

In passenger cars, light and heavy duty- trucks **POLYTRON** lubricants:

- * Eliminate up to 95% of Engine and Equipment wear.
- * Reduce engine/equipment operating temperature and noise level.
- * Eliminate build-up and keep engine completely clean.
- * In the event of oil or coolant loss, engines are protected for tens of miles under any driving conditions.
- * Restore compression (the compression may go up even in new cars).
- * Contribute to much cleaner emission gases
- * Are very effective in severe operating conditions such as dust, dirt and moisture.
- * Extend oil change intervals and oil filter life 4 to 7 times.
- * Contribute to considerable fuel and oil economy.
- * Generate the same outstanding results, when used in transmissions, power steering, differentials or any other equipment.
- * Contribute to reduction of up to 60% of maintenance costs.

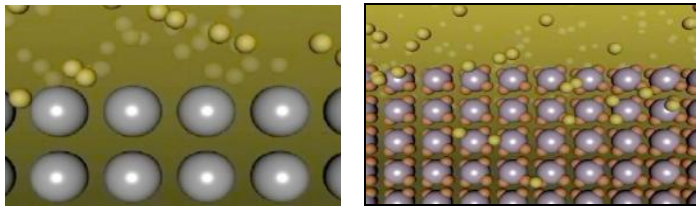


HOW DOES IT WORK?

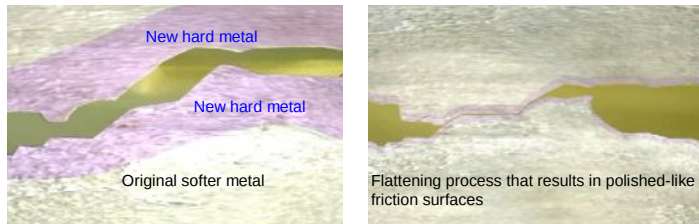


When observing mating friction surfaces under high magnification one can see that they are actually full of “mountains” and “valleys”. These “mountains” penetrate the oil-film that separates mating friction surfaces, and collide with each other. These collisions on the micro level, translate into “friction” between the mating friction surfaces on the macro-level. Some of these collisions result in metal particles breaking away from colliding “mountains”. Breaking away metal particles on the micro-level translate into a “wear” process on the macro-level.

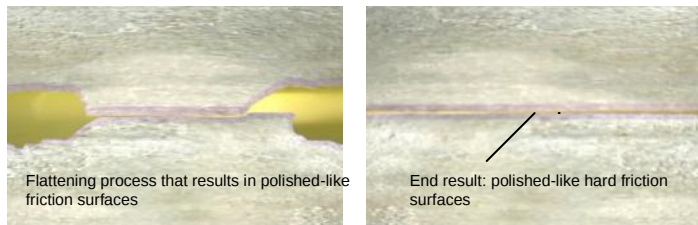
Conventional lubricants are based on maintaining high strength and thickness of oil-film in order to separate the friction surfaces from touching each other. In higher pressure, generated by heavy working loads, conventional lubricants introduce an EP (Extreme Pressure) protective deposit between moving mating surfaces in order to replace the oil layer squeezed out by pressure. In this way, they try to resist failure from scoring, seizure or accelerated wear. The conventional lubricants succeed in their task only partially, so a continuous wear process still takes place, contributing to deterioration in performance. This in turn, plays a significant role in the vicious cycle of deterioration in performance accelerated wear, etc.



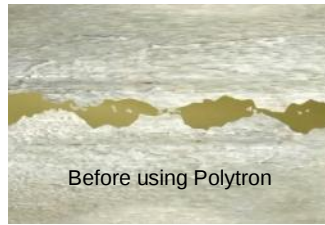
, Because active elements of Polytron are polarized, when **Polytron** is applied, they are attracted to the metal. Under heat and pressure these polarized elements metallurgically impregnate the metal's crystal structure on its mating friction surfaces.



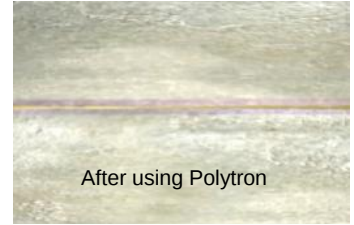
As a result of the metallurgical process, a very thin layer of original metal is converted into a new type of metal that is much harder and has a wear life that is **at least 15 times longer than the original metal**. This newly formed layer of metal protects the original “softer” metal beneath it from wear.



Since the protective layer is very thin, it is very flexible (like very thin sheet metal). Because it is flexible, it allows the metal underneath to be pushed horizontally by the horizontal force generated by collisions. At the same time, the hardness of the protective layer does not allow metal particles to break away during collisions. Thus metal on the “mountains” is “pushed” into the “valleys”, flattening out the friction surface. This results in smooth polished-like surfaces that have much lower friction coefficients. Not only do the metal friction surfaces become much harder, which results in elimination of wear, but also much smoother, which results in much lower friction.



Before using Polytron



After using Polytron

This advanced technology that allows the formation of hard, smooth, polished-like surfaces from the original metal on friction surfaces, is one of the main features that makes **Polytron** so different from other lubricants on the market today. This feature together with other features of Polytron MTC additive package contributes to 4 to 7 times longer oil change intervals and 4 to 7 times longer service life of engines and equipment. (See explanation about “Used Oil Analysis”).

When added to grease, motor and transmission oils, **Polytron** additive packages **dramatically reduce wear of the mating friction surfaces in car engines, transmissions, and other equipment (up to 95%), considerably extending their life span**. The lower friction results in lower fuel consumption. In the event of lubricant loss the protective layer provides a temporary protection against failure. For example, a vehicle that lost its oil can get to the nearest repair shop, and/or expensive equipment is protected for some time allowing timely detection of the problem.

Polytron additives packages are also very good moisture repellants and are very effective when used in equipment operating in **extreme conditions such as moisture, abrasive dust and dirt**. The **“polishing-like” effect that Polytron has on worn friction surfaces**, allows old equipment extend its life span, improve its performance, and lower its energy consumption.

Polytron additive packages dissolve any existing deposit build-up and keep engines/equipment completely clean of future deposits.

Polytron Fuel Additive package, that was developed by our company for gasoline and diesel engines, adds an additional boost to the performance of an engine. **It cleans deposits and gum from fuel injection systems, carburetors, upper engines, valves, and lifters. It lubricates and eliminates wear of moving parts of upper engines, fuel injection systems, valves, lifters, and carburetors, and contributes to much cleaner emissions.**

In engines, the combination of fuel additive package and oil additive package contributes to considerable Savings in Fuel and Oil consumption.

Polytron additive packages stop the vicious “wear - deposit build-up” cycle that cuts short the life span of engines and equipment, thus extending the life span of engines and equipment 4 to 7 times.

