Magna-Lyt™

Better Science for a Better Tomorrow

BEYOND INTERNATIONAL, INC
7318 SW 48th Street Miami, FL. 33155
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Manufactured by FREEFLOW MANUFACTURING

General Description of Magna-Lyt

- Magna-Lyt is a water-soluble silicon based polymer successfully used in the USA since 1992 to treat oil and gas wells that have problems with plugging. This plugging may be from clays, asphaltines, paraffin/asphaltine or drilling mud.

- As we all know fresh water is bad for most wells and fresh water alone will cause problems. Once Magna-Lyt is added to fresh water it is no longer a threat to our sensitive pay zones and the Magna-Lyt solution becomes a very effective tool.

- Generally, Magna-Lyt may be diluted with fresh potable water at a ratio 1 part Magna-Lyt and 100 parts water. Depending on the application, the product may be diluted up to 400 parts water. At no time should Magna-Lyt be used any stronger than 1 to 100.

- When applying to wells with extreme paraffin/asphaltine or asphaltine problems, the Magna-Lyt solution effectiveness can be increased by heating solution (up to 212 F /100 C).

- Magna-Lyt, when applied properly through the use of blocking agents and logging equipment Magna-Lyt will treat the pay zone and results will be excellent. If Magna-Lyt reaches the oil or gas formation, it is proven to be effective every time.

- Magna-Lyt is also effective in cleaning flow lines, separators, storage tanks, pipelines

- Magna-Lyt can also be beneficial in cleaning oil spills at well sites, pump stations and tank batteries

- Magna-Lyt is non-toxic and completely biodegradable as determined by ASTM method D-1345

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What is Magna-Lyt

First, most chemicals in the oil industry alter the oil so it flows to the well bore easier, thus creating more production. Magna-Lyt alters the environment the oil is in, not the oil. Our goal is to make oil react to the formation, pipeline and tanks in the same manner as water reacts to wax paper. Oil and most other substances attract each other by this same charge effect.

Magna-Lyt is an electrolyte with the ability to temporarily alter the charge of almost everything it comes in contact with. Oddly enough, it does not alter the charge of hydrocarbons, only the environment around it. With this "flipping" of charges, the oil does not have anything to stick to so it can flow more freely.

Lets assume we are treating a well. We will heat Magna-Lyt to about 100 deg. C. in a 200 to 1 dilution with fresh drinkable water. A load of Magna-Lyt is pushed back into the formation. While in the oil bearing formation, Magna-Lyt flips the charges of the formation so the oil won't stick and starts moving to the areas of less pressure (the well bore). While in the formation it will also flip charges on any fresh water molecules that may have attached themselves to clay particles and caused swelling. These may be insitu clays or invasive clays such as drilling mud; either way these particles will be stripped of their water molecules and become smaller in particle size. Some of the clays will remain bound to other formation particles and some will be free to flow out of the formation and into the well bore as debris. As the Magna-Lyt enters the production string, it again flips the charge on the pipe, not the oil. The paraffin/asphaltine and asphaltines have nothing to stick to so they flow on through the pipe towards the tanks. Once in the tank, the Magna-Lyt and water is heavier than oil so it will stratify on the bottom of the tank where the "tank bottoms" are. These tank bottoms are emulsions of oil, water and debris from the formation and pipes. Magna-Lyt again alters the charge of everything except the oil in these emulsions. The emulsions break, leaving the heavier debris on the bottom, the Magna-Lyt in the middle, and the lighter hydrocarbons will float to the top. This also helps to remove the oil from the produced water now in the tanks. Magna-Lyt works in gas wells in much the same way. Gas is a hydrocarbon, the same as oil. The only change may be dealing with hydrogen sulfide (H_2S). Magna-Lyt's flipping of charges has a small effect on the corrosive H_2S and break some of it down to elemental sulfur. This is a good thing, as it will help in saving the equipment on the well from early destruction.

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Observations

- 100 to 1 is considered the absolute "strongest" solution used. Eighty percent of the Magna-Lyt treatments can be accomplished with dilution rate ranging between 150 to 1 to 250 to 1.

- When total chlorides are in excess of 10,000 ppm, you may use a dilution ranging between 300 to 1 and 400 to 1 to avoid "flashing salts out of solution". We can help you determine the proper dilution until you are comfortable with Magna-Lyt.

- Magna-Lyt in its concentrated state has a shelf life of over 5 years. In the 1% solution, it lasts 2 to 6 days, depending on the quality of the water in which it was diluted. The hotter the solution, the better and faster it will work. Magna-Lyt has been used very successfully in a 16,800 foot well with a bottom hole temperature of 300 deg. F.

