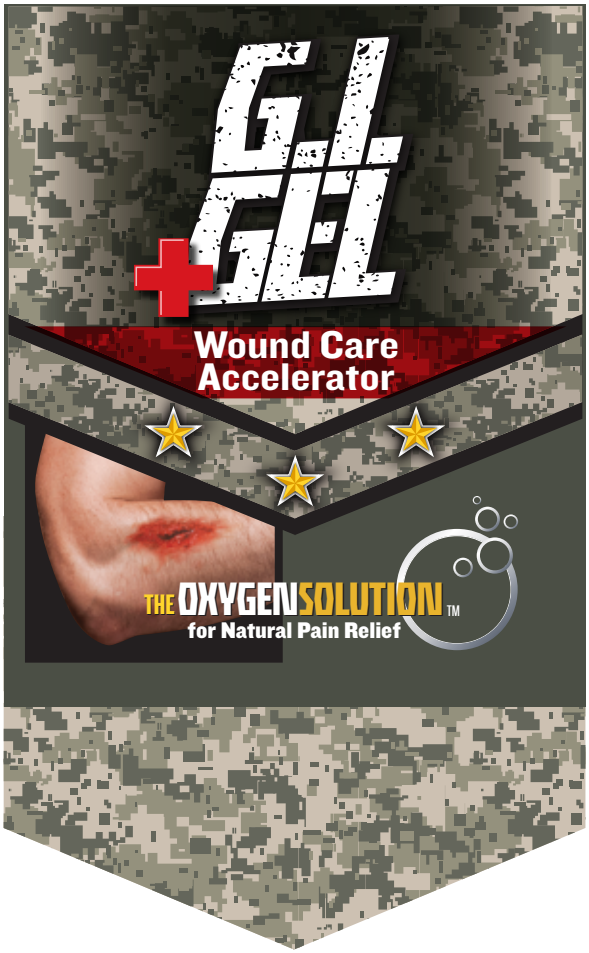

THE OXYGEN SOLUTION
for Natural Pain Relief

TECHNICAL REVIEW

Oxygen Innovations INTERNATIONAL, LLC

MADE IN U.S.A.

Oxygen Innovations International, LLC.
3351 Industrial Blvd.
Bethel Park, PA 15102-2543
www.gigeloxy.com

U.S. PATENT NO. 7,288,574
OTHER PATENTS PENDING

Every once in a while a product comes along that is a major game changer in the pain relief industry. "G.I.Gel" is one of those game changers. I show my patients how to apply "G.I.Gel" to a sore area or in an area that has an effect on that region. The results are instantaneous. There is often a dramatic change in pain but more importantly – there is an increased ability to move! It is this ability to move that gives people freedom from pain. People can apply "G.I.Gel" at home and follow the application with movement and they now have control of their life once more. This has been a godsend to my patients and is something that is well worth the small investment in a tube of the product.

– Richard Finn LMT, CMTPT, MCSTT
Developer of the Fusion Movement System

Richard is a graduate of the Academy of Myotherapy and Physical Fitness and the Academy of Health Sciences (Fort Sam Houston USAR – Physical Therapy Specialist. He earned his CMT through the Life Credit Program at the Colorado School of Healing Arts. He is a Board Certified member of the National Association of Myofascial Trigger Point Therapists, and served as president from 1992-94. Richard has served on the Board of Advisors of the Fibromyalgia Research Foundation, and on the Executive Committee of the National Association of Myofascial Trigger Point Therapists. He has coauthored a set of wall charts of muscle length tests with C. M. Shifflett and a textbook Myofascial Pain Syndrome: Manual Trigger Point & S-EMG Biofeedback Therapy Methods with Gabriel Sella MD.

The efficacy of the healing properties of oxygen is well-proven – hyperbaric oxygenation therapy provides a prime example. Our proprietary system allows for the infusion of pure molecular oxygen into a topical gel designed to deliver similar restoration opportunity directly to the surface of the skin. This provides for a high concentration of oxygen to be made available to the cells, prompting and accelerating the therapeutic process.

