

Enviro-Save Metal Treatment Product Information & Application

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There are only two ways to reduce friction, drag and wear in lubricated mechanical components;

1) Use better lubricants.

2) Make the bearing surfaces smoother = Enviro-Save.

All surfaces on earth are rough when viewed thru a micro-scope and a single application of Enviro-Save Metal Treatment permanently smoothes all the rough lubricated friction bearing surface asperity and normally doubles component life. It does not matter how many times oils are changed, Enviro-Save remains. Enviro-Save only uses oils and lubricants as a carrier for the treatment and does not change the characteristics of oils or lubricants, unlike some oil additives.

The Product

Enviro-Save Engine & Powertrain Protection Metal Treatment (Enviro-Save) is a unique one of a kind proprietary product that imparts an ultra-low inert friction property to the lubricated friction bearing surfaces of all moving parts in engines, transmissions, differentials, hydraulics and machinery of any configuration. Wherever lubricated mating friction surfaces are present the Enviro-Save Metal Treatment is permanently impregnated. The “one time” treatment becomes resident in the rough bearing surface asperity, thus making smoother bearing surfaces and reducing friction, drag and wear. Oils and or oil additives / treatments cannot perform this function and there is nothing in the Enviro-Save products that will cause damage.

All Enviro-Save products were thoroughly researched and technically formulated by a Tribologist, Lubrication Engineers, Mechanical Engineer and engine rebuilders to provide the safest and most compatible and effective treatment for each type of component being treated. We believe that today's lubricants are great sophisticated products that create an optimum antifriction environment within the performance limits of any separately applied medium. However, it is still possible to obtain extra benefits in the sphere of friction reduction by changing the nature of the bearing surfaces. This is how one application of Enviro-Save achieves reductions in friction, drag and wear. Since 1990, scientific oil sample analysis reports (before and after Enviro-Save treatment) always confirm a reduction in wear metal content and an average reduction of 50% in the wear metal rates is normal. Treated engines also show reduced sludge and carbon build up, enhanced cylinder efficiency and oils remain cleaner much longer, therefore oil changes can be extended safely. Enviro-Save products are not “oil additives”, which by design alter the characteristics of the lubricant (oils or grease); and even though the engine's oil and fuel are used to transport Enviro-Save to all bearing surfaces, Enviro-Save products have absolutely no negative effects on these oils or fluids by way of altering their characteristics.

Unlike oil additives, the Enviro-Save Metal Treatment requirements are based on bearing surface area and not the oil system capacity, although oil capacity will provide an indication of gear and bearing sizes. In the case of engines, our experience has confirmed the established Metal Treatment volume is related to the litre or cubic inch displacement, even if double the oil capacity the Metal Treatment volume would not change. Since 1990 the recommended Enviro-Save Metal Treatment application requirements and procedures for all mechanical component configurations have proven to provide the ultimate performance achievable in reducing wear metals, drag and friction.

Benefits

Although the benefits may vary depending on the mechanical condition of the truck, vehicle, component or equipment being treated, and fuel quality, loads, roads and driving habits etc, Enviro-Save products are **GUARANTEED TO REDUCE WEAR** when used according to manufacturer's instructions. The many benefits from cleaning and reducing friction / drag / wear in mechanical components are listed below:

- **Reduced exhaust Emissions & Pollution**
- **Fuel Savings**
- **Increased Horsepower/Performance**
- **Lower Operating Temperatures**
- **Dry-Start Protection**
- **Reduced Oil Consumption & Extend oil change intervals**
- **Storage / Corrosion Protection**
- **Easier Starting**
- **Less Vibration**
- **Noise Reduction**

. . . which can be summarized as—extending the life of trucks, vehicles, components or equipment etc, and reducing operating costs which adds up to... **Enviro-Save is Cost Effective – pays for itself many times over!**

Benefits to the Environment

Global pollution is out of control and it is a moral issue, not a political issue. We all must get involved and do our part to help reduce global pollution and clean up our polluted earth.

Do you really believe the earth can handle another 50 years of polluting at the same pace as the last 50 years?

Environment Canada state that over 70% of our present air pollution is caused by exhaust emissions from trucks, automobiles and equipment. We can all help reduce Global Pollution by using Enviro-Save products. Extending the life of mechanical components reduces the consumption of earth's non-renewable resources. Reducing fuel consumption automatically reduces the volume of harmful exhaust emissions and at the same time conserves our non-renewable fossil fuels. Reducing mechanical component heat caused by friction also helps to reduce man made global warming.

Enviro-Save reduces CO₂ and other harmful exhaust emissions. Every gallon (4L) of gasoline and diesel burned produces approximately 20 + pounds of CO₂. Since 1990 Enviro-Save has been reducing fuel consumption and our documented average figures for the commercial trucking and bus industry is 6% and 10% for automobiles. The fuel saved is a significant contribution to reducing our carbon foot print on the earth and Global Pollution.

Reduced Exhaust Emissions

Enviro-Save reduces harmful exhaust emissions by lowering fuel consumption, improving combustion by restoring engine cylinder efficiency, burning less oil and by cleaning and treating fuel injection systems or carburetors so fuel combustion is maximized. Restoring lost cylinder efficiency in older high mileage engines is extremely beneficial for reducing exhaust pollution and extending the useful life of engines. New engines that are treated after break-in will maintain peak performance for 2 to 4 times longer than normal, due to protecting all the new parts, bearing clearances and virtually eliminating the negative effect of the build up of carbon, varnish and lacquer on pistons and rings etc. Maintaining peak cylinder compression and efficiency for the entire life of engines is a huge benefit to our environment.

Our experience since 1990 with Enviro-Save and our local B.C. Government mandatory vehicle Air Care test program consistently shows harmful exhaust emission are normally reduced by 25% to 50%, and often higher reductions are achieved, depending on the mechanical condition of the engine before treatment.

Fuel & Energy Savings

Enviro-Save reduces fuel consumption, and electricity consumption on electric motor driven component applications.

All diesel and gasoline fuel injection systems benefit from an Enviro-Save fuel treatment. Most fuel injectors should be cleaned at least twice a year and Enviro-Save performs an unsurpassed cleaning job, along with the excellent protection the micro-resin provides to fuel system parts and friction points. Maintaining the engineered fuel injector spray pattern is extremely importance for performance and fuel economy. Dirty clogged fuel injectors rob performance, contaminate crankcase oils, reduce fuel economy and pollute more.

Test results and data collected since 1990 on automobiles treated with the Enviro-Save Powertrain Protection Kit have proven that an average reduction in fuel consumption of 10% is normal. The average reduction in fuel consumption in the Commercial Truck, Bus and Heavy Equipment Industry is 6%+ when the Enviro-Save Powertrain Protection Kit is used. If only an engine treatment is used in automotive applications, the average fuel savings is 5%. New engines normally return the lowest figures because they will still be operating near maximum cylinder efficiency. Older engines will exhibit the highest benefit as the treatment restores compression and lost cylinder efficiency.

Fuel savings may depend on how the vehicle is driven: For example, if you continue to drive at your normal pace after treating, you will save fuel due to reduced friction, drag and increase in mechanical efficiency of the vehicle. However, a driver who takes advantage of the improved performance of the Powertrain for faster acceleration and/or speed will not see the same fuel savings. Such is the experience of the race-car driver, who will be only too happy to utilize the normal 5% to 8% increase in horse-power for faster acceleration.

NOTE: It may be necessary to disconnect the battery on newer vehicles for a few minutes and then reconnect the battery so the computer or ECM will reset itself and adjust to the reduced amount of required fuel delivered to the engine after friction has been reduced.

Monitoring & Confirming Fuel Savings: Aside from weighing fuel before and after Enviro-Save to confirm fuel consumption reductions, the best accepted method is to manually record

all fuel consumed and total miles or kilometres driven. Most on board fuel monitoring computer systems (ECM's) are only accurate within plus or minus 5%, so a possible 10% variance is not accurate enough to provide true fuel consumption comparisons. ECM's are not designed for the purpose of monitoring fuel consumption accurately. Optimum fuel consumption test accuracy is "plus or minus 0.005%", as in a legitimate laboratory fuel consumption test facility.