Important **SAFETY FEATURE**: Thanks to the hard, wear-resistant metallic layer referenced above, in the event of loss of lubricant or coolant, engine / equipment is temporarily protected providing precious time; usually enough to detect the problem, or in cars, enough to keep you out of harms way.

Here are some references:

A Military Naval Academy laboratory in a European country tested the lubricants containing **Polytron** additive package in various military diesel marine engine applications with the following results.

- A test that was conducted under normal operating conditions indicated an immediate 95% reduction in wear of diesel marine engines.
- In a second test, water was blended into the oil that contained **Polytron** additive package. The test indicated that there was no change in performance of the engine. Under normal conditions of operation, when water penetrates the oil system the engine overheats and seizes. But with **Polytron** additive package no change occurred in the engine's performance.
- A final test was conducted to determine the effect of operating an engine with no oil at all after it had been treated with **Polytron** additive package. First, a diesel marine engine operated for 30 minutes with motor oil that contained **Polytron** additive package, then the oil was totally drained out of the engine. The engine was left running at 50% load for 25 minutes. Under regular circumstances, the engine would have seized in 1-1.5 minutes, but with **Polytron** additive package, the engine continued running for the entire 25 minutes with no observable problems.

Polytron MTC



POLYTRON MTC (Metal Treatment Concentrate): since it is POLARIZED it is attracted to metal surfaces and through metallurgical process forms (from the original metal) a durable polished-like micro - layer of metal that **dramatically resists wear, extreme pressure and excessive temperature**. Metal surfaces remain treated at all times, which provides immediate start-up lubrication. Friction is substantially reduced and wear is eliminated up to 95%, which results in maximum equipment life, performance and oil and fuel economy.

Polytron MTC is compatible with all motor oils, gear oils, transmission fluids and other lubricants.

Polytron MTC contributes to reduction in noise level and to lower operating temperature. May restore up to 95% of engine's original compression.

POLYTRON MTC is an excellent dispersant which dissolves any existing deposit buildup and holds sludge harmlessly in suspension while preventing the deposition of varnish and lacquer on engine parts in severe service. Oil filter life is improved and the PCV (Positive Crankcase Ventilation) valve remains free and clean. This quality also contributes to longer engine life and fuel economy. 10% **POLYTRON MTC** will ensure complete clean-up of the engine from carbon deposits, sludge, and varnish, thereby ensuring very clean and smooth engine operation.

Elimination of wear and deposit build-up results in 4-7 times extended oil change intervals .

In most applications Polytron MTC contributes to up to 60% reduction of direct expenses and maintenance costs

Direct Benefits Resulting From Use of Polytron MTC

- * Eliminates up to 99% of engine/ equipment wear
- * Extends maintenance intervals 4 - 7 times
- * Keeps the engine / equipment parts completely clean
- * Lowers operating temperature and noise level
- * Protects engine / equipment across wider range of temperatures
- * Provides temporary Protection to engines / equipment in the event of lubricant loss.

Today's Most Technologically Advanced Additive Package for Motor Oils and other lubricants



RECOMMENDED FOR:

- Motor oils - Transmission fluids
- Hydraulic oils - Compressor oils
- Arbor and form oils - Way oils
- CP oils - Gear lubes - Cutting oils.

GENERAL APPLICATIONS

Internal combustion engines and Diesel engines: cars, trucks, rail road, marine etc. - Automatic and manual transmissions - Differentials and gearboxes. - Bearings and bearing journals. - Power steering units - Pumps - Air compressors - Cooling systems - Hydraulic power systems in heavy duty off road equipment and Farming machinery - Mining and smelter equipment - Railroad equipment - Oil and water wells Drilling equipment - Machine shops equipment : Grinding, drilling, milling, etc. - Air tools - Marine light and Heavy Duty Vessels.

DIRECTIONS

1. In Gasoline or Diesel engines, add one 16 oz bottle to a standard 4 to 5 -qt crankcase, or approx. 10% by volume to any larger crankcase during an oil change. If used for the first time , apply it at least 200 miles before the next oil change, then apply it again in the next oil change. If oil change intervals are as per the car manufacturer's instructions, apply MTC every other oil change. In "extended oil change intervals, (20,000 to 50,000 miles) add MTC every oil change.
2. Automatic Transmission Fluid: add 5%
3. Manual Transmission Fluid: add 10%
4. Hydraulic Systems: add 5%
6. Gear Boxes: add 10%
7. Bearing Journals: add 10%

POLYTRON MTC USER REFERENCES

POLYTRON MTC - USER REFERENCE # 1

Application: Additive package for motor oil.
User: Transit-cab company in California.

Reference letter written by the Maintenance Manager.

"As you know, we have been incurring serious maintenance problems with our fleet of 200 transit-cab vehicles. On average, we have had 13 cabs per day in for an engine overhaul or replacement.

The down time, parts, and labor costs have been excessive. In an effort to reduce these costs we began to experiment with various motor oils and oil additive packages with the purpose of reducing wear and improving performance, but with not much success. We still had an average of 13 cabs down each day.

We then tested your **Polytron MTC** in nine of our units. To say the least we are quite pleased with the results. Before adding **Polytron MTC**, the compression reading of each vehicle was taken and found to be between 90 and 150. All had engines with problems or expected to have a maintenance problem in a short time, with poor performance and fuel consumption.

The cabs were treated with **Polytron MTC** according to instructions and road-tested for two days with the following results:

1. Compression readings ranged between 149 and 154 (Note, 154 is equivalent to that expected from a brand new engine).
2. Increased power and performance were reported by the drivers.
3. The **Polytron MTC** treated cabs ran quieter and smoother.
4. The average operating temperature was reduced by 20 degrees (190 to 170).
5. Drivers reported mileage improvement.
6. An engine treated with **Polytron MTC** was disassembled and inspected. It was found clean, had no build-up, and the surfaces appeared to be polished.

"As a result of all of the above, we are now using your product in our entire fleet."

Since using **Polytron MTC** we haven't had one engine go down. When considering these vehicles are driven an average of 500 miles per day , under the most severe of conditions, the results are nothing less than remarkable. Within the first 6 weeks of using **Polytron MTC**, on the average we had only one vehicle in the repair shop per day.

After several months we have inspected 5 engines. The following pictures demonstrate the dramatic effect **Polytron** had on our vehicles. The pictures were taken from the same engines before we started using **Polytron** (pictures on the left), and after using **Polytron** for several months.

POLYTRON MTC APPLICATIONS

As an additive package to Single Grade motor oils and Multigrade heavy duty Motor Oils that meet and exceed industry API Service Classification SM , CI-4 (add 10% in volume);

SAE 10W, 20W, 30W, 40W, 50W, 5W-30, 5W-20, 10W-30, 10W-40, 15W-40, 20W-40, 20W-50, etc.

