

## PRODUCT MONOGRAPH

**Pr**VIMOVO<sup>®</sup>

naproxen/esomeprazole

Modified Release Tablets

375 mg naproxen/20 mg esomeprazole (as esomeprazole magnesium trihydrate)

500 mg naproxen/20 mg esomeprazole (as esomeprazole magnesium trihydrate)

NSAID and H<sup>+</sup>, K<sup>+</sup>-ATPase Inhibitor

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naproxen/esomeprazole

## PART I: HEALTH PROFESSIONAL INFORMATION

### SUMMARY PRODUCT INFORMATION

Route of Administration	Dosage Form / Strength	Clinically Relevant Non-medicinal Ingredients
Oral	Modified release tablets <ul style="list-style-type: none"><li>• 375 mg enteric-coated naproxen/20 mg immediate release esomeprazole</li><li>• 500 mg enteric-coated naproxen/20 mg immediate release esomeprazole</li></ul>	None <i>For a complete listing see DOSAGE FORMS, COMPOSITION AND PACKAGING.</i>

### INDICATIONS AND CLINICAL USE

VIMOVO (naproxen/esomeprazole) is indicated for the treatment of the signs and symptoms of osteoarthritis (OA), rheumatoid arthritis (RA) and ankylosing spondylitis (AS) and to decrease the risk of developing gastric ulcers in patients at risk for developing NSAID-associated gastric ulcers.

VIMOVO is not recommended for initial treatment of acute pain because the absorption of naproxen is delayed (as with other modified release formulations of naproxen).

**For patients with an increased risk of developing cardiovascular (CV) and/or gastrointestinal (GI) adverse events, other management strategies that do NOT include the use of NSAIDs should be considered first (see CONTRAINDICATIONS and WARNINGS AND PRECAUTIONS).**

**Use of VIMOVO should be limited to the lowest effective dose for the shortest possible duration of treatment in order to minimize the potential risk for cardiovascular or gastrointestinal adverse events (see CONTRAINDICATIONS and WARNINGS AND PRECAUTIONS).**

VIMOVO, as a NSAID, does NOT treat clinical disease or prevent its progression.

VIMOVO, as a NSAID, only relieves symptoms and decreases inflammation for as long as the patient continues to take it.

**Geriatrics (> 65 years of age):**

Evidence from naproxen clinical studies and postmarket experience suggest that use in the geriatric population is associated with differences in safety (see WARNINGS AND PRECAUTIONS; Special Populations and CLINICAL TRIALS).

**Pediatrics (<18 years of age):**

VIMOVO should not be used in children or adolescents under 18 years of age. The safety and efficacy of VIMOVO in this population has not been established.

**CONTRAINDICATIONS**

VIMOVO (naproxen/esomeprazole) is contraindicated in:

- the peri-operative setting of coronary artery bypass graft surgery (CABG). Although VIMOVO has NOT been studied in this patient population, a selective COX-2 inhibitor NSAID studied in such a setting has led to an increased incidence of cardiovascular/thromboembolic events, deep surgical infections and sternal wound complications.
- the third trimester of pregnancy, because of risk of premature closure of the ductus arteriosus and prolonged parturition
- women who are breastfeeding, because of the potential for serious adverse reactions in nursing infants
- patients with severe uncontrolled heart failure
- patients with known hypersensitivity to naproxen, esomeprazole, substituted benzimidazoles or to any of the components/excipients (see DOSAGE FORMS, COMPOSITION AND PACKAGING)
- patients with history of asthma, urticaria, or allergic-type reactions after taking ASA or other NSAIDs (i.e. complete or partial syndrome of ASA-intolerance - rhinosinusitis, urticaria/angioedema, nasal polyps, asthma). Fatal anaphylactoid reactions have occurred in such individuals. Individuals with the above medical problems are at risk of a severe reaction even if they have taken NSAIDs in the past without any adverse reaction. The potential for cross-reactivity between different NSAIDs must be kept in mind (see WARNINGS AND PRECAUTIONS; Hypersensitivity Reactions, Anaphylactoid Reactions).
- patients with active gastric/duodenal/peptic ulcer, active GI bleeding
- patients with cerebrovascular bleeding or other bleeding disorders
- patients with inflammatory bowel disease
- patients with severe liver impairment or active liver disease

- patients with severe renal impairment (creatinine clearance <30 mL/min or 0.5 mL/sec) or deteriorating renal disease (individuals with lesser degrees of renal impairment are at risk of deterioration of their renal function when prescribed NSAIDs and must be monitored) (see WARNINGS AND PRECAUTIONS; Renal).
- patients with known hyperkalemia (see WARNINGS AND PRECAUTIONS; Renal, Fluid and Electrolyte Balance)
- children and adolescents less than 18 years of age

## **WARNINGS AND PRECAUTIONS**

**Risk of Cardiovascular (CV) Adverse Events: Ischemic Heart Disease, Cerebrovascular Disease, Congestive Heart Failure (NYHA II-IV) (See WARNINGS AND PRECAUTIONS; Cardiovascular).**

**Naproxen is a non-steroidal anti-inflammatory drug (NSAID). Use of some NSAIDs is associated with an increased incidence of cardiovascular adverse events (such as myocardial infarction, stroke or thrombotic events) which can be fatal. The risk may increase with duration of use. Patients with cardiovascular disease or risk factors for cardiovascular disease may be at greater risk.**

**Caution should be exercised in prescribing NSAIDs such as naproxen, which is a component of VIMOVO (naproxen/esomeprazole), to any patient with ischemic heart disease (including but NOT limited to acute myocardial infarction, history of myocardial infarction and/or angina), cerebrovascular disease (including but NOT limited to stroke; cerebrovascular accident, transient ischemic attacks and/or amaurosis fugax) and/or congestive heart failure (NYHA II-IV).**

**Use of NSAIDs such as naproxen, which is a component of VIMOVO, can promote sodium retention in a dose-dependent manner, through a renal mechanism, which can result in increased blood pressure and/or exacerbation of congestive heart failure (see also WARNINGS AND PRECAUTIONS; Renal, Fluid and Electrolyte Balance).**

**Randomized clinical trials with VIMOVO have not been designed to detect differences in cardiovascular events in a chronic setting. Therefore, caution should be exercised when prescribing VIMOVO.**

**Risk of Gastrointestinal (GI) Adverse Events (see WARNINGS AND PRECAUTIONS, Gastrointestinal and CLINICAL TRIALS)**

**Use of NSAIDs such as naproxen, which is a component of VIMOVO, is associated with an increased incidence of gastrointestinal adverse events (such as peptic/duodenal ulceration, perforation, obstruction and gastrointestinal bleeding).**

## **General**

Frail or debilitated patients may tolerate side effects less well and therefore special care should be taken in treating this population. **To minimize the potential risk for an adverse event, the lowest effective dose should be used for the shortest possible duration.** As with other NSAIDs, caution should be used in the treatment of elderly patients who are more likely to be suffering from impaired renal, hepatic or cardiac function. For high risk patients, alternate therapies that do not involve NSAIDs should be considered.

VIMOVO, which contains naproxen, is NOT recommended for use with other NSAIDs, with the exception of low-dose ASA for cardiovascular prophylaxis, because of the absence of any evidence demonstrating synergistic benefits and the potential for additive adverse reactions (see DRUG INTERACTIONS; Drug/Drug Interactions, Acetylsalicylic acid (ASA) or other NSAIDs).

VIMOVO should not be used concomitantly with other naproxen containing drugs since they all circulate in plasma as the naproxen anion. Concomitant administration with atazanavir or nelfinavir is not recommended (see DRUG INTERACTIONS).

In the presence of any alarm symptom (e.g., significant unintentional weight loss, recurrent vomiting, dysphagia, hematemesis or melena), and/or when gastric ulcer is suspected or present, malignancy should be excluded, as treatment may alleviate symptoms and delay diagnosis.

## **Carcinogenesis and Mutagenesis**

There is no evidence from animal data that either naproxen or esomeprazole are carcinogenic or mutagenic. In the long-term repeat-dose/carcinogenicity studies with omeprazole, gastric enterochromaffin-like (ECL) cell carcinoids were noted in the rat, but not the mouse or dog. It has been demonstrated that this is a result of an indirect mode of action, rather than being a direct effect of omeprazole on the ECL-cells; prolonged acid suppression leads to prolonged hypergastrinemia, provoking ECL cell hyperplasia, which eventually progresses into ECL cell carcinoids (see TOXICOLOGY).

Treatment with esomeprazole for up to 1 year in more than 800 patients has not resulted in any significant pathological changes in the gastric oxyntic endocrine cells. Short-term treatment and long-term treatment with the racemate, omeprazole, capsules in a limited number of patients for up to 11 years have not resulted in any significant pathological changes in gastric oxyntic endocrine cells.

## **Cardiovascular**

**Naproxen is a non-steroidal anti-inflammatory drug (NSAID). Use of some NSAIDs is associated with an increased incidence of cardiovascular adverse events (such as myocardial infarction, stroke or thrombotic events) which can be fatal. The risk may increase with the duration of use. Patients with cardiovascular disease or risk factors for cardiovascular disease may be at greater risk.**

**Caution should be exercised in prescribing VIMOVO, which contains naproxen, to patients with risk factors for cardiovascular disease, cerebrovascular disease or renal disease, such as any of the following (NOT an exhaustive list):**

- **Hypertension**
- **Dyslipidemia/Hyperlipidemia**
- **Diabetes Mellitus**
- **Congestive Heart Failure (NYHA I)**
- **Coronary Artery Disease (Atherosclerosis)**
- **Peripheral Arterial Disease**
- **Smoking**
- **Creatinine Clearance < 60 mL/min or 1 mL/sec**

Use of NSAIDs such as naproxen, which is a component of VIMOVO, can lead to new hypertension or can worsen pre-existing hypertension, either of which may increase the risk of cardiovascular events as described above. Thus blood pressure should be monitored regularly. Consideration should be given to discontinuing VIMOVO, should hypertension either develop or worsen with its use.

Use of NSAIDs such as naproxen, which is a component of VIMOVO, can induce fluid retention and edema, and may exacerbate congestive heart failure, through a renally-mediated mechanism (see WARNINGS AND PRECAUTIONS; Renal, Fluid and Electrolyte Balance).

For patients with a high risk of developing an adverse CV event, other management strategies that do NOT include the use of NSAIDs should be considered first. **To minimize the potential risk for an adverse CV event, the lowest effective dose should be used for the shortest possible duration.**

### **Endocrine and Metabolism**

#### **Corticosteroids:**

VIMOVO is NOT a substitute for corticosteroids. It does NOT treat corticosteroid insufficiency. Abrupt discontinuation of corticosteroids may lead to exacerbation of corticosteroid-responsive illness. Patients on prolonged corticosteroid therapy should have their therapy tapered slowly if a decision is made to discontinue corticosteroids (see DRUG INTERACTIONS; Drug-Drug Interactions, Glucocorticoids).

## **Gastrointestinal**

Serious GI toxicity (sometimes fatal), such as ulceration, inflammation, perforation, obstruction and gastrointestinal bleeding, can occur at any time, with or without warning symptoms, in patients treated with NSAIDs such as naproxen, which is a component of VIMOVO. While VIMOVO has been shown to significantly decrease the occurrence of gastric ulcers compared to EC-naproxen alone, ulceration and associated complications can still occur. Minor upper GI problems, such as dyspepsia, commonly occur at any time. Health care providers should remain alert for ulceration and bleeding in patients treated with VIMOVO, even in the absence of previous GI tract symptoms. Most spontaneous reports of fatal GI events are in elderly or debilitated patients and therefore special care should be taken in treating this population. **To minimize the potential risk for an adverse GI event, the lowest effective dose should be used for the shortest possible duration.** For high risk patients, alternate therapies that do not involve NSAIDs should be considered (see WARNINGS AND PRECAUTIONS; Special Populations, Geriatrics).

Patients should be informed about the signs and/or symptoms of serious GI toxicity and instructed to discontinue using VIMOVO and seek emergency medical attention if they experience any such symptoms. The utility of periodic laboratory has NOT been demonstrated, nor has it been adequately assessed. Most patients who develop a serious upper GI adverse event on NSAID therapy have no symptoms. Upper GI ulcers, gross bleeding or perforation, caused by NSAIDs, appear to occur in approximately 1% of patients treated for 3-6 months, and in about 2-4% of patients treated for one year. These trends continue, thus increasing the likelihood of developing a serious GI event at some time during the course of therapy. Even short-term therapy has its risks.

Caution should be taken if prescribing VIMOVO to patients with a history of ulcer disease or gastrointestinal bleeding. If GI bleeding or ulceration occurs, VIMOVO should be discontinued immediately and appropriate treatment sought.

Other risk factors for GI ulceration and bleeding include the following: *Helicobacter pylori* infection, increased age, prolonged use of NSAID therapy, excess alcohol intake, smoking, poor general health status or concomitant therapy with any of the following:

- Anti-coagulants (e.g. warfarin)
- Anti-platelet agents (e.g. ASA, clopidogrel)
- Oral corticosteroids (e.g. prednisone)
- Selective Serotonin Reuptake Inhibitors (SSRIs) (e.g. citalopram, fluoxetine, paroxetine, sertraline)

In studies comprising patients who were older than 50 years of age and/or had a prior history of peptic ulcer, VIMOVO was shown to significantly lower gastric ulcer rates compared to EC-naproxen, regardless of concomitant therapy with low-dose ASA (see CLINICAL TRIALS).

Gastrointestinal symptomatic response to therapy with VIMOVO does not preclude the presence of gastric malignancy.

## **Genitourinary**

Some NSAIDs are associated with persistent urinary symptoms (bladder pain, dysuria, urinary frequency), hematuria or cystitis. The onset of these symptoms may occur at any time after the initiation of therapy with a NSAID. Should urinary symptoms occur, in the absence of an alternate explanation, treatment with VIMOVO should be stopped to ascertain if symptoms disappear. This should be done before urological investigations or treatments are carried out.

## **Hematologic**

NSAIDs inhibiting prostaglandin biosynthesis interfere with platelet function to varying degrees; patients who may be adversely affected by such an action, such as those on anti-coagulants or suffering from hemophilia or platelet disorders should be carefully observed when VIMOVO is administered.

