KULISH MONOPOLE TESTS
Foundation for Magnetic Science

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Kulish Monopolar Fluid Technologies Benefits[1]

Monopole Products	Average Gain in Output	Average Energy & Money Savings	Key Benefits	Mechanism
Hard Water Softening & De-scaling Residential, Commercial, & Industrial HVAC	45-90% gain in heat transfer efficiency	45-90% energy Save $100s to $1000s yrly on each application	Softens water, eliminates scale buildup & hardwater treatment chemicals, softening salt, acid treatments, reduces downtime & environmental pollution	Reduces surface tension making water soft, eliminating scale and subsequent maintenance & increasing thermal transfer efficiency thereby reducing heating costs by eliminating and energy costs
Pools + Hot Tubs Saves +50% on chemicals & 95% on Maintenance. Save +30% on heating costs	33-50% reduced sanitizing chemicals. Elimination of pH chemicals	5-14% electric Reduction On Pump Save $1000s yrly	Water clarity & quality, easy maintenance. Non-irritant soft water. Helps eliminate algae and stabilize pH reducing chemicals. No more scum and liming at water line.	Softened energized water filters more efficiently – pump requires less electricity. Lysing kills algae and fewer dissolved solids to remove.
Fuels Natural gas Oil LPG		Save $1000s yrly 9-40%* 9-40%* 9-40%*	Increased heating capacity, lower fuel consumption and reduced emissions, less environmental pollution	Improve combustion efficiency, air/fuel ratio, burns higher proportion of hydrocarbons in fuel
Crop Booster Alfalfa Tomatoes Cucumbers Flowers Fruits	100%-375% Average In-creased yields Higher increases have occurred	Save +40% Pumping and water costs Large farms increase crops and profits in $10,000s	Increased absorption of minerals & nutrients. Breaks up clodding and mineral bowl affect for increased root growth. Soil holds moisture with greater penetration.	Softened water has greater penetrability and greater growth response. Greater moisture in the ground is maintained & water is conserved creating less manpower, maintenance & less pumping energy required.

* EnviroMagnetics Residential fuel installations achieve the higher percent of savings. Commercial and Industrial savings are in the mid to lower range and require stainless inserts on 4" or bigger.

[1] Kulish Monopolar Technologies under brand names EnviroMagnetics & Magnetizer

INTRODUCTION TO MAGNETIC WATER CONDITONING

Water Conditioning Technology

Water - we use it every day and basically take it for granted. However, a large percentage of water on the planet is hard and has to be treated because it ruins pipes, faucets, heaters, appliances such as dishwashers, washing machines, ice machines and in industry expensive large process equipment such as boilers, exchangers, cooling towers, car washes, etc. Chemical softening takes 20 pounds of chemicals to treat 1000 gallons of hardwater with 20 grains hardness. That is expensive, but at the cost of maintaining equipment, it is a price that is paid.

Additionally, scale is a thermal insulator and heating or cooling through it is very expensive. The US Government reported 3/8ths of an inch of scale costs an additional 48% to heat or cool through. That's 48 cents on the dollar wasted to heat through before the water heats up. It is as simple as having to heat a pot of water sitting on a rock; you have to heat the rock before the pot gets warm. People with hardwater in their home waste hundreds of dollars heating their water; imagine the expense in industry.

Clearly, due to economic and environmental conditions that are impacting the global community, it is important to look toward another technology to solve the costly problems of hardwater. In 1945, magnetic conditioning was introduced in Europe and Russia to eliminate hardwater scale. However, the poorly designed technology never got a foothold because of inconsistent results due to a lack power. The systems had multi-field designs in which both North and South fields neutralized each other's power with the remaining attenuated power only working in minor hardwater applications.

Then in the mid Eighty's, after six years of intensive research and development, Peter Kulish, an American inventor changed all that by patenting the single field magnetic clamp-on treatment system. Kulish's Mark 1 discovery, known as the Monopole Technology under the Magnetizer brand for many years, employed flux amplified single pole field drivers whose pole piece was oriented toward the [middle axis of the] pipe which under the 90° rule, induced the greatest amount of flux density/lines of force and the greatest amount of EMF (electromagnetic force) power into the water. This method increased the working power to give consistent, guaranteed results in all applications; leading to full development and sales of thousands of consumer, commercial and industrial applications worldwide.

Currently, Kulish has developed an advanced power breakthrough in the technology making it work faster and better. His new Mark 2 Hardwater Softener Super System is 1/6th the size and 15 times more powerful than his previous Mark 1 residential system and 10 times more than his industrial systems. He reports "People are astounded how much softer the water is over the old system; the power really makes a difference. This is also a major benefit for industry because their water process systems require powerful systems in a size that fits anywhere. Sometimes there wasn't enough room to apply my last technology. The new technology goes on anywhere and works much faster delivering the benefits." Through the years, Kulish's technology has proven over and over again all over the world to reverse hardwater scale and its problems, but how does it work?

Hardwater basically contains dissolved solids of calcium salts, mostly calcium bicarbonate which comes from limestone rock. Most people do not think of limestone rock as mineral salts, but that is its composition. Under a certain naturally forming Zeta potential between the limestone and the water, these solid rocks dissolve in underground water and come up in our plumbing causing hardwater problems. A Zeta potential is the electrical charge *potential* that exists across the interface of all solids and dissolved solids in a liquid.

The resulting charge measurement between the water and the total dissolved solids (TDS) of calcium is negative and in the mV (millivoltage) range. This charge creates what is known in physics as “down-spin” which contracts the bond-lengths between the atoms and the distance between the molecules making the water denser, which, when measured, has high surface tension. The hardwater’s high surface tension and its concurrent density allow only so many TDS in its solution until it quickly reaches the saturation point. Once the water’s saturation point is met, any additional soluble calcium is mechanically pushed out of the fluid barrier to de-gas and crystallize (nucleate) back into the hard-rock scale inside the plumbing. In heating water (phase change), the higher molecular activity increases the de-gassing action and is the reason why there is greater scale buildup in heaters or boilers than in the piping.

What Kulish’s technology does is increase the water’s solvency and softness by expanding (“upspin”) the atomic bonds and molecular distance which substantially increases the TDS saturation point and decreases surface tension. Once the system is installed, the water immediately becomes softer and no longer creates scale (does not push out the dissolved calcium). Additionally, the Zeta charge potential induced by the EMF emulates the Zeta potential in the ground thereby hydrating and dissolving the existing scale in the plumbing, heaters, appliances and process equipment - literally taking the equipment back to pre-scale operating efficiency substantially prolonging equipment life.

The typical measurements of natural hardwater with 20 grains of hardness are -700mV to -900mV depending upon the water’s constituency. When the Mark 1 Monopole system has been applied, de-scaling occurs and the electrical charges [move toward the positive vector] measure approximately -200mV to -400mV; once the de-scaling is finalized, the charges measure -100mV to +200mV. Field reports to date indicate the new advanced Mark 2 systems provide faster and substantially softer water than the Mark 1 system. It is estimated from these results and the increased power that the Mark 2 EMF tests will show substantial charge increases over that of the Mark 1 system. Further testing is underway and will be reported.

