

SHELL TONNA S3 M

HIGH PERFORMANCE LUBRICANT FOR MACHINE TOOL SLIDEWAYS

DESIGNED TO MEET CHALLENGES

Shell Tonna S3 M is specially designed for the lubrication of machine tool slides and tables. It is based on highly refined mineral oils and contain additives to enhance its tackiness, anti-wear and stick-slip characteristics. It is specially recommended in cases where high precision and low speed machines are used as well as where there are combined lubrication systems.

PERFORMANCE FEATURES

EXCELLENT FRICTIONAL PROPERTIES

- Specially developed to overcome 'stick-slip' problems with slow moving machine tool slides and tables, allowing more accurate positioning. This provides major benefits of improved surface finish and dimensional accuracy of workpieces.

ADVANCED TECHNOLOGY

- Developed in conjunction with machine tool manufacturers to meet the requirements of the most advanced machine tools using a wide variety of slideway materials.

GOOD SLIDEWAY ADHESION

- Provides strong adhesion to slideway surfaces, resisting wash-off by metalworking fluids.

READY SEPARATION FROM WATER-EXTENDIBLE CUTTING FLUIDS

- Separates readily from water-extendible metalworking oils allowing easy removal by skimming.

EXCELLENT ANTI-WEAR PERFORMANCE

- Provides high levels of anti-wear protection for slideways, gears, bearings and hydraulic system components.

EXCELLENT CORROSION PREVENTION CHARACTERISTICS

- Provides effective protection of machine tool surfaces and components in the presence of water-extendible cutting fluids.

APPLICATIONS

MACHINE TOOL SLIDEWAYS, TABLES AND FEED MECHANISMS

- Developed for use on a wide range of materials used for machine tool slideway surfaces, including cast iron and synthetic materials.

MACHINE TOOL HYDRAULIC SYSTEMS

- Particularly recommended for machines which have a combined hydraulic and slideway lubrication system.

MACHINE TOOL GEARBOXES AND SPINDLES

- Also suitable for gear and headstock lubrication.
- The lower viscosity grade is intended for horizontal slide lubrication (Shell Tonna S3 M 68). For vertical slides use Shell Tonna S3 M 220.

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

MEETS THE FOLLOWING SPECIFICATIONS

- ISO 11158
- ISO 6743-4 HM and HG
- ISO 12925-1
- ISO 6743-6 CKC
- ISO 19378
- ISO 6743-13 GA and GB
- DIN CGLP
- Cincinnati Machine P-50 (ISO 220) P-47 (ISO 68).

TYPICAL PHYSICAL CHARACTERISTICS

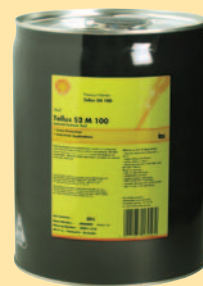
CHARACTERISTICS	68	220
Kinematic Viscosity (ISO 3104) @ 40°C mm ² /s	68	220
@ 100°C mm ² /s	8.6	19.1
Viscosity Index (ISO 2909)	98	98
Density @ 15°C kg/m ³ (ISO 12185)	879	894
Flash Point °C (COC) (ISO 2592)	225	250
Pour Point °C (ISO 3016)	-24	-15

SHELL TELLUS S2 M

INDUSTRIAL HYDRAULIC FLUID

PREVIOUSLY SHELL TELLUS

DESIGNED TO MEET CHALLENGES



Shell Tellus S2 M fluids are high performance hydraulic fluids that use Shell's unique patented technology to provide outstanding protection and performance.

PERFORMANCE FEATURES

LONG FLUID LIFE-MAINTENANCE SAVING

- Thermally stable in modern hydraulic systems working in extreme conditions of load and temperature. Shell Tellus S2 M are highly resistant to degradation and sludge formation therefore improving system reliability and cleanliness.
- Resist oxidation in the presence of air, water and copper. Turbine Oil Stability Test (TOST) results show outstanding performance for Shell Tellus S2 M; low acidity, low sludge formation, low copper loss; therefore helping to extend oil drain interval life and reduce maintenance costs.
- Shell Tellus S2 M have good chemical stability in the presence of moisture, which ensures long oil life and helps to reduce the risk of corrosion and rusting.

OUTSTANDING WEAR PROTECTION

- Proven anti-wear additives are incorporated to be effective throughout the range of operating conditions, including low 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.

MAINTAINING SYSTEM EFFICIENCY

- Shell Tellus S2 M are suitable for ultra-fine filtration, an essential requirement in today's hydraulic systems. Unaffected by the usual products of contamination, such as water and calcium, which are known to cause blockage of fine filters. Customers can use finer filters, therefore achieving all the benefits of having in use cleaner fluids.
- Shell Tellus S2 M possess high lubrication properties and excellent low friction characteristics in hydraulic systems operating at low or high speed. Helps prevent stick-slip problems in critical applications enabling very fine control of machinery.
- Careful use of additives to ensure quick air release without excessive foaming. Quick air release helps minimise cavitation and slow oxidation, maintaining system and fluid performance.
- Good water separation properties (demulsibility). Helps resist the formation of water-in-oil emulsions, to help avoid consequent hydraulic system and pump damage.
- Shell Tellus S2 M are suitable for a range of other industrial applications.

APPLICATIONS

- Industrial hydraulic systems.
- Mobile hydraulic fluid power transmission systems.
- Marine hydraulic systems.

COMPATIBILITY AND MISCIBILITY

COMPATIBILITY

Shell Tellus S2 M are compatible with most pumps. However, please consult your Shell representative before using in pumps containing silver plated components.

