

FTS SERVICE PROGRAM – TAILOR-MADE FOR YOU

At PETRONAS, we believe success is made by close partnerships. It is that very belief that drives us to work together with you in overcoming the challenges you face – from demands of higher productivity to operating under intense, severe conditions.

That's why we present to you our **Fluid Technology Solutions™** Service Program – a tailor-made range of services designed to maximise your business performance. From specialised on-site analysis to emergency support for operational recovery, we are committed to assisting you in every possible situation.

Partner with us and take your business to the next level.



PROVEN EXPERTS, ALWAYS READY TO HELP!

At the heart of our services, our experts strive to give you the peace-of-mind you're looking for.

Partner with us and take your business to the next level.

For more information, please contact:

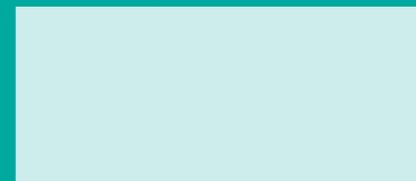


Image - courtesy of LafargeHolcim Poland



PETRONAS Fluid Technology Solutions™

YOUR PARTNER FOR PROGRESS

PETRONAS Lubricants International (PLI) is the global lubricant division of PETRONAS, one of the most successful petrochemical companies in the world.

Our mission is to deliver proven product technology and related services benefitting from our 100 years of experience. We believe in maximising your productivity with value-added products and services that are global, yet personal – our presence in 128 countries ensures our technical expertise reaches you wherever you are.

PLI's differentiator is product excellence, developed by world-class Technology Centres and brought to your market with local expertise. Our passion for performance improvement makes us an obvious choice for key OEMs and delivers success in Formula One Motorsport. Now, it has translated into a comprehensive industrial product range and tailor-made services for you.

Together, let's take your operational performance to the next level.



YOUR CHALLENGES, OUR EXPERTISE

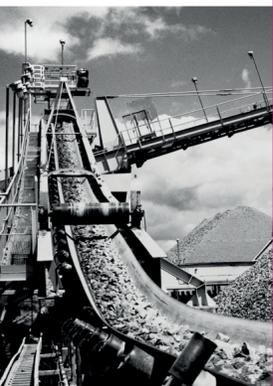
Today, cement manufacturers are under mounting pressure to increase productivity and reduce costs, whilst reducing their impact on the environment. For a process that utilises a wide range of machinery that is exposed to high levels of dust contamination, high shock loads and extreme temperatures, high quality lubricants are essential to prevent unexpected and costly breakdowns and to extend maintenance intervals and the operating life of the equipment.

As the preferred strategic partner and provider of lubrication solutions to major cement producers worldwide, we have

gained a thorough understanding of the lubrication requirements and challenges facing your business.

With a holistic approach in mind, we have developed **Fluid Technology Solutions™**, an intelligent approach to your fluid requirements that maximises your business performance through tailor-made product offerings and expert services. It is designed to help your business reach new levels in productivity and profitability by enabling improved efficiency and quality.

With PETRONAS on board, you can be assured of a reliable partner for progress.