- For cleaning flow lines contaminated with paraffin and/or asphaltines, use 200 to 1 solution. This solution will be heated to 200 deg. F. and pumped through the flow lines in the same manner as done with solvents used for this purpose. Magna-Lyt will alter the ionic charges and release the contaminants (hydrocarbons) while exposed to the Magna-Lyt. The contaminants will not be able to re-adhere to the flow line and will be pushed to the tank battery for recovery. Once the flow lines have been cleared and all the contaminants are in the tank battery, the Magna-Lyt will fall to the bottom of the tank and can be separated easily for toxic free disposal. Injection in a disposal well will help the disposal well somewhat even though the Magna-Lyt has expended most of its energy on the flow lines.

- Tank bottoms are currently being treated with Magna-Lyt. Usually 10 gallons of a 1% solution is poured into a 300 barrel tank and left for a week or so. Adjust this procedure according to the problems in your area.

- An injection or disposal well should be treated the same as a producing well.

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Magna-Lyt
An Oxygen Insufficient Surfactant

HOW IT DIFFERS FROM SODIUM SILICATE

- It is not an inorganic monomer which are substances formed from identical molecules such as those found in sodium silicate and many other materials originating from silicon.

- Unlike other silicates, Magna-Lyt is a tetrahedral (having 4 sides) polymer with a high saturation of stable hydrogen. It is this combination of unusual structure and high hydrogen saturation that gives the chemical many unique properties.

- Magna-Lyt has a high pH yet it is very stable and almost benign in nature. It is characterized as a base, yet it has definite electrical behavioral properties that allow it to be considered amphoteric (a term normally alluding to being on the acidic side of the pH scale).

WELL BORE BARRIERS & WETTING AGENTS

- Most likely the main reason for non-water/oil impermeability at the well bore is the swelling of clays in the formation and the oil/water/clay emulsions that occur when bentonite becomes water wet and swells to mix with the oil and plug the well.

- Magna-Lyt will often “unplug” these wells and allow the return of unrestricted oil flow. Magna-Lyt is ideal for stripper well use. Magna-Lyt easily provides a reliable and cost effective solution to barriers at the well bore.

- Except for Magna-Lyt there is nothing now in use that affords the well operator the potential to resolve well production problems.

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PRODUCTION WELL TREATMENT

- Concerns over declining profitability in the Petroleum Industry have generated renewed interest in reducing production costs while enhancing profits.

- The use of Magna-Lyt can certainly improve production in most established wells.

- Magna-Lyt can increase production by increasing the permeability of the oil-bearing strata. This is accomplished by the actual shrinking of swelling clays.

- In most cases, Magna-Lyt can reverse the damage done by drilling fluids, acids and other well production and completion technology.

MAGNA-LYT A NEW SCIENCE TECHNOLOGY

- The Magna-Lyt complex can be used to "carry" super oxidants like hydrogen peroxide, or it can be used to "carry" volatile aromatics for the other specialized treatments. No other product offers such flexibility.

- Magna-Lyt offers the well operator a multitude of new methods to increase his well productivity, reduce his costs, and earn larger profits. Magna-Lyt is a proven, effective agent for well stimulation and secondary recovery projects.

REASONS FOR WELL STIMULATION

The opportunities to stimulate a well usually occur in the following situations.

- The well has served its useful life and the operator is trying to squeeze out a few more barrels.

- The well has not produced what was originally expected.

- The well has been damaged by some drilling completion method.

- Salt, clay, paraffin/asphaltine, drilling mud and other formation problems are blocking the flow of oil or gas.

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FACTS ABOUT MAGNA-LYT

MAGNA-LYT APPLICATIONS

- Re-energizes, stimulates sluggish oil fields
- Clay, paraffin/asphaltine, drilling mud, asphaltines; clean out
- All inclusive frac fluid
- Pipeline and flowline maintenance
- Oil recovery from bitumen and tar sands
- Injection well cleaner
- Tank bottom sludge recovery and cleanup
- Reclamation and cleanup of oil base drilling mud and oil spills

PROPERTIES & CHARACTERISTICS

- **WATER WETTING AGENT**

  Magna-Lyt is an excellent water wetting agent or surfactant, and at temperatures near the 100 degree centigrade range, a dilution of Magna-Lyt liberates many free hydrogen radicals making it a great additive to steam for use in most steam cleaning procedures. Magna-Lyt is a very strong wetting agent with properties that :

  - Wet the water to oil interface
  - Wet the substrate
  - Wet the oil to water interface

