



PETRONAS

PETRONAS
Lubricants
International (PLI)

Finding the next
level in efficiency



Finding the next level in efficiency

As the Pulp & Paper market shifts away from graphic paper and towards bespoke packaging materials, and as consumer focus on sustainability intensifies, manufacturers like yours need to work harder than ever to remain an industry leader.

As a company that is constantly looking for better methods of doing things, finding extra efficiencies across your production process is a way to keep ahead – and gives you a secure base from which to meet the challenges of tomorrow.

PLI can help you do that. The lubricant inside your machinery presents a surprising number of

opportunities to improve efficiency. To maintain consistency and control over production. To make cost savings and help realise sustainability ambitions.

But it isn't only in your equipment where you'll find more efficiency, your people can provide it too. That's why PLI offers technical training for key maintenance personnel – from the basic principles of lubrication and how to correctly lubricate a bearing, to the best ways to store oil products.

Together, we can take efficiency to the next level.



Build a sustainable foundation through efficient production



Expert service and support

AT PLI, we're not just experts in lubrication. We also have in-depth knowledge of the Pulp & Paper production process. Our specialists offer value-added services like Oil Analysis, Plant Audits and Maintenance Schedule Optimisation to help you

keep your machinery – and your production – running as effectively as possible. Meanwhile our technicians will be constantly looking for new ways to help you continuously improve.



Purpose-designed products

We have products for a huge range of industrial applications, including circulating oils specifically designed to meet the challenges of Pulp & Paper production. With the right

lubricant for each application you can be sure your machines are running at optimal efficiency – improving performance, reducing wear and extending oil drain intervals.



Your partner in innovation

PETRONAS is in constant pursuit of advanced technical solutions. It is why we opened our state-of-the-art research and technology centre in Italy in 2018. This world-leading facility allows

us to develop innovative lubrication products which can meet the challenges of the most demanding applications and the latest machinery coming into the Pulp & Paper industry.



Reduce total cost of ownership

Together, we'll find the most cost-effective way to maintain your equipment and help your machines to last longer.



About PLI

PLI is the global lubricant division of PETRONAS

90

Operations in over 90 countries

10

A top 10 lubricant producer, globally

R&T

World-leading Research & Technology centre in Turin, Italy

F500

Fortune Global 500* Company

900M

Over 900M litres total sales volume in 2018

1974

Founded in 1974

*Source FORTUNE Global 500



Continuous improvement in environmental management

We recognise the increase in environmental awareness, standards and regulations applicable to the oil and gas industry. We continuously work towards improving operational excellence and processes to reduce our environmental impact and manage our operations safely and responsibly.

Much effort has been put into complying with applicable environmental regulations. We have internal standards to manage air emissions, wastewater, hazardous waste, soil and groundwater, project environmental management and use of natural resources. We benchmark against external standards and guidelines such as International Finance Corporation (IFC), World Bank and local requirements to establish our internal standards.

Everlub Oil Analysis service – the 'eyes' inside your equipment



See into your machines

Regular testing, analysis and accurate interpretation can uncover issues you weren't aware of – and give you peace of mind when everything is working as it should.



Fix problems before they happen

We spot machine wear, contamination and unexpected oil properties early. We make recommendations so you can fix issues before they become un-fixable.



Keep everything running smoothly

We'll help you make better-informed decisions to extend the life of your equipment and keep it running as efficiently as possible.



Use efficiency to save energy

Equipment that is running smoothly and efficiently consumes less energy – fact. PLI also design products specifically to save energy – like PETRONAS Hydraulic ESF (Energy Saving Fluid).



Extend your oil drain intervals with PETRONAS Circula PM

Our range of circulating oils is formulated specifically for Pulp & Paper machines and gives exceptional anti-wear protection under the toughest operating conditions.

These oils last over 4 times longer* thanks to their excellent water separability and resistance to sludge formation, so you can extend your oil drain intervals and reduce maintenance costs.

*vs. minimum requirements of ISO 11158 HM fluids based on TOST (ASTM D943)

Your key to maximising performance

By focusing on 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 paper production equipment. Choose the correct lubricant for equipment requirements and watch your productivity accelerate to the next level.