PETRONAS
Fluid Technology
Solutions™

**TAKING YOU TO THE NEXT LEVEL
IN OPERATIONAL PERFORMANCE
CEMENT INDUSTRY**

global.pli-petronas.com

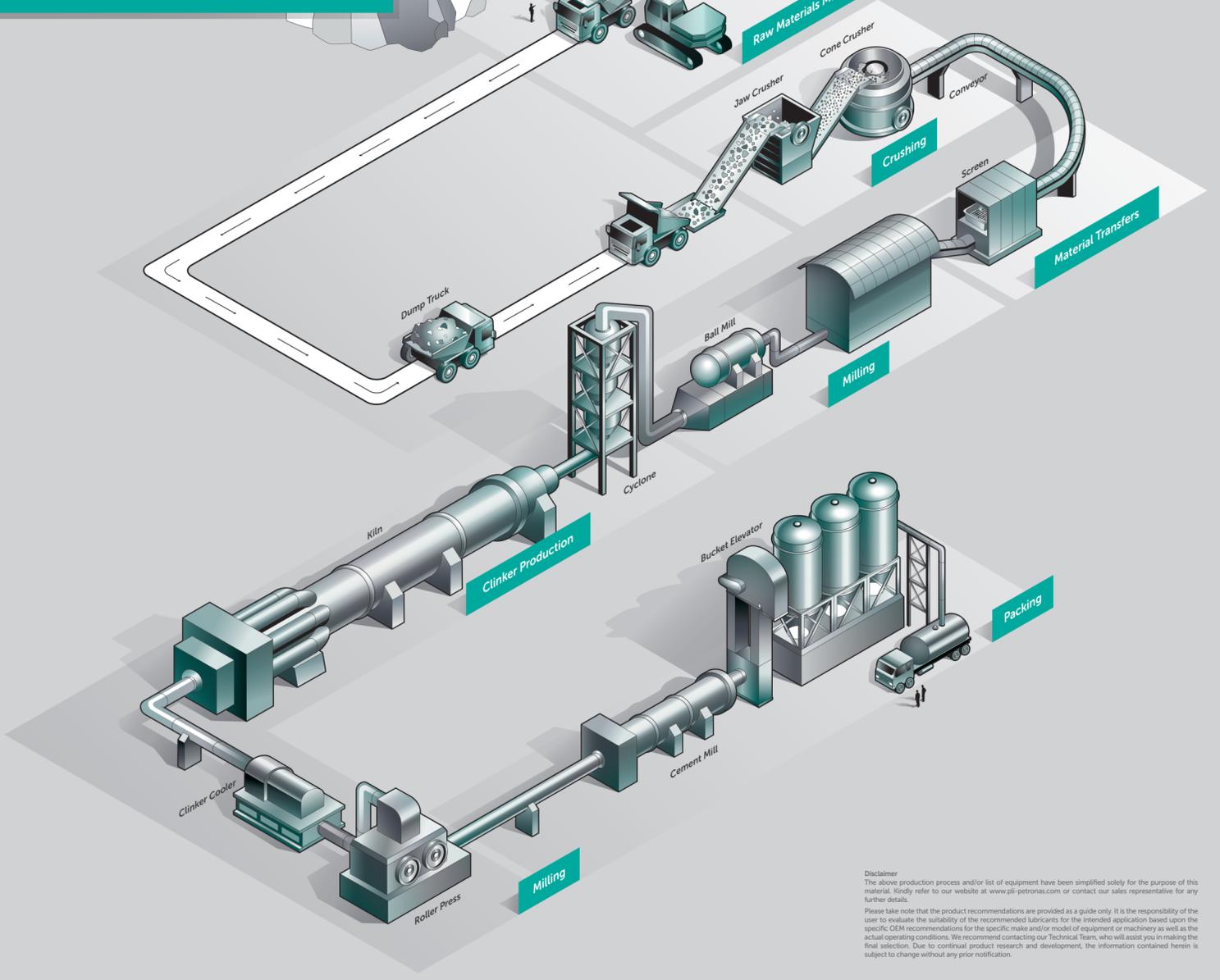
YOUR KEY TO MAXIMISING PERFORMANCE

By focusing our expertise and utilising the latest advances in lubrication technology, we have developed a comprehensive range of state-of-the-art lubricants that meets the needs of all cement production equipment. Choose the correct lubricant for equipment requirements and watch your productivity accelerate to the next level.