SEAL AND PAINT COMPATIBILITY

Shell Tellus S2 M are compatible with all seal materials and paints normally specified for use with mineral oils.

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

HAS THE APPROVAL OF:

- Cincinnati Machine: P-68 (ISO 32), P-70 (ISO 46), P-69 (ISO 68)
- Dension Hydraulics: (HF-0, HF-1, HF-2)
- Eaton Vickers: M-2950 S
- DIN 51524 Part 2 HLP type.

MEETS THE REQUIREMENTS OF:

- ISO: 11158 (HM fluids)
- GM: LS/2
- AFNOR: NF-E 48-603
- Mannesman Rexroth (RE): 90 220-1
- Swedish Standard (SS): 15 54 34 AM.

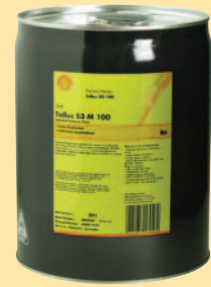
TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	22	32	46	68	100
ISO Oil Type	HM	HM	HM	HM	HM
Kinematic Viscosity (ASTM D 445)					
@ 0°C mm ² /s	180	338	580	1040	1790
@ 40°C mm ² /s	22	32	46	68	100
@ 100°C mm ² /s	4.3	5.4	6.7	8.6	11.1
Viscosity Index (ISO 2909)	100	99	98	97	96
Density @ 15°C kg/m ³	866	875	879	886	891
Flash Point °C (COC)	210	218	230	235	250
Pour Point °C	-30	-30	-30	-24	-24

SHELL TELLUS S3 M

PREMIUM ZINC-FREE INDUSTRIAL HYDRAULIC FLUID

RECOMMENDED REPLACEMENT FOR SHELL TELLUS S



DESIGNED TO MEET CHALLENGES

Shell Tellus S3 M hydraulic fluids are high performance lubricants that use exclusive zinc-free technology to provide outstanding protection and performance in most manufacturing and many mobile equipment operations. They resist breakdown under heat or mechanical stress, helping to prevent damaging deposits that can decrease the efficiency of your hydraulic system.

PERFORMANCE FEATURES

LONG FLUID LIFE – MAINTENANCE SAVING

Shell Tellus S3 M fluids offer an improved capability to extend fluid maintenance intervals and helps reduce equipment downtime through:

- An extended ASTM D 943 TOST lifetime, with an oxidative stability that is up to three times longer than the industry minimum.
- Excellent resistance to breakdown in the presence of water and heat.

These features provide extended maintenance capability without compromising protection or performance, even under severe or extended temperature range applications.

OUTSTANDING WEAR PROTECTION

- Advanced zinc-free anti-wear additives provide protection over a wide range of conditions, including low and severe duty, and high load operation. This protection has been demonstrated in tough industry standard hydraulic pump tests such as the Denison T6C (dry and wet versions), Denison P46 and Eaton Vickers 35VQ25 tests.

MAINTAINING SYSTEM EFFICIENCY

- Superior cleanliness and filterability; coupled with excellent water separation, air release and anti-foam characteristics, all help to maintain or enhance hydraulic system efficiency.
- The filterability of Shell Tellus S3 M is maintained even when the fluid is contaminated with water.
- Shell Tellus S3 M fluids have an ISO 4406 cleanliness of 21/19/16 or better ex Shell 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.

APPLICATIONS

MANUFACTURING AND INDUSTRIAL HYDRAULIC SYSTEMS

- Shell Tellus S3 M fluids are suitable for a wide range of hydraulic power applications found in manufacturing and industrial environments.

SEVERE DUTY HYDRAULIC SERVICE

- The long-life characteristics of Shell Tellus S3 M fluids can make them particularly suitable for severe duty (e.g. load, temperature) applications or where extended life is required (e.g. remote or inaccessible locations).

MARINE AND MOBILE HYDRAULIC SYSTEMS

- Shell Tellus S3 M fluids are suitable for marine and mobile applications where ISO HM type hydraulic fluids are recommended.

ENVIRONMENTAL IMPACT

- Shell Tellus S3 M has a reduced environmental impact in the event of a leak or accidental spillage compared to conventional zinc-based hydraulic fluids. This is achieved through the use of zinc-free anti-wear technology and low sulphur base oils.

For further reductions in environmental impact, we offer the Shell Naturelle range of environmentally considerate lubricants.

For applications that experience wide temperature variations we recommend the Shell Tellus 'S2' series of hydraulic fluids.

COMPATIBILITY

- Shell Tellus S3 M fluids are suitable for use with most hydraulic pumps.

FLUID COMPATIBILITY

- Shell Tellus S3 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 AND PAINT COMPATIBILITY

- Shell Tellus S3 M fluids are compatible with seal materials and paints normally specified for use with mineral oils.

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

HAS THE APPROVAL OF:

- Denison Hydraulics: (HF-0, HF-1, HF-2)
- Eaton Vickers (Brochure 694)
- MAG (Cincinnati Machine)
P-68 (ISO 32), P-70 (ISO 46), P-69 (ISO 68)

MEETS THE REQUIREMENTS OF:

- ISO 11158 (HM fluids)
- DIN 51524-2 (HLP oils)
- ASTM 6158 (HM mineral oils)
- SS 15 54 34.

