



# Shell Gadinia 30

*Lubricants for medium-speed marine diesel engines running on distillate fuels*

Shell Gadinia are premium quality multifunctional diesel engine lubricants that are specially designed for the most severe service main propulsion and auxiliary marine trunk piston engines burning distillate fuels with a sulphur content up to 1%. They also perform satisfactorily in smaller high-speed engines of fishing fleets that operate under arduous conditions and have small sumps.

## DESIGNED TO MEET CHALLENGES

### Performance, Features & Benefits

- **Improved engine reliability:**  
Greater tolerance to engine overload or poor combustion due to improved piston cleanliness.  
Reduced deposits in piston ring belt and cylinder liners.
- **Lower maintenance costs:**  
Extended diesel engine life through reduced risk of ring sticking and breakage.  
Longer oil life, especially in high stress engines, because of Gadinia's excellent resistance to oxidation and thermal degradation under severe operating conditions.  
Superior protection against corrosion for all engine components, due to Shell Gadinia's unique formulation giving excellent alkalinity retention.  
Improved control of liner lacquer leads to better control of oil consumption and contributes to lower cost of operation.
- **Re-assurance:**  
Greater safety margin to protect highly loaded bearings, in the event of water contamination, because of Shell Gadinia's improved water tolerance and separation in separators.

OEM endorsement by leading diesel engine manufacturers following extensive field approval trials, means that Shell Gadinia is suitable for the widest range of modern diesel engines.

### Main Applications

- Highly rated, medium speed, main propulsion & auxiliary trunk-piston marine diesel engines.
- Turbochargers, oil filled stern tubes and variable pitch propellers.
- Deck machinery & other marine applications requiring SAE 30 or 40 viscosity oils.

### Specifications, Approvals & Recommendations

- Shell Gadinia is approved by leading trunk piston engine manufacturers.
- API CF  
For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk.

### Typical Physical Characteristics

Properties			Method	Shell Gadinia 30
Kinematic Viscosity	@40°C	mm <sup>2</sup> /s	ASTM D445	104
Kinematic Viscosity	@100°C	mm <sup>2</sup> /s	ASTM D445	11.8
Density	@15°C	kg/l	ASTM D4052	0.897
Flash Point (PMCC)		°C	ASTM D93	200+
Pour Point		°C	ASTM D97	-18
BN		mg/KOH/g	ASTM D2896	12
Sulphated Ash		% wt	ASTM D874	1.35

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

- **Health and Safety**

Shell Gadinia 30 is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

- **Protect the Environment**

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

- **Advice**

Advice on applications not covered here may be obtained from your Shell representative.

- **Condition Monitoring**

Shell RLA engine condition monitoring service enables the ship operator to monitor the condition of the oil and equipment and to take remedial action when necessary. This helps to avoid breakdowns and costly downtime.

Shell RLA OPICA is an integrated software system enabling RLA data to be received electronically in the office and/or on the vessel. It contains powerful data management and graphics, enabling efficiency gains in report handling and machine condition monitoring.



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Properties			Method	Shell Gadinia 40
Kinematic Viscosity	@40°C	mm <sup>2</sup> /s	ASTM D445	139
Kinematic Viscosity	@100°C	mm <sup>2</sup> /s	ASTM D445	14.4
Density	@15°C	kg/l	ASTM D4052	0.900
Flash Point (PMCC)		°C	ASTM D93	225+
Pour Point		°C	ASTM D97	-18
BN		mg/KOH/g	ASTM D2896	12
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# GET TO KNOW THE NEW SHELL LUBRICANTS PORTFOLIO

DESIGNED TO MEET CHALLENGES

OLD PRODUCT	NEW/REPLACEMENT PRODUCT
Shell Albida EP 1	Shell <b>Gadus S3</b> V220C 1
Shell Albida EP 2	Shell <b>Gadus S3</b> V220C 2
Shell Albida GC 1	Shell <b>Gadus S3</b> High Speed Coupling Grease
Shell Albida HD 2	Shell <b>Gadus S3</b> V460 2
Shell Albida HDX 1	Shell <b>Gadus S3</b> V460D 1
Shell Albida HDX 2	Shell <b>Gadus S3</b> V460D 2
Shell Albida HDZX 2	Shell <b>Gadus S4</b> V460D 2
Shell Albida MDX 2	Shell <b>Gadus S3</b> V460XD 2
Shell Alvania EPD	Shell <b>GadusRail S3</b> AAR AP 1.5
Shell Alvania EP(LF) 0	Shell <b>Gadus S2</b> V220 0
Shell Alvania EP(LF) 00	Shell <b>Gadus S2</b> V220 00
Shell Alvania EP(LF) 1	Shell <b>Gadus S2</b> V220 1
Shell Alvania EP(LF) 2	Shell <b>Gadus S2</b> V220 2
Shell Alvania HDX 00	Check application
Shell Alvania HD 2	Shell <b>Gadus S2</b> V220AC 2
Shell Alvania HDX 1	Shell <b>Gadus S2</b> V220AD 1
Shell Alvania HDX 2	Shell <b>Gadus S2</b> V220AD 2
Shell Alvania RL 2	Shell <b>Gadus S2</b> V100 2
Shell Alvania RL 3	Shell <b>Gadus S2</b> V100 3
Shell Alvania SDX 2	Shell <b>Gadus S2</b> V1000AD 2
Shell ATF IID	Shell <b>Spirax S2</b> ATF D2



OLD PRODUCT	NEW/REPLACEMENT PRODUCT
Shell ATF III	Shell <b>Spirax S3</b> ATF MD3
Shell ATF XTR	Still available
Shell Clavus AB 68	Shell <b>Refrigeration Oil S4</b> FR-V 68
Shell Clavus 68	Shell <b>Refrigeration Oil S2</b> FR-A 68
Shell Clavus R 68	Shell <b>Refrigeration Oil S4</b> FR-F 68
Shell Corena AP 68	Shell <b>Corena S4</b> P 68
Shell Corena AP 100	Shell <b>Corena S4</b> P 100
Shell Corena AS 46	Shell <b>Corena S4</b> R 46
Shell Corena AS 68	Shell <b>Corena S4</b> R 68
Shell Corena P 68	Shell <b>Corena S2</b> P 68
Shell Corena P 100	Shell <b>Corena S2</b> P 100
Shell Corena P 150	Shell <b>Corena S2</b> P 150
Shell Corena S 46	Shell <b>Corena S3</b> R 46
Shell Corena S 68	Shell <b>Corena S3</b> R 68
Shell Cyprina RA	Shell <b>GadusRail S2</b> Traction Motor Bearing Grease
Shell Delima 150	Shell <b>Paper Machine Oil S3</b> M 150
Shell Delima S 150	Shell <b>Paper Machine Oil S3</b> M 150
Shell Delima S 220	Shell <b>Paper Machine Oil S3</b> M 220
Shell Diala B	Shell <b>Diala S2</b> ZUH
Shell Diala BX	Shell <b>Diala S3</b> ZXI
Shell Donax CFD 60	Shell <b>Spirax S5</b> CFD M 60

OLD PRODUCT	NEW/REPLACEMENT PRODUCT
Shell Donax TC 10W	Shell <b>Spirax S4</b> CX 10W
Shell Donax TC 30	Shell <b>Spirax S4</b> CX 30
Shell Donax TC 50	Shell <b>Spirax S4</b> CX 50
Shell Donax TC 60	Shell <b>Spirax S4</b> CX 60
Shell Donax TD 5W-30	Shell <b>Spirax S4</b> TXM
Shell Donax TD 10W-30	Shell <b>Spirax S4</b> TXM
Shell Donax TX	Shell <b>Spirax S4</b> ATF HDX
Shell Donax TZ	Shell <b>Spirax S6</b> ATF ZM
Shell Harvella T 15W-40	Shell <b>Spirax S3</b> T
Shell Hyperia S 680	Shell <b>Omala S4</b> Wheel 680
Shell Kiln Seal TI	Shell <b>Gadus</b> Kiln Seal Grease
Shell Malleus JBZ (form. Mill Journal)	Shell <b>Gadus S4</b> V2600AD 1.5
Shell Malleus RN	Shell <b>Gadus S3</b> Repair
Shell Mine Gear 1500	Shell <b>Omala S3</b> GP 1500
Shell Morlina 5	Shell <b>Morlina S2</b> BL 5
Shell Morlina 10	Shell <b>Morlina S2</b> BL 10
Shell Morlina 150	Shell <b>Morlina S2</b> B 150
Shell Morlina 220	Shell <b>Morlina S2</b> B 220
Shell Morlina 320	Shell <b>Morlina S2</b> B 320
Shell Omala 68	Shell <b>Omala S2</b> G 68
Shell Omala 100	Shell <b>Omala S2</b> G 100
Shell Omala 150	Shell <b>Omala S2</b> G 150
Shell Omala 220	Shell <b>Omala S2</b> G 220
Shell Omala 320	Shell <b>Omala S2</b> G 320

OLD PRODUCT	NEW/REPLACEMENT PRODUCT
Shell Omala 460	Shell <b>Omala S2</b> G 460
Shell Omala 680	Shell <b>Omala S2</b> G 680
Shell Omala 800	Shell <b>Omala S2</b> G 1000
Shell Omala 1000	Shell <b>Omala S2</b> G 1000
Shell Omala F 320	Shell <b>Omala F</b> 320
Shell Omala F 460	Shell <b>Omala F</b> 460
Shell Omala HD 220	Shell <b>Omala S4</b> GX 220
Shell Omala HD 320	Shell <b>Omala S4</b> GX 320
Shell Omala HD 460	Shell <b>Omala S4</b> GX 460
Shell Omala HD 680	Shell <b>Omala S4</b> GX 680
Shell Omala RL 220	Shell <b>Morlina S4</b> B 220
Shell Omala RL 460	Shell <b>Morlina S4</b> B 460
Shell Retinax CS 00	Shell <b>Gadus S2</b> V220 00
Shell Retinax EP 2	Shell <b>Gadus S2</b> V220 2
Shell Retinax HD 2	Shell <b>Gadus S2</b> V220AC 2
Shell Retinax HDX 2	Shell <b>Gadus S2</b> V220AD 2
Shell Retinax LX 2	Shell <b>Gadus S3</b> V220C 2
Shell Retinax SD 2	Shell <b>Gadus S3</b> V460 2
Shell Rhodina EP (LF) 2	Shell <b>Gadus S2</b> A320 2
Shell Spirax A 80W-90	Shell <b>Spirax S2</b> A 80W-90
Shell Spirax A 85W-140	Shell <b>Spirax S2</b> A 85W-140
Shell Spirax A LS 90	Shell <b>Spirax S2</b> ALS 90
Shell Spirax ASX 80W-140	Shell <b>Spirax S6</b> AXME 80W-140
Shell Spirax AX 80W-90	Shell <b>Spirax S3</b> AX 80W-90

OLD PRODUCT	NEW/REPLACEMENT PRODUCT
Shell Spirax AX 85W-140	Shell <b>Spirax S3</b> AX 85W-140
Shell Spirax AX 90 LS	Shell <b>Spirax S3</b> ALS 80W-90
Shell Spirax GSX 50	Shell <b>Spirax S6</b> GME 50
Shell Spirax S 75W-90	Shell <b>Spirax S6</b> AXME 75W-90
Shell Spirax X 75W90	Shell <b>Spirax S4</b> AT 75W-90
Shell Stamina EP 2	Shell <b>Gadus S3</b> T220 2
Shell Stamina HDS	Shell <b>Gadus S5</b> T460 1.5
Shell Stamina RL 2	Shell <b>Gadus S3</b> T100 2
Shell Tactic EMV Albida EP2	Shell <b>Tactic EMV</b> Gadus S3 V220C 2
Shell Tactic EMV Albida HDX 2	Shell <b>Tactic EMV</b> Gadus S3 V460D 2
Shell Tactic EMV Stamina EP2	Shell <b>Tactic EMV</b> Gadus S3 T220 2
Shell Tellus Oil 22	Shell <b>Tellus S2</b> M 22
Shell Tellus Oil 32	Shell <b>Tellus S2</b> M 32
Shell Tellus Oil 46	Shell <b>Tellus S2</b> M 46
Shell Tellus Oil 68	Shell <b>Tellus S2</b> M 68
Shell Tellus Oil 100	Shell <b>Tellus S2</b> M 100
Shell Tellus EE 46	Shell <b>Tellus S4</b> ME 46
Shell Tellus EE 68	Shell <b>Tellus S4</b> ME 68
Shell Tellus S 32	Shell <b>Tellus S3</b> M 32
Shell Tellus S 46	Shell <b>Tellus S3</b> M 46
Shell Tellus S 68	Shell <b>Tellus S3</b> M 68
Shell Tellus S 100	Shell <b>Tellus S3</b> M 100
Shell Tellus T 15	Shell <b>Tellus S2</b> V 15
Shell Tellus T 32	Shell <b>Tellus S2</b> V 32

OLD PRODUCT	NEW/REPLACEMENT PRODUCT
Shell Tellus T 37	Shell <b>Tellus S2</b> V 46
Shell Tellus T 46	Shell <b>Tellus S2</b> V 46
Shell Tellus T 68	Shell <b>Tellus S2</b> V 68
Shell Tellus T 100	Shell <b>Tellus S2</b> V 100
Shell Thermia B	Shell <b>Heat Transfer Fluid S2</b>
Shell Tivela S 150	Shell <b>Omala S4</b> WE 150
Shell Tivela S 220	Shell <b>Omala S4</b> WE 220
Shell Tivela S 320	Shell <b>Omala S4</b> WE 320
Shell Tonna S 68	Shell <b>Tonna S3</b> M 68
Shell Tonna S 220	Shell <b>Tonna S3</b> S3 M 220
Shell Torcula 100	Shell <b>Air Tool Oil S2</b> A 100
Shell Torcula 320	Shell <b>Air Tool Oil S2</b> A 320
Shell Transaxle 75W-90	Shell <b>Spirax S5</b> ATE 75W-90
Shell Valvata J 460	Shell <b>Omala S1</b> W 460
Shell XGO Gear Oil 75W-90	Shell <b>Spirax S4</b> AT 75W-90

 Direct replacement  
 Recommended replacement

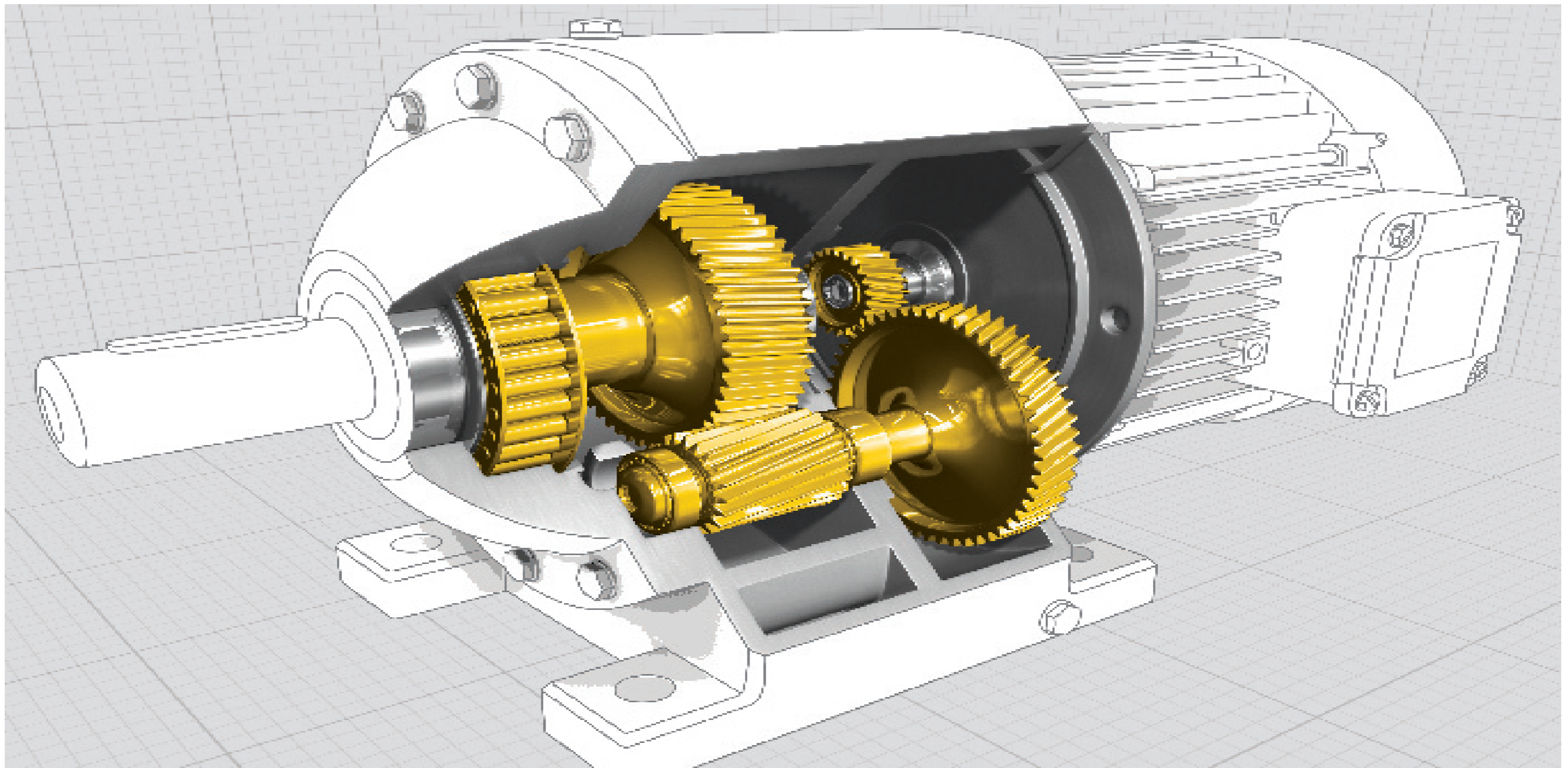
\* Recommended replacement where the original product is no longer available.

Please contact the Shell Technical Advice center or your Shell Account Manager to confirm if the suggested replacement is right for your equipment.

For more information, please contact:  
 The Shell Company of Australia Limited (ABN 46 004 610 459)  
 8 Redfern Rd, Hawthorn East, Victoria 3123  
 Emergency phone number (24 hours) 1800 651 818  
 Technical Assistance Australia 1300 134 205  
 Shell Customer Service 13 16 18

[shell.com.au/lubricants](http://shell.com.au/lubricants)





Shell Lubricants

GET TO KNOW THE NEW SHELL LUBRICANTS PORTFOLIO

DESIGNED TO MEET CHALLENGES



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OLD PRODUCT	NEW / REPLACEMENT PRODUCT
Shell Advance Snowmobile 0W-30	Contact technical helpdesk for consultancy
Shell Advance Ultra 4 10W-40	Shell Advance 4T Ultra 10W-40 (SM/MA2)
Shell Advance Ultra 4 15W-50	Shell Advance 4T Ultra 15W-50 (SM/MA2) 1*209L
Shell Advance VSX 4 10W-40	Shell Advance 4T AX7 10W-40 (SL/MA2)
Shell Advance VSX 4 10W-40	Shell Advance 4T AX7 10W-40 (SL/MA2)
Shell Advance VSX 4 10W-40	Shell Advance VSX 4 10W-40
Shell Advance VSX 4 15W-50	Contact technical helpdesk for consultancy
Shell Albida Grease 0900	Shell Gadus S3 V220C 2
Shell Albida Grease EMS 2	Shell Gadus S5 V100 2
Shell Albida Grease EP 2	Shell Gadus S3 V220C 2
Shell Albida Grease GC 1	Shell Gadus S3 High Speed Coupling Grease
Shell Albida Grease HLS 2	Shell Gadus S5 V460 2
Shell Albida Grease PP	Shell Gadus S3 V220 1.5
Shell Albida Grease PPS 1	Contact technical helpdesk for consultancy
Shell Albida Grease PPS 2	Shell Gadus S5 V220 2
Shell Alvania Grease 2760B	Shell GadusRail S3 EUFR
Shell Alvania Grease EP(LF) 0	Shell Gadus S2 V220 0
Shell Alvania Grease EP(LF) 1	Shell Gadus S2 V220 1
Shell Alvania Grease EP(LF) 1	Shell Gadus S2 V220 1
Shell Alvania Grease EP(LF) 2	Shell Gadus S2 V220 2
Shell Alvania Grease GC 00	Shell Gadus S1 Low Speed Coupling Grease
Shell Alvania Grease RL 2	Shell Gadus S2 V100 2
Shell Alvania Grease RL 3	Shell Gadus S2 V100 3
Shell Alvania Grease WR 2	Shell Gadus S2 V220AC 2

OLD PRODUCT	NEW / REPLACEMENT PRODUCT
Shell ATF 134	Shell Spirax S6 ATF 134ME
Shell ATF 3403 M-115	Contact technical helpdesk for consultancy
Shell Centra Grease W 00	Shell Gadus S3 V120G 00
Shell Centra Grease W 1	Contact technical helpdesk for consultancy
Shell Clavus Oil 15	Contact technical helpdesk for consultancy
Shell Clavus Oil 68	Contact technical helpdesk for consultancy
Shell Clavus Oil AB 100	Shell Refrigeration Oil S4 FR-V 100
Shell Clavus Oil G 32	Contact technical helpdesk for consultancy
Shell Clavus Oil G 46	Contact technical helpdesk for consultancy
Shell Clavus Oil G 68	Contact technical helpdesk for consultancy
Shell Clavus Oil R 32	Contact technical helpdesk for consultancy
Shell Clavus Oil R 68	Contact technical helpdesk for consultancy
Shell Clavus Oil SD 22-12	Contact technical helpdesk for consultancy
Shell Corena Oil AP 100	Shell Corena S4 P 100
Shell Corena Oil AP 68	Shell Corena S4 P 68
Shell Corena Oil AS 46	Shell Corena S4 R 46 1
Shell Corena Oil AS 68	Shell Corena S4 R 68
Shell Corena Oil D 46	Shell Corena S2 R 46
Shell Corena Oil D 68	Shell Corena S2 R 68
Shell Corena Oil E 220	Shell Gas Compressor Oil S3 PY 220
Shell Corena Oil P 100	Shell Corena S2 P 100
Shell Corena Oil P 150	Shell Corena S2 P 150
Shell Corena Oil P 68	Shell Corena S2 P 68
Shell Corena Oil S 46	Shell Corena S3 R 46
Shell Corena Oil V 100	Shell Vacuum Pump Oil S2 R 100
Shell Darina Grease R 2	Shell Gadus S2 U460L 2
Shell Delima Oil 220	Contact technical helpdesk for consultancy
Shell Delima Oil HT 150	Contact technical helpdesk for consultancy
Shell Delima Oil HT 220	Contact technical helpdesk for consultancy









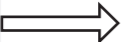


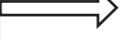


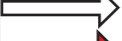







OLD PRODUCT	NEW / REPLACEMENT PRODUCT
Shell Delima Oil S 150	Shell Paper Machine Oil S3 M 150
Shell Delima Oil S 220	Contact technical helpdesk for consultancy
Shell Dentax G 80W-90	Shell Spirax S3 G 80W-90
Shell Diala Oil B Dried	Shell Diala S2 ZU-I Dried
Shell Diala Oil D	Shell Diala S2 ZU-I
Shell Diala Oil DX Dried	Shell Diala S3 ZX-I Dried
Shell DK DDO	Contact technical helpdesk for consultancy
Shell Donax CFD 60	Shell Spirax S5 CFD M 60
Shell Donax Eco 5W-30	Contact technical helpdesk for consultancy
Shell Donax TA (D-21631)	Shell Spirax S2 ATF AX
Shell Donax TC 10W	Shell Spirax S4 CX 10W
Shell Donax TC 30	Shell Spirax S4 CX 30
Shell Donax TC 50	Shell Spirax S4 CX 50
Shell Donax TD 10W-30	Shell Spirax S4 TXM
Shell Donax TD 5W-30	Shell Spirax S3 TLV
Shell Donax TDS	Shell Spirax S6 TXME
Shell Donax TF	Contact technical helpdesk for consultancy
Shell Donax TM	Shell Spirax S1 ATF TASA
Shell Donax TV	Shell Spirax S6 ATF VM
Shell Donax TX (G-34077)	Shell Spirax S4 ATF HDX
Shell Donax TZ	Shell Spirax S6 ATF ZM 1
Shell Fluid 2613	Contact technical helpdesk for consultancy
Shell Fluid 2613/8M	Contact technical helpdesk for consultancy
Shell Gear Oil S 75W-80	Contact technical helpdesk for consultancy
Shell Gear Oil SL	Contact technical helpdesk for consultancy
Shell Gear Oil TO 90 LS	Contact technical helpdesk for consultancy
Shell Getriebeol EP 75W-90	Shell Spirax S4 G 75W-90
Shell Harvella T 10W-30	No change for Harvella T 10W-30 grades
Shell Harvella TX 10W-40	Shell Spirax S4 TX
Shell Hydraulic Oil H-540	Contact technical helpdesk for consultancy
Shell Hydraulic TSN 37	Shell Spirax S3 TLV_IBC

