

Advanced Technology Engine Metal Treatment

**The one-time
Metal Treatment
that lasts the life
of your engine**



Microlon[®]



CL-100 Special Aircraft Formulations FAA Accepted May 1979

Just one treatment reduces the harmful effects of friction for the life of your engine

- Reduces Friction
- Improves Performance
- Reduces Maintenance
- Extends Engine Life
- Increases Fuel Economy
- Increases Horsepower
- Reduces Oil Consumption
- Reduces Noxious Emissions
- Lowers Operating Temperatures
- Exclusive Dry Film Formula
- Geneva Gold Medal Winner



Fricition is the enemy of your engine. Friction causes metal wear, heat build-up and higher fuel consumption while robbing your engine of horsepower, torque and overall efficiency. Friction is typically what degrades performance and causes an engine to wear out prematurely.

Today's high performance engines are manufactured to very exacting tolerances to minimize friction, but even the finest and most smoothly milled metal surfaces will have a pore structure that has ridges, valleys, and imperfections (asperities), readily visible under magnification.

Microlon manufactures an extensive line of metal treatment products and greases for engines, transmissions, firearms and more.

Even with premium quality motor oils, these imperfections "scrape" against each other to increase friction and its harmful effects.

Microlon treats engine metal, not the oil. Microlon significantly reduces the harmful effects of friction by coating internal engine parts with a durable micro-thin dry film lubricant coating. You only have to treat your engine once with Microlon as it is formulated to last the life of your engine. Only once!



Before Microlon Treatment



After Microlon Treatment

Microlon cleans metal surfaces and fills the natural imperfections with a permanent Microlon film that reduces friction and wear.

Improve performance

The protective Microlon film in your engine substantially reduces friction in your engine. This allows your engine to operate much cooler and smoother, and will provide more reliable starts in all weather conditions. The energy previously absorbed by power-robbing friction is now retained as additional horsepower and torque. Compression and oil pressure are also increased. You will quickly notice smoother operation and increased available power.

Save fuel

An engine that doesn't have to work as hard fighting friction doesn't consume as much fuel. Savings in the 10% range are typically reported. Just imagine how much you could save in fuel costs every year! However, there is a trade-off between additional power and fuel savings—if you push your engine to take advantage of the additional power, your fuel savings will be less. If you maintain normal operating habits, your fuel savings are maximized. It's your choice.

Lower oil consumption

With Microlon-to-Microlon contact instead of metal-to-metal contact, there tends to be higher compression and lower operating temperatures. There is also a decrease in wear of the rings and cylinder walls. The result is less oil lost to "blow-by" and combustion in the cylinders. Lower operating



temperatures also helps the oil to do its job better by maintaining its viscosity longer.

Reduce maintenance

Friction caused wear can result in the premature failure of moving mechanical parts. Microlon treated engines have fewer wear related moving part failures and, thus, lower maintenance costs. If you treat your engine with Microlon, operate it sensibly and maintain it properly, your maintenance costs can be reduced dramatically, and with today's high cost of repairs, it makes great sense to treat your engine soon.

Extend engine life

Friction causes wear. With reduced friction, you get less wear. With less wear, your engine can last much longer. The Microlon film also prevents "dry starts" by providing needed lubrication until oil pressure builds up and oil is distributed to all engine parts.

Reduce noxious Emissions

The more efficient an engine operates the less noxious gasses and particles are produced. Thus, to operate cleanly, an engine needs to stay at optimal efficiency. This is where Microlon can make a big difference. Tests confirm reduced carbon monoxide, hydrocarbons, nitrous oxide and other noxious emissions. You'll find further information on page 6.

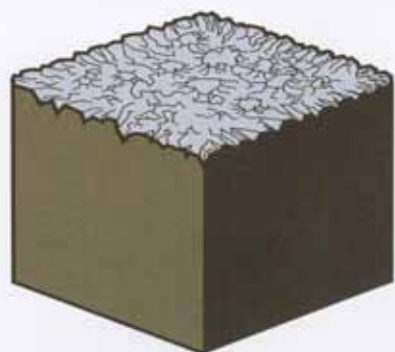


US Government tests confirm substantial reductions in noxious emissions

The government sanctioned tests confirmed significant reductions in noxious emissions. CO (carbon monoxide) emissions were reduced by 43.8%. HC (hydrocarbon) emissions were reduced by 24.9%. NOx (Nitrous Oxide) emissions were reduced by 21.4%. These test results are on file and available on request.

