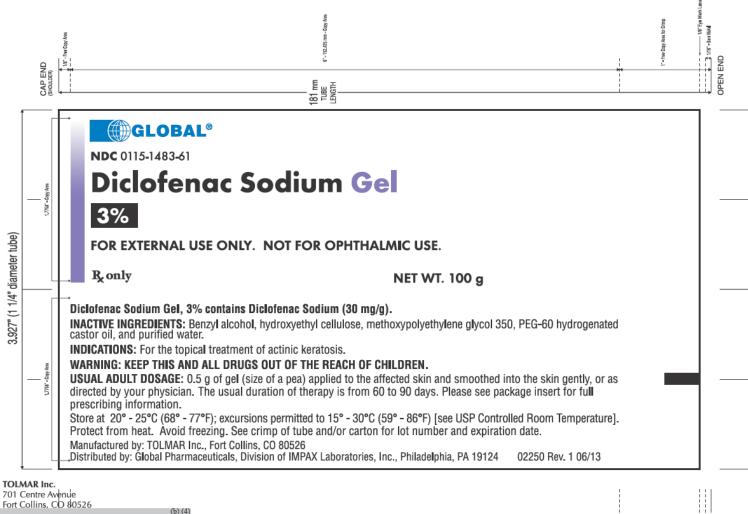
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Fonts: (All type converted to outlines) Helvetica condensed medium, Helvetica condensed bold, Helvetica Futura EF medium; bold; book

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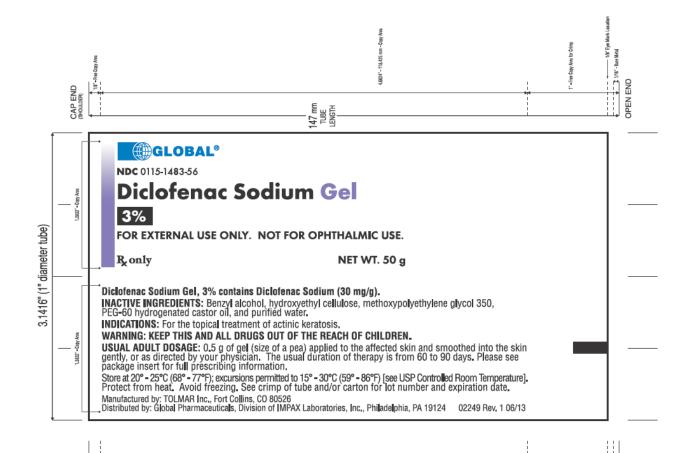
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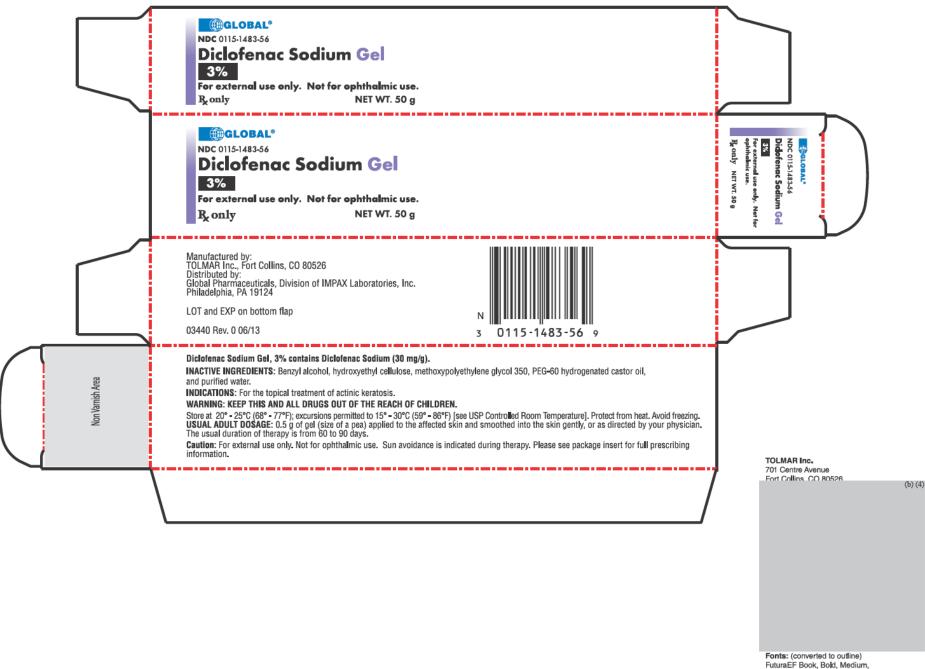
TOLMAR Inc.
701 Centre Avenue