OLD PRODUCT		NEW / REPLACEMENT PRODUCT
Shell Korr Hydraul 100	→	Contact technical helpdesk for consultancy
Shell LHM-S	→	Contact technical helpdesk for consultancy
Shell Limona Grease LX 1	→	Shell Gadus S3 V550L 1
Shell Limona Grease LX 2	→	Contact technical helpdesk for consultancy
Shell Madrela Oil GP 220	→	Shell Gas Compressor Oil S4 PN 220
Shell Malleus Fluid WFB (460)	→	Contact technical helpdesk for consultancy
Shell Malleus Grease ET 2	→	Shell Gadus S5 U130D 2
Shell Malleus Grease HDX	→	Shell Gadus S3 Wirerope T 12*0.4kg
Shell Malleus Grease HDX	→	Shell Gadus S3 Wirerope T Aerosol
Shell Malleus Grease OGH	→	Shell Gadus S2 OGH 0/00
Shell Malleus Grease RN	→	Contact technical helpdesk for consultancy
Shell Malleus Grease WFB (00/000)	→	Contact technical helpdesk for consultancy
Shell Malleus Grease XTS 0	→	Contact technical helpdesk for consultancy
Shell Morlina Oil 10	→	Shell Morlina S2 BL 10
Shell Morlina Oil 150	→	Shell Morlina S2 B 150
Shell Morlina Oil 220	→	Shell Morlina S2 B 220
Shell Morlina Oil 5	→	Contact technical helpdesk for consultancy
Shell Morlina Oil HS 2	→	Contact technical helpdesk for consultancy
Shell Mould Oil F-2002	→	Contact technical helpdesk for consultancy
Shell Mysella T 40	→	Contact technical helpdesk for consultancy
Shell Nerita Grease HV	→	Shell Gadus S5 V42P 2.5 1
Shell Oil 1206	→	Contact technical helpdesk for consultancy
Shell Omala Oil 100	→	Contact technical helpdesk for consultancy
Shell Omala Oil 150	→	Shell Omala S2 G 150
Shell Omala Oil 220	→	Shell Omala S2 G 220
Shell Omala Oil 320	→	Shell Omala S2 G 320
Shell Omala Oil 460	→	Shell Omala S2 G 460
Shell Omala Oil 68	→	Shell Omala S2 G 68
Shell Omala Oil 680 BULK	→	Shell Omala S2 G 680 BULK

OLD PRODUCT		NEW / REPLACEMENT PRODUCT
Shell Omala Oil F 220	→	Shell Omala Oil F 220
Shell Omala Oil F 320	→	Shell Omala Oil F 320
Shell Omala Oil F 460	→	Shell Omala Oil F 460
Shell Omala Oil HD 1000	→	Contact technical helpdesk for consultancy
Shell Omala Oil HD 150	→	Shell Omala S4 GX 150
Shell Omala Oil HD 220	→	Shell Omala S4 GX 220
Shell Omala Oil HD 320	→	Shell Omala S4 GX 320
Shell Omala Oil HD 460	→	Contact technical helpdesk for consultancy
Shell Omala Oil HD 68	→	Contact technical helpdesk for consultancy
Shell Omala Oil HD 680	→	Contact technical helpdesk for consultancy
Shell Omala Oil RL 100	→	Contact technical helpdesk for consultancy
Shell Omala Oil RL 1000	→	Contact technical helpdesk for consultancy
Shell Omala Oil RL 150	→	Contact technical helpdesk for consultancy
Shell Omala Oil RL 220	→	Shell Morlina S4 B 220
Shell Omala Oil RL 320	→	Shell Morlina S4 B 320
Shell Omala Oil RL 460	→	Contact technical helpdesk for consultancy
Shell OMD-113	→	Contact technical helpdesk for consultancy
Shell Retinax Grease CS 00	→	Shell Gadus S2 V220 00
Shell Retinax Grease EP 2	→	Shell Gadus S2 V220 2
Shell Retinax Grease HD 2	→	Shell Gadus S2 V220AC 2
Shell Retinax Grease HDX 2	→	Shell Gadus S2 V220AD 2
Shell Retinax Grease LX 2	→	Shell Gadus S3 V220C 2
Shell Rhodina Grease EP(LF) 2	→	Shell Gadus S2 A320 2
Shell ROV Cable Grease	→	Shell Gadus S3 Wirerope A
Shell SF Oil 5288	→	Contact technical helpdesk for consultancy
Shell Spirax A 80W-90	→	Shell Spirax S2 A 80W-90
Shell Spirax A 90 LS	→	Shell Spirax S2 ALS 90
Shell Spirax ASX 75W-140	→	Shell Spirax S6 AXME 75W-140
Shell Spirax ASX 75W-90	→	Shell Spirax S6 AXME 75W-90
Shell Spirax AX 80W-90	→	Shell Spirax S3 AX 80W-90
Shell Spirax AX 85W-140	→	Shell Spirax S3 AX 85W-140
Shell Spirax GSX 75W-80	→	Shell Spirax S6 GXME 75W-80

OLD PRODUCT		NEW / REPLACEMENT PRODUCT
Shell Spirax GX 80W	→	Spirax S3 G 80W
Shell Spirax GX 80W-90	→	Shell Spirax S3 G 80W-90
Shell Spirax MB 90	→	Shell Spirax S3 AD 80W-90
Shell Spirax MX 80W-90	→	Shell Spirax S3 AM 80W-90
Shell Spirax ST 80W-140	→	Contact technical helpdesk for consultancy
Shell Spirax X 75W-90	→	Contact technical helpdesk for consultancy
Shell SRS 4000	→	Shell Gadus S3 A1300C 2
Shell Stamina Grease EP 2	→	Shell Gadus S3 T220 2
Shell Stamina Grease HDS	→	Shell Gadus S5 T460
Shell Stamina Grease RL 2	→	Shell Gadus S3 T100 2
Shell Steelrol Grease EPH 1	→	Shell Gadus S3 V1000A 1
Shell Steelrol Grease EPH 2	→	Shell Gadus S3 V1000A 2
Shell Tellus Arctic 32	→	Shell Tellus S4 VX 32
Shell Tellus Fluid EE 32	→	Shell Tellus S4 ME 32
Shell Tellus Fluid EE 46	→	Shell Tellus S4 ME 46
Shell Tellus Fluid EE 68	→	Shell Tellus S4 ME 68
Shell Tellus Oil 22	→	Shell Tellus S2 M 22
Shell Tellus Oil 32	→	Shell Tellus S2 M 32
Shell Tellus Oil 46	→	Shell Tellus S2 M 46
Shell Tellus Oil 68	→	Shell Tellus S2 M 68
Shell Tellus Oil DO 10	→	Contact technical helpdesk for consultancy
Shell Tellus Oil DO 32	→	Shell Tellus S2 MA 32
Shell Tellus Oil DO 46	→	Shell Tellus S2 MA 46
Shell Tellus Oil S 100	→	No change for Tellus S grades
Shell Tellus Oil S 22	→	No change for Tellus S grades
Shell Tellus Oil S 32	→	No change for Tellus S grades
Shell Tellus Oil S 46	→	No change for Tellus S grades
Shell Tellus Oil S 68	→	No change for Tellus S grades
Shell Tellus Oil STX 32	→	Shell Tellus S3 V 32
Shell Tellus Oil STX 46	→	Shell Tellus S3 V 46
Shell Tellus Oil STX 68	→	Shell Tellus S3 V 68
Shell Tellus Oil T 100	→	Contact technical helpdesk for consultancy
Shell Tellus Oil T 15	→	Shell Tellus S2 V 15
Shell Tellus Oil T 22	→	Shell Tellus S2 V 22
Shell Tellus Oil T 32	→	Shell Tellus S2 V 32
Shell Tellus Oil T 46	→	Shell Tellus S2 V 46
Shell Tellus Oil T 68	→	Shell Tellus S2 V 68
Shell Tellus Oil TD 46	→	Shell Tellus S2 VA 46

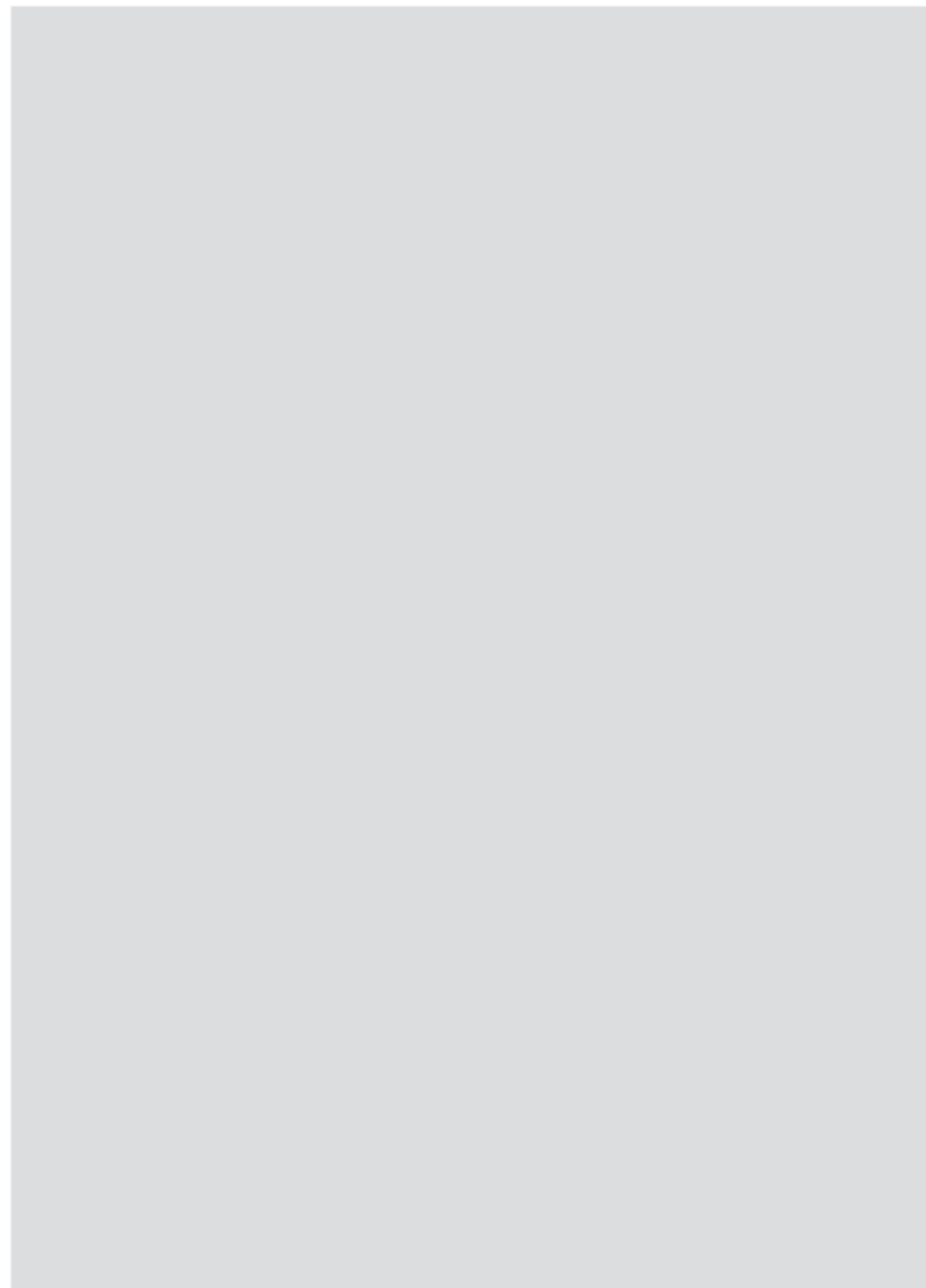


OLD PRODUCT		NEW / REPLACEMENT PRODUCT
Shell Thermia Oil B		Shell Heat Transfer Oil S2
Shell Tivela Grease GL 00		Shell Gadus S5 V142W 00
Shell Tivela Oil S 150		Contact technical helpdesk for consultancy
Shell Tivela Oil S 220		Shell Omala S4 WE 220
Shell Tivela Oil S 320		Shell Omala S4 WE 320
Shell Tivela Oil S 460		Shell Omala S4 WE 460
Shell Tonna Oil S 220		Shell Tonna S3 M 220
Shell Tonna Oil S 32		Shell Tonna S3 M 32
Shell Tonna S Oil 68		Shell Tonna S3 M 68
Shell Torcula Oil 100		Contact technical helpdesk for consultancy
Shell Torcula Oil 32		Shell Air Tool Oil S2 A 32
Shell Transaxle Oil 75W-90		Shell Spirax S5 ATE 75W-90
Shell Transmission Oil MA 75W-90		Shell Spirax S6 GXME 75W-80
Shell Valvata Oil 1000		Contact technical helpdesk for consultancy
Shell Valvata Oil J 460		Shell Omala S1 W 460
Shell Vitrea Oil 10		Shell Morlina S2 BL 10
Shell Vitrea Oil 32		Shell Morlina S2 B 32
Shell Vitrea Oil 68		Shell Morlina S2 B 68
Shell Vitrea Oil M 100		Shell Morlina S1 B 100
Shell Vitrea Oil M 150		Shell Morlina S1 B 150
Shell Vitrea Oil M 320		Contact technical helpdesk for consultancy
Shell Vitrea Oil M 460		Shell Morlina S1 B 460

 Direct replacement

 Recommended replacement

Contact your Shell Lubricants distributor for information about what products your company needs.





Previous Name: Shell Alvania Grease RL 2

# Shell Gadus S2 V100 2

- *Reliable Protection*
- *Multi-purpose*
- *Lithium*

*High Performance Multipurpose Grease*

Shell Gadus S2 V100 2 is a general purpose grease based on a new lithium hydroxystearate soap thickener fortified with anti-oxidant, anti-wear and anti-rust additives.

## DESIGNED TO MEET CHALLENGES

### Performance, Features & Benefits

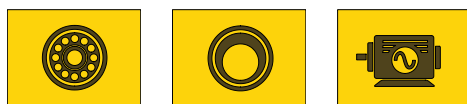
- **Reliable high temperature performance**  
Very good performance up to +130°C, resulting in longer bearing life.
- **Good oxidation and mechanical stability**  
Resists the formation of deposits caused by oxidation at high operating temperatures. Shell Gadus S2 V100 greases are extremely stable under vibrations and give NO LEAKAGE even in repeated shock-loaded bearings.
- **Good corrosion resistance characteristics**  
Effective protection in hostile environments.
- **Long storage life**  
Does not alter in consistency during prolonged storage.

- Rolling element and plain grease lubricated bearings
  - Electric motor bearings
  - Sealed-for-life bearings
  - Water pump bearings
- May be used under a wide range of operating conditions offering very significant advantages over conventional lithium greases at high temperature or in the presence of water.
- A medium consistency grease designed, mainly, for general industrial lubrication. Ideal for centralised lubrication systems operating at normal temperatures.

### Specifications, Approvals & Recommendations

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk.

### Main Applications



### Typical Physical Characteristics

Properties			Method	Shell Gadus S2 V100 2
NLGI Consistency				2
Soap Type				Lithium hydroxystearate
Base Oil (Type)				Mineral
Kinematic Viscosity	@40°C	cSt	IP 71 / ASTM D445	100
Kinematic Viscosity	@100°C	cSt	IP 71 / ASTM D445	11
Cone Penetration, Worked	@25°C	0.1mm	IP 50 / ASTM D217	265-295
Dropping Point		°C	IP 396	180

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

- **Health and Safety**

Shell Gadus S2 V100 Grease is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

- **Protect the Environment**

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

- **Re-greasing Intervals**

For bearings operating near their maximum recommended temperatures, re-greasing intervals should be reviewed.

- **Advice**

Advice on applications not covered here may be obtained from your Shell representative.



Previous Name: Shell Alvania Grease RL 3

# Shell Gadus S2 V100 3

- *Reliable Protection*
- *Multi-purpose*
- *Lithium*

*High Performance Multipurpose Grease*

Shell Gadus S2 V100 3 is a general purpose grease based on a new lithium hydroxystearate soap thickener fortified with anti-oxidant, anti-wear and anti-rust additives.

## DESIGNED TO MEET CHALLENGES

### Performance, Features & Benefits

- **Reliable high temperature performance**  
Very good performance up to +130°C, resulting in longer bearing life.
- **Good oxidation and mechanical stability**  
Resists the formation of deposits caused by oxidation at high operating temperatures. Shell Gadus S2 V100 greases are extremely stable under vibrations and give NO LEAKAGE even in repeated shock-loaded bearings.
- **Good corrosion resistance characteristics**  
Effective protection in hostile environments.
- **Long storage life**  
Does not alter in consistency during prolonged storage.

- Rolling element and plain grease lubricated bearings
  - Electric motor bearings
  - Sealed-for-life bearings
  - Water pump bearings
- May be used under a wide range of operating conditions offering very significant advantages over conventional lithium greases at high temperature or in the presence of water.
- A medium/hard high performance industrial grease, particularly recommended for the lubrication of electrical motor bearings.

### Specifications, Approvals & Recommendations

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk.

### Main Applications



### Typical Physical Characteristics

Properties			Method	Shell Gadus S2 V100 3
NLGI Consistency				3
Soap Type				Lithium hydroxystearate
Base Oil (Type)				Mineral
Kinematic Viscosity	@40°C	cSt	IP 71 / ASTM D445	100
Kinematic Viscosity	@100°C	cSt	IP 71 / ASTM D445	11
Cone Penetration, Worked	@25°C	0.1mm	IP 50 / ASTM D217	220-250
Dropping Point		°C	IP 396	180

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

- **Health and Safety**

Shell Gadus S2 V100 Grease is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

- **Protect the Environment**

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

- **Re-greasing Intervals**

For bearings operating near their maximum recommended temperatures, re-greasing intervals should be reviewed.

- **Advice**

Advice on applications not covered here may be obtained from your Shell representative.



Previous Names: Shell Alvania Grease EP(LF) 2, Shell Retinax EP 2

# Shell Gadus S2 V220 2

- *Reliable Protection*
- *Multi-purpose Applications*
- *Lithium*

## High Performance Multipurpose Extreme Pressure Grease

Shell Gadus S2 V220 greases are high quality multipurpose, extreme-pressure greases based on a blend of high viscosity index mineral oils and a lithium hydroxystreate soap thickener and contain extreme-pressure and other proven additives to enhance their performance in a wide range of applications.

Shell Gadus S2 V220 greases are designed for multipurpose grease lubrication of rolling element and plain bearings as well as hinges and sliding surfaces such as those found in throughout most industrial and transport sectors.

### DESIGNED TO MEET CHALLENGES

#### Performance, Features & Benefits

- **Outstanding Load Carrying Capacity**  
Shell Gadus S2 V220 greases contain special extreme-pressure additives which enable them to withstand heavy and shock loads without failure of the lubricant film.
- **Improved Mechanical Stability**  
This is particularly important in vibrating environments where poor mechanical stability can lead to grease softening with subsequent loss of lubrication performance and leakage.
- **Good Resistance to Water Wash-out**  
Shell Gadus S2 V220 greases have been formulated to offer resistance to water wash-out.
- **Oxidation Stability**  
Specially selected base oil components have excellent oxidation resistance. Their consistency will not alter in storage and they withstand high operating temperatures without hardening or forming bearing deposits.

- **Good Corrosion Resistance Characteristics**

Shell Gadus S2 V200 greases reliably protect bearing surfaces against corrosion, even when a high amount of water is present.

#### Main Applications



Shell Gadus S2 V220 2 greases are designed for:

- Heavy duty bearings and general industrial lubrication.
- Heavy duty plain and rolling element bearings operating under harsh conditions including shock loading in wet environments.

#### Specifications, Approvals & Recommendations

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk.

#### Typical Physical Characteristics

Properties			Method	Shell Gadus S2 V220 2
NLGI Consistency				2
Soap Type				Lithium
Base Oil				Mineral
Kinematic Viscosity	@40°C	cSt	IP 71 / ASTM D445	220
Kinematic Viscosity	@100°C	cSt	IP 71 / ASTM D445	19
Cone Penetration, Worked	@25°C	0.1mm	IP 50 / ASTM D217	265-295
Dropping Point		°C	IP 396	180

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

- **Health and Safety**

Shell Gadus S2 V220 Grease is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

- **Hydraulic Brake Rubber Components**

Care should be taken to ensure that the grease does NOT come into contact with hydraulic brake rubber components.

- **Protect the Environment**

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

- **Operating Temperature**

Shell Gadus S2 V220 2 is recommended for the operating temperature range -20°C to +130°C.

- **Re-greasing Intervals**

For bearings operating near their maximum recommended temperatures, re-greasing intervals should be reviewed.

- **Advice**

Advice on applications not covered here may be obtained from your Shell representative.



Previous Names: Shell Alvania Grease HDX, Shell Retinax HDX

# Shell Gadus S2 V220AD 2

- Heavy Duty Protection
- Water Resistant
- Lithium Calcium

## High Performance Multi-purpose Grease with Solids

Shell Gadus S2 V220AD Greases are high performance grease for the lubrication of bearings subjected to harsh conditions.

They are based on high viscosity index mineral oil and a mixed lithium/calcium soap thickener and contains extreme-pressure, anti-oxidation, anti-wear, anti-corrosion and adhesion additives. It also contains solids to provide resistance to shock loading.

### DESIGNED TO MEET CHALLENGES

#### Performance, Features & Benefits

- **Good oxidation and mechanical stability**  
Resists the formation of deposits caused by oxidation at high operating temperatures and maintains consistency, reducing leakage.
- **Good corrosion resistance**  
Provides protection from the elements of corrosion.
- **For shock loaded conditions**  
Resists breakdown, softening and subsequent leakage under shock loads.
- **Good adhesion properties**  
Reduces losses and grease consumption.
- **Extreme pressure performance**  
Rig tests confirm EP additives in Shell Gadus S2 V220AD Greases prolong bearing life when subjected to heavy and shock loads.

#### Main Applications



- Shell Gadus S2 V220AD Greases are recommended for the lubrication of shock loaded heavy duty bearings working in damp hostile conditions. They are well-suited for use in off-highway applications and also for the lubrication of fifth wheels.

#### Specifications, Approvals & Recommendations

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk.

#### Typical Physical Characteristics

Properties			Method	Shell Gadus S2 V220AD 2
NLGI Consistency				2
Colour				Black
Soap Type				Lithium/Calcium
Base Oil				Mineral
Kinematic Viscosity	@40°C	cSt	IP 71 / ASTM D445	220
Kinematic Viscosity	@100°C	cSt	IP 71 / ASTM D445	18
Cone Penetration, Worked	@25°C	0.1mm	IP 50 / ASTM D217	265-295
Dropping Point		°C	IP 396	175
4 Ball Weld Load		Kg	IP 239	315

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.



## Health, Safety & Environment

- **Health and Safety**

Shell Gadus S2 V220AD Grease is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

- **Protect the Environment**

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

- **Operating Temperature Range**

Operating Temperature Range -25°C to +120°C, peak 130°C

- **Advice**

Advice on applications not covered here may be obtained from your Shell representative.