  ONLY MAGNA-LYT DOES ALL THREE

- **OIL/GAS WETTING AGENT**

  Magna-Lyt will wet the substrate of an oil formation and will also wet the interface where water, oil, and sand meet. This reduces inner-stitular tensions between oil and water making the chemical useful to the oil and gas industries. Magna-Lyt works as an excellent release agent for paraffin/asphaltine & junk clogged wells. Because it is a successful oil wetting agent, Magna-Lyt has been used to:

  - Clean oil/gas wells.
  - Separate coal fines from clays in coal slurry ponds.
  - Slop oil and tank-bottom sludge recovery and facilitate cleanup.
  - Reclaim and clean oil-based drilling mud.

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- **INDEFINITE SHELF LIFE**

Magna-Lyt is stable and has an indefinite shelf life. This is a property of the chemical that is almost non-occurring in other silicon based materials. Speaking from a "pure material" data standpoint, Magna-Lyt is described as a water soluble, very stable intermediate chemical, which is oxygen insufficient and rich in free radicals.
It has a specific gravity of 1.3. It is colorless, odorless in its un-buffered, denatured state.

- **SAFE FOR YOU AND THE ENVIRONMENT**

Magna-Lyt is "safe" because the complex is water-soluble. It is considered and has been laboratory certified as biodegradable. Further, it is a nonflammable, non-toxic, inorganic material with no know carcinogenic behavior.

- **ELECTROLYTE**

The amphoteric nature of Magna-Lyt allows for the hydrogen end of its molecular bond to facilitate the transmittal of electric current. For instance, it has shown superior electro deposition of various metals to metallic surfaces. Magna-Lyt is the only electrolyte currently known that is not either outright banned by the EPA or on the EPA's restricted use list. The electrolytic property of Magna-Lyt separates it from all other general groups of silicon-based materials.

- **AN AMPHOTERIC FOR CARRYING OXIDIZING MATERIALS**

The negative end of the polymeric chain of this chemical can successfully "carry" oxidizing agents such as hydrogen peroxide. This is a property singularly unique to Magna-Lyt and suggests a new dimension in the oil industry's practice of "down hole" well stimulation.

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Clays and how Magna-Lyt reacts with them.

Much of the confusion about "clays" comes from the two very Freeflow types and their different physical properties. These types are expandable and non-expandable. Even though they may be very similar chemically, these two types are very different. "Clays" are generally made up of silica and aluminum molecules that are as a rule bound together by a stabilized water molecule. By stabilized, we mean that the water co-bonds on an electrically or atomic balanced basis with the higher valence silica and the lower valence aluminum.

This is usually applicable only to expandable days and the exceptions to this are not normally occurring in oil related sediments.

Expandable clays can be different colors but the common colors are red, caused by ferrous and ferric oxides in the matrix of the molecule, and various shades of gray that occur because of the presence of carbon. The common oil field shale is "Slate gray" due to the presence of hydrocarbons. Non-expandable clays are naturally occurring in materials used in insulation and in ceramics, like Kaolin. Expandable clays can be treated with high temperature, the matrix of the aluminum and the silica can be co-bound by heat, and they become no longer soluble in water. The tile and terra cotta clay industry uses this property.

Now to the clays in oil formations. Much of it occurs in differential type deposition lenses. Because of the very fine original particle size of the sediment which makes up the clay. These lenses are very nearly impermeable, and are a problem for the volume of oil that a well may eventually produce even when they are not swollen. However, there is a much more difficult problem associated with bentonite and some other common expandable clays it is their tendency to expand over 1500 times their normal molecular size and completely restrict all flow to the well bore of a producing well when they come in contact with fresh water.

This is a major problem in the oil industry and it is one that Magna-Lyt is engineered to deal with. First, in cases where the bentonite is already swollen and is contaminating a formation either by natural means or from improper drilling mud use, Magna-Lyt will wet the water in the clay molecule and cause it to radically disperse and be able to flow into the well bore. Additionally, where the clays are "Dry" the material will "Wet" the inner-face of the clay/water matrix so that regular water cannot access the clays as readily and cause them to expand.

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Certain high pH clay lenses react very badly to acid treatments for the same relative reasons. This makes it even less attractive to indiscriminately use acids and unstable bases or caustics anywhere near these conditions.

When Magna-Lyt is applied to a well with bentonite or other soluble clays, Magna-Lyt can help reverse the damage that has already been done by other materials.

