

PRODUCT MONOGRAPH
INCLUDING PATIENT MEDICATION INFORMATION

FOLIC ACID INJECTION, USP

(Folic Acid as sodium folate)

Sterile Solution, 5 mg / mL, For Intramuscular, Intravenous or Subcutaneous Use

Anemia Therapy

Fresenius Kabi Canada Ltd.
165 Galaxy Blvd, Suite 100
Toronto, ON M9W 0C8

Date of Initial Authorization:

AUG 14, 1996

Date of Revision:

AUG 29, 2022

Submission Control No: 255875

RECENT MAJOR LABEL CHANGES

1 INDICATIONS, 1.1 Pediatrics	08/2022
1 INDICATIONS, 1.2 Geriatrics	08/2022
2 CONTRAINDICATIONS	08/2022
4 DOSAGE AND ADMINISTRATION, 4.1 Dosing Considerations	08/2022
4 DOSAGE AND ADMINISTRATION, 4.3 Reconstitution	08/2022
4 DOSAGE AND ADMINISTRATION, 4.4 Administration	08/2022
4 DOSAGE AND ADMINISTRATION, 4.5 Missed Dose	08/2022
7 WARNINGS AND PRECAUTIONS, General	08/2022
7 WARNINGS AND PRECAUTION, Carcinogenesis and Mutagenesis	08/2022
7 WARNINGS AND PRECAUTION, Hematologic	08/2022
7 WARNINGS AND PRECAUTION, Immune	08/2022
7 WARNINGS AND PRECAUTION, Monitoring and Laboratory Tests	08/2022
7 WARNINGS AND PRECAUTION, Neurologic	08/2022
7 WARNINGS AND PRECAUTIONS, 7.1.1 Pregnant Women	08/2022
7 WARNINGS AND PRECAUTIONS, 7.1.2 Breast-feeding	08/2022
7 WARNINGS AND PRECAUTIONS, 7.1.3 Pediatrics	08/2022
7 WARNINGS AND PRECAUTIONS, 7.1.4 Geriatrics	08/2022
7 WARNINGS AND PRECAUTIONS, 7.1.5 Renal Impairment	08/2022

TABLE OF CONTENTS

Sections or subsections that are not applicable at the time of authorization are not listed.

RECENT MAJOR LABEL CHANGES	2
TABLE OF CONTENTS	2
PART I: HEALTH PROFESSIONAL INFORMATION	5
1 INDICATIONS	5
1.1 Pediatrics	5
1.2 Geriatrics	5
2 CONTRAINDICATIONS	5

4	DOSAGE AND ADMINISTRATION.....	5
4.1	Dosing Considerations.....	5
4.2	Recommended Dose and Dosage Adjustment	6
4.3	Reconstitution	6
4.4	Administration.....	7
4.5	Missed Dose	7
5	OVERDOSAGE.....	7
6	DOSAGE FORMS, STRENGTHS, COMPOSITION AND PACKAGING	7
7	WARNINGS AND PRECAUTIONS.....	8
7.1	Special Populations	9
7.1.1	Pregnant women.....	9
7.1.2	Breast-feeding.....	9
7.1.3	Pediatrics.....	9
7.1.4	Geriatrics.....	9
7.1.5	Renal Impairment	9
8	ADVERSE REACTIONS.....	10
8.1	Adverse Reaction Overview	10
9	DRUG INTERACTIONS	10
9.2	Drug Interactions Overview	10
9.3	Drug-Behavioural Interactions	10
9.4	Drug-Drug Interactions.....	11
9.5	Drug-Food Interactions	11
9.6	Drug-Herb Interactions	12
9.7	Drug-Laboratory Test Interactions.....	12
10	CLINICAL PHARMACOLOGY.....	12
10.1	Mechanism of Action	12
10.2	Pharmacodynamics	12
10.3	Pharmacokinetics	12
11	STORAGE, STABILITY AND DISPOSAL.....	13
12	SPECIAL HANDLING INSTRUCTIONS.....	13