# BEARING AND CIRCULATING OIL PORTFOLIO CONVERSION GUIDE

DESIGNED TO MEET CHALLENGES



OLD PRODUCT		NEW/REPLACEMENT PRODUCT
Shell Omala RL		<b>Shell Morlina S4 B</b> ■ Extra long life ■ Extra protection ■ Severe applications 
Shell Morlina 5		<b>Shell Morlina S2 BL*</b> ■ Versatile protection ■ Industrial applications 
Shell Morlina 10		
Shell Morlina		<b>Shell Morlina S2 B</b> ■ Versatile protection ■ Industrial applications 

### HOW TO USE THIS GUIDE

Find your current bearing and circulating oil in the left-hand column and read across to find its new name or recommended replacement product.

*Selected bearing and circulating oil products are shown. Please contact your Shell representative, customer service centre or Shell lubricants distributor for information on Shell's full portfolio for your business. Or call the Technical Advice Centre on 13 16 18.*

- Direct replacement
- Recommended replacement

\*Recommended replacement where the original product is discontinued.

### PRODUCT-NAME SUFFIX KEY

- A** = Water tolerant
- B** = Bearing
- L** = Low load

### APPLICATION ICON KEY

- Roller bearing
- Enclosed gear
- High load
- High temperature
- Plain bearing
- Factory/machine applications

### ISO VISCOSITY GRADES AVAILABLE:

- Shell Morlina S2 B - 150, 220, 320
- Shell Morlina S2 BL - 5, 10
- Shell Morlina S4 B - 220, 460

For more information, please contact

The Shell Company of Australia Limited (ABN 46 004 610 459)  
 8 Redfern Rd, Hawthorn East, Victoria 3123  
 Emergency phone number (24 hours) 1800 651 818  
 Technical Assistance Australia 13 16 18

[shell.com.au/lubricants](http://shell.com.au/lubricants)



Previous Name: Shell Omala Oils

# Shell Omala S2 G 68

- *Extra Protection*
- *Standard Application*

## Industrial Gear Oils

Shell Omala S2 G oils are high quality extreme-pressure oils designed primarily for the lubrication of heavy duty industrial gears. Their high load carrying capacity and anti-friction characteristics combine to offer superior performance in gears.

### DESIGNED TO MEET CHALLENGES

#### Performance, Features & Benefits

##### ■ Long oil life – Maintenance saving

Shell Omala S2 G oils are formulated to resist thermal and chemical breakdown throughout the maintenance interval. They withstand high thermal loading and resist the formation of sludge to provide extended oil life capability, even with bulk oil temperatures of up to 100°C in certain applications.

##### ■ Excellent wear & corrosion protection

Excellent load carrying capacity reduces gear tooth and bearing wear on steel components.

Shell Omala S2 G has excellent corrosion protection, protecting steel components, even in the presence of contamination by water and solids.

##### ■ Maintaining system efficiency

Shell Omala S2 G oils have excellent water separation properties, such that excess water can be drained easily from lubrication systems to help extend the life of the gears and ensure efficient lubrication of the contact areas.

Water can greatly accelerate surface fatigue of gears and bearings as well as promoting ferrous corrosion on internal surfaces. Water contamination should therefore be avoided or removed as quickly as possible after the occurrence.

##### ■ Highly loaded gears

Shell Omala S2 G oils have an effective full extreme pressure (EP) additive system allowing them to be used in highly-loaded gear systems.

##### ■ Other applications

Shell Omala S2 G oils are suitable for lubrication of bearings and other components in circulating and splash-lubricated systems.

For highly loaded worm drives, Shell Omala S4 WE, Shell Morlina S4 B and Shell Omala S1 W are recommended.

For automotive hypoid gears, the appropriate Shell Spirax Oil should be used.

#### Specifications, Approvals & Recommendations

- MAG (Cincinnati Machine) P-63
- US Steel 224
- AGMA EP 9005 - EO2
- ISO 12925-1 Type CKD
- DIN 51517 - Part 3 CLP

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

#### Main Applications



##### ■ Enclosed industrial gear systems

Shell Omala S2 G oils are formulated using an effective sulphur-phosphorus additive system to provide an extreme pressure performance which allow trouble-free application in most enclosed industrial gearboxes using steel spur and helical gears.

## Typical physical characteristics

Properties			Method	Shell Omala S2 G
ISO Viscosity Grade			ISO 3448	68
Kinematic Viscosity	@40°C	mm <sup>2</sup> /s	ISO 3104	68
Kinematic Viscosity	@100°C	mm <sup>2</sup> /s	ISO 3104	8.7
Viscosity Index			ISO 2909	100
density	@15°C	kg/m <sup>3</sup>	ISO 12185	887
Flash Point (COC)		°C	ISO 2592	236
Pour Point		°C	ISO 3016	-24

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

### ■ Health and Safety

Shell Omala S2 G is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

### ■ Protect the Environment

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

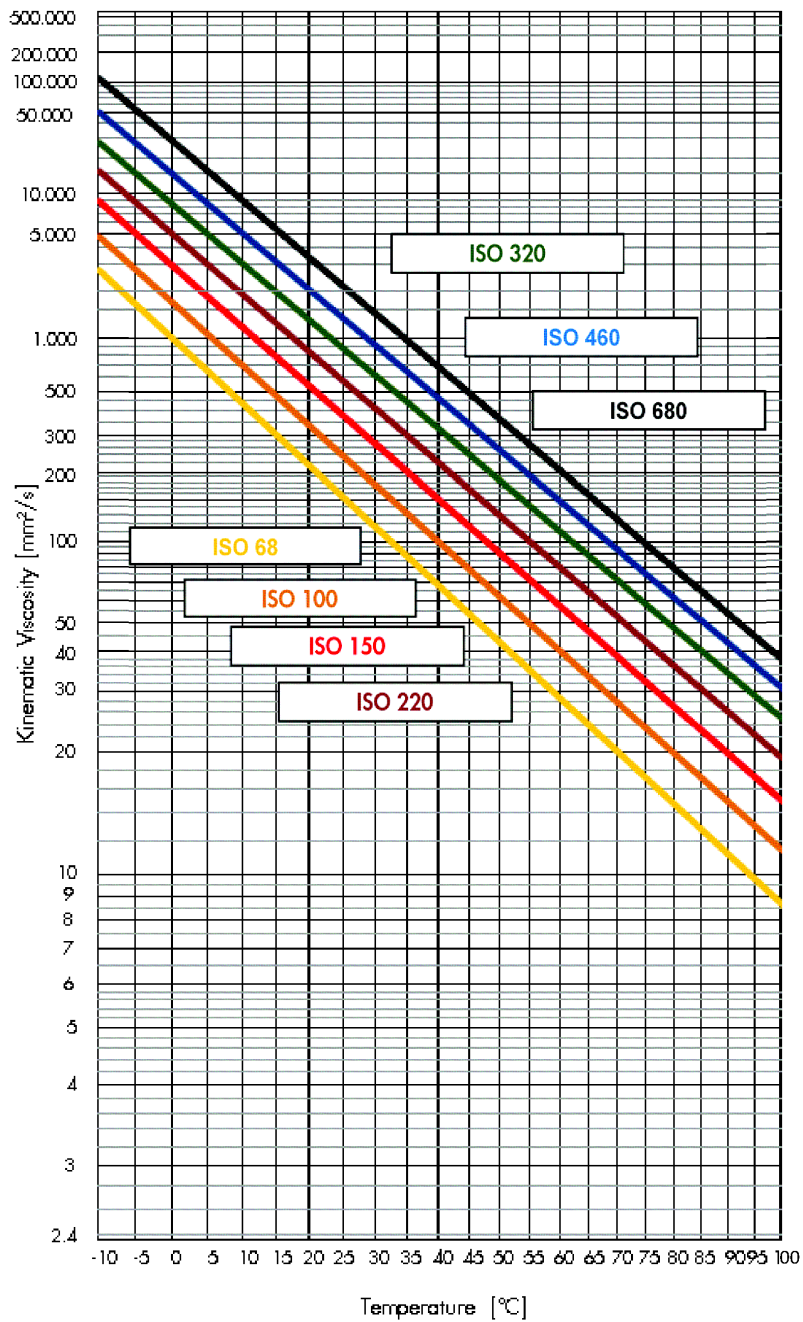
## Additional Information

### ■ Advice

Advice on applications not covered here may be obtained from your shell representative.

# Shell Omala S2 G

## Viscosity - Temperature - Diagram





Previous Name: Shell Omala Oils

# Shell Omala S2 G 100

- *Extra Protection*
- *Standard Application*

## Industrial Gear Oils

Shell Omala S2 G oils are high quality extreme-pressure oils designed primarily for the lubrication of heavy duty industrial gears. Their high load carrying capacity and anti-friction characteristics combine to offer superior performance in gears.

### DESIGNED TO MEET CHALLENGES

#### Performance, Features & Benefits

- **Long oil life – Maintenance saving**

Shell Omala S2 G oils are formulated to resist thermal and chemical breakdown throughout the maintenance interval. They withstand high thermal loading and resist the formation of sludge to provide extended oil life capability, even with bulk oil temperatures of up to 100°C in certain applications.

- **Excellent wear & corrosion protection**

Excellent load carrying capacity reduces gear tooth and bearing wear on steel components.

Shell Omala S2 G has excellent corrosion protection, protecting steel components, even in the presence of contamination by water and solids.

- **Maintaining system efficiency**

Shell Omala S2 G oils have excellent water separation properties, such that excess water can be drained easily from lubrication systems to help extend the life of the gears and ensure efficient lubrication of the contact areas.

Water can greatly accelerate surface fatigue of gears and bearings as well as promoting ferrous corrosion on internal surfaces. Water contamination should therefore be avoided or removed as quickly as possible after the occurrence.

#### Main Applications



- **Enclosed industrial gear systems**

Shell Omala S2 G oils are formulated using an effective sulphur-phosphorus additive system to provide an extreme pressure performance which allow trouble-free application in most enclosed industrial gearboxes using steel spur and helical gears.

- **Highly loaded gears**

Shell Omala S2 G oils have an effective full extreme pressure (EP) additive system allowing them to be used in highly-loaded gear systems.

- **Other applications**

Shell Omala S2 G oils are suitable for lubrication of bearings and other components in circulating and splash-lubricated systems.

For highly loaded worm drives, Shell Omala S4 WE, Shell Morlina S4 B and Shell Omala S1 W are recommended.

For automotive hypoid gears, the appropriate Shell Spirax Oil should be used.

Shell do not recommend/support use in systems with fine filtration (<10 microns) because sustained foam control performance is not assured. Please consult your Shell Local Technical Advisor and Product Application Specialist

#### Specifications, Approvals & Recommendations

- Fives Cincinnati Machine P-76
- AGMA EP 9005 - EO2
- ISO 12925-1 Type CKD
- DIN 51517 - Part 3 CLP

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk.

## Typical Physical Characteristics

Properties			Method	Omala S2 G 100
ISO Viscosity Grade			ISO 3448	100
Kinematic Viscosity	@40°C	mm <sup>2</sup> /s	ISO 3104	100
Kinematic Viscosity	@100°C	mm <sup>2</sup> /s	ISO 3104	11.4
Viscosity Index			ISO 2909	100
Density	@15°C	kg/m <sup>3</sup>	ISO 12185	891
Flash Point (COC)		°C	ISO 2592	240
Pour Point		°C	ISO 3016	-24

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

### • Health and Safety

Shell Omala S2 G is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

### • Protect the Environment

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

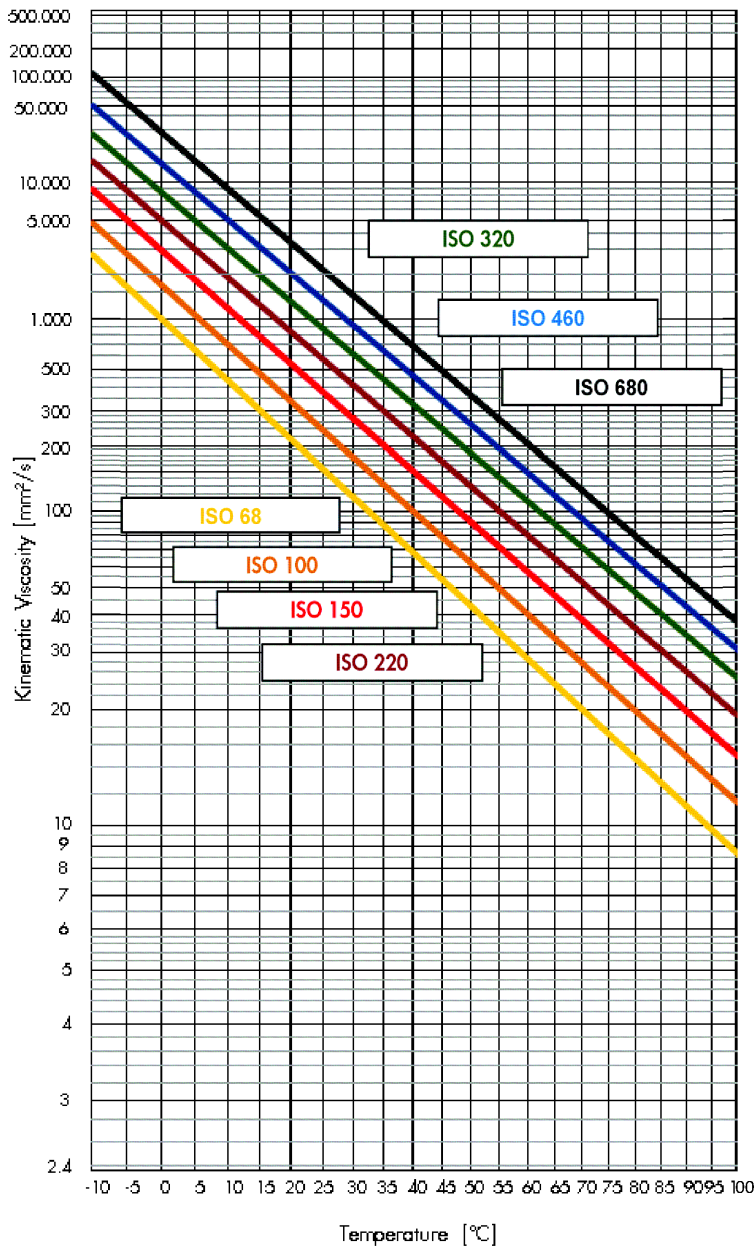
## Additional Information

### • Advice

Advice on applications not covered here may be obtained from your Shell representative.

# Shell Omala S2 G

## Viscosity - Temperature - Diagram







Previous Name: Shell Omala Oils

# Shell Omala S2 G 150

- Extra Protection
- Standard Application

## Industrial Gear Oils

Shell Omala S2 G oils are high quality extreme-pressure oils designed primarily for the lubrication of heavy duty industrial gears. Their high load carrying capacity and anti-friction characteristics combine to offer superior performance in gears.

### DESIGNED TO MEET CHALLENGES

#### Performance, Features & Benefits

- **Long oil life – Maintenance saving**

Shell Omala S2 G oils are formulated to resist thermal and chemical breakdown throughout the maintenance interval. They withstand high thermal loading and resist the formation of sludge to provide extended oil life capability, even with bulk oil temperatures of up to 100°C in certain applications.

- **Excellent wear & corrosion protection**

Excellent load carrying capacity reduces gear tooth and bearing wear on steel components.

Shell Omala S2 G has excellent corrosion protection, protecting steel components, even in the presence of contamination by water and solids.

- **Maintaining system efficiency**

Shell Omala S2 G oils have excellent water separation properties, such that excess water can be drained easily from lubrication systems to help extend the life of the gears and ensure efficient lubrication of the contact areas.

Water can greatly accelerate surface fatigue of gears and bearings as well as promoting ferrous corrosion on internal surfaces. Water contamination should therefore be avoided or removed as quickly as possible after the occurrence.

#### Main Applications



- **Enclosed industrial gear systems**

Shell Omala S2 G oils are formulated using an effective sulphur-phosphorus additive system to provide an extreme pressure performance which allow trouble-free application in most enclosed industrial gearboxes using steel spur and helical gears.

- **Highly loaded gears**

Shell Omala S2 G oils have an effective full extreme pressure (EP) additive system allowing them to be used in highly-loaded gear systems.

- **Other applications**

Shell Omala S2 G oils are suitable for lubrication of bearings and other components in circulating and splash-lubricated systems.

For highly loaded worm drives, Shell Omala S4 WE, Shell Morlina S4 B and Shell Omala S1 W are recommended.

For automotive hypoid gears, the appropriate Shell Spirax Oil should be used.

Shell do not recommend/support use in systems with fine filtration (<10 microns) because sustained foam control performance is not assured. Please consult your Shell Local Technical Advisor and Product Application Specialist

#### Specifications, Approvals & Recommendations

- Fives Cincinnati P-77
- AGMA EP 9005 - EO2
- ISO 12925-1 Type CKD
- DIN 51517 - Part 3 (CLP)

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk.

## Typical Physical Characteristics

Properties			Method	Omala S2 G 150
ISO Viscosity Grade			ISO 3448	150
Kinematic Viscosity	@40°C	mm <sup>2</sup> /s	ISO 3104	150
Kinematic Viscosity	@100°C	mm <sup>2</sup> /s	ISO 3104	15
Viscosity Index			ISO 2909	100
Density	@15°C	kg/m <sup>3</sup>	ISO 12185	897
Flash Point (COC)		°C	ISO 2592	240
Pour Point		°C	ISO 3016	-24

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

### • Health and Safety

Shell Omala S2 G is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

### • Protect the Environment

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

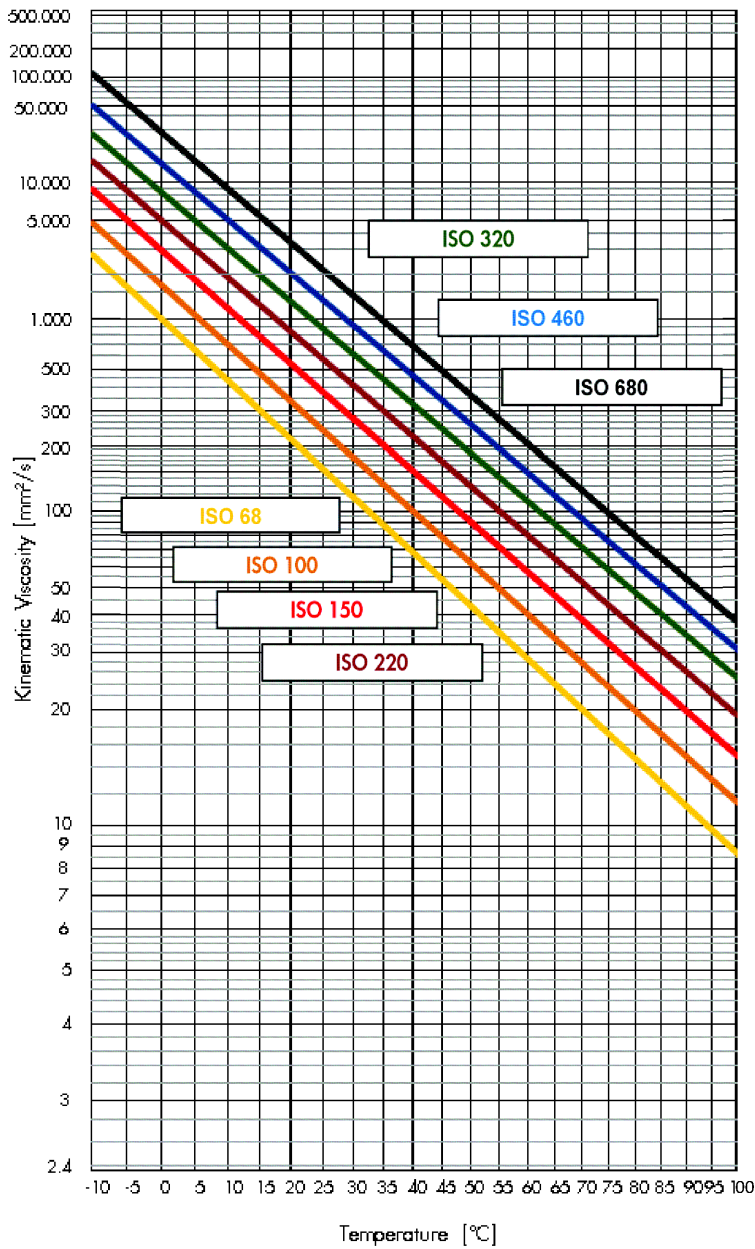
## Additional Information

### • Advice

Advice on applications not covered here may be obtained from your Shell representative.

# Shell Omala S2 G

## Viscosity - Temperature - Diagram





Previous Name: Shell Omala Oils

# Shell Omala S2 G 220

- *Extra Protection*
- *Standard Application*

## Industrial Gear Oils

Shell Omala S2 G oils are high quality extreme-pressure oils designed primarily for the lubrication of heavy duty industrial gears. Their high load carrying capacity and anti-friction characteristics combine to offer superior performance in gears.

### DESIGNED TO MEET CHALLENGES

#### Performance, Features & Benefits

##### ■ Long oil life – Maintenance saving

Shell Omala S2 G oils are formulated to resist thermal and chemical breakdown throughout the maintenance interval. They withstand high thermal loading and resist the formation of sludge to provide extended oil life capability, even with bulk oil temperatures of up to 100°C in certain applications.

##### ■ Excellent wear & corrosion protection

Excellent load carrying capacity reduces gear tooth and bearing wear on steel components.

Shell Omala S2 G has excellent corrosion protection, protecting steel components, even in the presence of contamination by water and solids.

##### ■ Maintaining system efficiency

Shell Omala S2 G oils have excellent water separation properties, such that excess water can be drained easily from lubrication systems to help extend the life of the gears and ensure efficient lubrication of the contact areas.

Water can greatly accelerate surface fatigue of gears and bearings as well as promoting ferrous corrosion on internal surfaces. Water contamination should therefore be avoided or removed as quickly as possible after the occurrence.

##### ■ Highly loaded gears

Shell Omala S2 G oils have an effective full extreme pressure (EP) additive system allowing them to be used in highly-loaded gear systems.

##### ■ Other applications

Shell Omala S2 G oils are suitable for lubrication of bearings and other components in circulating and splash-lubricated systems.

For highly loaded worm drives, Shell Omala S4 WE, Shell Morlina S4 B and Shell Omala S1 W are recommended.

For automotive hypoid gears, the appropriate Shell Spirax Oil should be used.

#### Specifications, Approvals & Recommendations

- MAG (Cincinnati Machine) P-74
- US Steel 224
- AGMA EP 9005 - EO2
- ISO 12925-1 Type CKD
- DIN 51517 - Part 3 CLP

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

#### Main Applications



##### ■ Enclosed industrial gear systems

Shell Omala S2 G oils are formulated using an effective sulphur-phosphorus additive system to provide an extreme pressure performance which allow trouble-free application in most enclosed industrial gearboxes using steel spur and helical gears.