The surface tension reducing properties of Magna-Lyt will allow the Magna-Lyt to follow the path of least resistance. This may or may not be the area you want to treat. The target treatment area is the oil and or gas zone, not the undesirable zones such as shale or water or other low pressure lenses. In order to hit your target zone, we highly recommend Temperature Differential logs be run along with the use of Benzoic acid flakes as a blocking agent. When Magna-Lyt is used as a carrier for benzoic acid flakes the flakes will follow the path of least resistance (shale , water or channels in poor cement jobs), where you don't want to go. Then, using Temperature Differential Logs, you can determine the effectiveness of your blocking. Several attempts to block the undesirable zones may be necessary before you can be assured that your Magna-Lyt treatment is going in the zone of choice.

Magna-Lyt will wet the water/clay molecule and free the water and the clay fines.
Once these particles are moving toward the well bore, all effort should be used to keep them moving. For this problem, several "washings" may be required, as well as swabbing. Magna-Lyt can break down and make mobile these problems, getting them out remains, the area of good well management and is not anything new to the "Oil patch".

Next is "primal" or insitu water. What we are talking about is the residual water that remained for millennia as the seas receded and the overburden was put down. Clearly, this water was mineral rich. When it went away or was dissipated it left a residual. Usually this residual is deposited on the interior pore space of the deposit. Sometimes it was chemically or mechanically bonded and may occur in varying thickness along the grain boundaries. If one is unaware that these other circumstances exist, then an otherwise effective treatment may fail for reasons that are obscured. Also. A clear understanding of the nature of these deposits can greatly effect the well from planning to completion. Magna-Lyt, if applied to the proper zone, will help remedy these problems.

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PARAFFIN AND ASPHALTINE TREATMENT

Magna-Lyt solution works in two major ways in the control of paraffin/asphaltine,. First, there is a static attraction between the solution and metal, thereby depositing a coating of the solution on the surface of the down-hole tools and pipe. The solution coating fills the minute irregularities of the metal surface resulting in a near friction-free surface to which paraffin/asphaltine crystals do not readily adhere. To further inhibit the adherence of paraffin/asphaltine crystals to the metal, the paraffin/asphaltine and the solution particles tend to repel each other.

To maximize the effectiveness of the solution treatment, it is recommended that a hot solution be injected into the well and returned to the production tank. The softened or melted paraffin/asphaltine is then eliminated from the circulating fluid and deposited in the tank for subsequent removal.

After the well bore is considered clean, if circulation is possible, circulate with hot Magna-Lyt solution. Circulation should be continued for at least two hours to assure an adequate solution coating of the down-hole surfaces. If circulation is not possible, it is recommended that 20 to 40 bbls of hot Magna-Lyt solution be pumped away into the payzone. The Magna-Lyt may be swabbed or flowed back after 30 minutes to one hour.

In wells where paraffin/asphaltine problems exist, it is common for paraffin/asphaltine deposits to plug the formation around the perforations either restricting or entirely cutting off production. The same cleaning and coating principle outlined above works on the formation. Circulation of hot solution long enough to penetrate the plugged area and remove the paraffin/asphaltine deposits will allow the solution to coat the formation particles and inhibit further paraffin/asphaltine deposits.

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TYPICAL TREATMENT PROCEDURES WITH MAGNA-LYT
for

Maintenance
Stimulation
Fracing
Emulsions
Oil Spill Clean up

At no time should Magna-Lyt be used in a dilution stronger than 100 to 1

Maintenance

Magna-Lyt solution can be used for maintenance of down hole pumps and tubing, flowlines, separators, pipelines and tanks. The Magna-Lyt solution can be put down hole and allowed to flow through the pump, pipelines and separators to help stop flowlines blockages. Once the Magna-Lyt solution reaches the tanks it will go to work on the tank bottom emulsions. Magna-Lyt maintenance should be performed every 6 months. Note: Frequency of treatment may be adjusted to meet your needs. The Magna-Lyt maintenance treatment has proven to be very cost effective. A small amount of Magna-Lyt goes a long way.

