

PETRON GEAR SHIELD® LUBRICANT SAVIOUR OF YOUR OPEN GEARS

پروفورمانس بروڈکتس تیک (م.م.ج)
PERFORMANCE
PRODUCTS TECH (FZE)



LESSER INVENTORY COSTS

REDUCED LUBE COST

HOUSE KEEPING PROBLEMS SOLVED

NO BUILD UP ON GEAR TEETH

NO BUILD UP ON GEAR TEETH

LESS INVENTORY COSTS

REDUCE LUBE CONSUMPTION
DRAINS FREELY

HIGHER VISCOSITY
DRAINS FREELY

INCREASED EQUIPMENT LIFE

INDUSTRY LEADING FZG WEAR TEST RESULT

HIGHER VISCOSITY HIGHER VISCOSITY

PETRON GEAR SHIELD®

SAVIOUR OF YOUR OPEN GEARS

NO BUILD UP ON GEAR TEETH

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DRAINS FREELY

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Worldwide leader in Open Gear Lubricants
ENGINEERED LUBRICANTS FOR YOUR INDUSTRY

Fifty (50) Years of R&D and Engineering
Excellence in Specialty Lubricants Technology



50 years
of growth in
Engineered
Lubricants



PETRON[®] CORPORATION

PETRON CORPORATION is a customer oriented company that formulates, manufactures and supplies specialty lubricants together with technology to the mining and manufacturing industries worldwide. Petron Corporation designs and manufactures a diverse product line that serves cement, mining, steel, wind and private label markets.

Petron prides itself on developing specialty lubricant products which solve problems for heavyduty industrial customers. Petron developed Open Gear Lubricants that meet and exceed OEM requirements.

PETRON GEAR SHIELD[®], IS A PROVEN OPEN GEAR LUBRICANT THROUGHOUT THE CEMENT, MINING, STEEL & COAL POWER INDUSTRY

Petron offers a variety of high performance lubricants and services worldwide. Petron's top selling Gear Shield[®], is a proven open gear lubricant trusted to lubricate hundreds of gear sets on mills and kilns throughout the cement, Mining, Steel & Coal Power industry. Gear Shield[®] provides industry leading lambda (lubricant) film thickness and is approved by all major gear manufacturers.

OVERVIEW
**PETRON GEAR SHIELD® SERIES LUBRICANT OF CHOICE
FOR MILLS, KILNS: CEMENT, MINERALS PROCESSING
STEEL & POWER INDUSTRIES**

PETRON GEAR SHIELD NC/NCW

**NEW DIMENSION IN
OPEN GEAR DRIVE LUBRICATION**

HIGH VISCOSITY RESIDUAL COMPOUNDS.

HIGH VISCOSITY FOR BETTER GEAR PROTECTION.

HISTORICAL DATA SHOWS VERY ECONOMICAL TO USE.

FORMS A TENACIOUS FILM ON PRESSURE FLANKS.

FLUSHES AWAY CONTAMINANTS & NATURAL WEAR DEBRIS.

FORMS A SEMI-TRANSLUCENT FILM THAT PERMITS MEANINGFUL INSPECTIONS
UNDER DYNAMIC CONDITIONS WHEN USING A STROBE LIGHT.



SEEING IS BELIEVING

BEFORE GEAR SHIELD NC



LUBRICANT FILM RUPTURE

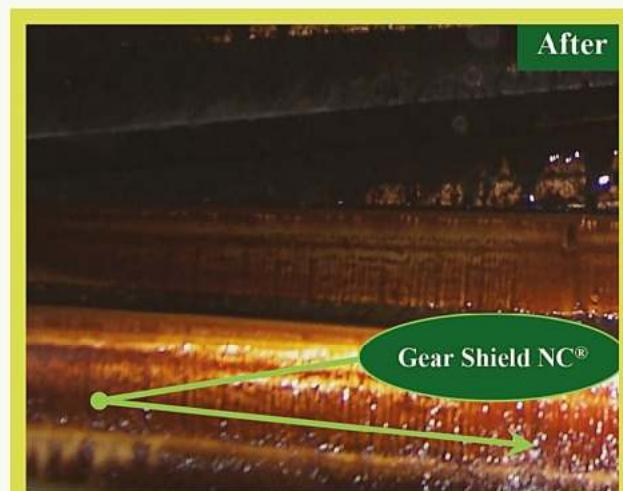
AFTER GEAR SHIELD NC



FULL STRENGTH RESTORED



LUBRICANT FILM RUPTURE EVIDENT.
LUBRICANT DID NOT MEET OEM
RECOMMENDED VISCOSITY FOR
OPEN GEARS.