Fort Collins, CO 80526 (b) (4)

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GLOBAL® Diclofenac Sodium Gel, 3% R_c only FOR DERMATOLOGIC USE ONLY. NOT FOR OPHTHALMIC US

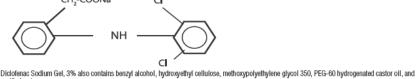
DESCRIPTION

Dictofenac Sodium Gel, 3%, contains the active ingredient, dictofenac sodium, in a clear, transparent, colorless to slightly yellow gel base. Dictofenac sodium is a white to slightly yellow crystalline powder. It is freely soluble in methanol, soluble in ethanol, sparingly soluble in water, slightly soluble in acetone, and partially insoluble in ether. The chemical name for dictofenac sodium is: Sodium [o-(2,6-dichloranilino) phenyl] acetate

Diclofenac sodium has a molecular weight of 318.13.

The CAS number is CAS-15307-79-6. The structural formula is represented below:

CH₂-COONa C



1 g of Diclofenac Sodium Gel, 3% contains 30 mg of the active substance, diclofenac sodium.

CLINICAL PHARMACOLOGY
The mechanism of action of diclofenac sodium in the treatment of actinic keratoses (AK) is unknown. The contribution to efficacy of individual components of the vehicle has not been established. Pharmacokinetics

Pharmaconnects
Absorption
When diclofenac sodium gel, 3% is applied topically, diclofenac is absorbed into the epidermis. In a study in patients with compromised skin (mainly atopic dermatitis and other dermatitis conditions) of the hands, arms or feas, approximately 10% of the applied dose (2 grams of 3% gel over 100 cm²) of diclofenac was absorbed systemically in both normal and compromised epidermis after seven days, with four times daily applications.

After topical application of 2 g dictofenac sodium gel, 3% three times daily for six days to the calf of the leg in healthy subjects, dictofenac could be detected in plasms. Mean bloavailability parameters were AUC₄ = 9.19 ng/hr/mt. (means 50) with a C_{max} of 4.55 ng/mt. and a T_{max} of 4.554 hours. In comparison, a single oral 75 mg dose of dictofenac (Voltaren®)* produced an AUC of 1600 ng/hr/mt. Therefore, the systemic bloavailability after topical application of dictofenac sodium gel, 3% is lower than after oral dosing.

Comparative bicavailability studies have not been conducted between available diclofenac topical products (gels containing 1 - 3% diclofenac) which have different dosing regimens. A cross-study evaluation of the data indicates that diclofenac is more bloavailable when applied to diseased skin and less bloavailable when applied to intact skin.

Blood drawn at the end of treatment from 60 patients with AK lesions treated with diclofenac sodium gel, 3% in three adequate and well-controlled clinical trials was assayed for diclofenac levels. Each patient was administered 0.5 g of diclofenac sodium gel, 3% twice a day for up to 105 days. There were up to three 5 cm X 5 cm treatment sites per patient on the face, forehead, hands, forearm, and scalp. Serum concentrations of diclofenac were, on average, at or below 20 ng/mL. These data indicate that systemic absorption of diclofenac in patients treated topically with diclofenac sodium gel, 3% is much lower than that occurring after oral daily dosing of diclofenac sodium. No information is available on the absorption of diclofenac when diclofenac sodium gel, 3% is used under occlusion

Distribution.
Dictofenac binds tightly to serum albumin. The volume of distribution of dictofenac following oral administration is approximately 550 mL/kg.