The New Advanced Mark 2 Monopolar Hardwater Softener Technology is particularly appropriate in this age of green and non-polluting technology. Its economy is second to none as it operates as an energy-free (no external power requirement) technology not costing anything to run. Once installed, it provides a very quick ROI (return on investment) in reduced maintenance and energy costs and after the payback period, permanently continues to provide cost savings and increased bottom-line profits where appropriate. Downtime and costs for acid treatment, drilling, equipment replacement and everything associated with chemical softening is no longer required.

The new technology has been completely designed to provide financial and environmental benefits as befitting the 21st century.

Tests & Testimonials – Water

Tests:

Analytical Laboratories - Magnetic water conditioner study. Objective: to evaluate the effect of Kulish Monopole water conditioner on selected characteristics and chemistry of water.

a. Increased buffering capacity of water
b. Reduced conductivity
c. Slight reduction in hardness
d. Reduced surface tension: 71 dynes cm^2 to 62 dynes cm^2

Canada Energy Controls- Arizona Plaza, Winnipeg, Manitoba. End of 8-week test: "Kulish Monopole removed scale from piping, radiation, and control valves. The decrease in boiler stack temperature is a result of the Kulish Monopole system removing scale from the boiler tube allowing larger heat transfer".

Chromally Corp. Test, Harrisburg, Pennsylvania- Gratifying results with respect to the heat-treated water: TDS, pH, bacteria, erosion, scaling, and general appearance of cooling towers and coils. Well-known chemical company monitoring the tests was surprised by excellent results provided by the magnetic treatment over a 2.5 year period.

City of Seattle- Test on Cooling Tower. One year test. Arctic Building, Seattle. After 12 months of use: "Tower is still free of algae, damper; operates without calcium deposits and mineral deposits on the walls are all but gone. During year no maintenance was performed except for verifying water levels and occasionally blowing down sump".

Crown-Tech Engineering Corp.- Taichung, Taiwan. Scale removal from calibration metering equipment utilized in airplane development center.

Luby's Cafeteria, San Antonio- Commercial Boiler (Rite # 1805). Initial conditions: bottom 5 rows of boiler tube bundles almost totally closed with scale. Final: Alamo Boiler Works (service) found all tubes clear after 24 months of Kulish Monopole product use. Luby's has outfitted their entire chain.

Mabato Sun Report- Bophuthatswana, Africa. Hotel & Casino Cooling Equipment. At the end of a one year test: "There was a fair amount of white deposit

on the honeycomb units, but it was soft rather than hard scaling, that came away easily if wiped off or washed off with a hose.

Universal City Fire Department Study- Kulish Monopoles used on fire fighting equipment.

a. Reduction of surface tension results increased distance.

b. Elimination of lime and calcium carbonate as well as removal of existing deposits from equipment.

c. Retardation of acidity that causes rust and deterioration of pumps and tanks.

University California, San Diego USCD

Based upon previous manual de-scaling operations, the KULISH MONOPOLE installation is saving USCD $4,200 annually in labor and chemicals. However, it should be noted that the $4,200 does not reflect total savings. Since the KULISH MONOPOLE unit keeps the boiler scale free on a continuous basis, there is an additional energy savings. The energy loss from 1.16 inch of scale is 11% and 1/8 inch of scale can cause 18% loss due to poor thermal transfer efficiency. However, it should also be noted that thermal transfer properties of scale vary widely, and in extreme cases losses can be as high as 15% for every 1 1/16-inch thickness of scale deposit. Therefore, the savings in heat transfer efficiency are not recorded as part of the $4,200. These are large savings in addition to the KULISH MONOPOLE maintenance savings.

Victoria Towers Test- San Antonio, Texas

a. Cooling Tower: "Very light scale still present, but flakes with slightest touch.

b. 450 pounds of scale removed from tower without the use of chemicals.

c. Two story decorative fountain: waters remained clear without the use of chemicals.

d. Water Heaters: clear, clean, and trouble free.

Kulish Monopole Water Tests and Industry Usage

Bromitron, Adrem Manufacturing- Orlando, Florida. Bromine generator, when the Kulish Monopoles were installed on the Bromitron. "There was a definite difference in the build up of calcium carbonate and the pH of the water was stabilized.

Capital Restaurant Sales & Service- "The ice machine was as clean as the day it started up".

Crown-Tech- Airplane Development Center. Taichung, Taiwan. The use of Kulish Monopole units to remove hardwater scale minerals for technical water monitoring instruments.

Golflesch- French nuclear power. July 18, 1994- The Kulish Monopole units are utilized on one of the largest Nuclear Power Reactors in France, The Golflesch Plant.

Kim's Laundry & Cleaners - Austin, Texas. "I feel that the Kulish Monopole on the boiler paid for itself in about 6 months, saving on boiler compound and the fact of not having insulated scale on the boiler".

San Antonio Water Systems- San Antonio, Texas. "The payback is enhanced when you think of the time spent cleaning these (tanks) units".

Scottsmar (Ice Machines)- "The lack of mineral and scale buildup on the machine should greatly contribute to the life of the ice maker as well as cut down on service maintenance".

Shaller & Weber- Long Island City, New York. "Five of our boilers are completely scale free without the use of chemicals; to date the cooling tower and holding tank require no cleaning".

Stelectro Steel- Calcutta, India. "We find the unit has definitely controlled hard scale formation in the heat exchange and thereby improved maintenance downtime".

Royal Touch Cleaners- Kulish Monopole on 30 horsepower boilers. "The (calcium) sludge just washed away. The tubes had a slight dusting that you could wipe off with your hand. You could even read the stamped numbers on the tube".

West-Bengal Electric- Calcutta, India. Very effective in improving quality of re-circulating water.

Pool & Spa Tests

Cranfield University, UK – KULISH MARK 1 MONOPOLE Test
(J.E. Starmen Master's Thesis, September 1996)

Observed effect of KULISH MONOPOLE pool unit:

1. The cell death rate of E coli was significantly raised owing to increased aqueous chlorine.

2. Concentrations of free chlorine in solution were significantly increased by MWT at 0.8 and 1.2 ppm free chlorine doses.

3. Concentrations of combined chlorine in solution were significantly increased by MWT at 1.2 ppm free chlorine doses.

4. Cell kill was improved at 0.4, 0.8, and 1.2 ppm initial free chlorine doses.

5. Chloroform production was suppressed at 0.4 and 1.2 ppm initial free chlorine doses; at 0.4 ppm this was significant.

KULISH Mark 1 MONOPOLE Spa Test I

AT AM Test Inc.