PRIMARY PROCESS	EQUIPMENT	LUBRICATION PARTS	LUBRICANT	STANDARD	PREMIUM	SUPREME
Woodyard	Crane & Lifting Equipment	Bearings	Grease	PETRONAS Grease LiX EP 2/380	PETRONAS Grease CaSx	PETRONAS Grease LiX Syn 2/460
		Cables / Wire Ropes	Grease	PETRONAS Grease LiCa GEP 2.5		
		Cooling System	Coolant Fluid	PETRONAS Paraflu 11	PETRONAS Paraflu Up Ready	
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
		Engine	Engine Oil	PETRONAS Urania LD 7	PETRONAS Urania 5000E 15W40	PETRONAS Urania 7000E 10W40
		Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽¹⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
		Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF
		Hydraulic System (Mobile)	Transmission Fluid	PETRONAS Powertrans T4		
	Dump Trucks, Wheel Loaders, Front End Loaders	Open Gears	Grease		PETRONAS Grease LiCa TMG	
		Cooling System	Coolant Fluid	PETRONAS Paraflu 11	PETRONAS Paraflu Up Ready	
		Converter	Transmission Fluid	PETRONAS Powertrans T4		
		Engine	Engine Oil	PETRONAS Urania LD 7	PETRONAS Urania 5000E 15W40	PETRONAS Urania 7000E 10W40
		Final Drive	Transmission Fluid	PETRONAS Powertrans T4		
		Grease Points	Grease	PETRONAS Grease LiX MEP	PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MG XHL
		Hydraulics / Steering	Transmission Fluid	PETRONAS Powertrans T4		
	Debarking Drum	Transmission	Transmission Fluid	PETRONAS Powertrans T4		
		Bearings	Grease	PETRONAS Grease LiX EP 2/380		PETRONAS Grease LiX Syn 2/460
		Chain Drive	Slideway Oil	PETRONAS Slideway		
		Couplings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PE HS	
		Couplings (Oil)	Turbine Oil	PETRONAS Jenteram	PETRONAS Jenteram G	PETRONAS Jenteram Syn
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
		Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽¹⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
		Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF
	Wood Chipper	Open Gears	Grease		PETRONAS Grease LiCa TMG	
		Bearings	Grease	PETRONAS Grease LiX EP 2/380		PETRONAS Grease LiX Syn 2/460
		Couplings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PE HS	
		Couplings (Oil)	Turbine Oil	PETRONAS Jenteram	PETRONAS Jenteram G	PETRONAS Jenteram Syn
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
Grease Points		Grease	PETRONAS Grease Li EP 2		PETRONAS Grease LiX Syn 2/220	
Gearbox / Reducer		Gear Oil	PETRONAS Gear MEP ⁽¹⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO	
Chip Conveyors	Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF	
	Bearings	Grease	PETRONAS Grease LiX EP 2/380		PETRONAS Grease LiX Syn 2/460	
	Couplings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PE HS		
	Conveyor Back Stop	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 ⁽¹⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO	
Screens	Bearings	Grease	PETRONAS Grease LiX EP 2/380		PETRONAS Grease LiX Syn 2/460	
	Chains / Sprockets	Slideway Oil	PETRONAS Slideway			
	Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU		
	Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽¹⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO	