Two other major factors must be noted: in addition to oxygen, the cleansing (through oxidation) and pain reduction characteristics of nitrous oxide may be realized. Lastly, a protective barrier of water-emulsified silicone helps keep the afflicted site clean.

– Dr. C. Edward Eckert, Ph.D.
G.I. GEL Creator
Oxygenation Therapy Specialist

Dr. C. Edward Eckert has an extensive backgound in chemical engineering with a Ph. D in Materials Science. He has in excess of 150 patents in materials processing and oxygenation therapy technologies, and currently specializes in aqueous oxygenation therapy and delivering the benefits of dermal absorption of oxygen.

In light of the increasing use of hyperbaric oxygen therapy by athletes to help heal bruises and sprains, Dr. Eckert has developed an oxygen-rich gel that anyone could apply to their skin seeking to aid in pain relief and encourage healing. He has formulated G.I. Gel with 5x the oxygen level found in ordinary water, creating a metastable oxygen suspension within an absorbable solution.

Treatment for pain is one of the most sought-after services in health care.

Topical Pain Management Used In Other Products

As an alternative to oral medications, to some extent topical products can ease the discomfort of overworked muscles, aching backs and the joint pain of arthritis. These creams, lotions and ointments usually provide a counterirritant stimulation effect. Such products could contain one or more substances including capsaicin, menthol, eucalyptus, wintergreen, methyl salicylate and camphor.

Menthol and other substances in this family basically fool pain with substitute pain, which does not address the root cause.

Typical Active Ingredients Used In Other Products

Of the active ingredients generally found in topical products, some are familiar, a few are less well known:

- Menthol
- Methyl salicylate
- Trolimine salicylate
- Histamine Dihydrochloride
- Strong Ammonia (Ammonium Hydroxide)
- Camphor
- Arnica

Side effects can range from mild skin irritation to breathing and blood pressure issues. While rare, they can occur. If your MD has recommended a topical pain treatment, he has determined that the benefits outweigh the risks.

General Warnings In Other Products

A variety of warnings can be found on most topical product labels:

- *For external use only*
- *Apply the product as directed by the manufacturer*
- *Wash your hands after using to prevent transfer of the product to the eyes*
- *If it accidentally gets in to your eyes, immediately wash with copious amount of water*
- *Keep out of children's reach*
- *Do not apply tight bandage around the area where applied*
- *Do not apply heating pads to the area where applied because the numbing effect of the product might cause burn injuries*
- *Do not apply to broken, irritated, or wounded skin*
- *Keep out of the reach of children*
- *Not for children under 12 years of age*
- *Consult your doctor*
- *Do not use with other ointments or sprays*
- *Do not ingest*
- *If accidentally ingested, get medical help or contact a poison control center immediately*
- *If pregnant or nursing, consult a health professional before using*
- *If you are currently applying other topical products, consult your doctor prior to using…*
- *Flammable – keep away from heat or flame*
- *Do not use if you are allergic to any ingredients in this product*

In contrast, all seven ingredients used in producing our Healing Gels enjoy widespread recognition as being safe and innocuous.

The only advisory Oxygen Innovations International, LLC gels come with is "for external use only." Unlike other topical products, even if accidentally ingested, there are no known dangerous ingredients or carcinogens to worry about. However, while the gels are sterile and hypo allergenic, as with any over-the-counter products individuals with a known allergy to any of the ingredients should consult their doctor prior to using.

Inactive Ingredients Used In Other Products

According to the FDA – *For OTC drug products that contain both drug and cosmetic ingredients, the drug ingredients are considered the active ingredients, and the cosmetic ingredients are considered the inactive ingredients. (See §§ 201.66(b)(2) and 201.66(b)(8).*

Familiar "clinically recommended" products can have an extensive list of added chemicals, alcohols, toxins and other substances. The more you expose yourself to, the higher the likelihood of an adverse reaction when combined with other supplements or pharmaceuticals.