Such dramatic improvements in emissions are particularly important in countries and states where there are strict standards for controlling emissions. For instance, in Japan where the standards are some of the most restrictive in the world, Microlon has become a household word and widely respected brand.

1 Microlon first chemically cleans the metal surface



Microlon is added to the crankcase (motor oil) and the fuel tank. It is very important to follow the treatment instructions for your specific engine. Complete instructions are included with the product kits.

Microlon contains a powerful chemical solution that penetrates and thoroughly cleans an engine's internal metal surfaces before impregnating them. Carbon, varnish, dust, metal particles and other deposits are dissolved and suspended in the motor oil and fuel, leaving the metal surfaces clean. The contaminants are flushed out at the next regularly scheduled servicing. This cleaning process is critical for the proper bonding between the pore structure of the metal and the Microlon film.

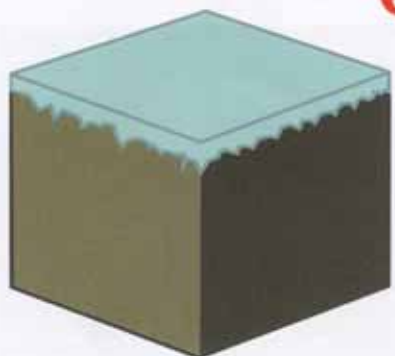
2 The metal is saturated with corrosion inhibitors and antioxidants

Microlon contains special antioxidants and corrosion inhibitors. These chemical compounds prevent engine damaging rust and corrosion, because they work through the fuel as well as the oil, both top and bottom ends of an engine are treated. This part of the treatment also contributes to smoother operation and longer engine life.

Microlon does not replace any of the oil in the crank-case. The cleansing compounds simply evaporate through normal engine operation within 1-2 hours.



3 A permanent dry lubricant film penetrates and bonds with the metal surface

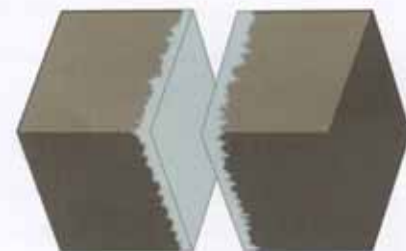


Microscopic fractured resin particles are impregnated into the metal pores and become an integral part of the metal surfaces they protect. These particles actually mechanically lock into the matrix of the metal asperities and coat the surface. The resulting dry film lubricant is resistant to chemicals and capable of withstanding temperatures far in excess of normal engine operation. The Microlon film has one of the lowest coefficients of friction of any material known to man, yet it is chemically inert and will not burn out, gum up or adversely effect anything in your engine.

4 After treatment, metal-to-metal contact becomes Microlon-to-Microlon contact

Microlon virtually eliminates raw metal-to-metal contact and replaces it with Microlon-to-Microlon contact. This changes the whole internal environment of an engine as metal surface imperfections are virtually eliminated. Friction, heat and wear are decreased while engine efficiency is increased, and your engine will never suffer from another "dry start" when all the other lubricants have settled to the bottom of the sump.

The two cubes in the illustration show how two pieces of metal treated with Microlon work together. Both surfaces now have new load-bearing surfaces that are almost friction free. The particles in the Microlon coating have tremendous lubricating properties. Each surface is "dynamic" which means the Microlon resins remain elastic under normal operating conditions and temperatures.



Precision Oiler Expands Treatment Options

Microlon is proud to announce the creation of a new product, the Microlon Precision Oiler. This product combines the Microlon resin with a light weight oil to open endless possibilities and new applications. This Microlon product is not harmful to plastics and is good for any surface where you need friction reduced.