PRIMARY PROCESS	EQUIPMENT	LUBRICATION PARTS	LUBRICANT	STANDARD	PREMIUM	SUPREME
Pulp Mill	Digester	Bearings	Grease			PETRONAS Grease LiX Syn 1/500
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
		Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽¹⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
		Grease Points	Grease	PETRONAS Grease Li EP 2		PETRONAS Grease LiX Syn 2/220
	Pulp Washer	Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF
		Bearings (Oil)	Circulating Oil	PETRONAS Circula	PETRONAS Circula PM	PETRONAS Circula Syn
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
		Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽¹⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
	Pulp Bleaching Towers	Repulper and General Bearings	Grease	PETRONAS Grease LiX EP 2/380		PETRONAS Grease LiX Syn 2/460
		Bearings	Grease	PETRONAS Grease LiX EP 2/380		PETRONAS Grease LiX Syn 2/460
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
		Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽¹⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
Stock Preparation	Pulp storage (Pumps and Agitators)	Bearings	Grease	PETRONAS Grease LiX EP 2/380		PETRONAS Grease LiX Syn 2/460
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
		Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽¹⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
	Repulper	Couplings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PE HS	
		Bearings	Grease	PETRONAS Grease LiX EP 2/380		PETRONAS Grease LiX Syn 2/460
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
	Mixing and Machine Chest	Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽¹⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
		Bearings	Grease	PETRONAS Grease LiX EP 2/380		PETRONAS Grease LiX Syn 2/460
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
	Refiners	Bearings	Grease	PETRONAS Grease LiX EP 2/380		PETRONAS Grease LiX Syn 2/460
		Bearings (Oil)	Circulating Oil	PETRONAS Circula		PETRONAS Circula Syn
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
Geared Coupling		Grease	PETRONAS Grease Li 2	PETRONAS Grease PE HS		
Refined Stock Chest	Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽¹⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAG	
	Bearings	Grease	PETRONAS Grease LiX EP 2/380		PETRONAS Grease LiX Syn 2/460	
	Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU		
Paper Machine	Paper Machine	Calendar Roll Bearings (Oil)	Circulating Oil	PETRONAS Circula	PETRONAS Circula PM	PETRONAS Circula Syn
		Dryer Bearings	Circulating Oil	PETRONAS Circula	PETRONAS Circula PM	PETRONAS Circula Syn
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
		Fans (Oil)	Circulating Oil	PETRONAS Circula	PETRONAS Circula PM	PETRONAS Circula Syn
		Fans - Hood	Grease	PETRONAS Grease Li EP 2	PETRONAS Grease CaSx	PETRONAS Grease LiX Syn 2/220
		Fans - Trim	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
		Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF
		Press Roll Bearings	Grease	PETRONAS Grease LiX EP 2/380		PETRONAS Grease LiX Syn 2/460
		Rewind Stand Bearings (Pope Reel)	Grease	PETRONAS Grease LiX EP 2/380		PETRONAS Grease LiX Syn 2/460
		Roll Drive Gearbox	Gear Oil	PETRONAS Gear MEP ⁽¹⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
		Rope Pulley Bearing	Grease	PETRONAS Grease Li EP 2	PETRONAS Grease CaSx	PETRONAS Grease LiX Syn 2/220
		Steam Rotary Joints	Grease	PETRONAS Grease LiX MEP		
		Vacuum Pumps	Grease	PETRONAS Grease Li EP 2	PETRONAS Grease CaSx	PETRONAS Grease LiX Syn 2/220
		Wire Roll Bearings	Grease	PETRONAS Grease LiX EP 2/380		PETRONAS Grease LiX Syn 2/460
Chemical Recovery Plant	Kiln	Auxiliary Diesel Engine	Engine Oil	PETRONAS Urania LD 7	PETRONAS Urania 5000E 15W40	PETRONAS Urania 7000E 10W40
		Auxiliary Reducer	Gear Oil	PETRONAS Gear MEP ⁽¹⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
		Couplings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PE HS	
		Cooling System	Coolant Fluid	PETRONAS Paraflu 11	PETRONAS Paraflu Up Ready	
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
		Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽¹⁾	PETRONAS Gear FL	PETRONAS Gear Syn PAO
		Girth Gear	Grease		PETRONAS LiCa TMG	
		Kiln Support Roller Bearings	Circulating Oil			PETRONAS Circula Syn
	Recovery Boiler	Thrust Bearings	Circulating Oil			PETRONAS Circula Syn
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	
		Forced and Induced Draft Fan Bearings	Grease		PETRONAS Grease CaSx	PETRONAS Grease LiX Syn 2/220
		Forced and Induced Draft Fan Bearings (Oil)	Circulating Oil	PETRONAS Circula	PETRONAS Circula PM	PETRONAS Circula Syn
		Precipitator Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP ⁽¹⁾	PETROANS Gear FL	PETRONAS Gear Syn PAO
		Precipitator Support Bearings	Grease		PETRONAS Grease CaSx	PETRONAS Grease LiX Syn 2/220
	Primary Air Fan Bearings	Grease		PETRONAS Grease CaSx	PETRONAS Grease LiX Syn 2/220	
	Secondary Air Fan Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU	PETRONAS Grease LiX Syn 2/100	
	Soot Blower Gearbox / Reducer	Gear Oil			PETRONAS Gear Syn PAG	