Misuse of such products can result in undesirable conditions. However, we are more concerned with the inactive ingredients found across the board. Active or inactive, your skin absorbs these chemicals, substances and toxins into your body:

Product	Active Ingredient(s)	Additional Undesirable Substances Absorbed into Your Skin	FLAMMABLE?
G.I. GEL	Molecular Oxygen Nitrous Oxide	**- NONE -**	**- NO -**
BIOFREEZE	Menthol	Isopropyl alcohol, Isopropyl Myristate, Triethanolamine	YES
ICY HOT GEL	Methyl Salicylate Menthol	Acrylates/C10-C30 Acrylate Crosspolymer, Blue 1, Hydroxypropyl Methylcellulose, Propylene Glycol, SD Alcohol 40-2(30%), Triethanolamine	YES
BLU EMU	Not Specified	Cetyl Alcohol, Stearic Acid, Dimethicone Glycerin, Oleyl Alcohol, Retinyl Palmitate, Cholecalciferol, Acrylates / Acrylamide Copolymer, Polysorbate 85, Allantoin, Panthenol, Ethoxydiglycol, Triethanolamine, Imidazolidnyl Urea, Methylparaben, Tetrasodium EDTA, Propylparaben, FD&C Blue1.	UNKNOWN
AUSTRALIAN DREAM	Histamine Dihydrochloride	Butylene Glycol, Polyacrylamide, Sodium Polyacrylate, C13-14 Isoparaffin, Ethylhexyl Stearate, Trideceth-6, Laureth-7, Tetrasodium EDTA, Potassium Sorbate, Methylisothiazolinone	UNKNOWN
PENETREX	Not Specified	Glyceryl Stearate, PEG-100 Stearate, Cetyl Esters, Steareth-20, Bilineurine Bitartrate, Ethoxydiglocol, Methyl Gluceth-20, Cetyl Myristoleate, Camphor, Dipotassium Glycyrrhizinate, Dimethicone, Ammonium Acryloyl-Dimethyltaurate/VP Copolymer, Phenoxyethanol, DMDM Hydantoin, Lodopropynyl Butylcarbmate	UNKNOWN
PENETRAN	Strong Ammonia	Allantoin, Benzethonium Chloride, Caprylic/Capric Triglyceride, Cetyl Palmitate, Dimethyl Sulfone, Glyceryl Laurate, Isopropyl Alcohol, Methyldibromo Glutaronitrile, Panthenol, Phenoxyethanol, Quaternium-18, Quaternium-27, Sorbitan Palmitate	UNKNOWN
SALONPAS	Camphor Menthol Methyl Salicylate	Ammonium Acryloyl-Dimethyltaurate/VP Copolymer, Dimethyl Isosorbide, Propylene Glycol, SD Alcohol 40-B	YES

G.I. GEL eliminates these concerns. All products are safe, non-toxic and non-restrictive. When rubbed in, the oxygen-enhanced gel provides a rich source of molecular oxygen for cellular and soft-tissue uptake.

Counterirritants Used In Other Products

The products in the partial table below (Pharmacy Times August 2015) lists some of the more well-known counterirritants. Menthol-based counterirritants are fairly common:

	WellPatch Zostrix Hot & Cold Therapy System for Joint and Muscle Pain Zostrix HP Arthritis Pain Relief Cream
Counterirritants (contains camphor, menthol, or methyl salicylate)	Aspercreme Pain Relieving Heat Gel BenGay Ultra Strength Pain Relieving Cream BenGay Zero Degrees BenGay Vanishing Scent Gel BenGay Ultra Strength Pain Reliving Patch BenGay Pain Relief and Massage Gel BenGay Cold Therapy Biofreeze Blue-Emu Ice Spray Eucalyptamint Maximum Strength Flexall Maximum Strength Freeze It IcyHot Medicated Patch IcyHot Knee and Ankle Sleeve IcyHot Naturals JointFlex Pain Relieving Cream Salonpas Jet Spray Therapeutic Mineral Ice WellPatch Backache
Salicylates (contains troalmine salicylate 10%)	Aspercreme Analgesic Creme Aspercreme Pain Relieving Lotion Mobisyl Maximum Strength Arthritis Pain Reliever Cream

Menthol is one of the major active ingredients used in topical products to reduce joint and muscle pain. When absorbed through the skin, menthol attaches to kappa opioid receptors to produce a numbing effect.