### **Anti-coagulants:**

Numerous studies have shown that the concomitant use of NSAIDs and anti-coagulants increases the risk of bleeding. Concurrent therapy of VIMOVO, which contains the NSAID naproxen, with warfarin requires close monitoring of the international normalized ratio (INR).

Even with therapeutic INR monitoring, increased bleeding may occur.

### **Anti-platelet Effects:**

NSAIDs inhibit platelet aggregation and have been shown to prolong bleeding time in some patients. Unlike acetylsalicylic acid (ASA), their effect on platelet function is quantitatively less, or of shorter duration, and is reversible.

NSAIDs have no proven efficacy as anti-platelet agents and should NOT be used as a substitute for ASA or other anti-platelet agents for prophylaxis of cardiovascular thromboembolic diseases. Anti-platelet therapies (e.g. ASA) should NOT be discontinued (see DRUG INTERACTIONS; Drug-Drug Interactions, Acetylsalicylic Acid (ASA) or other NSAIDs).

### **Blood dyscrasias:**

Blood dyscrasias (such as neutropenia, leukopenia, thrombocytopenia, aplastic anemia and agranulocytosis) associated with the use of NSAIDs are rare, but could occur with severe consequences.

Anemia is sometimes seen in patients receiving NSAIDs. This may be due to fluid retention, GI blood loss, or an incompletely described effect upon erythropoiesis. Patients on long-term treatment with NSAIDs, should have their hemoglobin or hematocrit checked if they exhibit any signs or symptoms of anemia or blood loss.

## **Hepatic/Biliary/Pancreatic**

With NSAIDs, borderline elevations of one or more liver enzyme tests (AST, ALT, alkaline phosphatase) may occur in up to 15% of patients. These abnormalities may progress, may remain essentially unchanged, or may be transient with continued therapy.

Chronic alcoholic liver disease and probably other forms of cirrhosis reduce the total plasma concentration of naproxen, but the plasma concentration of unbound naproxen is increased. The implication of this finding for naproxen dosing is unknown, but caution is advised when high doses are required. It is prudent to use the lowest effective dose.

A patient with symptoms and/or signs suggesting liver dysfunction, or in whom an abnormal liver function test has occurred, should be evaluated for evidence of the development of a more severe hepatic reaction while on therapy with this drug. Severe hepatic reactions including jaundice and cases of fatal hepatitis, liver necrosis and hepatic failure, some of them with fatal outcomes, have been reported with NSAIDs.

Although such reactions are rare, if abnormal liver tests persist or worsen, if clinical signs and symptoms consistent with liver disease develop (e.g. jaundice), or if systemic manifestations occur (e.g. eosinophilia, associated with rash, etc.), this drug should be discontinued.

If there is a need to prescribe this drug in the presence of impaired liver function, it must be done under strict observation.

### **Hypersensitivity Reactions**

#### **Anaphylactoid Reactions:**

As with NSAIDs in general, anaphylactoid reactions have occurred in patients without known prior exposure to naproxen, a component of VIMOVO. In post-marketing experience, rare cases of anaphylactic/anaphylactoid reactions and angioedema have been reported in patients receiving naproxen. VIMOVO, which contains naproxen, should NOT be given to patients with the ASA-triad. This symptom complex typically occurs in asthmatic patients who experience rhinitis with or without nasal polyps, or who exhibit severe, potentially fatal bronchospasm after taking ASA or other NSAIDs (see CONTRAINDICATIONS).

#### **ASA-Intolerance:**

VIMOVO, which contains naproxen, should NOT be given to patients with complete or partial syndrome of ASA-intolerance (rhinosinusitis, urticaria/angioedema, nasal polyps, asthma) in whom asthma, anaphylaxis, urticaria/angioedema, rhinitis or other allergic manifestations are precipitated by ASA or other NSAIDs. Fatal anaphylactoid reactions have occurred in such individuals. As well, individuals with the above medical problems are at risk of a severe reaction even if they have taken NSAIDs in the past without any adverse reaction (see CONTRAINDICATIONS).

#### **Cross-sensitivity:**

Patients sensitive to one NSAID may be sensitive to any of the other NSAIDs as well.

#### **Serious skin reactions:**

(See WARNINGS AND PRECAUTIONS; Skin)

## **Immune**

(See WARNINGS AND PRECAUTIONS; Infection, Aseptic Meningitis)

## **Infection**

Naproxen, a component of VIMOVO, as with other NSAIDs, may mask signs and symptoms of an underlying infectious disease.

### **Aseptic Meningitis:**

Rarely, with some NSAIDs, the symptoms of aseptic meningitis (stiff neck, severe headaches, nausea and vomiting, fever or clouding of consciousness) have been observed. Patients with autoimmune disorders (systemic lupus erythematosus, mixed connective tissue diseases, etc.) seem to be pre-disposed. Therefore, in such patients, the health care provider must be vigilant to the development of this complication.

### **Pseudomembranous colitis:**

Pseudomembranous colitis has been reported with nearly all antibacterial agents, including clarithromycin and amoxicillin, and may range in severity from mild to life threatening. Therefore, it is important to consider this diagnosis in patients who present with diarrhea subsequent to the administration of antibacterial agents.

Treatment with antibacterial agents alters the normal flora of the colon and may permit overgrowth of *Clostridia*. Studies indicate that a toxin produced by *Clostridium difficile* is a primary cause of “antibiotic-associated colitis”.

After the diagnosis of pseudomembranous colitis has been established, therapeutic measures should be initiated. Mild cases of pseudomembranous colitis usually respond to discontinuation of the drug alone. In moderate to severe cases, consideration should be given to management with fluids and electrolytes, protein supplementation, and treatment with an antibacterial drug clinically effective against *Clostridium difficile* colitis.

Decreased gastric acidity due to any means, including any proton pump inhibitors, increases gastric counts of bacteria normally present in the gastrointestinal tract. Treatment with proton pump inhibitors may lead to a slightly increased risk of gastrointestinal infections such as *Salmonella*, *Campylobacter* and possibly *Clostridium difficile*.

## **Neurologic**

Some patients may experience drowsiness, dizziness, blurred vision, vertigo, tinnitus, hearing loss, insomnia or depression with the use of NSAIDs, such as naproxen, a component of VIMOVO. If patients experience such adverse reaction(s), they should exercise caution in carrying out activities that require alertness.

## **Ophthalmologic**

Blurred and/or diminished vision has been reported with the use of NSAIDs. If such symptoms develop, VIMOVO, which contains naproxen, should be discontinued and an ophthalmologic

examination performed. Ophthalmologic examination should be carried out at periodic intervals in any patient receiving VIMOVO for an extended period of time.

### **Peri-Operative Considerations**

(See CONTRAINDICATIONS; Coronary Artery Bypass Graft Surgery)

### **Psychiatric**

(See WARNINGS AND PRECAUTIONS; Neurologic)

### **Renal**

Long term administration of NSAIDs to animals has resulted in renal papillary necrosis and other abnormal renal pathology. In humans, there have been reports of acute interstitial nephritis, hematuria, low grade proteinuria and occasionally nephrotic syndrome.

Renal insufficiency due to NSAID use is seen in patients with pre-renal conditions leading to reduction in renal blood flow or blood volume. Under these circumstances, renal prostaglandins help maintain renal perfusion and glomerular filtration rate (GFR). In these patients, administration of a NSAID may cause a reduction in prostaglandin synthesis leading to impaired renal function. Patients at greatest risk of this reaction are those with pre-existing renal insufficiency (GFR <60 mL/min or 1 mL/s), dehydrated patients, patients on salt restricted diets, those with congestive heart failure, cirrhosis, liver dysfunction, taking angiotensin-converting enzyme inhibitors, angiotensin-II receptor blockers, cyclosporin, diuretics, and those who are elderly. Serious or life-threatening renal failure has been reported in patients with normal or impaired renal function after short term therapy with NSAIDs. Even patients at risk who demonstrate the ability to tolerate a NSAID under stable conditions may decompensate during periods of added stress (e.g. dehydration due to gastroenteritis). Discontinuation of NSAIDs is usually followed by recovery to the pre-treatment state.

Caution should be used when initiating treatment with NSAIDs, such as naproxen, a component of VIMOVO, in patients with considerable dehydration. Such patients should be rehydrated prior to initiation of therapy. Caution is also recommended in patients with pre-existing kidney disease.

### **Advanced Renal Disease**

(See CONTRAINDICATIONS)

### **Fluid and Electrolyte Balance:**

Use of NSAIDs such as naproxen, a component of VIMOVO, can promote sodium retention in a dose-dependent manner, which can lead to fluid retention and edema, and consequences of increased blood pressure and exacerbation of congestive heart failure. Thus, caution should be exercised in prescribing VIMOVO in patients with a history of congestive heart failure, compromised cardiac function, hypertension, increased age or other conditions predisposing to fluid retention (see WARNINGS AND PRECAUTIONS; Cardiovascular).

Use of NSAIDs such as naproxen, a component of VIMOVO, can increase the risk of hyperkalemia, especially in patients with diabetes mellitus, renal failure, increased age, or those receiving concomitant therapy with adrenergic blockers, angiotensin-converting enzyme inhibitors, angiotensin-II receptor antagonists, cyclosporin, or some diuretics.

Electrolytes should be monitored periodically (see CONTRAINDICATIONS).

### **Respiratory**

ASA-induced asthma is an uncommon but very important indication of ASA and NSAID sensitivity. It occurs more frequently in patients with asthma who have nasal polyps.

### **Sexual Function/Reproduction**

The use of naproxen as with any drug known to inhibit cyclooxygenase/prostaglandin synthesis, may impair fertility and is not recommended in women attempting to conceive. Therefore, in women who have difficulties conceiving, or who are undergoing investigation of infertility, withdrawal of VIMOVO, which contains naproxen, should be considered.

### **Skin**

In rare cases, serious skin reactions such as Stevens-Johnson syndrome, toxic epidermal necrolysis, exfoliative dermatitis and erythema multiforme have been associated with the use of some NSAIDs. Because the rate of these reactions is low, they have usually been noted during post-marketing surveillance in patients taking other medications also associated with the potential development of these serious skin reactions. Thus, causality is NOT clear. These reactions are potentially life threatening but may be reversible if the causative agent is discontinued and appropriate treatment instituted. Patients should be advised that if they experience a skin rash they should discontinue their NSAID and contact their physician for assessment and advice, including which additional therapies to discontinue.

### **Special Populations**

**Pregnant Women: VIMOVO is CONTRAINDICATED for use during the third trimester of pregnancy because of risk of premature closure of the ductus arteriosus and the potential to prolong parturition (see TOXICOLOGY).**

**Caution should be exercised in prescribing VIMOVO during the first and second trimesters of pregnancy.**

Inhibition of prostaglandin synthesis may adversely affect pregnancy and/or the embryofetal development. Data from epidemiological studies suggest an increased risk of miscarriage and of cardiac malformation after use of a prostaglandin synthesis inhibitor in early pregnancy.

In animals, administration of a prostaglandin synthesis inhibitor has been shown to result in increased pre- and post-implantation loss and embryo-fetal lethality. In addition, increased incidences of various malformations, including cardiovascular, have been reported in animals given a prostaglandin synthesis inhibitor during the organogenetic period.

VIMOVO, which contains naproxen, is not recommended in labour and delivery because naproxen containing products, through their prostaglandin synthesis inhibitory effect, may adversely affect fetal circulation and inhibit uterine contractions, thus increasing the risk of uterine hemorrhage.

**Nursing Women:** (See CONTRAINDICATIONS)

**Pediatrics and adolescents (<18 years of age):** (See CONTRAINDICATIONS)

**Geriatrics:** Patients older than 65 years and frail or debilitated patients are more susceptible to a variety of adverse reactions from NSAIDs. The incidence of these adverse reactions increases with dose and duration of treatment. In addition, these patients are less tolerant to ulceration and bleeding. Most reports of fatal GI events are in this population. Older patients are also at risk of lower esophageal injury including ulceration and bleeding. For such patients, consideration should be given to a starting dose lower than the one usually recommended, with individual adjustment when necessary and under close supervision.

Of the total number of patients who received VIMOVO (n=1157) in clinical trials, 387 were  $\geq 65$  years of age, of which 85 patients were 75 years and over. No meaningful differences in efficacy (reduction in gastric ulcer rates or pain relief) or safety were observed between these subjects and younger subjects. Elderly patients in the VIMOVO group compared with the naproxen group (n=426) were consistently observed to have significantly lower gastric ulcer rates, 1.5% vs 28.5% in patients  $\geq 65$  years of age ( $p < 0.001$ ), and 0% vs 19.2% in patients  $\geq 75$  years of age ( $p = 0.019$ ). VIMOVO non-inferiority to celecoxib for pain relief was maintained in elderly patients  $> 65$  years of age, generally considered to be at greater risk of GI side effects. The incidence of adverse events was generally consistent between age populations (see WARNINGS AND PRECAUTIONS; Gastrointestinal and CLINICAL TRIALS).

**Hepatic Insufficiency:** VIMOVO is not recommended for use in patients with severe hepatic impairment due to increased risk of NSAID associated bleeding and/or renal failure (see CONTRAINDICATIONS and WARNINGS AND PRECAUTIONS; Hepatic/Biliary/Pancreatic).

In patients with mild to moderate hepatic impairment VIMOVO should be used with caution and hepatic function closely monitored.

**Renal Insufficiency:** VIMOVO is not recommended for use in patients with severe renal impairment or deteriorating renal disease (see CONTRAINDICATIONS and WARNINGS AND PRECAUTIONS; Renal)

In patients with mild to moderate renal impairment VIMOVO should be used with caution and renal function closely monitored.

**Poor Metabolizers:** The CYP 2C19 and CYP 3A4 isozymes are responsible for metabolism of esomeprazole. The CYP 2C19 isozyme, which is involved in the metabolism of all available proton pump inhibitors, exhibits polymorphism. Some 3% of Caucasians and 15-20% of Asians lack CYP 2C19 and are termed “poor metabolizers”. At EC-esomeprazole steady state (40 mg for 5 days), the ratio of AUC in poor metabolizers to AUC in the rest of the population is approximately 2. Dosage

adjustment of VIMOVO based on CYP 2C19 status is not necessary (see DOSAGE AND ADMINISTRATION and ACTION AND CLINICAL PHARMACOLOGY; Pharmacokinetics, Special Populations).