If an ECM is used to compare and confirm fuel consumption, before and after Enviro-Save, then it is extremely important to "zero" the computer before Enviro-Save and after collecting any data, otherwise the ECM will simply average any change in fuel consumption over the life of the ECM. Example: Enviro-Save saves you 8% but the ECM averages the change over the history of the ECM and may only show 1% fuel savings when it should be 8%. Again, the only accepted and best method is to manually record all fuel consumed and all miles or kilometres driven, then calculate the fuel mileage.

Winter Diesel Fuel: Summer diesel fuel congeals in very cold temperatures and will not flow or easily flow through fuel delivery hoses and fuel injection systems to provide optimum performance. Winter diesel fuel is lighter, has less energy and historical treatment data results confirm Enviro-Save compensates for the reduction in fuel economy caused by using winter diesel fuel. Enviro-Save affords excellent protection to diesel fuel injection systems against damage caused by less lubrication, dry fuels, moisture in fuels or gasoline in diesel fuel.

Monitoring & Confirming Electricity Savings: Very similar to the above, must record and monitor electricity consumed and volume of compressed air produced (if testing Air Compressor) before and after Enviro-Save. As long as accurate recording are collected it does not matter what electric motor driven components are being tested because Enviro-Save always reduces friction, drag and wear. An Air Compressor will use less electricity and or produce a larger volume of compressed air for the same amount of electricity consumed. Other components such as Gear Boxes or Conveyor systems will exhibit a change in electricity consumption, operating temperatures and or increased speeds when the same loads or demands are present.

Reduced Wear – Longer Life

Enviro-Save reduces friction, drag and bearing surface wear every time it is applied as recommended, due to the fact that all surfaces on earth are rough and friction is reduced with smoother bearing surfaces. There is no bearing surface wear in mechanical components until there is friction; **friction causes wear!** A proven reduction in wear automatically proves friction has been reduced and less friction and drag in any component automatically requires less energy to rotate or move. Oil sample analysis scientifically confirms the rate of wear of the various bearing surface metals used in engines and other mechanical components.

Since 1990 Enviro-Save has averaged a 50% reduction in metal wear rates in all types of mechanical lubricated components.

To obtain true comparative results when utilizing oil sample analysis, it is very important to be accurate with the service hours or mileage on the sample oil, ie; if the first oil sample is taken with 250 hours or 5000 miles or kilometres on it, make sure all future samples have identical hours or mileage on them. The best method for obtaining true, representative oil samples is to always take them when the oil is hot and the engine is running; which normally requires a special sampling extraction valve to be fitted at an oil pressure point, or the use of a portable sampling pump for extracting oil directly from the sump via the dipstick tube.

Oil sample analysis reports answer most questions regarding the performance of Enviro-Save.

If one doubts that Enviro-Save reduces wear – oil sample analysis proves it. If one doubts the longevity of the Enviro-Save treatment – oil analysis proves it. If one doubts the resin impregnation process will last in the high heat of a cylinder combustion chamber – oil sample analysis always proves that the engine cylinder iron wear metal rate will be lower after Enviro-Save treatment.

It is uncommon for automotive mechanics to acquire much knowledgeable on oil sample analysis, but it is very common for heavy duty mechanics, mechanical engineers and equipment owners to understand the vital information an oil sample analysis report provides. Some Public Transit systems and trucking or equipment companies utilize mandatory oil sample analysis programs every oil change to monitor the condition of their oils, engines and equipment components. Oil filter examination provides excellent information regarding the large wear metal particles that are not normally found in an oil sample analysis.

It is extremely important to learn about oil analysis when selling Enviro-Save because oil analysis will scientifically confirm the performance of any oil, oil additive or treatment, which is why almost all aftermarket products making similar claims, as Enviro-Save, do not use or have before and after treatment oil sample analysis results. An oil sample analysis program confirms performance every time. There are many local sources of information on oil analysis and there is an excellent web site called “bobistheoilguy.com”, which has all the information one needs to become knowledgeable about oil analysis and what they confirm.

Some high quality pure synthetic oils often show a slight reduction in metal wear rates on oil sample analysis reports, due to the superior anti-wear protection over conventional mineral oils. Mineral oils and synthetic oils do not smooth the bearing surface asperity.

Increased Horsepower/Performance

Enviro-Save improves horsepower output from engines in three ways:

- 1) by reducing friction and wear that robs horsepower,
- 2) by restoring engine efficiency output through recovery of cylinder compression, and
- 3) by cleaning carburetors and fuel injectors, so the fuel spray pattern is properly maintained.

Engine dynamometer tests performed by Ford Motor Company, motorcycle enthusiasts and many race-car owners confirm that an increase of 5% to 8% in horsepower is common. Available horsepower is also increased further when transmissions, differentials, transfer-cases and power-steering systems are treated with Enviro-Save. Reduce the friction in every component, it adds up, and optimum savings and performance will be achieved.

As operating time increases on engines, wear particles and contaminants such as carbon, varnish, lacquer and dust accumulate on cylinder walls, rings and ring lands (grooves). This will eventually lead to piston rings sticking in the rings lands which causes blow-by and reduces compression. This all contributes to the natural demise of internal combustion engines and can visually be confirmed when an old engine is dismantled, easy to see the brown/yellowish discoloration or build-up on the pistons and in the ring lands.

Enviro-Save Engine Treatments contain very effective but gentle cleaners that will clean out and disperse these contaminants and deposits. As the ring grooves are cleaned and the treatment progresses, blow-by is reduced, compression restored and normalized. Balanced compression on all cylinders improves fuel efficiency, performance and reduces exhaust emissions.

Enviro-Save Engine Treatments will increase idle RPM; this is due to less friction throughout the engine, and normalized cylinder compression. However, higher idle RPM will normally only be experienced on carburettor-equipped engines. On fuel-injected diesel and gas engines, the governor or computer controls idle speed at a fixed RPM, therefore correcting any increase in idle RPM from reducing friction with Enviro-Save. Most race-car drivers, motorcycle racers, boat owners and small engine operators (2 or 4 stroke) have also experienced an advantageous increase in available top-end RPM, less friction.

Lower Operating Temperatures

Enviro-Save reduces the heat passing into the cooling system due to lower cylinder wall friction, less friction overall and less fuel being burned. Similarly, by friction reduction it reduces the heat passing into the lubricating oil, as indicated by oil temperature gauges in transmissions, differentials, gear boxes, bearing housings, and engines, especially air cooled engines. Excessive or continued high heat shortens oil and oil seal life, contaminates oil and most customers notice their new engine oil remains cleaner much longer, after an Enviro-Save treatment. Extend oil changes safely.

However, in engines and machinery where coolant and/or the lubricating oil temperatures are thermostatically controlled, it is necessary to record the temperature-rise across each system in order to assess friction heat reduction. It can be difficult to notice a normal operating temperature reduction in transmissions with oil coolers that operate with thermostatically controlled engine coolant because the lubricating oil temperature will be kept close to the coolant temperature.

Transmissions, differentials, industrial gear boxes and bearings, hydraulic systems and all other mechanical components lubricated with oil or grease all benefit and operate cooler when friction is reduced. It is very common to reduce transmission and differential operating temperatures by 20 to 40 degrees after an Enviro-Save treatment and oil sample analysis reports confirm wear and friction have been reduced, resulting in a reduction of peak temperatures when maximum performance is required or maintained. Most customers who travel mountain highways notice the reduction in peak temperatures of engine coolant, crankcase oil and transmission temperatures as they continue to drive up the hills that would normally have them concerned or stopped for a cool off period.

Dry / Cold Start Protection

The Enviro-Save micro-resin is impregnated into all the friction bearing surface asperity and provides excellent start-up wear protection when the engine oil is cold, or if there is a lack of oil and when moisture is present. The highest wear rates in an engine occurs during cold start-up and during the first few minutes of running, referred to as "dry start" due to the hot lubricating oil that has drained off the cylinder walls and bearing surfaces when an engine is shut down. Lubrication specialists state that during this initial start up period over 80% of engine wear takes place until the lubricating oil is warmed up and has reached the extremities of the lubricating system. Lubricating oils are designed to provide the ultimate protection at normal operating temperatures, not ambient temperatures. However, the inert Enviro-Save micro-resin provides a resident dry lubricant in the surface asperity of bearing surfaces, ensuring lubrication and protection at all times, which reduces wear rates and friction considerably.

