WELCOME TO

ESTABLISHED SINCE 1979

THE COMPANY

MICSA is a Swiss based company and has been represented in South Africa since 1979. MICSA South Africa is the sole distributor of MICSA products in Africa and the neighboring islands. The service division of MICSA South Africa provides expert technical advice and recommendations on-site, as well as installation of new products according to client requirements and specifications. The Service Division on in-service products carries out quarterly maintenance where adjustments and any further recommendations are made.

MICSA South Africa's ability to provide specialist technical and service back up to the Diesel, Heavy Equipment, Mechanical and Engineering Industries endorses it as the leading recommended and approved supplier within these markets.

The high value of MICSA for Industrial Maintenance has been proven over and over by many well known industrial companies and has been used successfully in vehicle, aviation, fleet, marine, and motorcycle, firearm and industrial applications. MICSA is THE ONLY concentrated polymer/metal conditioner that has successfully penetrated the industrial market world-wide and even more importantly has been proven to be completely safe in metal-to-metal friction environments with not one report from industry indicating a detrimental effect or negative outcome. Simply stated MICSA'S Lubricant, Grease and Treatment series are by far the most revolutionary metal conditioner and protective friction reducing products available today.

WHAT IS MICSA?

MICSA is a completely new technology with its closest affinity being high-quality synthetic oils. MICSA is not an additive in the normal sense of the word as it does not in any way change the characteristics of the primary oil or lubrication agent but rather, it is a high quality metal conditioner that lubricates any working part or machine thereby reducing friction and ultimately wear and tear. MICSA (patent pending) and various other products in the MICSA range are breakthrough Lubricants, Greases and Treatments that have successfully been marketed for the last 25 years to Industry worldwide.

MICSA is compatible with all motor oils (other than vegetable oils), gear oils, hydraulic fluids and greases which it uses as a vehicle to get to the metal surface where it penetrates (into the micro pores) and starts to bond at a certain temperature. It works by modifying the metal surface to reduce friction, corrosion and rust. It may also be put directly onto metal surfaces such as in machine shop applications and on bearing surfaces before grease is packed. The effect of the MICSA treatment is a metal surface that has a much reduced coefficient of friction.

Bonding means that there is a chemical reaction between the MICSA and the metal by which MICSA becomes part of the metal itself, not just a coating on top of the metal. MICSA does not remain in the oil when used at the recommended ratios, which is why MICSA should be added in addition to the normal amount of primary lubricant. Once the MICSA has treated all heated metal surfaces, any remaining MICSA will remain in the oil and serve no useful purpose.

WHAT IS MICSA ENGINE TREATMENT?

MICSA engine treatment is a concentrated liquid preparation consisting of P.T.F.E. (Polytetrafluorethylene) particles in suspension. In MICSA there are a few different products which ranges between two to seven different grades of P.T.F.E. combined that are used to give the maximum protection against wear and extremes of temperature plus friction free operation of your engine or mechanical part. P.T.F.E. is the substance with the lowest coefficient of friction of any material known to man today. It has a temperature operating range of -100°C to 290°C and will operate for short periods in the 450°C range long after other lubricants have deteriorated into hard films.

TECHNICAL ADAPTABILITY

When MICSA engine treatment is introduced into the engine via the oil filler it coats all wearing surfaces of the engine through a chemical process known as Polymerization. In this process the microscopic molecules of P.T.F.E. link together under the influence of heat to form a network Polymer which makes up a tough protective film. After this Polymerised layer is formed, heat no longer has any effect on it, and it is not dissolved by any solvents. This process only takes place at temperatures above 55°C. Because MICSA is chemically inert it does not mix with your oil; the oil only carries it until such time as the process of Polymerization is complete. The parent liquid of the preparation is a volatile detergent liquid, which has a cleaning action on the parts to be coated before it evaporates.

APPLICATION OF MICSA ENGINE TREATMENT

Application of MICSA will vary depending on the amount of metal-to-metal contact/pressure. Since a layer of polymer (which contains the bonded MICSA) has to be worn off, the amount of time this takes will vary. Because of the high wear resistance of MICSA, one treatment lasts for 100,000 km's or 5,000 hours under normal conditions or as recommended by oil sample analysis. The best way to tell when more MICSA is needed is to monitor the piece of equipment over time and determine when the effects of MICSA are no longer evident. Among the things that can be monitored are temperature, vibration, sound, energy consumption and wear. Some companies use a measure of metal wear particles (at each oil change) to determine when more MICSA Engine treatment is needed. When the metal particle count is back to where it was when MICSA was added, it is time for more MICSA. Please note; fuel dilution, excessive idling, faulty pumps, injectors or low standard fuel will have MINIMAL effect on engine wear factors.