### **Monitoring and Laboratory Tests**

Patients on long-term treatment with VIMOVO should have their blood pressure monitored regularly and an ophthalmic examination should be carried out at periodic intervals (see WARNINGS AND PRECAUTIONS; Cardiovascular and Ophthalmic).

Hemoglobin, hematocrit, red blood cells (RBCs), white blood cells (WBCs), and platelets should be checked in patients on long-term treatment with VIMOVO. Additionally, concurrent therapy with warfarin requires close monitoring of the international normalized ratio (INR) (see WARNINGS AND PRECAUTIONS; Hematology).

Serum transaminase and bilirubin should be monitored regularly during VIMOVO therapy (see WARNINGS AND PRECAUTIONS; Hepatic, Biliary, Pancreatic).

Serum creatinine, creatine clearance and serum urea should be checked in patients during VIMOVO therapy. Electrolytes including serum potassium should be monitored periodically (see WARNINGS AND PRECAUTIONS; Renal).

Monitoring of plasma lithium concentration is recommended when stopping or starting VIMOVO therapy.

## **ADVERSE REACTIONS**

### **Adverse Drug Reaction Overview**

Since VIMOVO (naproxen/esomeprazole) contains both naproxen and esomeprazole, the same pattern of undesirable effects reported for these individual substances may occur.

The most common adverse reactions seen with naproxen are gastrointestinal, of which peptic ulcer, with or without bleeding, is the most severe. Fatalities have occurred particularly in the elderly. Other common adverse reactions include dyspepsia, stomach pain, nausea and vomiting.

Common reactions seen with esomeprazole in clinical trials include headache, diarrhea, flatulence, abdominal pain, nausea, vomiting and dizziness, which are thought to be causally related.

The most commonly reported adverse reactions with VIMOVO are erosive gastritis, dyspepsia and gastritis. No new safety findings were identified during VIMOVO treatment compared to the established safety profile for the individual substances.

### **Clinical Trial Adverse Drug Reactions**

*Because clinical trials are conducted under very specific conditions the adverse reaction rates observed in the clinical trials may not reflect the rates observed in practice and should not be compared to the rates in the clinical trials of another drug. Adverse drug reaction information from clinical trials is useful for identifying drug-related adverse events and for approximating rates.*

Adverse event data is provided from controlled studies using VIMOVO, involving 2317 patients ranging in duration from 3-12 months. Patients received either 500/20 mg of VIMOVO twice daily (n=1157), 500 mg of enteric-coated (EC) naproxen twice daily (n=426), 200 mg of celecoxib once daily (n=488), or placebo (n=246).

All adverse reactions, regardless of causality, occurring in  $\geq 2\%$  of patients from two 6-month randomized, double-blind, parallel-group controlled clinical studies (Study 301 and 302) conducted in patients at risk of developing NSAID-associated ulcers compared to EC-naproxen are presented in the below table.

**Table 1** Adverse Reactions, regardless of causality, occurring  $\geq 2\%$  in arthritis<sup>a</sup> patients at risk of NSAID-induced ulcers from Studies 301 and 302 (pooled, 6 months duration)

Preferred term (sorted by SOC)	VIMOVO 500/20 mg twice daily (n=428) %	EC-Naproxen 500 mg twice daily (n=426) %
<b>Gastrointestinal Disorders</b>		
Gastritis Erosive	19.4	38.0
Dyspepsia	18.0	26.8
Gastritis	17.1	14.1
Diarrhea	6.1	5.2
Gastric Ulcer	5.6	23.7
Abdominal Pain Upper	5.6	8.7
Nausea	5.1	4.9
Hiatus Hernia	4.2	5.9
Abdominal Distension	3.7	3.8
Flatulence	3.7	3.1
Esophagitis	3.5	7.5
Constipation	2.6	2.8
Abdominal pain	2.3	1.6
Erosive Duodenitis	2.1	11.7
Abdominal pain lower	2.1	2.6
Duodenitis	1.4	7.3
Gastritis hemorrhagic	1.2	2.1
Gastroesophageal reflux disease	0.9	3.5
Duodenal ulcer	0.7	5.4
Erosive esophagitis	0.5	5.6

<b>Preferred term (sorted by SOC)</b>	<b>VIMOVO 500/20 mg twice daily (n=428) %</b>	<b>EC-Naproxen 500 mg twice daily (n=426) %</b>
<b>Infections and infestations</b>		
Upper respiratory tract infection	4.9	3.8
Bronchitis	2.3	1.9
Urinary tract infection	2.3	1.4
Sinusitis	1.9	2.1
Nasopharyngitis	0.9	2.3
<b>Musculoskeletal and connective tissue disorders</b>		
Arthralgia	1.2	2.3
<b>Nervous system disorders</b>		
Headache	2.6	1.4
Dysgeusia	2.1	1.4
<b>Respiratory, thoracic and mediastinal disorders</b>		
Cough	2.3	2.6

<sup>a</sup> Studies also included 23% patients with chronic musculoskeletal conditions requiring ongoing NSAID therapy

Patients taking VIMOVO had significantly fewer pre-specified NSAID-associated upper GI adverse events (including duodenal ulcers) (53.3%) compared to patients taking EC naproxen alone (70.4%).

As well, patients taking VIMOVO had significantly less discontinuations due to adverse reactions compared to patients taking EC-naproxen alone (7.9% vs. 12.5% respectively). The most common reasons for discontinuations due to adverse events in the VIMOVO treatment group were upper abdominal pain (1.2%, n=5), duodenal ulcer (0.7%, n=3) and erosive gastritis (0.7%, n=3). Among patients receiving naproxen alone, the most common reasons for discontinuations due to adverse events were duodenal ulcer 5.4% (n=23), dyspepsia 2.8% (n=12) and upper abdominal pain 1.2% (n=5). The proportion of patients discontinuing treatment due to pre-specified NSAID-associated upper gastrointestinal adverse events (including duodenal ulcers) in patients treated with VIMOVO was 4.0% compared to 12.0% for patients taking EC-naproxen (p<0.001).

Adverse reaction data for VIMOVO, regardless of causality, occurring in  $\geq 2$  % of patients, and greater than placebo from two 3-month randomized double-blind, placebo-controlled clinical studies conducted in patients with osteoarthritis of the knee are presented below.

**Table 2 Adverse Reactions, regardless of causality, occurring  $\geq 2\%$  in patients with osteoarthritis of the knee from Studies 307 and 309 (3 months duration)**

<b>Preferred term (sorted by SOC)</b>	<b>VIMOVO 500 mg/20 mg twice daily (n=490) %</b>	<b>Celecoxib 200 mg once daily (n=488) %</b>	<b>Placebo (n=246) %</b>
<b>Gastrointestinal Disorders</b>			
Dyspepsia	8.4	10.7	12.2
Diarrhea	5.5	2.9	3.7
Abdominal Pain Upper	4.1	4.3	3.3
Constipation	3.5	2.0	1.2
Nausea	3.5	3.1	3.7
<b>Nervous System Disorders</b>			
Dizziness	3.1	0.8	2.0
Headache	2.7	3.7	5.3
<b>General disorders and administration site conditions</b>			
Peripheral edema	3.1	1.2	1.2
<b>Musculoskeletal and connective tissue disorders</b>			
Arthralgia	1.4	2.9	1.6
Back pain	1.2	2.9	2.0
<b>Respiratory, thoracic and mediastinal disorders</b>			
Cough	1.4	0.6	2.8
<b>Infections and infestations</b>			
Sinusitis	1.0	1.2	2.4

Similar percentages of subjects receiving either VIMOVO or celecoxib withdrew from these studies due to treatment emergent adverse events (6.9% and 7.8% respectively). There were no adverse reactions in which more than 1% of subjects withdrew from any treatment group.

The long-term safety of VIMOVO was evaluated in an open label clinical trial of 239 patients, of which 135 patients received 500/20 mg of VIMOVO for 12 months. There were no differences in frequency or types of adverse reactions seen in the long-term safety study compared to shorter-term treatment in the randomized controlled studies above.

In the pooled data from all VIMOVO clinical trials in patients (n=2317), there were 4 reports of atrial fibrillation/flutter. All 4 events occurred in patients assigned to VIMOVO but all were assessed as unrelated or unlikely to be related to study drug.

## **Post-Market Adverse Drug Reactions**

Because post-marketing events are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or clearly establish a causal relationship to the product. The following post-marketing adverse events have been reported with NSAIDS including naproxen and naproxen sodium, taken alone.

**Gastrointestinal:** Peptic ulcers, perforation, or GI bleeding, sometimes fatal, particularly in the elderly. Heartburn, nausea, esophagitis, vomiting, diarrhea, flatulence, constipation, dyspepsia, abdominal pain, nonpeptic gastrointestinal ulceration, melena, hematemesis, stomatitis, ulcerative stomatitis, exacerbation of ulcerative colitis and Crohn's disease, pancreatitis, and gastritis.

**Infections:** aseptic meningitis

**Blood and Lymphatic System Disorders:** agranulocytosis, aplastic anemia, eosinophilia, hemolytic anemia, leucopenia, thrombocytopenia

**Immune System Disorders:** anaphylactoid reactions

**Metabolic and Nutrition Disorders:** hyperkalemia

**Psychiatric Disorders:** depression, dream abnormalities, insomnia

**Nervous System Disorders:** dizziness, drowsiness, headache, lightheadedness, retrobulbar optic neuritis convulsions, cognitive dysfunction, inability to concentrate

**Eye Disorders:** visual disturbances, corneal opacity, papillitis, papilledema

**Ear and Labyrinth Disorders:** hearing impairment, hearing disturbances, tinnitus, vertigo

**Cardiac Disorders:** palpitations, cardiac failure has been reported in association with NSAID treatment, congestive heart failure

**Vascular Disorders:** hypertension, vasculitis

**Respiratory:** Thoracic and **Mediastinal Disorders:** dyspnea, pulmonary edema, asthma, eosinophilic pneumonitis.

**Hepatobiliary Disorders:** hepatitis (some cases of hepatitis have been fatal), jaundice.

**Skin and Subcutaneous Tissue Disorders:** ecchymoses, itching (pruritus), purpura, skin eruptions, sweating, alopecia, epidermal necrolysis, very rarely toxic epidermal necrolysis, erythema multiforme, bullous reactions, including Stevens-Johnson syndrome, erythema nodosum, fixed drug eruption, lichen planus, pustular reaction, skin rashes, SLE, urticaria, photosensitivity reactions, including rare cases resembling porphyria cutanea tarda ("pseudoporphyria") or epidermolysis bullosa and angioneurotic edema. If skin fragility, blistering or other symptoms suggestive of pseudoporphyria occur, treatment should be discontinued and the patient monitored.

**Musculoskeletal and Connective Tissue Disorders:** myalgia, muscle weakness.

**Renal and Urinary Disorders:** hematuria, interstitial nephritis, nephrotic syndrome, renal disease, renal failure, renal papillary necrosis

**Reproductive System and Breast Disorders:** female infertility

**General Disorders and Administration Site Conditions:** edema, thirst, pyrexia (chills and fever), malaise

**Investigations:** abnormal liver function tests, raised serum creatinine

From esomeprazole post-marketing experience there have been uncommon reports (<1%) of peripheral edema, insomnia, paresthesia, somnolence, vertigo and increased liver enzymes.

There have also been rare reports (<0.1%) of blurred vision, hypersensitivity reactions (e.g. angioedema, anaphylactic reaction/shock), myalgia, leukopenia, thrombocytopenia, depression, alopecia, hepatitis with or without jaundice, hyponatremia, agitation, confusion, taste disturbance, bronchospasm, stomatitis, GI candidiasis, rash, dermatitis, photosensitivity, arthralgia, malaise, and hyperhidrosis.

Very rarely (<0.01%) agranulocytosis, erythema multiforme, Stevens-Johnson syndrome, toxic epidermal necrolysis, pancytopenia, aggression, hallucination, hepatic failure, hepatic encephalopathy, interstitial nephritis, muscular weakness, gynecomastia, hypomagnesaemia and microscopic colitis have been reported.

## **DRUG INTERACTIONS**

### **Overview**

#### **Drug-Drug Interactions**

Studies conducted with VIMOVO (naproxen/esomeprazole) have shown no interactions between its two components, naproxen and esomeprazole. Interaction studies have not been conducted with VIMOVO and other drugs. Interactions for VIMOVO would be expected to reflect those of the monocomponents, taken separately, which are detailed below.

#### **NSAID related Drug-Drug Interactions**

**Acetylsalicylic acid (ASA) or other NSAIDs:** The use of VIMOVO in addition to an NSAID, including over-the-counter ones (such as ASA and ibuprofen) for analgesic and/or anti-inflammatory effects is NOT recommended because of the absence of any evidence demonstrating synergistic benefits and the potential for additive adverse reactions.

The exception is the use of low-dose ASA for cardiovascular protection, when another NSAID containing product, such as VIMOVO is being used for its analgesic/anti-inflammatory effect, keeping in mind that combination NSAID therapy is associated with additive adverse reactions.

However, in clinical trials, patients taking VIMOVO in combination with low-dose ASA did not have an increased occurrence of gastric ulcers compared to patients taking VIMOVO alone. Ulcer complications such as bleeding, perforation and obstruction were not studied in VIMOVO trials.

Some NSAIDs (e.g. ibuprofen) may interfere with the anti-platelet effects of low-dose ASA, possibly by competing with ASA for access to the active site of cyclooxygenase-1.

**Albumin Bound Drugs:** The naproxen anion may displace from their binding sites other drugs which are also albumin-bound and may lead to drug interactions. For example, in patients receiving bishydroxycoumarin or warfarin, the addition of VIMOVO, which contains naproxen, could prolong the prothrombin time. These patients should, therefore, be under careful observation. Similarly, patients receiving VIMOVO and a hydantoin, sulfonamide or sulfonyleurea should be observed for adjustment of dose if required.