PART II: SCIENTIFIC INFORMATION	14
13 PHARMACEUTICAL INFORMATION	14
14 CLINICAL TRIALS	14
15 MICROBIOLOGY	14
16 NON-CLINICAL TOXICOLOGY	14
PATIENT MEDICATION INFORMATION	15

PART I: HEALTH PROFESSIONAL INFORMATION

1 INDICATIONS

Folic Acid Injection, USP alone is effective in the treatment of megaloblastic anemias due to folate deficiency as may be seen in tropical or nontropical sprue, in anemias of nutritional origin, pregnancy, infancy or childhood.

Folic Acid Injection, USP should only be used in conditions in which folate deficiency has been confirmed.

1.1 Pediatrics

Pediatrics (<18 years of age): Based on the data submitted and reviewed by Health Canada, the safety and efficacy of folic acid in pediatric patients has been established. Therefore, Health Canada has authorized an indication for pediatric use. See [4.2 Recommended Dose and Dosage Adjustment](#).

1.2 Geriatrics

Geriatrics (>65 years): Evidence from post-market experience suggests that use in the geriatric population is associated with differences in safety or effectiveness.

2 CONTRAINDICATIONS

Folic Acid Injection, USP is contraindicated:

- in patients who are hypersensitive to this drug or to any ingredient in the formulation, including any non-medicinal ingredient, or component of the container. For a complete listing, see [6 DOSAGE FORMS, STRENGTHS, COMPOSITION AND PACKAGING](#). Although rare, an anaphylactic reaction has been reported.
- in any patient with untreated cobalamin deficiency.
- in neonates, as this product contains benzyl alcohol (see [7 WARNINGS AND PRECAUTIONS](#)).
- in patients with impaired renal function or in premature neonates with immature kidneys (see [7 WARNINGS AND PRECAUTIONS](#)).

4 DOSAGE AND ADMINISTRATION

4.1 Dosing Considerations

Cobalamin deficiency should be ruled out before initiating treatment. High serum folate levels in individuals with low cobalamin have been associated with anemia and cognitive impairment in older individuals, an increased risk of diabetes mellitus in the offspring of pregnant women, and high levels of the cobalamin-dependent metabolites methylmalonic acid (MMA) and homocysteine. Folate

supplementation in the setting of cobalamin deficiency may also impair fetal growth and brain development.

Folic acid should not be used alone in undiagnosed megaloblastic anemia including in infancy, pernicious anemia or macrocytic anemia of unknown etiology, unless administered with adequate amounts of cobalamin.

Excessive intake of folate may obscure and potentially delay the diagnosis of vitamin B12 deficiency, which could result in an increased risk of progressive, unrecognized neurological damage.

Geriatrics:

High MMA and homocysteine levels are more common in elderly adults even when serum cobalamin levels are normal, and higher doses of cobalamin supplements are required to correct MMA levels in older individuals (see [7 WARNINGS AND PRECAUTIONS](#)).

4.2 Recommended Dose and Dosage Adjustment

Parenteral Administration: Intramuscular, Intravenous and Subcutaneous routes may be used if the disease is exceptionally severe or if gastrointestinal absorption may be or is known to be impaired.

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

Usual Therapeutic Dosage in adults and children (regardless of age):

- up to 1 mg daily. Resistant cases may require larger doses.

Maintenance Level: When clinical symptoms have subsided and the blood picture has become normal, a maintenance level should be used:

- 0.1 mg for infants and up to 0.3 mg for children under four years of age,
- 0.4 mg for adults and children four or more years of age, and
- 0.8 mg for pregnant and lactating women, per day, but never less than 0.1 mg per day.

Patients should be kept under close supervision and adjustment of the maintenance level made if relapse appears imminent.

In the presence of alcoholism, hemolytic anemia, anticonvulsant therapy or chronic infection, the maintenance level may need to be increased.