The Precision Oiler is not intended to be used anywhere there is combustion. It is intended to be used in fishing reels, on bearings, on threaded parts, on chainsaws and bike chains, on the bearing surfaces of aluminum window frames and more. The Microlon Precision Oiler is great for the chain, rollers, tracks and hinges in garage doors, the oil is compatible with the tennifer process used to lubricate the slides on Glocks. Without the cleaning complex, the Microlon Oiler will leave behind a little light weight oil, so be sure to wipe away the excess oil to keep from attracting dust and grit. the injector tip makes this oiler ideal for getting into hard to reach places.

The Microlon Precision Oiler is inexpensive, portable and easy to use.



Engine Test Success

In September 2004, Microlon products were put through the paces of the L-38 engine test. In this test, automotive engines are run on specialized test stands equipped with computer control and computer data acquisition. The test complies with standard procedures published by the American Society for Testing and Materials (ASTM) and other governing agencies. These kind of tests were used to determine lubricant quality by organizations such as the American Petroleum Institute and the US Military.

In the test, an engine on the test stand is run at a constant 3150 rpm which is measured and controlled by computer. At the conclusion of the 40-hour run time, the engine is disassembled and the performance of the oil is judged by a visual examination of the engine for deposits, by the weight loss of the copper-lead bearing and by comparing periodic oil sample analysis with the new oil analysis. In this test, the engine was run with a commercially available 5W-30 oil and Microlon was added to the crankcase and to the fuel.

The L-38 engine test is a pass/fail test that measures wear over the short term. It was concluded after the oil analysis and the examination of the engine components, that Microlon passed this test.

The entire test result is available at www.microlon.com



Thrust



Anti Thrust



Winner of the coveted Gold Medal in Geneva

Bill Williams, the inventor of Microlon, was awarded the "Medaille de Vermeil" at the 7th International Exhibition of Inventions and New Techniques in Geneva Switzerland. This prestigious award, representing first in its class for new product innovations, was presented to Microlon in 1978. The image of this medal is proudly displayed above the company logo to this day.



Bench Test Proves Results

American Gunsmith, the official publication of The American Gunsmithing Association, ran a feature on Microlon Gun Juice in March of 2000. In the article, a .22-caliber rifle was bench tested and treated with Microlon Gun Juice. After treatment, the rifle increased muzzle velocity by 90 feet per second and continued testing showed no drop in velocity or accuracy.

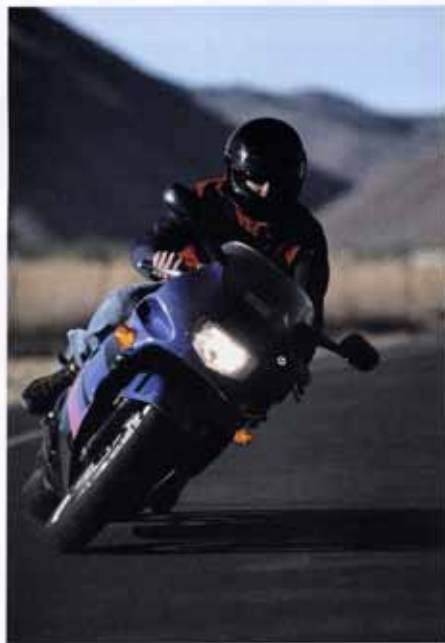
A full reprint of the article can be found under [test results](#) at www.microlon.com.



FAA Accepted

Microlon CL-100 Aviation Formula is the first product in its category to ever be accepted by the United States Federal Aviation Administration for use in aircraft engines. After a thorough review, a letter of acceptance was issued to the manufacturers of Microlon in May 1979.





The world's best engine metal treatment developed for high performance aircraft engines is now available for all kinds of piston engines

Microlon is available in special product formulations for automobiles, aircraft (FAA accepted since 1979), marine applications, small engines, arctic conditions and virtually any other operating conditions found on earth and in

space. Microlon was first invented and used over thirty years ago. Since then, literally billions of engine hours have accrued on Microlon treated engines in aircraft, autos, motorcycles, trucks, boats and industrial applications.

Proven through years of actual use

Most gasoline fueled automobile engines are designed to last at least 100,000 miles under normal conditions. Numerous owners of Microlon treated engines continue to drive with over 200,000 miles without requiring major repairs. Aircraft owners are able to increase the time between expensive overhauls. How long your engine will last depends in part on your operating and maintenance habits. Your best bet for extending the useful life of your engine is treating with Microlon.