**Antacids:** The rate of absorption of naproxen is altered by concomitant administration of antacids but is not adversely influenced by the presence of food.

**Anti-coagulants:** (See WARNINGS AND PRECAUTIONS; Hematologic, Anti-coagulants)

**Anti-hypertensives:** NSAIDs may diminish the anti-hypertensive effect of Angiotensin Converting Enzyme (ACE) inhibitors.

Combinations of ACE inhibitors, angiotensin-II antagonists, or diuretics with NSAIDs might have an increased risk for acute renal failure and hyperkalemia. Blood pressure and renal function (including electrolytes) should be monitored more closely in this situation, as occasionally there can be a substantial increase in blood pressure.

Naproxen and other NSAIDs can reduce the antihypertensive effect of propranolol and other beta blockers as well as other antihypertensive agents.

**Anti-platelet Agents (including ASA):** There is an increased risk of bleeding, via inhibition of platelet function, when anti-platelet agents are combined with NSAIDs, such as naproxen, a component of VIMOVO (see WARNINGS AND PRECAUTIONS; Hematologic, Anti-platelet Effects).

**Cyclosporin:** Inhibition of renal prostaglandin activity by NSAIDs may increase the plasma concentration of cyclosporine and/or the risk of cyclosporine induced nephrotoxicity. Patients should be carefully monitored during concurrent use.

**Cholestyramine:** Concomitant administration of cholestyramine can delay the absorption of naproxen, but does not affect its extent.

**Digoxin:** Concomitant administration of an NSAID with digoxin can result in an increase in digoxin concentrations which may result in digitalis toxicity. Increased monitoring and dosage adjustments of digitalis glycosides may be necessary during and following concurrent NSAID therapy.

**Diuretics:** Clinical studies as well as post-marketing observations have shown that NSAIDs can reduce the effect of diuretics.

**Glucocorticoids:** Some studies have shown that the concomitant use of NSAIDs and oral glucocorticoids increases the risk of GI adverse events such as ulceration and bleeding. This is especially the case in older (> 65 years of age) individuals.

**Lithium:** Monitoring of plasma lithium concentrations is advised when stopping or starting a NSAID, as increased lithium concentrations can occur.

**Methotrexate:** Caution is advised in the concomitant administration of naproxen and methotrexate since naproxen and other NSAIDs have been reported to reduce the tubular secretion of methotrexate in an animal model, thereby possibly enhancing its toxicity. When given together with proton pump inhibitors, methotrexate levels have been reported to increase in some patients. This may indicate that both naproxen and esomeprazole could enhance the toxicity of methotrexate. The clinical relevance is likely to be greater in patients receiving high doses of methotrexate and in patients with renal dysfunction. Caution should be used when VIMOVO is administered concomitantly with methotrexate. In patients administered high doses of methotrexate a temporary withdrawal of VIMOVO is recommended (see WARNINGS AND PRECAUTIONS; Renal).

**Probenecid:** Probenecid given concurrently increases naproxen anion plasma levels and extends its plasma half-life significantly. Caution is advised when probenecid is administered concurrently.

**Selective Serotonin Reuptake Inhibitors (SSRIs):** Concomitant administration of NSAIDs and SSRIs may increase the risk of gastrointestinal ulceration and bleeding (see WARNINGS AND PRECAUTIONS; Gastrointestinal).

**Tacrolimus:** As with all NSAIDs caution is advised when tacrolimus is co-administered because of the increased risk of nephrotoxicity.

### **Esomeprazole related Drug-Drug Interactions**

Esomeprazole magnesium is metabolized by the cytochrome P-450 system (CYP), mainly in the liver, through CYP 2C19 and CYP 3A4. There are no clinically significant interactions between esomeprazole and diazepam, phenytoin, quinidine or cisapride\*. Drugs known to inhibit CYP 2C19 or CYP 3A4 or both (such as clarithromycin and voriconazole) may lead to increased esomeprazole serum levels by decreasing the rate of esomeprazole's metabolism. Drugs known to induce CYP 2C19 or CYP 3A4 or both (such as rifampin and St. John's Wort) may lead to decreased esomeprazole serum levels by increasing the esomeprazole metabolism (see DRUG-HERB INTERACTIONS FOR VIMOVO).

**Diazepam:** Concomitant administration of EC-esomeprazole (30 mg once daily for 5 days) resulted in a 45% decrease in the clearance of diazepam in healthy male volunteers. Studies in females have not been conducted. Increased levels of diazepam were seen some 12 hours after dosing and later when the plasma levels of diazepam were below its therapeutic range. Therefore, this interaction is unlikely to be of clinical significance.

**Warfarin:** Concomitant administration of 40 mg EC-esomeprazole (once daily for 3 weeks) to male and female patients on stable anticoagulation therapy with warfarin, resulted in a 13% increase in trough plasma levels of R-warfarin (the less potent enantiomer) while that of S-warfarin was unchanged. Coagulation times were stable throughout the entire study period. No clinically significant interaction was observed. However, from post marketed use, cases of elevated international normalized ratio (INR) of clinical significance have been reported during concomitant treatment with warfarin. Close monitoring is recommended when initiating and ending treatment with warfarin or other coumarin derivatives (please refer to approved Product Monograph for warfarin or relevant coumarin derivative).

**Cilostazol\*:** Omeprazole as well as esomeprazole act as inhibitors of CYP 2C19. Omeprazole, given in doses of 40 mg to healthy subjects in a cross-over study, increased  $C_{max}$  and AUC for cilostazol by 18% and 26% respectively, and one of its active metabolites, 3,4-dihydrocilostazol, by 29% and 69% respectively.

**Phenytoin:** Concomitant administration of 40 mg EC-esomeprazole (once daily for 2 weeks) to male and female epileptic patients stabilized on phenytoin, resulted in a 13% increase in trough plasma levels of phenytoin. This minor interaction is unlikely to be of clinical relevance as dose reduction was not required in any patient nor was the profile and frequency of adverse events affected.

Results from a range of interaction studies with EC-esomeprazole versus other drugs indicate that daily doses of 40 mg EC-esomeprazole, given for 5 to 21 days in male and/or female subjects, has no clinically relevant interactions with CYP 1A2 (caffeine), CYP 2C9 (S-warfarin), and CYP 3A (quinidine, estradiol and cisapride\*).

**Antiretroviral Drugs:** Omeprazole, the racemate of esomeprazole, like other acid-reducing agents, has been reported to interact with some antiretroviral drugs. The clinical importance and the mechanisms behind these interactions are not always known. A change in gastric pH may change the absorption of the antiretroviral drug. Other possible interaction mechanisms are via CYP 2C19.

Reports indicate that omeprazole has a significant impact on atazanavir exposure, decreasing AUC,  $C_{max}$  and  $C_{min}$ . This interaction is only partially overcome by the addition of ritonavir to the atazanavir treatment regimen. Similarly, decreased serum levels of nelfinavir have also been reported when given together with omeprazole. Concomitant administration of omeprazole with atazanavir and nelfinavir is therefore not recommended. For other antiretroviral drugs, such as saquinavir, increased serum levels have been reported. There are also some antiretroviral drugs where unchanged serum levels have been reported when given with omeprazole. Due to the similar pharmacodynamic effects and pharmacokinetic properties of omeprazole and esomeprazole, concomitant administration of EC-esomeprazole and antiretroviral drugs such as atazanavir and nelfinavir is not recommended (see WARNINGS AND PRECAUTIONS).

\*not marketed in Canada

**Methotrexate:** When given together with proton pump inhibitors, methotrexate levels have been reported to increase in some patients. This may indicate that esomeprazole could enhance the toxicity of methotrexate. Caution should be used when VIMOVO is administered concomitantly with methotrexate. In patients administered high doses of methotrexate, a temporary withdrawal of VIMOVO is recommended.

**Voriconazole:** Concomitant administration of EC-esomeprazole with a combined inhibitor of CYP 2C19 and CYP 3A4 may result in more than double the levels of esomeprazole exposure.

As with all drugs that reduce gastric acidity, changes in plasma levels of other drugs whose absorption is pH dependent (e.g. absorption of ketoconazole, itraconazole or erlotinib) must be taken into account when co-administered with esomeprazole. The absorption of ketoconazole, itraconazole or erlotinib can decrease during treatment with esomeprazole.

**Digoxin:** The absorption of digoxin can increase during treatment with esomeprazole and other drugs that reduce gastric acidity. Concomitant treatment with omeprazole (20 mg daily) and digoxin in ten healthy subjects increased the bioavailability of digoxin by an average of 10% (up to 30% in two out of ten subjects).

### **Other Interactions**

As demonstrated with other PPIs, prolonged use may impair the absorption of protein-bound Vitamin B<sub>12</sub> and may contribute to the development of Vitamin B<sub>12</sub> deficiency.

### **Drug-Food Interactions for VIMOVO**

Concomitant administration of food can delay the absorption of the naproxen component of VIMOVO, but does not affect its extent of absorption. Concomitant administration of food however, does not delay the absorption of the esomeprazole component of VIMOVO, but significantly reduces its extent of absorption (see DOSAGE AND ADMINISTRATION; Dosing Considerations and ACTIONS AND CLINICAL PHARMACOLOGY; Pharmacokinetics, Absorption, Food Effect).

### **Drug-Herb Interactions for VIMOVO**

Use of St. John's Wort may lead to decreased esomeprazole serum levels by increasing the esomeprazole metabolism (see DRUG INTERACTIONS, Eesomeprazole related Drug-Drug Interactions)

### **Drug-Laboratory Interactions for VIMOVO**

During treatment with antisecretory drugs, chromogranin A (CgA) increases due to decreased gastric acidity. The increased CgA level may interfere with investigations for neuroendocrine tumours. To avoid this interference esomeprazole treatment should be temporarily stopped five days before CgA measurements.

(See also WARNINGS AND PRECAUTIONS; Special Populations, Monitoring and Laboratory Tests).

## **Drug-Lifestyle Interactions for VIMOVO**

There are no specific studies about effects on the ability to drive vehicles and to use machinery. It should be taken into account that some of the adverse effects (e.g. dizziness) reported following the use of VIMOVO may reduce the ability to react. Patients who experience visual disturbances or other central nervous system disturbances should refrain from these activities.

Concurrent use of alcohol with an NSAID may increase the risk of gastrointestinal side effects, including ulceration and hemorrhage.

## **DOSAGE AND ADMINISTRATION**

### **Dosing Considerations**

VIMOVO (naproxen/esomeprazole) must be swallowed whole with water, and not split, chewed or crushed.

VIMOVO should be taken at least 30 minutes before meals.

VIMOVO does not allow for administration of lower daily doses of naproxen or esomeprazole. If a lower daily dose of either naproxen (i.e.  $\leq 750$  mg/day) or immediate-release (IR) esomeprazole (i.e.  $\leq 40$  mg/day) is more appropriate, alternate therapy should be considered. Since VIMOVO is a combination product, carefully consider the implications of any dosing schedule on both components.

### **Recommended Dose and Dosage Adjustment**

#### **Osteoarthritis/Rheumatoid Arthritis/Ankylosing Spondylitis**

The recommended daily dosage of VIMOVO is:

- 375/20 mg (naproxen/esomeprazole) twice a day or
- 500/20 mg (naproxen/esomeprazole) twice a day.

### **Missed Dose**

The missed dose should be taken as soon as remembered, and then the regular dosing schedule should be continued. Two doses of VIMOVO should not be taken at the same time.

### **Special Populations**

**Geriatrics:** See WARNINGS AND PRECAUTIONS; Special Populations

**Pediatrics (<18 years):** VIMOVO is not recommended for use in pediatric patients (see CONTRAINDICATIONS).

**Hepatic Insufficiency:** VIMOVO is not recommended for use in patients with severe hepatic impairment (see CONTRAINDICATIONS, WARNINGS AND PRECAUTIONS; Hepatic/Biliary/Pancreatic and WARNINGS AND PRECAUTIONS; Special Populations).

**Renal Insufficiency:** VIMOVO is not recommended for use in patients with severe renal impairment or deteriorating renal disease (see CONTRAINDICATIONS, WARNINGS AND PRECAUTIONS; Renal and WARNINGS AND PRECAUTIONS; Special Populations).

**Poor Metabolizers:** Dosage adjustment based on CYP 2C19 status is not necessary (see WARNINGS AND PRECAUTIONS; Special Populations and ACTION AND CLINICAL PHARMACOLOGY; Pharmacokinetics, Special Populations).

## OVERDOSAGE

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

There is no clinical data on overdose with VIMOVO (naproxen/esomeprazole). Any effects of an overdose with VIMOVO would be expected to reflect those of the monocomponents of naproxen and esomeprazole, taken separately.

### Naproxen:

Significant overdose may be characterized by drowsiness, dizziness, disorientation, heartburn, indigestion, epigastric pain, abdominal discomfort, nausea, vomiting, transient alterations in liver function, hypoprothrombinemia, renal dysfunction, metabolic acidosis and apnea. A few patients have experienced convulsions, but it is not clear whether or not these were naproxen related.

Gastrointestinal bleeding may occur. Hypertension, acute renal failure, respiratory depression and coma may occur after the ingestion of NSAIDs but are rare.

Anaphylactoid reactions have been reported with therapeutic ingestion of NSAIDs, and may occur following an overdose.

Patients should be managed by symptomatic and supportive care following NSAIDs overdose. There are no specific antidotes. Prevention of further absorption (e.g. activated charcoal) may be indicated in patients seen within 4 hours of ingestion with symptoms or following a large overdose. Forced diuresis, alkalization of urine, hemodialysis, or hemoperfusion may not be useful due to high protein binding.

### Esomeprazole:

Limited information is available on the effects of higher doses in man, and specific recommendations for treatment cannot be given. Experience from a patient who deliberately ingested an overdose of EC-esomeprazole (280 mg), demonstrated symptoms that were transient, and included weakness, loose stools and nausea. Single doses of 80 mg EC-esomeprazole have been shown to be uneventful. No specific antidote is known. Esomeprazole is extensively protein-bound and is therefore not readily dialyzable. Treatment should be symptomatic and general supportive measures should be utilized.