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

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	22	32	46	68	100
ISO Oil Type	HM	HM	HM	HM	HM
Kinematic Viscosity (ASTM D 445)					
@ 0°C mm ² /s	180	324	565	700	1750
@ 40°C mm ² /s	22	32	46	68	100
@ 100°C mm ² /s	4.3	5.5	6.8	10.2	11.4
Viscosity Index (ISO 2909)	100	105	105	135	100
Density @ 15°C kg/m ³ (ISO 12185) kg/m ³	875	855	865	835	875
Flash Point °C (PMCC) (IP 34) (COC)	204	215	220	250	250
Pour Point °C (ISO 3016)	-30	-33	-33	-51	-33

SHELL GADUS S2 V100

HIGH PERFORMANCE MULTI-PURPOSE GREASE

PREVIOUSLY SHELL ALVANIA RL

DESIGNED TO MEET CHALLENGES

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

PERFORMANCE FEATURES

RELIABLE HIGH TEMPERATURE PERFORMANCE

- Very good performance up to +130°C.

GOOD OXIDATION AND MECHANICAL STABILITY

- Helps to resist the formation of deposits caused by oxidation at high operating temperatures. Shell Gadus S2 V100 are extremely stable under vibrations.

GOOD CORROSION RESISTANCE CHARACTERISTICS

- Effective protection in hostile environments.

LONG STORAGE LIFE

- Does not alter in consistency during prolonged storage.

APPLICATIONS

- Rolling element and plain grease lubricated bearings.
- Electric motor bearings.
- Sealed-for-life bearings.
- Water pump bearings.
- Shell Gadus S2 V100 may be used under a wide range of operating conditions. They offer very significant advantages over conventional lithium greases at high temperature or in the presence of water.

SHELL GADUS S2 V100 2

- A medium consistency grease designed, mainly, for general industrial lubrication. Ideal for centralised lubrication systems operating at normal temperatures.

SHELL GADUS S2 V100 3

- A medium/hard high performance industrial grease, particularly recommended for the lubrication of electrical motor bearings.

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	2	3
Soap Type	Lithium hydroxystearate	
Base Oil Type	Mineral	Mineral
Kinematic Viscosity (IP 71/ASTM D 445) @ 40°C mm ² /s @ 100°C mm ² /s	100.0 11	100.0 11
Cone Penetration worked @ 25°C 0.1mm (IP 50/ASTM D 217)	265–295	220–250
Dropping Point °C (IP 396)	180	180

SHELL GADUS S2 V220

HIGH PERFORMANCE MULTI-PURPOSE EXTREME PRESSURE GREASE

RECOMMENDED REPLACEMENT FOR SHELL ALVANIA EP (LF)
AND SHELL RETINAX CS, CP



DESIGNED TO MEET CHALLENGES

Shell Gadus S2 V220 greases are high quality multi-purpose, 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 help enhance their performance in a wide range of applications.

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

PERFORMANCE FEATURES

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.

ANTI-CORROSION PROTECTION

- Shell Gadus S2 V220 greases have an affinity with metal and have the ability to protect bearing surfaces against corrosion, even when the grease is contaminated with water.

APPLICATIONS

SHELL GADUS S2 V220 IS 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.
- Operation over the temperature range -20°C to 100°C for bearings operating at 75% of the maximum rated speed (can withstand up to 120°C intermittently).

SHELL GADUS S2 V220 GREASE 1 IS DESIGNED FOR:

- Heavy-duty bearings served by centralised dispensing equipment.
- Extreme-pressure gear grease for applications at normal ambient temperature.
- Heavy-duty plain and rolling element bearings operating under harsh conditions including shock loading in wet environments.
- Low temperature greasing applications.

SHELL GADUS S2 V220 GREASES 00 AND 0 ARE SPECIFICALLY DESIGNED FOR:

- Steel mill lubrication where a softer grease is necessary for specialised dispensing systems.
- Heavy-duty plain and rolling element bearings operating under harsh conditions including shock loading in wet environments.

RE-GREASING INTERVALS

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

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

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

MEETS THE FOLLOWING SPECIFICATIONS:

- British Timken specification for Steel Mill applications.

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	00	0	1	2
Soap Type	Lithium	Lithium	Lithium	Lithium
Base Oil	Mineral	Mineral	Mineral	Mineral
Kinematic Viscosity (IP 71/ASTM D 445)				
@ 40°C mm^2/s	220	220	220	220
@ 100°C mm^2/s	19	19	19	19
Dropping Point $^{\circ}\text{C}$ (IP 396)	–	–	180	180
Cone Penetration worked at 25°C 0.1mm (IP 50/ASTM D 217)	400–430	355–385	310–340	265–295

SHELL GADUS S2 V220AC

HIGH PERFORMANCE MULTI-PURPOSE EXTREME-PRESSURE GREASE

RECOMMENDED REPLACEMENT FOR SHELL ALVANIA HD 2 AND SHELL RETINAX HD2

DESIGNED TO MEET CHALLENGES

Shell Gadus S2 V220AC grease is a high quality multi-purpose grease based on high viscosity index mineral oil and a mixed lithium/calcium soap thickener. It contains extreme-pressure, anti-wear, anti-oxidation and anti-corrosion additives to enhance its performance in a wide range of applications.

PERFORMANCE FEATURES

EXCELLENT MECHANICAL STABILITY EVEN UNDER VIBRATING CONDITIONS

- Consistency retained over long periods, even in conditions of severe vibration.

GOOD CORROSION RESISTANCE

- Helps to provide protection from the elements of corrosion.

EXTENDED LIFE AT MODERATE TEMPERATURES

- Allows longer periods between maintenance schedules reducing down-time and grease consumption. Demonstrated to work in the field with regreasing intervals above 30,000 kms even for demanding applications such as transmission joints.

GOOD OIL SEPARATION

- Ensures effective lubrication and reliable performance.

APPLICATIONS

- Heavy-duty plain and rolling element bearings operating in the following environments:
 - Vibrating conditions
 - Heavy load
 - High temperature
 - Shock load
 - Presence of water.