Dry start damage also happens in transmissions, differentials, hydraulic systems and other mechanical components, due to the hot or warm oil draining off gears or bearing at shut down time. Then when operation commences the lubricants are cold (ambient temperature) and do not provide adequate lubrication until temperatures increase or lubricants are circulating. In

extreme Arctic cold temperatures or desert heat Enviro-Save protects and reduces wear beyond the protection capabilities of any conventional lubricant. Oil sample analysis reports always scientifically support the fact – Enviro-Save reduces wear, friction and drag.

Reduced Oil Consumption

Enviro-Save Engine Treatments normally reduce oil consumption by 50% or more. However, this benefit would not normally be noticed in a previously overheated damaged engine or high wear engine where oil consumption is due to excessive clearances at piston rings, heat damaged piston rings and valve seals or other mechanical damage.

Enviro-Save Engine Treatment is not a “cure-all-in-a-can”, but it does reduce the normal minute oil consumption as oil burns on the cylinder wall when the piston is on the down stroke, and extends the useful life of engines by cleaning and restoring piston ring function.

This destructive accumulative oil burning occurs mainly at the upper end of the cylinder when oil trapped in the pore structure (surface asperity) of the cylinder walls and around the upper piston rings and grooves is exposed to the high heat from combustion.

When the Enviro-Save Engine Treatment has impregnated and filled all friction bearing surfaces, such as cylinder walls and piston ring surfaces, the oil-retaining cylinder surface asperity has become a resin-filled smoother surface with extremely low oil retention capabilities, which reduces the amount of oil exposed to the high combustion heat. This Enviro-Save process automatically reduces the amount of varnish and lacquer that discolours engine pistons and gums up piston rings, making them stick in the piston ring lands (grooves). The accumulative long term negative effect on the piston rings is the natural demise of an engine and oil burning combined with reduced cylinder compression confirms if the piston rings are stuck in the ring lands.

Oil consumption is reduced by the release of sticking piston rings, achieved by the cleaning action of the treatment. Enviro-Save treated cylinder walls and piston rings are smoother and therefore reduce blow-by and enable the piston rings to keep the oil down in the crankcase, thus reducing oil consumption and exhaust emissions.

Extending Oil Changes Safely

There is a significant saving when increasing oil and oil filter changes by 50%, or more, and by utilizing oil sample analysis to determine oil condition customers have been safely extending oil changes. After treatment; oil turbulence is reduced due to the smoother bearing surfaces, which contributes to longer oil life and better protection. Since 1990, most customers comment about cleaner engine oil and automatically extend oil and filter changes due to their oils remaining so much cleaner after Enviro-Save. It is common for the soot content in engine oil and wear metals to be reduced by 50%+. Extending oil and oil filter changes helps reduce global pollution while saving money.

Storage / Corrosion Protection

Enviro-Save treatments provide excellent protection, beyond the capabilities of any normal lubricant, against corrosion damage on bearing surfaces caused by moisture, air or acids. The inert micro-resin provides excellent off-season protection when engines and equipment are idle or stored for long periods. Enviro-Save is the ultimate protection for seasonally operated recreation vehicles, such as RV's, motorcycles, boats, ATV's, lawn mowers, weed eaters and snow machines etc. Most customers note how their lawn mowers and other vehicles start so easily when taken out of storage.

Easier Starting

Enviro-Save Engine Treatment will enable an engine to turn over more easily and faster due to the reduction in friction on the smoother bearing surfaces, including engine cylinder walls. The starter will use less cranking power thus benefiting the starter motor, battery and alternator, especially in cold climates. A simple test to confirm less friction is to turn the engine over using a torque wrench before and after Enviro-Save. Normally, engines always start quicker when they turn over faster.

Smoother / Quieter Operation

Enviro-Save contributes to a smoother running engine or equipment due to the reduction of friction, the normalizing of cylinder compression and smoother bearing surfaces all contribute to smoother operation of the mechanical motions in machinery and reciprocating engines. The smoother operation signifies a reduction in the vibrations that can be an insidious cause of premature component wear and failure. Friction contributes to noise and it is extremely common for customers to notice a quieter smoother running automobile, truck or equipment after Enviro-Save.

Enviro-Save reduces noise levels by reducing vibration caused by friction. In industrial applications this feature could be beneficial to the workplace environment.

Easier Gear Shifting

Enviro-Save Gear Treatment will enhance the shifting of manual transmission gears that are hard or sticky to operate; freedom of shifting improves with operating time. Manual and Automatic Transmissions operate smoother, quieter and cooler, provided an external oil cooler is not keeping the oil temperature at the thermostatically controlled engine coolant temperature.

Enviro-Save will enhance the performance and extend the life of synchronizing rings in manual transmissions.

The Automatic Transmission treatment's cleaning action removes varnish and lacquer in valves and the micro-resin impregnation contributes to improved shifting and performance of automatic transmissions, very common for customers to notice the change after Enviro-Save.

The reduction of friction, drag, wear and heat normally doubles the life of transmissions.

Manufacturer's Warranty / Guarantee

The application of Enviro-Save Engine & Powertrain Protection Metal Treatment will not void any manufacturer's component warranty, such as engines, transmissions, hydraulics, ATVs, automobiles, trucks and equipment etc. As a responsible company we undertake to investigate any written challenge against our products, especially when warranty is involved. If any customer is verbally told that the application of Enviro-Save will void warranty, then the customer needs to request that statement in writing on company letterhead. The North American Warranty Act makes it illegal for any manufacturer to void warranty, unless the manufacturer proves the failure was caused by something else and not their manufactured parts.

Most do not know that new vehicle or component warranty is about protecting the manufacturers and not the consumer. If vehicle manufacturers did not have their extensive detailed warranty policies in place they would be smothered in law suits by consumers, especially when high mileage vehicles begin having failures. Restricting warranty coverage on electrical parts and other components is a unique easy method for avoiding responsibility for inadequate quality of parts and or a lack of component longevity.

All Enviro-Save Metal Treatment products are guaranteed not to cause damage, to be free of defects and are guaranteed to reduce wear when used as per manufacturer's instructions and applications. There is nothing in the entire Enviro-Save product line that will cause damage to mechanical components.

We have letters on file from Caterpillar, Cummins, Detroit Diesel and Allison Transmission stating the use of Enviro-Save will not void warranties. We encourage concerned customers to request a letter from any manufacturer or dealership representative confirming that the use of Enviro-Save will not void warranty. If any manufacturer or dealer representative state in writing, on their letterhead that Enviro-Save will void your warranty, please forward to us for a reward.

The Enviro-Save Product Line

All Enviro-Save products were thoroughly researched and technically formulated by a Tribologist, Lubrication Engineers, Mechanical Engineer and engine rebuilders to provide the safest, most compatible and effective treatment for each mechanical component being treated. It is a fact that today's excellent and sophisticated lubricants provide an optimum anti-friction environment within the performance limits of any separately applied lubricant or medium. It is also a fact that it is still possible to obtain additional benefits within the sphere of friction and wear reducing lubricants when the lubricated bearing surfaces are made smoother. It is also a fact that all surfaces on earth are rough, and when bearing surfaces are viewed through a microscope the bearing surfaces are rough, at Enviro-Save we technically refer to those rough surfaces as "the bearing surface asperity". The Enviro-Save Technical Information Sheet has a picture of a new crankshaft bearing surface, and cross section pictures at 4500 times magnification, which makes it very easy to understand smoother lubricated bearing surfaces have less friction, drag, wear and oil turbulence. The above factual information and all performance claims for Enviro-Save are backed by records of third party Scientific Oil Sample Analysis Reports that historically confirm a conservative average decrease in metal wear rates by 50%. It is a fact that friction causes wear, and when wear metal rates are reduced; friction is reduced, less drag, less heat generated, less vibration, noise reduction, fuel consumption is reduced, resulting in greater fuel efficiency, higher mileage and longer life. Since 1990, it is very common to double or triple the normal life of engines, transmissions, differentials, hydraulic systems and every other component that has been treated with Enviro-Save.