## Typical physical characteristics

Properties			Method	Shell Omala S2 G
ISO Viscosity Grade			ISO 3448	220
Kinematic Viscosity	@40°C	mm <sup>2</sup> /s	ISO 3104	220
Kinematic Viscosity	@100°C	mm <sup>2</sup> /s	ISO 3104	19.4
Viscosity Index			ISO 2909	100
density	@15°C	kg/m <sup>3</sup>	ISO 12185	899
Flash Point (COC)		°C	ISO 2592	240
Pour Point		°C	ISO 3016	-18

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

### ■ Health and Safety

Shell Omala S2 G is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

### ■ Protect the Environment

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

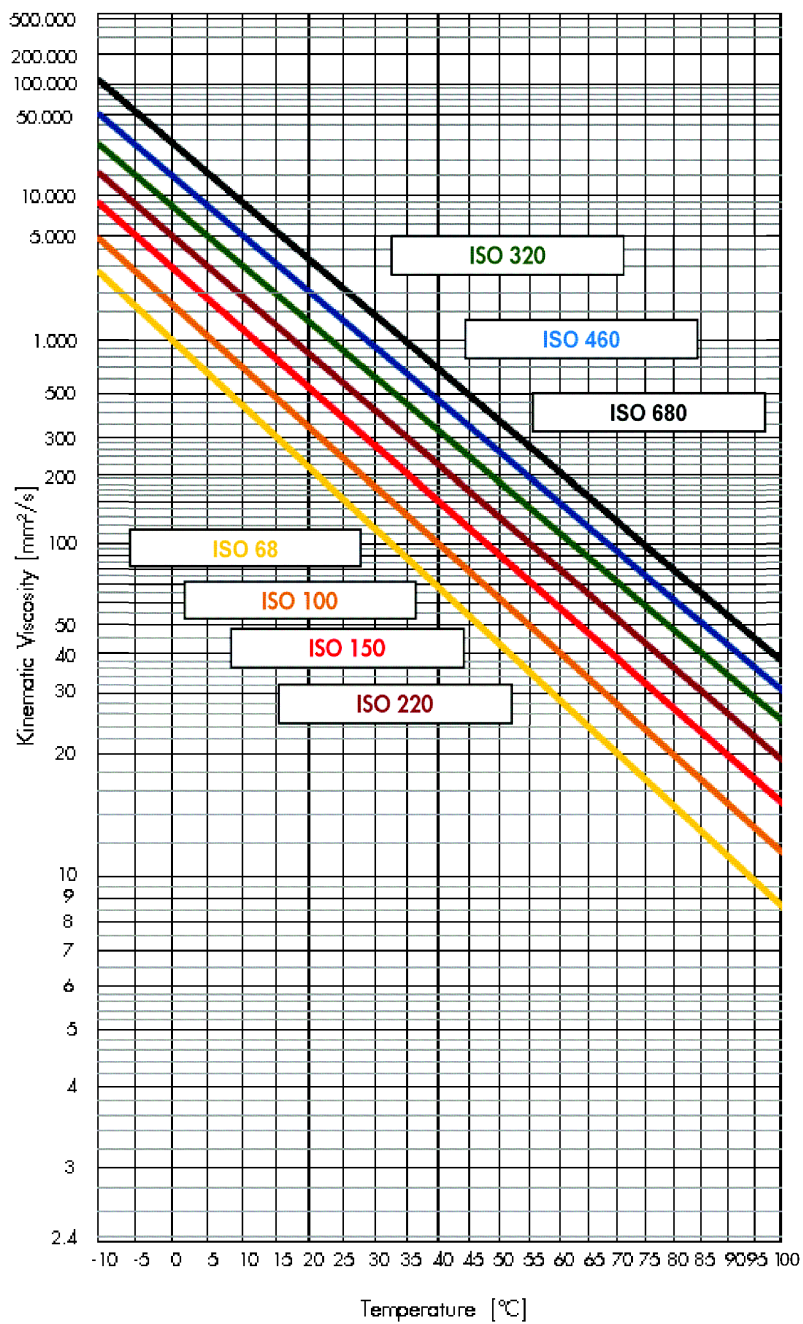
## Additional Information

### ■ Advice

Advice on applications not covered here may be obtained from your shell representative.

# Shell Omala S2 G

## Viscosity - Temperature - Diagram





Previous Name: Shell Omala Oils

# Shell Omala S2 G 320

- *Extra Protection*
- *Standard Application*

## Industrial Gear Oils

Shell Omala S2 G oils are high quality extreme-pressure oils designed primarily for the lubrication of heavy duty industrial gears. Their high load carrying capacity and anti-friction characteristics combine to offer superior performance in gears.

### DESIGNED TO MEET CHALLENGES

#### Performance, Features & Benefits

##### ■ Long oil life – Maintenance saving

Shell Omala S2 G oils are formulated to resist thermal and chemical breakdown throughout the maintenance interval. They withstand high thermal loading and resist the formation of sludge to provide extended oil life capability, even with bulk oil temperatures of up to 100°C in certain applications.

##### ■ Excellent wear & corrosion protection

Excellent load carrying capacity reduces gear tooth and bearing wear on steel components.

Shell Omala S2 G has excellent corrosion protection, protecting steel components, even in the presence of contamination by water and solids.

##### ■ Maintaining system efficiency

Shell Omala S2 G oils have excellent water separation properties, such that excess water can be drained easily from lubrication systems to help extend the life of the gears and ensure efficient lubrication of the contact areas.

Water can greatly accelerate surface fatigue of gears and bearings as well as promoting ferrous corrosion on internal surfaces. Water contamination should therefore be avoided or removed as quickly as possible after the occurrence.

##### ■ Highly loaded gears

Shell Omala S2 G oils have an effective full extreme pressure (EP) additive system allowing them to be used in highly-loaded gear systems.

##### ■ Other applications

Shell Omala S2 G oils are suitable for lubrication of bearings and other components in circulating and splash-lubricated systems.

For highly loaded worm drives, Shell Omala S4 WE, Shell Morlina S4 B and Shell Omala S1 W are recommended.

For automotive hypoid gears, the appropriate Shell Spirax Oil should be used.

#### Specifications, Approvals & Recommendations

- MAG (Cincinnati Machine) P-59
- US Steel 224
- AGMA EP 9005- EO2
- ISO 12925-1 Type CKD
- DIN 51517 - Part 3 CLP

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

#### Main Applications



##### ■ Enclosed industrial gear systems

Shell Omala S2 G oils are formulated using an effective sulphur-phosphorus additive system to provide an extreme pressure performance which allow trouble-free application in most enclosed industrial gearboxes using steel spur and helical gears.

## Typical physical characteristics

Properties			Method	Shell Omala S2 G
ISO Viscosity Grade			ISO 3448	320
Kinematic Viscosity	@40°C	mm <sup>2</sup> /s	ISO 3104	320
Kinematic Viscosity	@100°C	mm <sup>2</sup> /s	ISO 3104	25
Viscosity Index			ISO 2909	100
density	@15°C	kg/m <sup>3</sup>	ISO 12185	903
Flash Point (COC)		°C	ISO 2592	250
Pour Point		°C	ISO 3016	-15

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

### ■ Health and Safety

Shell Omala S2 G is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

### ■ Protect the Environment

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

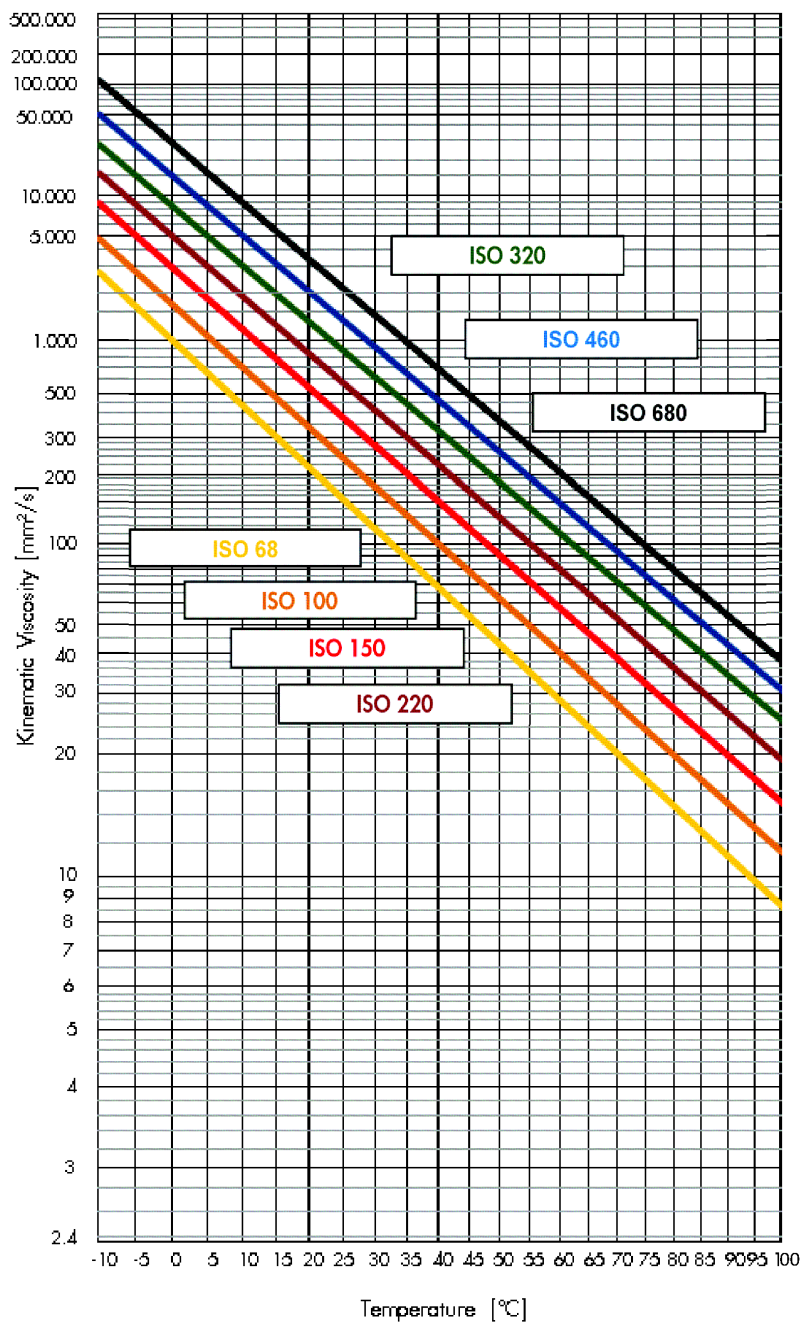
### ■ Advice

Advice on applications not covered here may be obtained from your shell representative.



# Shell Omala S2 G

## Viscosity - Temperature - Diagram





Previous Name: Shell Omala Oils

# Shell Omala S2 G 460

- *Extra Protection*
- *Standard Application*

## Industrial Gear Oils

Shell Omala S2 G oils are high quality extreme-pressure oils designed primarily for the lubrication of heavy duty industrial gears. Their high load carrying capacity and anti-friction characteristics combine to offer superior performance in gears.

### DESIGNED TO MEET CHALLENGES

#### Performance, Features & Benefits

##### ■ Long oil life – Maintenance saving

Shell Omala S2 G oils are formulated to resist thermal and chemical breakdown throughout the maintenance interval. They withstand high thermal loading and resist the formation of sludge to provide extended oil life capability, even with bulk oil temperatures of up to 100°C in certain applications.

##### ■ Excellent wear & corrosion protection

Excellent load carrying capacity reduces gear tooth and bearing wear on steel components.

Shell Omala S2 G has excellent corrosion protection, protecting steel components, even in the presence of contamination by water and solids.

##### ■ Maintaining system efficiency

Shell Omala S2 G oils have excellent water separation properties, such that excess water can be drained easily from lubrication systems to help extend the life of the gears and ensure efficient lubrication of the contact areas.

Water can greatly accelerate surface fatigue of gears and bearings as well as promoting ferrous corrosion on internal surfaces. Water contamination should therefore be avoided or removed as quickly as possible after the occurrence.

##### ■ Highly loaded gears

Shell Omala S2 G oils have an effective full extreme pressure (EP) additive system allowing them to be used in highly-loaded gear systems.

##### ■ Other applications

Shell Omala S2 G oils are suitable for lubrication of bearings and other components in circulating and splash-lubricated systems.

For highly loaded worm drives, Shell Omala S4 WE, Shell Morlina S4 B and Shell Omala S1 W are recommended.

For automotive hypoid gears, the appropriate Shell Spirax Oil should be used.

#### Specifications, Approvals & Recommendations

- MAG (Cincinnati Machine) P-35
- AGMA EP 9005 - EO2
- ISO 12925-1 Type CKC
- DIN 51517 - Part 3 CLP

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

#### Main Applications



##### ■ Enclosed industrial gear systems

Shell Omala S2 G oils are formulated using an effective sulphur-phosphorus additive system to provide an extreme pressure performance which allow trouble-free application in most enclosed industrial gearboxes using steel spur and helical gears.

## Typical physical characteristics

Properties			Method	Shell Omala S2 G
ISO Viscosity Grade			ISO 3448	460
Kinematic Viscosity	@40°C	mm <sup>2</sup> /s	ISO 3104	460
Kinematic Viscosity	@100°C	mm <sup>2</sup> /s	ISO 3104	30.8
Viscosity Index			ISO 2909	97
density	@15°C	kg/m <sup>3</sup>	ISO 12185	904
Flash Point (COC)		°C	ISO 2592	260
Pour Point		°C	ISO 3016	-12

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

### ■ Health and Safety

Shell Omala S2 G is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

### ■ Protect the Environment

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

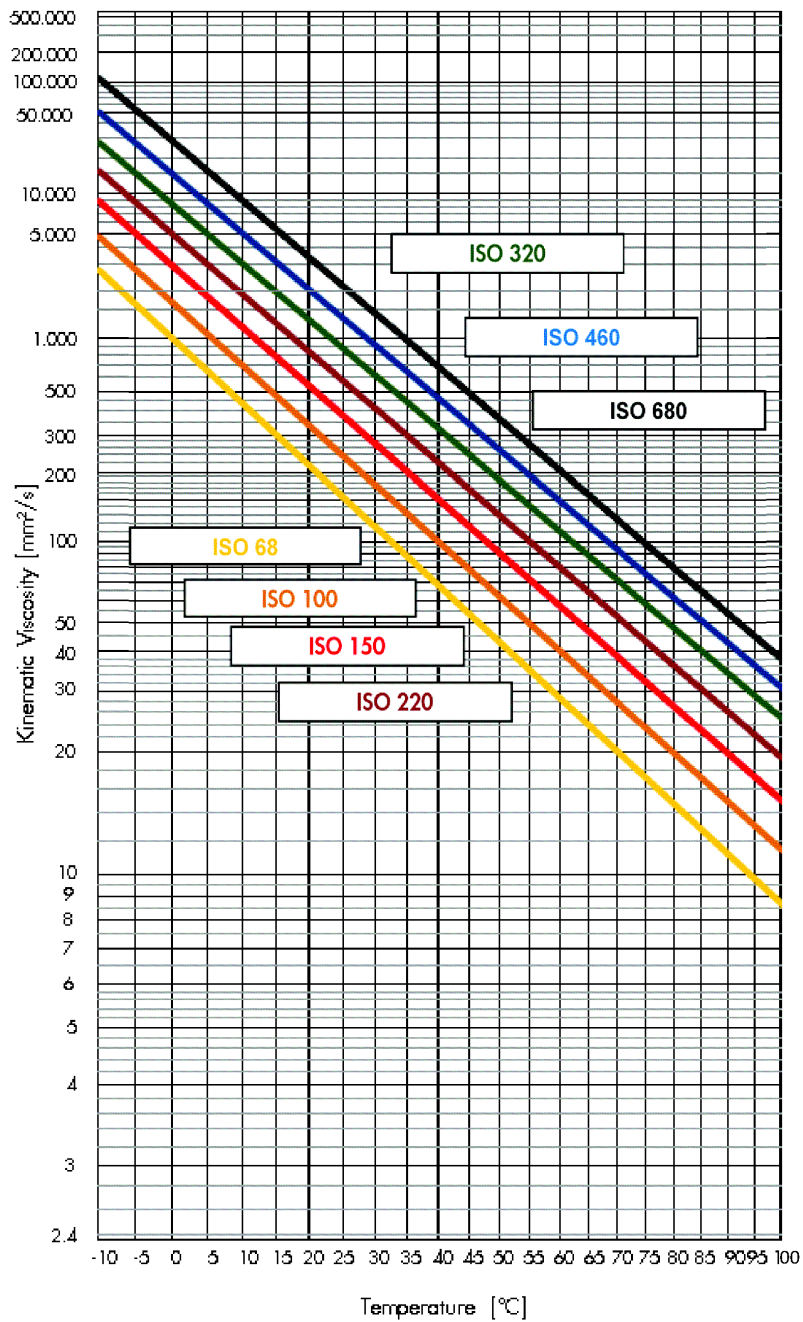
## Additional Information

### ■ Advice

Advice on applications not covered here may be obtained from your shell representative.

# Shell Omala S2 G

## Viscosity - Temperature - Diagram





# Shell Rimula R2 40 (CF/10TBN)

- Tough, Long-lasting Action

## Monograde Heavy Duty Diesel Engine Oils

Shell Rimula R2 Energised Protection oils use proven combinations of additives that react to the the needs of your engine. They feature an enhanced acid-control system for added Protection and long life. Each dedicated additive releases its protective energy when needed to ensure reliable and consistent Protection against deposits and wear with tough long lasting action.



### Performance, Features & Benefits

- **Engine cleanliness**  
Shell Rimula R2 oils incorporate an enhanced detergent additive system to control piston deposits and maintain good standards of engine cleanliness.
- **Dependable protection**  
High Total Base Number (10 TBN) to ensure suitable protection throughout the oil drain period in areas where fuel sulphur is High.
- **Long engine life**  
Continuous protection against corrosion and wear throughout the oil drain interval to prolong the life of the engine.

- **On and off-highway applications**  
Suitable for long distance trucking and similar 'constant speed' on-road operations as well as use in stop-start operation such as agriculture, construction and city driving.
- **Hydraulic and transmissions**  
Shell Rimula R2 monograde oils can be used in certain transmission and mobile hydraulic systems where use of monograde engine oils is recommended by the equipment manufacturer.

### Specifications, Approvals & Recommendations

- **API : CF**  
For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

### Main Applications



- **Automotive diesel engines**  
Shell Rimula R2 oils are designed for use in medium and heavy duty diesel engines using low sulphur/medium diesel fuel.

### Typical physical characteristics

Properties			Method	Shell Rimula R2 (CF/10TBN)
SAE Viscosity Grade				40
Kinematic Viscosity	@40°C	cSt	ASTM D 445	140
Kinematic Viscosity	@100°C	cSt	ASTM D 445	14.5
Viscosity Index			ASTM D 2270	102
density	@15°C	kg/l	ASTM D 4052	0.895
Flash Point (COC)			ASTM D 92	250
Pour Point			ASTM D 97	-9

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

### ■ Health and Safety

Shell Rimula R2 (CF/10TBN) is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

### ■ Protect the Environment

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

### ■ Advice

Advice on applications not covered here may be obtained from your shell representative.



# Shell Rimula R4 X 15W-40

## (CI-4/E7/DH-1)

- Triple Protection

### Heavy Duty Diesel Engine Oil

Shell Rimula R4 X contains selected additives that are designed to provide Triple Protection to improve engine and oil durability in 3 critical areas: Acid and Corrosion Control, Reduced Engine Wear and Deposit Control. It helps to lower maintenance and increase reliability of vehicles. It is suitable for most heavy-duty diesel engines, non turbocharged and turbocharged alike, for on and off highway applications and has a wide array of engine manufacturers' approvals.



### Performance, Features & Benefits

#### • Acid and Corrosion Control

Shell Rimula R4 X shows excellent control of acids by reducing the accumulation of acids and chemical corrosion of engine bearings. Harmful acids from fuel combustion are controlled by using selected detergent additives to neutralise them and help to prevent corrosion of metal surfaces.

#### • Reduced Engine Wear

Shell Rimula R4 X offers high levels of engine wear protection in the critical areas of the valve train, piston ring and cylinder liners. This wear control is achieved through the addition of anti-wear additives that are designed to form protective films in metal-to-metal contacts when needed under different engine operating conditions, and by the use of soot dispersant additives to keep soot particles finely dispersed to help prevent wear.

#### • Deposit Control

Shell Rimula R4 X helps to prevent oil thickening and the formation of harmful deposits in all areas of the engine, including sludge and piston deposits. The optimised detergent and dispersant additive system for Shell Rimula R4 X keeps engines cleaner than previous-generation Shell Rimula R3 products.

### Main Applications



#### • Severe duty heavy duty diesel engines

Shell Rimula R4 X provides demonstrated protection and performance in the latest high power heavy-duty diesel engines from European, US and Japanese manufacturers in both on-highway and off-highway applications.

#### • High Technology Low Emission Engines

Shell Rimula R4 X is suitable for most modern low emission engines meeting Euro 5, 4, 3, 2, and US 2002 emission requirements.

For the latest low emissions engines especially those fitted with exhaust diesel particulate filters (DPF), we recommend the use of our low-emissions products, Shell Rimula R4 L or Shell Rimula R5 LE.

### Specifications, Approvals & Recommendations

- API: CI-4, CH-4, CG-4, CF-4, CF.SL
- ACEA: E7, E5, E3
- Global DHD-1
- Caterpillar: ECF-2, ECF-1-A
- Cummins: CES 20078,77,76,75,72,71
- DDC: 93K215
- Deutz: DQC III-10
- IVECO: T1 (Meets requirements)
- JASO: DH-1
- Mack: EO-M+, EO-M
- MAN: M3275-1
- MB Approval: 228.3

- MTU: Category 2
- Renault Trucks: RLD-2
- Volvo: VDS-3

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Help Desk.

### Typical Physical Characteristics

Properties			Method	Shell Rimula R4 X
SAE Viscosity Grade				15W-40
Kinematic Viscosity	@40°C	mm <sup>2</sup> /s	ASTM D445	109
Kinematic Viscosity	@100°C	mm <sup>2</sup> /s	ASTM D445	14.7
Dynamic Viscosity	@-20°C	mPas	ASTM D5293	6700
Viscosity Index			ASTM D2270	139
Total Base Number	mgKOH/g		ASTM D2896	10.5
Sulphated Ash	%		ASTM D874	1.45
Density	@15°C	kg/l	ASTM D4052	0.888
Flash Point	COC	°C	ASTM D92	230
Pour Point			ASTM D97	-36

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

### Health, Safety & Environment

#### • Health and Safety

Shell Rimula R4 X is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from [www.epc.shell.com](http://www.epc.shell.com)

#### • Protect the Environment

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

### Additional Information

#### • Advice

Advice on applications not covered here may be obtained from your Shell representative.





## Shell Rimula R6 M 10W-40 (E7/228.5)

- Maintenance Saving

### Synthetic Heavy Duty Diesel Engine Oil

Shell Rimula R6 M features advanced multi-functional additive technology in fully synthetic base oil systems to deliver highly responsive protection that continuously adapts to your driving conditions. Protection is further enhanced through formulation synergies that enhance the activity of the oil resulting in maintenance saving long drain performance coupled with excellent protection against soot induced wear, piston and engine deposits and fuel economy capability. Shell Rimula R6 M is suitable for most Euro IV and Euro V engines without Diesel Particle Filter.

### Performance, Features & Benefits

#### ■ Maintenance saving

Shell Rimula R6 M meets the long oil drain requirements of leading engine makers such as Mercedes-Benz, MAN, DAF, Volvo and others to allow operators to optimize maintenance scheduling and maximize equipment availability without compromising durability.

#### ■ Exceptional piston cleanliness

Shell Rimula R6 M uses advanced additive technology that builds on the reputation and performance of Shell Rimula engine oils for high levels of piston cleanliness essential for long engine life.

#### ■ Low wear - long engine life

Shell Rimula R6 M meets the demanding wear protection of many European, American and Japanese engines, controlling bore polish and valve train wear thus maximising engine life.

#### ■ Fuel economy

Shell Rimula R6 M can save money in fuel consumption compared to high viscosity grades.

#### ■ Low emission engine use

Shell Rimula R6 M meets the requirements of most European manufacturers for Euro 2,3 engines and most Euro IV and Euro V engines without Diesel Particle Filter.

For Scania engines we recommend Shell Rimula R6 MS.

For enhanced performance and protection of the latest low emission engines, especially those fitted with exhaust diesel particulate traps (DPF), we recommend the use of our advanced low-emissions products, Shell Rimula R6 LM/LME.

### Specifications, Approvals & Recommendations

- ACEA: E7, E4
- API: CF
- Cummins: CES 20072
- Deutz: DQC IV-10
- IVECO T3 E4 (Meets Iveco specification)
- MAN: 3277
- MB Approval: 228.5
- MACK: EO-M Plus
- MTU: Category 3
- Renault trucks: RXD
- Volvo: VDS-3

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

### Main Applications



#### ■ On-highway heavy duty applications

Particularly suited for a wide range of trucking and transportation applications in vehicles using modern low-emission engines from Mercedes-Benz and MAN. Also meets or exceeds the performance requirements of other European makers such as Volvo, Renault, DAF, Deutz and Iveco as well as Cummins, Mack and many Japanese engine types.

Not recommended for Caterpillar engines.

## Typical physical characteristics

Properties			Method	Shell Rimula R6 M 10W-40 (E7/228.5)
Viscosity Grade				10W-40
Kinematic Viscosity	@40°C	mm <sup>2</sup> /s	ASTM D445	90
Kinematic Viscosity	@100°C	mm <sup>2</sup> /s	ASTM D445	13.6
Dynamic Viscosity	@-25°C	mPa s	ASTM D5293	6600
Viscosity Index			ASTM D2270	153
Total Base Number		mg KOH/g	ASTM D2896	15.9
Sulphated Ash		%	ASTM D874	1.9
density	@15°C	kg/l	ASTM D4052	0.867
Flash Point		°C	ASTM D92 (COC)	240
Pour Point		°C	ASTM D97	-42

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

### ■ Health and Safety

Shell Rimula R6 M oils are unlikely to present any significant health or safety hazard when properly used in the recommended application, and good standards of industrial and personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

### ■ Protect the Environment

Take used oil to an authorized collection point. Do not discharge into drains, soil or water.