Multi-purpose convenience, especially in the transport sector where product can be used for both wheel bearings and chassis lubrication of passenger cars, light trucks and heavy-duty trucks. This grease is also suitable for construction equipment exposed to intense water washout.

OPERATING TEMPERATURE RANGE

Shell Gadus S2 V220AC grease are recommended for the grease lubrication of heavy-duty bearings operating up to their maximum rated speed over the temperature range -20°C to 130°C (140°C peak).

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

MEETS THE FOLLOWING SPECIFICATIONS:

- ASTM D4950-08 LB.

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	2
Colour	Red
Soap Type	Lithium/ Calcium
Base Oil Type	Mineral
Kinematic Viscosity (IP 71/ASTM D 445) @ 40°C mm ² /s	220
@ 100°C mm ² /s	18
Dropping Point °C (IP 396)	175
Cone Penetration worked @ 25°C 0.1mm (IP 50/ASTM D 217)	265-295

SHELL GADUS S2 V220AD

HIGH PERFORMANCE HEAVY-DUTY GREASE CONTAINING SOLID LUBRICANTS

RECOMMENDED REPLACEMENT FOR SHELL ALVANIA HDX AND SHELL RETINAX HDX 2

DESIGNED TO MEET CHALLENGES

Shell Gadus S2 V220AD is a very high performance grease for the lubrication of industrial bearings subjected to the most arduous conditions. It is 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 molybdenum disulphide to provide resistance to shock loading.

PERFORMANCE FEATURES

GOOD OXIDATION AND MECHANICAL STABILITY

- Formulated to resist the formation of deposits caused by oxidation at high operating temperatures and maintains consistency, helping to reduce leakage.

GOOD CORROSION RESISTANCE

- Provides protection from the elements of corrosion.

FOR SHOCK LOADED CONDITIONS

- Helps to resist breakdown, softening and subsequent leakage under shock loads.

GOOD ADHESION PROPERTIES

- Helps to reduce losses and grease consumption.

EXTREME PRESSURE PERFORMANCE

- Rig tests confirm EP additives in Shell Gadus S2 V220AD help prolong bearing life when subjected to heavy and shock loads.

APPLICATIONS

- Shell Gadus S2 V220AD is recommended for the lubrication of shock loaded heavy-duty bearings working in damp hostile conditions.

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	1	2
Colour	Black	Black
Soap Type	Lithium/ Calcium	Lithium/ Calcium
Base Oil Type	Mineral	Mineral
Kinematic Viscosity (IP 71/ASTM D 445) @ 40°C mm ² /s	220	220
@ 100°C mm ² /s	18	18
Dropping Point °C (IP 396)	170	175
Cone Penetration worked at 25°C 0.1mm (IP 50/ASTM D 217)	310–340	265–295
4 Ball Weld Load Kg (IP 239)	315	315
Operating Temperature Range	-10°C–120°C	-10°C–120°C

SHELL GADUS S3 T100

PREMIUM QUALITY INDUSTRIAL BEARING GREASE

RECOMMENDED REPLACEMENT FOR SHELL STAMINA RL

DESIGNED TO MEET CHALLENGES

Shell Gadus S3 T100 is a high technology grease designed to give optimum performance for grease lubrication in industrial bearings. Shell Gadus S3 T100 is based on mineral oil with a special diurea thickener to give long life, low wear and shear-stable properties at high temperatures.

PERFORMANCE FEATURES

- Outstanding life at high temperatures
- Excellent wear protection
- Excellent mechanical stability at high temperatures
- Excellent oxidation resistance
- Good protection against false brinnelling
- Low oil separation
- Excellent corrosion resistance
- Provides protection from the elements of corrosion
- Versatile
- Water resistant
- Withstands washing with water, preventing loss of protection.

HIGH TEMPERATURE PERFORMANCE

- The diurea thickener used in Shell Gadus S3 T100 has a high melting point and the grease performance is limited only by the properties of the base oil and additive components.
- The low volatility and excellent oxidation stability of the base oil are such that they give it an excellent service life in bearings operating between -20°C and 150°C. With caution, Shell Gadus S3 T100 may, in some circumstances, be used at temperatures up to 180°C, but only if the re-lubrication period is suitably adjusted.

CORROSION PROTECTION

- When a bearing is running, most high quality greases can maintain an adequate lubricating film even when the grease is loaded with water. However, when the grease bearing is idle, corrosion may occur causing pitting which can be destructive. Shell Gadus S3 T100 is formulated with corrosion inhibitors to help protect bearing surfaces even when the grease is contaminated with water.
- The lubrication properties of Shell Gadus S3 T100 have been used very successfully in slow moving, loaded large bearings such as those found in continuous casters in steel plants.

APPLICATIONS

- Shell Gadus S3 T100 is particularly recommended for use in high temperature (150°C), lightly loaded industrial bearings.
- It is recommended for use where long operational life and extended re-greasing intervals are an important consideration.

OPERATING TEMPERATURE RANGE

- -20°C to 150°C.

RE-LUBRICATION

Grease life varies considerably from application to application, even with bearings operating under normally identical conditions. Variables such as air flow, dirt and humidity can have a considerable effect in addition to the more commonly recognised parameters of load, speed and temperature.

The use of Shell Gadus S3 T100 usually permits considerable extension of the re-lubrication interval.

OXIDATION STABILITY

Shell Gadus S3 T100 has a high temperature oxidation inhibitor system to help ensure that it will withstand high operating temperatures without forming deposits. Unlike the soap thickeners used in most greases, the diurea thickener in Shell Gadus S3 T100 does not catalyse grease oxidation, indeed the diurea thickener offers inherent anti-oxidant properties. This contributes to longer grease life at higher temperatures.