International Internation of dictofenac following oral administration involves conjugation at the carboxyl group of the side chain or single or multiple hydroxylations resulting in several phenolic metabolites, most of which are converted to glucuronide conjugates. Two of these phenolic metabolites are biologically active, however to a much smaller extent tham dictofenac, Metabolism of dictoferac following topical administration is thought to be similar to that after oral administration. The small amounts of dictofenac and its metabolites appearing in the plasma following topical administration makes the quantification of specific metabolites imprecise <u>Flimination.</u>
Dictofenac and its metabolites are excreted mainly in the urine after oral dosing. Systemic clearance of dictofenac from plasma is 263±56 mL/min (mean±SD). The terminal plasma half-life is 1-2 hours. Four of the metabolites also have short terminal half-lives of 1-3 hours.

INDICATIONS AND USAGE Diciofenac Sodium Gel, 3% is indicated for the topical treatment of actinic keratoses (AK). Sun avoidance is indicated during therapy,

CLINICAL STUDIES

CLINICAL STUDIES

Clinical trials were conducted involving a total of 427 patients (213 treated with dictofenac sodium gel, 3% and 214 with a gel vehicle). Each patient had no tewer than five AK lesions in a major body area, which was defined as one of five 5 cm X 5 cm regions: scalp, forehead, face, forearm and hand. Up to three major body areas were studied in any patient. All patients were 18 years of age or older (male and female) with no clinically significant medical problems outside of the AK lesions and had undergone a 60-day washout period from disallowed medications (masoproco). Follorourabli, cyclosporine, retinoids, intchioracetic acid/factic acid/peel), 50% glycolic acid peel) and hyaluroran-containing cosmetics. Patients were excluded from participation for reasons of known or suspected hypersensitivity to any dictofenac sodium gel, 3% ingredient, pregnancy, altergies to aspirin or other nonsteroidal anti-Inflammatory drugs (NSAIDS), or other dematological conditions which might affect the absorption of the study medication. Application of dematologic products such as sunscreens, cosmetics, and other drug products was not permitted. Patients were instructed to apply a small amount of dictofenac sodium gel, 3% (approximately 0.5 g) onto the affected skin, using their fingers, and gently smoothing the gel over the lesion, addition, all patients were instructed to avoid sun exposure. Complete clearing of the AK lesions 30 days after completion of treatment was the primary efficacy variable. No long-term patient follow-ups, after the 30-day assessments, were performed for the detection of recurrence. Complete Clearance of Actinic Keratosis Lesions 30 Days Post-Treatment (all locations)

Study 1 90 days treatment	27/58	(47%)	11/59 (19%)		<0.001
Study 2 90 days treatment	18/53	(34%)	10/55 (18%)		0.061
Study 3 60 days treatment	15/48	(31%)	5/49 (10%)		0.021
30 days treatment	7/49 ((14%)	2/49 (4%)		0.221
30 days treatment 7/49 (14%) 2/49 (4%) 0.221 Complete Clearance of Actinic Keratosis Lesions 30 Days Post-Treatment (by location) Scalp Forehead Face Arm/Forearm Back of Hand					
	Scalp	Forehead	Face	Arm/Forearm	Back of Hand
Study 1 90 days treatment					

