

#### 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.

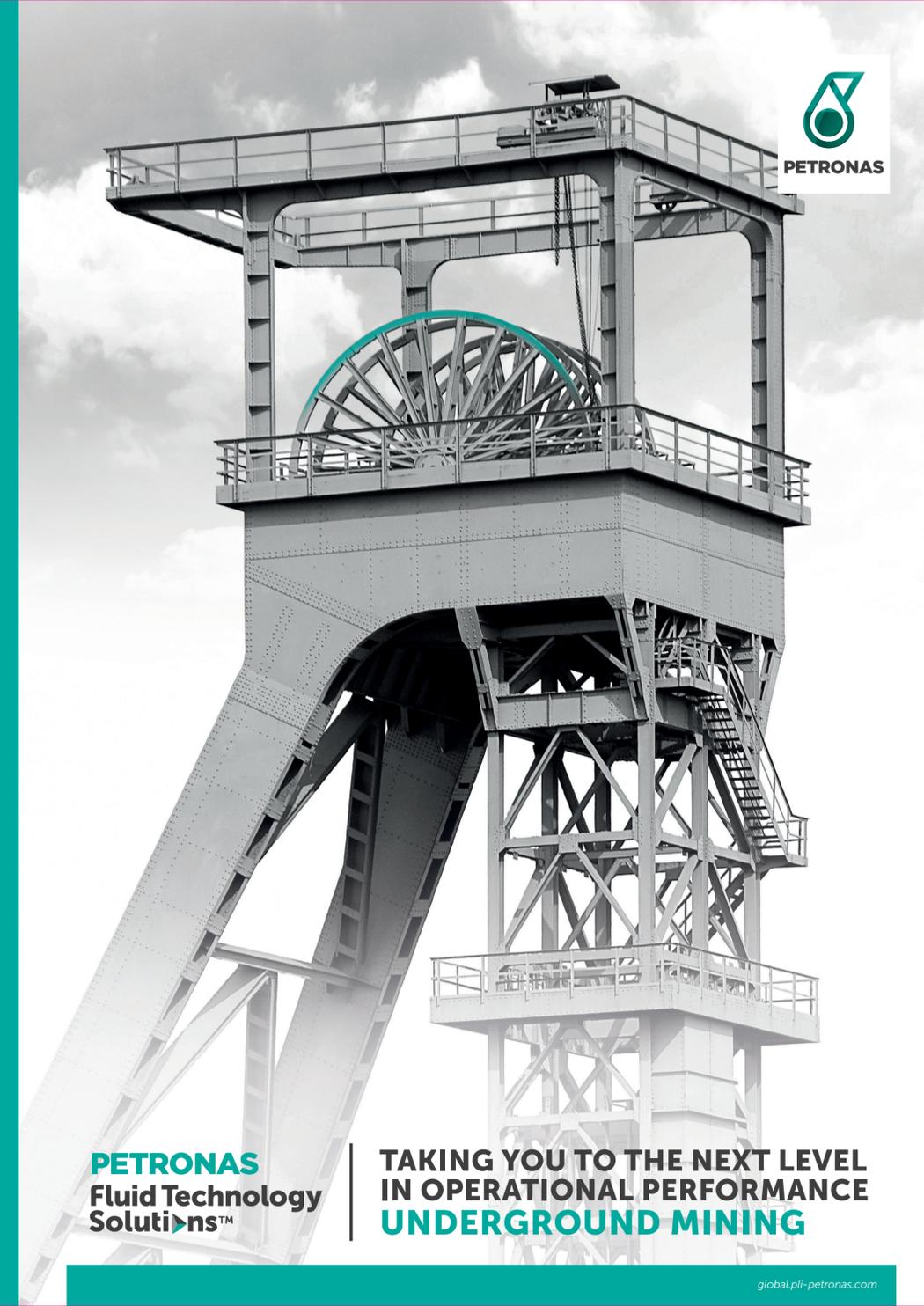


#### PROVEN EXPERTS, ALWAYS READY TO HELP!

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:



**PETRONAS**  
Fluid Technology  
Solutions™

**TAKING YOU TO THE NEXT LEVEL  
IN OPERATIONAL PERFORMANCE  
UNDERGROUND MINING**

[global.pli-petronas.com](http://global.pli-petronas.com)

#### 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

The modern global underground mining industry faces major challenges like never before. Operating in difficult conditions at even greater depths below the Earth's surface, combined with increasingly strict regulation and environmental concerns, have resulted in rising costs, making reliability and efficiency key for any profitable mining operation.

With mining equipment subjected to extreme working conditions, such as exposure to heat, moisture, abrasive dust, high pressures and high shock loads around the clock, high quality lubricants are essential to help prevent lost production and unexpected breakdowns.

As the preferred strategic partner and provider of lubrication solutions to major

mining operations 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.



### YOUR KEY TO MAXIMISING PERFORMANCE

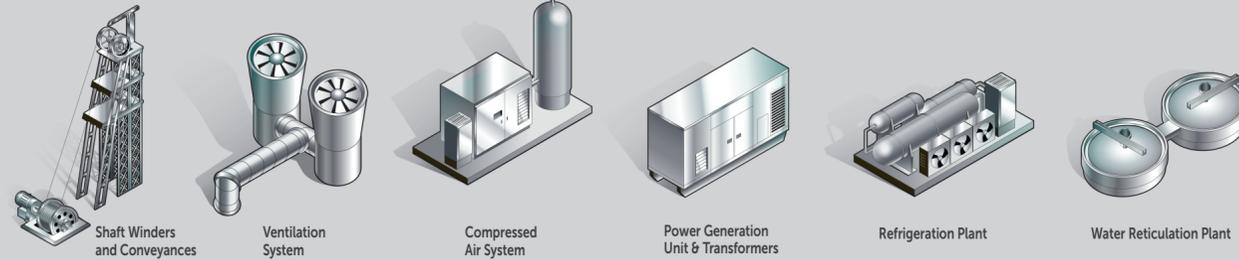
By focusing our expertise and utilising the latest advances in lubrication technology, we have developed a comprehensive range of state-of-the-art lubricants that meets the needs of all mining equipment. Choose the correct lubricant for equipment requirements and watch your productivity accelerate to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