Used in*Farm Machinery *Construction Equipment *Other off-highway applications *Heavy Duty and Light Diesel Trucks *Diesel / Gasoline Engines for Passenger Cars *Pumps *Diesel / Gasoline motor driven Electrical Generators *Diesel Marine Engines (such as Sulzer, Baldwin and ALCO *Mining Equipment *Two-Cycle Engines *Torque Converters *Forestry Equipment *Forestry Equipment AND MANY MORE NORMAL AND SEVERE SERVICE APPLICATIONS.

As an Additive Package to Manual / Automatic Transmissions and Torque Fluids (Manual Transmission: add 10% by volume, Automatic: add 5%), in light and heavy duty Applications. Under Ford Specifications M2c33-F and M2C138-CJ. General Motors DEXRON-III, FORD MERCON, Diamler-Benz, Allison C4 Fluid and VOIT DIWA Transmissions, for use in passenger cars and light trucks. Fluids meeting Caterpillar TO-4, TO-2 or Ellison C4. All in heavy duty applications. Torque Fluids for use in Allison Powershift transmissions, Torque converters requiring Allison Type C4 Fluid.

Heavy duty truck and tractor automatic transmissions, meeting requirement of AGCO, John Deer J20C, Ford New Holland, ESN-M2C134-D, FNHA-2-C-201, Massey Ferguson M1135, M1141, M1129A, White Farm Equipment, Q-1826, Case Corporation, JIC-145, MS 1207, Oliver Type 55. Minneapolis-Moline Fluids, Renk, Bus Automatic Transmission Fluids, Allison C4.

As an Additive Package to Tractor Hydraulic Fluids meeting requirement of AGCO, John Deer J20C, Ford New Holland, ESN-M2C134-D, FNHA-2-C-201, Massey Ferguson M1135, M1141, M1129A, White Farm Equipment, Q-1826, Case Corporation, JIC-145, MS 1207, Oliver Type 55. Minneapolis-Moline Fluids, Renk, Bus Automatic Transmission Fluids, Allison C4.

*** As an Additive Package to Industrial Oils (add 10% by volume)**

Mineral / synthetic Compressor Oils (ISO 32, 68, 100) for:

Portable and stationary rotary vane and screw compressors - single stage, two stage, and multistage reciprocating from, but not limited to, Ingersoll-Rend, Quincy, Sullair, Atlas Copco and Gardner-Denver.

Way Oils (add 10% by volume) for: lathers, planer, Shapers, drilling and tapping machines, enclosed gears, industrial plain and antifrictional bearings, chain drives.

Chain Bar Oils for: chainsaws with either hand operated or automatic chain oilers to lubricate the chain, bar and sprocket.

Chain drives on:

straddle lift lumber carrier, motorcycle chain, lawnmowers, farm equipment.

Machine Oils (add 10% by volume): Reduction gears, reciprocating air compressors, plain and antifrictional bearings, electric motor bearings, air compressors, high speed gears.

Gear Oils: Rear axles, differentials, spiral bevel, power dividers, steering axle wheel bearings, open gears, wire ropes and cables, All the grades providing lubrication for mining equipment, metalworking cutting fluids and oils (add 10%-20% by volume) resulting in much lower tool wear, much smoother surface finish, prevention of welding (sticking to cutting tools) in ferrous and non-ferrous metals (especially aluminum).

Direct Benefits resulting from use of Polytron MTC:

ELIMINATES UP TO 95% OF ENGINE / EQUIPMENT WEAR;

EXTENDS MAINTENANCE INTERVALS 4 - 7 TIMES;

CONSIDERABLY LOWERS OIL AND FUEL CONSUMPTION;

KEEPS ENGINE / EQUIPMENT PARTS COMPLETELY CLEAN;

LOWERS OPERATING TEMPERATURE AND NOISE LEVEL;

PROTECTS ENGINE / EQUIPMENT ACROSS WIDER RANGE OF

TEMPERATURES; PROTECTS ENGINES / EQUIPMENT IN THE

EVENT OF LUBRICANT LOSS.



We always found Sludge and carbon buildup on cylinder walls of all our vehicle-engines before we started using POLYTRON MTC



With POLYTRON MTC, the cylinder walls are always clean from any buildup and look highly polished



Heavy carbon deposit on a piston top, and around piston rings, which caused the rings to "freeze" and even break.



The typical condition of pistons and piston rings after we started using Polytron products with extended oil change intervals from every 2,000 miles to every 10,000 miles.

We had one vehicle loose all its oil at LAX. The driver was unaware of the situation because the oil pressure light was not working. He drove back to our Van Nuys facility without incident. Our mechanic after noticing that there was some oil dripping, found that the oil pan was slashed and there was no oil. The pan was replaced, new oil installed and the engine started right up. This vehicle is still in daily operation. " If it hadn't been for POLYTRON the engine would have seized up and we would have to overhaul it.

Application: Air Tools lubrication. User: Steel Casting Facility in Indiana State. (reference letter written by the company's V.P.)

The decision was made to mix POLYTRON MTC with our industrial oil and fill all of our air tool oilers and measure the effect on repair. The amazing results below show very gratifying savings.

Without POLYTRON MTC: For six months of 1996, January to June 30th cost of spare parts for air tools was:	\$862.00 per month
Labor for repair:	\$1,506.00 per month
TOTAL:	\$2,368.00 per month
	or \$28,416.00 per year

With POLYTRON MTC: There has been no maintenance performed other than filling the oilers. Taking into consideration the cost of Polytron MTC that was used per year, the savings for the year was \$25,300.

Application: Air Compressors lubrication.

User: Steel Casting Facility in Indiana State.

(reference letter written by the company's V.P.)

Without POLYTRON MTC: The oil temperature of PAC 250 screw compressor was running 192° F and its air up to 240° and than shutting off. We had the air and the oil coolers of the compressor serviced, but it continued to automatically shut off approximately every one and a half hours. The compressor holds 180 quarts of premium oil to the full mark, priced at \$7.08 (no space)per quart (so the cost of an oil change was \$1,274.40). We were changing the oil very often to reduce the down time.

With POLYTRON MTC: We replaced the premium oil with a mixture of industrial oil (165 quarts, \$0.88 per quart) blended with approximately 8% of POLYTRON MTC (15 quarts). The total cost of the replacing mixture of the industrial oil and POLYTRON MTC was \$450.00 .

The oil temperature was reduced from 192°F to 160° F and the air temperature was reduced from 240°F to 200°F , and no more shut downs. occurred. Since the industrial oil and POLYTRON MTC mixture lasted 15 times longer before we changed it, the savings on the loan alone was more than \$19,000, in addition to the considerable savings as a result of almost complete elimination of downtime.