## Additional Information

### ■ Advice

Advice on applications not covered here may be obtained from your shell representative.



Previous Name: Shell Tellus Oils

# Shell Tellus S2 M 32

- *Extra Protection*
- *Industrial Applications*

## Industrial Hydraulic Fluid

Shell Tellus S2 M fluids are high performance hydraulic fluids that use Shell's unique patented technology to provide outstanding protection and performance in most manufacturing and many mobile equipment operations. They resist breakdown under heat or mechanical stress and help prevent damaging deposit formation that can decrease the efficiency of your hydraulic power system.

### DESIGNED TO MEET CHALLENGES

#### Performance, Features & Benefits

##### ■ Long fluid life – maintenance saving

Shell Tellus S2 M fluids help extend equipment maintenance intervals by resisting thermal and chemical breakdown. This minimizes sludge formation and provides excellent performance in the industry standard ASTM D943 TOST test (Turbine Oil Stability Test), providing better reliability and system cleanliness.

Shell Tellus S2 M fluids also have good stability in the presence of moisture, which ensures long fluid life and reduces the risk of corrosion and rusting, particularly in moist or humid environments.

##### ■ Outstanding wear protection

Proven zinc-based anti-wear additives are incorporated to be effective throughout the range of operating conditions, including low load and severe duty high load conditions. Outstanding performance in a range of piston and vane pump tests, including the tough Denison T6C (dry and wet versions) and the demanding Vickers 35VQ25, demonstrates how Shell Tellus S2 M fluids can help system components last longer.

##### ■ Maintaining system efficiency

Superior cleanliness, excellent filterability and high performance water separation, air release and antifoam characteristics all help contribute to maintaining or enhancing the efficiency of hydraulic systems.

The unique additive system in Shell Tellus S2 M, in combination with superior cleanliness (meeting the requirements of ISO 4406 21/19/16 class or better ex Shell plant filling lines as recognised by DIN 51524 specification,

the oil is exposed to various influences with transport and storage that could effect the cleanliness level), helps reduce the impact of contaminants on filter blocking, allowing both extended filter life and use of finer filtration for extra equipment protection.

Shell Tellus S2 M fluids are formulated for fast air release without excessive foaming to help efficient hydraulic power transfer and minimise fluid and equipment impacts of cavitation induced oxidation that can shorten fluid life.

#### Main Applications



##### ■ Industrial hydraulic systems

With an extensive range of equipment maker approvals and recommendations, Shell Tellus S2 M fluids are suitable for a wide range of hydraulic power applications found in manufacturing and industrial environments.

##### ■ Mobile hydraulic fluid power transmission systems

Shell Tellus S2 M fluids can be used effectively in mobile hydraulic power applications such as excavators and cranes, except where significant ambient temperature variations are encountered. For these applications we recommend the Shell Tellus "V" series.

##### ■ Marine hydraulic systems

Suitable for marine applications where ISO HM category hydraulic fluids are recommended.

## Specifications, Approvals & Recommendations

- Denison Hydraulics (HF-0, HF-1, HF-2)
- Cincinnati Machine P-68 (ISO 32), P-70 (ISO 46), P-69 (ISO 68)
- Eaton Vickers (Brochure 694)
- Listed by Bosch Rexroth Ref 17421-001 and RD 220-1/04.03
- ISO 11158 (HM fluids)
- Afnor NF-E 48-603
- Astm 6158-05 (HM fluids)
- DIN 51524 Part 2 HLP type
- Swedish Standard SS 15 54 34 AM
- GB 111181-1-94 (HM fluids)

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

## Compatibility & Miscibility

- **Compatibility**  
Shell Tellus S2 M fluids are suitable for use with most hydraulic pumps. However, please consult your Shell Representative before using in pumps containing silver plated components.
- **Fluid Compatibility**  
Shell Tellus S2 M fluids are compatible with most other mineral oil based hydraulic fluids. However, mineral oil hydraulic fluids should not be mixed with other fluid types (e.g. environmentally acceptable or fire resistant fluids).
- **Seal & Paint Compatibility**  
Shell Tellus S2 M fluids are compatible with seal materials and paints normally specified for use with mineral oils.

## Typical physical characteristics

Properties			Method	Shell Tellus S2 M
ISO Viscosity Grade			ISO 3448	32
ISO Fluid Type				HM
Kinematic Viscosity	@0°C	cSt	ASTM D445	338
Kinematic Viscosity	@40°C	cSt	ASTM D445	32
Kinematic Viscosity	@100°C	cSt	ASTM D445	5.4
Viscosity Index			ISO 2909	99
density	@15°C	kg/l	ISO 12185	0.875
Flash Point (COC)			ISO 2592	218
Pour Point			ISO 3016	-30

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

### ■ Health and Safety

Shell Tellus S2 M hydraulic fluid is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

### ■ Protect the Environment

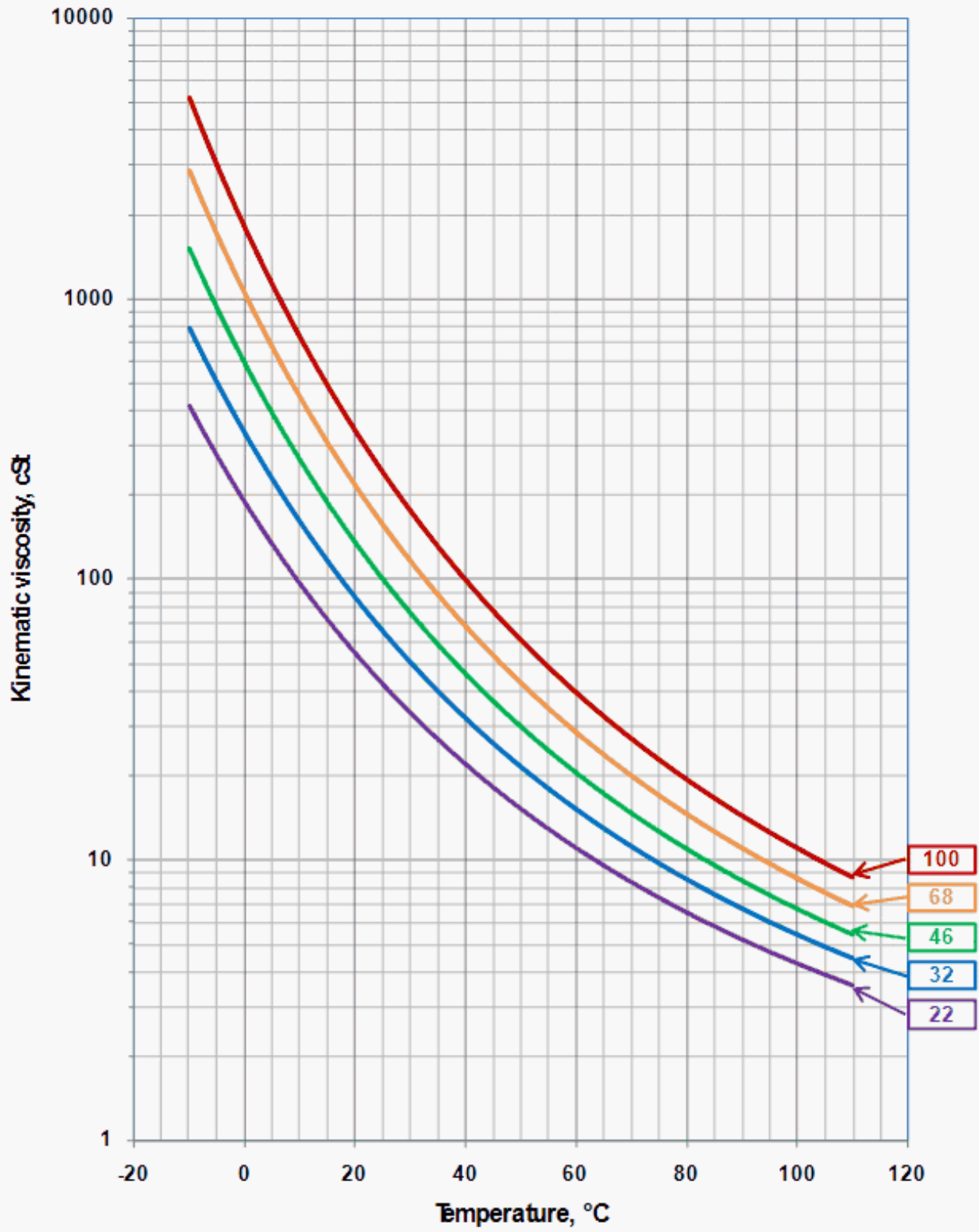
Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

### ■ Advice

Advice on applications not covered here may be obtained from your shell representative.

### Viscosity - Temperature Diagram for Shell Tellus S2 M





Previous Name: Shell Tellus Oils

# Shell Tellus S2 M 46

- *Extra Protection*
- *Industrial Applications*

## Industrial Hydraulic Fluid

Shell Tellus S2 M fluids are high performance hydraulic fluids that use Shell's unique patented technology to provide outstanding protection and performance in most manufacturing and many mobile equipment operations. They resist breakdown under heat or mechanical stress and help prevent damaging deposit formation that can decrease the efficiency of your hydraulic power system.

### DESIGNED TO MEET CHALLENGES

#### Performance, Features & Benefits

##### ■ Long fluid life – maintenance saving

Shell Tellus S2 M fluids help extend equipment maintenance intervals by resisting thermal and chemical breakdown. This minimizes sludge formation and provides excellent performance in the industry standard ASTM D943 TOST test (Turbine Oil Stability Test), providing better reliability and system cleanliness.

Shell Tellus S2 M fluids also have good stability in the presence of moisture, which ensures long fluid life and reduces the risk of corrosion and rusting, particularly in moist or humid environments.

##### ■ Outstanding wear protection

Proven zinc-based anti-wear additives are incorporated to be effective throughout the range of operating conditions, including low load and severe duty high load conditions. Outstanding performance in a range of piston and vane pump tests, including the tough Denison T6C (dry and wet versions) and the demanding Vickers 35VQ25, demonstrates how Shell Tellus S2 M fluids can help system components last longer.

##### ■ Maintaining system efficiency

Superior cleanliness, excellent filterability and high performance water separation, air release and antifoam characteristics all help contribute to maintaining or enhancing the efficiency of hydraulic systems.

The unique additive system in Shell Tellus S2 M, in combination with superior cleanliness (meeting the requirements of ISO 4406 21/19/16 class or better ex Shell plant filling lines as recognised by DIN 51524 specification,

the oil is exposed to various influences with transport and storage that could effect the cleanliness level), helps reduce the impact of contaminants on filter blocking, allowing both extended filter life and use of finer filtration for extra equipment protection.

Shell Tellus S2 M fluids are formulated for fast air release without excessive foaming to help efficient hydraulic power transfer and minimise fluid and equipment impacts of cavitation induced oxidation that can shorten fluid life.

#### Main Applications



##### ■ Industrial hydraulic systems

With an extensive range of equipment maker approvals and recommendations, Shell Tellus S2 M fluids are suitable for a wide range of hydraulic power applications found in manufacturing and industrial environments.

##### ■ Mobile hydraulic fluid power transmission systems

Shell Tellus S2 M fluids can be used effectively in mobile hydraulic power applications such as excavators and cranes, except where significant ambient temperature variations are encountered. For these applications we recommend the Shell Tellus "V" series.

##### ■ Marine hydraulic systems

Suitable for marine applications where ISO HM category hydraulic fluids are recommended.

## Specifications, Approvals & Recommendations

- Denison Hydraulics (HF-0, HF-1, HF-2)
- Cincinnati Machine P-68 (ISO 32), P-70 (ISO 46), P-69 (ISO 68)
- Eaton Vickers (Brochure 694)
- Listed by Bosch Rexroth Ref 17421-001 and RD 220-1/04.03
- ISO 11158 (HM fluids)
- Afnor NF-E 48-603
- Astm 6158-05 (HM fluids)
- DIN 51524 Part 2 HLP type
- Swedish Standard SS 15 54 34 AM
- GB 111181-1-94 (HM fluids)

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

## Compatibility & Miscibility

- **Compatibility**  
Shell Tellus S2 M fluids are suitable for use with most hydraulic pumps. However, please consult your Shell Representative before using in pumps containing silver plated components.
- **Fluid Compatibility**  
Shell Tellus S2 M fluids are compatible with most other mineral oil based hydraulic fluids. However, mineral oil hydraulic fluids should not be mixed with other fluid types (e.g. environmentally acceptable or fire resistant fluids).
- **Seal & Paint Compatibility**  
Shell Tellus S2 M fluids are compatible with seal materials and paints normally specified for use with mineral oils.

## Typical physical characteristics

Properties			Method	Shell Tellus S2 M
ISO Viscosity Grade			ISO 3448	46
ISO Fluid Type				HM
Kinematic Viscosity	@0°C	cSt	ASTM D445	580
Kinematic Viscosity	@40°C	cSt	ASTM D445	46
Kinematic Viscosity	@100°C	cSt	ASTM D445	6.7
Viscosity Index			ISO 2909	98
density	@15°C	kg/l	ISO 12185	0.879
Flash Point (COC)			ISO 2592	230
Pour Point			ISO 3016	-30

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

### ■ Health and Safety

Shell Tellus S2 M hydraulic fluid is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

### ■ Protect the Environment

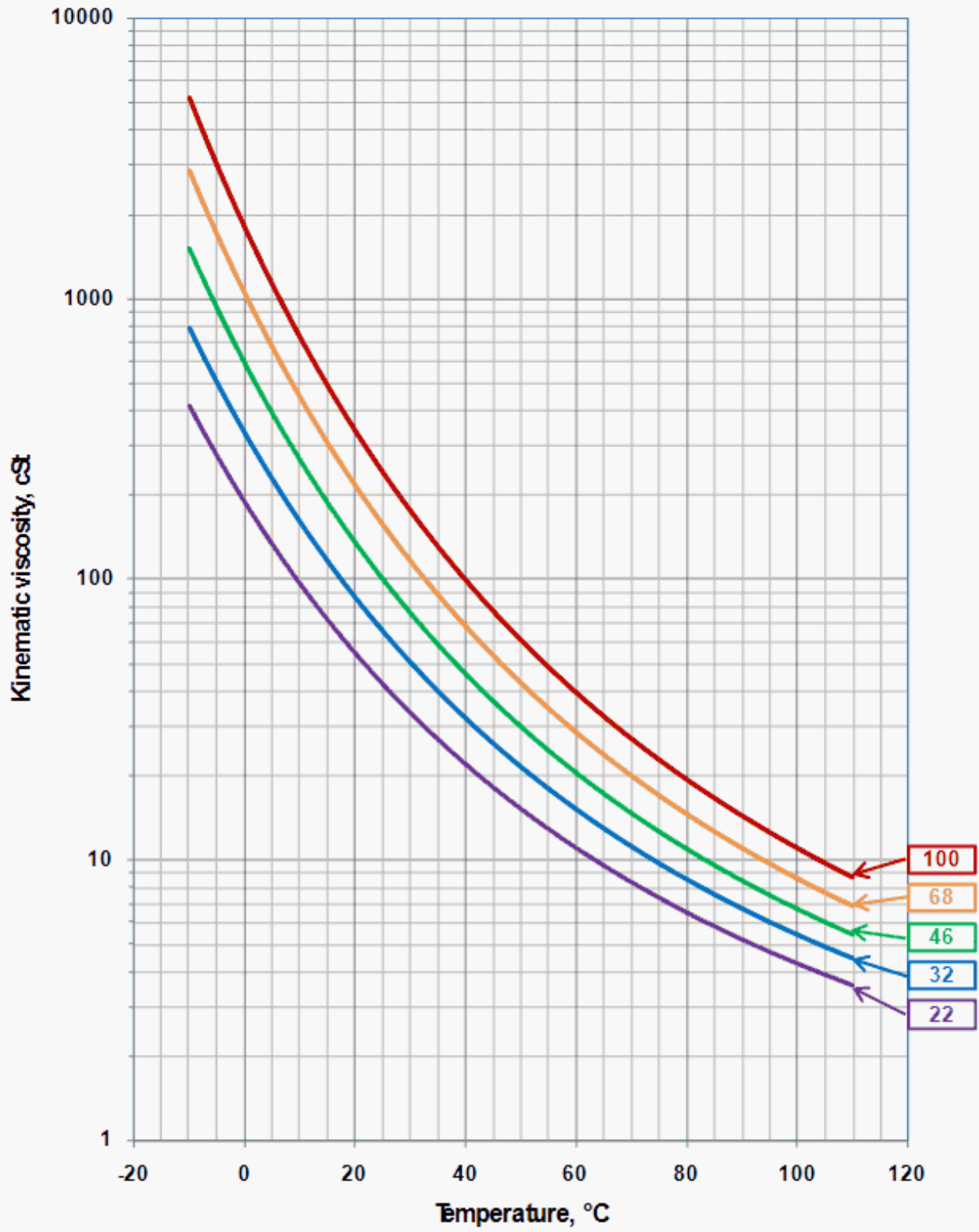
Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

### ■ Advice

Advice on applications not covered here may be obtained from your shell representative.

### Viscosity - Temperature Diagram for Shell Tellus S2 M







Previous Name: Shell Tellus Oils

# Shell Tellus S2 M 68

- *Extra Protection*
- *Industrial Applications*

## Industrial Hydraulic Fluid

Shell Tellus S2 M fluids are high performance hydraulic fluids that use Shell's unique patented technology to provide outstanding protection and performance in most manufacturing and many mobile equipment operations. They resist breakdown under heat or mechanical stress and help prevent damaging deposit formation that can decrease the efficiency of your hydraulic power system.

### DESIGNED TO MEET CHALLENGES

#### Performance, Features & Benefits

##### ■ Long fluid life – maintenance saving

Shell Tellus S2 M fluids help extend equipment maintenance intervals by resisting thermal and chemical breakdown. This minimizes sludge formation and provides excellent performance in the industry standard ASTM D943 TOST test (Turbine Oil Stability Test), providing better reliability and system cleanliness.

Shell Tellus S2 M fluids also have good stability in the presence of moisture, which ensures long fluid life and reduces the risk of corrosion and rusting, particularly in moist or humid environments.

##### ■ Outstanding wear protection

Proven zinc-based anti-wear additives are incorporated to be effective throughout the range of operating conditions, including low load and severe duty high load conditions. Outstanding performance in a range of piston and vane pump tests, including the tough Denison T6C (dry and wet versions) and the demanding Vickers 35VQ25, demonstrates how Shell Tellus S2 M fluids can help system components last longer

##### ■ Maintaining system efficiency

Superior cleanliness, excellent filterability and high performance water separation, air release and antifoam characteristics all help contribute to maintaining or enhancing the efficiency of hydraulic systems.

The unique additive system in Shell Tellus S2 M, in combination with superior cleanliness (meeting the requirements of ISO 4406 21/19/16 class or better ex Shell plant filling lines as recognised by DIN 51524 specification,

the oil is exposed to various influences with transport and storage that could effect the cleanliness level), helps reduce the impact of contaminants on filter blocking, allowing both extended filter life and use of finer filtration for extra equipment protection.

Shell Tellus S2 M fluids are formulated for fast air release without excessive foaming to help efficient hydraulic power transfer and minimise fluid and equipment impacts of cavitation induced oxidation that can shorten fluid life.

#### Main Applications



##### ■ Industrial hydraulic systems

With an extensive range of equipment maker approvals and recommendations, Shell Tellus S2 M fluids are suitable for a wide range of hydraulic power applications found in manufacturing and industrial environments.

##### ■ Mobile hydraulic fluid power transmission systems

Shell Tellus S2 M fluids can be used effectively in mobile hydraulic power applications such as excavators and cranes, except where significant ambient temperature variations are encountered. For these applications we recommend the Shell Tellus "V" series.

##### ■ Marine hydraulic systems

Suitable for marine applications where ISO HM category hydraulic fluids are recommended.

## Specifications, Approvals & Recommendations

- Denison Hydraulics (HF-0, HF-1, HF-2)
- Cincinnati Machine P-68 (ISO 32), P-70 (ISO 46), P-69 (ISO 68)
- Eaton Vickers (Brochure 694)
- Listed by Bosch Rexroth Ref 17421-001 and RD 220-1/04.03
- ISO 11158 (HM fluids)
- Afnor NF-E 48-603
- Astm 6158-05 (HM fluids)
- DIN 51524 Part 2 HLP type
- Swedish Standard SS 15 54 34 AM
- GB 111181-1-94 (HM fluids)

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

## Compatibility & Miscibility

- **Compatibility**  
Shell Tellus S2 M fluids are suitable for use with most hydraulic pumps. However, please consult your Shell Representative before using in pumps containing silver plated components.
- **Fluid Compatibility**  
Shell Tellus S2 M fluids are compatible with most other mineral oil based hydraulic fluids. However, mineral oil hydraulic fluids should not be mixed with other fluid types (e.g. environmentally acceptable or fire resistant fluids).
- **Seal & Paint Compatibility**  
Shell Tellus S2 M fluids are compatible with seal materials and paints normally specified for use with mineral oils.

## Typical physical characteristics

Properties			Method	Shell Tellus S2 M
ISO Viscosity Grade			ISO 3448	68
ISO Fluid Type				HM
Kinematic Viscosity	@0°C	cSt	ASTM D445	1040
Kinematic Viscosity	@40°C	cSt	ASTM D445	68
Kinematic Viscosity	@100°C	cSt	ASTM D445	8.6
Viscosity Index			ISO 2909	97
density	@15°C	kg/l	ISO 12185	0.886
Flash Point (COC)			ISO 2592	235
Pour Point			ISO 3016	-24

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

### ■ Health and Safety

Shell Tellus S2 M hydraulic fluid is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

### ■ Protect the Environment

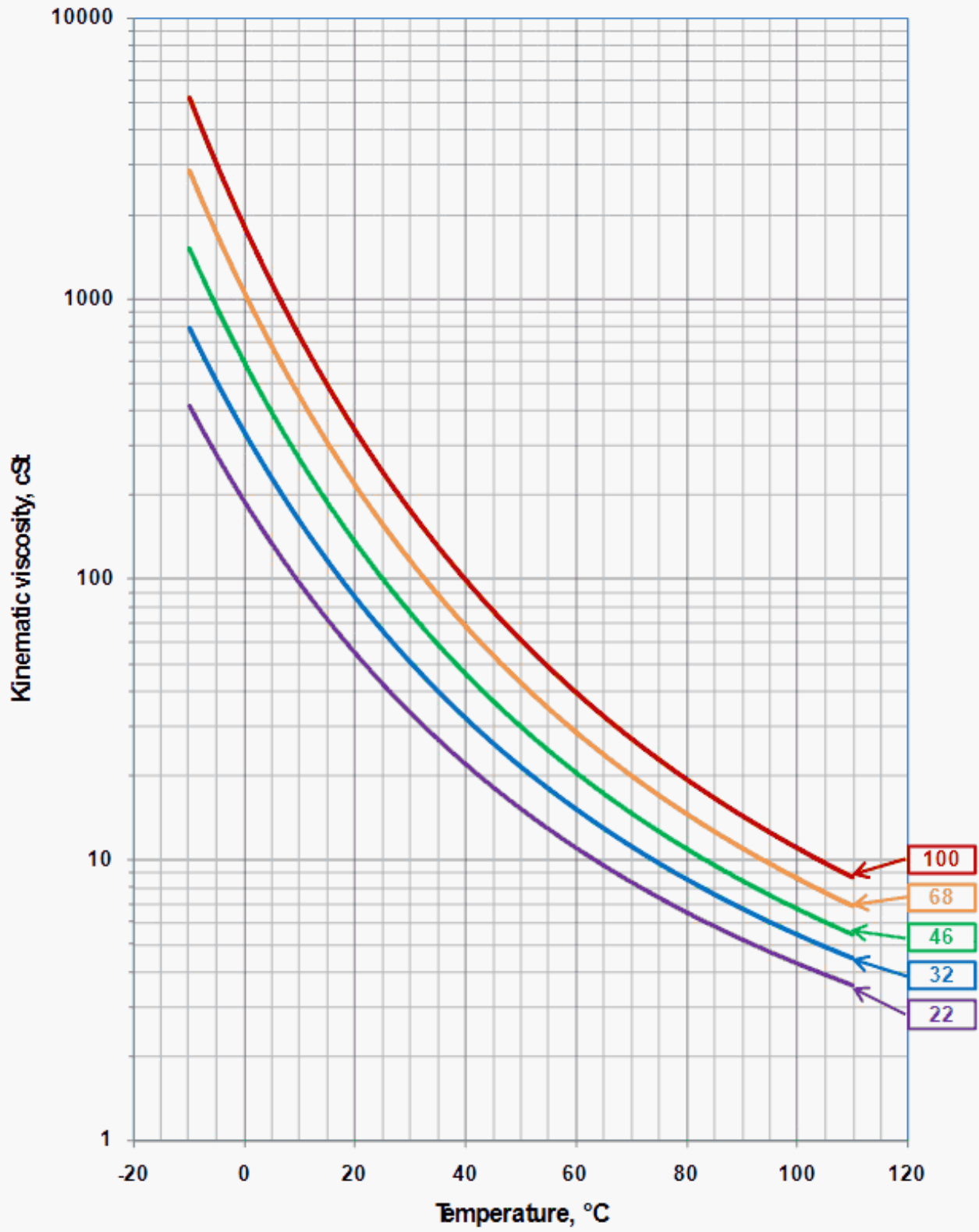
Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

### ■ Advice

Advice on applications not covered here may be obtained from your shell representative.