Recommended Equipment/ Materials**:**

- Magna-Lyt and fresh potable water. A typical treatment would consist of 40 bbls of Magna-Lyt solution put down hole and allowed to be pumped back through the entire system, all the way to the tanks. Note: one 55 gallon drum of Magna-Lyt in a 130 bbl (42 gallons = 1 bbl) water truck make a 100 to 1 Magna-Lyt Solution
- A truck capable of delivering the Magna-Lyt solution down hole
- If heat is required, heater or Hot Oil Truck to heat the Magna-Lyt solution

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Stimulation

- Wells that make more than 10% water are not ideal candidates for Magna-Lyt. Without proper blocking, Magna-Lyt will attempt to treat the water zone and leave your target zone untreated. This will result in an increase of water.
- Produced water needs to be low in Total Chlorides, ideally 10,000 ppm or less. For conditions higher than 10,000 ppm, please contact your area distributor.
- Use no fluids other than Magna-Lyt mixed in fresh potable water to stimulate, no chasers such as: salt water, KCL water, lease crude, acid, etc.
- Magna-Lyt will be diluted to a mixture ranging from 100-400 parts fresh water to 1 part Magna-Lyt concentrate. This diluted mixture we will call "Magna-Lyt solution"
- 100 to 1 is considered the absolute "strongest" solution used. Eighty percent of the Magna-Lyt treatments can be accomplished with dilution rate ranging between 150 to 1 to 250 to 1.
- The Magna-Lyt Solution may be heated to 212 Deg.F/100 Deg C

Recommended Equipment/ Materials**:**

- Magna-Lyt and fresh potable water Note: one 55 gallon drum of Magna-Lyt in a 130 bbl (42 gallons = 1 bbl) water truck make a 100 to 1 Magna-Lyt Solution
- A blocking agent, preferably Benzoic Acid Flakes. If not available, crushed mothballs (Napthaline)
- Work over rig for pulling rods and pump and possibly tubing. Also for swabbing
- Water tank for fresh water and Magna-Lyt (Magna-Lyt Solution)
- Temperature Differential Logging equipment is highly recommended to ensure that the Magna-Lyt solution is actually injected into the target payzone
- Tank or facility to flowback or swab into. The flowed back Magna-Lyt solution may contain large volumes of trash from the formation and well bore.
- A pump truck capable of pumping the Magna-Lyt solution at the rate and pressure needed for the intended treatment.
- If heat is required, heater or Hot Oil Truck to heat the Magna-Lyt solution

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Frac Treatment

Magna-Lyt is an excellent frac fluid, especially for fluid sensitive zones. When fracing the well, follow the steps for stimulation to ensure that the Magna-Lyt solution is going into the proper zone. Once this is accomplished, continue pumping at pressures just over frac gradient so as to not channel out of zone. The total volume of frac fluid is the same as other frac fluids used in your area. Heat is not used in this procedure.

Advantages of Magna-Lyt as a frac fluid:

- Replaces frac gels and friction reducers
- Can be used with or without sand
- Treats and protects the formation

Recommended Equipment/ Materials**:**

- Magna-Lyt and fresh potable water Note: one 55 gallon drum of Magna-Lyt in a 130 bbl (42 gallons = 1 bbl) water truck make a 100 to 1 Magna-Lyt Solution
- A blocking agent, preferably Benzoic Acid Flakes. If not available, crushed mothballs (Napthaline)
- Work over rig for pulling rods and pump and possibly tubing. Also for swabbing
- Water tank for fresh water and Magna-Lyt (Magna-Lyt Solution)
- Temperature Differential Logging equipment is highly recommended to ensure that the Magna-Lyt solution is actually injected into the target payzone
- Tank or facility to flowback or swab into. The flowed back Magna-Lyt solution may contain large volumes of trash from the formation and well bore.
- A pump truck capable of pumping the Magna-Lyt solution at frac pressure and rate.

Emulsions

Magna-Lyt can be used to help break emulsions anywhere they occur. From in the formation to the final separation tanks.

- Formation emulsions from acid treatments can block some or all of your production. Emulsions of this type are most effectively dealt with by following the procedure used for maintenance or stimulation described in this brochure.

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- Magna-Lyt can help speed up the separation process in your separation tanks and allow for a better emulsion break that results in higher prices for your oil. Example: In a 500 bbl tank, put 30 to 40 bbls of hot Magna-Lyt solution at a dilution rate of 200 to 1 in the tank. With a hot oil truck, circulate the entire 500 bbl tank long enough to raise the temperature 20 deg F from the ambient. Once temperature is obtained, stop circulation and let the tank sit for 24 hours and drain the Magna-Lyt treatment off the bottom.