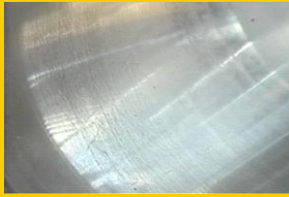
POLYTRON MTC - USER REFERENCE # 4

Reference letter written by a General Manager of a quarry.

This 1000 KVA Cummins Generator driven by 1,800 horse power engine was in service for more than 30,000 hours. According to the manufacturer's instructions, oil and oil-filters had to be replaced every 250 hours. We started using **Polytron** after the generator was in service for about 5,000 hours. Within a very short time of using **Polytron** MTC and Fuel Conditioner, we experienced an average of 10% reduction in fuel consumption. Based on used oil analysis we decided to extend the oil change intervals to every 1,000 hours and then to every 1,500 hours. Typically, this type of engine is overhauled after 17,000 hours in operation. In this specific case the engine was taken apart after 30,000 hours not because it had to be overhauled but because of penetration of water into its oil system. In spite of the water, there was no indication whatsoever that the engine was deteriorating in performance. Nevertheless, after 100 hours in operation with water presence in the oil system, the general manager of the quarry decided to take the engine apart. "I have seen too many times what presence of water in the oil system can do to an engine, I don't want to stretch my luck" was his answer when **Polytron** distributor told him not to worry. The general manager of the quarry was very impressed when he was told by the head mechanic in the repair shop that the engine parts looked new and that he thought that there must have been a mistake in the paperwork, because the condition of the engine parts didn't have any indication whatsoever that the engine was in operation for 30,000 hours or water penetrated the oil system. The Quarry manager was so impressed by the findings that he decided to invite the local distributor and the US manufacturer to produce a video-tape of the engine parts to use as a reference with his high recommendation for **Polytron** products. The engine was put together without replacing or machining any parts. According to our most conservative estimate, over 30,000 hours that the generator was in operation, the user saved at least \$150,000 on repairs, fuel and oil consumption. And spent only \$7,690 on **Polytron** products, a return of approximately \$20 on each dollar invested in **Polytron**.... "



All the liners were micro-measured. There was no wear whatsoever, all the dimensions were within the manufacture's specs of a new engine.



In all the liners you could see distinct traces of the cross-honing pattern of the original bore, and the liner surfaces looked "polished-like" and shiny.



After 30,000 hours in operation and 100 hours in the presence of water, all the piston pins didn't have any traces of wear, looked polished-like and new.



After 30,000 hours in operation and 100 hours in the presence of water, all piston pin bearings didn't have any wear and looked like new.



All the pistons had piston skirts and piston rings totally clean of any build-up. The rings looked like new and didn't have any wear.



After 30,000 hours in operation and 100 hours in presence of water, all the connecting-rod bearings didn't have any traces of wear, maintained their full thickness and their coating. They looked like new.



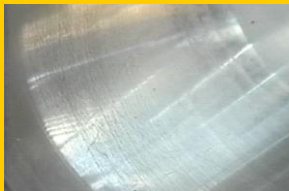
We micro-measured the crankshaft and found it to be in great condition. Totally round, no traces of wear. It didn't need any machining.



Crankshaft Main Bearings looked like new, there were no traces of wear. They maintained their original coating. Usually after 17,000 hours they are chewed up. In this engine we used **Polytron**, there was almost no wear at all after 30,000 hours.



Cylinder liner from a 16,000 hours old engine (without **Polytron** MTC) scuffed and scored.



Cylinder liner from our 30,000 hours old engine with **Polytron** MTC totally clean with almost no wear at all.



Piston-rod bearing from 16,000 hours old engine, (without **Polytron** MTC) chewed up as a result of wear.



Piston-rod bearing from our 30,000 hours old engine with **Polytron** MTC totally clean with almost no wear at all.

POLYTRON FORMULA 2-6-8

Today's Most Technologically Advanced **Power Steering-Differential-Transmission** treatment formula



Formula 2-6-8 has identical characteristics and features to those of **POLYTRON** MTC, but is conveniently packaged for use in power steering units (add 2 oz), differentials (add 6 oz) and transmissions (add 8 oz) of passenger cars, SUVs and pickup trucks

DIRECTIONS

Power -Steering: While the engine is running, add 2 oz of **FORMULA 2-6-8** to the Power-Steering fluid container. If the container is full, take out 2 oz of the fluid and then add **FORMULA 2-6-8**.

Differential: If your vehicle's Differential can be serviced use help of you repair shop to add 6 oz of **FORMULA 2-6-8** to the Differential fluid. If the Differential cannot be serviced (has a sealed system) you can use the remaining 6 oz for future service of the Transmission.

Transmission: While the engine is running add 8 oz of **FORMULA 2-6-8** to the transmission fluid.

SYNTHETIC MOTOR OILS

In passenger cars, light and heavy duty-trucks

POLYTRON Synthetic Motor Oils:

- * Eliminate up to 95% of engine wear.
- * Reduce engine operating temperature and noise level.
- * Eliminate any build-up and keep engine completely clean.
- * In the event of oil or coolant loss, engines may be protected for limited number of miles under reasonable driving conditions.
- * Restore compression (the compression may go up even in new cars).
- * Contribute to cleaner emission gases.
- * Their performance does not deteriorate in severe operating conditions of dust, dirt and moisture.
- * Extend oil change intervals 4 to 7 times
- * Contribute to fuel and oil economy.

In addition to a standard additive package that is used in typical synthetic motor oils, Polytron Synthetic Motor oils Contain Polytron "Metal Treatment Concentrate" (MTC), a complementary additive package, which is a break through in micro-lubrication technology. Under heat and pressure, MTC additive package converts metallic friction surfaces into wear-resisting, "smooth" surfaces resulting in much lower friction and much longer wear-life. This technology combined with fully synthetic motor oil, contributes greatly to slower oil oxidation and much lower concentration of wear and combustion contaminants, resulting in much longer service intervals compared to other synthetic motor oils on the market today.

Over the last 13 years that the products were on the market, many commercial heavy duty vehicles (like trucks, cabs etc.) have accumulated more than 2'500'000 km without breakdown and overhaul, with oil change intervals of 50'000 to 80'000 km and more and 4 to 7 times longer service intervals in engines of stationary equipment like electrical generators, pumps, etc., and heavy duty equipment in earth moving and mining operations.

*** 15W-40, 10W-40 Polytron Synthetic Motor Oils**

Exceed API Service Classification CJ-4/SL, European ACEA E7 and Asian JASO DH-1, and are highly recommended for diesel engines using high sulfur fuels.