You don't have to take our word for it. We have endorsements and testimonials from all over the world. We're happy to share these with you on request.



Diesel rig owners rejoice. Microlon reduces the high costs of operating by reducing fuel consumption, reducing maintenance and prolonging engine life.

Satisfied Customers

"I can really see a difference (520 BA continental in my Bonanza) ... Even my wife who is not attune to engines, commented on how much smoother and quieter it seems to run. Also, at the same power setting, the fuel consumption has decreased almost 1 gallon per hour! But the greatest bonus so far is the decreased oil consumption."

— T.E., Marble Falls, TX

"... since using Microlon, I usually fly at or near 8,000 feet at full throttle and get the same fuel consumption that I used to get at 2400 RPM at the same altitude".

— D.B., Austin, TX

"... my (Microlon Treated) IO-520 aircraft engines now have over 220 hours of flying time; I just completed my annual/100 hour inspection, both engines and props perform miraculously well, cylinder pressures, oil pressures all remain in remarkably high ranges. My repair shop manager says he's never seen anything quite like the problem free operation I have experienced."

— C.M., Zephyrhills, FL



Aircraft Kit Types	Units
Aircraft Half Kit	0.5
Aircraft Single Engine/Whole Kit	1.0
Aircraft Single Engine/Kit & Half	1.5
Aircraft Single Turbo or Geared	2.0

Aircraft Applications

Microlon Aviation Formula has been successfully used for over three decades to treat high performance piston aircraft engines. It is the first engine treatment to pass the rigorous tests necessary for Federal Aviation Administration acceptance. Microlon noticeably increases the performance of piston aircraft engines. Compression and oil pressure typically increase and engines run smoother with higher usable horsepower and torque. The reduced internal engine friction reduces unscheduled maintenance and extends engine life. Plus, the dry-lubricant Microlon film provides an extra margin of safety in case of sudden loss of oil pressure.

Choose the kit just right for your engine

This chart indicates how many treatment units are required for each engine. A regular Aircraft Engine Treatment Kit contains 1.0 treatment units. A Small Aircraft Engine Treatment kit contains 0.5 treatment units. Choose the kit or combination of kits needed for your engine.

Continental	Lycoming	Lycoming	Franklin	Wright
A-65 0.5	O-235 1.0	GO-435 2.0	2 A-120 0.5	R-1300 5.0
C-85 0.5	O-290 1.0	VO-435 1.5	6AH-150 1.0	R-1820 8.0
C-90 0.5	O-320 1.0	TVO-435 2.0	6AH-165 1.0	R-2600 15.0
C-125series 1.0	AEIO-320 1.0	GO-480 2.0	6VS-335 1.0	Tiara
C-145 1.0	IO-320 1.0	GDO-480 2.0	6A-350 1.0	6-285 2.0
E-185 1.0	LIO-320 1.0	IGSO-480 2.0	Jacobs	
O-200 1.0	O-340 1.0	O-540 1.5	R-755-A2 4.0	
E-225 1.0	O-360 1.0	IBO-540 2.0	R-755-A2MI 4.0	
O-300 1.0	LO-360 1.0	IGSO-540 2.0	R-755-B 3.0	
GO-300 2.0	AEIO-360 1.0	IO-540 1.5	R-755-B2MI 3.0	
IO-360 1.0	AOP-360 1.0	TIO-540 2.0	R-755-9 3.0	
LTSIO-360 2.0	HO-360 1.0	LTIO-540 2.0	Pratt & Whitney	
TSIO-360 2.0	HIO-360 1.0	VO-540 1.5	R-985 4.0	
O-470 1.5	IO-360 1.0	IVO-540 1.5	R-1340 6.0	
IO-470 1.5	IVO-360 1.0	TIVO-540 2.0	R-1435 6.0	
TSIO-470 2.0	LO-360 1.0	TIO-5410 2.0	R-1830 8.0	
IO-520 1.5	LIO-360 1.0	TIGO-540 2.0	R-2000 8.0	
TSIO-520 2.0	TIO-360 2.0	IO-720 2.0	R-2800 15.0	
GTSIO-520 2.0	TO-360 2.0	R-680 3.0	R-3350 20.0	
R-670 3.0	VO-360 1.0		R-4360 25.0	
R-975 4.0				