Analysis Report

For Testing at: Clark Hatch Pool

Laboratory Sample No.	Client Identification	Aerobic Plate Count (CFU/ml)
700839	3/4/87- Pool Water	26. est.*
700840	3/11/87- Pool Water, After one week	3. est.*

*Est.- Estimated counts are obtained from plates having less than 30 or more than 300 colonies.

Applied Magnetic's Notes:

Conditions:

- 2000 gallon in-ground commercial spa with KULISH MONOPOLE Model RX2
- Temperature 102F throughout
- No additional oxidizer used
- Heavy bather load (approx. 20-50 people per day)
- Chlorine maintained at 3 ppm

Observation: Bacteria started at 26 colonies/milliliter. Within one week, even with heavy bather load, bacteria had fallen to 3 colonies/milliliter.

KULISH MONOPOLE Spa Test II

AT Am Test Inc.

Analysis Report

Test	pH	Conductivity (umhos/cm @ 25 C)	Aerobic Plate Count (CFU/ml)
2/23/87 Before KULISH MONOPOLE Attached	8.8	379.0	11,000
2/26/87 After 72 hours	8.75	390.0	2,200

Conditions:

-250 gallon personal spa with Rx1 KULISH MONOPOLE
- Sealed during test, except to take out samples
- No Chlorine/Bromine
- Not used during test period
-Spa re-circulated through Kulish Monopole and heated to 102 F
- No chemicals added during test

Observations: Major bacteria decrease between 48 and 72 hours after installing.

Introduction to the Magnetic Treatment of Fuel

Hydrogen is the lightest and most basic element known to man. With its simple structure comprised of only one proton and one electron, it is one of the major constituents of all hydrocarbon based fuels. By studying the response of hydrogen with respect to magnetic fields and the accompanying increased energy output, much can be learned and applied to other related fuels.

In the oxidation/combustion of hydrocarbon fuels, it is the outer shell of the hydrogen that is combusted first.

Hydrogen, the first element of the chemical periodic chart, has the atomic number 1 and the atomic weight 1.0079. Since it possesses only one electron, it has the valence of positive 1. Even though hydrogen is the simplest of all elements, it possesses two distinctive forms: ortho-hydrogen and para-hydrogen. To secure conversion of para to ortho state, it is necessary to change the energy of interaction between nuclear spins. The molecules of the two gases, para and ortho-hydrogen differ in the relative orientation of the nuclear spins of the two protons. In para molecules the spins of the protons are anti-parallel, while in the ortho molecule the spins are parallel. The para molecules occupy the even rotational levels, and the ortho molecules occupy the odd levels.

The orientations of the spins have a pronounced effect on the behavior of the molecule. In fact, ortho-hydrogen is unstable and more reactive than its para-hydrogen counterpart. The liquid hydrogen fuel that is used to power the space shuttle is stored in the para-hydrogen form, which is less volatile.

A utility patent was awarded to Simon Ruskin, 3228 868, which relates the means by which hydrogen rocket fuel can be converted from para-hydrogen to ortho-hydrogen through the application of a magnetic field. Note that under U.S.C. 35 section 101, any utility patent must be proven scientifically operable and correct before issuance. Design patents are not subject to the above PTO ruling.

It should be noted that magnets are the prime source of control of the position of electrons. For example, a magnetic coil controls the sweep of our television's electron gun. We frequently use the term electromagnetism because we can't separate the effects one field has on the other. Therefore, it shouldn't be too surprising that chemical reactions which are determined by an element's valence (the surplus or deficiency in the outer orbital shells of the electrons) are affected by a magnetic field.

When we attach a Kulish Monopole unit to the fuel line of an automobile, we see an immediate drop in unburned hydrocarbons and carbon monoxide. This is due to the magnetic conditioning of the fuel, which makes it more reactive. Few people realize that carbon monoxide can be subsequently burned - carbon monoxide can be viewed as a fuel. The purpose of a catalytic converter on automobiles is to oxidize (burn) carbon monoxide into carbon dioxide. As related in stoichiometric

charts representing ideal combustion parameters, the highest burning efficiency will be achieved at the highest carbon dioxide level, since carbon dioxide cannot be subsequently oxidized. The purpose of a catalytic converter is to reduce all carbon monoxide to carbon dioxide. The amazing part is that the Kulish Monopole reduces emissions on cars with catalytic converters. The increased combustion efficiency is occurring within the engine due to increased fuel reactivity with oxygen (increased oxidation), the main factor responsible for increased combustion efficiency. It is a complete waste to allow an engine to run inefficiently and to burn the excess carbon monoxide in it's catalytic converter, the wasted heat merely "heats-up" the exhaust system, instead of providing useful work within the engine.

By establishing proper fuel burning parameters by magnetic means, we can be assured that an internal combustion engine is getting the maximum energy per gallon of fuel as well as providing the environment with the lowest level of toxic emissions. Overall generation of carbon dioxide will drop due to better overall engine efficiency.

The magnetic treatment of fuel represents a new technology. Many attempts by various inventors and scientific investigators worldwide have been far less than satisfactory due to the implementation of what has become known as the bi-polar technique. Magnetic fields, like their electrical counterpart, electricity, choose the path of least resistance; and in doing so, it also represents the path of least effect, since with bi-polar devices most of the magnetic forces are merely being transmitted between the two poles. Kulish, Peter is responsible for founding the mono-pole technology, or in simple terms, the use of the single pole technique. The mono-pole application has increased the flux field (power density) as much as 500 times that of the bi-polar technology. This is of supreme importance, since it is required to have the necessary power (flux density) to properly excite the electron activity causing the increased oxidation effect. This is why all prior systems to the Kulish Monopole could not show sufficient results. The recent advent of the gas emission analyzer, which is used to enforce state and federally regulated emission standards in accordance with the science of stoichiometry, has greatly aided in the documentation of magnetic fuel research results.

Kulish Monopole Fuel Efficiency Tests

United States Air Force	80% reduction in smoke, +50% reduction in carbon monoxides, +50% reduction in hydrocarbons. Petrol vehicles fitted WITH catalytic converters.
EPA (Latin America)	18.8% reduction in fuel consumption. CVS-75 Standard Motor Industry Test.
Mercedes Benz	Well over 50% reduction in smoke, hydrocarbons, carbon monoxide.
Nissan	Tests on 5 vehicles all showed dramatic reductions in hydrocarbons and carbon monoxide.
Proton	Significant reduction in carbon monoxide and hydrocarbons.
Penske Racing	4.8% increase in horsepower on some of the most finely tuned and engineered vehicles in the world.
U.S. Federal Border Patrol	+10% increases in fuel savings, +50% reductions in carbon monoxide and hydrocarbons. 94 Chevy Suburban 27.0%, 90 Ford Bronco, 29.8%, 91 Nissan 4 x 4, 10.3%, 86 6.9L Diesel, 50.8%.
VTEC	Fuel savings of 26% under laboratory conditions on equipment calibrated to the United States equivalent of NAMAS.
Ford/Volkswagen	In excess of 50% reduction in carbon monoxide emissions.
Sirim/Malaysia	Average of 5% Fuel Savings, 40% reduction in carbon monoxide emissions.
United Motor Car/Sri Lanka	Diesel Smoke Opacity Emission Test, 60% reduction in Diesel Emissions.
City of Berkeley, California	4.8% increase in horsepower on some of the most finely tuned and engineered vehicles in the world. Fuel Economy change: 95 Ford Crown V8, 14.13%, 95 Ford Crown V8 (2.46%), 90 E-350 Ford Van V8, 7.06%.
Intercraft, Nepal	Average CO Reduction of 83+%, Smoke Reduction of 61+%