ECONOMICAL TO USE

MICSA is a concentrated formula that is used in relatively small amounts and lasts for a very long time. For diesel engines, the application ratio is only 10% of the sump capacity. For gearboxes, hydraulic systems and many other applications MICSA is used initially at 5% of base or sump value. After the first treatment, the dosage may be reduced slightly because these subsequent applications need only supply enough MICSA to treat the surface areas of metal where wear has occurred and the last treatment has worn off. It is extremely easy to test MICSA results by using temperature gauges, oil analyses, vibration testing, amp meters etc.

JUST THE FACTS OF MICSA 926

Fuel savings involves three main areas:

- The immediate saving on a particular piece of equipment.
- The long term saving on that equipment
- The global saving on a fleet

These are obviously related but each involves different approaches and measurements. From the technical and financial viewpoint, whatever process is followed, the result must be measurable in the normal financial feedback numbers. If the fuel saving process also has a marginal improvement on the engine power, the operator will use the additional power to do the task quicker. This means that part of the saving will be a productivity improvement, not seen directly in the fuel figures.

TECHNICAL DATA

We know that MICSA 926 is not an oil ADDITIVE but an engine treatment, which is transported by the oil to all lubricated surfaces in the engine. One such surface is the cylinder wall. The layer of P.T.F.E., which is, deposited on the cylinder by the piston ring (see photo-micrograph), insulates the combustion gases "working fluid" from the water jacket. As P.T.F.E. has a very high thermal resistance, even although only 3 to 5 microns thick, it prevents a significant amount of heat passing to the cooling system. This heat remains in the combustion gases (working fluid), increasing the mean effective pressure on the piston, producing more work from the same amount of fuel injected. This is an improvement in the thermodynamic efficiency which is also being exploited by the use of ceramics in some engine developments to raise the pressure and temperatures. The P.T.F.E. also improves the seal between the piston, ring and cylinder by filling voids. This reduces "blow-by" which is simply a waste of energy (and fuel). The improved seal captures the combustion gases, retaining the pressures so they can do maximum work. The fuel saving is NOT a result of the reduction of friction between the piston, ring and cylinder wall. That friction only occurs at start-up when they are in contact. Once they start moving, hydrodynamic lubrication is established and 'friction' is governed by shearing of the oil film between them. Less viscous oil uses less power when running. This improvement is around 5% so it is not really visible in the day operation of equipment, but will show in the monthly figures. A secondary benefit from this insulating layer is that the working parts of the engine reach normal operating temperature sooner BUT the temperature gauge takes longer to register

as less heat is entering the cooling system. These phenomena have been demonstrated during dynamometer tests.

LONG TERM SAVINGS

The higher fuel savings, in the order of 10%, take place progressively as treated engines experience less wear than untreated engines, i.e. they are preserved in the 'new' condition much longer while untreated engines wear out. Power, ease of starting, blow-by, smoking and more frequent oil changes are avoided. Oil monitoring has demonstrated this.

BENEFITS OF MICSA ENGINE TREATMENT:

- Extends engine life due to less wear, minimal metal to metal contact
- Extra protection against fuel-oil dilution
- Improves fuel consumption
- Increased engine performance
- Improves compression
- Increased thermal efficiency
- Improves exhaust emission
- Minimises damage due to heat seizure
- Reduced friction of metal against metal
- Improves starting from cold
- Resistant to extremes of temperature
- Reduction of downtime

WHY MICSA GREASE?

Quite simply, MICSA GREASE lasts longer than other greases. Since the MICSA metal conditioner (P.T.F.E.) contained in MICSA GREASE provides most of the lubrication, the grease itself does less actual work. The great reduction in internal friction, heat and wear means the grease maintains its original chemical and physical properties longer. Since the grease does not degrade as rapidly, it does not need to be replaced as frequently.