- * Also recommended for use as "long drain" motor oils. Especially cost effective when used in conjunction with an effective used oil analysis program.
- * Exceeds requirements of Caterpillar.
- * Exceeds Mack EO-K/2 Specifications
- * Exceeds service requirements for Cummins and Detroit Diesel engines and other engine manufacturers
- * Recommended for all turbo-charged engines.
- * **Not recommended in engines with silver bearings.**

Recommended for the following Gasoline and Diesel Engines:

Caterpillar, Cummins, Fiat-Allis, Ford, GMC, Isuzu, John Deere, Mack, M.A.N., Mercedes-Benz, Mitsubishi, Scania, Volvo, DAF, DaimlerChrysler, Detroit Diesel, Deutz, Fiat / Allis, Hino, Isuzu, Iveco, J.I. Case, Komatsu, Kubota, MTU, Navistar, Nissan, Renault and others.

Applications:

Heavy Duty Trucks, Busses, Electrical generators, Earth Moving Equipment, Pumps, Off Road Equipment, Farming Machinery, Mining and Smelter Equipment, Rail Road and many more. Equipment operating under severe service and wide range of climatic conditions.

End User Benefits:

- * Saving on oil consumption due to extended oil drain intervals, and on fuel due to smoother and cleaner engine operation.
- * Life Span of engines is dramatically extended deferring for years the cost of investing in overhaul or in purchasing new equipment.
- * Can be used in older engines, as well as in today's most modern low emission new engines.
- * **Savings on fuel, oil, much less down time on repairs and extended life span combines to savings of up to 60% in operating costs.**

Typical Inspections

GRADE, SAE	15W-40	10W-40
Specific Gravity (15.5 ⁰ C)	0.88	0.87
Pour Point (⁰ C)	-35	-35
Flash Point (⁰ C)	232	227
Viscosity:		
cSt @ 40 ⁰ C	80.8	93
cSt @ 100 ⁰ C	14.7	14
CCS @ -25 ⁰ C	5000	6000
Viscosity Index	169	170
Ash, wt %	1.0	1.0
TBN, D-2896	9.1	9.1

*** 10W-40 Polytron Semi-Synthetic Motor Oil**

Same features like 10W-40 Polytron Synthetic Motor Oil but for shorter oil drain intervals. Many end users have experienced extended oil drain intervals of up to 30'000 km (18,000 miles) or more.

Typical Inspections

GRADE	10W40
Specific Gravity (15.5 ⁰ C)	0.87
Flash Point (⁰ C)	227
Pour Point (⁰ C)	-35
Viscosity:	
cSt @ 40 ⁰ C	99
cSt @ 100 ⁰ C	15.40
CCS @ -25 ⁰ C	5500
Viscosity Index	140
Ash, wt %	1.0
TBN	9

* 10W-30, 5W-40 **Polytron** Synthetic Motor Oils

These Fully Synthetic motor oils contain our complementary MTC additive package that contributes to their outstanding performance track record.

They are Designed to meet the latest car manufacturers warranty requirements and the demands of the small displacement high RPM fuel efficient engines found in today's domestic and foreign automobiles. These engines experience higher operating temperatures and require a motor oil which offers maximum protection against both viscosity and thermal breakdown. Formulated mainly for use in passenger cars and light duty trucks with diesel and gasoline engines where SAE 10W-30 and 5W-40 are recommended by the manufacturers.

LIGHT VEHICLES

- * Exceed API service requirements SM.
- * Extend oil drain intervals.
- * Eliminate up to 95% of engine wear
- * May triple or quadruple engine life span.
- * Reduce engine operating temperature.
- * Contribute greatly to fuel and oil economy.

Over the last 13 years that the products were on the market, many commercial light vehicles (like taxi cabs) have accumulation more than 1'600'000 km without breakdown and overhaul, with oil change intervals of 50'000 to 80'000 km and more.

Packages :

1 – Lit (1.057 Qt) plastic bottles
4 – Lit (1.057 Gal) plastic bottles
208 – Lit (55 Gal) steel drums

Recommended for the following Gasoline and Diesel engines:

Ford, GMC, Isuzu, Mercedes-Benz, Mitsubishi, Volvo, Toyota and other light duty engines.

Also recommended for all turbo-charged light duty engines.

Typical Inspections

GRADE, SAE	10W-30	5W-40
Specific Gravity (15.5°C)	0.876	0.868
Flash Point (°C)	232	232
Pour Point (°C)	-42	-43
Viscosity:		
cSt @ 40 °C	95.1	89.70
cSt @ 100 °C	14.00	14.10
CCS @ -30 °C	6000	6600
Viscosity Index	160	172
Ash, wt %	1.0	1.0
TBN, D-2896	9.1	6.5



POLYTRON PL



Today's Most Technologically Advanced Penetrating Lubricant



POLYTRON Ultra Performance

PENETRATING LUBRICANT (PL) contains POLYTRON MTC and is scientifically blended to be the most effective whenever rust, corrosion, or drag is a factor. POLYTRON PL not only penetrates through extreme rust and corrosion, but also treats the metal surface to reduce friction and eliminate wear. Use of this product provides for long lasting, smooth operation of any metal mechanism. The number of applications and benefits far exceeds those of any other known product (POLYTRON PL is 20 times longer lasting and more effective than WD-40).

POLYTRON PL can be used for anything from the simplest home needs to the most severe industrial applications. It is highly recommended for general machine shop work like drilling and tapping.

POLYTRON PL main features: (should be bold)

- Fast penetration: breaks down rust and corrosion, speeds up drilling and tapping
- Cutting edges of cutting **tools** stay sharp considerably longer, and the surface finish is much smoother and cleaner
- Reduces power consumption when used as lubricant
- Reduces noise and temperature
- Eliminates wear
- Lubricates and protects as it penetrates
- Cleans and retards electrical corrosion
- Allows much longer maintenance intervals than other leading penetrating lubricants (20 times longer than WD-40)

Very effective moisture repellant
(make the whole list look the same)

GENERAL APPLICATIONS

- Sliding doors and windows, hinges and locks
- Valves and chains, bolts and screws, screw jacks
- Bicycles and motorcycles
- Electric terminals, electric and air tools
- Drill bits and taps
- Hunting and fishing equipment
- Battery electrical poles
- Valves and faucets
- Slides, guides, ways, screw, cams, racks pinion sets
- Moving parts of conveyors and electrical motors

**ANY APPLICATION WHERE WD-40 IS USED
POLYTRON PL is at least 20 times longer lasting
and more effective**

Polytron PL is very effective at machining ferrous and non ferrous metals resulting in following benefits: 3 -to 4 times lower tool wear, much smoother surface finish, prevents welding (metal sticking to cutting tools).

USER REFERENCE #1

Application: Polytron Penetrating Lubricant in plant machinery (Orimpers 6 WB and others)
User: Automotive Division/ALCOA FUJIKURA LTD
(production facility in San Antonio, Texas)

(Reference letter written by the Maintenance Manager)

" My responsibility here at Alcoa Fujikura is primarily to make sure all our equipment is operating efficiently. Our main client is Ford Motor Company, and we cannot afford costly down time.