The following products contain specially prepared micro-resin particles and some, where necessary, include specially selected cleaning complexes to adequately and safely remove contaminants from all the bearing surface asperity, enabling the micro-resin particles to become a permanent resident impregnation in the bearing surface asperity. **When used as directed, all products are:**

**GUARANTEED TO REDUCE WEAR
GUARANTEED NOT TO CAUSE ANY DAMAGE**

Enviro-Save Powertrain Protection Kits

The greatest benefits and fuel savings will be achieved by using the Enviro-Save Powertrain Protection Kits. They are a comprehensive package assembled from the Enviro-Save Metal Treatment product line and include treatment for the engine, transmission(s), differential(s), transfer case (if 4 wheel drive), oil hub wheel bearings, power steering, planetary gears and hydraulic system(s) etc. There is an approximate 10% cost saving built into the price of all Enviro-Save Powertrain Protection Kits over individual treatment costs.

Enviro-Save Powertrain Protection Kits are available for any mechanical component configuration for all automobiles, trucks, RV's, ATV's, light and heavy construction, farming, marine, logging and mining equipment, etc. We custom formulate and assemble complete treatment Powertrain Protection Kits for any treatable machinery or mechanical component.

Gas Engine Treatment: 2-Stroke

This Enviro-Save Metal Treatment product is specifically designed for 2-stroke Gas Engines only, such as: **outboard motors, motorcycles, ATV's, chainsaws, snow machines, weed eaters, lawn mowers, water pumps, etc.** The treatment is formulated for “2-stroke engines” and consists of micro resin in a technically formulated cleaner. The treatment is applied to the fuel or fuel / oil mixture to ensure that the cleaner and resin is distributed to all lubricated friction bearing surfaces in 2-stroke engines, where it becomes permanently impregnated into the bearing surface asperity. Improved performance is normally noticed immediately and the reduction in carbon build-up is significant. The inert resin treatment also affords excellent protection to bearing surfaces against corrosion, which is very important during off-season storage. Many 2-stroke engines have been saved from self destruction with Enviro-Save 2-stroke treatment when injection oil or mix oil is not used or mistakenly forgotten.

Application Instructions

Mix Enviro-Save 2-stroke treatment at a **maximum** ratio of 15 ml (1/2 oz) per 1 litre (32 oz) of fuel, i.e.; 250 ml (8oz) into 20 L (5gal) gasoline tank is an excellent mix ratio. Invert bottle(s), shake vigorously for minimum 15 seconds and immediately pour into fuel tank. If possible, operate continuously until all treated fuel mixture is consumed and shake or rock fuel tank periodically during treatment. Boats with very large fuel tanks should use a 20 L or larger portable fuel tank during the treatment process so the recommended treatment to fuel ratio is not diluted to the extent that the necessary cleaning job is inadequate.

2-Stroke Engine Treatment

Stock #	111101	111102	111104	111105	111106
Size	55 ml /2 oz	125 ml/4oz	250 ml/8oz	500 ml/16oz	1 L/32oz

2-Stroke Engine Treatment Chart		
Engine Displacement	Treatment Quantity	*Engine Horsepower
Up to 50cc	55 ml	2
55 – 175 cc	125 ml	8
176 – 500 cc	250 ml	9 – 30
501 – 1000 cc	500 ml	35 – 60
1001 – 1500 cc	750 ml	65 – 90
1501 – 2000 cc	1L	95 – 140
2001 – 2500 cc	1.250 L	145 – 190
2501 – 3000 cc	1.5 L	195 – 235
3001 – 3500 cc	1.750 L	240 – 275
3501 – 4000 cc	2 L	280 – 325
* Guide for outboard motors and high performance / high horsepower 2-stroke engines.		

***NOTE:** Most **high performance / high horsepower engines** will burn more fuel to obtain their peak horsepower output, therefore the Enviro-Save 2-stroke treatment / fuel mixture will flow through the engine faster and escape out the exhaust ports faster than a standard lower horsepower engine. This is the reason we do **not** recommend increasing or doubling any treatment/fuel mix ratios. We recommend a high dilution treatment / fuel mix ratio for a longer period in order to guarantee a thorough lasting treatment and impregnation of all friction bearing surface asperity. New engines should only be treated after break-in period. Use Enviro-Save Gear Treatment in stern drives, outboard motors, gearboxes and manual transmissions on motorcycles, chain cases on snow machines, chainsaw chains and ATV's, etc. Refer to chart for correct quantity of Enviro-Save 2-Stroke Engine Treatment to match engine size or rated horsepower.

Gas Engine Treatment: 4-Stroke

This Enviro-Save Metal Treatment product is specifically designed for 4-stroke Gas Engines only (including propane and natural gas), such as: automobiles, trucks, forklifts, inboard and outboard motors, motorcycles, lawn mowers, ATV's, RV's, commercial and industrial engines, etc. The treatment is formulated for "4-stroke gas engines" and consists of micro-resin in technically formulated cleaners. The treatment is formulated and proportioned for the crankcase and fuel system/top-end of 4-stroke engines to ensure that the cleaners and micro-resin is distributed to all lubricated friction bearing surfaces, where it becomes impregnated into the bearing surface asperity. Improved performance and numerous other benefits from using the treatment are often noticed immediately. The inert resin treatment also affords excellent protection to bearing surfaces against corrosion and moisture, which is very important during off-season storage.

Crankcase Treatment

This proprietary Enviro-Save treatment consists of micro-resin and two cleaners:

- 1) A cleaner that disperses after about 1 ½ hours of normal operating time, and
- 2) A proprietary cleaner that remains in the engine and continues to clean the engine internally until the next oil drain and filter change.

Through friction, metal-to-metal contact and/or oil pressure, the micro-resin treatment is impregnated into all the lubricated friction bearing surface asperity and one treatment lasts indefinitely, proven by scientific oil sample analysis reports over 400,000kms or 250,000 miles.

Fuel System / Top-End Treatment

This proprietary Enviro-Save treatment consists of micro-resin, and a very high quality cleaner that is specifically formulated to thoroughly clean and treat friction surfaces in:

- 1) Fuel injectors, fuel injection / carburettor systems, and
- 2) Intake, exhaust valves, engine piston and cylinder top-end.

To receive the ultimate benefits and fuel savings use an Enviro-Save Powertrain Protection kit.

Engine Crankcase Treatment Application Instructions

Apply only with new or recent oil change on full mark. Invert container(s) and shake vigorously for **minimum** 15 seconds to thoroughly disperse resin, check bottom of container to gauge sufficient agitation. In cold climates, bring products up to room temperature. Pour contents into oil filler opening on engine, **then immediately start engine and operate for one hour (minimum)**. Continue with normal recommended oil change intervals or increase oil change intervals due to the oil being much cleaner after Enviro-Save. No matter how many times you change oil, the Enviro-Save treatment remains in the surface asperity.

NOTE: New engines should only be treated after the manufacturer’s recommended break-in period, first oil change or after oil consumption has stabilized. All engines can be treated, even those with high mileage; but for engines with over 160,000 km / 100,000 miles or in poor mechanical condition, consult Enviro-Save. If engine manufacturers recommended oil change intervals and maintenance procedures have not been followed, then consult Enviro-Save prior to treating. Enviro-Save crankcase treatment will not damage or have a negative effect on oil bath clutches in motorcycles, etc. Use only Enviro-Save Diesel Engine Treatment in diesel engines.

Fuel System/Top-End Treatment Application Instructions

Shake vigorously for **minimum** 15 seconds and then pour contents into fuel tank at commencement of the minimum 1 hour operating period for the engine crankcase treatment.

3 or 4 cylinder gas engines: for best results when using 125 ml (4oz.) fuel treatment, the fuel tank should not contain more than 25 L (6 gal) of gasoline.