4.3 Reconstitution

There is no reconstitution for Folic Acid Injection, USP. See Dilution for Intravenous use below for further instruction.

Dilution for Intravenous use

Although Folic Acid Injection, USP can be given undiluted for intramuscular or subcutaneous use, it must be diluted before intravenous use.

A dilute solution of Folic Acid Injection, USP 5 mg in 1 mL for intravenous injection, containing 0.1 mg/mL, may be prepared by adding 1 mL (5 mg) of the injection to 49 mL of normal saline bag or 49 mL

of 5% dextrose bag or 49 mL of sterile water for injection bag. The diluted solution of folic acid (0.1 mg/mL) is stable for 30-hour with light protection.

Discard unused portion of punctured vial within 28 days after initial use. See [11 STORAGE, STABILITY AND DISPOSAL](#).

4.4 Administration

Folic Acid Injection, USP is used for parenteral folate therapy, and may be administered by intramuscular, intravenous or subcutaneous injection.

Do not use if seal is broken.

4.5 Missed Dose

Folic Acid Injection, USP should be given on a fixed schedule. If you miss an appointment, call your doctor for instructions.

5 OVERDOSAGE

In a double-blind randomised trial 15 mg of folic acid per day for one month produced no signs of toxicity in healthy volunteers.

For management of a suspected drug overdose, contact your regional Poison Control Centre.

6 DOSAGE FORMS, STRENGTHS, COMPOSITION AND PACKAGING

Table 1 – Dosage Forms, Strengths, Composition and Packaging

Route of Administration	Dosage Form / Strength / Composition	Non-medicinal Ingredients
Intramuscular, Intravenous or Subcutaneous Use	Sterile Solution, 5 mg / mL Folic Acid as Sodium folate	benzyl alcohol (preservative), edetate disodium, hydrochloric acid and / or sodium hydroxide (for pH adjustment) and water for injection.

Folic Acid Injection, USP (5 mg / mL) is available as:

10 mL multiuse vial with aluminum flip-top seal. Packaged individually. The vial stopper is not made with natural rubber latex.

7 WARNINGS AND PRECAUTIONS

General

In the presence of conditions like alcoholism, hemolytic anemia, anticonvulsant therapy or chronic infection, which require high folic acid intake, the maintenance level of folic acid may exceed the tolerable upper intake level (UL) of 1 mg. This can result in adverse effects.

Unmetabolized folic acid might be related to cognitive impairment among older adults. These potential negative health consequences are not well understood and warrant further research. Limited research suggests that single doses of 0.3 mg or 0.4 mg folic acid (a common amount in folic acid-containing supplements or servings of fortified foods, such as breakfast cereals) result in detectable serum levels of unmetabolized folic acid, whereas doses of 0.1 mg or 0.2 mg do not. In addition, a dose-frequency interaction appears to occur in which smaller amounts of folic acid consumed more frequently produce higher unmetabolized folic acid concentrations than the same total dose consumed in larger, less frequent amounts.

Folic acid alone is improper therapy in the treatment of pernicious anemia and other megaloblastic anemias in which vitamin B12 is deficient.

Folic Acid Injection, USP contains the preservative **benzyl alcohol**. There have been reports of fatal “gasping syndrome” in neonates (children less than one month of age) following the administration of intravenous solutions containing the preservative benzyl alcohol. Manifestations of the disease included: metabolic acidosis, respiratory distress, gasping respirations, central-nervous system dysfunction, convulsions, intracranial hemorrhages, hypoactivity, hypotonia, cardiovascular collapse and death.

Carcinogenesis and Mutagenesis

High folate intake might accelerate the progression of preneoplastic lesions, increasing the risk of colorectal and possibly other cancers in certain individuals.

Hematologic

Folic acid in doses above 0.1 mg daily may obscure pernicious anemia, as hematologic remission can occur while neurological manifestations remain progressive.