NATURAL GAS HEATING

McReedy East Mine – Heating House

"Ventilation of a mine is one of the most important functions that allow miners to go to work everyday. A one-year period of monitoring was done on the heater house [that heats mine ventilation air in the winter] without magnets, and the second year the magnets were installed on the headers of the heater house. This installation was monitored and after two years the results were completed in May 2002. The savings in natural gas as a result of the installation of magnets was 11.95% **in 2001-2002 when compared to 2000-2001."**

204 Residential Apartments, Quebec City, Canada, 1999

"We have monitored the consumption of natural gas as per the Gaz Metropolitain invoices forwarded by you recently. In conclusion this report indicates savings with magnetic [adjusted for yearly variations in „degree days"]
Base year was 1996/97
1998/99 vs. 1996/97 13.3% **[Reduction in natural gas used]**
1998/99 vs. 1997/98 12.6% **[Reduction in natural gas used]**

York Holdings Office Building, Montreal, Canada, 1999.

"We have computed the consumption, occupancy and degree-days... in making a comparison for the six (6) month period of January – June in the years of 1996, 1997, 1998, and 1999, as per available data. The savings achieved were 8.3% **based on an average [energy] consumption of** $120,000**."**

Wallace McBain & Associates Building, 299 Mill Road, Scarborough, Ontario, Canada, 1999

"This report compares the Degree-Day values for the building over the last two winters. This comparison shows a decrease of 9.73 cubic meters per degree-day. Percentage of saving - 7.5%.
Our treatment is only on the heating boilers. These boilers consume 58% of the building's total cubic meters. Therefore 7.5% divided by 58% consumption factor gives an overall 12.9% **savings."**

Nexacor Realty Management, Oshawa, Ontario, Canada, 2001

Multi unit Apartment building powered by natural gas benefited an energy savings of 10.97% **based upon available data for previous years.**

BOILERS 34 Canada Post Office – North Tower.

Magnetic arrays were installed on 3 boilers used for heating this sorting facility. Since the boiler instrumentation included individual stack temperature thermometers but not individual fuel flow meters, combustion efficiency was measured via increases in stack temperatures. Over 22 boiler „runs", stack temperature readings were taken, and, comparing 11 runs without magnets to 11 runs with magnets a 9.8% **increase in thermal efficiency was achieved.**

IBM White Plains, New York 1997.

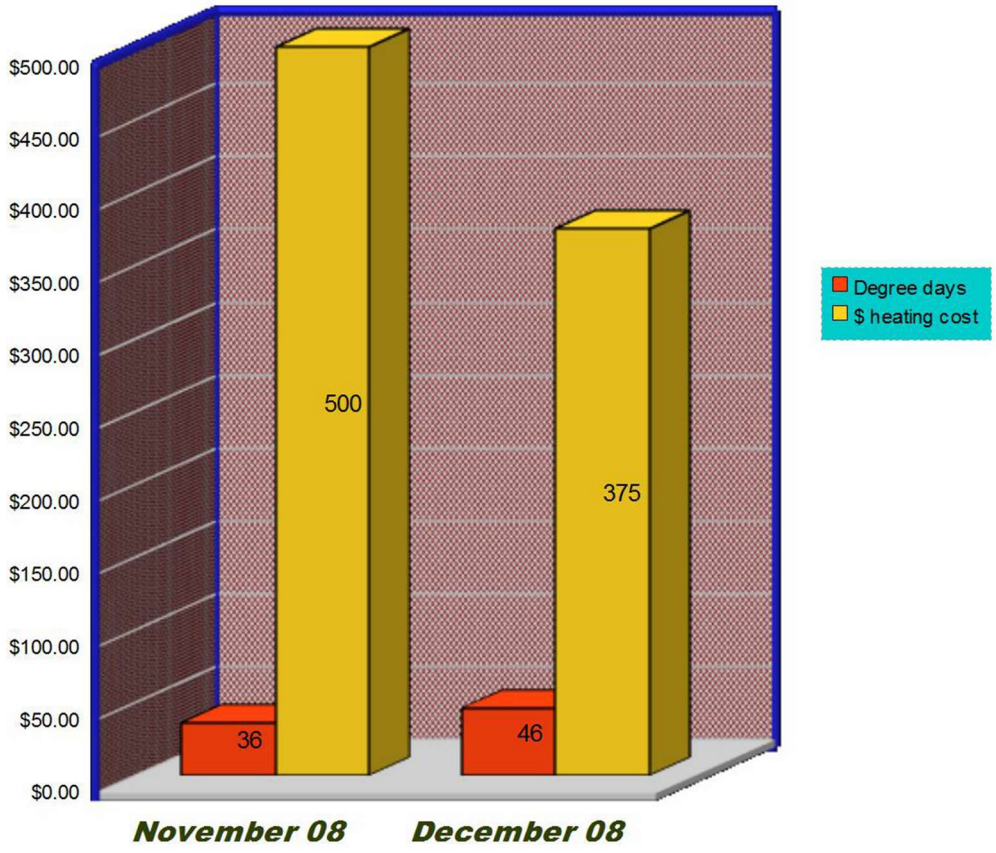
IBM service contractor tested 300 HP natural gas burners, with 3 inches galvanized fuel lines. Monitoring through the demonstration was done in the presence of Global EnviroTech, Inc. Valco Energy Systems, and the on site engineering staff at the IBM location
The average fuel consumption per degree-day with Kulish Monopole treatment was reduced by 17%. **The estimated average savings was $20,000. This particular installation had one time cost of $6,354.**

Scarsdale Manor, Scarsdale, New York 1997.