PRIMARY PROCESS	KEY EQUIPMENT	KEY LUBRICATION PARTS	LUBRICANT	STANDARD	PREMIUM	SUPREME		
Raw Materials Mining	Drilling Machine	Cooling System	Coolant Fluid	PETRONAS Parafu 11	PETRONAS Parafu Up Ready			
		Compressor	Air Compressor Oil	PETRONAS Compressor A M 2	PETRONAS Compressor A M 4	PETRONAS Compressor A PAO		
		Engine	Engine Oil	PETRONAS Urania LD 7	PETRONAS Urania 5000E	PETRONAS Urania 7000E		
		Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF		
		Pneumatic Drill Head	Air Tool Oil	PETRONAS ATO				
		Thread Compound	Grease	PETRONAS Grease Li AS				
		Transmission	Transmission Fluid	PETRONAS Powertrans T4 50W				
		Slewing Ring	Grease			PETRONAS Grease LiCa MG HL		
		Vertical Bearing	Grease		PETRONAS Grease CaSx	PETRONAS Grease LiX Syn 2/220		
							PETRONAS Grease LIX Syn 2/460	
Wheel Loaders, Excavators, Bulldozers, Dump Trucks		Cooling System	Coolant Fluid	PETRONAS Parafu 11	PETRONAS Parafu Up Ready			
		Engine	Engine Oil	PETRONAS Urania LD 7	PETRONAS Urania 5000E	PETRONAS Urania 7000E		
		Final Drive	Transmission Fluid	PETRONAS Powertrans T4 50W				
		Grease Points	Grease	PETRONAS Grease LIX MEP	PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MG XHL		
		Hydraulic System / Steering	Transmission Fluid	PETRONAS Powertrans T4 10W				
		Transmission	Transmission Fluid	PETRONAS Powertrans T4 30W				
		Conveyors / Feeders / Screens		Bearings	Grease	PETRONAS Grease Li EP 2		PETRONAS Grease LIX Syn 2/220
				Coupling ⁽¹⁾	Grease	PETRONAS Grease Li 2	PETRONAS Grease PE HS	
				Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
				Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽²⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
Hydraulic System	Hydraulic Fluid			PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF		
Blowers	Gear Oil			PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO		
Bucket Elevators / Screw Conveyors				Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
				Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
				Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
				Plumber Block Bearing	Grease	PETRONAS Grease LIX EP 2/380		PETRONAS Grease CaSx
		Cables	Grease	PETRONAS Grease LiCa GEP 2.5				
		Chain	Slideway Oil	PETRONAS Slideway				
		Stackers / Reclaimers		Bearings	Grease	PETRONAS Grease LIX EP 2/380		PETRONAS Grease LIX Syn 2/220
				Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
				Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
				Open Gears	Grease	PETRONAS Grease LiCa TMG		
Crushing	Cone / Gyrotory / Impact / Jaw / Roller Crushers			Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
				Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
				Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF
				Plain Bearings (Oil)	Gear Oil	PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
				Plain Bearings / Roller Bearings ⁽²⁾	Grease	PETRONAS Grease LIX MEP	PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MG XHL
				Spider Bush Bearing	Grease	PETRONAS Grease LIX MEP	PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MG XHL
		Spider Bush Bearing (Oil)	Gear Oil	PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO		
		Milling	Vertical Roller Mill	Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
				Electric Motor - Plain Bearing (Oil)	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF
				Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
Hydraulic System	Hydraulic Fluid			PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF		
Mill Bearing / Worm Gear	Gear Oil			PETRONAS Circula		PETRONAS Gear Syn PAG		
Mill Bearings	Grease			PETRONAS Grease LIX MEP	PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MH XHL		