Folic acid alone is improper therapy in the treatment of pernicious anemia, other megaloblastic anemias where vitamin B12 is deficient, and conditions that manifest with cobalamin deficiency, like Food-Bound Cobalamin Malabsorption (FBCM). FBCM is seen in 20-40% of those >60 years of age. FBCM is caused by either lack of gastric acid or H. Pylori infection. Occasionally it can be seen in younger people especially those with long-term use of drugs (such as histamine (H2) blockers, proton pump inhibitors, or metformin) or gastric resection.

Immune

Intake of folate that exceed the body’s ability to reduce it to tetrahydrofolate (THF) lead to unmetabolized folate in the body, which has been linked to reduced numbers and activity of natural killer cells, suggesting that it could affect the immune system.

Monitoring and Laboratory Tests

Monitor Vitamin B₁₂ levels before initiating folate supplementation if doses are greater than 1.0 mg, when daily doses of more than 0.4 mg are administered, and as clinically indicated.

Monitor folate level when drugs known to interact with folic acid are taken concomitantly (see [9.4 Drug-Drug Interactions](#)).

Neurologic

Folate supplementation can mask the early symptoms of vitamin B₁₂ deficiency, potentially allowing irreversible symptoms of nerve damage to develop. Therefore, when taking more than 0.4 mg daily, the level of B₁₂ should be monitored. Signs and symptoms of vitamin B₁₂ deficiency (e.g., chronic malaise, sore tongue, numbness of the fingers) should be investigated before starting folate supplementation.

7.1 Special Populations

7.1.1 Pregnant women

There are no known hazards to the use of folic acid in pregnancy.

7.1.2 Breast-feeding

Folic acid is actively excreted in human breast milk. Accumulation of folate in milk takes precedence over maternal folate needs. Levels of folic acid are relatively low in colostrum but as lactation proceeds, concentrations of the vitamin rise. No adverse effects have been observed in breast fed infants whose mothers were receiving folic acid.

7.1.3 Pediatrics

Pediatrics (<18 years of age): Based on the data submitted and reviewed by Health Canada, the safety and efficacy of folic acid in pediatric patients has been established. Therefore, Health Canada has authorized an indication for pediatric use (see [4.2 Recommended Dose and Dosage Adjustment](#)).

7.1.4 Geriatrics

Geriatrics: High MMA and homocysteine levels are more common in elderly adults even when serum cobalamin levels are normal, and higher doses of cobalamin supplements are required to correct MMA levels in older individuals.

Advanced age is a risk factor for folate-associated functional cobalamin deficiency since vitamin B deficiency is more common among the elderly population.

7.1.5 Renal Impairment

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 of TPN products and of the lock-flush solutions used in their administration.

8 ADVERSE REACTIONS

8.1 Adverse Reaction Overview

Allergic sensitization has been reported following both oral and parenteral administration of folic acid. Allergic reactions, including bronchospasm, erythema, fever, general malaise, skin rash or itching have been reported with folic acid administration.

High doses (e.g. 15 mg/day) have been associated rarely with various CNS effects such as altered sleep patterns, difficulty concentrating, irritability, overactivity, excitement, mental depression, confusion, and impaired judgment.

EEG changes and convulsion have been reported with intravenous therapy.

9 DRUG INTERACTIONS

9.2 Drug Interactions Overview

Interaction of folic acid and alcohol has been reported. See [9.3 Drug-Behavioural Interactions](#).

It is recommended that oral folic acid supplementation not exceed 1 mg/day in epileptic patients taking anticonvulsants. If large doses are used, monitor anticonvulsant concentrations upon folic acid initiation, dose titration, and discontinuation. Adjust the anticonvulsant dosage as appropriate.

