATE (UNII: 9E8X80D2L0) (ALPHA-TOCOPHEROL - UNII:H4N855PNZ1)	ALPHA-TOCOPHEROL ACETATE	10 [iU] in 10 mL
PHYTONADIONE (UNII: A034SE7857) (PHYTONADIONE - UNII:A034SE7857)	PHYTONADIONE	150 ug in 10 mL
FOLIC ACID (UNII: 935E97BOY8) (FOLIC ACID - UNII:935E97BOY8)	FOLIC ACID	600 ug in 10 mL
BIOTIN (UNII: 6SO6U10H04) (BIOTIN - UNII:6SO6U10H04)	BIOTIN	60 ug in 10 mL
CYANOCOBALAMIN (UNII: P6YC3EG204) (CYANOCOBALAMIN - UNII:P6YC3EG204)	CYANOCOBALAMIN	5 ug in 10 mL

### Inactive Ingredients

Ingredient Name	Strength
POLYSORBATE 80 (UNII: 6OZP39ZG8H)	
PROPYLENE GLYCOL (UNII: 6DC9Q167V3)	
ANHYDROUS CITRIC ACID (UNII: XF417D3PSL)	
SODIUM CITRATE (UNII: 1Q73Q2JULR)	
SODIUM HYDROXIDE (UNII: 55X04QC32I)	
HYDROCHLORIC ACID (UNII: QTT17582CB)	

### Packaging

#	Item Code	Package Description	Marketing Start Date	Marketing End Date
1	NDC:54643-5649-1	10 in 1 CARTON		
1		5 mL in 1 VIAL		

## Marketing Information

Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
NDA	NDA021163	05/18/2005	

**Labeler** - Sandoz Canada Inc (244062071)

Revised: 1/2012

Sandoz Canada Inc