The base oil component of Shell Gadus S3 T100 is a specially selected high viscosity index mineral oil with excellent oxidation and evaporation resistance.

SEALING

The rheology of Shell Gadus S3 T100 is such that at low shear rates and with heating the consistency increases. Consequently, in bearings operating at high temperatures the grease remains in place providing good sealing and continuous lubrication even in the presence of vibration.

WATER WASHOUT

Shell Gadus S3 T100 exhibits very good resistance to water washout by immersion or spray.

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	2
Colour	Brown
Soap Type	Diurea
Base Oil Type	Mineral
Base Oil Viscosity (IP 71/ASTM D 445) @ 40°C mm ² /s	100
@ 100°C mm ² /s	11
Dropping Point °C (IP 132/ASTM D 566-76)	250
Cone Penetration worked @ 25°C 0.1mm (IP 50/ASTM D 217)	265-295
Pumpability (long distance)	Fair

SHELL GADUS S3 T220

ULTIMATE PERFORMANCE EXTREME PRESSURE DIUREA GREASE

PREVIOUSLY SHELL STAMINA EP

DESIGNED TO MEET CHALLENGES

Shell Gadus S3 T220 Greases are high technology greases designed to give optimum performance for grease lubrication in industrial bearings. They are based on mineral oil with a special diurea thickener to give long life, low wear and shear-stable properties at high temperatures.

PERFORMANCE FEATURES

POTENTIAL COST SAVINGS VIA:

- Formulated to reduce grease consumption at high temperatures, as grease resists melting and subsequent leakage, due to the use of the latest diurea thickener technology developed by Shell's 'in house' expertise in Japan.
- Helps to reduce maintenance costs since lower bearing replacement rates can be achieved, due to the excellent anti-wear properties that are available from the latest technology diurea thickened greases.
- Helps to lower total labour costs, due to the extended lubrication intervals and less downtime that results from using the latest in high performance greases.
- Simplified maintenance programs can be established, resulting from the multi-purpose capabilities of this grease and long service lives that are possible.

APPLICATIONS

- Steel
- Paper
- Aluminium
- Chemical
- and many others.
- Recommended as an extreme pressure grease for highly loaded ball, roller and plain bearing applications at high temperatures where extended service life is required. Proven in the following applications:
 - Hot strip mills
 - Paper mill bearings (dry end)
 - Electrical motors (large).

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

IS RECOMMENDED FOR USE:

- Over the temperature range -10°C to 160°C (even up to 180°C with suitable adjustment of relubrication interval).

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	2
Colour	Light Brown
Soap Type	Diurea
Base Oil Type	Mineral
Kinematic Viscosity (IP 71/ASTM D 445) @ 40°C mm ² /s @ 100°C mm ² /s	220 19
Dropping Point °C (IP 396)	260
Cone Penetration worked @ 25°C 0.1mm (IP 50/ASTM D 217)	280
Pumpability (long distance)	Fair

SHELL GADUS S3 V220C

PREMIUM MULTI-PURPOSE EXTREME PRESSURE GREASE

RECOMMENDED REPLACEMENT FOR SHELL ALBIDA EP AND SHELL RETINAX LX



DESIGNED TO MEET CHALLENGES

Shell Gadus S3 V220C Greases are premium multi-purpose greases based on high viscosity index mineral oil and a lithium complex thickener. They contain the latest additives to offer excellent high temperature oxidation performance and other additives to enhance their anti-oxidation, anti-wear and anti-corrosion properties.

Shell Gadus S3 V220C Greases are especially suitable for bearings operating at high temperature and under load.

PERFORMANCE FEATURES

EXCELLENT MECHANICAL STABILITY EVEN UNDER VIBRATING CONDITIONS

- Consistency retained over long periods, even in conditions of severe vibration.

ENHANCED EXTREME PRESSURE PROPERTIES

- Excellent load-carrying performance.

GOOD WATER RESISTANCE

- Ensures lasting protection even in the presence of large amounts of water.

HIGH DROPPING POINT LONG OPERATIONAL LIFE AT HIGH TEMPERATURES EFFECTIVE CORROSION PROTECTION

- Helps ensure components/bearings do not fail due to corrosion.

APPLICATIONS

Shell Gadus S3 V220C Greases are used for the grease lubrication of heavy-duty bearings used in machinery found in the following applications:

- Continuous casting
- Vibrating sieves
- Quarries
- Breakers
- Roller conveyors
- Automotive wheelbearings.

RE-GREASING INTERVALS

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

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

MEETS THE FOLLOWING SPECIFICATIONS

- Meets ASTM D 4950-68 C7C-L13.

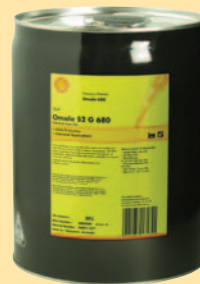
TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	1	2
Colour	Red	Red
Soap Type	Lithium/Complex	Lithium/Complex
Base Oil Type	Mineral	Mineral
Kinematic Viscosity (IP 71/ASTM D 445) @ 40°C mm ² /s	220	220
@ 100°C mm ² /s	19	19
Dropping Point °C (IP 396)	240	240
Cone Penetration worked @ 25°C 0.1mm (IP 50/ASTM D 217)	310–340	265–295
Pumpability (long distance)	Good	Fair

SHELL OMALA S2 G

INDUSTRIAL GEAR OILS

PREVIOUSLY SHELL OMALA



DESIGNED TO MEET CHALLENGES

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.