  Recommended Equipment/ Materials**:**

  - Magna-Lyt and fresh potable water Note: one 55 gallon drum of Magna-Lyt in a 130 bbl (42 gallons = 1 bbl) water truck make a 100 to 1 Magna-Lyt Solution
  - Heater or Hot Oil Truck to heat and circulate the Magna-Lyt solution

Oil Spill Clean up

When oils spills occur, the contaminated soil can be cleaned in place. When the contaminated soil is flooded with Magna-Lyt solution, the contaminants will float to the top to be vacuumed off. Procedure: Place a small dam around the area to be flooded. Flood the area with Magna-Lyt solution in a 200 to 1 dilution. Apply enough solution to create and maintain a layer of Magna-Lyt solution ranging from 1 to 3 inches deep. This layer of Magna-Lyt solution will separate the contaminants from the soil below. This will allow the contaminants to be removed by vacuum truck for recovery and disposal. Some spill sites may require this procedure to be repeated several times before you reach the desired level of "clean" (TPH)

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Testimonials

Through the many years of successfully serving our many oil and gas customers, we have acquired many more testimonials than we can list, so we have included only two testimonials and listed some of our customers.

We have included a testimonial from Mr. Glenn Doggett, one of the most recognized figures in the oil and gas business in the USA. Mr. Doggett has served the US Department of Energy as a consultant. He founded and managed many famous oil and gas companies including, Gearhart Owens, GO companies, GO International, Crown Drilling, etc.

Also included is a testimonial from Organic Technologies. We have decided to include this testimonial due to the importance of environmental awareness in today's world.

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Glenn Doggett

Oil & Gas Consulting

February 3, 2004

To Whom It May Concern:

I wanted to write this letter to let you know of my opinion and experience with Magna-Lyt. This fluid has definitely proven to me that it possesses outstanding properties.

One of the most amazing things that I have noticed with Magna-Lyt is its ability to make contact with other fluids and communicate throughout the formation releasing hydrocarbons in these subsurface strata, allowing greater production than wells without Magna-Lyt.

In the last ten years, I have used Magna-Lyt in many wells and in many conditions in many areas of the US including Oklahoma, Texas, Mississippi, Louisiana and Kentucky with outstanding results compared to processes and chemicals available in the oilfield today.

In my opinion it is the best choice of fluid to correct damages created by drilling mud or present day drilling and completion practices. Magna-Lyt has become a large part of our completion package. Our completion package includes our special completion tool to keep cement off the formation and Magna-Lyt to reverse the damage done in the well bore and formation by drilling mud and other invasive fluids. As a result, we have experienced better production, and longer productive life for the well than with conventional completions.

I currently use Magna-Lyt for the following:

- Stimulation…used in all classes of formations, sandstone, limestones, dolomite, etc.
- In every type of fluid sensitive zone, all types of clays
- As a drilling fluid it protects the formation
- As a completion fluid it wets the substrate
- As a frac fluid it influences a greater area throughout the fracture

Sincerely,

Glenn Doggett

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Organic Technology,Inc.

January 24, 1997

Dear Larry;

I know you've been waiting to hear from me in regard to a project in West Texas. We were hired to supply your product Magna-Lyt, along with the technology to remediate the oil spill at a compressor site that had leaked oil all around the foundation of a very large compressor station.

This project amounted to 350-400 cubic yards of compressor oil contamination, ranging in contaminant levels from 28,000 to 32,000 parts per million (ppm), which was saturated around the foundation of the compressor station down as far as 13-15 feet in variable spots all around this foundation. It had also seeped out around the perimeter. The main problem was that they could not excavate this contaminated soil without risking the undermining of the foundation of the compressor station, as well as around all of the inlet and outlet pipes. This would create a very high risk and liability for all companies involved. Because of that, we were asked if we could solve the problem insitu (cleaning the dirt where it lay.) We had successfully remediated other sites like this in the past, and were very confident in taking on this project. The adverse conditions on this particular site made it essential that we use your product, Magna-Lyt, as it worked excellently in the past on insitu projects. This would truly be a challenge because of the depth of contamination.

As you know, before working with Magna-Lyt, we had success with bioremediation of insitu sites with other products and techniques, but Magna-Lyt accelerated even our past performance, which we were already very proud of.

The ppm of compressor oil that had leaked out was in excess of 10,000 ppm, and these were above action levels set by the Texas Natural Resource Commodity Commission (TNRCC). This established our goal to drop the current 28,000 - 32,000 ppm to below 10,000ppm.

Six to seven weeks after we treated the location, the first composite samples came back from the labs with test results ranging from 10,000 to 13,000 ppm. This was still unacceptable. Subsequent samples were pulled six to seven weeks later. The ppm on the subsequent tests averaged under 100 ppm. This process worked very, very efficiently, even with adverse conditions inherent to the geographic location of the site, being located in the dry West Texas area in November, as this area does not receive much ambient rainfall.

Our client and their client were very happy with the expedient remediation of their contaminated site, and we have done subsequent business with them on other sites. You will be happy to know that we. are also doing pilot projects with Magna-Lyt in other countries, such as Malaysia, Australia, Ecuador, Indonesia, Thailand, Viet Nam and Mexico.