Truck and Automotive Applications

Today's stop-and-go driving and higher freeway speeds make it more important than ever to do the one-time Microlon automotive engine treatment. The friction reducing Microlon film saves you money by reducing fuel consumption, decreasing maintenance costs and extending the life of your engine. You also help our environment with reduced noxious emissions. Plus, you'll notice smoother operation and improved performance with increased horsepower and torque.



Satisfied Customers

"I treated my 1989 Honda Accord with Microlon several years ago at 78,000 miles. I now have over 200,000 of stop and go miles on it and it still runs smooth and strong with good compression on all cylinders. Bet it will run another 100,000! My Honda dealer service guy keeps asking me what my secret is."
— D.A., Kent, WA

Car Kit Types	Engine Size	Kit Price	Engine Only
Compact Car Front Wheel Drive	122 cid (2 liter) or less	\$98.95	\$63.95
Compact Car Rear Wheel Drive	122 cid (2 liter) or less	\$143.95	\$63.95
4 x 4 Compact Car/Light Truck	385 cid (6 liter) or less	\$206.95	\$103.95
Passenger Car/Light Truck FWD	385 cid (6 liter) or less	\$138.95	\$103.95
Passenger Car/Light Truck RWD	385 cid (6 liter) or less	\$183.95	\$103.95
4 x 4 Car/Light Truck	385 cid (6 liter) or less	\$246.95	\$103.95
Big Block Car/Truck	400 cid (6.5 liter) or more	\$210.95	\$130.95
4 x 4 Big Block Truck	400 cid (6.5 liter) or more	\$273.95	\$130.95

"... I have put 258,000 mile on my 1986 Lincoln without ever adjusting or repairing anything on the engine, transmission, rear end, or front end. I began using Microlon back in 1977 (! believe) on both my autos as well as my own personal air-planes. It's now time to retire both our cars as we have bought new ones ...you can be very well assured that this really works".
— L.O., FAA Pilot Examiner

Diesel

Microlon has a special formulation for the heavy duty requirements of diesel engines. Most diesel engines are under tremendous loads. This requires extra protection from the damaging effects of friction. The increased torque (pulling power) and potential fuel savings are the primary reasons the Microlon Diesel Engine Formulation is so highly regarded by commercial truck operators who use it. Experience also tells us that treated diesel engines require maintenance less frequently and have a longer service life. To those who make their living with their diesel rigs, it means lower operating costs and higher profits.



"We got 498 miles on a full tank, unheard of. Our (previous) best was 396 miles. This was under normal driving and allot of hills. You really can gauge the difference in a big 6,500 lb van with this product. I am past amazed. On acceleration it's like a mild turbo charger lurks within."
— C.B., Mt. Prospect, Ill

Satisfied Customers

"My Classic 25' 1955 Chris Craft Cabin Cruiser's Hercules Engine has always run a bit rough with a lot of vibration ... even after a rebuild. It has run much smoother and stronger ever since a Microlon treatment 3 1/2 years ago. My fuel consumption dropped from 5 to 4 1/2 gallons per hour."
— E.C., Seattle, WA

"Recently I put Microlon in my brand new Ski-Doo Mach Z ... Microlon is absolute liquid horsepower! I have already seen a major increase in gas mileage, RPMs and Power, Power, Power."
— T.W., Bangor, ME



Motorcycles, Snowmobiles and Small Engines

Modern motorcycle engines are high compression, high performance engines that operate at high engine revolutions and generate a lot of heat. This increases the potential for damage and performance loss due to friction. The same is true for today's snowmobile engines and most other small gasoline fueled engines. Microlon has a formulation for these engines that boosts performance and helps them last longer. Every motorcycle and snowmobile engine can benefit greatly from a one-time Microlon treatment.