## ACTION AND CLINICAL PHARMACOLOGY

### Mechanism of Action

VIMOVO (naproxen/esomeprazole) has been developed as a sequential-delivery tablet formulation combining an immediate release esomeprazole magnesium layer and an enteric-coated (EC) naproxen core. As a result, esomeprazole is released first in the stomach, prior to the dissolution of naproxen in the small intestine. The enteric coating prevents naproxen release at pH levels below 5 providing protection against possible local gastric toxicity of naproxen.

Naproxen is a nonsteroidal anti-inflammatory drug (NSAID) with analgesic properties. The mechanism of action of naproxen, like that of other NSAIDs, is not completely understood but may be related to prostaglandin synthetase inhibition.

Esomeprazole (the S-isomer of omeprazole) is a specific inhibitor of the gastric enzyme  $H^+$ ,  $K^+$ -ATPase (the proton pump) which is responsible for acid secretion by the parietal cells of the stomach. Esomeprazole accumulates in the acidic environment of the parietal cells after absorption, where it is converted into the active form. This active sulphenamide specifically binds the  $H^+$ ,  $K^+$ -ATPase (proton pump), to block the final step in acid production, thus reducing gastric acidity.

### Pharmacodynamics

#### **Anti-Inflammatory and Analgesic activity**

Naproxen has been shown to possess anti inflammatory and analgesic activity as assessed by a variety of animal test procedures (see DETAILED PHARMACOLOGY).

#### **Antisecretory Activity**

The effect of VIMOVO on intragastric pH was determined in 25 healthy volunteers in a 4-way cross-over study. Three VIMOVO combinations (naproxen 500 mg combined with either immediate-release (IR) esomeprazole 10, 20, or 30 mg) were administered twice daily over 9 days versus twice daily administration of 500 mg naproxen and once daily EC-esomeprazole 20 mg. The aim was to evaluate the effect of VIMOVO, containing different doses of IR-esomeprazole, on intragastric pH, compared to EC-esomeprazole 20 mg administered once daily. The results are shown below.

**Table 3** Percent of time with intragastric pH >4.0 on Day 9 in Healthy Volunteers

	VIMOVO (E10) (N=25)	VIMOVO (E20) (N=25)	VIMOVO (E30) (N=25)	Naproxen plus EC E20 (N=25)
<b>% Time Gastric pH&gt;4.0<sup>a</sup></b>				
LS Mean (hours)	41.1 (9.8)	71.5 (17.1)	76.8 (18.4)	57.2 (13.7)
SD	3.0	3.0	3.0	3.0
% CV	55	18	16	18

<sup>a</sup> Gastric pH was measured over a 24-hour period

E10, E20, E30 = immediate-release esomeprazole (10, 20 or 30 mg respectively)  
 EC E20 = enteric-coated esomeprazole 20 mg

Based on these results, 20 mg IR-esomeprazole was chosen as the most appropriate dose for VIMOVO.

### Serum Gastrin Effects

During treatment with all antisecretory drugs serum gastrin increases in response to the decreased acid secretion. The effect of esomeprazole on serum gastrin concentrations was evaluated in approximately 2,700 patients in clinical trials up to 8 weeks and in over 1,300 patients for up to 6-12 months (daily doses of either 20 or 40 mg). The mean fasting gastrin level increased in a dose-related manner. This increase reached a plateau (approximately 100 pg/mL) within two to three months of therapy and returned to baseline levels (approximately 30-40 pg/mL) within four weeks after discontinuation of therapy.

### Pharmacokinetics

**Table 4 Summary of VIMOVO Pharmacokinetic Parameters in healthy volunteers**

	C <sub>max</sub>		t <sub>1/2</sub>		AUC		t <sub>max</sub>	
	N <sup>a</sup> (ng/mL)	E <sup>a</sup> (ng/mL)	N (h)	E (h)	N (hr*ng/mL)	E (hr*ng/mL)	N (h)	E (h)
Single dose mean (AM)	80.5	1034	9.14	1.24	601 (AUC <sub>0-10AM</sub> )	1874 (AUC <sub>0-10AM</sub> )	3.00	0.50
Single dose mean (PM)	73.5	468	14.9	1.48	721 (AUC <sub>0-14 PM</sub> )	1120 (AUC <sub>0-14 PM</sub> )	2.50	0.75

<sup>a</sup> N = EC-naproxen, E = IR-esomeprazole

Studies conducted with VIMOVO have shown no pharmacokinetic (PK) interaction between its two components, naproxen and esomeprazole. This is consistent with the PK findings of each drug dosed independently.

### Absorption:

#### Naproxen

At steady state following administration of VIMOVO twice daily, peak plasma concentrations of naproxen are reached within a median time of 3 hours following both the morning and the evening dose. Time to peak plasma concentrations of naproxen is slightly longer on the first day of administration, with median times of 4 hours and 5 hours for the morning and evening dose, respectively.

Naproxen is rapidly and completely absorbed from the gastrointestinal tract. Steady state conditions are normally achieved after 4-5 doses.

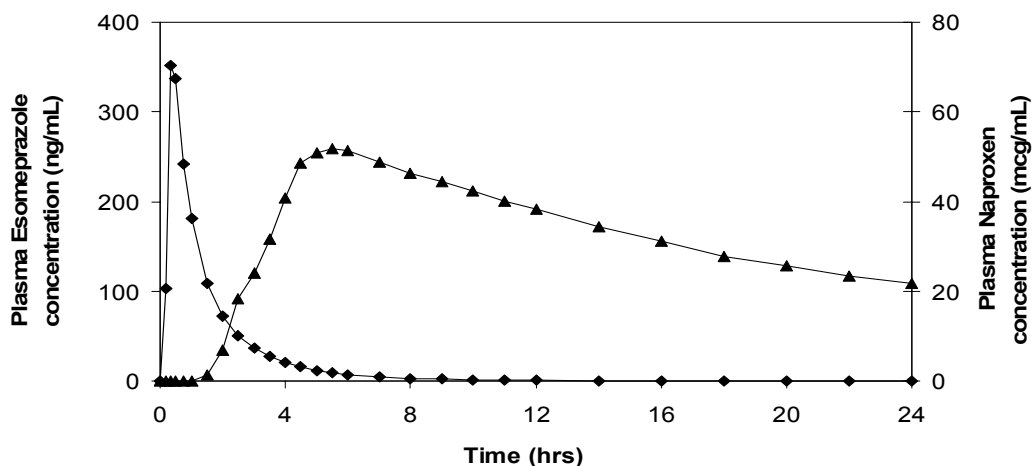
Bioequivalence between the naproxen component of VIMOVO and EC-naproxen, based on area under the plasma concentration-time curve (AUC, AUC<sub>0-t</sub>), and maximum plasma concentration (C<sub>max</sub>) of naproxen, has been demonstrated for both the 375 mg and 500 mg strengths, under fasting and fed conditions. The mean naproxen plasma concentration-time profiles were comparable for both strengths to the respective reference product, NAPROSYN E (see ACTION AND CLINICAL PHARMACOLOGY; Pharmacokinetics, Absorption, Food Effect and CLINICAL TRIALS; Comparative Bioavailability Studies).

### Esomeprazole

Following administration of VIMOVO twice daily, esomeprazole is rapidly absorbed with peak plasma concentration reached within a median time of 0.5 to 0.75 hours following the morning and evening dose on both the first day of administration and at steady state. The peak plasma concentrations of esomeprazole are higher at steady state compared to the first day of dosing of VIMOVO. A decrease of first pass metabolism and systemic clearance of esomeprazole with repeated dosing also contributes to the higher plasma concentrations at steady state.

The pharmacokinetics of naproxen and esomeprazole following administration of VIMOVO 500/20 mg are depicted below.

**Figure 1** Mean plasma concentrations of naproxen and esomeprazole following single dose administration of VIMOVO 500/20 mg



Legend: ◆ esomeprazole; ▲ naproxen

This is in line with the sequential release design of VIMOVO in that esomeprazole is rapidly released ( $t_{\max}$  0.5 -0.75 hours), followed by the delayed release of naproxen ( $t_{\max}$  4-5 hours).

#### *Pharmacokinetics of esomeprazole in combination with antibiotics*

Interactions between EC-esomeprazole (20 mg b.i.d.), amoxicillin (1 g b.i.d.) and clarithromycin (500 mg b.i.d.), were evaluated in a 4-way cross-over study (each study period was 7 days). When given as the triple combination, the bioavailability (AUC and  $C_{\max}$ ) of amoxicillin and clarithromycin were not significantly changed in healthy volunteers, compared with either drug given alone. The AUC and  $C_{\max}$  of the 14-hydroxyclearithromycin metabolite were both increased by 53% during dosing with the triple combination, compared to values following dosing with clarithromycin alone. There were also significant increases in the AUC (two-fold increase) and  $C_{\max}$  (39%) values for esomeprazole during concomitant administration with the antibiotic drugs, compared with esomeprazole alone.

#### *Food Effect*

Administration of VIMOVO with food does not affect the extent of absorption of naproxen but significantly delays the absorption by about 8 hours and decreases peak plasma concentration by about 12%.

Administration of VIMOVO with food does not delay the absorption of esomeprazole but significantly reduces the extent of absorption, resulting in 52% and 75% reductions of area under the plasma concentration versus time curve and peak plasma concentration, respectively.

Administration of VIMOVO at least 30 minutes before food intake has only minimal or no effect on the extent and time to absorption of naproxen and has no significant effect on the rate or extent of esomeprazole absorption compared to administration under fasted conditions.

#### **Distribution:**

##### Naproxen

At therapeutic levels, naproxen is greater than 99% albumin bound.

##### Esomeprazole

The apparent volume of distribution at steady state of esomeprazole in healthy subjects is approximately 0.22 L/kg body weight. Esomeprazole is 97% protein bound and optically stable *in vivo*, with negligible inversion to the other isomer.

#### **Metabolism:**

##### Naproxen

Naproxen is extensively metabolized in the liver by the cytochrome P450 system (CYP), primarily CYP2C9, to 6-O-desmethyl naproxen. Neither the parent drug nor the metabolites induce metabolizing enzymes. Both naproxen and 6-O-desmethyl naproxen are further metabolized to their respective acylglucuronide conjugated metabolites. Consistent with the half-life of naproxen,

the area under the plasma concentration-time curve increases with repeated dosing of VIMOVO twice daily.

### Esomeprazole

Esomeprazole is completely metabolized by the cytochrome P450 system, mainly in the liver (via CYP 2C19 and CYP 3A4). The major metabolites of esomeprazole (hydroxyl, desmethyl and sulphone metabolites) have no effect on gastric acid secretion.

The area under the plasma esomeprazole concentration-time curve increases with repeated administration of VIMOVO. This increase is dose-dependent and results in a non-linear dose-AUC relationship after repeated administration. This time- and dose-dependency is partly due to a decrease of first pass metabolism and systemic clearance probably caused by an inhibition of the CYP2C19 enzyme by esomeprazole and/or its sulphone metabolite.

### **Excretion:**

#### Naproxen

Following administration of VIMOVO twice daily, the mean elimination half-life for naproxen is approximately 9 hours and 15 hours following the morning and evening dose, respectively with no change with repeated dosing. The mean biological half-life of the anion in humans is approximately 13 hours.

The clearance of naproxen is 0.13 mL/min/kg. Approximately 95% of the naproxen from any dose is excreted in the urine, primarily as naproxen (<1%), 6-O-desmethyl naproxen (<1%) or their conjugates (66% to 92%). Small amounts, 3% or less of the administered dose, are excreted in the feces. In patients with renal failure, metabolites may accumulate.

#### Esomeprazole

Following administration of VIMOVO twice daily, the mean elimination half-life of esomeprazole is approximately 1 hour following both the morning and evening dose on day 1, with a slightly longer elimination half life at steady state (1.2-1.5 hours).

Almost 80% of an oral dose of esomeprazole is excreted as metabolites in the urine, the remainder in the feces. Less than 1% of the parent drug is found in the urine.

### **Special Populations and Conditions**

**Geriatrics:** There is no specific data on the pharmacokinetics of VIMOVO in patients over age 65 (see WARNINGS AND PRECAUTIONS; Special Populations).

**Hepatic Insufficiency:** (see WARNINGS AND PRECAUTIONS; Special Populations and DOSAGE AND ADMINISTRATION; Special Populations).

**Renal Insufficiency:** (see WARNINGS AND PRECAUTIONS; Special Populations and DOSAGE AND ADMINISTRATION; Special Populations).

**Poor Metabolizers:** (see WARNINGS AND PRECAUTIONS; Special Populations and DOSAGE AND ADMINISTRATION; Special Populations).

## **STORAGE AND STABILITY**

Temperature: Store at room temperature (15-30°C).

Moisture: VIMOVO (naproxen/esomeprazole) tablets are provided in bottles. Store in original container and keep bottles tightly closed as VIMOVO tablets are moisture sensitive.

Others: Keep out of reach of children.

## **DOSAGE FORMS, COMPOSITION AND PACKAGING**

### **Dosage Forms**

VIMOVO contains an enteric-coated (EC) naproxen core and immediate-release (IR) esomeprazole film coat. The formulation is designed to release the active ingredients in a sequential fashion: esomeprazole is rapidly released in the stomach followed by the delayed release of naproxen in the small intestine.

VIMOVO (naproxen/esomeprazole) 375/20 mg tablets are yellow, oval film coated tablets printed '375/20' in black ink on one side.

VIMOVO (naproxen/esomeprazole) 500/20 mg tablets are yellow, oval film coated tablets printed '500/20' in black ink on one side.

### **Composition**

VIMOVO tablets contain the following non-medicinal ingredients: carnauba wax, croscarmellose sodium, glycerol monostearate, hypromellose, iron oxide black, iron oxide yellow, macrogols, magnesium stearate, methacrylic acid-ethyl acrylate copolymer (1:1) dispersion, methyl parahydroxybenzoate, polydextrose, polysorbate, povidone, propylene glycol, propyl parahydroxybenzoate, silica colloidal anhydrous, titanium dioxide and triethyl citrate.

### **Packaging**

VIMOVO 375/20 mg or 500/20 mg tablets are supplied in HDPE bottles of 60 tablets.