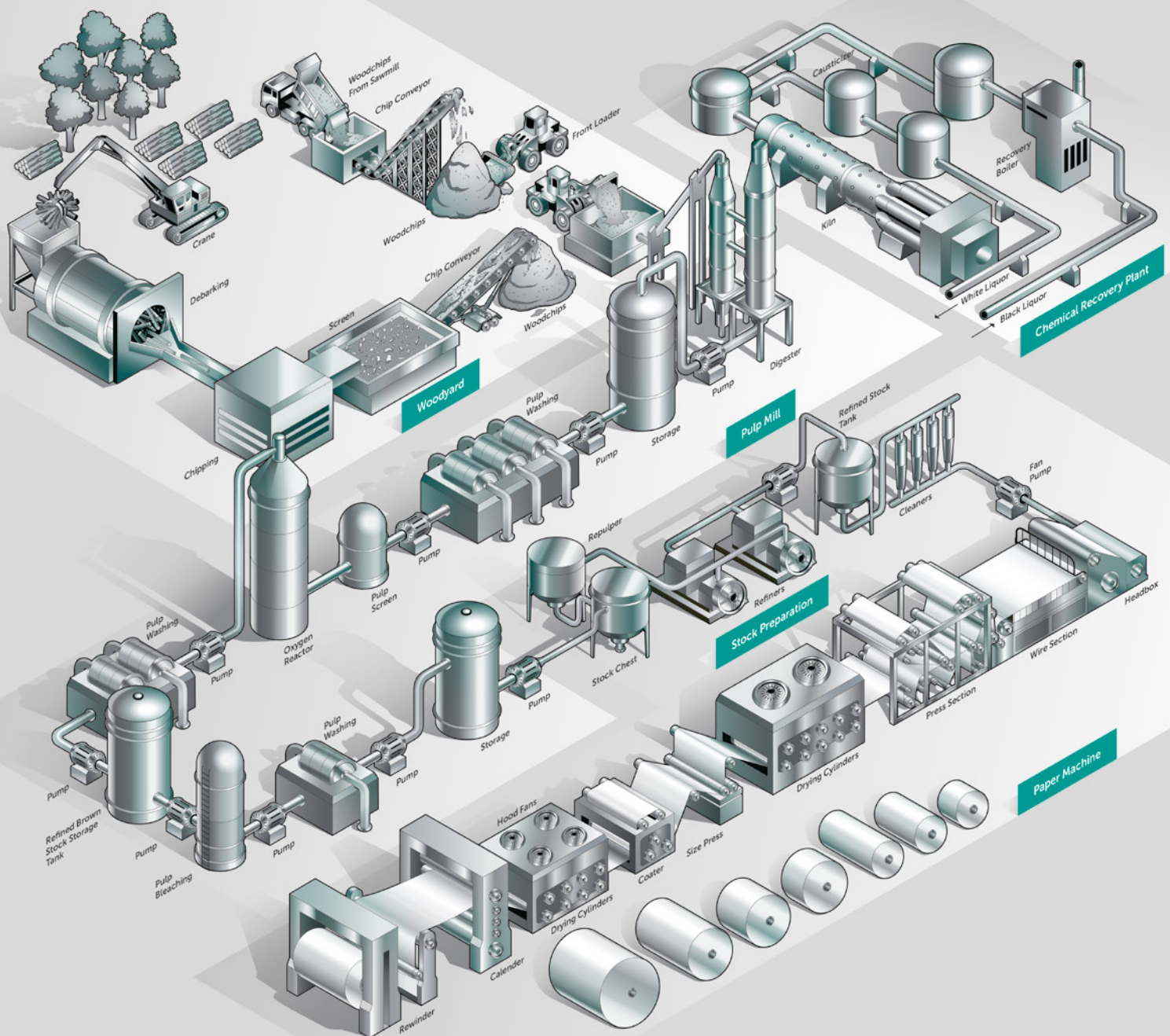
⁽¹⁾ Premium Product





PETRONAS

Simplified Pulp and Paper Production Process



Find new efficiencies in your mill

Book a site visit with our technical expert. We'll work with you to take samples from your equipment and analyse them. We'll then interpret the results with you, enabling you to make an effective difference to your business.

Visit: pli-industrial.eu/pulp-and-paper