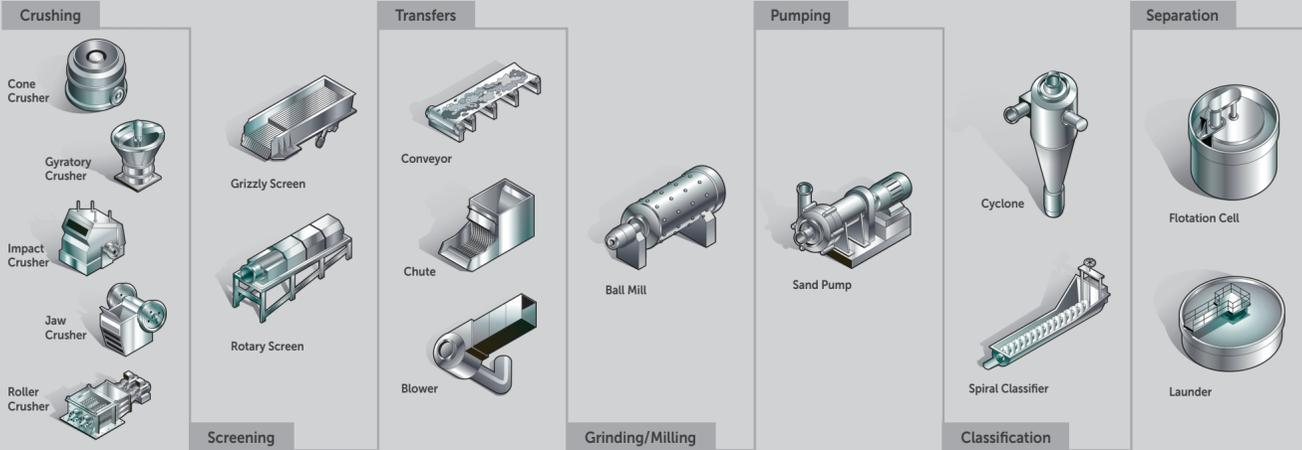
PRIMARY PROCESS	EQUIPMENT	LUBRICATION PARTS	LUBRICANT	STANDARD	PREMIUM	SUPREME	
Ore Mining	Drill Rigs & Scalars	Converter <sup>(1)</sup>	Transmission Oil	PETRONAS Powertrans T4 30W			
		Compressors <sup>(2)</sup>	Compressor Oil	PETRONAS Compressor A M 2	PETRONAS Compressor A M 4	PETRONAS Compressor A PAO	
		Cooling System	Coolant Fluid	PETRONAS Parafllu 11	PETRONAS Parafllu Up Ready		
		Engine	Engine Oil	PETRONAS Urania LD 7	PETRONAS Urania 5000E 15W40	PETRONAS Urania 7000E 10W40	
		Final Drive <sup>(3)</sup>	Transmission Oil	PETRONAS Powertrans T4 50W			
		Grease Points	Grease	PETRONAS Grease LIX MEP	PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MG XHL	
		Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF	
		Hydraulic System / Steering <sup>(5)</sup>	Transmission Oil	PETRONAS Powertrans T4 10W			
		FR Hydraulic System	FR Hydraulic Fluid	PETRONAS Hydraulic HFC	PETRONAS Hydraulic FR		
		Rod Thread Lubricant <sup>(2)</sup>	Grease	PETRONAS Grease Li AS			
		Slewing Ring <sup>(1)</sup>	Grease			PETRONAS Grease LiCa MG HL	
		Transmission	Transmission Oil	PETRONAS Powertrans T4 50W			
		Vertical Bearing <sup>(2)</sup>	Grease		PETRONAS Grease CaSx	PETRONAS Grease LiX Syn 2/220	
		Rock Drills	Rock Drills (Grease)	Grease	PETRONAS Grease Ca 00		
		Rock Drills (Oil)	Air Tool Oil	PETRONAS ATO			
Ore Mining	Continuous Miners & Roadheaders	Converter	Transmission Oil	PETRONAS Powertrans T4 30W			
		Cooling System	Coolant Fluid	PETRONAS Parafllu 11	PETRONAS Parafllu Up Ready		
		Engine	Engine Oil	PETRONAS Urania LD 7	PETRONAS Urania 5000E 15W40	PETRONAS Urania 7000E 10W40	
		Final Drive	Transmission Oil	PETRONAS Powertrans T4 50W			
		Gearbox / Reducer <sup>(4)</sup>	Gear Oil	PETRONAS Gear MEP <sup>(7)</sup>	PETRONAS Gear FL	PETRONAS Gear Syn PAO	
		Grease Points	Grease	PETRONAS Grease LIX MEP	PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MG XHL	
		Hydraulic System / Steering	Transmission Oil	PETRONAS Powertrans T4 10W			
		FR Hydraulic System	Fire Resistant Hydraulic Fluid	PETRONAS Hydraulic HFC	PETRONAS Hydraulic FR		
		Transmission	Transmission Oil	PETRONAS Powertrans T4 30W			
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU		
		Final Drive	Transmission Oil	PETRONAS Powertrans T4 50W			
		Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP <sup>(7)</sup>	PETRONAS Gear FL	PETRONAS Gear Syn PAO	
		Grease Points	Grease	PETRONAS Grease LIX MEP	PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MG XHL	
		FR Hydraulic System	Fire Resistant Hydraulic Fluid	PETRONAS Hydraulic HFC	PETRONAS Hydraulic FR		
		Transmission	Transmission Oil	PETRONAS Powertrans T4 30W			
Ore Mining	Tunnel / Raise Borer	Cooling System	Coolant Fluid	PETRONAS Parafllu 11	PETRONAS Parafllu Up Ready		
		Cutter Head Bearings	Grease			PETRONAS Grease LiX Syn 2/460	
		Cutter Head Bearings (Oil)	Gear Oil	PETRONAS Gear MEP <sup>(7)</sup>	PETRONAS Gear FL	PETRONAS Gear Syn PAO	
		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	
		Grease Points	Grease	PETRONAS Grease LIX MEP	PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MG XHL	
		Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF	
		FR Hydraulic System	Fire Resistant Hydraulic Fluid	PETRONAS Hydraulic HFC	PETRONAS Hydraulic FR		
		Cooling System	Coolant Fluid	PETRONAS Parafllu 11	PETRONAS Parafllu Up Ready		
		Engine	Engine Oil	PETRONAS Urania LD 7	PETRONAS Urania 5000E 15W40	PETRONAS Urania 7000E 10W40	
		Grease Points	Grease	PETRONAS Grease LIX MEP	PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MG XHL	
		Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF	
		Transmission	Transmission Oil	PETRONAS Powertrans T4 50W			
		Bearings	Grease	PETRONAS Grease Li EP 2	PETRONAS Grease LIX 2/170	PETRONAS Grease LIX SYN 2/220	
		Ore Mining	Pneumatic Loader	Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP <sup>(7)</sup>	PETRONAS Gear FL
Grease Points	Grease			PETRONAS Grease LIX MEP	PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MG XHL	
Hydraulic System	Hydraulic Fluid			PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF	