PERFORMANCE FEATURES

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 help 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 AND CORROSION PROTECTION

- Excellent load carrying capacity, helps to reduce gear tooth and bearing wear on both steel and bronze components.
- Shell Omala S2 G has excellent corrosion protection, protecting both steel and bronze 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 with 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.

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 the Shell Omala S4 WE series oils are recommended. For automotive hypoid gears, the appropriate Shell Spirax Oil should be used.

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

MEETS THE REQUIREMENTS OF:

- ISO: 12925-1 Type CKD
- DIN: 51517- Part 3 (CLP)
- AGMA: 9005- EO2 (EP)
- US Steel 224
- David Brown: S1.53.101,102,103,104
- Cincinatti Machine: P34,35,59,63, 74, 76-78.

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	68	100	150	220	320	460	680	1000
Kinematic Viscosity (ISO 3104)								
@ 40°C mm ² /s	68	100	150	220	320	460	680	1000
@ 100°C mm ² /s	8.7	11.4	15.0	19.4	25.0	30.8	38.0	45.4
Viscosity Index (ISO 2909)	99	100	100	100	100	97	92	85
Density @ 15°C kg/m ³ (ISO 12185)	887	891	897	899	903	904	912	931
Flash Point °C (PMCC) (ISO 2592)	236	240	240	240	255	260	272	290
Pour Point °C (ISO 3016)	-24	-24	-24	-18	-15	-12	-9	-6

SHELL DOBATEX GOLD

WATER BASED MULTI-PURPOSE CLEANING SOLUTION FOR TRUCK, CAR AND MARINE APPLICATIONS AND HEAVY-DUTY MINING EQUIPMENT



DESIGNED TO MEET CHALLENGES

Shell Dobatex Gold is a water based, multi-purpose cleaning detergent proven in a wide range of industrial and automotive applications including the heavier duty demands of mining equipment and fishing and trucking fleets through to routine janitorial cleaning.

PERFORMANCE FEATURES

Shell Dobatex Gold effectively removes dirt, grease and grime from all hard surfaces, even vertical ones, where its stable foaming action allows greater penetration and more thorough cleaning.

Shell Dobatex Gold will not promote rust or deteriorate paintwork, polished surfaces, metal or glass. It has strong colouring for ease of identification even at low dilution levels. It is formulated to provide good results even where water quality is poor.

EXCELLENT CLEANING PERFORMANCE

- Highly effective on a wide range of dirt, oils and grease in both soft or hard water.

MULTI-PURPOSE CONVENIENCE

- Shell Dobatex Gold is a versatile cleaner which can be used to reduce the number of detergents required on site.

REDUCED SAFETY CONCERNS

- Being water based, biodegradable, non flammable and free of odour, Shell Dobatex Gold is recommended for use in enclosed workshops or in underground maintenance stations where there is restricted ventilation.

ENVIRONMENTALLY RESPONSIBLE

- Biodegradable (AS 4351) and contains no hydrocarbon solvents or caustic alkalis.

AQIS APPROVED (CATEGORY 1, TYPE A)

- Shell Dobatex Gold carries full AQIS (Cat 1, Type A) approval status, which means that it is fully approved for use in general cleaning and janitorial applications in areas in contact with food preparation, such as general home and commercial kitchens, abattoirs, fishing and any other areas where incidental food contact is possible.

APPLICATIONS

Shell Dobatex Gold is highly adaptable to a wide range of cleaning requirements. One flexible product enables you to cut down on inventory, and with varying dilutions and application methods it is effective and safe for:

- Truck fleets, cars and small commercial vehicles
- Fishing fleets and marine leisure craft
- Heavy and light mining equipment
- Machinery and engine degreasing
- Routine and janitorial cleaning purposes such as:

- Flooring
- Commercial and home kitchens (including as a dishwashing fluid), cafeterias and bathrooms
- Food processing equipment
- Abattoirs, fishing cooperatives, commercial food preparation areas
- General purpose offices and office furniture cleaning solution
- Shell Dobatex Gold is a multi-purpose detergent and cleaning fluid.

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

MEETS THE REQUIREMENTS OF:

- AQIS approved (Category 1, Type A)
- Ready biodegradability of a single organic substance or natural product when tested according to AS 4351 Part 2.

FLUID PREPARATION

SHELL DOBATEX GOLD MUST BE DILUTED WITH WATER BEFORE USE, EITHER MANUALLY OR WITH AUTOMATED DOSING EQUIPMENT. RECOMMENDED DILUTIONS ARE:

- Degreasing or workshop floors 1:3 to 1:5
- Vehicle washing 1:10
- Janitorial and general cleaning 1:100

When practicable, Shell Dobatex Gold should be left on particularly greasy surfaces or equipment for a few minutes to ensure penetration, before removing and rinsing with water.

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	
Appearance (Visual)	Gold fluid
pH	10

SHELL CORENA S2 P

RECIPROCATING (PISTON) AIR COMPRESSOR OIL

PREVIOUSLY SHELL CORENA P

DESIGNED TO MEET CHALLENGES

Shell Corena S2 P is a premium quality reciprocating air compressor lubricant. It is based on a blend of specially selected base oils to provide a level of performance approaching that of synthetic oils.

PERFORMANCE FEATURES

LONG OIL LIFE-MAINTENANCE SAVING

- Allows the service interval between valve and piston maintenance to be extended over normal service practices due to low deposits forming tendencies. Compressors can be kept in service for much longer periods, operating at a consistently high level of efficiency.

ENHANCED AIR-LINES SAFETY

- In discharge air-lines, the combination of rust particles, dispersed in carbonaceous deposits, coupled with heat from recently compressed air, can cause an exothermic reaction leading to the possibility of fires and explosion. Shell Corena S2 P helps to minimise the likelihood of this danger arising.