6 or 8 cylinder gas engines: for best results when using 250 ml (8oz.) fuel treatment, the fuel tank should not contain more than 50 L (12 gal) of gasoline.

Whenever possible and for best results, run fuel tank down to empty mark prior to re-filling.

NOTE: Propane and natural gas fuelled engines require the fuel tank treatment portion to be misted into the carburettor or air-intake or into a vacuum line that comes directly off the air intake manifold, while the engine is operating at a fast idle, 700 – 800 RPM. Shake frequently during misting.

4-Stroke Engine Treatment

Stock #	Engine Size	Crankcase	Fuel Tank
159602	Up to 225 cc	125 ml / 4 oz.	20 ml / 1/3 oz.
159704	250 cc – 600 cc	250 ml / 8 oz.	50 ml / 2 oz.
159905	3 & 4 Cylinder (650 cc and up)	500 ml / 16 oz.	125 ml / 4oz.
159806	6 & 8 Cylinder (up to 7.5 L / 475 cu.	1 L / 32 oz.	250 ml / 8 oz.
Over 7.5 L, - 10 & 12 cylinder Gas Engines require additional product (1-159905 & 1-159806).			

Treating New 4-Stroke Gas Engines

The best time to treat a new engine is right after the manufacturer's recommended break-in period or when oil consumption has ceased or stabilized. Almost all gas engines can be treated immediately after the first oil and filter change due to two reasons:

- 1) Some new gas engines are run-in / broken-in at the factory, and
- 2) The accuracy of today's engine manufacturing machining operations is much more accurate than it was decades ago. When cylinders are machined perfectly round and the piston rings are machined to match, the necessity for a long run-in/break-in period is reduced and oil consumption is usually not detectable. It is very important to check the engine oil when the vehicle is on the same identical parking spot and position each time so any reduction in the oil level can be detected.

If an engine is treated when it is virtually new, the precise engineered bearing clearances and other adjustments are maintained far beyond the normal life expectancy of the engine. There are numerous reasons why these bearing clearances are extremely important to maintain. One of the most important reasons is so that optimum oil flow / pressure is maintained throughout the life of the engine. Aside from reducing friction, drag and wear, the impregnation of the Enviro-Save micro-resin smoothes friction bearing surfaces, which reduces oil turbulence and extends oil life. The life of all oil seals is also increased.

Treating Old / High Mileage 4-Stroke Gas Engines

Due to consumers striving to extend the life of their vehicles, a majority of our business comes from treating older high mileage engines and components with Enviro-Save. It is more common to notice numerous significant changes in older high mileage engines or vehicles after treatment, versus new engines or vehicles.

Most of the significant changes are accomplished by restoring lost cylinder efficiency, cleaning the piston rings and the ring lands (grooves in the pistons) thoroughly, which improves and normalizes compression. An engine with uneven compression will not operate as efficiently and will not operate in a smooth manner. This situation contributes greatly to an increase in exhaust emissions, oil burning, less fuel mileage and a reduction in horse-power and performance. The eventual sticking of piston rings is the natural demise of an internal combustion engine. The thorough internal cleaning action and resin impregnation process on the cylinder walls, pistons and piston rings permit the piston rings to move freely, providing a restored cylinder efficiency and it improves the compression seal between the cylinder wall and ring surfaces.

A simple compression test on each cylinder before and after Enviro-Save will confirm the above. If all the cylinder compression figures are low, that is an indication that the piston rings have been damaged by the engine being overheated or the piston rings are simply worn out (ie: compression should be 165 PSI. but all are around 100PSI). If the cylinder compression figures vary (ie: some almost like new and a variation on some 145, 158, 130, 162 PSI) then the compression test confirms the piston rings are sticking or are stuck in the ring lands of the pistons. It is very rare, but broken piston rings will exhibit similar variations in cylinder compression figures.

Enviro-Save is not a "cure-all-in-a-can", so it will not repair broken piston rings or parts worn beyond their useful life. Enviro-Save engine treatment chemistry normally softens oil seals in an engine or components and the resin provides a smoother surface for the oil seal to wear on, which enhances seal performance and extends seal life.

Always check when the timing belt was last changed on used engines. If the mileage is higher than what the manufacturer states for timing belt life, we advise having the belt changed so the extension in life that Enviro-Save provides, will not be reduced.

Diesel Engine Treatment

This Enviro-Save Metal Treatment product is specifically designed for Diesel Engines only, such as: trucks, automobiles, heavy duty construction equipment, marine, industrial, commercial, farming-logging-mining-equipment, etc. The treatment is a two-part treatment technically formulated to match the higher component stresses in diesel engines. The first part consists of a proprietary pre-treatment cleaner, applied to the crankcase prior to an oil and oil filter(s) change. The second part consists of the Enviro-Save treatment which is proportioned for the crankcase and fuel system / top-end to ensure that it is distributed to all friction metal bearing surfaces of the engine's moving parts. The metal treatment affords excellent protection against corrosion and scoring damage to fuel pumps and fuel injectors, such as when water is present in the fuel or when fuel lubrication is inadequate.

Oil sample analysis before and after treatment will show reductions in wear metal content and soot content in oil, and a 50% reduction in wear rates and soot is common since 1990.

Enviro-Save's proprietary Diesel Engine Pre-Treatment Cleaner has been technically formulated to safely clean out the engine and all bearing surface asperity of the engine's moving parts and the piston ring lands (grooves) in preparation for receiving the Metal Treatment. This cleaner is designed to perform safely while the engine is in normal operation and is to be used just before an oil and filter(s) change.

Enviro-Save's proprietary Diesel Engine Crankcase Metal Treatment treats all friction bearing surfaces. The micro-resin impregnation treatment reduces wear, drag and friction, and operating costs.

Enviro-Save's proprietary Diesel Engine Fuel System and Engine Top-end Treatment is formulated to clean and treat metal bearing surfaces in: 1) fuel pumps and injectors, and 2) engine cylinder top-end.

NOTE: New engines should only be treated after the manufacturer's recommended break-in period, when oil consumption has stabilized, or after recommended second oil change, whichever is longer. All engines can be treated, even those with high mileage; but for engines over 1,000,000kms / 600,000miles / 7500 hrs or in poor mechanical condition, consult manufacturer. Our concern with half time and very high mileage engines is the condition of the cylinders and oil consumption.

For optimum results, centrifugal oil filters and bypass oil filters **less than 3 microns** should be isolated for a period of 2500 km / 1500 miles or 30 operating hours.

Crankcase Pre-Treatment Cleaner Application Instructions

Apply recommended quantity to crankcase and **accumulate** a total of 15 operating hours or 1000kms / 600miles (whichever is longer). Then drain oil and change filter(s). After refilling crankcase with new oil, apply the Enviro-Save Metal Treatment when a minimum of one hour operating time is available (Read directions on containers).

NOTE: The correct amount of Pre-Treatment Cleaner to ensure a thorough cleaning job is 8% to 10% of total engine crankcase oil capacity.

Crankcase Treatment Application Instructions

*Enviro-Save Pre-Treatment Cleaner **MUST BE** used before applying this treatment.

Apply only with new oil filter, and clean oil on full mark. Invert container(s) and shake vigorously for 15 seconds. Pour contents into oil filler opening on engine. IMMEDIATELY START ENGINE (with no delay) and operate for a minimum of one hour. 50% of the treatment will disperse after operating for an hour or so, simply continue to next oil change.

Fuel System / Top-End Application Instructions

Shake vigorously for 15 seconds. Then immediately pour contents into fuel tank at the commencement of the 1 hour operation for the engine treatment. For best results, fuel-to-treatment ratio should be 500:1 (1L into 500L of fuel or 32oz into 125 gallons of fuel) and if possible draw fuel from one fuel tank (suction and return lines) during treatment period and run fuel tank down to a comfortable level before re-fuelling.