It also causes vasodilation (improving blood flow and lymphatic drainage) which helps in reducing local inflammation. Menthol stimulates the thermoreceptors in the skin (producing the cooling sensation) when applied. The cooling sensation blocks the nerve impulses that cause the pain (see Gate Control Theory).

Menthol-based topicals differ from the anesthetics, analgesics, and antipruritic agents, however, in that the pain relief they produce results from stimulation—*rather than depression*—of the cutaneous sensory receptors. The process occurs in structures of the body other than the skin areas to which they are applied. For example, in joints, muscles, tendons and certain viscera.

Gate Control Theory

According to Gate Control Theory, pain is caused by stimulation of two types of nerve fibers.

Menthol will first stimulate the thermoreceptors in the skin causing a cooling sensation, which will in turn stimulate the non-nociceptive nerve fibers (nerve fibers which does not cause pain). This secondary stimulation becomes the counterirritant mechanism.

Result: reduction of pain sensation on the affected area, but does not really address the pain itself – it only provides an illusion.

Menthol is part of one of the four sub-groups of counterirritants.*

Classification of Non-prescription Counterirritant Topical Analgesics*				
GROUP	PRIMARY CHARACTERISTIC	MAIN INGREDIENT	CONCENTRATION PERCENTAGE	DIRECTIONS FOR USE
A	Acts as a rubefacient	Allyl Isothiocyanate Ammonia water Methyl Salicylate Turpentine Oil	0.5 – 5.0% 1.0 – 2.5% 10.0 – 60.0% 6.0 – 50.0%	Apply no more than tid to qid for up to 7 days
B	Produces cooling sensation	Camphor Menthol	3.0 – 11.0% 1.25 – 16.0%	Same as Group A
C	Causes vasodilation	Hystamine Dihydrochloride Methyl Nicotinate	0.025 – 0.1% 0.25 – 1.0%	Same as Group A
D	Incites irritation without rubefaction	Capsicum Capsicum Oleoresin Capsaicin	0.025% 0.025% 0.025%	**Acute Pain:** Same as Group A **Chronic Pain:** Apply tid to qid prn (long-term use should be under medical supervision)
prn = as needed		**tid = 3x daily**	**qid = 4x daily**	

*Adapted from *The Handbook of Nonprescription Drugs* (American Pharmaceutical Association)

The Oxygen Solution for Rejuvenation

Oxygen Innovations International takes a different, healthy approach to pain management and skin care.

G.I.GEL is a patented, odor-free, non-toxic, translucent gel containing molecular oxygen and nitrous oxide as active ingredients. It applies to skin cleanly, without a greasy residual. Dissolved oxygen and nitrous oxide absorb into the skin and may help relieve joint and muscle pain, as well as quicken the healing of skin irritations. A water-emulsified silicone blend helps to soothe and protect.

Our state-of-the-art process creates a gel with almost 5x the oxygen level found in ordinary water. It creates a stable oxygen suspension within a solution while combining it with analgesic nitrous oxide. Molecular oxygen is known to improve skin, promote healing, and relieve sore, tired muscles and joints. The additional pain-relieving property of nitrous oxide may enhance this effect.

The formulation aids in relieving the aches and pains of everyday life. It can relieve discomfort from delayed onset muscle soreness (DOMS) and provides overworked muscles with the molecular oxygen they need to heal and revitalize naturally.

- A rich source of molecular oxygen brought directly to the skin
- A non-greasy, fast-absorbing gel with no odor and no irritating sensation
- Helps provide muscles and tissues with the resources they need to heal naturally

Unlike many menthol and alcohol-based products, *G.I. GEL* does not trick the skin with a counterirritant.

Ingredients	Characteristics	Features	Benefits
Pure Distilled Water	**Fast absorbing**	**No steroids**	**Healing**
Laponite®XLG* (cosmetic clay)	**Greaseless**	**No dyes**	**Pain Reduction**
Silicone (cosmetic grade)	**Stainless**	**No alcohol**	**Cleansing**
Epsom Salts (for magnesium)	**Odorless**	**No free radicals**	**Skin protection**
Molecular Oxygen	**Hypo-allergenic**	**No phthalates**	
Nitrous Oxide	**“Sting-less”**	**No parabens**	
TSPP (food thickener used as source of sodium)	**“Chill-less”**	**No NSAIDs**	
	Completely safe	**No acids**	
	Cannot be overused	**No drugs**	
		No toxins	
*Laponite® is a registered trademark of BYK Additives Limited		**No “iffy” chemicals**	

The gel does not contain perfumes, dyes, alcohols, free radicals, phthalates, parabens, cleansers, acids, oils, toxins, odors, or “iffy” chemicals. It’s safe, effective, and saturated with molecular oxygen.