Toyojumko makes a machine called Orimper 6 WB that we use in our plants. Our maintenance personel usually treated some parts of the production machines with WD-40 after about one week's worth of operation. We used Polytron Penetrating Lubricant and the results were incredible. Lubrication was done after 4 weeks. We were impressed that Polytron Penetrating Lubricant did not break down for such a long time, causing much less production down time. We also used Polytron EP-2 Grease throughout the plant with too many success stories to recount here".

Maintenance Manager,
Alcoa-Fuji-Kura.

USER REFERENCE #2

Application: Machine Shop – machining of aluminum and steel alloys.
User: Machine Shop in State of Florida.

(Reference letter written by company's Vice President)

a. Swiss Precision Parts.

Operation - Special Grooving O.D.; Material - 52100 Die Tool Steel; Coolant - Oil
Requirements - Must hold tolerance of 0.0002 in on diameter and 64 microns in on finish. Customer usually maintained these parameters for 1 shift - 8 hours - 2'200 pcs. After applying a few drops of Polytron Penetrating Lubricant on the cutting edge of the Carbide tip, we cut metal and held all parameters for 2.5 shifts - 20 hours - 7800 pcs +.

b. Aluminum Brake Piston Parts.

Material - Cast Aluminum. Operation – Drilling. Tool used - #64 drill, tin coated. With coolant customer normally ran 2'800 to 36'00 holes before the drill would dull. After spraying the drill with Polytron Penetrating Lubricant, 8600 holes were drilled without using coolant. Now Polytron Penetrating Lubricant is used on all drilling, tapping and turning.

c. Aluminum Rails for Packing Conveyor.

Operation – Side Milling. Part – 86" long. Problem – excessive buildup on tool. Operator would have to stop every 12" to 18" to "knock off" or remove material that welded or galled to the cutting tool. After spraying Polytron Penetrating Lubricant on end mill, the operator machined 4 pcs (total of 344 inches) with minimal buildup and also a 30% increase in production.

USER REFERENCE #3

Application: Polytron Penetrating Lubricant on Yachts
User: Yachts Renting Company in Florida

Reference letter written by Maintenance Manager of the company



" These are some of the expensive yachts that we rent out. Any down time due to maintenance results in considerable revenue loss. As you well know, moisture and salt water are tough on all sorts of equipment used in and on a yacht. When we started spraying various equipment parts with POLYTRON Penetrating Lubricant, our maintenance cost went drastically down. We would recommend the use of POLYTRON Penetrating Lubricant to anyone.

Polytron EP-2 Grease

Today's Most Technologically Advanced Grease



GENERAL:

POLYTRON Ultra Performance EP-2 Lithium Complex Grease is a superior quality, multi purpose, wide temperature-range lubricant. It is made with lithium complex soap, quality base oils and POLYTRON's scientifically engineered anti-wear friction reducing formula with other additives to contribute to its outstanding qualities of water resistance and anti rust / corrosion protection. It may also be used in electric motors of NEMA insulation class A and B types.

Description:

POLYTRON EP-2 Grease is usable over wide range of temperatures and it does not soften excessively during high speed operation in rolling contact bearings. It also forms a good seal, which minimizes bearing contamination.

POLYTRON EP-2 Grease, because of its outstanding properties, is a truly superior performing, multi-purpose grease. Its track record indicates that its use reduces equipment maintenance frequency and equipment downtime 4 - 7 times. In addition it eliminates up to 95% wear of bearings and other parts. **This results in considerably longer equipment life and significant reduction in maintenance costs in non extreme and extreme operating conditions. It also reduces energy consumption.**

Polytron EP-2 Lithium Complex Grease protects equipment temporarily in the event of loss of grease or failure of the pumping system.

GENERAL APPLICATIONS

Curve Lubrication. Lubrication of contact areas between wheel flanges of locomotives and railroad cars and railroad tracks using automatic rail curve lubricators.

Excellent lubricant for: slides, guides, ways, chains, screws, cams, racks, pinion sets in sawmills, plywood presses and chain tracks.

Automotive and industrial equipment operating under severe service and wide range of operating temperatures, such as:

mining equipment, construction equipment, material handling equipment, marine deck equipment, marine deck cranes, oil fields equipment.

APPLICATIONS (continued)

- rock quarry equipment (jaw crushers)
- truck fleets – track roller bearings on all “tracked” type tractors like Caterpillar and Navistar.
- rotary drill collar threads and drill pipe threads.
- fifth wheels, king pins, wheel bearings, steering system bearings, and all chassis points including ball joints and universal joints, journal bearings and low and moderate speed antifriction bearings in construction equipment such as bulldozers, scrapers, loaders and shovels.
- roller chains, trunnions, gear, cables, sheaves, slides, chassis bearings, conveyor bearings, sliding and rubbing surfaces, kiln car bearings, heavy loaded pivot pins, splinted shafts, or other surfaces subjected to sliding, vibration, or oscillation where fretting is encountered.

More specific applications include lubrication of:

- steering drag links transmission cross shaft spring pins
- shackle pins - brake cam shafts - fifth wheel faceplates and pivots operating under wide range of temperatures
- water pumps operating in water, mud or dusty conditions.
- as a life pack lubricant of automotive generators, alternators, and starters to protect against effects of moisture and road splash; bearings on air-conditioning units in buildings; unsealed electric motor bearings operating under moist conditions; applications, where silent operations are called for; antifriction bearings operating at high speeds.

USER REFERENCE



General Manager of a Quarry for production of construction Stones and materials.

“We have been using POLYTRON EP-2 Grease for 7 years now and I cannot say enough about its outstanding performance. Before POLYTRON was introduced to us we had to “grease” our heavy duty equipment once a week. Now with POLYTRON EP-2 Grease we have to do it every 4 weeks,

in addition to dramatic reduction in breakdowns (that were caused by harsh conditions of heat, moisture and abrasive dust). 4 times longer maintenance intervals and considerable reduction in breakdowns and repairs combined to about 1.5 million dollars savings in annual maintenance cost. This is not taking into consideration the extended life of the equipment. I would recommend POLYTRON Grease to anyone...”



“These Jaw-Crushers contain two very large, heavy duty bearings that we had to replace every 6 months. The cost of replacing them is \$7,500 each. Now we replace these bearings every three years on average, that translates to tens of thousands of dollars in savings. This is only one example out of many where POLYTRON Grease made a big difference. We use POLYTRON Grease throughout the quarry with too many success stories to recount here”.