A.B. Wolle, Inc serviced two Boilers installed in the Scarsdale Manor facility. The performance of the two boilers was tested prior to the Monopole installation using a Bacharach Fyrite II Combustion Analyzer. Perhaps the most dramatic occurrence during the

testing was noted by A.B. Wolle Inc. Two months after installation, when using "dirty oil" such as #4 or #6 oil, the boiler efficiency increased instead of decreasing. Both boilers showed yearly fuel savings of 17% and 19% **respectively. The yearly savings was $17,855 with cost of Monopole equipment of $3,716.**

Residential installation of EnviroMagnetics Nat. Gas Fuel Saver



28% higher heat load for December 08 over November 08
Nov: $500 ÷ 36HDDs = $13.88 per HDD* (untreated) Dec: $375 ÷ 46HDDs = $ 8.15 per HDD (treated)
41% savings with EnviroMagnetics Fuel Saver

*HHD = Heating Degree Day

GOVERNMENT INSTALLATIONS
Of Kulish's Monopole

Fuel & Water Commercial Applications

FEDERAL PRISONS

- Lewisburg Federal Penitentiary, Lewisburg, Pennsylvania (Treatment for water systems for their scaled boilers.

* Danbury Federal Penitentiary, Danbury, Connecticut (All applicable water treatment for scaled boilers and condensate return lines. Natural gas fuel systems for the same boilers are installed and the results are as promised, control of scale on the water side and reduced fuel consumption on the fuel installations.

STATE PRISONS

- Graterford Prison, Graterford, Pennsylvania (All applicable water and fuel applications. First systems installed were on a scale-clogged dishwasher, which in a couple of weeks was running scale free. One cell block was not getting enough hot water for showers due to extensive scale build up in the water pipes, the units were installed and within two weeks were getting all the hot water they needed.

* Callpatria State Prison, Callpatria, California (Several water systems applications such as commercial dishwashers were installed with good results.)

U.S. GOVERNMENT

- U.S. Census Bureau, Jeffersonville, Indiana (All applicable water applications. Several systems were installed on a trial basis. The results were excellent and additional units were installed on every applicable part of the water systems for the entire building.

- Department of Treasury, U.S. Mint, Philadelphia, Pennsylvania (All applicable water and fuel applications, to include the portable water system for quenching tanks. All the large furnaces using natural gas have been treated with KULISH MONOPOLE TECHNOLOGY fuel systems, which have provided great fuel efficiency and fuel dollar savings.)

- N.O.A.A. (National Oceanic and Atmospheric Administration) Norfolk, Virginia (Fuel systems for their diesel engines and water cooling systems as well as portable water systems installed and delivering recognizable results.)

- D.S.C.S. (Defense Command Supply Center), Columbus, Ohio, (Automotive
fuel systems, stocking order for call out.)

CITY/COUNTY/STATE GOVERNMENT

- City of Seattle, Washington (Cooling tower for the city with a letter of endorsement from the city administrator's office.

- City of San Antonio, Texas (Numerous water system applications, throughout
the city's myriad water system. Including fire trucks.

- City of San Diego, Metropolitan Correction Center, San Diego, California (Sundry water applications on city water systems.)

- City of Cheyenne, Wyoming (Sundry water applications on city water systems
with excellent results. As tine and budget permit, the city continues to add
KULISH MONOPOLE TECHNOLOGY systems to their water system on an on going basis.

- City of Fort Walton Beach, Florida (Numerous fuel systems for police cars and other municipal gas powered vehicles. A few vehicles were picked for a test. After the test, they dropped from 89 to 87-octane fuel with no loss in performance and evidenced lowered emissions. As funds permit, all the city owned vehicles will be treated with KULISH MONOPOLE TECHNOLOGY fuel systems.)

- Bucks County Housing Authority, Doylestown, Pennsylvania (Water and fuel
boilers in county owned housing, test systems installed and showing favorably.)

U.S. COAST GUARD

- U.S.C.G. Cutters " Gallatin" and "Dallas", Governors Island, New York (Boilers- KULISH MONOPOLE TECHNOLOGY fuel and water systems installed with excellent results. So good that when Coast Guard personnel were transferred to other cutters, they requested KULISH MONOPOLE TECHNOLOGY systems be installed.
- U.S.C.G. Cutter " Red Oak", Philadelphia, Pennsylvania (KULISH MONOPOLE TECHNOLOGY
water system in use for over a year on their boiler.)

Page 3, Government Installations

- U.S.C.G. Cutter "Mellon", Seattle, Washington (Water system installation on
their boiler water system.)

U.S. ARMY

* Brooks Army Hospital, San Antonio, Texas (Medical Sterilizers used for sterilizing medical instruments. There was so much built up scale that after KULISH MONOPOLE TECHNOLOGY system was installed they had to shovel out the mush like scale.)

U.S. NAVY

- U.S. Navy, New London, Submarine Base, New London, Connecticut (Diesel
engine coolant storage tanks (anti-freeze), spent anti-freeze once too acidic to use, once treated magnetically, now reusable.)

- U.S. Navy/Tenneco (Test), Newport News Shipyard, Virginia (Cooling tower,
long term, 2 year test.)

- U.S. Navy – Naval Warfare Center, Warminster, Pennsylvania, (Cooling Tower and humidifiers with serious scale problems.)

U.S. AIR FORCE

- U.S. Air Force Academy, Colorado Springs, Colorado (Automotive fuel systems for base vehicles.)

- U.S. Air Force, Elmendorf AFB, Alaska (Sauna boilers with scale problems.)

- U.S. Air Force, MEEP Program (fuel test), Elgin AFB, Florida (Automotive
  fuel three-month test on base cars and trucks. The net results were substantial reductions in emissions.)

- U.S. Air Force, MEEP Program & Department of Defense (water test in progress), Langley AFB, Virginia (Cooling tower and chiller, a six month test in two phases. The results of the test will be disseminated the government. Adoption will be recommended if the results are as we expect.)

- U.S. Air Force, Kelly AFB, San Antonio, Texas (Automotive fuel systems for
  base vehicles.)

- U.S. Air Force, Randolf AFB, University City, Texas (Cooling towers.)

Additional Kulish Monopole Tests

Some of the biggest metallurgical and ceramic plants in Europe (& other continents as well), using each year millions of cubic meters of natural gas, are now saving as much as 23% of fuel due to our technology!

Since July 18, 1994, the KULISH MONOPOLE® is working in one of the largest nuclear power plants in Europe at Golfesch in France, de-scaling hard water sediment in the packings of a large cooling tower. The application of this relatively new technology is enormous, spanning residential to industrial markets, wherever there is use of hydrocarbon fuels or water (cars, buses, trailers, delivery & pick-up trucks, heavy transportation equipment, lawn mowers or diesel locomotives, boat, vessels, automotive industry, glass & ceramic or cement plants, commercial buildings & apartment complexes, hospitals, tanneries, coal & copper mines, metallurgical plants, agricultural & horticultural industry, coffee & food processing plants, shrimp plants, chicken farms, energy utilities, military forces, etc.)

A six month testing project by the **U.S. Air Force** (The Air Force Material Command) at Hurlburt Field, Florida, with the use of EPA approved Bear 2000 diagnostic equipment resulted in the following conclusions: "The Kulish Monopole fuel treatment systems demonstrated the ability to reduce harmful emissions in both gasoline and diesel engines". Their recommendations are as follows: "We are recommending the KULISH MONOPOLE® Fuel Systems magnets be approved for Air Force adoption. Further recommend a National Stock Number be assigned".