Prolonged administration of phenytoin has reportedly resulted in a folate deficiency in 27% to 91% of patients. Megaloblastic anemia occurs in fewer than 1% of patients receiving phenytoin. The proposed mechanisms of this phenomenon include an increase in folate catabolism, folate malabsorption, or use of folic acid secondary to enzyme induction by phenytoin. Some evidence suggests that the anticonvulsant effect of phenytoin is partially the result of a reduction in folic acid concentrations. Folic acid replacement has resulted in an increase in metabolism of phenytoin and a decrease in phenytoin concentration in some patients, apparently through increased metabolism and/or redistribution of phenytoin in the brain and CSF. A clinically significant increase in seizure activity has occurred with this drug combination in rare instances, especially when doses of 4 mg/day or more were utilized.

Antagonism of activities of either folic acid or certain drugs have been reported upon co-administration. See [9.4 Drug-Drug Interactions](#).

Folic acid is incompatible with oxidising and reducing agents and with ions of heavy metals.

9.3 Drug-Behavioural Interactions

Folate deficiency may result from chronic alcohol consumption, and especially in alcoholic cirrhosis. Such patients may derive most of their caloric intake from alcohol-containing beverages which do not contain adequate amounts of folic acid. In addition, alcohol may affect folate metabolism, increasing

folate loss. Supplementation in patients known to have excessive alcohol intake is prudent. Avoidance of excessive intake of alcohol is recommended to help treat the deficiency.

Absorption of folic acid is decreased in chronic alcoholics. This effect can be partially reversed by abstinence from alcohol.

9.4 Drug-Drug Interactions

The drugs listed in this table are based on either drug interaction case reports or studies, or potential interactions due to the expected magnitude and seriousness of the interaction (i.e., those identified as contraindicated).

Table 2 - Established or Potential Drug-Drug Interactions

[Proper/Common name]	Source of Evidence	Effect	Clinical comment
Analgesics (NSAIDS such as indomethacin, naproxen, ibuprofen and mefenamic acid), long-term use; Carbamazepine; Estrogens; Oral contraceptives; Phenobarbital; Primidone; Hyoscyamine; Atropine; Scopolamine	T	↓ Folic acid	Requirements for folic acid may be increased. Monitoring / dose titration / discontinuation may be needed.
Hydantoin anticonvulsants (phenytoin; fosphenytoin, etc.)	T	Antagonism of CNS effects	Requirements for both may be increased. Monitoring / dose titration / discontinuation may be needed.
Chloramphenicol	T	Antagonism of Folic acid	Hematologic response to be monitored.
Methotrexate; Pyrimethamine; Triamterene; Trimethoprim (most significant with high doses and/or prolonged use)	T	Folate antagonism by inhibiting dihydrofolate reductase; Folic acid may compete with methotrexate for entry into cells.	Leucovorin calcium must be used instead of folic acid.
Capecitabine	T	Metabolic interactions	Monitor for an increase in capecitabine-related adverse reactions

Legend: C = Case Study; CT = Clinical Trial; T = Theoretical

9.5 Drug-Food Interactions

Interactions with food have not been established.

9.6 Drug-Herb Interactions

Interactions with herbal products have not been established.

9.7 Drug-Laboratory Test Interactions

Antibiotics may interfere with the microbiologic method of assay for serum and erythrocyte folic acid concentrations and cause falsely low results.

10 CLINICAL PHARMACOLOGY

10.1 Mechanism of Action

Folic acid is a water soluble B complex vitamin. It is essential in the body for the formation of new cells and is required for normal growth, development and functioning of the foetus, nervous system and bone marrow.

Folate plays a central role in the synthesis of deoxyribonucleic acid (DNA) and ribonucleic acid (RNA), and it is essential to normal cell replication and embryonic development. Folate also has a key role in the synthesis of phospholipids and creatine-phosphorus.

Folic acid is a coenzyme required for the synthesis of purine and pyrimidine bases. It is involved in the maturation of all rapidly proliferating tissues, particularly those of bone marrow and gastrointestinal tract. Folate deficiency leads to megaloblastic anaemia.