LUBRICANT HIGH VISCOSITY FULL
STRENGTH FILM RESTORED
GEAR SHIELD EXCEEDS OEM
VISCOSITY REQUIREMENTS



LUBRICANT BUILD-UP EVIDENT



REDUCED LUBRICANT BUILD-UP



GEAR SHIELD® DRAINS FROM GUARD

DRAINAGE IN CONSISTENT / LACKING
PROPER DRAINAGE, BUILD-UP ON GEAR
GUARDS, CAUSED HOUSEKEEPING ISSUES

DRAINAGE ESTABLISHED
REDUCED BUILD-UP
ON GEAR GUARDS. ELIMINATION OF
HOUSE KEEPING ISSUES

IN ADDITION TO THE BENEFITS AVAILED BY END USERS:

- **Gear Shield® exceeds all OEM Base-oil viscosity requirements.**
- **Lube film rupture eliminated.**
- **Gear Shield restored the lube film strength.**
- **Premature gear failure mitigated.**
- **Gear operating life extended.**
- **Higher lubricant film thickness.**
- **Increased protection to gears due to superior film thickness (*lambda* value) of Gear Shield®.**



WITH ABOVE BENEFITS, HARD COST SAVINGS DUE TO REDUCED CONSUMPTION OF LUBRICANT AND REDUCED COST FOR WASTE DISPOSAL.



Gears after 1 - 1/2, years of service



Gears Lubricated with Gear Shield® NC

Petron Worldwide leader in Open Gear lubrication

LUBRICATION RECOMMENDATIONS

MILL, KILN & BALLING DISC



EQUIPMENT OPERATING CONDITIONS

LOAD	: EXTREME
SPEED	: LOW-MEDIUM
TEMPERATURE	: HIGH
ENVIRONMENT	: VERY DUSTY AREA



PETRON RECOMMENDATION: OPEN GEAR SPRAY LUBE
PETRON GEAR SHIELD® NC/NCW
 HIGH VISCOSITY BASE OIL WITH EP ADDITIVES

BASE OIL VISCOSITY @ 40°C	: 55,000 cSt
FINISHED VISCOSITY @ 40 °C	: 6,000 cSt
UNDILUTED VISCOSITY @ 100°C	: 1,600 cSt
ADDITIVES	: ANTI-WEAR & EP
FZG SPECIFIC MASS LOSS	: 0.05 (mg/kW.h)

OPERATING TEMPERATURE

PETRON GEAR SHIELD NC : Pumps freely down to 32 °F (0°C)

PETRON GEARSHIELD NCW : Pumps freely down to 0°F (-18°C)

A strobe light is necessary for dynamic inspections of open gearing. Two critical issues are present in this picture.

Gear Shield NC is a semi translucent lube which aid in complete visual inspection of flank conditions from root to crest.

The color of the lube is consistent across the full face of the gear tooth and is the first indication that alignment is not an issue on this gear.



PINION LUBRICATED BY
PETRON GEAR SHIELD NC

Color is a critical tool for dynamic inspections
 something you don't get with clear lubes.

A misalignment condition of this pinion is apparent since the lube gets darker in color towards the right side of the tooth flank. This condition was discovered using a strobe light under dynamic conditions and was the first indicator that adjustments are needed on this gear



- ✓ High viscosity fluid designed to lubricate heavily loaded open gears
- ✓ Highest EHD values of any open gear lubricant resulting in reduced wear and extended gear life
- ✓ Anti-wear and extreme pressure additives provide unparalleled protection in the most heavily loaded zones of gear tooth mesh
- ✓ Optimum consumption as per AGMA & OEM guidelines
- ✓ Industry leading FZG wear test result (0.05mg/kWh)
- ✓ No build up in gear tooth roots and drains freely from gear guards
- ✓ Environmentally friendly. Does not contain chlorinated solvents or lead and is free of all carcinogens. Passes TCLP Protocol A