### Viscosity - Temperature Diagram for Shell Tellus S2 M





Previous Name: Shell Tellus T

# Shell Tellus S2 V 15

- Extra Protection
- Versatile Applications

*Industrial Hydraulic Fluid for wide temperature range*

Shell Tellus S2 V fluids are high performance hydraulic fluids that use Shell's unique patented technology with excellent viscosity control under both severe mechanical stress and across a wide range of temperatures. They provide outstanding protection and performance in most mobile equipment and other applications subjected to wider ranges of ambient or operating temperatures.

## DESIGNED TO MEET CHALLENGES

### Performance, Features & Benefits

#### ■ Long fluid life – Maintenance saving

Shell Tellus S2 V fluids help extend equipment maintenance intervals by resisting thermal and chemical breakdown. This minimizes sludge formation and provides excellent performance in the industry standard ASTM D943 TOST test (Turbine Oil Stability Test), providing better reliability and system cleanliness.

Shell Tellus S2 V fluids also have good stability in the presence of moisture, which ensures long fluid life and reduces the risk of corrosion and rusting, particularly in moist or humid environments.

Highly shear stable viscosity modifiers help minimize variations in the fluid properties throughout the fluid drain interval.

#### ■ Outstanding wear protection

Proven zinc-based anti-wear additives are incorporated to be effective throughout the range of operating conditions, including low load and severe duty high load conditions. Outstanding performance in a range of piston and vane pump tests, including the tough Denison T6C (dry and wet versions) and the demanding Vickers 35VQ25, demonstrates how Shell Tellus S2 V fluids can help system components last longer.

#### ■ Maintaining system efficiency

The extended temperature range capability of Shell Tellus S2 V allows efficient operation of mobile equipment from cold start to normal operating conditions.

Superior cleanliness, excellent filterability and high performance water separation, air release and anti-foam characteristics all help contribute to maintaining or enhancing the efficiency of hydraulic systems.

The unique additive system in Shell Tellus S2 V, in combination with superior cleanliness (meeting the requirements of max ISO 4406 21/19/16 class, ex Shell filling lines. As recognized by DIN 51524 specification, the oil is exposed to various influences with transport and storage that could effect the cleanliness level) helps reduce the impact of contaminants on filter blocking, allowing both extended filter life and use of finer filtration for extra equipment protection.

Shell Tellus S2 V fluids are formulated for fast air release without excessive foaming to help efficient hydraulic power transfer and minimise fluid and equipment impacts of cavitation-induced oxidation that can shorten fluid life.

### Main Applications



#### ■ Mobile/exterior hydraulic applications

Hydraulic and fluid power transmission systems in exposed environments can be subject to wide variations in temperature. The high viscosity index of Shell Tellus S2 V helps deliver responsive performance from cold start conditions to full load, severe duty operation.

#### ■ Precision hydraulic systems

Precision hydraulic systems require excellent control of fluid viscosity over the operating cycle. Shell Tellus S2 V provides greater temperature-viscosity stability compared to ISO HM fluids that can help improve the performance of such systems.

For more severe operating conditions, longer fluid life and enhanced efficiency, the Shell Tellus "S3" and "S4" ranges offer additional performance benefits.

## Specifications, Approvals & Recommendations

- Denison Hydraulics (HF-0, HF-1, HF-2)
- Cincinnati Machine P-68 (ISO 32), P-70 (ISO 46), P-69 (ISO 68)
- Eaton Vickers (Brochure 694)
- Swedish Standard SS 15 54 34 AM
- ISO 11158 (HV fluids)
- Afnor NF-E 48-603
- Astm 6158-05 (HV fluids)
- DIN 51524 Part 3 Hvlp type
- GB 111181-1-94 (HV fluids)

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

## Compatibility & Miscibility

- **Compatibility**  
Shell Tellus S2 V fluids are suitable for use with most hydraulic pumps. However, please consult your Shell Representative before using in pumps containing silver plated components.
- **Fluid Compatibility**  
Shell Tellus S2 V fluids are compatible with most other mineral oil based hydraulic fluids. However, mineral oil hydraulic fluids should not be mixed with other fluid types (e.g. environmentally acceptable or fire resistant fluids).
- **Seal & Paint Compatibility**  
Shell Tellus S2 V fluids are compatible with seal materials and paints normally specified for use with mineral oils.

## Typical physical characteristics

Properties			Method	Shell Tellus S2 V
ISO Viscosity Grade			ISO 3448	15
ISO Fluid Type				HV
Kinematic Viscosity	@-20°C	cSt	ASTM D445	350
Kinematic Viscosity	@40°C	cSt	ASTM D445	15
Kinematic Viscosity	@100°C	cSt	ASTM D445	3.8
Viscosity Index			ISO 2909	142
density	@15°C	kg/l	ISO 12185	0.872
Flash Point (COC)			ISO 2592	170
Pour Point			ISO 3016	-42
Dielectric Strength*			ASTM D877	>30

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

- \* Dielectric strength value applies only to "point of manufacture" at a Shell authorized manufacturing facility. As with all hydraulic fluids, contamination with water or particulate leads to a reduction in Dielectric strength.

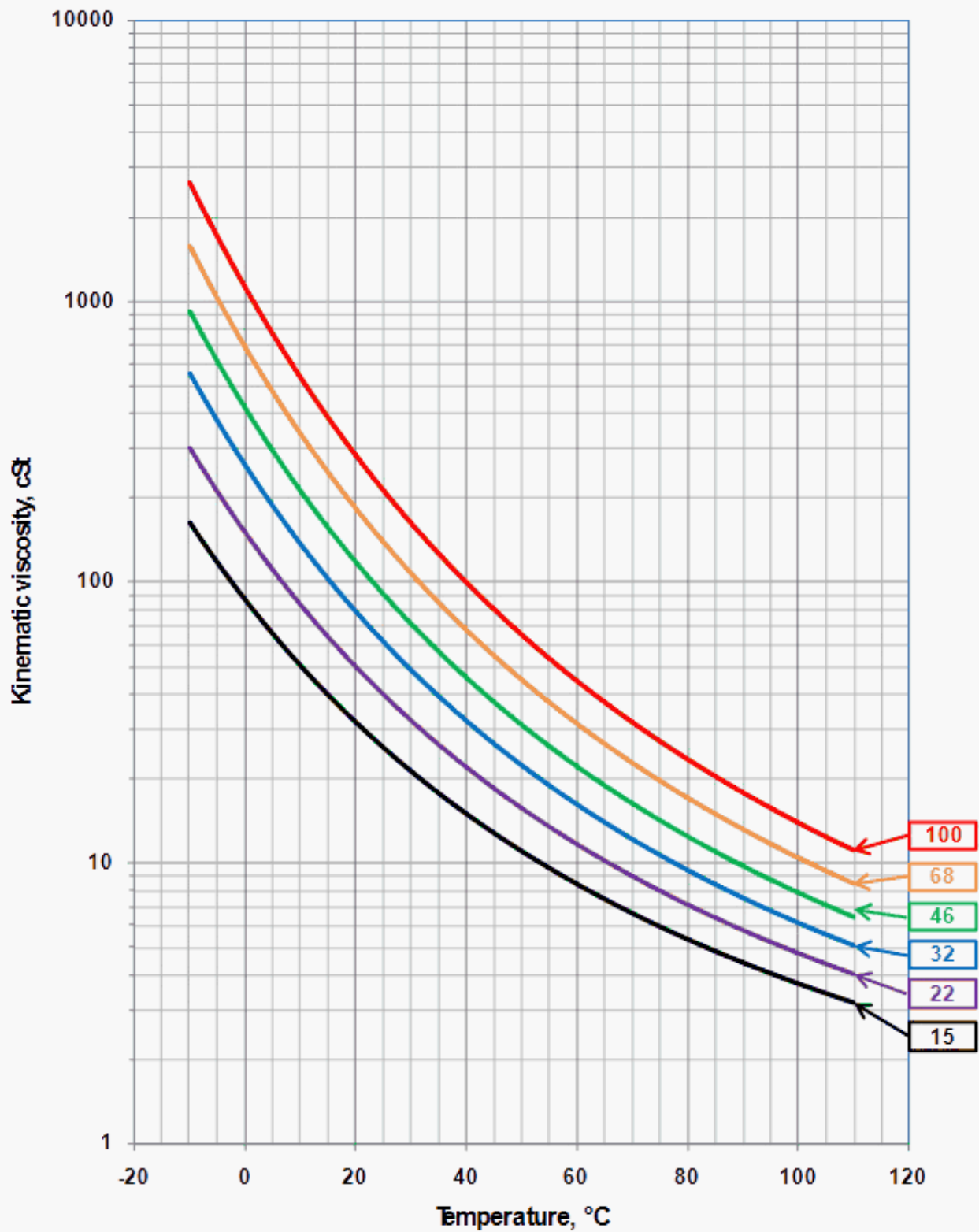
## Health, Safety & Environment

- Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>
- **Protect the Environment**  
Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

- **Advice**  
Advice on applications not covered here may be obtained from your shell representative.

### Viscosity - Temperature Diagram for Shell Tellus S2 V





Previous Name: Shell Tellus T

# Shell Tellus S2 V 32

- Extra Protection
- Versatile Applications

*Industrial Hydraulic Fluid for wide temperature range*

Shell Tellus S2 V fluids are high performance hydraulic fluids that use Shell's unique patented technology with excellent viscosity control under both severe mechanical stress and across a wide range of temperatures. They provide outstanding protection and performance in most mobile equipment and other applications subjected to wider ranges of ambient or operating temperatures.

## DESIGNED TO MEET CHALLENGES

### Performance, Features & Benefits

#### ■ Long fluid life – Maintenance saving

Shell Tellus S2 V fluids help extend equipment maintenance intervals by resisting thermal and chemical breakdown. This minimizes sludge formation and provides excellent performance in the industry standard ASTM D943 TOST test (Turbine Oil Stability Test), providing better reliability and system cleanliness.

Shell Tellus S2 V fluids also have good stability in the presence of moisture, which ensures long fluid life and reduces the risk of corrosion and rusting, particularly in moist or humid environments.

Highly shear stable viscosity modifiers help minimize variations in the fluid properties throughout the fluid drain interval.

#### ■ Outstanding wear protection

Proven zinc-based anti-wear additives are incorporated to be effective throughout the range of operating conditions, including low load and severe duty high load conditions. Outstanding performance in a range of piston and vane pump tests, including the tough Denison T6C (dry and wet versions) and the demanding Vickers 35VQ25, demonstrates how Shell Tellus S2 V fluids can help system components last longer.

#### ■ Maintaining system efficiency

The extended temperature range capability of Shell Tellus S2 V allows efficient operation of mobile equipment from cold start to normal operating conditions.

Superior cleanliness, excellent filterability and high performance water separation, air release and anti-foam characteristics all help contribute to maintaining or enhancing the efficiency of hydraulic systems.

The unique additive system in Shell Tellus S2 V, in combination with superior cleanliness (meeting the requirements of max ISO 4406 21/19/16 class, ex Shell filling lines. As recognized by DIN 51524 specification, the oil is exposed to various influences with transport and storage that could effect the cleanliness level) helps reduce the impact of contaminants on filter blocking, allowing both extended filter life and use of finer filtration for extra equipment protection.

Shell Tellus S2 V fluids are formulated for fast air release without excessive foaming to help efficient hydraulic power transfer and minimise fluid and equipment impacts of cavitation-induced oxidation that can shorten fluid life.

### Main Applications



#### ■ Mobile/exterior hydraulic applications

Hydraulic and fluid power transmission systems in exposed environments can be subject to wide variations in temperature. The high viscosity index of Shell Tellus S2 V helps deliver responsive performance from cold start conditions to full load, severe duty operation.

#### ■ Precision hydraulic systems

Precision hydraulic systems require excellent control of fluid viscosity over the operating cycle. Shell Tellus S2 V provides greater temperature-viscosity stability compared to ISO HM fluids that can help improve the performance of such systems.

For more severe operating conditions, longer fluid life and enhanced efficiency, the Shell Tellus "S3" and "S4" ranges offer additional performance benefits.

## Specifications, Approvals & Recommendations

- Denison Hydraulics (HF-0, HF-1, HF-2)
- Cincinnati Machine P-68 (ISO 32), P-70 (ISO 46), P-69 (ISO 68)
- Eaton Vickers (Brochure 694)
- Swedish Standard SS 15 54 34 AM
- ISO 11158 (HV fluids)
- Afnor NF-E 48-603
- Astm 6158-05 (HV fluids)
- DIN 51524 Part 3 Hvlp type
- GB 111181-1-94 (HV fluids)

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

## Compatibility & Miscibility

- **Compatibility**  
Shell Tellus S2 V fluids are suitable for use with most hydraulic pumps. However, please consult your Shell Representative before using in pumps containing silver plated components.
- **Fluid Compatibility**  
Shell Tellus S2 V fluids are compatible with most other mineral oil based hydraulic fluids. However, mineral oil hydraulic fluids should not be mixed with other fluid types (e.g. environmentally acceptable or fire resistant fluids).
- **Seal & Paint Compatibility**  
Shell Tellus S2 V fluids are compatible with seal materials and paints normally specified for use with mineral oils.

## Typical physical characteristics

Properties			Method	Shell Tellus S2 V
ISO Viscosity Grade			ISO 3448	32
ISO Fluid Type				HV
Kinematic Viscosity	@-20°C	cSt	ASTM D445	1300
Kinematic Viscosity	@40°C	cSt	ASTM D445	32
Kinematic Viscosity	@100°C	cSt	ASTM D445	6.1
Viscosity Index			ISO 2909	143
density	@15°C	kg/l	ISO 12185	0.872
Flash Point (COC)			ISO 2592	210
Pour Point			ISO 3016	-39
Dielectric Strength*			ASTM D877	>30

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

- \* Dielectric strength value applies only to "point of manufacture" at a Shell authorized manufacturing facility. As with all hydraulic fluids, contamination with water or particulate leads to a reduction in Dielectric strength.

## Health, Safety & Environment

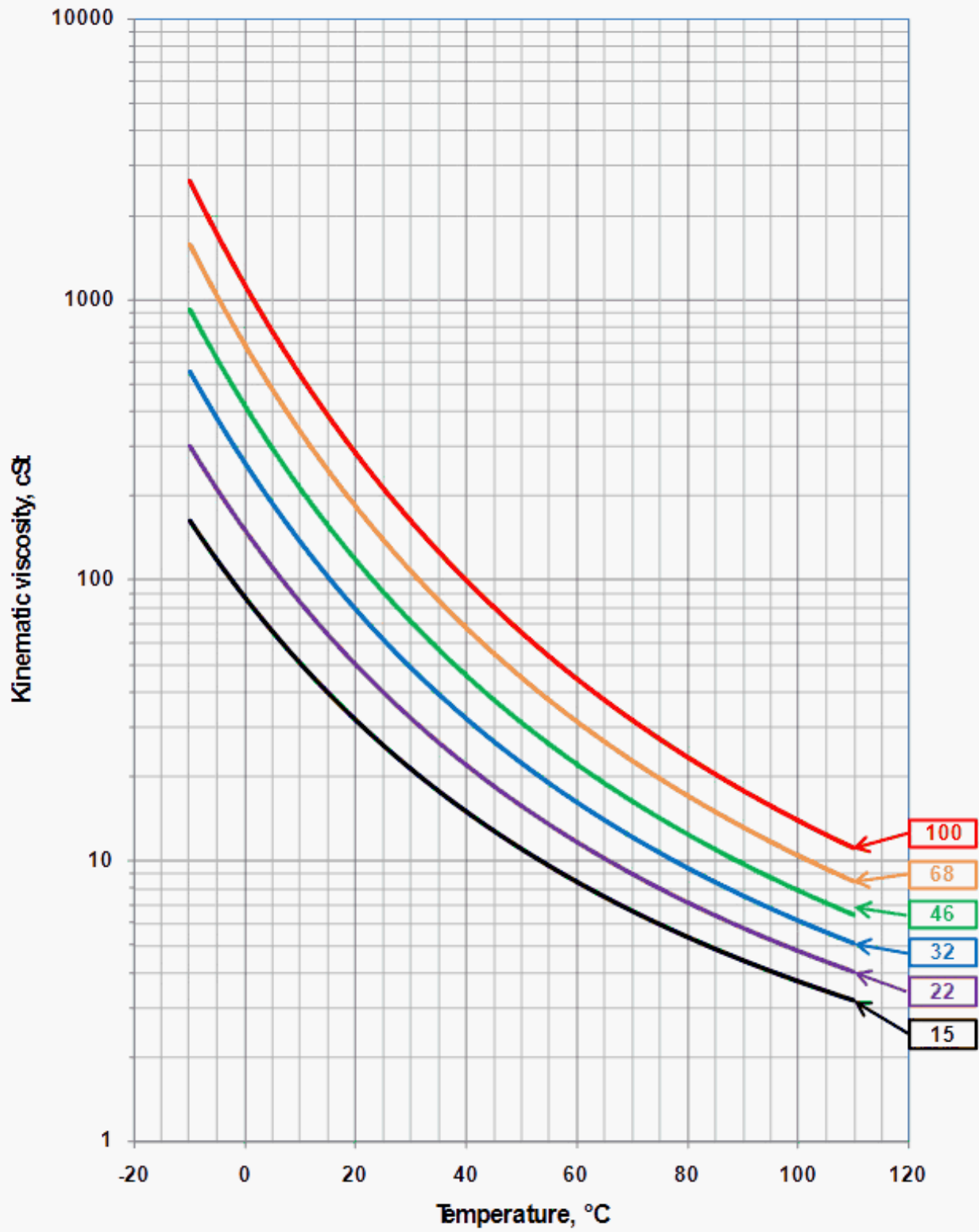
- Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>
- **Protect the Environment**  
Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

- **Advice**  
Advice on applications not covered here may be obtained from your shell representative.



### Viscosity - Temperature Diagram for Shell Tellus S2 V





Previous Name: Shell Tellus T

# Shell Tellus S2 V 46

- Extra Protection
- Versatile Applications

*Industrial Hydraulic Fluid for wide temperature range*

Shell Tellus S2 V fluids are high performance hydraulic fluids that use Shell's unique patented technology with excellent viscosity control under both severe mechanical stress and across a wide range of temperatures. They provide outstanding protection and performance in most mobile equipment and other applications subjected to wider ranges of ambient or operating temperatures.

## DESIGNED TO MEET CHALLENGES

### Performance, Features & Benefits

#### ■ Long fluid life – Maintenance saving

Shell Tellus S2 V fluids help extend equipment maintenance intervals by resisting thermal and chemical breakdown. This minimizes sludge formation and provides excellent performance in the industry standard ASTM D943 TOST test (Turbine Oil Stability Test), providing better reliability and system cleanliness.

Shell Tellus S2 V fluids also have good stability in the presence of moisture, which ensures long fluid life and reduces the risk of corrosion and rusting, particularly in moist or humid environments.

Highly shear stable viscosity modifiers help minimize variations in the fluid properties throughout the fluid drain interval.

#### ■ Outstanding wear protection

Proven zinc-based anti-wear additives are incorporated to be effective throughout the range of operating conditions, including low load and severe duty high load conditions. Outstanding performance in a range of piston and vane pump tests, including the tough Denison T6C (dry and wet versions) and the demanding Vickers 35VQ25, demonstrates how Shell Tellus S2 V fluids can help system components last longer.

#### ■ Maintaining system efficiency

The extended temperature range capability of Shell Tellus S2 V allows efficient operation of mobile equipment from cold start to normal operating conditions.

Superior cleanliness, excellent filterability and high performance water separation, air release and anti-foam characteristics all help contribute to maintaining or enhancing the efficiency of hydraulic systems.

The unique additive system in Shell Tellus S2 V, in combination with superior cleanliness (meeting the requirements of max ISO 4406 21/19/16 class, ex Shell filling lines. As recognized by DIN 51524 specification, the oil is exposed to various influences with transport and storage that could effect the cleanliness level) helps reduce the impact of contaminants on filter blocking, allowing both extended filter life and use of finer filtration for extra equipment protection.

Shell Tellus S2 V fluids are formulated for fast air release without excessive foaming to help efficient hydraulic power transfer and minimise fluid and equipment impacts of cavitation-induced oxidation that can shorten fluid life.

### Main Applications



#### ■ Mobile/exterior hydraulic applications

Hydraulic and fluid power transmission systems in exposed environments can be subject to wide variations in temperature. The high viscosity index of Shell Tellus S2 V helps deliver responsive performance from cold start conditions to full load, severe duty operation.

#### ■ Precision hydraulic systems

Precision hydraulic systems require excellent control of fluid viscosity over the operating cycle. Shell Tellus S2 V provides greater temperature-viscosity stability compared to ISO HM fluids that can help improve the performance of such systems.

For more severe operating conditions, longer fluid life and enhanced efficiency, the Shell Tellus "S3" and "S4" ranges offer additional performance benefits.

## Specifications, Approvals & Recommendations

- Denison Hydraulics (HF-0, HF-1, HF-2)
- Cincinnati Machine P-68 (ISO 32), P-70 (ISO 46), P-69 (ISO 68)
- Eaton Vickers (Brochure 694)
- Swedish Standard SS 15 54 34 AM
- ISO 11158 (HV fluids)
- Afnor NF-E 48-603
- Astm 6158-05 (HV fluids)
- DIN 51524 Part 3 Hvlp type
- GB 111181-1-94 (HV fluids)

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

## Compatibility & Miscibility

- **Compatibility**  
Shell Tellus S2 V fluids are suitable for use with most hydraulic pumps. However, please consult your Shell Representative before using in pumps containing silver plated components.
- **Fluid Compatibility**  
Shell Tellus S2 V fluids are compatible with most other mineral oil based hydraulic fluids. However, mineral oil hydraulic fluids should not be mixed with other fluid types (e.g. environmentally acceptable or fire resistant fluids).
- **Seal & Paint Compatibility**  
Shell Tellus S2 V fluids are compatible with seal materials and paints normally specified for use with mineral oils.

## Typical physical characteristics

Properties			Method	Shell Tellus S2 V
ISO Viscosity Grade			ISO 3448	46
ISO Fluid Type				HV
Kinematic Viscosity	@-20°C	cSt	ASTM D445	2350
Kinematic Viscosity	@40°C	cSt	ASTM D445	46
Kinematic Viscosity	@100°C	cSt	ASTM D445	7.9
Viscosity Index			ISO 2909	143
density	@15°C	kg/l	ISO 12185	0.872
Flash Point (COC)			ISO 2592	225
Pour Point			ISO 3016	-36
Dielectric Strength*			ASTM D877	>30

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

- \* Dielectric strength value applies only to "point of manufacture" at a Shell authorized manufacturing facility. As with all hydraulic fluids, contamination with water or particulate leads to a reduction in Dielectric strength.