10.2 Pharmacodynamics

Folic acid is transformed into different coenzymes that are responsible for various reactions of intracellular metabolism - mainly conversion of homocysteine to methionine, conversion of serine to glycine, synthesis of thymidylate, histidine metabolism, synthesis of purines and utilization or generation of formate.

Nucleoprotein synthesis and the maintenance of normal erythropoiesis requires exogenous folate. Folic acid is the precursor of tetrahydrofolic acid which is active and acts as a co-factor for 1-carbon transfer reactions in the biosynthesis of purines and thymidylates of nucleic acids.

Folic acid deficiency can lead to megaloblastic and macrocytic anemias, as a result of impairment of thymidylate synthesis.

10.3 Pharmacokinetics

Absorption

Following a single i.v. dose of Folic acid, C_{max} typically occurred within half an hour.

Distribution

Protein binding to plasma proteins is extensive. The principal storage site is the liver. Folic acid is distributed into breast milk. Folic acid congeners are distributed throughout the body including the cerebrospinal fluid (CSF).

Metabolism

Folic acid is converted (in the presence of ascorbic acid) in the liver and plasma to its metabolically active form (tetrahydrofolic acid) by dihydrofolate reductase. After administration of small doses, reduction and methylation of folic acid to methyltetrahydrofolate occurs in the liver. Following large doses, folic acid may appear unchanged in the plasma.

Elimination

There is an enterohepatic circulation for folate; about 4 to 5 micrograms is excreted in the urine daily. Administration of larger doses of folic acid leads to proportionately more of the vitamin being excreted in the urine.

11 STORAGE, STABILITY AND DISPOSAL

Store at room temperature (15 °C to 30 °C).

Discard unused portion of punctured vial within 28 days after initial use.

Protect from exposure to light.

Retain vial in box until contents are used.

Keep out of reach and sight of children.

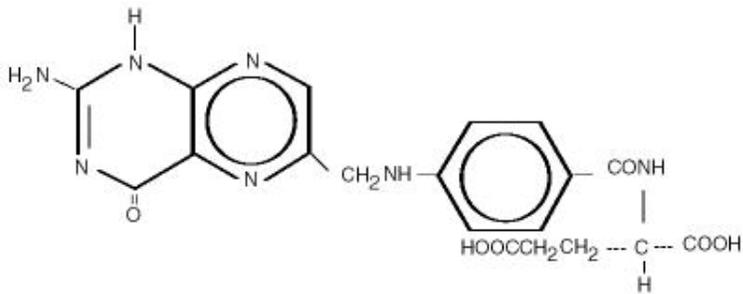
12 SPECIAL HANDLING INSTRUCTIONS

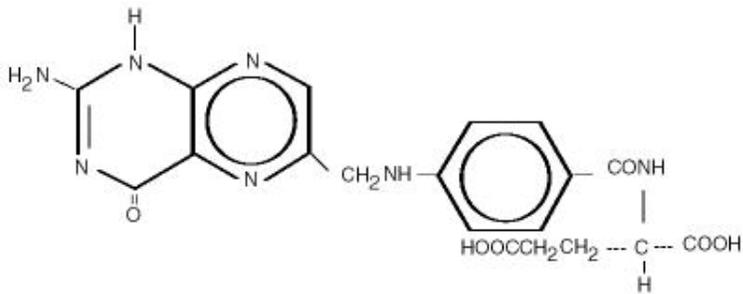
This information is not available for this drug product.

PART II: SCIENTIFIC INFORMATION

13 PHARMACEUTICAL INFORMATION

Drug Substance

Proper Name:	Folic acid
Chemical Name:	L-Glutamic acid, N-[4-[[[(2-amino-1,4-dihydro-4-oxo-6-pteridiny)]-methyl]amino]-benzoyl]-
Molecular Formula:	C ₁₉ H ₁₉ N ₇ O ₆
Molecular Mass:	441.4 g/mol
Structural Formula:	



Physicochemical properties:	Description: Folic acid is a complex organic compound present in liver, yeast and other substances, which may be prepared synthetically. It is a yellow or yellowish-orange, odorless crystalline powder. It is very slightly soluble in water, insoluble in alcohol, chloroform, ether; readily dissolves in dilute solutions of alkali hydroxides and carbonates.
-----------------------------	--

14 CLINICAL TRIALS

This information is not available for this drug product.