### Simplified Underground Mining Process

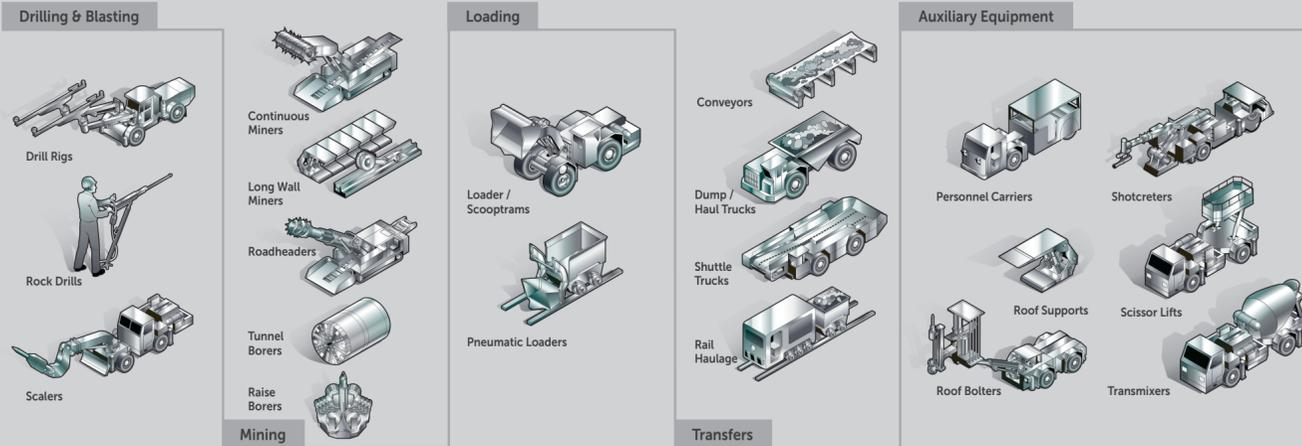
#### SURFACE INFRASTRUCTURE



#### ORE PROCESSING



#### ORE MINING



Disclaimer: The above production process and/or list of equipment have been simplified solely for the purpose of this material. Kindly refer to our website at [www.ppi-petronas.com](http://www.ppi-petronas.com) or contact our sales representative for any further details. Please take note that the product recommendations are provided as a guide only. It is the responsibility of the user to evaluate the suitability of the recommended lubricants for the intended application based upon the specific OEM recommendations for the specific make and/or model of equipment or machinery as well as the actual operating conditions. We recommend contacting our Technical Team, who will assist you in making the final selection. Due to continual product research and development, the information contained herein is subject to change without any prior notification.