Diclofenac Sodium Gel, 3%	1/4 (25%)	17/30 (57%)	9/17 (53%)	4/12 (33%)	6/16 (38%)
Vehicle	3/9 (33%)	8/24 (33%)	5/17 (29%)	4/12 (33%)	0/14 (0)
p-value	0.7646	0.0908	0.1682	1.000	0.0650
Study 2 90 days treatment					
Diclofenac Sodium Gel, 3%	2/6 (33%)	9/19 (47%)	4/5 (80%)	5/8 (63%)	1/17 (6%)
Vehicle	0/4(0)	6/22 (27%)	2/8 (25%)	0/5(0)	3/16 (19%)
p-value	0.4235	0.1870	0.0727	0.0888	0.2818
Study 3 60 days treatment					
Diclofenac Sodium Gel, 3%	3/7 (43%)	13/31 (42%)	10/19 (53%)	0/1 (0)	2/8 (25%)
Vehicle	0/6 (0)	5/36 (14%)	2/13 (15%)	0/2 (0)	1/9 (11%)
p-value	0.2271	0.0153	0.0433	-	0.4637
30 days treatment					l
Diclofenac Sodium Gel, 3%	2/5 (40%)	4/29 (14%)	3/14 (21%)	0/0 (0)	0/9 (0)
Vehicle	0/5 (0)	2/29 (7%)	2/18 (11%)	0/1 (0)	1/9 (11%)
p-value	0.2299	0.3748	0.4322	-	0.6521
All data combined					
Diclofenac Sodium Gel, 3%	8/22 (36%)	43/109 (39%)	26/55 (47%)	9/21 (43%)	9/50 (18%)
Vehicle	3/24 (13%)	21/111 (19%)	11/56 (20%)	4/20 (20%)	5/48 (10%)
p-value	0.0903	0.0013	0.0016	0.2043	0.3662
CONTRAINDICATIONS Diclofenac Sodium Gel, 3% is contrair monomethyl ether 350.	ndicated in patients with	a known hypersensitivi	ty to diclofenac, benzyl a	llcohol and/or polyethy	ylene glycol
WARNINGS					

WARNINGS
As with other NSAIDs, anaphylactoid reactions may occur in patients without prior exposure to dictofenac. Dictofenac sodium should be given with cau to patients with the aspirin triad. The triad typically occurs in astimatic patients who experience rhinitis with or without nasal polyps, or who exhibit sew potentially fatal bronchospasm after taking aspirin or other NSAIDs.

PRECAUTIONS Dictofenac sodium get, 3% should be used with caution in patients with active gastrointestinal ulceration or bleeding and severe renal or hepatic impairments. Dictofenac sodium get, 3% should not be applied to open skin wounds, infections, or exfoliative dermatitis. It should not be allowed to come in contact with the eyes.

The safety of the concomitant use of sunscreens, cosmetics or other topical medications and diclofenac sodium gel, 3% is unkno Information for Patients
In clinical studies, localized dermal side effects such as contact dermatitis, extoliation, dry skin and rash were found in patients treated with dictofenac sodium gel, 3% at a higher incidence than in those with placebo.

Patients should understand the importance of monitoring and follow-up evaluation, the signs and symptoms of dermal adverse reactions, and the possibility of irritant or allergic contact dermatitis. If severe dermal reactions occur, treatment with diclofenac sodium gel, 3% may be interrupted until the condition subsides. Exposure to sunlight and the use of sunlamps should be avoided.

Safety and efficacy of the use of diclofenac sodium gel, 3% together with other dermal products, including cosmetics, sunscreens, and other topical medications on the area being treated, have not been studied.

Drug Interactions
Specific interaction studies between diclofenac sodium gel, 3% and other topical or oral agents were not performed.

Oral Nonsteroidal Anti-Inflammatory Drugs
Although low, there is systemic exposure to diclofenac following labeled use of diclofenac sodium gel, 3%. Therefore, concomitant administration of diclofenac sodium gel, 3% with oral NSAIDS or aspirin may result in increased NSAID adverse effects.

Carcinogenesis, Mutagenesis, Impairment of Fertility
There did not appear to be any increase in drug-related neoplasms following daily topical applications of diclofenac sodium gel for 2 years at concentration up to 0.055% diclofenac sodium and 2.5% hyaluronate sodium in albino mice. (Note: diclofenac sodium gel, 3% contains 3% diclofenac sodium;) What administered or orally for 2 years, diclofenac showed no evidence of carcinogenic potential in rats given diclofenac sodium at up to 2 mg/kg/day (3 times the estimated systemic human exposure*), or in mice given diclofenac sodium at up to 0.3 mg/kg/day in males and 1 mg/kg/day in females (25% and 839 respectively, of the estimated systemic human exposure).

photococarcinogenicity study with up to 0.035% diclofenac in the diclofenac sodium gel, 3% vehicle gel was conducted in hairless mice at topical doses to 2.8 mg/kg/day. Median tumor onset was earlier in the 0.035% group (diclofenac sodium gel, 3% contains 3% diclofenac sodium).