15 MICROBIOLOGY

No microbiological information is required for this drug product.

16 NON-CLINICAL TOXICOLOGY

This information is not available for this drug product.

PATIENT MEDICATION INFORMATION

READ THIS FOR SAFE AND EFFECTIVE USE OF YOUR MEDICINE

Folic Acid Injection, USP

Folic Acid Injection

Read this carefully before you start taking **Folic Acid Injection, USP** and each time you get a refill. This leaflet is a summary and will not tell you everything about this drug. Talk to your healthcare professional about your medical condition and treatment and ask if there is any new information about **Folic Acid Injection, USP**.

What is Folic Acid Injection, USP used for?

Folic Acid Injection, USP is used to treat megaloblastic anemia (a condition where you lack enough healthy large, abnormal red blood cells), caused by low levels of folic acid. The folate deficiency might be present when:

- You have low folate levels
- Your body does not use or absorb nutrients well
- Your body does not tolerate gluten
- You have anemias (low red blood cells) due to diet
- You are pregnant, an infant or child

This will be confirmed by a healthcare professional.

How does Folic Acid Injection, USP work?

Folic acid is a vitamin (vitamin B9). It is essential for the body to make new cells. It helps the body to make red blood cells, white blood cells, and blood platelets.

What are the ingredients in Folic Acid Injection, USP?

Medicinal ingredients: Folic Acid as sodium folate

Non-medicinal ingredients: benzyl alcohol (preservative), edetate disodium, hydrochloric acid and/or sodium hydroxide for pH adjustment and water for injection.

Folic Acid Injection, USP comes in the following dosage forms:

Solution for Injection: 5 mg / mL

Do not use Folic Acid Injection, USP if:

- You are allergic to folic acid or any other ingredients in Folic Acid Injection, USP or its container.
- You have vitamin B₁₂ deficiency and are not receiving treatment for it.
- It is for a newborn child. Folic Acid Injection, USP contains benzyl alcohol which can be toxic for your newborn child.
- You have kidney problems or it is for a premature newborn child with immature kidneys. Folic Acid Injection, USP contains aluminum which may be toxic in patients with kidney problems or immature kidneys.

To help avoid side effects and ensure proper use, talk to your healthcare professional before you take Folic Acid Injection, USP. Talk about any health conditions or problems you may have, including if you:

- Have alcoholism
- Have blood problems
- Have seizures
- Have long term infections
- Do not feel well, have a sore tongue or your fingers feel numb. This can mean you have a vitamin B12 deficiency (pernicious anemia)
- Are older than 65 years old

Other warnings you should know about:

Effects on newborns:

- Folic Acid Injection, USP contains benzyl alcohol which is a preservative. It can cause death in children less than 1 month of age. Get medical help for your newborn right away if they have:
 - Vomiting, difficulty breathing, wheezing or coughing, change in heart rate, fits or seizures.

Cancer: High dose of folic acid may increase your risk for cancer of the colon or rectum. It may also increase the risk for other cancers in some people.

Cognitive (thinking) problems: Folic acid that is not used by your body could cause thinking problems.

Nervous system problems: High doses of folic acid may hide your low vitamin B₁₂ levels and make its symptoms worse. This can cause nerve problems.

Immune System: Doses of folic acid higher than your body's ability could affect your immune system.

Check-ups and Testing:

Your healthcare professional may check your:

- Vitamin B12 levels before and during treatment with Folic Acid Injection, USP.
- Folate levels during treatment with Folic Acid Injection, USP.

Tell your healthcare professional about all the medicines you take, including any drugs, vitamins, minerals, natural supplements or alternative medicines.