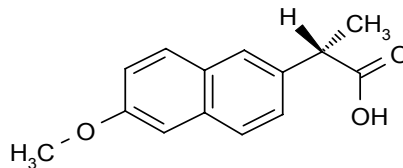
## PART II: SCIENTIFIC INFORMATION

### PHARMACEUTICAL INFORMATION

#### Drug Substance

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<b>Proper Name:</b>	naproxen
<b>Chemical Name:</b>	(+)-(S)-6-methoxy alpha methyl 2 naphthaleneacetic acid
<b>Molecular Formula:</b>	C <sub>14</sub> H <sub>14</sub> O <sub>3</sub>
<b>Molecular Mass:</b>	230.26 g/mol
<b>Structural Formula:</b>	



<b>Physicochemical Properties:</b>	Naproxen is an odorless white crystalline powder with a melting point of 152 – 158°C. It is highly lipid soluble, sparingly soluble in water at low pH and highly soluble in water at high pH.
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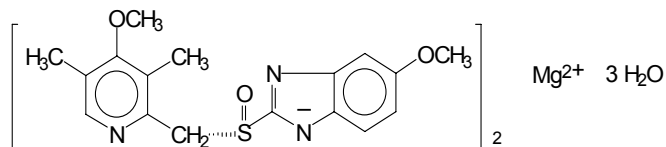
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#### Drug Substance

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<b>Proper Name:</b>	esomeprazole magnesium trihydrate
<b>Chemical Name:</b>	Di-(S)-5-methoxy-2-[[[(4-methoxy-3,5-dimethyl-2 pyridinyl)methyl]-sulfinyl]-1H-benzimidazole magnesium trihydrate
<b>Molecular Formula</b>	C <sub>34</sub> H <sub>36</sub> N <sub>6</sub> O <sub>6</sub> S <sub>2</sub> Mg•3H <sub>2</sub> O
<b>Molecular Mass:</b>	767.2 g/mol (trihydrate) 713.1 g/mol (anhydrous basis)

**Structural Formula:**



<b>Physicochemical Properties:</b>	Esomeprazole magnesium is a white to slightly coloured crystalline powder, containing 3 water molecules of hydration. It is sparingly soluble in water and solubility is dependent on the pH of the solution. The pKa of the benzimidazole (omeprazole base) is 8.8, and that of the pyridinium ion, 4.0.
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## CLINICAL TRIALS

Randomized clinical trials with VIMOVO (naproxen/esomeprazole) have NOT been designed to detect differences in cardiovascular adverse events in a chronic setting.

The efficacy and safety of VIMOVO in osteoarthritis, rheumatoid arthritis and ankylosing spondylitis was established through demonstrating bioequivalence of the naproxen component in VIMOVO to enteric-coated (EC) naproxen, as well as in randomized controlled trials using VIMOVO (see also Comparative Bioavailability Studies).

### **Studies with VIMOVO – Efficacy in Reducing Ulcers**

In two 6-month randomized, double-blind, active-controlled studies, patients (n=854; 33/67 %M/F, 86/12/2 %Caucasian/Black/Other; median age 59 years (range 27 – 90 years)) with chronic inflammatory arthritis requiring daily use of NSAIDs or chronic musculoskeletal conditions requiring ongoing NSAID therapy, and were at risk of GI toxicity from daily NSAID use, were randomized to either VIMOVO 500/20 mg twice daily or EC-naproxen 500 mg twice daily. Approximately 24% of each treatment group were using low-dose ASA ( $\leq 325$  mg/day).

In the individual studies, a significantly lower proportion of patients on VIMOVO had gastric ulcers compared to those on EC-naproxen throughout 6 months (primary endpoint) and as early as the first month of treatment (ITT populations,  $p < 0.001$  for all comparisons).

**Table 5 Cumulative observed incidence of arthritis<sup>a</sup> patients developing gastric ulcers throughout 6 months from Studies 301 and 302 (ITT population)**

	Study 301		Study 302		Pooled	
	VIMOVO 500/20 mg bid (N=218)	EC- naproxen 500 mg bid (N=216)	VIMOVO 500/20 mg bid (N=210)	EC- naproxen 500 mg bid (N=210)	VIMOVO 500/20 mg bid (N=428)	EC- naproxen 500 mg bid (N=426)
<b>0 to 1 month</b>						
Incidence (%)	1.4	13.0	1.9	10.0	1.6	11.5
95% CI	(0.3 – 4.0)	(8.8 – 18.2)	(0.5 – 4.8)	(6.3 – 14.9)	(0.7 – 3.3)	(8.6 – 14.9)
p-value <sup>b</sup>	<0.001		<0.001		-	
<b>0 to 3 months</b>						
Incidence (%)	1.8	19.4	4.8	17.6	3.3	18.5
95% CI	(0.5 – 4.6)	(14.4 – 25.4)	(2.3 – 8.6)	(12.7 – 23.5)	(1.8 – 5.4)	(15.0 – 22.6)
p-value <sup>b</sup>	<0.001		<0.001		-	
<b>0 to 6 months (primary endpoint)</b>						
Incidence (%)	4.1	23.1	7.1	24.3	5.6	23.7
95% CI	(1.9 – 7.7)	(17.7 – 29.4)	(4.1 – 11.5)	(18.6 – 30.7)	(3.6 – 8.2)	(19.7 – 28.0)
p-value <sup>b</sup>	<0.001		<0.001		-	

<sup>a</sup> Studies also included 23% patients with chronic musculoskeletal conditions requiring ongoing NSAID therapy

<sup>b</sup> p values based on CMH test stratified by low-dose ASA use at randomization.

A significantly lower proportion of patients who took VIMOVO compared to EC-naproxen had pre-specified NSAID-associated upper gastrointestinal adverse events and/or duodenal ulcer (53.3% vs 70.4%, p<0.001). In these trials, patients receiving VIMOVO had a mean duration of therapy of 152 days compared to 124 days in patients receiving EC-naproxen alone. A significantly higher proportion of patients taking EC-naproxen (12.0%) discontinued from the studies due to pre-specified NSAID-associated upper GI adverse events (including duodenal ulcers) compared to VIMOVO (4.0%) in both trials (p<0.001).

VIMOVO was effective across subgroups of patients considered to be at greater risk of GI side effects due to a prior history of gastric or duodenal ulcers (within 5 years of the study), increased age or concomitant use of low-dose ASA.

**Table 6 Cumulative proportions of arthritis<sup>a</sup> patients with gastric ulcers at 6 months by risk factors from Studies 301 and 302 (pooled, ITT population)**

Subgroup	VIMOVO, 500/20 mg bid		EC-naproxen, 500 mg bid		p-value
	N	% Gastric Ulcer (95% CI)	N	% Gastric Ulcer (95% CI)	
History of ulcer - 5 years	33	9.1 (1.9 - 24.3)	36	47.2 (30.4 - 64.5)	p<0.001 <sup>b</sup>
No history of ulcer- 5 years	395	5.3 (3.3 - 8.0)	390	21.5 (17.6 - 26.0)	p<0.001 <sup>b</sup>
Age 50 – 59 years	202	7.4 (4.2 – 12.0)	208	21.2 (15.8 – 27.3)	<0.001 <sup>b</sup>
Age 60 – 69 years	157	3.8 (1.4 – 8.1)	142	28.2 (20.9 – 36.3)	<0.001 <sup>b</sup>
Age <65years	294	7.5 (4.7 - 11.1)	303	21.8 (17.3 - 26.9)	<0.001 <sup>b</sup>
Age ≥65 years	134	1.5 (0.2 - 5.3)	123	28.5 (20.7 - 37.3)	<0.001 <sup>b</sup>
Age ≥70 years	55	0 (0.0 – 6.5)	67	22.4 (13.1 – 34.2)	<0.001 <sup>b</sup>
Used low-dose ASA	99	3.0 (0.6 - 8.6)	102	28.4 (19.9 - 38.2)	<0.001 <sup>c</sup>
Did not use low-dose ASA	329	6.4 (4.0 - 9.6)	324	22.2 (17.8 - 27.1)	<0.001 <sup>c</sup>

<sup>a</sup> Studies also included 23% patients with chronic musculoskeletal conditions requiring ongoing NSAID therapy

<sup>b</sup> p values based on CMH test stratified by low-dose ASA use at randomization

<sup>c</sup> p values based on Fisher's exact test

Dyspeptic symptoms, as measured by the Symptoms of Dyspepsia Assessment (SODA) for both abdominal pain and non-pain symptoms, and for satisfaction, were lower in those patients who took VIMOVO compared to those who took EC-naproxen. Significantly greater improvements versus baseline in abdominal pain and non-pain symptoms and satisfaction with dyspepsia related health, as measured by SODA, were achieved with VIMOVO compared to EC-naproxen (p<0.001 in all domains, combined analysis).

As well, a significantly greater proportion of patients taking VIMOVO reported heartburn resolution at 1, 3, and 6 months (63.7%, 71.0%, and 76.1% of patients) compared to those taking EC-naproxen (44.0%, 46.3%, and 53.8% of patients) (p<0.001 at all time points).

### **Studies with VIMOVO – Efficacy in Osteoarthritis**

In two 3-month double-blind, placebo-controlled studies in patients (n=1219; 36/64 %M/F, 80/16/4 %Caucasian/Black/Other; median age 60 to 61 years (range 49 – 90 years)) with osteoarthritis of the knee (as per American College of Rheumatology (ACR) standards), some of whom were on low-dose ASA (n=282), VIMOVO was given as 500/20 mg twice daily, and was compared to celecoxib 200 mg given once daily.

VIMOVO was found to be non-inferior to celecoxib, as measured by the co-primary endpoints, change from baseline WOMAC (Western Ontario and McMaster Universities

Osteoarthritis Index) scores on domains of pain and physical function as well as on Patient Global Assessment Scores.

**Table 7 Comparison of VIMOVO vs celecoxib in WOMAC pain, function, and PGA-VAS, change from baseline at Week 12 from Studies 307 and 309 (ITT population)**

	Study 307		Study 309		Pooled	
	VIMOVO, 500/20 mg bid (N=246)	Celecoxib, 200 mg od (N=242)	VIMOVO, 500/20 mg bid (N=241)	Celecoxib, 200 mg od (N=244)	VIMOVO, 500/20 mg bid (N=487)	Celecoxib, 200 mg od (N=486)
<b>WOMAC Pain</b>						
Week 12 LS mean change	-42.0	-41.8	-44.2	-42.9	-43.1	-42.3
% Change from baseline	60.4	60.3	63.2	61.3	61.7	60.7
<b>WOMAC Function</b>						
Week 12 LS mean change	-36.4	-36.3	-38.9	-36.8	-37.6	-36.6
% Change from baseline	54.6	54.4	58.0	54.9	56.3	54.7
<b>PGA-VAS</b>						
Week 12 LS mean change	21.2	21.6	29.0	25.6	25.0	23.6
% Change from baseline	66.6	70.1	86.0	89.5	75.9	79.5

PGA-VAS Patient Global Assessment on a Visual Analogue Scale; WOMAC Western Ontario and McMaster Universities Osteoarthritis Index

VIMOVO treatment resulted in a significantly greater percentage of heartburn-free days than celecoxib (LS mean 76.4% VIMOVO vs 68.8% celecoxib) and significantly less rescue antacid use than celecoxib. The discontinuation rate due to adverse events was similar in patients receiving VIMOVO (6.9 %) and celecoxib (7.8%).

### **Comparative Bioavailability Studies**

Studies comparing the bioavailability of single doses of EC-naproxen in VIMOVO 375/20 mg and 500/20 mg with that of corresponding NAPROSYN E (manufactured by Roche) strengths were conducted in healthy volunteers under both fasted and fed conditions.

Single dose cross-over studies were used to compare bioavailability. Thirty-seven volunteers (15/22 M/F, range 18 - 38 years) participated in the fasted study to compare bioavailability between VIMOVO 500/20 mg and NAPROSYN E while a minimum of 21 volunteers

participated in the corresponding fed study (21 included in VIMOVO analysis and 22 in the NAPROSYN E analysis; 8/13 M/F, 18 – 46 years).

Similarly, bioavailability was compared between VIMOVO 375/20 mg and corresponding NAPROSYN E in 24 volunteers in both the fasted (15/9 M/F, range 18 – 45 years) and fed state (17/7 M/F, range 18 – 48 years).

These results are summarized in the tables below. The naproxen component in VIMOVO was shown to be bioequivalent to NAPROSYN E under both fasted and fed conditions for both strengths.

**Naproxen**  
**Fasted and Fed Study (1x375 mg)**  
**From measured data**  
**Geometric LS Mean**  
**Arithmetic Mean (CV %)**

Parameter	Fasted study (1x375 mg)				Fed study (1 x 375 mg)			
	Test* VIMOVO, 375/20 mg	Reference† NAPROSYN E, 375 mg	% Ratio of Geometric Means	90% Confidence Interval #	Test* VIMOVO, 375/20 mg	Reference† NAPROSYN E, 375 mg	% Ratio of Geometric Means	90% Confidence Interval #
<b>AUC<sub>T</sub></b> (µg*h/mL)	992.8 1007 (17.2)	1004 1021 (18.8)	98.93	97.00 – 100.9	941.5 963.6 (14.5)	956.8 976.5 (13.7)	98.41	96.07 – 100.8
<b>AUC<sub>I</sub></b> (µg*h/mL)	1067 1085 (19.0)	1074 1097 (21.2)	99.33	97.23 – 101.5	1017 1053 (15.4)	1036 1068 (14.8)	98.15	95.93 – 100.4
<b>C<sub>MAX</sub></b> (µg/mL)	50.9 52.5 (26.1)	56.4 57.7 (22.8)	90.33	84.84 – 96.2	57.6 57.8 (20.0)	60.6 60.5 (16.8)	95.07	88.79 – 101.8
<b>T<sub>MAX</sub></b> § (h)	4.0 (2.0 – 16.0)	2.8 (1.5 – 8.0)			10.0 (4.0 – 24.0)	8.0 (2.0 – 22.0)		
<b>T<sub>½</sub></b> + (h)	18.0 (13.5)	17.9 (15.1)			17.7 (12.3)	18.0 (15.5)		

\* VIMOVO 375/20 mg tablet, Patheon Pharmaceuticals, USA.