Louisiana Monroe Transit System buses use "the best diesel fuel you can buy, [since] the magnets purify the fuel. The magnets not only conserve fuel, but also cut down on the black particles that are emitted from the buses. After a two-month experimental period, we did determine that the magnets helped to conserve. We were getting 3 miles per gallon, and with magnets we're getting 4.1 miles per gallon on diesel powered buses". (36.6% savings)

The city of **Fort Waldon Beach, Florida,** reports: "12% reduction in fuel consumption and additional use of lower octane fuel which relates to substantial cost savings to the city".

The Institute of Construction and Exploitation of Machines of the Wroclaw Technical Institute in Poland has conducted tests on a diesel engine S312C. "In the course of conducted tests we state a positive influence of energizers on fuel consumption, engine performance, and toxicity and smoke of engine emissions". The fuel consumption decreased by 20%, power and torque in the whole range of the crankshaft velocity perceptibly increased. The CO concentration in the car exhaust decreased by 82.9%, the concentration on NOx decreased by 78.4%, and smoke (especially at small and maximum revolutions) decreased by 85%, to cite only the most important data from the 14-page report.

A Hungarian-made IKARUS 280 bus with the RABA-MAN D2156 German-made engine with the mileage of 321,975 km (201,234 miles) would exhale fumes containing as much as 87.5% smoke. One month after the KULISH

MONOPOLE® installation, the smoke was reduced to 45.5%. After two months, to 36%. After four months, the smoke detector indicated that the smoke level was 22.5%, where it stabilized. The fuel consumption decreased by 203 liters (53 gallons) in the course of a month, saving on the average 20% of expensive diesel fuel, as reported by the prestigious weekly MOTOR Magazine (est. 1952, circulation 100,000).

The Mass Transit Authority (Przedsiebiorstwo Komunikacji Miejskiej) **in Jastrzebie**, a resort city in the South of Poland, experimentally installed KULISH MONOPOLE® on their buses. After five months of use, the fume smoke in diesels decreased by 50%, and an increase of the vehicle dynamics and decrease in fuel consumption was observed.

STHB, a leading transportation company from Morocco, installed the auto coolant energizer, type "ACE", to test its de-scaling and anticorrosion capacity, as well as hardness of water going to the radiator. Three times every two weeks they were flushing the radiator water and monitoring the results. At first, "we could observe with the naked eye a white conglomeration of scale (calcium) suspended in turbid water. As we proceeded with the successive flushings it has become evident that the water was becoming cleaner and purer. After the last flushing we have decided to fill our radiator up with distilled water, knowing that there will be no more need to flush again seeing that the KULISH MONOPOLE® does its permanent purification work. We are satisfied with the KULISH MONOPOLE® and we highly recommend its systematic adoption above all, when one knows, as we do, the variety of mechanical problems that can be avoided by this method".

The Bethlehem Steel Co. (USA) uses the KULISH MONOPOLE® on its 16 Cummins Diesel locomotives, reporting: 6048-gallon fuel savings with KULISH MONOPOLE® installed during the period of June 26, 1994 to November 17, 1994 (4.5 months). Yearly savings amounted to 15,120 gallons on one car, a 7% increase in efficiency.

Drexel Hill Fabric Center in Philadelphia used to report the average cost of gas in dry cleaners and coin-operated laundries to run at 22-25% of their income. With the KULISH MONOPOLE® system, their average cost has been reduced to 10% - a substantial increase in profit due to the use of the Natural Gas Fuel Energizer. Now, whenever Drexel Hill buys another location, the KULISH MONOPOLE® unit goes on immediately.

A large French utility company, **CIEC**, carefully examined the KULISH MONOPOLE® water energizer, model RWE-S, in their Paris labs. They witnessed the net decrease of scale of hot sanitary water process equipment and their technical director summed it up: "we can confirm that this device gives all satisfaction". Laundries in Paris use the KULISH MONOPOLE® to naturally soften water, saving on water softening chemicals (salts) while providing customer satisfaction by utilizing less detergent and producing softer, cleaner clothes.

The largest shirt manufacturer in Poland, **Wolczanka S.A.**, confirms that "the exploitation [of the KULISH MONOPOLE®] has been positive, and the water and central heating installation has been cleaned and made safe. Also, the technological vapor system has its flow in its receivers (dehydrators) increased and there is no scale or impurity build-up. The applied equipment works without failure".

The satisfied customers in the United States such as: **Walt Disney World**, the **U.S. Department of Justice**, the **University of California**, the **San Diego Medical Center**, and **Caesar's Resorts in Las Vegas**, as well as many other major corporations and clients in Bangladesh, India, Japan, Korea, Malaysia, Taiwan, the Middle East, South America, and Western & Eastern Europe, along with hundreds of thousands of private consumers, enjoy today the beneficial effects of KULISH MONOPOLE® technology. For more references, please see the Annex.

Partial Listing KULISH MONOPOLE® Fuel and Water users

U.S.A.

ALAMO CAFES, ALBERTSON GROCERY, ARNOLD MOOS PLUMBING COMPANY, BAYSE JANITORIAL SUPPLY, BERNARD'S COFFEES OF THE WORLD, BLUE RIBBON WASHATERIAS, BOBKAT SMALL ENGINES, BROOKS ARMY MEDICAL CENTER, BROWARD COUNTY (FLORIDA) SCHOOL BUS SYSTEM, CANAL HOUSE RESTAURANT, CAPITAL RESTAURANT SUPPLY, CAPITAL TOWER OFFICE BLDG., CARDINAL MOTEL, CATHOLIC LIFE OFFICE BUILDING, CHEYENNE PARKS & RECREATION DEPARTMENT CITY OF MONROE (LOUISIANA), CITY OF SAN ANTONIO, CONCORD ATHLETIC CLUB, CRAVAT COAL COMPANY, DAYTONA BEACH HILTON, D&D CLEARING, D.K. SALES ASSOCIATES, ECONO-LODGE, ESCO, FARMCO DIAMOND SHAMROCK, FEATHERLITE BUILDING PRODUCTS, FLORIDA DEPARTMENT OF MOTOR VEHICLES, FOUR SEASONS CAR WASH, FUTUREWOOD PRODUCTS, GARY JOB CORE, GOODYEAR TIRE CENTER, GRADY'S HALL OF FAME, FITNESS CENTER HAYATT REGENCY (MAUI), H.E.B. GROCERY COMPANY HEADQUARTERS, HOLMES BY-PRODUCTS, HOSPITALITY ENTERPRISES, HURLEY DISTRIBUTORS, JUDSON I.S.D., KARLOS IMPORTS, KENNETH DRATZ COMPANY REALTORS, LA QUINTA MOTOR INNS, LUBY'S CAFETERIAS, MACY'S (FEDERATED STORES), MANUFACTURER'S TIRE & RUBBER CO., INC., MARY ANN'S DONUTS, MERCY CENTER FOR HEALTH CARE SERVICES, MID-TEX OIL, INC., MIKE CINDIA SALES, MOLDED MATERIALS, INC., MOR-MACK INDUSTRIES, INC., NATURAL ADVANTAGE, OAKWOODS HOME FOR THE ELDERLY, OLMOS ENRGY COMPANY, PHOTO CIRCUITS, PITTMAN DISTRIBUTING COMPANY, PRESIDENTS HEALTH CLUBS, PYRAMID PLASTICS, R.J.S. MECHANICAL SERVICES, RONAN ENTERPRISES, SAILGAN ICS. SALESIAN CENTER, SAN DIEGO MEDICAL CENTER, SAINT EDWARD'S SCHOOL, SHARON GENERAL HOSPITAL, SIBLICO WATER TREATMENT, SNYDER OIL COMPANY, STEVE JOHNSON INSURANCE, S.T. HUDSON'S SON, INC., SUN STATE PLASTICS, TEXAS EDUCATIONAL FOUNDATION, TEXAS ENERGY PLANNERS, THE MILTON ROSS COMPANY, THE WERNER COMPANY, THE PEACOCK DODGE, U.N.I. SHARE CORPORATION, UNIVERSAL FITNESS CENTERS, UNIVERSITY OF CALIFORNIA, U.S. GOVERNMENT VERDI ENVIRONMENTAL RESEARCH, VICTORIA TOWER OFFICE BLDG., WALT DISNEY WORLD, WASHING EQUIPMENT OF TEXAS, WESTERN RESERVE HISTORICAL SOCIETY, WHEATON PLASTICS, WRANGLER CHEMICAL COMPANY