Diclofenae was not genotoxic in *in vitro* point mutation assays in mammalian mouse lymphoma cells and Ames microbial test systems, or when mammalian *in vivo* assays including dominant lethal and male germinal epithelial chromosomal studies in mice, and nucleus anomaly and chror aberration studies in Chinese hamsters. It was also negative in the transformation assay utilizing BALB/3T3 mouse embryo cells.

Fertility studies have not been conducted with diclofenac sodium get, 3%. Diclofenac sodium showed no evidence of impairment of fertility after oral treatment with 4 mg/kg/day (7 times the estimated systemic human exposure) in male or female rats.

*Based on body surface area and assuming 10% bloavallability following topical application of 2 g diclofenac sodium get, 3% per day (1 mg/kg diclofenac sodium).

Pregnancy

Teratogenic Effects: Pregnancy Category B

The safety of dictofenac sodium get, 3% has not been established during pregnancy. However, reproductive studies performed with dictofenac sodium alor at oral doses up to 20 mg/kg/day (15 times the estimated systemic human exposure*) in mice, 10 mg/kg/day (15 times the estimated systemic human exposure) in rats, and 10 mg/kg/day (30 times the estimated systemic human exposure) in rabbits have revealed no evidence of teratogenicity despite thinduction of maternal toxicity. In rats, maternally toxic doses were associated with dystocia, prolonged gestation, reduced fetal weights and growth, an activated total curvival. ased on body surface area and assuming 10% bioavailability following topical application of 2 g dictofenac sodium gel, 3% per day (1 mg/kg clofenac sodium).

Dictofenac has been shown to cross the placental barrier in mice and rats. There are, however, no adequate and well controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should not be used during pregnancy unless the benefits to the mother justify the potential risk to the fetus. Because of the risk to the fetus resulting in premature closure of the ductus arteriosus, dictofenac should be avoided in late pregnancy.

Labor and Delivery

The effects of dictoreac on labor and delivery in pregnant women are unknown. Because of the known effects of prostaglandin-inhibiting drugs on the fetal cardiovascular system (closure of the ductus arteriosus), use of dictoreac during late pregnancy should be avoided and, as with other nonsteroidal anti-inflammatory drugs, it is possible that dictoreac may inhibit uterine contractions and delay parturition.





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Nursing Mothers

Recause of the potential for serious adverse reactions in nursing infants from diclofenac sodium, a decision should be made whether to discontinue nursing or to discontinue the drug, taking into account the importance of the drug to the mother.

Pediatric Use
Actinic keratoses is not a condition seen within the pediatric population. Diclofenac sodium gel, 3% should not be used by children.

Of the 211 subjects treated with diclofenac sodium gel, 3% in controlled clinical studies, 143 subjects were 65 and over. Of those 143 subjects, 55 subjects were 75 and over. No overall differences in safety or effectiveness were observed between these subjects and younger subjects, and other reported clinical experience has not identified differences in responses between the elderly and younger patients, but greater sensitivity of some older individuals cannot be ruled out.

ADVERSE REACTIONS
Of the 423 patients evaluable for safety in adequate and well-controlled trials, 211 were treated with diclofenac sodium gel, 3% drug product and 212 were treated with a vehicle gel. Eighty-seven percent (87%) of the diclofenac sodium gel, 3%-treated patients (183 patients) and 84% of the vehicle-treated patients (178 patients) experienced one or more adverse events (AEs) during the studies. The majority of these reactions were mild to moderate in severity and resolved upon discontinuation of therapy.