I think you know by now, Larry, that I have run onto products like this in the past, in my travels around the world. Your product, Magna-Lyt, performs better than anything I have ever found, not only in this area of application, but in other applications, as well. I will keep you informed on their development, along with any other projects for which we use Magna-Lyt.

We hope that we can be of help to you and any of your clients. If you have any questions, please don't hesitate to contact me. Thank you very much.

Best Regards,

Steven E. Moore

Steven E. Moore President

Domestic & International
12017 Skyline NE. Suite B. Albuquerque. NM 87123. Phone: (505) 291-1100 Fax (505) 271-1600

"Environmental Solutions"

Better Science for a Better Tomorrow

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info@quick-sol.com info@beyond-int.com

SOME CUSTOMERS / AVAILABLE TESTIMONIALS

Esso of Oklahoma
Squirrel Formation 4138'
8 years old
Swollen clays and debris
Pre: .5 bbl
Post: 16 bbl

Houston Petroleum
Frio Formation 9600'
9 years old
Drilling mud damage
Pre: 6 bbls/0 mcf
Post: 32 bbls/80mcf

Trans-Pecos Resources
Cotton Valley 16,500
10 years old
Drilling mud damage
Pre: 450 mcf
Post: 2000mcf

Oakhills Energy
Coal seam 5200'
2 years old
Drilling mud damage
Pre: 0 mcf
Post: 31 mcf

Oakhills Energy
Choctaw Formation 3840'
23 years old
Water invasion, squeeze and stimulate
Pre: 0bbls/0 mcf /30bbls water
Post: 11 bbls/3mcf/0 water

Northland Operating Co.
Disposal Well 5800'
6 years old
Plugging
Pre: 2-3 bpm @ 600psi
Post: on vacuum

Esso of Oklahoma
Dutcher Formation 5800'
2 years old
Drilling mud damage
Pre: 2 bbls/5 mcf
Post: 18bbls/32mcf

Esso of Oklahoma
Dutcher Formation 5825'
11 years old
Drilling mud damage & plugging
Pre: 3 bbls/0 mcf
Post: 21 bbls/22mcf

Capital Exploration
Canyon Sands
New well
Drilling mud Damage & Plugging
Pre: 0 bbls/0mcf
Post: 8 bbls/10mcf

Canadian Resources
Cotton Valley 16,800 ft
3 years old
Drilling mud damage
Pre: 3000mcf
Post: 7000mcf

Paluca Petroleum
Red Fork Formation 5010'
20 years old
Swollen Clays
Pre:4bbls/15mcf
Post: 22 bbls/65mcf

Great Plains Petroleum
Red Fork Formation 6800'
16 wells 10+ years old
Drilling mud damage and
Swollen Clays
Pre: 2 bbls/0 mcf
Post: 15-23bbls/40-75mcf

Ecosolve
Disposal-well 8700'
1 year old
Fluid Sensitive Clays
Pre: 2-3 bpm @650psi
Post: 20bpm@650psi

Geo-Tech
Mississippian
8 years old
Paraffin and asphaltines
Pre: 1 bbl
Post: 42 bbls

Clear Fork Energy
Wilcox
15 years old
Re-Entry & frac
Pre: plugged
Post:800mcf

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MAGNA-LYT™

Environmentally Safe

An Inorganic Surfactant U.N. # 2839.19.0000

Magna-Lyt™ Characteristics & Properties

- MOBILIZES HYDRO-CARBONS
- NON-ACID
- NON-TOXIC
- NON-CAUSTIC
- BIO-DEGRADABLE
- INORGANIC
- NON-FLAMMABLE
- WATER SOLUBLE
- NO KNOWN CARCINOGENS
- D.O.T. SHIPPING NAME: SODIUM SILICATE TYPE
- D.O.T. CLASSIFICATION 55 AS PER NMFC 100-U, ITEM 46580
- CONSULT MSDS FOR FURTHER INFORMATION

DIRECTIONS

- MOST APPLICATIONS REQUIRE A DILUTION OF 100:1 TO 400:1 WITH FRESH WATER
- MAGNA-LYT IS NOT EFFECTIVE IF DILUTED LESS THAN 100:1
- MAGNA-LYT CAN BE HEATED TO 200 F TO ENHANCE PROPERTIES
- FOR SPECIALIZED APPLICATIONS CONSULT YOUR DISTRIBUTOR OR THE MANUFACTURER