Diesel Engine Treatment Quantities				
Stock #	Engine Size	Pre-Treatment Cleaner	Crankcase	Fuel System / Top-End
168900	Up to 2 L Up to 100 CID	500 ml	250 ml	125 ml
168800	2.1 – 5 L 101 – 300 CID	1 L	500 ml	250 ml
168700	5.1 – 8.5 L 301 – 500 CID	1, 1 ½ or 2 L*	1 L	250 or 500 ml**
168600	8.6 – 11.5 L 501 – 700 CID	3 L	1.5 L	1 L
168500	11.5 – 15 L 701 – 900 CID	4 L	2 L	1 L
168400	15.1 – 18 L	5 L	2.5 L	1 L

NOTE: When converting cubic inch displacement (CID) to L (metric), divide CID by 61.
 *Depends on the total crankcase oil capacity, Pre Treatment is based on 8% - 10% of oil capacity.
 **Engine Treatment comes with 250 ml and all Powertrain Protection Kits come with 500 ml.

Special Diesel Engine Metal Treatment for new run in engines with low hours, low mileage or exclusively highway driven engines, the normal Diesel Engine Pre-Treatment Cleaner is not used.

This Enviro-Save Metal Treatment product is specifically designed and formulated for Diesel Engines that are exceptionally clean internally. Engines that are internally clean and do not have any varnish, lacquer or carbon build up do not require Enviro-Save Pre-Treatment Cleaner for Diesel Engines before using the Metal Treatment.

This formulation contains special cleaners that will adequately clean the asperity of all bearing surfaces so the permanent resin impregnation process is completed properly. The required Metal Treatment quantities are the same for both Enviro-Save Diesel Engine Treatments.

The advantage of using this special treatment is that delays or complications due to coordinating the use of the Pre-Treatment Cleaner are eliminated and after a regular scheduled oil and oil filter change, the treatment can simply be applied when the engine is going to be operated for a minimum of 1 hour.

Acceptable Diesel Engines for this special Treatment are:

- 1) Automotive with less than 30,000kms / 20,000 miles and 2 oil changes.
- 2) Commercial trucks with less than 100,000kms / 60,000 miles and 4 oil changes.
- 3) Buses and Coaches with less than 50,000kms / 30,000 miles and 3 oil changes.
- 4) School and Transit buses stop and go more than highway buses, so less than 40,000kms / 25,000 miles and 3 oil changes.
- 5) Industrial and Stationary with less than 1000 hours and 4 oil changes.

Contact Enviro-Save for any additional questions or concerns regarding this special treatment and application.

Manual Transmission, Gearbox, Differential & Oil Hubs

This Gear Treatment product is designed to reduce wear, drag and friction in all small, medium and heavy-duty gear boxes, differentials (including limited slip or posi - track), manual transmissions and transfer cases, including those that use automatic transmission fluid. Also applicable to marine and industrial gears and gear boxes.

The Gear Treatment impregnates metal bearing surfaces with micro-resin particles. It is formulated for machinery where the normal lubricant is engine oil, gear oil or ATF, and is suitable for automotive, marine, HD equipment and industrial applications.

NOTE: Use only Enviro-Save Automatic Transmission Treatment in automatic transmissions. For maximum results and benefits use the complete Enviro-Save Powertrain Protection Kit.

Instructions

Invert container and shake vigorously for 30 seconds to disperse resin; use as directed for applications listed, or in gear boxes of equivalent size.

NOTE: Consult manufacturer regarding marine, automatic transmission, HD equipment and industrial applications not listed.

IMPORTANT

Although Enviro-Save Gear Treatment contains cleaners, gearboxes that have been continually operated above normal operating temperatures or 130 deg. C (260 deg. F) should use 5% (of gear box lube capacity) of the Enviro-Save Pre-Treatment Cleaner prior to applying the gear treatment.

Gear Treatment Quantities		
Equipment Size	Manual Transmissions	Differentials
All Automotive Up to 1 Ton Truck	125 ml / 4 oz	125 ml / 4 oz
1 ½ – 3 Ton Truck	250 ml / 8 oz	250 ml / 8 oz
5 Ton & Class 8 Trucks	500 ml / 16 oz	500 ml / 16 oz
	Differentials	Planetary hubs
CAT 966 H	2 L / 64 oz	In the differential
CAT 980 C / F	1 L / 32 oz	500 ml

Steering, Tag & Trailer Axle Oil Hub Bearings

The Gear Treatment performs an excellent job of reducing heat produced by friction and wear in all wheel hubs lubricated with oil. The treatment also extends the life of wheel hub oil seals, due to the improved smoother surfaces the seal rides on and less wear metals in the oil. It is common to feel a temperature difference between an untreated and treated oil hub after driving a few hours on the highway. The Gear Treatment definitely provides a protection factor when brakes overheat and transfer heat to the hub bearings and seals.

Oil hub application Instructions: Simply add 60 ml / 2 oz. Gear Treatment to any oil hub on trucks or semi trailers via the plastic oil filler cap or threaded plug on the side of the hub cover. Clean the filler plug area so no dirt enters the oil hub. It does not matter if you drive the truck right away, the treatment will circulate when driven.

Industrial Gearbox Treatments

The recommended quantity of Enviro-Save Gear Treatment is 2% to 5% of the total gear oil or lube capacity. The following recommended amounts of treatment are for RADICON single reduction speed reducers.

Enviro-Save Recommended Amounts for Radicon Gear Reducer		
Description	Capacity (Litres)	Required Gear Treatment
#4	3 L	180 ml
#5	4 L	250 ml
#6	5.75 L	305 ml
#7	6.75 L	375 ml
#8	9 L	500 ml
#10	16 L	750 ml
#12	26 L	1.5 L
#14	36 L	2 L
#17	50 L	2.5 L
#20	60 L	3 L
#24	92 L	4.5 L

Automatic Transmission

Enviro-Save Metal Treatment for Automatic Transmissions is specially designed to clean and impregnate bearing surfaces with micro-resin in automotive, heavy duty and industrial automatic transmissions.

The Enviro-Save Automatic Transmission Treatment is guaranteed to reduce wear, drag, friction and a smoother quieter shifting transmission is normally experienced. Enviro-Save Automatic Transmission Treatment will not cause slippage on clutches or shifting bands that are lined with fibrous friction material or metallic surfaces. We have used over 8 times the recommended amount of automatic transmission treatment to test and confirm there are no risks. Motorcycle and ATV clutches that operate in oil are similar.

NOTE: Consult manufacturer for use in marine and industrial applications.

Application Instructions

Invert container and shake vigorously for 15 seconds. Pour contents into transmission filler tube at commencement of 1 hour driving period for engine treatment. Some new automatic transmissions do not have a filler tube and the treatment must be injected in to the transmission with a special tool or apply it when the transmission is serviced.

NOTE: If an Automatic Transmission has not been serviced in the past 40,000 km / 25,000 miles or at the manufactures recommended service interval, change the ATF and filter prior to treating. If the transmission fluid is a bright red it can be treated, but if the fluid is a dull or dark red in color, change it prior to treating.

Some new automotive automatic transmissions do not have a normal dip stick and tube for checking ATF level or adding fluids. In these situations it may be necessary to have the Automatic Transmission Treatment installed at the quick oil change facility, dealership or a facility that services these new models and can inject the Automatic Transmission Treatment into the transmission.

If any person states that the use of Enviro-Save Automatic Transmission will void warranty, please ask them to put their statement in writing on company letterhead and forward to Enviro-Save head office for a reward. We have a letter on file from Allison Automatic Transmission stating Enviro-Save will not void warranty.

Hydraulic Systems

The Enviro-Save Hydraulic Treatment can be used in all hydraulic systems; from power steering, farm equipment, excavators, stationary factory equipment, to all large heavy duty hydraulic equipment including construction, industrial, marine, mining, military and offshore etc.