Simplified Cement Production Process



PRIMARY PROCESS	KEY EQUIPMENT	KEY LUBRICATION PARTS	LUBRICANT	STANDARD	PREMIUM	SUPREME		
Milling	Horizontal Ball Mill	Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU			
		Electric Motor (Oil)	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF		
		Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽²⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO		
		Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF		
		Plain Bearings (Oil)	Circulating Oil	PETRONAS Circula		PETRONAS Circula Syn		
		Slipper Pad Bearing (Grease)	Grease	PETRONAS Grease LIX EP 2/380		PETRONAS Grease LIX Syn 2/460		
		Slipper Pad Bearing (Oil)	Circulating Oil	PETRONAS Circula		PETRONAS Circula Syn		
		Compressor	Air Compressor Oil	PETRONAS Compressor A M 2	PETRONAS Compressor A M 4	PETRONAS Compressor A PAO		
		Blowers	Gear Oil	PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO		
		Homogeniser		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
Fans Bearings	Grease			PETRONAS Grease Li 2	PETRONAS Grease PU			
Fans - Plain Bearings (Oil)	Circulating Oil			PETRONAS Circula		PETRONAS Circula Syn		
Plumber Block Bearing	Grease			PETRONAS Grease LIX EP 2/380		PETRONAS Grease CaSx		
Roller Press				Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
				Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
				Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF
				Press Bearings	Grease	PETRONAS Grease LIX EP 2/380		PETRONAS Grease LIX Syn 2/460
				Press Bearings (Oil)	Circulating Oil	PETRONAS Circula		PETRONAS Circula Syn
				Feed Preparation	Horizontal Ball Mill	Electric Motor Bearings	Grease	PETRONAS Grease Li 2
		Electric Motor - Plain Bearings	Hydraulic Fluid			PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF
		Fans Bearings	Circulating Oil			PETRONAS Circula		PETRONAS Circula Syn
		Fans - Plain Bearings	Circulating Oil			PETRONAS Circula		PETRONAS Circula Syn
		Gearbox / Reducer	Gear Oil			PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV			PETRONAS Hydraulic ESF		
Mill Trunion Bearing	Gear Oil	PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL			PETRONAS Gear Syn PAO		
Mill Bearing	Circulating Oil	PETRONAS Circula				PETRONAS Circula Syn		
Open Gears	Grease							
Clinker Production	Fine Fuel Feeder	Electric Motor Bearings	Grease			PETRONAS Grease Li 2	PETRONAS Grease PU	
		Bearings	Grease	PETRONAS Grease LIX EP 2/380		PETRONAS Grease LIX Syn 2/460		
		Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO		
		Fans	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	PETRONAS Grease LIX Syn 2/100		
		Kiln Fuel Burner		Compressor	Air Compressor Oil	PETRONAS Compressor A M 2	PETRONAS Compressor A M 4	PETRONAS Compressor A PAO
				Damper / Actuator valves	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
				Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
				Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
				Fans Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	PETRONAS Grease LIX Syn 2/100
				Fans Bearings (Oil)	Circulating Oil	PETRONAS Circula		PETRONAS Circula Syn
Separator Shaft Bearing	Gear Oil			PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO		
Auxiliary Diesel Engine	Engine Oil			PETRONAS Urania LD 7	PETRONAS Urania 5000E	PETRONAS Urania 7000E		
Auxiliary Reducers	Gear Oil			PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO		
Cooling System	Coolant Fluid			PETRONAS Parafu 11	PETRONAS Parafu Up Ready			
Cyclone	Kiln	Couplings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PE HS			
		Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO		
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU			
		Electric Motor Bearings (Oil)	Circulating Oil	PETRONAS Circula		PETRONAS Circula Syn		
		Support Roller Bearing	Circulating Oil	PETRONAS Circula		PETRONAS Circula Syn		
		Thrust Bearing	Circulating Oil	PETRONAS Circula		PETRONAS Circula Syn		
		Grate Cooler		Fans Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	PETRONAS Grease LIX Syn 2/200
				Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
				Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
				Sprocket Bearings	Grease	PETRONAS Grease Li EP 2		PETRONAS Grease LIX Syn 2/220
Packing Process	Bag Filler			Blowers	Circulating Oil	PETRONAS Circula		PETRONAS Circula Syn
				Blowers / Gears	Gear Oil	PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
				Compressor	Air Compressor Oil	PETRONAS Compressor A M 2	PETRONAS Compressor A M 4	PETRONAS Compressor A PAO
				Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
				Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF
				Palletiser		Electric Motor Bearings	Grease	PETRONAS Grease Li 2
		Gearbox / Reducer	Gear Oil			PETRONAS Gear MEP ⁽³⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
		Hydraulic System	Hydraulic Fluid			PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF
		Plumber Block Bearing	Grease			PETRONAS Grease LIX EP 2/380		PETRONAS Grease LIX Syn 2/460
		Slide Way Grease	Grease					PETRONAS Grease LiCa MG HL

⁽¹⁾ Conveyors Only

⁽²⁾ Jaw Crusher Only

⁽³⁾ Premium Product