PRIMARY PROCESS	EQUIPMENT	LUBRICATION PARTS	LUBRICANT	STANDARD	PREMIUM	SUPREME				
Ore Mining	Dump Truck, Haul Truck, Shuttle Truck	Cooling System	Coolant Fluid	PETRONAS Parafllu 11	PETRONAS Parafllu Up Ready					
		Engine	Engine Oil	PETRONAS Urania LD 7	PETRONAS Urania 5000E 15W40	PETRONAS Urania 7000E 10W40				
		Grease Points	Grease	PETRONAS Grease LIX MEP	PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MG XHL				
		Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF				
		Transmission	Transmission Oil	PETRONAS Powertrans T4 50W						
		Cooling System	Coolant Fluid	PETRONAS Parafllu 11	PETRONAS Parafllu Up Ready					
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU					
		Engine (Two Stroke)	Engine Oil	PETRONAS Urania CD 40						
		Engine (Four Stroke)	Engine Oil	PETRONAS Urania LD 7	PETRONAS Urania 5000E 15W40	PETRONAS Urania 7000E 10W40				
		Grease Points	Grease	PETRONAS Grease LIX MEP	PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MG XHL				
		Pantograph	Grease	PETRONAS LiCa GEP 2.5						
		Transmission	Transmission Oil	PETRONAS Powertrans T4 30W						
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU					
		Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP <sup>(7)</sup>	PETRONAS Gear FL	PETRONAS Gear Syn PAO				
		Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF				
Ore Processing	Cone / Gyrotary / Impact / Jaw / Roller crushers	Plain Bearings (Oil)	Gear Oil	PETRONAS Gear MEP <sup>(7)</sup>	PETRONAS Gear FL	PETRONAS Gear Syn PAO				
		Plain Bearings / Roller Bearings <sup>(4)</sup>	Grease	PETRONAS Grease LIX MEP	PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MG XHL				
		Press Bearings <sup>(5)</sup>	Grease	PETRONAS Grease LIX EP 2/380		PETRONAS Grease LiX Syn 2/460				
		Press Bearings (Oil) <sup>(5)</sup>	Circulation Oil	PETRONAS Circula		PETRONAS Circula Syn				
		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 <sup>(7)</sup>	PETRONAS Gear FL	PETRONAS Gear Syn PAO				
		Bearings	Grease	PETRONAS Grease Li EP 2	PETRONAS Grease CaSx	PETRONAS Grease LIX SYN 2/220				
		Couplings	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 <sup>(7)</sup>	PETRONAS Gear FL	PETRONAS Gear Syn PAO				
		Hydraulic System <sup>(6)</sup>	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF				
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU					
		Electric Motor Bearings (Oil)	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF				
		Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP <sup>(7)</sup>	PETRONAS Gear FL	PETRONAS Gear Syn PAO				
		Girth Gear	Grease	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF				
Ore Mining	Grizzly, Rotary, Vibrating Screens / Feeders	Hydraulic System (Oil)	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF				
		Plain Bearings (Oil)	Circulation Oil	PETRONAS Circula	PETRONAS Circula Syn					
		Slipper Pad Bearing	Grease	PETRONAS Grease LIX EP 2/380		PETRONAS Grease LiX Syn 2/460				
		Slipper Pad Bearing (Oil)	Circulation Oil	PETRONAS Circula		PETRONAS Circula Syn				
		Bearings	Grease	PETRONAS Grease Li EP 2	PETRONAS Grease CaSx	PETRONAS Grease LIX Syn 2/220				
		Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU					
		Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP <sup>(7)</sup>	PETRONAS Gear FL	PETRONAS Gear Syn PAO				