Marine

Marine engines are under 100% load 90% of the time (because they're required to "push" so hard against the resistance of water). Compare this to car engines which are typically at 100% load only 10% of the time (only when accelerating hard or going up a steep hill). Therefore marine engines are under far more stress and far more subject to wear. This makes it very important to treat with Microlon if you want to maximize engine life. Because marine engines work so hard, they also consume much more fuel. Significant fuel consumption savings of up to 10% are typically reported after Microlon treatment. The Microlon film also protects against harmful corrosion, rust and scale so commonly experienced in the marine environment. Every marine engine needs a one time Microlon treatment.



Gun Juice



Microlon Gun Juice can be used on all firearms in place of normal gun oil. Gun Juice is far superior to oils in that it provides excellent lubrication and is a “Dry Film” lubricant that will not attract dirt, dust or grit which can permanently damage a firearm.

When used on firearms, Microlon Gun Juice will provide smoother operation of all moving parts, prevent rust and corrosion, and when properly applied to inside of the barrel, Gun Juice will cause the weapon to fire at a higher muzzle velocity, shoot more consistently and last much longer.

Greases



Hi-Temp Chassis Grease—Microlon Chassis Grease is excellent for use in ball joints, tie rod ends, suspension knuckles, steering systems, universal joints, water pumps and all general chassis lubrication areas.

Hi-Temp Wheel Bearing Grease—Microlon Hi-Temp Wheel Bearing Grease is simply the best extreme pressure wheel bearing grease anywhere. This grease has perfect consistency and fibrous texture, with rust and oxidation inhibitors and excellent water resistance.



Heavy Duty Grease—Microlon Heavy Duty Grease is a versatile, heavy duty grease with extreme water resistance and adhesive properties. This grease is excellent for marine applications, fifth wheel lubrication, exposed gears, chain and sprockets.

Assembly Lube—Microlon Assembly Lube can be used on moving parts during assembly. Lightly coat slides, shafts, bushings, sleeves, piston rings, ring lands, guides, and anywhere metal-to-metal contact occurs. Microlon Assembly Lube provides excellent rust and corrosion protection for long-term storage. Assembly Lube will not run off during storage and protects against dry-starts when the unit is returned to service. Because Microlon reduces friction in close fit applications, it prevents many seizing and galling problems.



Microlon Aerosol



Microlon Liquid contains the highest quality cleaning agents, corrosion inhibitors and antioxidants. These ingredients combine to prepare the pore structure to receive the Microlon Metal Treatment and provide lasting protection. Use Microlon Liquid Aerosol in all “hard to reach” applications. Just spray on mechanisms or mechanical devices for smoother operation. Microlon can be used on chain saws, bicycles, aluminum windows, squeaky hinges, garage doors, power tools, machine tools, radio control cars and much more!

Industrial



By lowering friction, Microlon reduces noise and heat in machining applications. In drilling and reaming, tapping, automatic screw machine, milling, turning, broaching, power or band saw, stamping, mold release, hydraulic systems, gears, bearings, bushings and assembly operations, Microlon improves performance and extends life of metal tools and results in surface improvement on finished products. Use of Microlon in the machine shop typically results in productivity gains, owing to less downtime for repairs and maintenance, longer life of machines, and better quality production work.

The first and last treatment your engine will ever need



The proven one-time metal treatment that enhances performance and extends the life of your engine

MICROLON - The proven one time metal treatment that **extends engine life, improves performance and fuel consumption while reducing wear, oil consumption and noxious emissions***. Accepted by the FAA since 1979 and Winner of the gold medal at the 7th International Exhibition of Inventions and New Techniques in Geneva, Switzerland.

MICROLON treats the engine metal (not the oil) with an exclusive fractured resin particle formula that cleans, impregnates and coats the microscopic grooves, pores and imperfections naturally found on metal surfaces. The result is a much smoother surface protected by an ultra-low friction dry lubricant film that lasts the life of your engine. Friction,

heat and wear are decreased - protecting bearings, cylinder walls, rings, crankshafts, valves and all your internal engine parts. Best of all, you only have to treat an engine once.

Call at 1-586-803-9393 for further details and the dealer nearest you. Or check our Website at www.microlonproducts.com. Michigan and Canadian dealer inquiries welcome.



Microlon®