Enviro-Save Hydraulic System Treatment provides a micro-resin impregnation for all the bearing surfaces of the hydraulic system components, including pumps, motors, actuators, cylinders, rods, valves, controls and seals etc. The Hydraulic Treatment becomes part of the metal and seal material, so that the effects and benefits are not lost when the fluid is lost or changed (unlike oil additives). In comparison to gearboxes and other machinery, Hydraulic Power Systems rely on minimal component clearances and clean oil in order to maintain maximum performance; therefore it is important to minimize metal content and wear within the system. Enviro-Save Hydraulic Treatment is **GUARANTEED TO REDUCE WEAR RATES**. Benefits from reducing wear are: extended equipment life, reduced component and fluid friction, less heat and cavitation, smoother and quieter operation. It is common to extend the life of hydraulic systems by two to four times the normal life expectancy after treating. It is normal for the noise level of hydraulic gear pumps to immediately be reduced. Hydraulic piston pumps create most (90%+) of their noise from the exchange of fluid within the pump and not from internal pump friction like gear pumps.

Contrary to what most believe, chrome is very porous and not perfectly smooth. The Enviro-Save micro-resin impregnates the chrome surfaces, seals the surface and makes them very smooth, thus improving the sealing affect of the oil seal on the chrome and reducing contaminants entering the hydraulic system. Oil seals are also cleaned and treated, making the oil seal surface smoother and it is very common for leak down situations to be eliminated or drastically reduced.

Application Instructions

Excluding the hydraulic reservoir oil volume, the recommended quantity of Enviro-Save Hydraulic Treatment required is equal to five percent (5%) of the working volume of hydraulic oil in the system (1 L / 32 oz. into 20 L / 5 gal.).

Including the hydraulic reservoir oil volume, if only the **total** hydraulic fluid volume of the hydraulic system is known (**including reservoir**), the recommended treatment quantity is two percent (2%) of the total hydraulic system oil capacity (1 L / 32 oz. into 50 L / 12 gal.).

NOTE: It may be necessary to use additional treatment in a more comprehensive or sophisticated hydraulic system that contains an abnormal high amount of hydraulic components to hydraulic fluid ratio. Enviro-Save treatment requirements are based on bearing surface area, but due to extreme complications of figuring surface area out we established the recommended amounts over time with testing.

- 1) Due to the high resin content in Enviro-Save Hydraulic Treatment it is very important to check cap, invert the container and shake vigorously for 30 seconds to disperse resin prior to and during the application.
- 2) The Treatment should be applied to the hydraulic system while it is already operating to ensure immediate circulation.
- 3) Apply the Treatment in 8 equal portions and immediately operate system, with a minimum of 2 hours continuous operation time between each application.

Air Compressor Treatment

The Enviro-Save Air Compressor Treatment product is designed for all shop and industrial air compressors. Custom formulating is available for compressors used in the food industry, diving, medical or refrigeration, etc.

Applications

If the equipment or lubricant calls for a special compatibility assessment, Enviro-Save Distribution & Mfg. Inc. will undertake this exercise and will investigate the blending of a special treatment using the specific lubricant.

We treat piston and rotary (screw) type Air Compressors.

Product Use

It is important that the compressor receives the recommended break-in period before Treatment is applied; ask the compressor manufacturer for advice in this regard, or consult Enviro-Save Distribution & Mfg. Inc.

Packaging

The quantity of Enviro-Save Compressor Treatment required is related to the total friction bearing surface area, not the volume of oil in the sump. However, if the compressor swept volume is not known, the quantity of Treatment can be estimated at 5% of the oil sump capacity.

The product is conveniently packaged in: 125ml / 4oz. and 250ml / 8oz. and is compatible with mineral oil and synthetic oils.

Benefits

In addition to the greatly reduced wear rates after treatment, all the following benefits may be noticed:

- build air volume faster
- reduced electricity / energy consumption
- reduced noise level
- corrosion protection
- smoother running
- extended life of compressor
- lower operating temperatures
- dry start protection
- easier starting
- less vibration.
- reduced condensation
- less water in air tank
- less oil in air tank

General Purpose Dry Lubricant

Enviro-Save General Purpose Dry Lubricant is a formulation of micro-resin particles and a cleaner carrier liquid that contains no lubricating oil and does not leave an oily dust collecting surface after application. It is designed to clean, impregnate, smooth or seal any metal, fiberglass and plastic surface asperity when burnished into the surfaces. Two or three applications normally produces the following benefits; reduces dirt build up, easier cleaning, corrosion protection, smoother surfaces, less drag and reduced temperatures when friction and wear are applicable. Treated surfaces always slide easier after the impregnation process has been completed with an adequate amount of treatment.

Applications include boat hulls, ATV bodies, snow ski, photocopiers, paper cutters, slide rails and runners, photographic equipment, hinges, clocks, toys and mechanical models, exercise equipment, locks, guns, knives, and fishing gear etc.

General Directions

Clean surfaces of visible dirt or contamination prior to treating and warm surfaces to expand the surface asperity for a lasting application. Check bottle cap, invert bottle and shake vigorously for 15 seconds, then apply sparingly with a small patch of cloth to moving parts or surfaces, by buffing the treatment into the surface and or rub the surfaces together to impregnate treatment. Repeat several times until the surfaces feel smoother and slide easier.

Firearms & Guns

Treated actions slide easier, treated barrels show an increase in bullet velocity with less heat, and less residue build-up is always noted. All treated external surfaces will be smoother and protected from moisture or corrosion damage. It is very common to eliminate the jamming of actions due to smoother surfaces and no oily surface to collect dust or sand.

Directions: Clean / degrease parts and warm parts or barrels up to 100F / 40C (oven, hair dryer or direct sun) so the surface asperity is expanded beyond normal operating temperature expansion. Apply treatment to all external surfaces with cotton patch or long cleaning mop for inside barrel. Buff surfaces after drying time and repeat application several times until the surface asperity is filled and feels smoother, assemble and apply final treatment to moving parts such as bolt actions etc. After initial treatments have been applied do not use oil – use Enviro-Save treatment for cleaning after use. The inert micro resin will prevent rust or corrosion on surfaces after adequate treatment has been applied.

Cutting Tools

Drill bits, taps, dies, milling cutters, lathe tools, die punching and stamping tools, router bits, chisels, and drive chains etc.

Directions: Degrease, clean, and dry cutting edges, then heat to 50° C (120° F). Agitate container as above and pour a suitable quantity into a glass or metal container and immediately immerse the heated tool cutting edges, for one hour; remove and air-dry, or apply low heat, prior to use. Repeat after sharpening.

External Surfaces

Knives, skis, aircraft surfaces, snow machines, mould release, garden tools, boat hulls, chainsaw bars, guns and fishing gear, counter tops, and pre-assembly of pneumatic cylinders, rods, and control system components etc.

Directions: Degrease, clean and dry the surface. Agitate container as above. Apply treatment by spraying or wiping it on with a soft cloth. Burnish the surface by buffing, repeat application until surface is smoother. Unfinished or rough surfaces will require additional applications.

NOTE: On finished or painted surfaces, experiment on a small hidden area. Do not use when material surface temperatures exceed 350° C (660° F). Consult manufacturer for more information.

Greases:

Technical Data Sheet for Multi-Purpose Grease

A proprietary combination of micro resin particles and high quality lithium base grease suitably blended for application where a multi-purpose grease is specified.

Customer Benefits

This grease is guaranteed to reduce wear, friction, drag and heat when properly used. Smoother running, less vibration, less noise, reduces downtime and maintenance costs while extending component life.

Properties

Exhibits good adhesion and tenacity in extreme pressure conditions, inhibited against oxidation and the inert micro-resin provides good protection against rust and corrosion.

Recommended Use

For ultimate component longevity, use the product every 20th service interval, or every 10th in severe working conditions. The recommended repeat applications are due to the open environment most grease applications exist in, .

Compatible with: Lithium complex, Calcium, Silica and Polyurea greases.

Application

For ultimate component longevity use the product every 20th service interval, or every 10th in severe working conditions.

Typical Test Data

NLGI Grade 2	MINERAL OIL CONTENT:
Dropping point 204 °C	Viscosity, Kinematic, cSt 151 @ 40 °C
Worked penetration, 275	Viscosity, Kinematic, cSt 12.7 @ 100 °C
Soap Stock Type Lithium	Pour Point, -12 °C
Colour, yellow	

Handling

This product will not cause prolonged or significant eye or skin irritation.