Polytron Gasoline / Diesel Fuel Conditioner



Polytron Ultra Performance Gasoline/Diesel Fuel Conditioner (GDFC) is scientifically designed for much cleaner and more efficient fuel combustion. It also cleans and lubricates the working parts of the fuel system and the upper part of the engine. POLYTRON GDFC dissolves and removes carbon deposits and prevents future harmful build-up. POLYTRON GDFC improves mileage and overall engine performance.

POLYTRON GDFC cleans the entire fuel system, including injectors, intake valves, ports, valve seats and combustion chamber. When used regularly, exhaust pollutants are reduced considerably. POLYTRON GDFC extends the effective life of diesel fuel held in storage tanks and can be used with any gasoline or diesel fuel.

MAIN CHARACTERISTICS

- Maximizes mileage & performance
- Maximizes power & compression
- Cleans entire fuel system including injectors, intake valves, ports, valve seats and combustion chamber.
- Provides quicker starting in cold weather.
- Provides lubrication to moving parts of combustion system.
- Removes water in fuel tank and lines.
- Neutralizes poor quality fuel
- it is fully compatible with diesel and gasoline fuels and fuel oils.

**For best results use it together
with POLYTRON MTC or Polytron motor oils**

Contributes to much cleaner emissions.



Today's Most Technologically Advanced Fuel Conditioner

GENERAL APPLICATIONS

All Diesel and Gasoline engines in:

- * passenger cars
- * SUVs and pickup trucks
- * heavy duty trucks
- * tractors
- * irrigation systems
- * pumps
- * oil field equipment
- * marine vessels
- * railroad AND MANY MORE applications...

DIRECTION

DIRECTIONS:

For regular use, add two (2) ounces to every fifteen (15) gallons of gasoline or diesel fuel.

In two-cycle engines add two (2) ounces to every ten (10) gallons of fuel before blending with oil.

In Large Engines and Boiler Systems, first time apply 1 gallon of GDFC to each 1,000 gallons of fuel to accelerate the cleanup of the fuel system and reduction of exhaust emissions. Then apply 1 gallon of GDFC to each 2,000 (or even 3,000) gallons of fuel to maintain the fuel system.

USER REFERENCE #1

User: Used Cars Wholesale Company in California.

(Letter written by the general manager of the company).

"The results of using Polytron Fuel conditioner and Polytron MTC are nothing short of outstanding. In most of cars that had excessive emissions and smoke problems we have eliminated or considerably reduced them by just using Polytron Fuel conditioner or in some cases together with Polytron MTC. The following video stills represent a video footage of an exhaust of a car that was heavily smoking, and we were sure that we had to overhaul the engine in order to fix the problem. But to our amazement after applying Polytron Fuel Conditioner together with Polytron MTC the smoke disappeared within few minutes. I have never seen such a powerful combination of products."



This time-lapse photography shows how the amount of smoke coming out of an exhaust of the above referenced vehicle is reduced almost to nothing within only few minutes of adding POLYTRON GDFC and POLYTRON MTC.

USER REFERENCE #2

Application: Mileage Improvement in passenger cars.
User: Used Cars dealership in Florida.

(Reference letter written by the dealership's General Manager).

"The following table is representative of a major difference that the use of POLYTRON GDFC and POLYTRON MTC makes in fuel consumption.

1991 Lincoln Town Car – July 1995

Trip <u>without</u> Polytron		
Miles Traveled	Fuel Used (Gal)	Miles per Gallon
272.20	12.20	22.30

Trip <u>with</u> Polytron GDFC+MTC			
Miles Traveled	Fuel Used (Gal)	Miles per Gallon	Improvement
284.3	11.30	25.10	12.5%
401.60	14.70	27.30	22%
309.20	10.8	28.60	28.2%
306.10	10.20	30.00	34.5%

The performance gets better and better with mileage until it reaches peak performance.

POLYTRON MTC Performance comparison tests based on "Used Oil Analysis"

Dear potential customer:

In recent years "Used Oil Analysis" became a part of preventive maintenance program of many commercial and industrial entities like power plants, manufacturing plants, trucking companies, cab companies, construction equipment companies, etc.

What is "Used Oil Analysis?"

A sample of used oil is taken out of an engine (transmission, or other equipment) while it is warm and is put in a special analyzer that analyzes the oil for the following data.

1. Concentration of wear metals (in units of parts per million, ppm, by weight).

Why concentration of metals? Different components within an engine, transmission or equipment are made of different metal alloys. For example, some engines may have bearings that are made of alloys containing copper, chromium and lead all combined. Every such component has a normal amount of wear which is accumulated over time from a statistical data of used oil analysis for that specific equipment. When used oil analysis indicates higher concentration of these metals than expected in specific make and model of the equipment under test, this may be indicative of a beginning of mechanical problem that most of the time can be fixed easily before a catastrophic failure and irreversible damage occurs, thus saving thousands of dollars on unnecessary repairs and downtime.

2. a. Viscosity: a parameter which indicates the condition of a fluid as a lubricant.

b. Viscosity Index: a parameter that indicates how well a lubricant behaves in certain range of temperatures.

The lower the Viscosity and Viscosity Index compared to these parameters in new oil, the more the oil deteriorates in performance as a lubricant. This deterioration is caused by combustion gases that penetrate the oil system, metal particles that get into the oil as a result of the wear process, and shear and thermal breakdown of the oil.

3. TBN (Total Base Number): indicates the extent of motor oil oxidation (the lower the TBN the less ability it has to neutralize acidic compounds and more likely to be corrosive). The acidic compounds are caused by combustion gases that penetrate the oil system and metal particles that get into the oil as a result of wear process. When the TBN number is lower than 2 it is recommended to replace the oil.

4. Other chemicals that indicate specific engine problems (like penetration of coolant into the oil system, penetration of fuel, penetration of dust through air system, etc.)

This tested data is compared to a data base of test results that were accumulated over the years for the specific equipment (model and make) the condition of which we want to establish.

How can used oil analysis can help you see the difference in performance between lubricants that contain Polytron MTC additive package and those which do not?

1. Right before the a normal oil change, take a sample of used oil from the engine under test and submit it to a laboratory for a "Used Oil Analysis" in order to get "Base Line" results (make sure that the sample is taken from midstream while the engine is still warm) together with the following information: a. Manufacturer name, model and year make of the equipment. b. Miles / hours of the oil in operation. c. Hours/miles of the equipment in operation (from the date of purchase to the date of submission of the used oil for analysis. Together with the used oil sample also submit a sample of original clean oil to be analyzed as a reference, because there are some elements that are part of an additive package of motor oil that have to be counted out when interpreting the test results..

2. Change the oil and add to the new oil 10% of Polytron MTC (or use Polytron motor oil). After 500 to 600 miles change the oil and oil filter again and add 10% Polytron MTC (or use Polytron motor oil). The reason why we recommend to do that is as follows:
Since Polytron MTC has very powerful cleaning ability, it dissolves all the build-up on the engine parts and suspends it into the oil.