MAINTENANCE SYSTEM EFFICIENCY

- Resistant to the formation of carbon deposits and lacquer on valves and piston crowns, caused by the by-products of corrosion, such as ferric oxides and hydroxides, at high working temperatures and pressures. Such deposits can cause serious damage, lower compressor efficiency and increase maintenance costs.
- Shell Corena S2 P separates readily from water allowing excess water to be drained from the oil circulation system, thus preventing accelerated corrosion and a reduction in lubrication efficiency. This also helps to separate oil from condensate in oil/water separators and drier units.

OUTSTANDING WEAR PROTECTION

- Effectively protects all metal surfaces from corrosion. Protects all sensitive machinery parts (e.g. housings, valves, bearings, from wear to help prolong the service intervals).

APPLICATIONS

RECIPROCATING AIR COMPRESSORS

- Industrial reciprocating air compressors operating with air discharge temperatures of up to 220°C.

BREATHING AIR COMPRESSORS

- Shell Corena S2 P may be used in breathing air compressors, provided subsidiary clean-up apparatus is used to ensure that the air produced is fit for breathing.

COMPATIBILITY AND MISCIBILITY

SEAL COMPATIBILITY

Shell Corena S2 P is compatible with all sealing materials commonly used in air compressors.

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

- DIN 51506 VDL
- ISO 6743-3:2003 DAA Normal Duty.

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	68	100	150
Kinematic Viscosity (ASTM D 445)			
@ 40°C mm ² /s	68	100	155
@ 100°C mm ² /s	7.8	9.2	12.1
Density @ 15°C kg/m ³	883	899	902
Flash Point (COC) °C (ASTM D 92)	235	240	240
Pour Point °C (ASTM D 97)	-33	-33	-30
Neutralisation Value mg KOH/g	0.3	0.3	0.3
Sulphated Ash % m	0.06	0.06	0.06
Oxidation Stability (delta-CCR) % m	1.8	2	2.3
Properties of the distillation residues 20% (DIN 51562)			
Carbon residue (CCR) %m	0.3	0.3	0.3
Rust Prevention Properties (steel) degrees (ASTM D 665-B)	Pass	Pass	Pass
Water Stability @ 54°C min (ASTM D 1401) @ 82°C min	30	-	-
	-	20	20

SHELL CORENA S3 R

PREMIUM ROTARY AIR COMPRESSOR OIL

PREVIOUSLY SHELL CORENA S

DESIGNED TO MEET CHALLENGES

Shell Corena S3 R is a premium quality lubricant developed for the lubrication of rotary sliding vane and screw air compressors. It is based on a blend of selected solvent refined base oils and carefully chosen additives.

PERFORMANCE FEATURES

LONG OIL LIFE-MAINTENANCE SAVING

- Shell Corena S3 R will allow for significant increases in oil drain intervals (compared to basic mineral compressor oil), where allowed by manufacturers – up to a maximum of 6,000 hours, even when operating at a continuous maximum discharge air temperature of up to 100°C.
- Resists formation of carbon deposits in sliding vane slots enabling them to move freely. Also resists deposit formation on rotating components of screw compressors. As a consequence high levels of compressor efficiency can be maintained for long periods in both types of compressor.
- Depending on intake air quality, duty cycle and ambient conditions, especially hot and humid type climates as found in the Asian and Pacific regions, a reduced oil drain period is recommended.

MAINTAINING SYSTEM EFFICIENCY

- The careful selection of base oils and additives provides rapid air release without excessive foaming to give excellent operation even under cycling conditions.
- The product is easily separated from water, keeping the system in good condition even when contaminated with water.
- Shell Corena S3 R is formulated to reduce sludge and deposit formation from the thermal degradation processes, even at very high temperatures, maintaining compressor efficiency.
- Coupled with the oil's long life capability is its ability to maintain internal surface cleanliness in service. This is important to maintain high levels of performance for the compressor and separator/coalescer.

OUTSTANDING WEAR PROTECTION

- Effectively protects all metal surfaces from corrosion. Protects all sensitive machinery parts (e.g. gears, screws, bearings, from wear to help prolong the service intervals).

APPLICATIONS

ROTARY SLIDING VANE AIR COMPRESSORS

- Oil flooded or oil injected, single or two-stage compressors, operating at pressures of up to 10 bar and with air discharge temperatures of up to 100°C.

SCREW AIR COMPRESSORS

- Oil flooded or oil injected, single or two-stage compressors, operating at pressures of up to 20 bar and with air discharge temperatures of up to 100°C.

COMPATIBILITY AND MISCIBILITY

SEAL COMPATIBILITY

- Shell Corena S3 R is compatible with all sealing materials commonly used in air compressors.

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

- ISO 6743-3A-DAJ.

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	46	68
Kinematic Viscosity (ASTM D 445) @ 40°C mm ² /s	46	68
@ 100°C mm ² /s	6.9	8.9
Density @ 15°C kg/m ³ (ASTM D 1298)	868	873
Flash Point °C (COC) (ASTM D 92)	230	248
Pour Point °C (ASTM D 97)	-30	-30
Water Separability @ 54°C min. (ASTM D 1401)	15	15

SHELL SPIRAX S2 A

HIGH QUALITY, GL-5 AXLE OIL

PREVIOUSLY SHELL SPIRAX A

DESIGNED TO MEET CHALLENGES



Shell Spirax S2 A is blended for use in a wide variety of automotive axle units subjected to heavy-duty conditions.