The Foundation

"Oxygen is critical for cellular growth, disinfection, tissue renewal, and promotion of collagen for healing. Wounds need oxygen to heal properly, and exposing a wound to 100 percent oxygen can, in many cases, speed the healing process."

– John Hopkins Medicine Health Library: *Hyperbaric Oxygen Therapy for Wound Healing*

"There appears to be a significant advantage to delivering oxygen topically in its dissolved form, as it is biologically available immediately upon administration."

– Daniel Ladizinsky, MD and David Roe, PHD

"Your body's tissues need an adequate supply of oxygen to function. When tissue is injured, it requires even more oxygen to survive. Hyperbaric oxygen therapy increases the amount of oxygen your blood can carry. An increase in blood oxygen temporarily restores normal levels of blood gases and tissue function to promote healing and fight infection."

– The Mayo Clinic: Tests and Procedures - *Hyperbaric Oxygen Therapy*

Our specialized process allows us to *hypersaturate* our gel with molecular oxygen – the result is unlike any other topical product. The skin is exposed to levels of oxygen that otherwise could only be experienced in a hyperbaric chamber.

G.I.GEL is designed for pain reduction, healing and conditioning.

Components

The order of the ingredients never changes, but the relative strength of each can be adjusted depending on the goal of the formulation.

- Pure distilled water
- Laponite® XLG (a clay-based cosmetic gelling agent)
- Silicone (non-toxic cosmetic grade)
- Epsom salts (for magnesium)
- Oxygen
- Nitrous Oxide
- Tetrasodium Pyrophosphate (TSPP – a food-grade thickener)

Distilled Water

Water is used as the solvent for two of the other major ingredients (Laponite®XLG, silicone) and acts as the carrier for the remaining ingredients.

There are four basic considerations for using water; it is:

- Ubiquitous
- Non-toxic
- Easily purified
- Part of our physical constitution

Water has the good solvency characteristics we need for oxygen and nitrous oxide, and is very adaptable for our purposes. Pure water avoids any negative aspects of other solvents such as menthol, which is toxic and flammable.

Tap water has too many impurities, including chlorine, minerals and other chemicals that result in increased levels of ions that interfere with the gel making process. Chlorine in water causes undesirable byproducts. The ionic content of water must be controlled in order to maintain the right viscosity levels for gel production.

Distillation is the preferred method. Distilled water intended for internal consumption is purchased directly from our supplier and meets our standards. Distilled water is 100% pure, so it fulfills the critical requirement of maintaining the proper ionic content level.

Laponite® XLG

Water has no order or viscosity, consisting of molecules that are not ordinarily attracted to one another. For our purposes they must be encouraged to do so. This is where Laponite® XLG comes in.

It is personal care-grade compound featuring high purity, and provides an almost synergistic effect when it comes to gel formation.

As the gel we create needs to stay intact while remaining highly viscous, the problem of spreading vs not spreading must be addressed.

Laponite® is a registered trademark of BYK Additives Limited.

Laponite® XLG is a layered silicate cosmetic clay compound created from naturally occurring inorganic mineral sources.

For the sake of readability, from this point forward Laponite®, Laponite® XLG and clay or cosmetic clay are used synonymously.

Example

A small amount of molasses poured on a table would start thick, but spread pretty thin over time. Nothing prevents these molecules from slipping over each other, so it spreads.

Conversely, toothpaste has a network of molecules that are attracted to one another – *bonding* – and these bondings have to be overcome for spreading to occur. Generally the bondings are overcome through pressure, such as being spread with a knife or using your finger.