Since the build-up contains wear metal, when Polytron MTC is used for the first time, oil analysis most likely shows sharp increase in concentration of wear metals, which may be wrongly interpreted as excessive wear due to use of Polytron MTC. The older the engine the longer the clean-up process takes.

At the end of the cleaning process your equipment is ready for a comparison test.

3. After the cleanup stage referenced above, replace the dirty oil with clean oil (same make of oil that was used before) and add 10% Polytron MTC by volume.

4. Every 5,000 miles, take a sample of used oil (in stationary large generators, take sample every 250 hours) for used oil analysis and compare the test results to the "Base Line" test results referenced above. If the tests show considerable reduction in concentration of wear metals and no indication of engine problems, you can increase the oil change intervals and lower the frequency of used oil tests.

Expected Results

1. 4 - 7 times lower concentration of metals (which means at least 4 - 7 times reduction in wear).
2. Viscosity, Viscosity Index and TBN are maintained at their acceptable level 4 - 7 time longer, which means that the oil can serve 4 - 7 times longer, extending maintenance intervals 4 to 7 times.
3. Lower fuel and oil consumption (based on records prior to using **Polytron**).

Comments on expected test results.

Why 4 - 7 times lower concentration of wear metals ?

Polytron MTC penetrates the metal structure at its friction surface and converts a very thin layer of original metal into a much harder metal that wears out 4 - 7 times slower. Thus "used oil analysis" will show at 4 - 7 times lower concentration of metals.

Why 4 - 7 times longer service life of motor oil ?

there are two main reasons why the performance of motor oil deteriorates over time :

- a. Penetration of combustion gases from the combustion chamber into the oil through the clearances between piston-rings and cylinder-walls.
- b. Increased concentration of metals in the lubricating oil as a result of the wear process.

As a result of these two main problems, in addition to oil deterioration in performance, over time a hard build-up is formed on engine parts like piston rings and pistons, which contributes to accelerated wear and deterioration in engine performance.

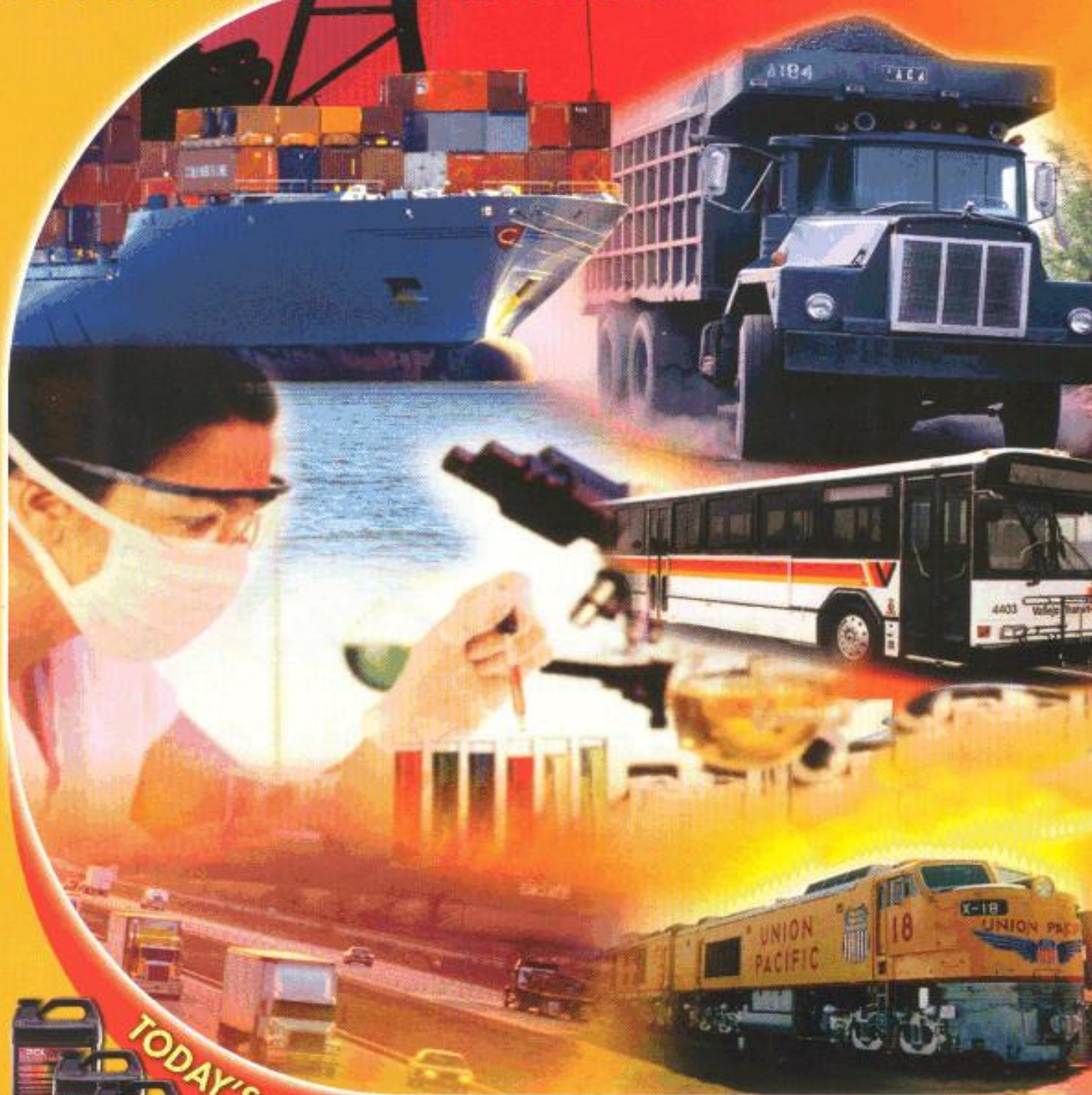
The effect of these two problems is drastically reduced in the presence of **Polytron**. **Polytron** dissolves the build-up and varnish and cleans the engine parts including the piston rings, releasing them to operate properly.

The metal friction surfaces are "polished" and become much smoother. As a result of the smoothing effect the clearances between the cylinder walls and the piston-rings surfaces become much tighter, resulting with a tighter seal, which prevents penetration of combustion gases into the oil system.

As referenced above, since Polytron stops the wear process, it results in much lower concentration of wear metals in the oil. Since the two main reasons for deterioration in oil performance are dramatically reduced, the service life of motor oil containing **Polytron** is dramatically increased. Most of end users experience 4 - 7 times longer oil service life.

POLYTRON

ULTRA PERFORMANCE



TODAY'S MOST TECHNOLOGICALLY ADVANCED LUBRICANTS