Of the 211 patients treated with diclofenac sodium gel, 3%, 172 (82%) experienced AEs involving skin and the application site compared to 160 (75%) vehicle-treated patients. Application site reactions (ASRs) were the most frequent AEs in both diclofenac sodium gel, 3%-and vehicle-treated groups. Of note, four reactions, contact dermatilis, rash, dry skin and extoliation (scaling) were significantly more prevalent in the diclofenac sodium gel, 3% group than in the whicle-treated nations. the vehicle-treated patients. Eighteen percent of diclofenac sodium gel, 3%-treated patients and 4% of vehicle-treated patients discontinued from the clinical trials due to adverse events (whether considered related to treatment or not). These discontinuations were mainly due to skin irritation or related cutaneous adverse reactions.

dence of >1% for nationts treated with either diclofenac sodium gel. 3% or vehicle (60- and 90-day treatment

Incidences for 60-Day and 90-Day Treatmo				
	60-day Treatn	nent	90-day Treatm	ent
	Diclofenac Sodium Gel, 3% (%) N=48	Gel Vehicle (%) N=49	Diclofenac Sodium Gel, 3% (%) N=114	Gel Vehicle (N=114
BODY AS A WHOLE	21	20	20	18
Abdominal Pain	2	0	1	0
Accidental Injury	0	0	4	2
Allergic Reaction	0	0	1	3
Asthenia Back Pain	0 4	0	2 2	2
Chest Pain	2	0	1	0
Chills	0	2	0	0
Flu Syndrome	10	6	1	4
Headache	0	6	7	6
Infection	4	6	4	5
Neck Pain	0	0	2	0
Pain	2	0	2	2
CARDIOVASCULAR SYSTEM Hypertension	2	4 0	3	1
Migraine	0	2	1	0
Phlebitis	0	2	0	0
DIGESTIVE SYSTEM	4	Ō	6	8
Constipation	0	0	0	2
Diarrhea	2	0	2	3
Dyspepsia	2	0	3	4
METABOLIC AND NUTRITIONAL DISORDERS	2	8	7	2
Creatine Phosphokinase Increased	0	0	4	1
Creatinine Increased	2 0	2	0	0
Edema Hypercholesteremia	0	2	1	0
Hyperglycemia	0	2	1	0
GGOT Increased	Ů Ů	0	3	0
SGPT Increased	0	0	2	0
MUSCULOSKELETAL SYSTEM	4	0	3	4
Arthralgia	2	0	0	2
Arthrosis	2	0	0	0
Myalgia	2	0	3	1
NERVOUS SYSTEM	2	2	2	5
Anxiety	0	0	0	1 4
Dizziness Hypokinesia	2	0	0	0
RESPIRATORY SYSTEM	8	8	7	6
Asthma	2	0	Ö	0
Dyspnea	2	0	2	0
Pharyngitis	2	8	2	4
Pneumonia	2	0	0	1
Rhinitis	2	2	2	2
Sinusitis	0	0	2	0
SKIN AND APPENDAGES	75	86	86	71
Acne Application Site Reaction	0 75	<u>2</u> 71	0 84	70
Acne	0	4	1	0
Alopecia	2	0	1	1
Contact Dermatitis	19	4	33	4
Dry Skin	27	12	25	17
Edema	4	0	3	0
Exfoliation	6	4	24	13
Hyperesthesia	0	0	3	1
Pain	15	22	26	30
Paresthesia Photogopalitivity Pagetian	8	4	20	20
Photosensitivity Reaction Pruritus	0 31	2 59	3 52	0 45
Rash	35	20	52 46	45 17
Vesiculobullous Rash	0	0	40	1/
Contact Dermatitis	2	0	0	0
Dry Skin	0	4	3	0
Herpes Simplex	0	2	0	0
Maculopapular Rash	0	2	0	0
Pain	2	2	1	0
Pruritus	4	6	4	1
Rash	2	10	4	0
Skin Carcinoma Skin Nodule	0	6	2	2
	0 2	0	0	0
Skin Ulcer Special Senses	2	0	4	0 2
Conjunctivitis	2	0	4	1
Eye Pain	0	2	2	0
UROGENITAL SYSTEM	Ŏ	0	4	5
Hematuria	0	0	2	1
OTHER	0	0	0	3
Procedure	0	0	0	3

Adverse Reactions Reported for *Oral* Diclofenac Dosage Form (not topical diclofenac sodium gel, 3%): "Incidence greater than 1% marked with asterisk.

Body as a Whole: a dominial pain or cramps", headache", fluid retention", abdominal distention", malaise, swelling of lips and tongue, photosensitivity, anaphylactoid reactions, chest pain.