GEAR SHIELD® SYNTHETIC OPEN GEAR LUBRICANT



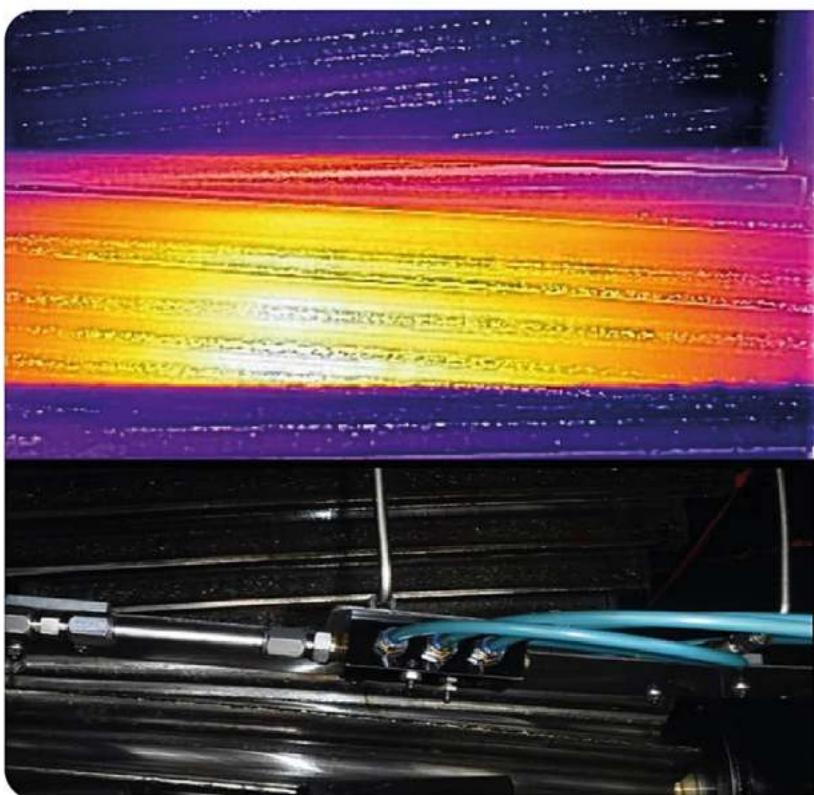
Key Features

- A semi-transparent synthetic fluid designed to lubricate heavily loaded open gears
- Anti-wear and extreme pressure additives provide excellent protection in most heavily loaded zones along the pitch-line of gear flanks
- Optimum consumption values as per AGMA & OEM guideline
- Industry leading FZG wear test result
- Pumps free down to 0° F (-18°C)
- No build-up in gear teeth roots and drains freely from gear guard
- Environmentally friendly

Gear Shield® Synthetic is a new generation of open gear lubricants from Petron, with anti-wear additives developed specifically for heavily loaded mill gears operating under the most demanding conditions where a clear synthetic lubricant is preferred.

Provides the superior separation of gear teeth in the heaviest load zone of gear tooth mesh.

LUBRICANT BUILD UP COMPLETELY ELIMINATED



Excellence In Gears Cleaning



PETRO KLEEN 140 AND PENSOLV L945-A WINNING COMBINATION

Petron Petro Kleen 140

is a viscous, Petroleum-Based product. Designed to clean open gearing of spent lubricant and contamination.

Petro Kleen 140 Contains high Levels of AW additives to protect the gearing during the cleaning process. Petro Kleen 140 is designed to be applied through the lubrication system in place of the open gear lubricant while the gearing is operating under normal load, greatly reducing down time. It leaves a light protective oil film on the gearing after application that is easily removed for NDT testing.

Pensolv L945 is a solvent blend that is formulated to have a closed cup flash point above 140 °F but provides the same excellent cleaning performance as a solvent with a much lower flash point. The pleasant odor and low vapor pressure of Pensolv L945 make it an ideal plant-wide cleaning solvent.

Pensolv L945 will quickly clean oils, greases, many adhesives, flux and fingerprints.