TECHNICAL FORMULATION OF MICSA GREASE

Some of the best greases in the world contain advanced anti-wear agents, top quality polymers, high-viscosity base oils, lithium-complex soap thickeners and natural rust inhibitors. What sets MICSA GREASES apart is that in addition to these top class ingredients MICSA adds the substance with the lowest co-efficient known to man Polytetrafluorethylene (P.T.F.E.) which is unique in its ability to form a physical and chemical bond within all metal surfaces, thereby reducing internal friction, heat and wear.

VERSATILITY

MICSA GREASES are exceptionally versatile. It can perform in varied adaptations from heavy-duty high performance applications such as CV joints pin & bush to water resistant, high temperature wheel bearings, sliding surfaces, guides gears and chains.

SAVINGS USING MICSA GREASE

Due to the revolutionary inclusion of P.T.F.E. in MICSA GREASE, the product simply outperforms all other greases by extending equipment life, reducing downtime, improves efficiency and protects against unscheduled maintenance. MICSA GREASE will improve your profit margins by reducing maintenance costs, lowering energy usage, and dropping capital equipment replacement. Peace of mind when operating away from home base.

APPLICATIONS OF MICSA GREASE

Every industrial application, including drilling equipment, rock crushers, lumber mills, gravel and sand screens, conveyor belts, marine equipment etc. Every Fleet and Automotive application, including all, CV and Universal joints, steering gear, equaliser bar, hydraulic hammer, mobile cranes, water pumps etc. Every Agricultural, logging, mining, construction and technical application where maximum protection against extreme conditions is required etc.

BENEFITS OF MICSA GREASE

The benefits of MICSA GREASE are vast and far outperform any “normal” grease:

- Prevent rust and corrosion
- Extends lubricating intervals
- Reduces, wear, galling
- Increases equipment life
- Reduces maintenance
- Superior shock load protection
- Excellent water washout resistance / water repellance
- Extremely wide variety of applications
- Is not displaced in severe conditions
- Extends bearing life
- Economical

WATER AND CONTAMINANTS

MICSA has the unique ability to work in the presence of water, solvents and other contaminants. It does this by giving the metal its own lubricating ability. Oil contamination destroys the oils ability to provide the necessary film strength for continued lubrication. The MICSA treated metal surface can provide its own lubrication despite severely contaminated oil. MICSA has greatly reduced wear levels in engines with the result that equipment life is extended both through wear reduction and through avoidance of catastrophic failure.

Water intrusion in engines, pumps, gearboxes and other critical equipment causes the loss to industry each year of hundreds of millions (if not billions) of Rands worth of equipment. MICSA can eliminate almost all of this loss. MICSA does work with many industrial solvents that are often causes of equipment breakdown when they enter the primary oil.

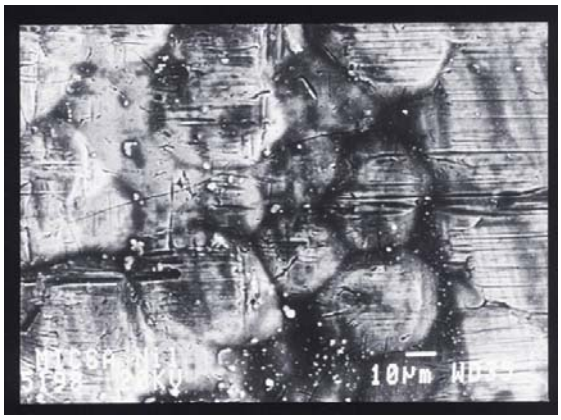
MICSA improves efficiency and extends the life of this equipment. MICSA has been used extensively in coal mining. Coal dust is a frequent oil contaminant that causes parts to wear out quickly. MICSA has been proven to dramatically extend the life of equipment despite coal dust intrusion

STABILITY OF PRODUCTS

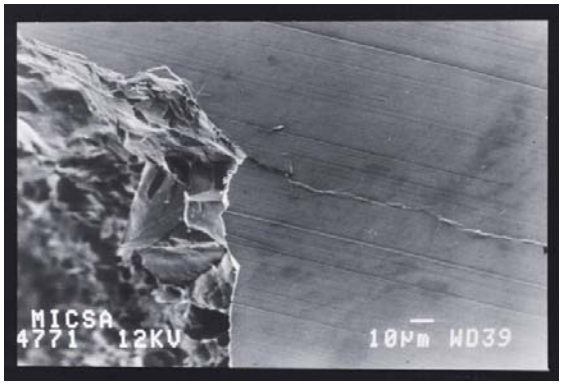
One of the most essential characteristics of MICSA is its base of P.T.F.E., which is produced from a powder moulded freely by compression. It is a Fluorocarbon polymer whereby the main fluorescing is Polytetra Fluorethylene. P.T.F.E. is a plastic material with practically universal resistance of a Density 2-2, 3 and has the following outstanding properties:

- Low coefficient of friction
- Excellent mechanical resistance
- Almost chemically inert
- Non flammable
- Unique dry lubrication property
- Excellent corrosion resistance
- Excellent insulator
- Thermal stability from -100°C to 270°C

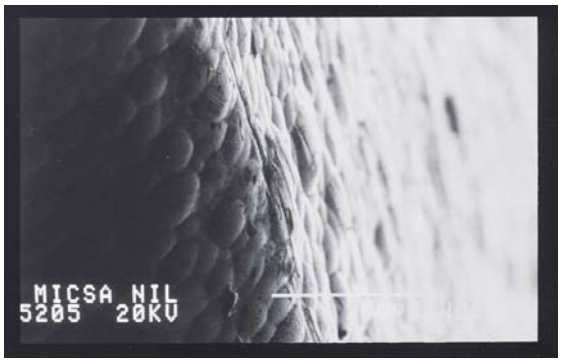
MICROSCOPIC PICTURES OF TOP COMPRESSION RINGS OF CATERPILLAR 3306 ENLARGED “28000 times”



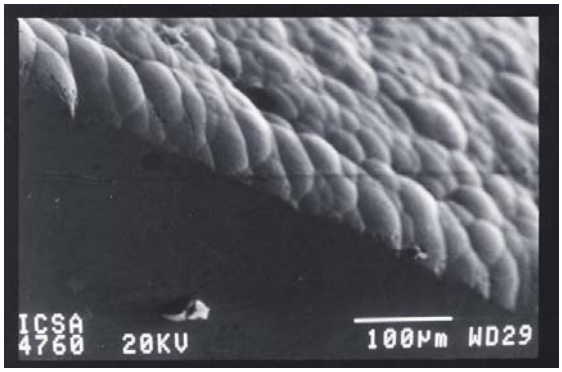
Without MICSA



With MICSA



Face & Side of rings without MICSA



Face and Side of rings with MICSA

APPLICATIONS THAT THE MICSA PRODUCTS MAY BE UTILISED ON ARE AS FOLLOWS:

Industrial Applications

Industrial Motors, Diesel Engines, Petrol 4-stroke and 2-stroke engines, Pumps, Hydraulic Systems, Air Tools, Drilling Tools, Chains & Sprockets, Bearing Sets, Transmissions/Gearboxes, Machine Shop Tools, Plant Equipment, Mining Machinery, Engineering Plants, Screen bearings, Gen-set.

Vehicle Applications

Passenger Vehicles, Trucking, Buses, Racing Cars, Sport/Leisure Motorcycles, Drag Cars, Light Delivery Vehicles, Long Distance Carriers, Construction Vehicles, Off Road Vehicles, Racing Motorcycles, Mining Vehicles.

Marine Applications

Commercial Boating, Yachting, Fishing Rigs, Sport Boating, Power Boating, Speed Boats, Jet Skis, Amphibious Vehicles, Jet Boats, Military Craft.

Aviation Applications

Experimental Aeroplanes, Sport Aeroplanes, Micro-Lights, Motorised Para-Sailing.

Other Applications

Sewing Machines, Dental Machinery, Generator Sets, Model Aeroplanes, Firearms, Locomotives, Gates and Electronic Doors, Conveyor Belts, Escalators, Lifts



REFERENCES

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- BHP Billiton
- Hitachi
- Harmony Gold Mine
- Optimum Coal Mine
- Dorbyl
- Concor
- Fraser Alexander
- United Basalt Products – Mauritius
- Mecom – Mauritius
- Eskay Crushers – Piet Retief
- East Rand Walling
- Marley Tiles
- Xantium screens
- Visser plant hire
- Tagma Bearings
- Bruben Timbers
- Woodpecker Bearings
- Kram Engineering
- Durban Fuel Injection
- Hereaus Electronite