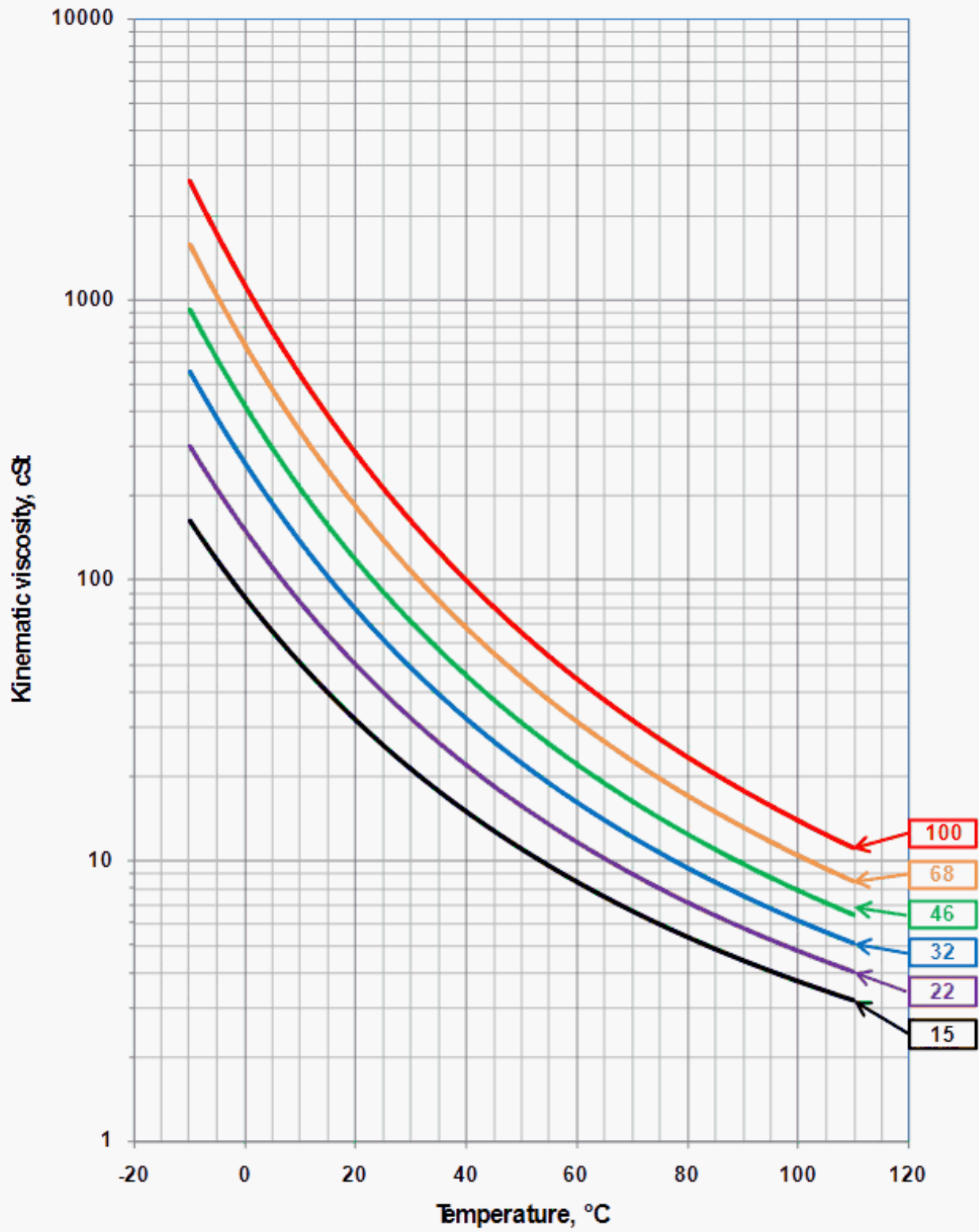
## Health, Safety & Environment

- Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>
- **Protect the Environment**  
Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

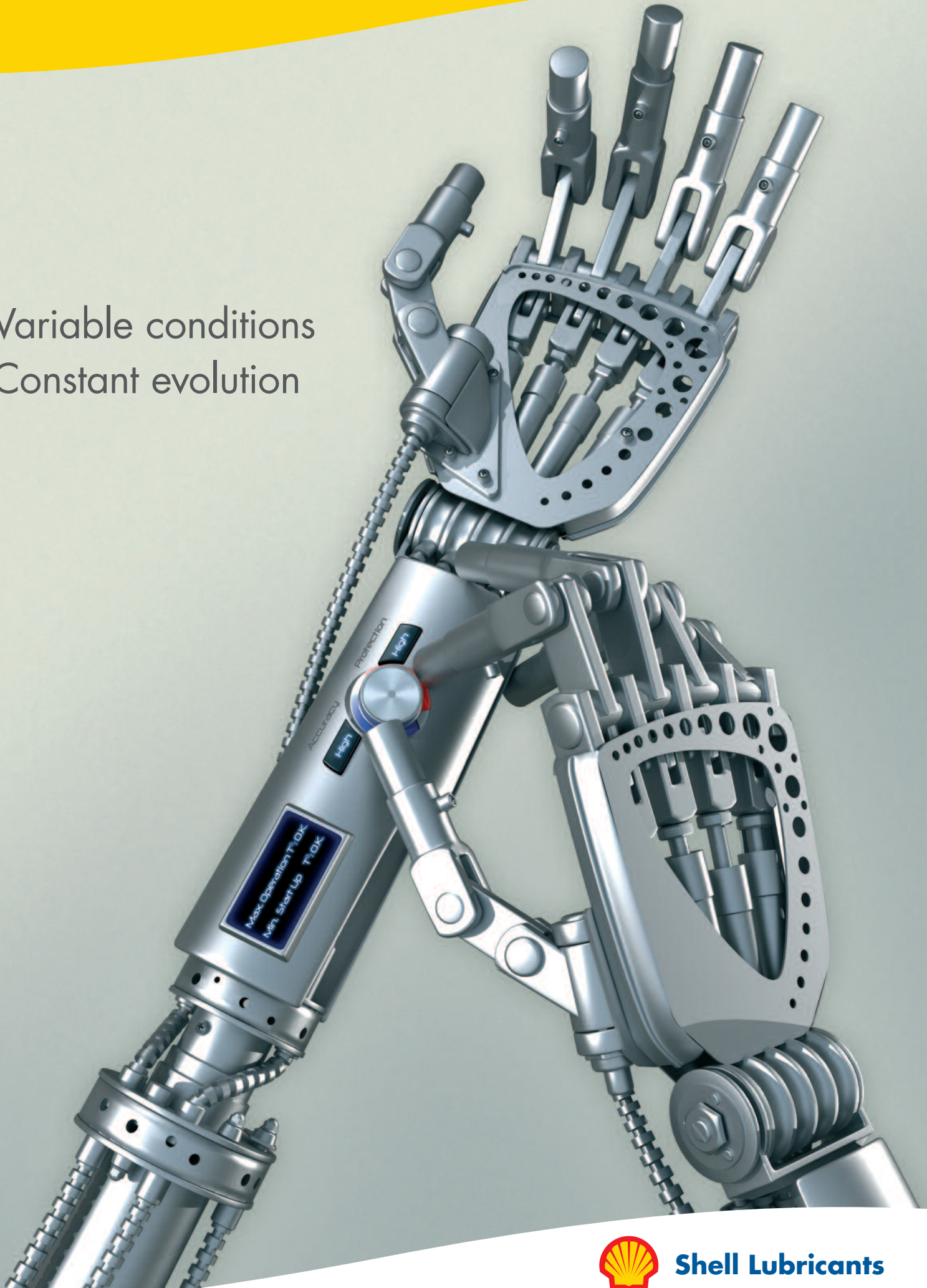
## Additional Information

- **Advice**  
Advice on applications not covered here may be obtained from your shell representative.

### Viscosity - Temperature Diagram for Shell Tellus S2 V



Variable conditions  
Constant evolution





## Under variable conditions there is just one thing you can

Your equipment depends on reliable performance from its hydraulic systems, so your choice of hydraulic oil is crucial. Some hydraulic oils poorly withstand changes in temperature or variations in working conditions.

By using low-performing oils, you risk:

- Corrosion and sludge build-up
- Increased wear
- Cavitation (air pockets)
- Filter blocking and valve sticking
- Increased oil use

### These problems can lead to:

- Equipment damage
- Premature failure and replacement of components
- Loss of operating precision
- Excessive noise
- Increased maintenance
- Expensive downtime



### Shell Tellus – keeping you ahead

In many cases, hydraulic systems are required to operate under variable conditions, for instance in outdoor applications where temperatures can change with the season or throughout the day, or when mobile equipment is transported from one site to another. Designed to give reliable hydraulic performance in a wide range of temperatures, the new Shell Tellus variable temperature hydraulic oils include a new polymer technology that helps them outperform major competitors and protect your investment. Shell Tellus is the world's leading hydraulic brand, and has now become better than ever.



## keep constant: the use of a hydraulic oil that evolves

Shell Tellus variable temperature hydraulic oils are designed to avoid problems related to low-performing lubricants, to reduce your maintenance costs and to help you to:

- **Reduce oil consumption and improve equipment protection** through outstanding shear and oxidation stability
- **Start up quickly** thanks to excellent low-temperature performance
- **Maintain precision of machinery** when either hot or cold or under high loads thanks to new polymer technology
- **Reduce wear and corrosion.** Strong hydrolytic stability and wear protection reduce the negative impact of unavoidable water condensation in your machinery after shutdown
- **Reduce your number of hydraulic oil grades** as the wide temperature range will allow you to use one oil in a wide range of environments



### Anti-wear performance for longer equipment life

Without any doubt, one of the most critical parts of a hydraulic system is the pump. Whether they are gear pumps, vane pumps, axial piston pumps, or radial piston pumps, they are all exposed to severe wear by running at high revolutions over extended periods of time, handling high temperatures and pressures. In highly demanding industry tests such as the new Denison T6H, next-generation Shell Tellus T demonstrated excellent lubricating performance and resistance to wear in pumps.



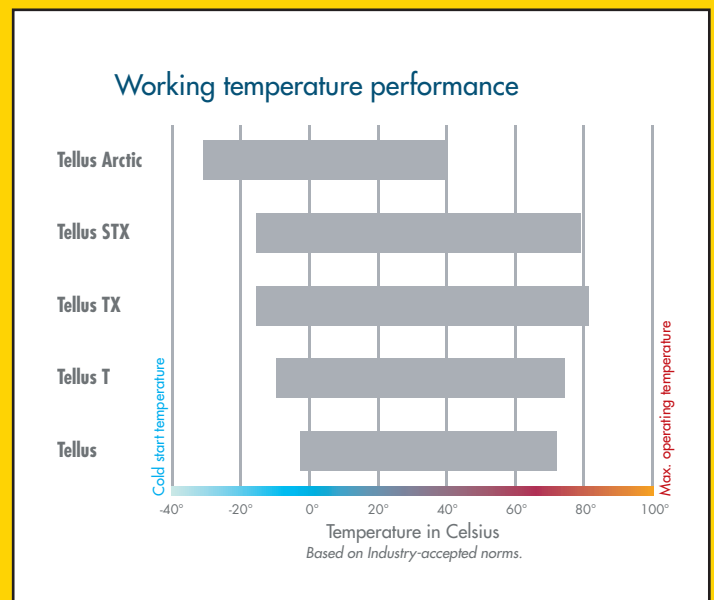


### Effective from start to finish

Tellus variable temperature hydraulic oils have been developed to maintain their viscosity throughout a wide temperature range. Unlike ordinary hydraulic oils, they contain new polymer technology, unique to these kinds of lubricants. After a cold start-up, the heat-activated polymers will ensure that the hydraulic oil retains correct viscosity when the oil temperature increases.

Secondly, the polymers have a tremendous shear strength – making them up to twice as stable as major competitors\* – ensuring that correct viscosity is maintained even under high loads.

\* as shown in the Shear Stability Test. See page 6.



### Suitable for stationary and mobile equipment

The new Shell Tellus variable temperature oil range has been developed to keep a wide range of equipment operating in variable temperature conditions, including:

- Lifts and cranes
- High-precision presses
- Off-road hydraulics
- Diggers, earth movers and snow ploughs
- Refuse collection vehicles
- Open-cast mine machinery
- Bobcats
- Marine applications







Next generation Shell Tellus T complies with the latest specifications and the most rigorous tests of relevant original equipment manufacturers. For detailed information, please refer to the product data sheet.

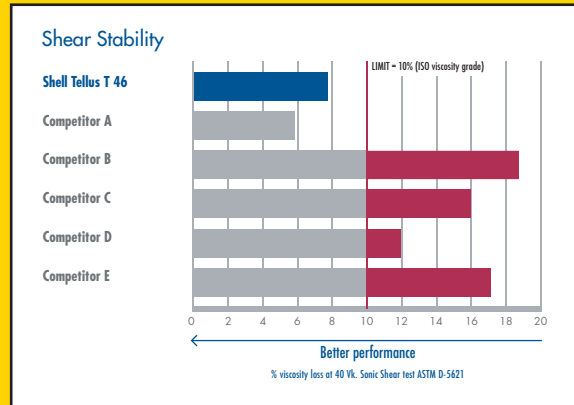
### Shell Tellus variable temperature range

Type	Viscosity index	Characteristics
<b>Shell Tellus Oils T</b> <span style="background-color: #0056b3; color: white; padding: 2px 5px; border-radius: 10px;">next generation</span>	140	<ul style="list-style-type: none"> <li>• “Multigrade” hydraulic fluid</li> <li>• Next generation Shell Tellus Oil Additive Technology ZnDTP-based package</li> <li>• Excellent shear stability</li> </ul>
<b>Shell Tellus Oils TX</b>	160	<ul style="list-style-type: none"> <li>• “Multigrade” hydraulic fluid</li> <li>• ZnDTP-based package with enhanced EP performance</li> <li>• Class-leading shear stability</li> </ul>
<b>Shell Tellus Oils STX</b> <span style="background-color: #0056b3; color: white; padding: 2px 5px; border-radius: 10px;">new</span>	160	<ul style="list-style-type: none"> <li>• “Multigrade” hydraulic fluid</li> <li>• New Unique Shell Patented Additive Technology Ashless-based package</li> <li>• Very good shear stability</li> <li>• STX is metal-free</li> </ul>
<b>Shell Tellus Arctic</b>	300	<ul style="list-style-type: none"> <li>• “Multigrade” hydraulic fluid</li> <li>• New Unique Shell Patented Additive Technology Ashless-based package</li> <li>• Class-leading performance in low-temperature climates</li> </ul>

**Shell Tellus T is the overall best-performing product and the only product meeting all test requirements (when compared to relevant competitors with a similar viscosity index):**

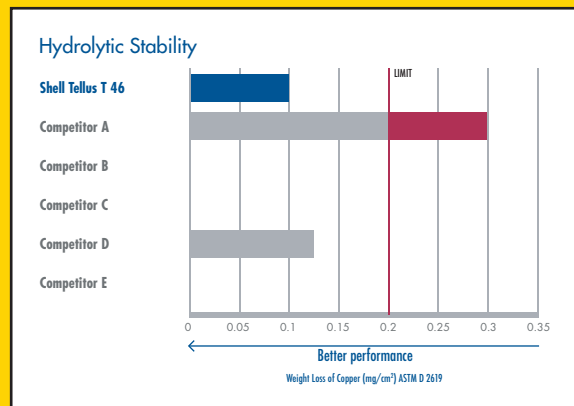
### Shear Stability - For maintained equipment protection

It is relatively simple to improve the viscosity index (resistance to viscosity change when exposed to variations in temperature), of any given hydraulic oil. Formulating a high viscosity index hydraulic oil that resists shearing, and thus loss of viscosity, at moderate to high temperatures is however difficult. By carefully selecting the type and amount of polymers, it is possible to ensure the product maintains its performance after intensive use. Next generation Tellus T provides superb lubrication to the most sensitive parts of the pump in all conditions, avoiding the detrimental consequences of lubrication film interruption.



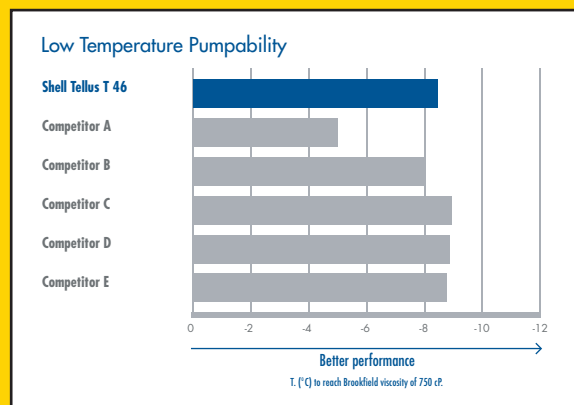
### Hydrolytic Stability - For longer fluid life and protection against corrosion

Protection of the inner parts of a hydraulic system is relatively easy if it is completely clean and free from water. Unfortunately, real-life tests show that most of the time the oil inside a hydraulic system contains small but still damaging amounts of water. Free water not only causes corrosion in the delicate metal surfaces of servo valves, but also degrades the oil itself through increased acidity levels. Next generation Tellus T shows excellent hydrolytic, thermal and oxidative stability, thanks to the same successfully proven additive package of the next generation Tellus oils for stationary applications.



### Low temperature pumpability - For fast start-up and improved energy efficiency

Pour Point has often been used in the industry to denote the ability of a hydraulic oil to flow at low temperature. However pumpability or T.°C at which the oil reaches a maximum dynamic viscosity of 750 cPoise is a much more representative test as it exposes the oil to mechanical conditions similar to the ones it will have inside your equipment. Next generation Tellus T is formulated without compromising performance at low temperature, ensuring accurate operation from the beginning, low friction and quick start-up time, resulting in a more efficient use of energy.



All data shown in the graphics are typical fresh oil sample values.



### **A partner you can rely on**

With the introduction of the improved Tellus variable temperature hydraulic range with new polymer technology, Shell continues to produce innovative industrial fluids for the benefit of customers all over the world. Together with Tellus, Shell offers a full complementary portfolio of other Factory Plant Maintenance and Transport lubricants.

Our global presence and expertise also ensure that an extensive range of support services is available to you everywhere you work.

### **Outstanding performance in variable temperatures**

By using the new Tellus range, you can continue operating day and night, in any season. These dedicated hydraulic oils will help you to:

- lower your maintenance costs
- extend oil drain intervals
- better protect your equipment
- increase productivity

## Full FPM range

Shell also manufactures a full range of factory plant maintenance products designed to give you improved protection, longer service life and reduced wear.

<b>Gear oils</b>	Shell Omala and Tivela	An extensive range of high-performance gear oils for a wide range of applications
<b>Compressor oils</b>	Shell Corena	High-quality compressor oils
<b>Refrigerator compressor oils</b>	Shell Clavus	High-quality refrigerator compressor oils
<b>Bearing &amp; circulating oils</b>	Shell Morlina	Premium-quality bearing & circulating oils available in a wide range of viscosities for a large number of industrial applications
<b>Fire-resistant hydraulic fluids</b>	Shell IruS	A full range of very high-performance fluids for high fire risk areas
<b>Industrial greases</b>	Shell Albida and Alvania	High-performance industrial greases
<b>Environmentally considerate lubricants and greases</b>	Shell Naturelle	A full range of environmentally considerate high-quality products
<b>Lubricants and greases for food &amp; beverage production</b>	Shell Cassida	High-performance products for the food industry
<b>Engine oils</b>	Shell Rimula	Heavy-duty diesel engine oils
<b>Transport gear and axle oils</b>	Shell Spirax	Full portfolio of heavy-duty transport gear and axle oils

Local product portfolio might vary slightly. Please consult your Shell representative for more information.





# Shell Turbo T 46

## High Quality Industrial Steam & Gas Turbine Oils

Shell Turbo Oils T have long been regarded as the industry standard turbine oil. Building on this reputation, Shell Turbo Oils T have been developed to offer improved performance capable of meeting the demands of the most modern steam turbine systems and light duty gas turbines, which require no enhanced anti-wear performance for the gearbox. Shell Turbo Oils T are formulated from high quality hydrotreated base Oils and a combination of zinc-free additives that provide excellent oxidative stability, protection against rust & corrosion, low foaming and excellent demulsibility.

### DESIGNED TO MEET CHALLENGES

#### Performance, Features & Benefits

- **Strong Control of Oxidation**

The use of inherently oxidatively stable base oils together with an effective inhibitor package provides high resistance to oxidative degradation. The result is extended oil life, minimising the formation of aggressive corrosive acids, deposits and sludge, reducing your operating costs.
- **High Resistance to Foaming and Rapid Air Release**

The oils are formulated with an anti-foam additive, which generally controls foam formation. This feature coupled with fast air-release from the lubricant reduces the possibility of problems such as pump cavitation, excessive wear and premature oil oxidation, giving you increased system reliability.
- **Positive Water-Shedding Properties**

Robust demulsibility control such that excess water, commonplace in steam turbines, can be drained easily from the lubrication system, minimising corrosion and premature wear, lowering the risk of unplanned maintenance.
- **Excellent Rust & Corrosion Protection**

Prevents the formation of rust and guards against onset of corrosion ensuring protection for equipment following exposure to humidity or water during operation and during shut-downs, minimising maintenance.
- **Resistant to Reaction with Ammonia**

The use of highly refined base oils and specific additives, resistant to attack by ammonia, minimises the possibility of damaging oil soluble/insoluble ammonia compounds being formed in the lubricant. Shell Turbo Oils T mitigates the formation of these deposits, which could impair the reliable operation of bearings and seal oil systems.

#### Main Applications

Shell Turbo Oils T are available in ISO grades 32, 46, 68 & 100 suited for application in the following areas:

- Industrial steam turbines & light duty gas turbines which require no enhanced anti-wear performance for the gearbox
- Hydroelectric turbine lubrication
- Numerous applications where strong control over rust and oxidation is required
- Centrifugal and axial, dynamic turbo-compressors and pumps where an R&O type or turbine oil is recommended

#### Specifications, Approvals & Recommendations

- Siemens Power Generation TLV 9013 04 & TLV 9013 05
- Alstom Power Turbo-Systems Htg'd 90-117
- Man Turbo SP 079984 D0000 E99
- MAG IAS, LLC (formally Cincinnati Machine): P-55
- General Electric GEK 28143b – Type II
- DIN 51515-1 TD and DIN 51515-2 TG
- ISO 8068, L-TSA and L-TGA
- Solar ES 9-224W Class II
- GEC Alsthom NBA P50001A
- JIS K 2213: 2006 Type 2
- Astm D4304, Type I and Type III
- GB11120, L-TSA and L-TGA
- Indian Standard IS 1012:2002
- Skoda: Technical Properties Tp 0010P/97 use in steam engines.
- Alstom Power Hydro Generators (spec HTWT600050)
- Dresser Rand (spec 003-406-001)
- Andritz Hydro
- Siemens Turbo Compressors (spec 800 037 98)

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk, or the OEM Approvals website.

## Typical physical characteristics

Properties			Method	Shell Turbo Oil T
viscosity	@40°C	cSt	ASTM D445	46.0
viscosity	@100°C	cSt	ASTM D445	6.90
Viscosity Index			ASTM D2270	105
colour			ASTM D1500	L 0.5
density		g/mL	ASTM D4052	0.8681
Pour Point		°C	ASTM D97	<-27
Flash Point (COC)		°C	ASTM D92	>220
Total Acid Number		mg KOH/g	ASTM D974	0.10
Air Release, Minutes		min	ASTM D3427	4
Water Demulsibility		min	ASTM D1401	15
Steam Demulsibility		secs	DIN 51589	153
Rust Control			ASTM D665B	Pass
Oxidation Control Test - Tost Life		hrs	ASTM D943	10,000+
Oxidation Control Test - Rpvot - minutes		min	ASTM D2272	>950

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

### ■ Health and Safety

Shell Turbo T 46 is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

### ■ Protect the Environment

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

### ■ Advice

Advice on applications not covered here may be obtained from your shell representative.