HEALTH & EXPOSURE INFORMATION

1. **KEEP OUT OF REACH OF CHILDREN**
2. DRYING OF SKIN MAY OCCUR WITH PROLONGED EXPOSURE
3. USE RUBBER GLOVES AND STANDARD EYE PROTECTION

EMERGENCY FIRST AID

INGESTION: MAY CAUSE NAUSEA, STOMACH PAIN, CRAMPS AND VOMITING. REQUIRES IMMEDIATE MEDICAL ATTENTION. VOMITING SHOULD NEVER BE INDUCED UNLESS DIRECTED TO DO SO BY MEDICAL PERSONNEL
EYE CONTACT/EYE IRRITANT: FLUSH EYES WITH PLENTY OF WATER. IF IRRITATION PERSISTS, CALL A PHYSICIAN.

SKIN CONTACT/SKIN IRRITANT: WITH PROLONGED EXPOSURE DRYING OF SKIN MAY OCCUR. RINSE WITH PLENTY OF WATER AND TREAT SKIN WITH CREAM OR OIL.

HANDLING AND STORAGE

- KEEP CONTAINER CLOSED WHEN NOT IN USE
- KEEP FROM FREEZING
- IN CASE OF SPILLS - DISPERSE WITH WATER

NOTICE: MANUFACTURER, DISTRIBUTOR OR ITS REPRESENTATIVE MAKE NO WARRANTY OR REPRESENTATION EITHER EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS, CONCERNING THIS PRODUCT EXCEPT THAT IT CONFORMS TO THE CHEMICAL DESCRIPTION ON THE LABEL. ALL RISKS RESULTING FROM THE USE OF THE PRODUCT ARE TO BE BORNE BY THE BUYER AT ITS SOLE RISK AND EXPENSE. NEITHER MANUFACTURER, DISTRIBUTOR OR ITS REPRESENTATIVE NOR THE SELLER SHALL BE RESPONSIBLE IN ANY MANNER FOR ANY PERSONAL INJURY OR PROPERTY DAMAGE, OR OTHER TYPE OF LOSS RESULTING FROM THE HANDLING, STORAGE OR USE OF THIS PRODUCT.

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MATERIAL SAFETY DATA SHEET

Section I - Product Identification

Manufacturer:	Exclusive Distributor:	Trade Name:
Freeflow, Ltd	Beyond International, Inc	Magna-Lyt
808 Hwy 473	2600 SW 3rd Avenue Ste 850	Ionized Sodium Silicate Type
Texas	Miami, Fl 33129	D.O.T Class 55
	Tel.(305) 856-1024	U.N. # 2839.19.0000

Section 2 - Hazardous Ingredients

Material is a stable oxygen insufficient silicon polymer, inorganic, bio-degradable in water. Non-toxic base with no known carcinogenic properties. Non-Flammable, Ph is 13.8 and stable to +350 Deg. F. & -125 Deg. F.

Section 3 - Physical Data

Specific Gravity: 1.3, Solubility in water: Complete, Melting Point: NA, Appearance: Opaque, Odor: Odorless liquid Boiling Point: 225 Deg F.
Vapor Pressure (mm hg): ND., Vapor Density: (air=1): ND.,

Section 4 - Fire & Explosion Hazard Data

Material is Non-Flammable - can be used directly as Fire Suppressant. Unusual Fire & Explosion Hazard: None

Section 5 - Health Hazard Data

Material is described as type "D": non-toxic base. Topical exposure indicates no risk to the skin or clothing. Ingestion: Base material may react with stomach acids causing discomfort. If swallowed, dilute with quantities of water, call physician for additional medical advice. Eye Contact: Flush eye with running water for 15 minutes. If irritation occurs, obtain medical advice.

Section 6 - Spill or Leak Procedure

Spills can be handled routinely. Material is water-soluble and will disperse with washing.

Section 7 - Special Protection Information

Material requires no special care in handling. However, standard safety measures should be used as a precaution. Regular cotton or leather gloves may be worn, however, rubber or chemical resistant apparel is recommended. Regular eye protection is suitable. No respiratory equipment is necessary, as no fumes or gases are present.

Section 8 - Regulatory Information

D.O.T. proper labeling and shipping name: Orthosilicate. This material has not been listed as a cancer suspect agent.

IMPORTANT NOTICE

All information contained within this Material Safety Data Sheet is based on data and sources believed to be reliable. However, it is presented without any guarantees or obligations for the accuracy data or results to be obtained on the use thereof and no warranty is expressed or implied. Information herein is for the product stated and may not be valid when the product is combined with any other materials.

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