

# PETRON GEAR SHIELD® LUBRICANT SAVIOUR OF YOUR OPEN GEARS



بيرفورمانس برودكتس تيك (م.م.ح)

**PERFORMANCE**  
PRODUCTS TECH (FZE)

REDUCE LUBE CONSUMPTION

DRAINS FREELY

## ENVIRONMENT FRIENDLY

LESS INVENTORY COSTS

HIGHER LUBE FILM THICKNESS DRAINS FREELY

## INCREASED EQUIPMENT LIFE

INDUSTRY LEADING FZG WEAR TEST RESULT

HIGHER VISCOSITY HIGHER VISCOSITY

INDUSTRY LEADING WEAR TEST RESULT

## PETRON GEAR SHIELD®

SAVIOUR OF YOUR OPEN GEARS

NO BUILD UP ON GEAR TEETH

NO BUILD UP ON GEAR TEETH

## HOUSE KEEPING PROBLEMS SOLVED

LESSER INVENTORY COSTS

REDUCED LUBE COST

NO BUILD UP ON GEAR TEETH



HIGHER VISCOSITY

DRAINS FREELY

DRAINS FREELY

LESS INVENTORY COSTS

**50** years  
of growth in  
Engineered  
Lubricants



**Worldwide leader in Open Gear Lubricants**  
**ENGINEERED LUBRICANTS FOR YOUR INDUSTRY**

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

+971 52 674 7664 contact@performanceproducts.tech www.lubricants.center

SAIF Free Zone, Office R4-52/B, Sharjah, United Arab Emirates (UAE)





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**



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

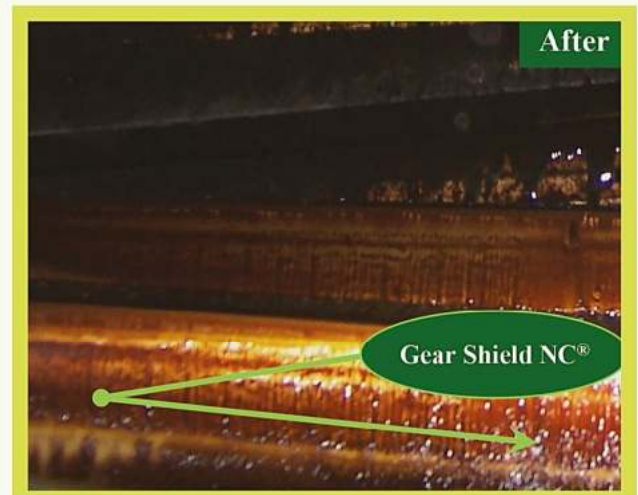
## AFTER GEAR SHIELD NC



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





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 AVAILABLE 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



## 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)

### EQUIPMENT OPERATING CONDITIONS

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



### 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

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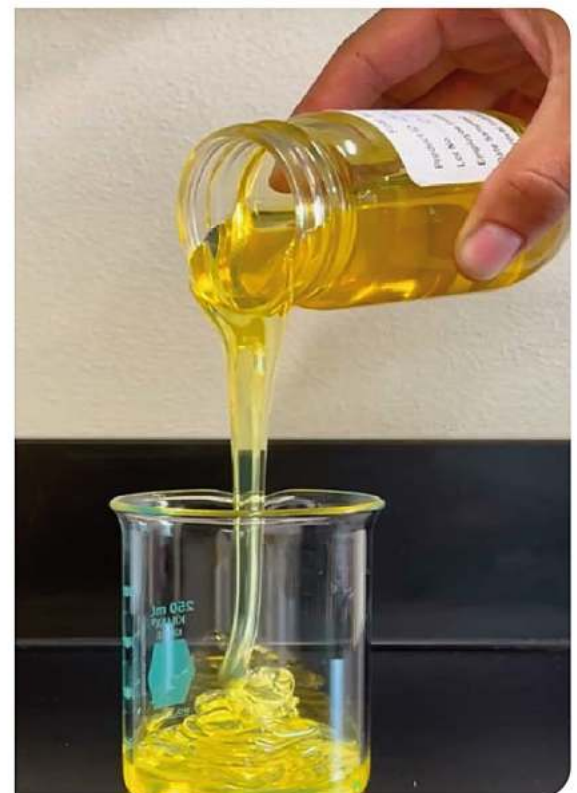
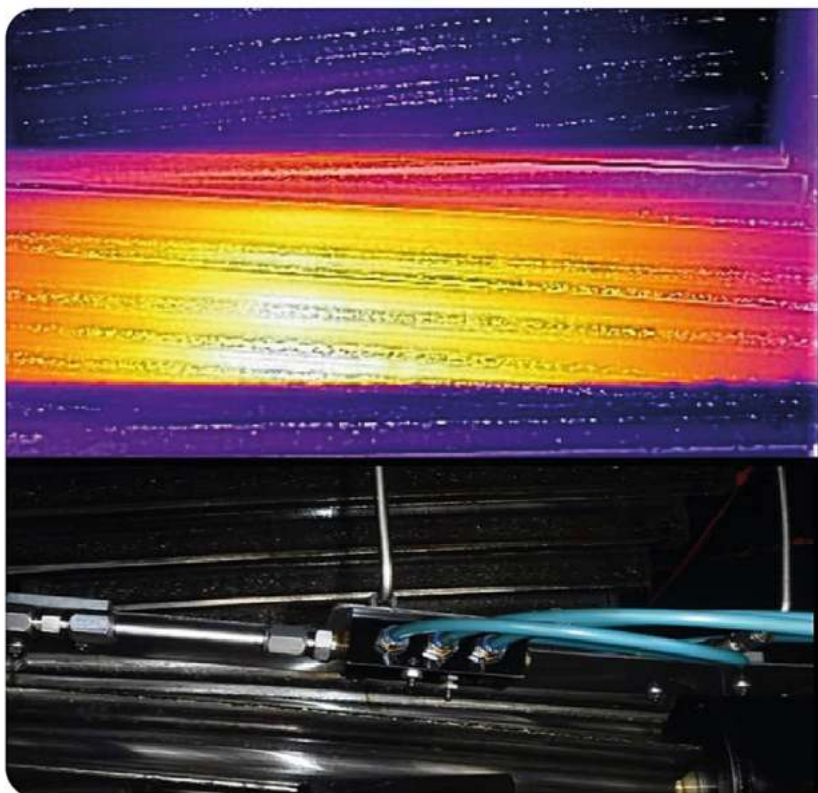
## Key Features

- A semi-transparent synthetic fluid designed to lubricate heavily loaded on 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







## 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

## PETROKLEEN 140 ( GEAR CLEANER )

## After





# OPEN GIRTH GEARS SURFACE REFURBISHMENT TO REMOVE MICROCRACKS

**BEFORE  
GRINDING & POLISHING**



**AFTER  
GRINDING & POLISHING**





## PETRON PRODUCT READY RECKONER (CEMENT)

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





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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**PERFORMANCE**

PRODUCTS TECH (FZE)

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