Our gel suspends micro-bubbles that additional forces are needed to separate. On top of that, the bubbles need to be held in place beyond the apparent viscosity level. This requires a gelling agent, but one that does not deteriorate too quickly. While a carbon-based chain network would cause gelling, it is not long-lasting – too much oxidation too fast occurs. An alternative is needed.

The answer is found in using a compound that was already oxidized - Laponite® fits the bill. It is part of a class of hydratable clays with a 2D “deck of cards” array. Once hydrated, the molecular layers can slide around on each other, like a fresh deck of playing cards. When you tie them together you create a gel. This cosmetic clay also provides increased viscosity characteristics and improves the skin-feel of our gels.

Laponite® is a completely innocuous compound – there is nothing toxic or in any way undesirable that would preclude its use in our gel. In fact, it already has a great history of being used as a gelling agent in many cosmetic products, having already gone through rigorous testing and study.

Silicone

Silicone is a compound derived from sand and also contains oxygen. It is a safe, non-toxic softening and lubricating agent widely used in cosmetics. A very thin layer of silicone can act as a two-way barrier. It prevents the loss of natural skin moisture moving outward, while preventing the capture of dirt and grease by pores of the skin while it is ground inward. Studies have shown that silicone has helped to reduce scarring and is commonly used by plastic surgeons.

Silicone is a very long chain molecule – the longer the chain, the more viscous it is.

However, pure silicone is viscous and sticky. Since it does not mix with water – *and we need it to* – we created a unique phase contactor (specialized ultra-high speed sheer mixer) that will cause silicone and water to mix. This equipment adds so much energy that it overcomes the molecular barriers and allows mixing with water with silicone to create an emulsion (extremely fine particles of silicone in water). The emulsion remains stable even after vigorous shaking, similar to homogenized milk.

Our proprietary blending process adds silicone in such a unique way that it *does not clog skin pores*.

Surface Energetics

Silicone has a high contact angle (greater than 90^{o}) and low wetting coefficient; it spreads well and does not get wet when contacted by a liquid. On the skin it functions similar to car wax: it forms a barrier and a film of protection.

Cosmetics that contain silicone will protect the skin, reduce the impact of dirt, and make the skin easier to clean. The structure of silicone results in the molecules being strongly attracted to each other, resulting in a highly impermeable barrier.

Silicone's intermolecular attraction forces are extremely high – it has a much higher affinity for surface molecules than it does for itself – and it becomes an extreme "non-wetting" agent. When silicone spreads, it precludes other liquids from spreading on IT; as a result other liquids will bead up (like fresh wax on a car). Water has a higher affinity for its own molecules, so it beads up on the silicone.

Synergy

Plastic surgeons like silicone because it facilitates production of collagen instead of scar tissue and facilitates healing.

The ingredients of *G.I. GEL* work together to provide a benefit greater than each could provide separately. When applied to the skin, the nitrous oxide may act as an analgesic to reduce pain and a skin exfoliator. The oxygen oxidizes and removes undesirable oils in the pores, filling the pores with oxygenated water. This results in a super clean skin surface.

The silicone then forms a protective barrier over the clean skin, and through capillary counter pressure keeps bad stuff from flowing back into the pores. It prevents the loss of natural skin moisture moving outward, while preventing the capture of dirt and grease by pores of the skin while it is ground inward.

Through this technology, your skin will be exposed to a level of oxygen previously not available anywhere for topical skin care.

Epsom salts (for Magnesium)

Magnesium (Mg) is added. In order to trap the oxygen between the Laponite® clay lathes (or layers), we have to “nail” them together (crosslinking). Mg is the catalyst for the gelling process.

To accomplish the crosslinking, a cation with a valence of +2 is required – it will provide the capability of bonding the lathes (having a charge of -1) together. Magnesium provides this capability in an inexpensive, innocuous way. As these lathes are bonded, the gel begins to form.

Our source of magnesium is Epsom salts (magnesium sulfate – $MgSO_4$). Epsom salts work well, are economical and medicinally acceptable, having been proven safe over the centuries.

The sulfate portion of the Epsom salts is incidental, present as a negative ion. It could provide additional value as ionic forms of sulfur such as sulfate balance the acid-base levels in the blood and help detoxify certain drugs in the body. However, it is doubtful that the minimal trace amounts that may be left not oxidized by the process have any impact.