Technical Data Sheet for Heavy Duty Grease

A proprietary combination of micro resin particles and high quality lithium base grease suitably blended for application where a heavy duty or a severe service lubricant is specified.

Customer Benefits

This grease is guaranteed to reduce wear, friction, drag and heat when properly used. Smoother running, less vibration, less noise, reduces downtime and maintenance costs while extending component life.

Properties

High shock-load protection and high load carrying capacity. Excellent rust and corrosion protection, resistance to water and high adhesion under extreme conditions.

The recommended operating temperature range is, -17° C to 160° C.

Recommended For Use In:

Chassis and wheel bearings, bushings and pins on excavators, log-yarders-skidders-loaders and other similar HD equipment. Pulp and paper mills, industrial, mining, drilling, marine, offshore and other similar equipment. Affords excellent protection where equipment is idle for extended periods.

Compatible with:

Lithium complex, Calcium, Silica and Poly-Urea greases.

Application

For ultimate component longevity use the product every 20th service interval, or every 10th in severe working conditions.

Typical Test Data

NLGI Grade 2	MINERAL OIL CONTENT:
Dropping point 190 °C	Viscosity, Kinematic, cSt 470 @ 40 °C
Undisturbed penetration, 240	Viscosity, Kinematic, cSt 25 @ 100 °C
Worked penetration, 285	Viscosity, Saybolt, SUS 2561 @ 100 °F
Flash point, 274 °C	Viscosity, Saybolt, SUS 124 @ 210 °F
Thickener Type Lithium 9%	Timken OK Load, 70 lbs
Texture, stringy	Colour, red
Viscosity Index, 64	

Handling

This product will not cause prolonged or significant eye or skin irritation.

Technical Data Sheet for High-Temp Grease

A proprietary combination of micro resin particles and high quality lithium base suitably blended for application where a high temperature grease is required or a severe service lubricant is specified.

Customer Benefits

This grease is guaranteed to reduce wear, friction, drag and heat when properly used. Smoother running, less vibration, less noise, reduces downtime and maintenance costs while extending component life.

Properties

High resistance to hot and cold water with excellent rust and corrosion protection. Oxidation inhibited for stability and long life. Usable over a wide temperature range and will lubricate for long periods at operating temperatures up to 230° C. Pumps easily at freezing temperatures (0° C).

Recommended for use in:

All kinds of industrial ball-roller-needle and plain bearings, water pumps, steam-joints, reduction gears and other wet applications.

Compatible with:

All commonly available petroleum greases. Affords excellent protection where equipment is idle for extended periods. Resin is inert and will not break down from acids.

Application

For the ultimate component longevity, use the product every 20th service interval, or every 10th in severe working conditions.

Typical Test Data

NGLI Grade 2	MINERAL OIL CONTENT:
Designated Grade, Medium	Viscosity, Kinematic, cSt 80 @ 40° C
Dropping point 268° C	Viscosity, Kinematic, cSt 9.6 @ 100° C
Undisturbed penetration, 256	Viscosity, Saybolt, SUS 533 @ 100° F
Worked penetration, 295	Viscosity, Saybolt, SUS 65 @ 210° F
Thickener Type Lithium	Viscosity Index, 96
Texture, smooth, buttery	Flash point, 238° C
Colour, blue	Pour point, 15° C

Handling

This product will not cause prolonged or significant eye or skin irritation.

Technical Data Sheet for Heavy Duty Winter Grade Grease

A proprietary combination of micro resin particles and high quality lithium base grease suitably blended for application where a heavy duty or a severe service lubricant is specified.

Customer Benefits

Guaranteed to reduce wear, friction, drag and heat. Smoother running, less vibration and noise, releases energy, reduces downtime and maintenance cost, extends operating time.

Properties

High shock-load protection and high load carrying capacity. Excellent rust and corrosion protection, resistance to water and high adhesion under extreme conditions.

The recommended operating temperature range is, -17° C to 160° C.

Recommended For Use In:

Chassis and wheel bearings, bushings and pins on yarders, skidders, loaders and other similar HD equipment. Pulp and paper mills, industrial, mining, drilling, marine, offshore and other similar equipment. Affords excellent protection where equipment is idle for extended periods.

Compatible with:

Lithium complex, Calcium, Silica and Poly-Urea greases.

Application

For ultimate component longevity use the product every 20th service interval, or every 10th in severe working conditions.

Typical Test Data

NGLI Grade 0	MINERAL OIL CONTENT:
Dropping point 183° C	Viscosity, Kinematic, cSt 340 @ 40° C
Undisturbed penetration, 380	Viscosity, Kinematic, cSt 16 @ 100° C
Worked penetration, 370	Viscosity, Saybolt, SUS 1894 @ 100° F
Flash point, 274° C	Viscosity, Saybolt, SUS 106 @ 200° F
Thickener Type Lithium 3.5%	Timken OK Load, 55 lbs
Texture, stringy	Color, red

Handling

This product will not cause prolonged or significant eye or skin irritation.

Grease Compatibility

Mixing different grease types will lead to a major lubrication problem. Incompatibility is usually identified in the field by either hardening of the grease or excessive softening where the grease becomes fluid. Once fluid, the grease will run out of the bearing and cause failure. To avoid problems, thoroughly flush the system with the new grease. The chart below illustrates which greases are compatible with each other.

	Lithium Complex	Lithium Complex	Aluminum	Calcium	Barium	Sodium Gel	Bentone	Silica	Polyurea
Lithium	--	Yes	No	Yes	No	No	No	Yes	Yes
Lithium	Yes	--	No	Yes	No	No	No	Yes	Yes
Aluminum	No	No	--	No	No	No	No	Yes	No
Calcium	Yes	Yes	No	--	Yes	No	No	No	No
Barium	No	No	No	Yes	--	No	No	Yes	--
Sodium	No	No	No	No	--	No	No	No	No
Bentone	No	No	No	No	No	No	No	Yes	No
Silica	Yes	Yes	Yes	No	Yes	No	Yes	--	--
Polyurea	Yes	Yes	No	No	--	No	No	--	--

Assembly Lube

This blend of micro-resin and high quality light lube is designed to be used on bearing surfaces of new and rebuilt parts that do not require a break-in period. A thin coating provides excellent protection against corrosion, scoring and galling during assembly and initial start-up. A thin film on new cam shaft lobes provides excellent protection during initial start-up.

NOTE: Do not use on engine cylinders or rings before they have been broken-in.

Air Tool

This Enviro-Save Air Tool treatment is a proprietary blend and is designed to clean, treat, and protect the internal working surfaces of air tools by micro-resin impregnation. Through the reduction in wear, drag and friction, air tools will normally gain RPM, torque, and it extends air tool life.

It is normal to restore torque and RPM in old air tools that have been retired due to low performance.

Instructions

Remove cap and screw Yorker spout on bottle, invert and agitate to disperse resin from the bottom of bottle just prior to dispensing. Repeat agitation before each application.

Old Air Tools: Apply numerous drops to air inlet of air tool and just bump air tool trigger to circulate treatment into the internal working parts, after 5 minutes operate at full RPM until the air exhaust is clean. Repeat if change in RPM is not noted or the exhausted air is still dirty, normally three applications initially, then a few drops weekly thereafter.

New Air Tools: A few drops initially and then weekly thereafter.

Miscellaneous:

Dentist Drill

The Enviro-Save Dentist Hand-piece (drill) product is a proprietary formulation that meets Health Safety requirements and can be used in all air operated Dental equipment. It is normal to increase the life of drills by 3 or 4 times when using this treatment, and a reduction in the decibel level of the high pitch noise has been noted. It is very simple to use and a few drops per week in the air supply line is all that is required.

Scratch Fixer

This unique Enviro-Save product is used on LP music records and CD's. The excellent cleaning ability and micro-resin enhances the sound and reduces the negative affect of minor scratches. Many customers have stated they never heard some of the sounds in their music until they used Scratch Fixer. It is very easy to use; simply wet a small patch of cotton, a cotton swab or piece of soft cloth, then gently wipe and wet the surface and play.