		GreasePoints	Grease	PETRONAS Grease LIX MEP	PETRONAS Grease LiCa MG HL	PETRONAS Grease LiCa MG XHL				
		Vertical Bearing	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU					
		Vertical Bearing (Oil)	Circulation Oil	PETRONAS Circula		PETRONAS Circula Syn				
		Surface Infrastructure	Compressed Air System	Air Dryer (HFC)	Refrigeration Compressor Oil			PETRONAS Compressor R Syn POE		
				Air Dryer (Ammonia)	Refrigeration Compressor Oil			PETRONAS Compressor R Syn PAO		
				Compressors	Air Compressor Oil	PETRONAS Compressor A M 2	PETRONAS Compressor A M 4	PETRONAS Compressor A Syn PAO		
				Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU			
				Cooling System	Coolant Fluid	PETRONAS Parafllu 11	PETRONAS Parafllu Up Ready			
Engine	Engine Oil			PETRONAS Urania LD 7	PETRONAS Urania 5000E 15W40	PETRONAS Urania 7000E 10W40				
Gas Engine (Natural Gas)	Gas Engine Oil				PETRONAS Grease PU					
Generator Bearings	Grease				PETRONAS Grease PU	PETRONAS Grease LIX Syn 2/100				
Compressor (HFC)	Refrigeration Compressor Oil					PETRONAS Compressor R Syn POE				
Compressor (Ammonia)	Refrigeration Compressor Oil					PETRONAS Compressor R Syn PAO				
Surface Infrastructure	Refrigeration Plant			Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU			
				Electric Motor Bearings / Plain Bearings (Oil)	Circulation Oil	PETRONAS Circula		PETRONAS Circula Syn		
				Anti-Seize Compound	Grease	PETRONAS Grease Li AS				
				Cables	Grease	PETRONAS Grease LiCa GEP 2.5				
				Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU			
		Gearbox / Reducer	Gear Oil	PETRONAS Gear MEP <sup>(7)</sup>	PETRONAS Gear FL	PETRONAS Gear Syn PAO				
		Head Gear Pulley Bearings / Sheave Wheel	Grease	PETRONAS Grease LIX EP 2/380		PETRONAS Grease LIX Syn 2/460				
		Humble Hook	MWF	PETRONAS Mecafluid P 26						
		Hydraulic System	Hydraulic Fluid	PETRONAS Hydraulic	PETRONAS Hydraulic HV	PETRONAS Hydraulic ESF				
		Winder Support Bearing	Circulation Oil	PETRONAS Circula		PETRONAS Circula Syn				
		Cables	Grease	PETRONAS Grease LiCa GEP 2.5						
		Surface Infrastructure	Shaft Winders And Conveyances	Electric Motor Bearings	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU			
				Winch Gear (Grease)	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU			
				Transformer	Transformer Oil (Naphthenic Uninhibited)	PETRONAS Elektron				
				Transformer	Transformer Oil (Naphthenic Inhibited)	PETRONAS Elektron X				
Surface Infrastructure	Stope Winch			Winch Gear (Grease)	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU			
				Winch Gear (Oil)	Grease	PETRONAS Grease Li 2	PETRONAS Grease PU			
				Transformer	Transformer Oil (Naphthenic Uninhibited)	PETRONAS Elektron				
				Transformer	Transformer Oil (Naphthenic Inhibited)	PETRONAS Elektron X				
				Surface Infrastructure	Transformers	Transformer	Transformer Oil (Naphthenic Uninhibited)	PETRONAS Elektron		
						Transformer	Transformer Oil (Naphthenic Inhibited)	PETRONAS Elektron X		

<sup>(1)</sup> Scaler Only <sup>(2)</sup> Drill Rigs Only <sup>(3)</sup> Roadheader Only <sup>(4)</sup> Jaw Crusher Only <sup>(5)</sup> Roller Crusher Only <sup>(6)</sup> Grizzly & Vibrating Screens / Feeders Only <sup>(7)</sup> Premium Product