Apply Petro Kleen 140

at 3-5 minute intervals for 24-48 hours, depending on the desired cleanliness to be achieved. If total elimination of lubricant is required, pressure washing and final hand cleaning must be done while the mill is shut down. Petro Kleen 140 can also be applied using a separate hand held spray system if you want to remove contamination.



- Removes Petro Kleen 140 in a single pass
- Superior cleaning compared to mineral spirits
- Safer for user than most solvent cleaners
- Pleasant odor
- Safe on all metals
- Low vapor pressure
- Free of chlorinates
- Environmentally improved
- Fast cleaning to improve productivity
- User friendly compared to kerosene and mineral spirits

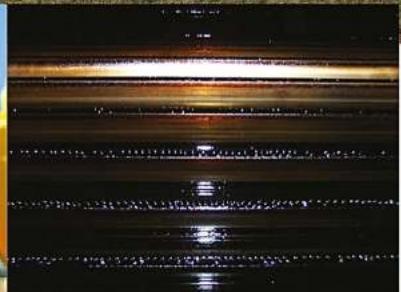


**BEFORE
GRINDING & POLISHING****AFTER
GRINDING & POLISHING**

Sl. No	Area	Application area	Application Type	Recommended product	Remarks
1	Kiln	Girth gear & Pinion	Spray	Petron Gear Shield NC, Petron Gear Shield NCW(Winter Grade)	Service lubricant
			Spray	Petron Gear Shield Synthetic	
		Girth gear & Pinion	Spray	Petron Gear run in 391	Running in product/Gear Repair
		Girth gear & Pinion	Sump	Kiln lube KL300	Service lubricant
				Gear Shield P	
		Filler bore/ring bore and Kiln shell interface	Insertion	Petron Easy bar KTL 100	
		Support roller/Carrying tire/Guide blocks	Spray/Brush	Tireslide HTG	
		Gearbox	Circulation-Mineral	Petrolube 400 Series	
			Circulation-Synthetic	Petrolube 700 Series	
		Slip seal	Pump	Petro plate HD 220/460	
		Pinion bearings	Grease lubricated	Petro plate HD 460	
2	Mills	Girth gear & Pinion	Spray	Petron Gear Shield NC, Petron Gear Shield NCW(Winter Grade)	Service lubricant
			Spray	Petron Gear Shield Synthetic	
		Girth gear & Pinion	Spray	Petron Gear run in 391	Running in product/Gear Repair
		Girth gear & Pinion	Spray	Petro Kleen 140	Softening agent for open gear lubricants designed to soften and clean contaminant build up in gear tooth roots.(Can be used in running condition)
		Any application	Hand spray	Pensolv L945	Ideal plant-wide cleaning solvent that will quickly clean oils, greases and open gear lubricants.
		Girth gear & Pinion	Sump	Kiln lube KL300	Service lubricant
				Gear Shield P	
		Gearbox	Circulation-Mineral	Petrolube 400 Series	
			Circulation-Synthetic	Petrolube 700 Series	
		Pinion bearings	Grease lubricated	Petro plate HD 460	
3	Crushers	Spider Bush		Petron spider bush lubricant	



Environmentally friendly. Does not contain chlorinated solvents or lead and is free of all carcinogens. Environmentally Safe/Passes TCLP Protocol A



Translucent—Easy visual inspection of gears during running condition.



EXCELLENT LUBE FILM – OWING TO THE HIGH LAMBDA VALUES WHICH IN TURN RESULTS BETTER SEPARATION OF GEAR TOOTH, AND STOP PROGRESSION OF PITTING



**PETRON
GEAR SHIELD® IS
THE WORLD LEADER
IN LUBRICATION FOR
OPEN GEAR DRIVES
ON STATIONARY
ROTATING
MACHINERY**

**HIGHEST
LAMBDA
(LUBE FILM THICKNESS)
VALUES
AND
EXCELLENT
LUBE FILM**

**LOWEST ANNUAL
LUBRICATION
COST & LOWER
INVENTORY**

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بیرفورمانس بروودکتس تیک (م.م.ج)
PERFORMANCE
PRODUCTS TECH (FZE)

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