INTERNATIONAL KULISH MONOPOLE USERS- Partial Listing

Argentina

AUTOLATINA, KANTEL TRADING S.A.

Bulgaria

CRYSTAL GLASS PLANT, GRTANITOID METALLURGICAL WORKS "CRVENA ZVEZDA", KREMIKOVTZI STOMANA, METALLURGICAL PLANT ZLATNA PANEGA

Canada

CALEDON LANDFILL SITE, MISSISSAUGA LANDFILL SITE, REGION OF PEELE, RICHARDSON & SON INDUSTRIAL FINISHERS

Colombia

ALPINA S.A., ANO, BAVARIA (NO. 1 INDUSTRIAL GROUP), BEROL, CAFÉ LIOFILIZADO, CEMENTOS ARGOS, CERAMITA COLCURTIDOS, EJERCITO NATIONAL DE COLOMBIA, DERSA S.A., DUQUESA, ECS, EDINSA, ENCOCABLES, ENKA DE COLOMBIA, EXPRESO TREJOS, FABRICA NACIONAL DE MUNECAS, FLOMARICA (FLOWERS), FLOTA MACARENA, FLOTA MERCANTE GRANCOLOMBIANA S.A., INDEGAS, INDUACERO, INGENIO CENTRAL CASTILLA, LA FAYETTE, MEALS DE COLOMBIA, PALACE, PABSA, PAVCO, POSTOBON S.A. (NO. 2 INDUSTRIAL GROUP), PONQUE RAMO, PROBAN, PROTELA, RTR, TRANSPORTES ARG. TRANSPORTES J.J. URIBE

France

CIEC, ELECTRICITE DE FRANCE (NUCLEAR POWER PLANT AT GOLFECH), PLASSARD ENTERPRISES

Greece

ATHENIAN BREWERY

Italy

CARTIERE BURGO

Morocco

FORCE ARMEE ROYAL, MAGHREB TRAITEMENT DE L'ENVIRONMENT SHTB

Poland

INSTYTUR LOTNICTWA (AERONAUTICAL INSTITUTE), "BEEF-SAN S.A." (MEAT PACKERS), CAR WASH "WICH", CITY AQUATIC CENTER (BIALYSTOK), CENTER OF RESEARCH & DEVELOPMENT FOR INSTALLATION TECHNIQUES "INSTAL", "DVORAK" BAKERY, PRINTERS "DRUKARNIA SLOWA POLSKIEGO", "KAMAR", LAUNDRY WORKS "ALBA", MASS TRANSIT AUTHORITY "JASTRZEBIE ZDROJ", METALLURGICAL WORKS "STALOWA WOLA", NAVAL ACADEMY (GDYNIA), PORCELANE & PORCELANITE WORKS "CHODZIEZ", "PATRICK S.A." BOTTLERS, PASSENGER CAR FACTORY "FSO", THE KROTOSZYN CERAMICS WORKS, "WOLCZANKA" S.A., ZAKLADY PRODUKCYJNO-HANDLOWE BIELSKO-BIALA, WARSAW GAS UTILITY "MOZG", WROCLAW INSTITUTE OF TECHNOLOGY

Switzerland

ACCRO

COMMERCIAL/INDUSTRIAL LIST OF
KULISH'S MONOPOLE
UNITED STATES CUSTOMERS

1. Coca-Cola Bottling (Queens, NY): Boilers Waterside and Natural Gas, Cooling Tower Systems, Water Softening System, Condensate Tower.

2. City of Seattle, Cooling towers, water process equipment

3. City of San Antonio, Public Works, All major Processing equipment

4. Berkeley California Municipal Police and Sanitation Departments, Engine Performance Maximizers on all vehicles to save fuel and cut pollution