Oxygen

Oxygen is known to enhance cellular metabolism, promote the repair of damaged tissue, and minimize scar formation. The oxygen dissolved in the gel interacts with the epidermal and dermal layers of the skin, and is drawn into deeper tissue.

While the gel contains exceptional levels of concentrated molecular oxygen, unlike other “oxygen-containing” topical products on the market, our gel does not contain peroxides or ozone that forms free radicals.

During the production process, skin-nourishing oxygen is both dissolved and adsorbed in the liquid portion of the gel. It is also visibly present as a dispersion of large (macro) and small (micro) bubbles.

- Dissolved = in water; mechanically inseparable (solution aspect)
- Adsorbed = microbubbles and macrobubbles

Microbubbles

Microbubbles smaller than one millimeter but larger than one micrometer in diameter are formed, captured and suspended in the gel without losing integrity. They help provide a good feel and form a layer of pure oxygen on the surface of the skin. This is due to the Laponite® providing an alternative surface for the oxygen to adhere to, instead of adhering to the water.

For example, water within a sponge is really just stuck in the sponge. You can wring it out and get the water back. The cosmetic clay takes on oxygen in a similar way, but during application the oxygen is “wrung out” of the Laponite®.

This follows the Langmuir adsorption model and applies to the nitrous oxide in the same manner:

- Laponate® = adsorbent
- Oxygen & Nitrous Oxide = adsorbates

Macrobubbles

Macrobubbles (larger than one millimeter in diameter) are also produced. These oxygen bubbles help to create the visual translucent characteristics of the gel, providing an affirmation of the gel's effectiveness – if the oxygen is gone, the gel is transparent.

Together these bubbles form a layer of pure gaseous oxygen as the gel is spread on the skin.

The Silicone Barrier

Question: *Why doesn't the oxygen and nitrous oxide simply just float away?*

Answer: *Silicone.*

In order for a gaseous loss to occur, a concentration gradient driving force is needed. Gases will flow from higher pressure to lower pressure (path of least resistance). Since the air around us already has its required oxygen concentration, the oxygen flows the opposite direction (into the skin) where the concentration is lower than the air. Not only does the silicone provide a smooth tactile sensation, it creates a barrier to prevent the nitrous oxide from floating away. This also helps the skin adsorb the nitrous oxide as it is drawn in with the oxygen.

Overall, molecular oxygen may enhance the healing process of tissue, nitrous oxide may act as both an analgesic and secondary oxidizer, and the gel provides the conduit.

The epidermis is a general shield designed to maintain proper balance/exposure to everything the skin might need. The dermis sublayer contains more water. Once the epidermis is cleaned, the dermis is much more encouraged to act as a draw, pulling the oxygen from the microbubbles into it. This also draws the analgesic nitrous oxide into the skin as well.

The speed at which oxygen is drawn into the dermal layers has not been determined, and could vary from person to person, depending on the level of dermal hydration present.

Finally, the oxygen used in production is completely clean. To provide high quality while keeping costs down, we maintain and clean our own cylinders so we know our standards are met with each production run.

Nitrous Oxide

Nitrous oxide (N_2O) is dissolved and adsorbed in the liquid portion of the gel. A portion of the visible macro and micro bubbles contain this gas.

Historically known for its gas-based analgesic and anesthetic properties, our process allows nitrous oxide to be delivered as a topical analgesic. It also has oxidizing properties that help clean the skin. Due to this effect, it also may result in smoother skin – without acids or abrasives.

As a topical agent, N_2O may "sedate" pain as it is drawn into and through the skin with the molecular oxygen.

There are equal portions of nitrous oxide and oxygen bubbles throughout the gel. However, without extreme care, N_2O will replace oxygen to the point of equilibrium. Our specialized blending process overcomes this tendency.

Tetrasodium Pyrophosphate

Tetrasodium pyrophosphate (TSPP) is a food-grade compound typically used in the food industry as a thickener and pH buffering agent. TSPP is a very rich sodium source – one molecule of TSPP provides four atoms of sodium.