† NAPROSYN E 375 mg tablet, Hoffmann-La Roche Ltd., Canada.

§ Expressed as the median (range) only.

+ Expressed as arithmetic mean (CV%).

# Based on LS estimates.

**Naproxen**  
**Fasted and Fed Study (1x500 mg)**  
**From measured data**

**Geometric LS Mean**  
**Arithmetic Mean (CV%)**

Parameter	Fasted study (1 x 500 mg)				Fed study (1 x 500 mg)			
	Test* VIMOVO, 500/20 mg	Reference† NAPROSYN E, 500 mg	% Ratio of Geometric Means	90% Confidence Interval #	Test* VIMOVO, 500/20 mg	Reference† NAPROSYN E, 500 mg	% Ratio of Geometric Means	90% Confidence Interval #
AUC <sub>T</sub> (µg*h/mL)	1220 1219 (15.3)	1236 1235 (13.2)	98.77	96.67 – 100.9	1139 1156 (11.8)	1171 1185 (15.6)	97.23	91.86 – 102.9
AUC <sub>I</sub> (µg*h/mL)	1312 1300 (16.6)	1326 1318 (15.5)	98.95	96.67 – 101.3	1240 1274 (14.8)	1270 1291 (17.9)	97.62	92.00 – 103.6
C <sub>MAX</sub> (µg/mL)	66.0 69.8(18.6)	66.8 70.5 (22.1)	98.82	92.53 – 105.5	72.3 73.6 (20.2)	70.2 71.0 (19.6)	102.87	93.68 – 113.0
T <sub>MAX</sub> § (h)	4.0 (2.5 – 16.0)	4.0 (1.5 – 12.0)			12.0 (6.0 – 24.0)	12.0 (2.0 – 29.8)		
T <sub>½</sub> †(h)	17.6 (14.5)	18.1 (15.9)			18.1 (25.4)	16.9 (17.1)		

\* VIMOVO 500/20 mg tablet, Patheon Pharmaceuticals, USA.

† NAPROSYN E 500 mg tablet, Hoffmann-La Roche Ltd., Canada.

§ Expressed as the median (range) only.

+ Expressed as arithmetic mean (CV%).

# Based on LS estimates.

## DETAILED PHARMACOLOGY

No non-clinical pharmacology or toxicology studies have been conducted with VIMOVO itself, or with a combination of naproxen and esomeprazole, as VIMOVO is a fixed combination of compounds already approved as free combination therapy. There are no known interactions between naproxen and esomeprazole that would indicate any novel or synergistic adverse pharmacodynamic (PD), pharmaco/toxicokinetic (PK/TK), toxicity, physical/chemical interaction, or tolerability issues as a result of their combination. For a detailed presentation of the animal pharmacology and toxicology of naproxen and esomeprazole separately, please refer to the Product Monographs for NAPROSYN and NEXIUM. An assessment of the non-clinical effects of a naproxen/esomeprazole combination such as VIMOVO is given in the section below (see also TOXICOLOGY).

### Animal Pharmacology

#### Primary Pharmacological Effects

Naproxen has been shown to possess anti-inflammatory and analgesic activity as assessed by a variety of animal test procedures. It appears that naproxen acts, at least in part, in a manner similar to other anti-inflammatory agents via an inhibition of prostaglandin biosynthesis.

Esomeprazole inhibits the gastric H<sup>+</sup>, K<sup>+</sup>-ATPase, the enzyme identified as the proton pumps in the parietal cell, leading to a profound gastric acid secretion inhibition. Due to this unique mechanism of action and specific effect on acid secretion, esomeprazole has no other significant PD effects that are unrelated to the inhibition of gastric acid secretion.

The 2 components in VIMOVO thus exert their pharmacological activity through very specific and quite different mechanisms. It is therefore not anticipated that there will be any direct and/or adverse pharmacological interaction between these 2 compounds.

## **Pharmacokinetic Data**

### **Absorption and Distribution**

Naproxen was rapidly absorbed in all species studied (including man), with an elimination half-life ranging between 2 and 35 hours. A large fraction of the drug is distributed to the blood, primarily as unchanged naproxen. In humans, naproxen shows a very high plasma protein binding (PPB) of >99% at therapeutic plasma concentrations. The degree of PPB in animals is comparatively lower.

Esomeprazole is rapidly absorbed from the GI tract after oral administration, in both the rat and dog. However, the bioavailability in the rat is only 34%, suggesting a high first-pass effect. After absorption, esomeprazole is rapidly distributed to extravascular sites, with an elimination half-life of about 10 minutes in the rat and about 30 to 50 minutes in the dog. The degree of PPB is about 85% to 90% in both the rat and dog, and about 97% in humans.

It is not anticipated that naproxen or esomeprazole will have any effect on the absorption and/or general distribution of the other drug. However, as naproxen shows a very high degree of PPB in humans, there is a potential that the PK of other highly protein bound drugs such as esomeprazole could be altered on co-administration. However, there have been no indications of any PK interactions between naproxen and esomeprazole or the racemate omeprazole when used as co-therapy (but as individual components) in the clinical situation. Neither was any interaction between naproxen and esomeprazole noted in the clinical pharmacology studies of VIMOVO and/or the individual components.

### **Metabolism and Excretion**

Both naproxen and its metabolites are predominantly (86 to 94%) excreted in the urine in all species, with the exception of the dog. In this species, significant amounts (50%) of naproxen are excreted in the feces, indicating an enterohepatic circulation, which explains the long half-life of naproxen in the dog.

Both esomeprazole and omeprazole are extensively metabolised in the liver, via the CYP enzyme system. The investigations performed did not indicate any major differences in the qualitative metabolic disposition or the structure of the metabolites formed between the two compounds, species or sexes. The metabolites are rapidly eliminated via both the urine and feces.

Both naproxen and esomeprazole are metabolised via the CYP enzyme system in the liver, but (at least in humans) by different CYP isoenzymes. It is, therefore, unlikely that there will be any metabolic competition and/or interaction between these 2 drugs at the CYP enzyme level. Both compounds are primarily excreted as glucuronide conjugates, via the urine for naproxen or via both the bile and urine for esomeprazole. Consistent with PK data from co-therapy in the clinical situation, it is not believed that any competition and/or interaction will occur following administration of therapeutically relevant combination doses of naproxen and esomeprazole to man.

## **TOXICOLOGY**

### **Single- and Repeat-dose Toxicity**

The principal findings after single- or repeat-dose oral naproxen administration consist of gastrointestinal (GI) irritation (including erosions, ulceration and bleeding), predominantly in the small intestine, and renal injury. Numerous other findings that are considered to be secondary to the GI effects have also been noted. Dogs in particular showed a maximum tolerated dose that was far below that which was well tolerated in other species.

Repeated esomeprazole administration to rats and dogs resulted in the effects that are to be expected from this class of acid secretion inhibitors, namely histopathological changes in the stomach, accompanied by a dose-dependent increase in stomach weight and serum gastrin levels. These effects are the results of gastrin stimulation and/or inhibition of gastric acid secretion. Another notable effect seen in the studies in rats was some slight hematological changes indicating a mild microcytic, hypochromic iron deficiency anemia.

The combined administration of naproxen and esomeprazole is not expected to demonstrate any new toxicity or exacerbation of the known toxicities of the individual components. It is expected that the combined administration of naproxen and esomeprazole in repeat-dose toxicity studies would simply result in the known effects of the 2 compounds separately, most probably dominated by the irritative effects on the GI tract from naproxen.

### **Reproductive and Developmental studies**

No skeletal or visceral anomalies or other reproductive or developmental toxicities were noted in the embryo-fetal and reproductive studies performed with naproxen in rats and rabbits. However, naproxen was seen to have a dystocic effect on parturition, which was evident in peri- and postnatal reproductive toxicity studies in rats, together with some maternal toxicity and fetal deaths. The inhibition of prostaglandin synthesis by NSAIDs may be related to a decreased uterine contractibility, which could be the cause of the delayed onset of labour in the rats.

Slight maternal toxicity was observed in pregnant rats treated with esomeprazole/ omeprazole, but no adverse effects on embryo-fetal survival and development were noted. Neither did treatment of pregnant rabbits with esomeprazole/omeprazole indicate any potential for disturbance of embryo-fetal development. However, severe and dose-related maternal toxicity

was noted at relatively low doses and exposure to the drugs, resulting in some minor litter effects.

Again, it is anticipated that the combined administration of naproxen and esomeprazole in reproductive toxicity studies would simply result in the known effects of the two compounds separately, including maternal toxicity, effects on parturition, and some increase in minor litter effects.

### **Carcinogenicity and Mutagenicity**

Both naproxen and esomeprazole were negative in the Ames test, but esomeprazole was clastogenic in an *in vitro* chromosome aberration test in peripheral human lymphocytes. Omeprazole, the R-enantiomer of omeprazole and lansoprazole induced the same type and degree of chromosome aberrations under the same experimental conditions. However, esomeprazole did not show any evidence of mutagenic potential *in vivo*, despite extensive exposure in the treated animals.

In a 2 year oral carcinogenicity study in rats, naproxen was administered at doses of 8, 16 and 24 mg/kg a day. Naproxen was not carcinogenic in this study.

In the long-term repeat-dose/carcinogenicity studies with omeprazole gastric enterochromaffin-like (ECL) cell carcinoids were noted in the rat, but not the mouse or dog. It has been demonstrated that this is a result of an indirect mode of action, rather than being a direct effect of omeprazole on the ECL-cells; prolonged acid suppression leads to prolonged hypergastrinemia, provoking ECL cell hyperplasia, which eventually progresses into ECL cell carcinoids.

### **Other toxicity studies**

Benzimidazole PPIs are unstable in an acidic environment, and as such, have traditionally been EC in order to reduce gastric acid degradation prior to absorption from the small intestine. It is pertinent in this context that the esomeprazole component of VIMOVO is immediate release (IR), and not EC (i.e., protected from gastric acid), and thus, some degradation of esomeprazole in the acid environment of the stomach and a somewhat reduced bioavailability were anticipated. However, the vast majority of non-clinical studies, particularly the toxicity studies, supporting both omeprazole and esomeprazole registrations were completed using IR active ingredients, and therefore degradation in the stomach of the animals in these studies was highly probable.

Additional nonclinical studies with the objective of investigating the pH levels noted in the stomachs of both rats and dogs under the conditions used in the previous toxicity studies with esomeprazole have been performed. Results of these investigations showed that pH levels in animal gastric juice were relevant for patients treated with VIMOVO.

Subsequent *in vitro* investigation and comparison of the acid degradation of esomeprazole in gastric juice from rats, dogs, and humans showed that the profiles of chemical degradation products were qualitatively similar across species, although some quantitative differences

were observed. The measurement of the pH in the dog and rat stomachs showed that the animals in the previous toxicity studies with IR esomeprazole were exposed to a mixture of acid degradation products of esomeprazole formed in their stomachs, and the *in vitro* study showed that the degradation profile was similar in the gastric juice from both humans and animals.

Similarly, a second *in vitro* study showed that the degradation products of radiolabelled esomeprazole formed in both gastric fluid from humans and rats, and simulated intestinal fluid were generally qualitatively and quantitatively similar. Based on these results, it can be anticipated that treatment of patients with IR-esomeprazole will not result in exposure to any additional acid degradation products of esomeprazole, compared to that resulting from treatment of rats or dogs with IR-esomeprazole or humans with EC-esomeprazole.

## REFERENCES

1. Goldstein JL, Hochberg MC, Fort JG et al. Clinical trial: the incidence of NSAID-associated endoscopic gastric ulcers in patients treated with PN 400 (naproxen plus esomeprazole magnesium) vs. enteric-coated naproxen alone. *Aliment Pharmacol Ther* 2010;32:401-13.
2. NAPROSYN Product Monograph. Hoffman-La Roche Ltd. Canada.
3. NEXIUM Product Monograph. AstraZeneca Canada Inc.
4. Rostom A, Moayyedi P, Hunt R. Canadian consensus guidelines on long-term nonsteroidal anti-inflammatory drug therapy and the need for gastroprotection: benefits versus risks. *Aliment Pharmacol Ther* 2009;29:481-96.

## PART III: CONSUMER INFORMATION

 **VIMOVO**<sup>®</sup>  
(naproxen/esomeprazole)

Read this information each time you refill your prescription in case new information has been added.

This leaflet is a summary designed specifically for you to read. It will NOT tell you everything about VIMOVO. See your health care provider and pharmacist regularly and ask them questions about your health and any medications you take.

### ABOUT THIS MEDICATION

#### WHAT THE MEDICATION IS USED FOR:

Your health care provider has prescribed VIMOVO for you for one or more of the following medical conditions:

- For the treatment of the signs and symptoms of osteoarthritis, rheumatoid arthritis or ankylosing spondylitis in patients at risk of developing stomach ulcers caused by medications for pain or inflammation.

#### WHAT IT DOES:

VIMOVO contains two different drugs, naproxen and esomeprazole. Each of these works in a different way.

- Naproxen as a nonsteroidal anti-inflammatory drug (NSAID) can reduce the substances produced by your body which cause pain and swelling.
- Esomeprazole belongs to a group of medicines called “proton pump inhibitors”. It works by reducing the amount of acid your stomach produces.

Naproxen can cause damage to your stomach while esomeprazole can help to reduce this damage. Your health care provider has prescribed VIMOVO for you to reduce your inflammation or pain, and reduce the risk of damage by naproxen to your stomach.

Naproxen, the NSAID component of VIMOVO, does NOT cure your illness or prevent it from getting worse. VIMOVO DOES help to reduce the pain and swelling caused by your condition, while protecting your stomach. VIMOVO can only relieve pain and reduce swelling as long as you continue to take it.