Cardiovascular: hypertension, congestive heart failure, palpitations, flushing, tachycardia, premature ventricular contractions, myocardial infarction, hypotension.

Digestive: diarrhea*, indigestion*, nausea*, constipation*, flatulence*, liver test abnormalities*, PUB*, i.e., peptic ulcer, with or without bleeding and/or perforation, or bleeding without ulcer, vomiting, jaundice, melena, esophageal lesions, aphthous stomatitis, dry mouth and mucous membranes, bloody diarrhea, hepatitis, hepatic necrosis, cirrhosis, hepatorenal syndrome, appetite change, pancreatitis with or without concomitant hepatitis, colitis, intestinal perforation. Hemic and Lymphatic: hemoglobin decrease, leukopenia, thrombocytopenia, eosinophilia, hemolytic anemia, aplastic anemia, agranulocytosis, purpura, allergic purpura, bruising.

Metabolic and Nutritional Disorders: azotemia, hypoglycemia, weight loss. Nervous System: dizziness*, insomnia, drowsiness, depression, diplopia, anxiety, irritability, aseptic meningitis, convulsions, paresthesia, memory disturbance, nightmares, tremor, tic, abnormal coordination, disorientation, psychotic reaction.

Respiratory: epistaxis, asthma, laryngeal edema, dyspnea, hyperventilation, edema of pharynx

Skin and Appendages: rash*, pruritus*, alopecia, urticaria, eczema, dermatitis, bullous eruption, erythema multiforme major, angioedema, Stevens-Johnson syndrome, excess perspiration, exfoliative dermatitis.

Special Senses: tinnitus*, blurred vision, taste disorder, reversible and irreversible hearing loss, scotoma, vitreous floaters, night blindness, amblyopia. Urogenital: nephrotic syndrome, proteinuria, oliguria, interstitial nephritis, papillary necrosis, acute renal failure, urinary frequency, nocturia, hematuria, impotence, vaginal bleeding.

OVERDOSAGE

OVERDUSAGE
Due to the low systemic absorption of topically-applied diclofenac sodium gel, 3%, overdosage is unlikely. There have been no reports of ingestion of diclofenac sodium gel, 3%. In the event of oral ingestion, resulting in significant systemic side effects, it is recommended that the stomach be emptied by vomitting or lavage. Forced diversis may theoretically be beneficial because the drug is excreted in the urine. The effect of dialysis or hemoperfusion in the elimination of diclofenac (99% protein-bound) remains unproven. In addition to supportive measures, the use of oral activated charcoal may help to reduce the absorption of diclofenac. Supportive and symptomatic treatment should be given for complications such as renal failure, convulsions, gastrointestinal irritation and respiratory depression.

DOSAGE AND ADMINISTRATION Dictolenae Sodium Gel, 3% is applied to lesion areas twice daily. It is to be smoothed onto the affected skin gently. The amount needed depends upon the size of the lesion site. Assure that enough Dictolenae Sodium Gel, 3% is applied to adequately cover each lesion. Normally 0.5 g of gel is used on each 5 cm x 5 cm lesion site. The recommended duration of therapy is from 60 days to 90 days. Complete healing the lesion(s) or optimal therapeutic effect may not be evident for up to 30 days following cessation of therapy. Lesions that do not respond to therapy should be carefully re-evaluated and management

reconsidered.

HOW SUPPLIED

Now SOFFLIED
Available in tubes of 100 g and 50 g. Each gram of gel contains 30 mg of diclofenac sodium 100 g tube – NDC 0115-1483-61 50 g tube – NDC 0115-1483-56

Storage: Store at 20° - 25°C (68° - 77°F); excursions permitted to 15° - 30°C (59° - 86°F) [see USP Controlled Room Temperature]. Protect from heat. Avoid freezing. †Voltaren® is a registered trademark of Novartis.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

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Manufactured by: TOLMAR Inc. Fort Collins, CO 80526 Distributed by: Global Pharmaceuticals, Division of IMPAX Laboratories, Inc. Philadelphia, PA 19124





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