TSPP disassociates easily, providing abundant sodium while discarding the phosphate. Leftover phosphates or sodium become inactive ingredients in inconsequential amounts. For our application, it is used as an efficient source of sodium molecules, becoming a *viscosity regulator*.

After adding magnesium to cause gelling, the process must be strongly controlled. If excessive viscosity occurs, the gel will begin to crosslink too early. The sodium (Na +1) from TSPP prevents gelling from occurring before we want it to by inhibiting the action of the magnesium (Mg +2).

The adjustable combination of Na and Mg is used as a viscosity regulator: thin to thick, or thick to thin.

Ingredient Function Summary

- Distilled Water – dissolving medium
- Laponite® XLG – a clay-based gelling agent made from naturally occurring inorganic mineral sources; provides the material to capture and hold the oxygen
- Silicone – safe, non-toxic cosmetic lubricating agent blends and holds everything together; provides protective barrier without clogging pores
- Epsom Salts – magnesium "nails" the Laponite® XLG layers (lathes) together (oxygen "sandwiches")
- Oxygen – may promote healing and enhances cellular metabolism
- Nitrous oxide – may provide analgesic as well as additional oxidation
- Tetrasodium Pyrophosphate (TSPP) – a food-grade thickening agent with highly available sodium

Applications

PRIMARY GOAL	SECONDARY GOAL	FEATURE	BENEFITS
Analgesic	**Rejuvenation & Healing**	**Transdermal pain reduction**	**Minimization or elimination of targeted local pain**

***G.I. GEL* can be used for:**

- Pain caused by callouses
- Plantar fasciitis, cysts
- Tendonitis
- Arthritic pain
- Bruises, strains and sprains
- Delayed onset muscle soreness (DOMS)
- Psoriatic arthritis
- Deep muscle pain
- Reducing skin irritation
- Paper cuts
- Bed sores and skin ulcers
- Post-surgery incisions (once closed)
- Rashes and contact dermatitis
- Rosacea, dry skin, eczema
- Itching and hives
- Sunburn and poison ivy
- Burns (have been shown to downgrade by 1 value if applied within 10 minutes)
- Back pain, backache, deep muscle pain, joint pain and stiffness, shoulder pain and neck pain *(degree of deep tissue penetration not necessarily determined but anecdotally people report the relief of deep tissue pain: tendonitis, muscular soreness and other pain)*

…and for any condition where oxygen can enhance the healing therapeutic process.

G.I. GEL Pain Management

As a general rule, apply *G.I. GEL* 3 x daily until issue is resolved (or as needed). Use enough to cover the area – you cannot use too much. Rub it in gently for wounds and thoroughly for muscle and joint pain. The more severe the condition, the more you may need.

Three basic levels of pain and application are assumed:

Surface pain (burns, rashes, eczema, scarring, bites, stings, scrapes)

- Apply ½ to 1 pump to affected area and massage until gel is gone
- Repeat as often as desired

Sub-dermal pain (bruises, sore muscles, psoriatic arthritis, strains and sprains, minor arthritic and joint pain, shingles,)

- Apply 1 to 2 pumps (or more depending on area) and spread around
- Let sit for a 3-5 minutes
- Massage area until gel is gone

Deep pain (DOMS – delayed onset muscle soreness, moderate to major joint pain, diabetic ulcers, bed sores, neuropathic pain)

- Apply enough to spread liberally (like icing on a cake)
- Let sit for 7-10 minutes
- Massage area until gel is totally absorbed

These are general instructions developed from testing and feedback from both medical professionals and users. Experiences and levels of application may vary.

Unlike other topical gels, *G.I. GEL* has no restrictions regarding how much or how often it is applied.

Of course, it should not apply it to infected areas if advised by your health care professional not to use topical gels and lotions until he or she has approved the ingredients.

As with any topical, you should avoid contact with the eyes. *G.I. GEL* is intended for external use only.

Oxygen Innovations International *G.I. GEL* Wound Care Accelerator comes with an expiration date, but we have yet to see a bottle expire. This is the nature of the gel - the bubbles make it cloudy. If it's cloudy, the oxygen and nitrous oxide are still viable and effective.