5. US Mint, All water Process equipment

6. Federal Penitentiaries, Pennsylvania, Water Process Equipment

7. Schreiber Foods: (Queens, NY): Boilers Waterside and Natural Gas, Cooling Towers Systems.

8. Marino's Ices: (Queens, NY): Cooling Tower System.

9. Losquadro Ice: (Brooklyn, NY): Cooling Tower System.

10. Tony's Brush & Processing: (Brooklyn, NY): Boilers Waterside and Natural Gas, Well Water System.

11. Carlton Ice Cream: (Brooklyn, NY): Cooling Tower System, Boilers Waterside and #2 Oil.

12. Mars Fudge & Fruit: (Brooklyn, NY): #2 Oil.

13. Jung-Sun Laundry: (Long Island City, NY): Boilers Waterside and Natural Gas.

14. Peerless Tube Co.: (Bloomfield, NJ): Boilers Waterside and Natural Gas, Cooling Towers, Waterside Scrubber System.

15. Knights Inn Motels: Boilers, Ice Machines, Laundries, and Pools.

16. Charles Tozzer Dental Clinics: Dental Hand Pieces.

17. Homewood Suites Hotels: Cooling Towers, Chillers, and Boilers.

18. Cementos de Chihuahua: Cement Boiler Burners (Natural Gas).

19. RCA Juarez: Boilers (Gas & Water).

20. Phelps Dodge: Copper Smelters Turbines (Natural Gas).

21. China Springs ISD: Boilers, Ice Machines.

22. Bexar County: Chillers, Boilers

23. Arkansas Regional Hospital: Boilers, Cooling Tower.

24. Prowers Medical Center: Reduce Salt, Boilers, Cooling Towers.

25. Sand Haven Nursing Home: Reduce Salt, Boilers, Ice Machines.

26. Boise City Hospital: Reduce Salt, Boilers, Cooling Tower, Chillers.

27. Weyland Baptist College: Chillers, Cooling Tower, and Boilers.

28. Roberson Saw Mills Natural Gas Generators.

29. Waugh Dry Cleaners: Boilers.

30. Tyler Dry Cleaners: Boilers.

31. Randolph Air Force Base, Texas: Cooling Towers.
32. Luke Air Force Base, Arizona: Cooling Towers and Boilers.
33. Brooks Army Medical Center, Texas: Equipped sterilizers.
34. City of Live Oak, Texas: Fire engines and police cars
35. Hilton Towers Avenue of the Americas ,New York, NY

JAPAN COMMERCIAL/INDUSTRIAL USER LIST

1. Toyota Motors: (Distributor with stocking # for all their factories) Water treatment, Boilers, Heat Exchangers and Cooling Towers.
2. Hitachi Electronics: Water Treatment.
3. Matsushita Electronics: Water Treatment.
4. Panasonic: Plastic Mold Injection Machines.
5. Fuji Camera: Plastic Mold Injection Machines.
6. Fujitsu Optical Disk: Plastic Mold Injection Machines.
7. New Japan Steel: Water Treatment in pipes, boilers, heat exchangers and cooling towers.
8. Hot Springs – Scale Treatment.
9. Public baths – Fuel Treatment (hot water heaters)
10. Hotels & Restaurants – Water Treatment.

INDIA COMMERCIAL/INDUSTRIAL USER LIST

1. Hindusthan National Glass & Industries Ltd.: Boilers, Cooling Towers, and Compressors.
2. Garden Reach Shipbuilders & Engineers Ltd.: Screw Compressors, Boilers.
3. Hindustan Motors Ltd.: All phases of scale treatment.
4. West Bengal State Electricity Board: Condensers, Air Conditioners, Water Piping.
5. Patton Tanks Ltd.: Cooling Towers, Injection Mold Machines.

6. Rasoli Limited: Complete plant installation for de-scaling pipes.
7. Paharpur Cooling Towers Ltd., OEM Manufacturer.
8. Premier Fountains: Supplies Monopole to fountains throughout India.
9. Besco Steel, Ltd.: Diverse factory applications.
10. R.V. Briggs & Co. Pvt. Ltd.: Private consultants for water quality (many clients).
11. Madhusudan Organics Ltd.: Condensers, Thermic Fluid Boilers.
12. Assam Ltd.: Tea nursery, extra leaves, darker hue, increased flavor.
13. Kortisa India Pvt. Ltd.: Chemical Factory, Water Systems.
14. Electrometal Ltd.: 10% Fuel Savings on Diesel.
15. Adams Motor Works: Emission Reductions.
16. Bayer India Ltd.: Cooling Towers, Boilers.
17. Sea Crests Shipping: Myriad Fuel & Water Treatment.
18. Carrier Air Conditioning, OEM Supplier.

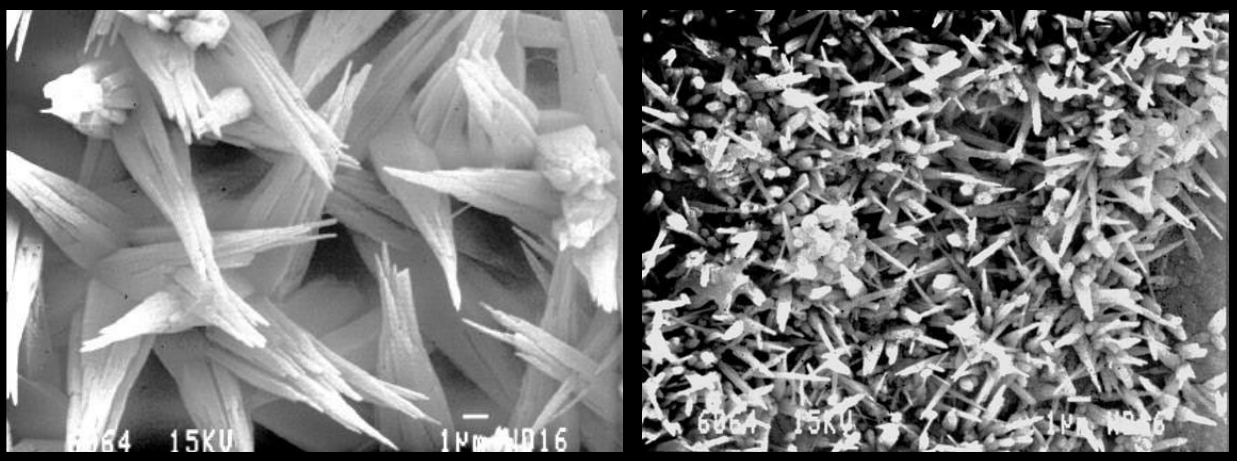
COMPANIES USING KULISH MONOPOLE TECHNOLOGY

Walt Disney World
University Of California:
San Diego Medical Center
CocaCola
Toyota
Chna Steel
IBM
Bayer
Hilton
Hitachi
Panasonic
Mitsubishi
La Quint-A Motor Inns
Ronan Enterprises
Western Reserve Historical Society
Bobkat Small Engines
City Of Monroe
Siblico Water Treatment
Bernard's Coffees Of The World
Hall Of Fame Fitness Center
Wheaton's Plastics
Holmes By-Products
H.E.B. Grocery Co. Headquarters

Bayse Janitorial Supply
Pittman Distributing Company
Pyramid Plastics
Gary Job Core; U-S. Government
Presidents Health Clubs
Universal Fitness Center
Grady's
Texas Educational Foundation
Mercy Center For Health Care
Salganics

Appendix 1

Electron Microscopy of the Magnetic Hardwater Softener Making Hard Calcium Scale Soft



Both pictures are the same image resolution scale. About 5 mm corresponds to 1 micrometer.

These pictures are before and after (Kulish Monopolar) Magnetic Softener treatment of hard water that is supplied for use in industrial production. Both the normal and treated hard water were left to dry on a substrate and then viewed through an electron microscope for a comparative study.

The left picture (untreated) shows the normal, large scale-forming hard calcite crystals of calcium. The right picture (treated) shows the hard calcite crystals immediately change into smaller, non-scale forming crystals of soft aragonite calcium which, like salt or sugar in water, simply dissolve into the soft treated water and wash away. These microscopic pictures show how hard water and its scale immediately changes into soft, scale-free water just passing through the Powerful Magnetic Monopolar Softener.