The following may interact with Folic Acid Injection, USP:

- Alcohol
- Pain-Killers such as indomethacin, naproxen, ibuprofen and mefenamic acid
- Medicines used to treat epilepsy and seizures such as phenytoin, fosphenytoin, carbamazepine, phenobarbital, primidone
- Medicines to prevent pregnancy such as estrogens, oral birth control
- Medicines that block acetylcholine such as hyoscyamine, atropine, scopolamine
- A medicine used to treat eye infections called chloramphenicol
- A medicine used to treat parasitic diseases called pyrimethamine

- A medicine used to lower the amount of water in your body (diuretic) called triamterene
- Medicines used to treat bacterial infections like trimethoprim
- Medicines used to treat cancer called capecitabine, methotrexate

How to take Folic Acid Injection, USP :

Folic Acid Injection, USP will be given to you by a healthcare professional in a healthcare setting.

Folic Acid Injection, USP will be injected intramuscularly (into a muscle), intravenously (into a vein) or subcutaneously (under the skin). Your healthcare professional will decide what to do.

Usual dose:

Your healthcare professional will decide what dose of Folic Acid Injection, USP you will receive and for how long.

Overdose:

If you think you, or a person you are caring for, have been given too much Folic Acid Injection, USP, contact your healthcare professional, hospital emergency department or regional poison control centre immediately, even if there are no symptoms.

Missed Dose

- Folic Acid Injection, USP is given on a fixed schedule.
- If you miss an appointment, ask your healthcare professional for more information.

What are possible side effects from using Folic Acid Injection, USP ?

These are not all the possible side effects you may have when taking Folic Acid Injection, USP. If you have any side effects not listed here, tell your healthcare professional.

Serious side effects and what to do about them			
Symptom / effect	Talk to your healthcare professional		Stop taking drug and get immediate medical help
	Only if severe	In all cases	
RARE			
Allergic reaction: shortness of breath, troubled breathing, tightness of chest, wheezing, reddened skin, fever, general weakness or discomfort, rash, itching			√
VERY RARE			
Nervous system problems: confusion, depression, difficulty in concentrating, excitement, irritability, impaired judgment, nausea, trouble sleeping, sore tongue, numb fingers		√	

Serious side effects and what to do about them			
Symptom / effect	Talk to your healthcare professional		Stop taking drug and get immediate medical help
	Only if severe	In all cases	
Convulsion: seizure, spasms, shaking or fits, changes in brain electrical activity readings (electroencephalography or EEG)		√	

If you have a troublesome symptom or side effect that is not listed here or becomes bad enough to interfere with your daily activities, tell your healthcare professional.

Reporting Side Effects

You can report any suspected side effects associated with the use of health products to Health Canada by:

- Visiting the Web page on Adverse Reaction Reporting (<https://www.canada.ca/en/health-canada/services/drugs-health-products/medeffect-canada.html>) for information on how to report online, by mail or by fax; or
- Calling toll-free at 1-866-234-2345.

NOTE: Contact your health professional if you need information about how to manage your side effects. The Canada Vigilance Program does not provide medical advice.

Storage:

Store at room temperature (15°C to 30°C).

Discard unused portion of punctured vials within 28 days after first use.

Protect from light. Retain vial in box until contents are used.

Keep out of reach and sight of children.

If you want more information about Folic Acid Injection, USP:

- Talk to your healthcare professional
- Find the full Product Monograph that is prepared for healthcare professionals and includes this Patient Medication Information by visiting the Health Canada website (<https://www.canada.ca/en/health-canada/services/drugs-health-products/drug-products/drug-product-database.html>); Fresenius Kabi Canada website (<https://www.fresenius-kabi.com/en-ca/>), or by calling 1-877-821-7724.

This leaflet was prepared by:

Fresenius Kabi Canada Ltd.
165 Galaxy Blvd, Suite 100
Toronto, ON M9W 0C8

Last Revised: AUG 29, 2022