#### WHEN IT SHOULD NOT BE USED:

**DO NOT TAKE VIMOVO if you have any of the following medical conditions:**

- Heart bypass surgery (planning to have or recently had)
- Severe, uncontrolled heart failure
- Bleeding in the brain or other bleeding disorders
- Current pregnancy (after 28 weeks of pregnancy)
- Currently breastfeeding (or planning to breastfeed)
- Allergy to ASA (Acetylsalicylic Acid), other NSAIDs (Nonsteroidal Anti-Inflammatory Drugs), naproxen, esomeprazole or other ingredients of VIMOVO (see What the Nonmedicinal Ingredients Are)
- Ulcer (active)
- Bleeding from the stomach or gut (active)
- Inflammatory bowel disease (Crohn’s Disease or Ulcerative Colitis)
- Liver disease (active or severe)
- Kidney disease (severe or worsening)
- High potassium in the blood

**Patients who took a drug in the same class as VIMOVO after a type of heart surgery (coronary artery bypass grafting (CABG)) were more likely to have heart attacks, strokes, blood clots in the leg(s) or lung(s), and infections or other complications than those who did NOT take that drug.**

VIMOVO should NOT be used in patients under 18 years of age since safety and effectiveness have NOT been established.

#### WHAT THE MEDICINAL INGREDIENTS ARE:

Naproxen (enteric-coated, delayed release core) and esomeprazole (as esomeprazole magnesium trihydrate, immediate release coating)

#### WHAT THE NONMEDICINAL INGREDIENTS ARE:

VIMOVO contains the following nonmedicinal ingredients (listed in alphabetical order): carnauba wax, croscarmellose sodium, glycerol monostearate, hypromellose, iron oxide black, iron oxide yellow, macrogols, magnesium stearate, methacrylic acid-ethyl acrylate copolymer (1:1) dispersion, methyl parahydroxybenzoate, polydextrose, polysorbate, povidone, propylene glycol, propyl parahydroxybenzoate, silica colloidal anhydrous, titanium dioxide and triethyl citrate.

#### WHAT DOSAGE FORMS IT COMES IN:

VIMOVO is available as modified release tablets of either 375 mg naproxen/20 mg esomeprazole or 500 mg naproxen/20 mg esomeprazole.

VIMOVO is supplied in bottles of 60 tablets.

## WARNINGS AND PRECAUTIONS

### Serious Warnings and Precautions

**If you have, or previously had, any of the following medical conditions, see your health care provider to discuss treatment options other than VIMOVO:**

- **Heart Attack or Angina**
- **Stroke or Mini-stroke**
- **Loss of Vision**
- **Current Pregnancy (less than 28 weeks)**
- **Congestive Heart Failure**

Before taking this medication, tell your health care provider if you have any of the following:

- High blood pressure
- High cholesterol
- Diabetes mellitus or on a low sugar diet
- Atherosclerosis
- Poor circulation to your extremities
- Smoker or ex-smoker
- Kidney disease or urine problems
- Previous ulcer or bleeding from the stomach or gut
- Previous bleeding in the brain
- Bleeding problems
- Family history of allergy to NSAIDs, such as acetylsalicylic acid (ASA), celecoxib, diclofenac, diflunisal, etodolac, fenoprofen, flurbiprofen, ibuprofen, indomethacin, ketoprofen, ketorolac, mefenamic acid, meloxicam, nabumetone, naproxen, oxaprozin, piroxicam, rofecoxib, sulindac, tenoxicam, tiaprofenic acid, tolmetin, or valdecoxib (NOT a complete list)
- Family history of asthma, nasal polyps, long-term swelling of the sinus (chronic sinusitis) or hives

Also, before taking this medication, tell your health care provider if you are planning to get pregnant or if you are allergic to naproxen, esomeprazole or any other ingredients or components of the container.

While taking this medication:

- tell any other doctor, dentist, pharmacist or other health care professional that you see, that you are taking this medication, especially if you are planning to have heart surgery;
- do NOT drink alcoholic beverages while taking this medication because you would be more likely to develop stomach problems;
- fertility may be decreased. The use of VIMOVO is not recommended in women trying to get pregnant. In women who have difficulty conceiving, stopping VIMOVO should be considered;
- tell your doctor or pharmacist about symptoms that may be a sign of a more serious problem in your stomach or intestine such as: trouble swallowing, unplanned weight

loss, vomiting blood or food, or black (blood-stained) stools.

## INTERACTIONS WITH THIS MEDICATION

Talk to your health care provider and pharmacist if you are taking any other medication (prescription or non-prescription) such as any of the following (NOT a complete list):

- Acetylsalicylic Acid (ASA) or other NSAIDs (e.g. celecoxib, diclofenac, ibuprofen, indomethacin, ketorolac, meloxicam, naproxen)
- Antacids
- Antidepressants (Selective Serotonin Reuptake Inhibitors (SSRIs), e.g. citalopram, fluoxetine, paroxetine, sertraline)
- Blood pressure medications (ACE (angiotensin converting enzyme) inhibitors, e.g. enalapril, lisinopril, perindopril, ramipril) or ARBs (angiotensin II receptor blockers, e.g. candesartan, irbesartan, losartan, valsartan)
- Blood thinners (e.g. warfarin, ASA, clopidogrel)
- Corticosteroids (including glucocorticoids e.g. prednisone)
- Cyclosporin
- Digoxin
- Diuretics (e.g. furosemide, hydrochlorothiazide)
- Erlotinib (or any other anticancer drug from the same class)
- Lithium
- Methotrexate
- Oral contraceptives
- Oral hypoglycemics (diabetes medications)
- Tacrolimus

Your health care provider may prescribe low-dose ASA (acetylsalicylic acid) as a blood thinner to reduce your risk of having a heart attack or stroke while you are taking VIMOVO. Take only the amount of ASA prescribed by your health care provider. The beneficial effects of VIMOVO apply whether you take ASA or not.

Studies with esomeprazole have shown that blood levels of some drugs may be influenced if taken at the same time as drugs used to prevent fungal infections (itraconazole, ketoconazole, voriconazole), anxiety (diazepam), epilepsy (phenytoin), drugs to speed up stomach emptying (cisapride\*), poor circulation in the legs (cilostazol\*), heart problems (digoxin), treatment for tuberculosis (rifampin), St John's Wort (*Hypericum perforatum*) or a certain type of anticancer drug (erlotinib or any other anticancer drug from the same class). However, none of these interactions have been shown to change the effectiveness of esomeprazole or the other drug.

Drugs used for blood clotting (warfarin or coumarin derivatives) have been reported to interact with esomeprazole. Speak to your doctor or pharmacist if you are taking any of these drugs as monitoring may be required when you start or stop taking VIMOVO.

Esomeprazole may decrease the effectiveness of some drugs used for HIV treatment; atazanavir and nelfinavir should not be used with VIMOVO.

\*not available in Canada

**PROPER USE OF THIS MEDICATION**

**USUAL DOSE (18 years and older):**

Medical Condition	Recommended (and Maximum) Dose per day
Osteoarthritis or Rheumatoid Arthritis or Ankylosing Spondylitis	375/20 mg twice a day or 500/20 mg twice a day

Take VIMOVO only as directed by your health care provider. **Do NOT take more of it, do NOT take it more often and do NOT take it for a longer period of time than your health care provider recommended. If possible, you should take the lowest dose of this medication for the shortest time period.** Taking too much VIMOVO may increase your chances of unwanted and sometimes dangerous side effects, especially if you are elderly, have other diseases or take other medications.

**This medication has been prescribed specifically for you. Do NOT give it to anyone else. It may harm them, even if their symptoms seem to be similar to yours.**

**VIMOVO is NOT recommended for use in patients under 18 years of age since safety and effectiveness have NOT been established.**

**Administration**

VIMOVO should be taken at least 30 minutes before a meal. The tablets should be swallowed whole with water. Do not chew, split or crush them.

**MISSED DOSE:**

If you miss a dose of VIMOVO, take the dose as soon as possible. Then go back to your regular schedule. If you remember your missed dose close to the time of your next dose, do not take the missed dose. Do not double dose. Just take the next dose on time.

**OVERDOSE:**

In case of drug overdose, contact a health care practitioner, hospital emergency department or regional Poison Control Centre immediately, even if there are no symptoms.

**SIDE EFFECTS AND WHAT TO DO ABOUT THEM**

VIMOVO may cause some side effects, especially when used for a long time or in large doses. When these side effects occur, you may require medical attention. Report all symptoms or side effects to your health care provider.

VIMOVO may cause you to become drowsy or tired. Be careful about driving or participating in activities that require you to be alert. If you become drowsy, dizzy or light-headed after taking VIMOVO, do NOT drive or operate machinery.

VIMOVO may cause you to become more sensitive to sunlight. Any exposure to sunlight or sunlamps may cause sunburn, skin blisters, skin rash, redness, itching or discoloration, or vision changes. If you have a reaction from the sun, check with your health care provider.

Check with your health care provider IMMEDIATELY if you develop chills, fever, muscle aches or pains, or other flu-like symptoms, especially if they occur before or together with a skin rash. These symptoms may be the first signs of a SERIOUS ALLERGIC REACTION to this medication.

**SERIOUS SIDE EFFECTS OF NSAIDs, AND WHAT TO DO ABOUT THEM**

Symptom	STOP taking VIMOVO and get emergency medical attention IMMEDIATELY	STOP taking VIMOVO and talk to your physician or pharmacist
Bloody or black tarry stools	√	
Shortness of breath, wheezing, any trouble breathing or chest tightness	√	
Skin rash, hives, swelling or itching	√	
Blurred vision, or any visual disturbance	√	
Any change in the amount or colour of your urine (red or brown)	√	
Any pain or difficulty experienced while urinating		√
Swelling of the feet, lower legs; weight gain		√
Vomiting or persistent indigestion, nausea, stomach pain or diarrhea		√
Yellow discoloration of the skin or eyes, with or without itchy skin		√
Malaise, fatigue, loss of appetite		√

**SERIOUS SIDE EFFECTS OF NSAIDs, AND WHAT TO DO ABOUT THEM**

Symptom	STOP taking VIMOVO and get emergency medical attention IMMEDIATELY	STOP taking VIMOVO and talk to your physician or pharmacist
Headaches, stiff neck		√
Mental confusion, depression		√
Dizziness, lightheadedness		√
Hearing problems		√

Stomach upset is one of the common problems with NSAIDs, such as naproxen. The esomeprazole in VIMOVO helps to reduce this side effect from happening. However, side effects, usually mild, have been reported with esomeprazole use. These side effects may not be caused by esomeprazole in your case, but only a doctor can assess this. If these become bothersome (or exceed 1-2 days), discuss with your doctor.

Common: nausea, stomach upset, diarrhea, headache

Uncommon: dry mouth, dizziness, insomnia, feeling of burning/prickliness/numbing, swelling of extremities, feeling sleepy, vertigo

Rare: taste disorders, nervousness, hair loss, increased sweating

Treatment in combination with antibiotics:  
If you experience symptoms such as severe (bloody or repeated watery) diarrhea, with or without fever, abdominal pain or tenderness, you may have bowel inflammation caused by a bacterial infection (*Clostridium difficile*). If this happens call your doctor or pharmacist immediately and stop taking the drug combination.

**SERIOUS SIDE EFFECTS OF ESOMEPRAZOLE, HOW OFTEN THEY HAPPEN AND WHAT TO DO ABOUT THEM**

Symptom / effect	STOP taking VIMOVO and call your physician or pharmacist	Talk with your physician or pharmacist in all cases
<b>Rare (frequency of greater than or equal to 1 in 10 000 patients but less than 1 in 1000 patients)</b>		
inflammation in the mouth		√
severe allergic reaction (such as swelling or anaphylactic reaction/shock)	√	√
muscle pain		√

**SERIOUS SIDE EFFECTS OF ESOMEPRAZOLE, HOW OFTEN THEY HAPPEN AND WHAT TO DO ABOUT THEM**

Symptom / effect	STOP taking VIMOVO and call your physician or pharmacist	Talk with your physician or pharmacist in all cases
blood disorders (reduced number of cells in the blood, low blood sodium) <sup>0</sup>		√
gastrointestinal fungal infection		√
photosensitivity		√
<b>Very Rare (frequency of less than 1 in 10 000 patients)</b>		
severe skin disorders (blisters, ulcers and/or lesions)	√	√
aggression		√
hallucinations		√
severely impaired liver function		√
decreased consciousness		√
inflammation of the kidney		√
muscular weakness		√
development of breasts in males		√
low blood magnesium <sup>0</sup>		√
Inflammation in the gut (leading to diarrhea)		√

<sup>0</sup> These would only be seen if a blood test was taken

**This is NOT a complete list of side effects. If you develop any other symptoms while taking VIMOVO, see your health care provider.**

**HOW TO STORE IT**

VIMOVO tablets should be kept in their original container. Keep bottles tightly closed to protect from moisture.

Store at room temperature (15-30°C). Do not keep VIMOVO in the bathroom medicine cabinet or other warm, moist places.

**Do NOT keep outdated medicine or medicine no longer needed.** Any outdated or unused medicine should be returned to your pharmacist.

**Keep out of reach of children.**

### **REPORTING SUSPECTED SIDE EFFECTS**

You can report any suspected adverse reactions associated with the use of health products to the Canada Vigilance Program by one of the following 3 ways:

- Report online at [www.healthcanada.gc.ca/medeffect](http://www.healthcanada.gc.ca/medeffect)
- Call toll-free at 1-866-234-2345
- Complete a Canada Vigilance Reporting Form and:
  - Fax toll-free to 1-866-678-6789, or
  - Mail to: Canada Vigilance Program  
Health Canada  
Postal Locator 0701E  
Ottawa, ON K1A 0K9

Postage paid labels, Canada Vigilance Reporting Form and the adverse reaction reporting guidelines are available on the MedEffect™ Canada Web site at [www.healthcanada.gc.ca/medeffect](http://www.healthcanada.gc.ca/medeffect).

*NOTE: Should you require information related to the management of side effects, contact your health professional. The Canada Vigilance Program does not provide medical advice.*

### **MORE INFORMATION**

NOTE: This CONSUMER INFORMATION leaflet provides you with the most current information at the time of printing.

The Consumer Information Leaflet plus the full Product Monograph, prepared for health professionals can be found at:

[www.astrazeneca.ca](http://www.astrazeneca.ca)

or by contacting the sponsor, AstraZeneca Canada Inc. at:  
Customer Inquiries – 1 (800) 668-6000,  
Renseignements – 1 (800) 461-3787.

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