# Shell Turbo T 100

## High Quality Industrial Steam & Gas Turbine Oils

Shell Turbo Oils T have long been regarded as the industry standard turbine oil. Building on this reputation, Shell Turbo Oils T have been developed to offer improved performance capable of meeting the demands of the most modern steam turbine systems and light duty gas turbines, which require no enhanced anti-wear performance for the gearbox. Shell Turbo Oils T are formulated from high quality hydrotreated base Oils and a combination of zinc-free additives that provide excellent oxidative stability, protection against rust & corrosion, low foaming and excellent demulsibility.

### DESIGNED TO MEET CHALLENGES

#### Performance, Features & Benefits

- **Strong Control of Oxidation**  
The use of inherently oxidatively stable base oils together with an effective inhibitor package provides high resistance to oxidative degradation. The result is extended oil life, minimising the formation of aggressive corrosive acids, deposits and sludge, reducing your operating costs.
- **High Resistance to Foaming and Rapid Air Release**  
The oils are formulated with an anti-foam additive, which generally controls foam formation. This feature coupled with fast air-release from the lubricant reduces the possibility of problems such as pump cavitation, excessive wear and premature oil oxidation, giving you increased system reliability.
- **Positive Water-Shedding Properties**  
Robust demulsibility control such that excess water, commonplace in steam turbines, can be drained easily from the lubrication system, minimising corrosion and premature wear, lowering the risk of unplanned maintenance.
- **Excellent Rust & Corrosion Protection**  
Prevents the formation of rust and guards against onset of corrosion ensuring protection for equipment following exposure to humidity or water during operation and during shut-downs, minimising maintenance.

#### Main Applications

Shell Turbo Oils T are available in ISO grades 32, 46, 68 & 100 and are suited for application in the following areas:

- Industrial steam turbines & light duty gas turbines which require no enhanced anti-wear performance for the gearbox;
- Hydroelectric turbine lubrication;
- Numerous applications where strong control over rust and oxidation is required.
- Centrifugal and axial, dynamic turbo-compressors and pumps where an R&O type or turbine oil is recommended

#### Specifications, Approvals & Recommendations

- General Electric GEK 28143b Type III
- DIN 51515-1 TD
- ISO 8068, L-THA
- Astm D4304, Type I
- GB11120-2011, L-TSA
- Indian Standard IS 1012:2002

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Help Desk, or the OEM Approvals website.

## Typical physical characteristics

Properties			Method	Shell Turbo Oil T
viscosity	@40°C	cSt	ASTM D445	100
viscosity	@100°C	cSt	ASTM D445	11.7
Viscosity Index			ASTM D2270	105
colour			ASTM D1500	L 1.0
density		g/mL	ASTM D4052	0.8732
Pour Point		°C	ASTM D97	<-24
Flash Point (COC)		°C	ASTM D92	>250
Total Acid Number		mg KOH/g	ASTM D974	0.10
Air Release, Minutes		min	ASTM D3427	8
Water Demulsibility		min	ASTM D1401	20
Rust Control			ASTM D665B	Pass
Oxidation Control Test - Tost Life		hrs	ASTM D943	5,000
Oxidation Control Test - Rpvot - minutes		min	ASTM D2272	500

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.

## Health, Safety & Environment

### ■ Health and Safety

Shell Turbo T is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from <http://www.epc.shell.com/>

### ■ Protect the Environment

Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

## Additional Information

### ■ Advice

Advice on applications not covered here may be obtained from your shell representative.



## SHELL GADUS IS A COMPREHENSIVE FAMILY OF GREASES DESIGNED TO MEET YOUR NEEDS.

Shell Gadus is a comprehensive family of greases designed to meet your needs. The Gadus ranges include multipurpose greases that can help to simplify your product inventory, as well as speciality greases, including advanced polyurea synthetic products designed for the most severe extreme-temperature and long-life applications, and a range of open-gear lubricants.

Whether you need greases for steel production, mining, construction, power generation, general or automotive manufacturing, other applications or your vehicles, Shell has a grease designed to meet your challenges.

The Shell Gadus range has been developed to deliver optimum value through

- enhanced wear protection
- long grease life
- system efficiency.

### WEAR PROTECTION

Equipment wear can reduce system efficiency and service life. Protecting components from wear is fundamental for getting the most out of your investments through prolonging asset life and preventing production losses through breakdowns.

The Shell Gadus range of greases offers protection across a wide range of applications. The range includes Shell's latest extreme-temperature "T" polyurea synthetic greases, which can help to protect bearings under extreme temperatures, heavy loads and contaminated conditions.

### LEADING TECHNOLOGY

Shell's international research and development team works in close co-operation with customers and equipment makers to create the latest advanced-technology greases. These greases are designed to outperform conventional greases by combining a wide range of thickener technologies, which keep the grease in place under different conditions, with innovative oils that provide efficient lubrication and protection.



### GREASE LIFE

The longer your grease lasts, the longer your components last and the less lubrication maintenance your equipment needs. Shell Gadus greases are designed to help your equipment continue to operate without interruption. The comprehensive product range enables you to select a grease with a life that meets your operational needs.

Customers using Shell Gadus extra-long-life synthetic technologies are doubling grease life for some applications. Others prefer to take advantage of cost-effective, reliable, multipurpose Shell Gadus greases for standard life applications.

### SYSTEM EFFICIENCY

To help your equipment perform to its design standards, you need a grease that stays in place and provides effective protection and lubrication where you need it.

Shell Gadus greases can help to maintain or even improve the efficiency of your systems. From greases that offer reliable performance for standard applications to specialist low-noise, high-temperature and heavy-load greases, there is a Shell Gadus product that can help to optimise your system's efficiency and costs of operation.

### A WIDE RANGE OF THICKENER TECHNOLOGIES

Different applications and conditions require different thickeners. The Shell Gadus range uses a wide range of thickener technologies, each with relative benefits.

Thickener guide	Thickener	Temperature	Water resistance	Shear and vibration stability
T	Polyurea	✓✓✓✓	✓✓✓	✓✓✓✓
V	Lithium complex	✓✓✓✓	✓✓✓	✓✓✓✓
V	Lithium calcium	✓✓	✓✓✓✓	✓✓✓
V	Lithium	✓✓	✓✓	✓✓✓
A	Calcium	✓	✓✓✓	✓✓✓
U	PTFE	✓✓✓✓	✓✓✓✓	✓✓✓✓
U	Clay	✓✓✓✓	✓✓	✓✓✓

- T** = Extreme-temperature performance using Shell polyurea thickeners
- V** = Versatile, multipurpose application using lithium and lithium complex thickeners
- A** = Thickeners for wet (aqueous) conditions
- U** = Unusual non-melting thickeners or other applications

### SHELL'S ADVANCED POLYUREA "T" THICKENER

Shell's research teams have developed superior greases using advanced polyurea thickener technology. These products are designed to outperform conventional greases in extreme-temperature applications, such as electric motors and automotive constant-velocity joints. In one example, a global steel manufacturer reported that it reduced bearing failure rates by 75% and grease consumption by 30% through switching to Shell Gadus S3 T100 polyurea technology grease.

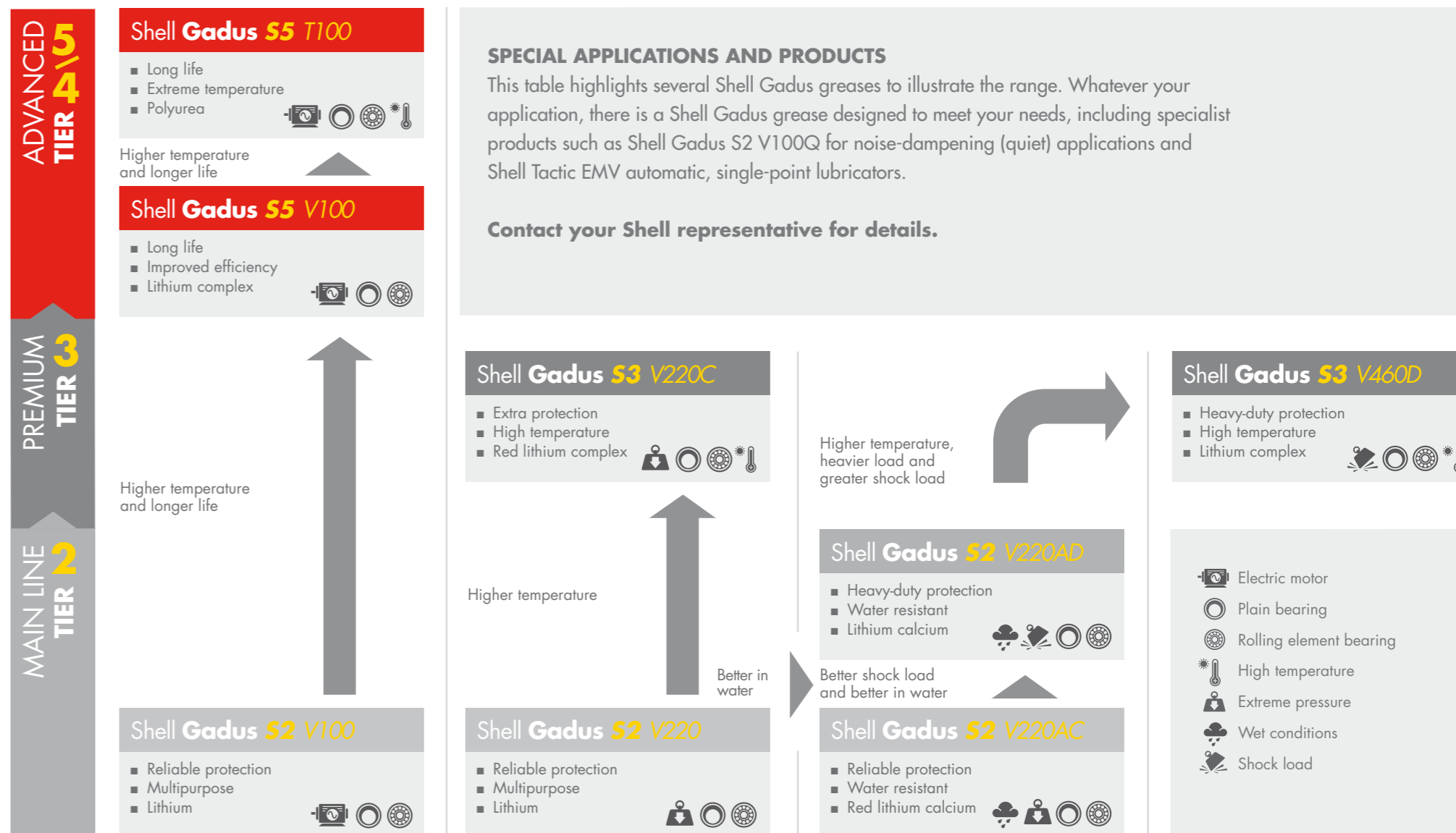
### FIT-FOR-PURPOSE PROTECTION

Using the right grease for your needs can deliver significant savings. For example, a construction company reports saving \$3.8 million<sup>1</sup> a year through changing to Shell Gadus S3 V460D 2 grease, which provided the protection needed for performing heavy-duty work. The grease is extending excavator component life by 40%, reducing downtime and maintenance costs, and increasing equipment availability.

## A RANGE OF GREASES TO MEET YOUR NEEDS

GREASE BASE OIL VISCOSITY	MULTIPURPOSE		MULTIPURPOSE EXTREME PRESSURE (EP)		HEAVY-DUTY MULTIPURPOSE
	Bearings carrying low loads at higher speeds		Roller element or plain bearings for industry and transport		Bearings carrying heavy loads at lower speeds and shock loads
100	Auxiliary industrial equipment, including electrical motors and fans, and lightly loaded roller element or plain bearings		DRY ENVIRONMENTS		Large roller element or plain bearings for industry and transport
220			WET ENVIRONMENTS		
					<b>460</b>

INCREASINGLY EFFICIENT PROTECTION



### PERFORMANCE THAT YOU CAN RELY ON

The way a grease is made has a huge impact on its performance. Shell manufactures grease in a highly controlled and systematic way, from precisely specifying the ingredients to detailing how it is packaged, shipped and delivered. This quality process ensures that every batch you receive, no matter where in the world it is made, gives you the same high performance levels.

### NEED EXPERT ADVICE?

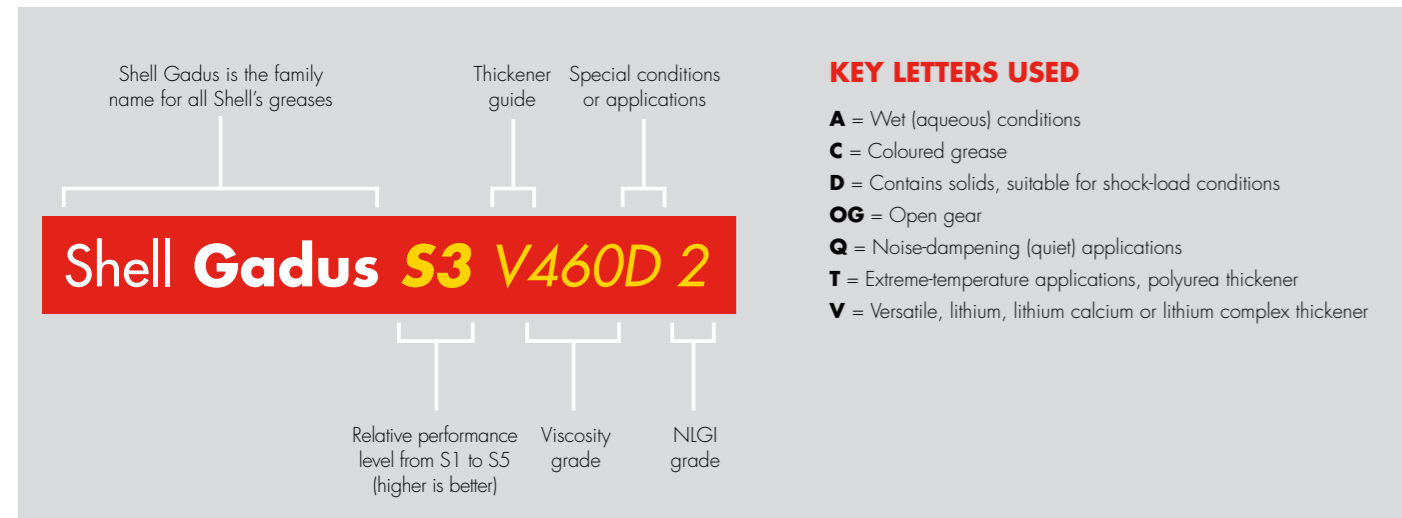
Shell has on-the-ground grease specialists, supported by a global network of technicians, who can help to design a complete lubricant solution for your needs or work with you to solve a specific lubrication problem.

## HELPFUL PRODUCT NAMES

There are at least four properties that you should look for when selecting a grease:

- thickener type
- oil viscosity
- operating conditions and application
- NLGI grade (consistency).

Shell's Gadus greases have names based on these properties that aim to help you select the right products for your needs.



## FULL PRODUCT AND SERVICE PORTFOLIO

Shell Lubricants is the number-one finished lubricants supplier<sup>2</sup> and has a 60-year history of innovation. It constantly invests to develop better lubrication solutions, including advanced synthetic technologies such as

- Shell Tellus S4 ME synthetic hydraulic oil – for long life and energy saving
- Shell Corena S4 R air compressor oil – for up to 12,000 hours of protection.

In addition, Shell provides the world-leading Shell LubeAnalyst oil condition monitoring service, which is designed to help improve your business performance.

Whatever your needs or application, Shell can provide a full range of oils and greases, including synthetic, high-performance products and additional services.



Product	Benefits	Technology (Thickener, base oil and key properties)	ISO viscosity grade	NLGI grade	Specifications and approvals (Ask your Shell representative for full approval details. Approvals and claims vary by viscosity grade.)
<b>Shell Gadus "T" range</b>					
Shell <b>Gadus S5 T100</b>	<ul style="list-style-type: none"> <li>■ Long life</li> <li>■ Extreme temperature</li> <li>■ Polyurea</li> </ul>	Polyurea, synthetic	100	2	Listings: Wood Group
<b>Shell Gadus "V" range</b>					
Shell <b>Gadus S5 V100</b>	<ul style="list-style-type: none"> <li>■ Long life</li> <li>■ Improved efficiency</li> <li>■ Lithium complex</li> </ul>	Lithium complex, synthetic	100	2	Listings: ABB, CH Schäfer Getriebe, FLSmidth and Hegenscheidt-MFD
Shell <b>Gadus S3 V220C</b>	<ul style="list-style-type: none"> <li>■ Extra protection</li> <li>■ High temperature</li> <li>■ Red lithium complex</li> </ul>	Lithium complex, mineral, EP	220	1, 2	Specification: Meets ASTM D4950-08 LB-GC. Approved: AICHELIN, MTU, Sør-Norge Aluminium and ZF Friedrichshafen Listings: Listed by 24 major companies from a wide variety of industries
Shell <b>Gadus S3 V460D</b>	<ul style="list-style-type: none"> <li>■ Heavy-duty protection</li> <li>■ High temperature</li> <li>■ Lithium complex</li> </ul>	Lithium complex, mineral, EP, solid EP additive (MoS <sub>2</sub> )	460	2	Approved: Bucyrus International and Rothe Erde Listings: Bucyrus International, Dieffenbacher, Hitachi, Konecranes and Komatsu Mining
Shell <b>Gadus S2 V100</b>	<ul style="list-style-type: none"> <li>■ Reliable protection</li> <li>■ Multipurpose</li> <li>■ Lithium</li> </ul>	Lithium, mineral	100	1, 2, 3	Approved: AICHELIN, Komatsu Mining, Joy Stamler, Lenze and SNR Listings: Listed by over 60 major companies from a wide variety of industries
Shell <b>Gadus S2 V220</b>	<ul style="list-style-type: none"> <li>■ Reliable protection</li> <li>■ Multipurpose</li> <li>■ Lithium</li> </ul>	Lithium, mineral, EP	220	00, 0, 1, 2, 3	Specification: Meets ASTM D4950-08 LB Approved: Cincinnati Machine, Joy Stamler, MTU, MAN, Ringspann, Sør-Norge Aluminium, Wärtsilä and ZF Friedrichshafen Listings: Over 100 listings from major companies in the metals, mining, construction, transport, power and general engineering sectors
Shell <b>Gadus S2 V220AD</b>	<ul style="list-style-type: none"> <li>■ Heavy-duty protection</li> <li>■ Water resistant</li> <li>■ Lithium calcium</li> </ul>	Lithium calcium, mineral, EP, solid EP additive (MoS <sub>2</sub> )	220	1, 2	Approved: Xiamen XGMA Machinery Listings: BEML, Bucyrus International, Buehler, Danieli and Stork Food and Dairy Systems
Shell <b>Gadus S2 V220AC</b>	<ul style="list-style-type: none"> <li>■ Heavy-duty protection</li> <li>■ Water resistant</li> <li>■ Red lithium calcium</li> </ul>	Lithium calcium, mineral, soluble EP additive	220	0, 1, 1.5, 2, 3	Specification: Meets ASTM D4950-08 LB Listings: David Brown, Danieli, Harburg-Freudenberger Maschinenbau, Maschinenfabrik Gustav Eirich, New Zealand Steel, Power Jacks Group, Tetra Pak International and ZZ-Antriebe
<b>Shell Gadus speciality ranges</b> Contact your Shell representative for details					
<b>Shell Gadus "Q" greases</b> for noise-dampening (quiet) applications					
<b>Shell Gadus automotive greases</b> for automotive components, from door-lock motors to steering systems and constant-velocity joints					
<b>Shell Gadus "OG" lubricants</b> for mobile and stationary open-gear applications requiring spray or fluid bath lubrication					
<b>Shell GadusRail greases</b> meet European and American railway specifications, especially for railway applications, including axle journal bearings, traction motor bearings and curve rails					
<b>Shell Tactic EMV</b> automatic single-point lubricators – available with a selected range of high-performance Gadus greases					
<b>Related products</b> Contact your Shell representative for details					

For more information, please contact

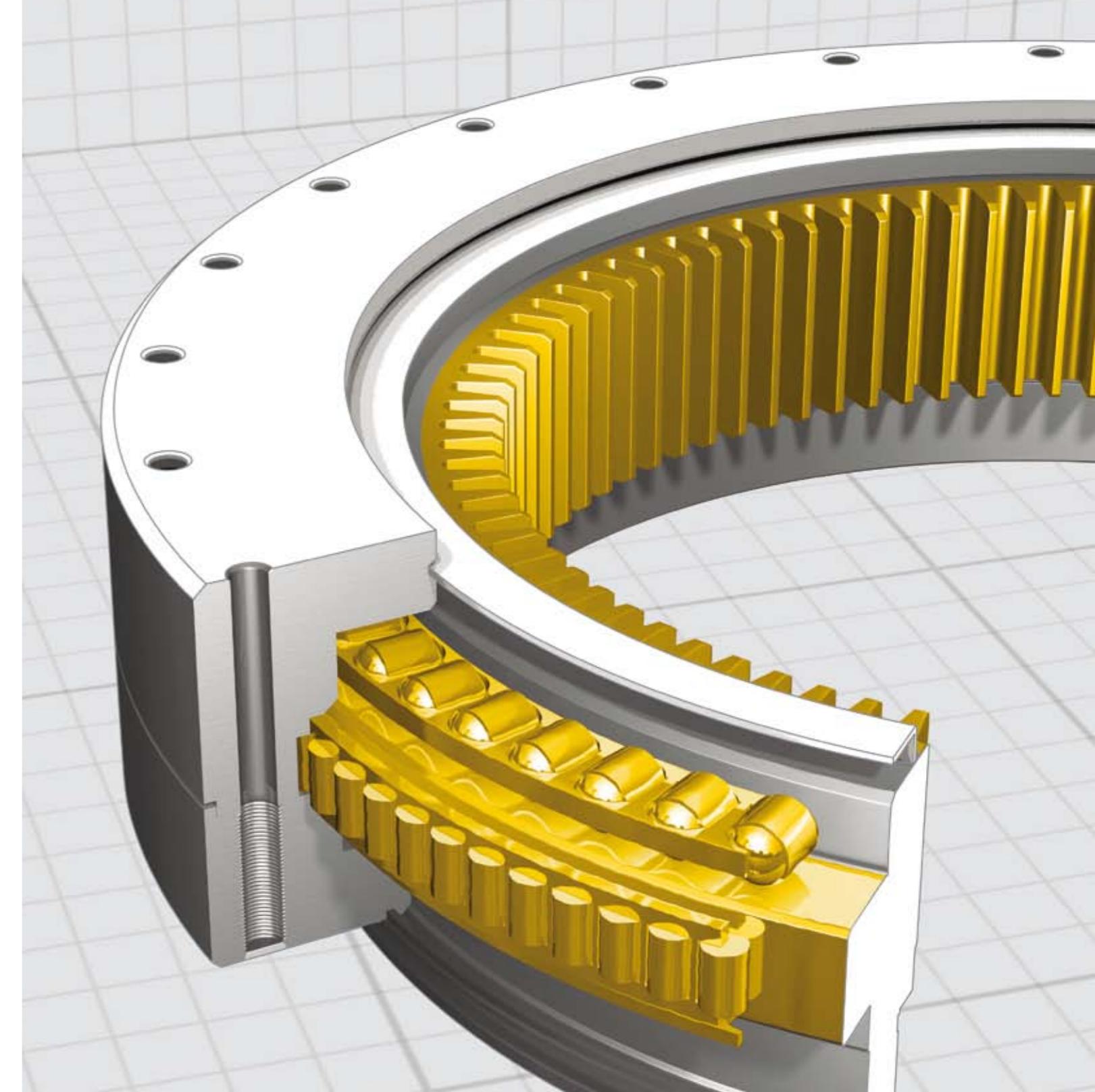
"Shell Lubricants" refers to the various Shell companies engaged in the lubricants business.

<sup>1</sup>Saving reported by one customer. Actual savings may vary, depending on the application, the current oil used, the maintenance procedures and the condition of the equipment.

<sup>2</sup>Source: Kline & Company, "Competitive Intelligence for the Global Lubricants Industry, 2008-2018."



shell.com/lubricants



**DESIGNED TO DO MORE.  
JUST LIKE OUR GREASES  
– SHELL GADUS.**

**DESIGNED TO MEET CHALLENGES**