PERFORMANCE FEATURES

COMPREHENSIVE COMPONENTS

- Specially selected additives impart good anti-wear, anti-rust characteristics and oxidation stability.

HIGH QUALITY BASE OILS

- Maintains low temperature flow in the designed temperature range, resists oxidation, and maintains oil film between gears.

APPLICATIONS

- Automotive transmissions, differentials.
- Moderate to heavily loaded gear sets in stationary and ancillary equipment.
- Hypoid gear axles.
- Motorcycle gear units separate from the engine.
- Other automotive transmission units operating under high speed/shock load, high speed/low torque and low speed/high torque conditions.

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

- API Service Classification – GL-5.

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	80W-90	85W-140
Kinematic Viscosity (ISO 3104)		
@ 40°C mm ² /s	146	358
@ 100°C mm ² /s	14.7	25.6
Viscosity Index (ISO 2909)	100	94
Density @ 15°C kg/m ³ (ISO 12185)	904	908
Flash Point °C (COC) (ISO 2592)	175	215
Pour Point °C (ISO 3016)	-27	-15

SHELL MORLINA S2 B

INDUSTRIAL BEARING AND CIRCULATING OILS

PREVIOUSLY SHELL MORLINA

DESIGNED TO MEET CHALLENGES

Shell Morlina S2 B oils are high performance oils designed to provide outstanding oxidation and water separation protection for most general industrial bearing and circulating oil system applications and certain other industrial applications which do not require oils with extreme pressure (EP) properties.

PERFORMANCE FEATURES

CONSISTENT PERFORMANCE

- Shell Morlina S2 B oils are formulated with a well proven rust and oxidation inhibitor additive package that helps provide consistent performance and protection throughout the maintenance interval.

RELIABLE WEAR AND CORROSION PROTECTION

SHELL MORLINA S2 B OILS HELP PROLONG THE LIFE OF BEARINGS AND CIRCULATING SYSTEMS THROUGH:

- Excellent water separation characteristics that helps ensure that critical oil films are retained between highly loaded parts.
- Good air release characteristics to minimise cavitation and associated damage to circulating pumps.
- Helps protect against corrosion, oxidation, and emulsion formation, even in the presence of water.

MAINTAINING SYSTEM EFFICIENCY

- Shell Morlina S2 B oils are blended with high quality, solvent refined base oils that promote good water separation and air release to ensure the efficient lubrication of the machines and systems.

APPLICATIONS

MACHINE CIRCULATION SYSTEMS

OIL LUBRICATED BEARINGS

- Suitable for most plain and rolling element bearings and general industrial applications.

ROLL-NECK BEARINGS

ENCLOSED INDUSTRIAL GEAR SYSTEMS

- Low or moderately loaded enclosed gears where EP performance is not required.

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

MEETS THE REQUIREMENTS OF:

- Morgan Morgoil® Lubricant Specification New Oil (Rev. 1.1)
- Danieli Standard Oil 6.12424.9F
- DIN 51517-1 – type C, 51517-2 – type CL.

PAINT COMPATIBILITY

- Shell Morlina S2 B oils are compatible with seal materials and paints normally specified for use with mineral oils.

Morgoil® is a registered trademark of the Morgan Construction Company.

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	100	150	220	320
Kinematic Viscosity (ASTM D 445)				
@ 40°C mm ² /s	100	150	220	320
@ 100°C mm ² /s	11.2	15	18.3	25
Density @ 15°C kg/m ³ (ISO 12185)	881	887	891	897
Viscosity Index (ISO 2909)	97	95	92	96
Flash Point °C (COC) (ISO 2592)	250	262	280	282
Pour Point °C (ISO 3016)	-18	-15	-15	-12

SHELL DEGREASING FLUID

PREMIUM DEGREASER

DESCRIPTION

Shell Degreasing Fluid is a premium performance degreasing fluid which is designed to meet the stringent requirements of an oil and grease solvent and still maintain premium safety standards. Shell Degreasing Fluid incorporates a unique solvent base to penetrate oil and grease bound dirt. Shell Degreasing Fluid also contains an emulsifier which permits easy removal with water.

PERFORMANCE FEATURES

SAFETY

Shell Degreasing Fluid has been reformulated with a unique low volatility, low flammability solvent (Flash Point 80°C). Shell Degreasing Fluid is a significantly safer product than conventional turpentine-based degreasers, which have a lower flash point. Shell Degreasing Fluid is much less likely to ignite when it is applied to hot surfaces. Because of its low volatility, the hazard of inhaling organic vapours is reduced.

APPLICATION

Shell Degreasing Fluid may be applied by spraying, brushing or swabbing, followed by removal with water. Very dirty pieces should be soaked in Shell Degreasing Fluid for 15 minutes to 1 hour (or longer if necessary) followed by removal with water.

WARNING: A solvent trap must be used when removing Shell Degreasing Fluid with water. The flushings should never be allowed to go directly into drains.

SUMMARY OF BENEFITS

- Premium performance in removal of oil and grease bound dirt.
- Premium performance in safety, through use of a high flash point and low volatility solvent.
- Product losses through evaporation are significantly reduced. This improves cost effectiveness and also reduces vapour inhalation.
- Can provide temporary corrosion protection, due to its slow rate of evaporation.
- Easy removal with water
- Pleasant pine odour ensures operator acceptance.

HEALTH & SAFETY

Information is available on the relevant Material Safety Data Sheet

TYPICAL CHARACTERISTICS

DESCRIPTION	UNITS	METHODS	TYPICAL
APPEARANCE	-	VISUAL	CLEAR, RED LIQUID
DENSITY @ 15°C	kg/L	ASTM D4052/ D1298	0.810
FLASH POINT	°C	ASTM D92	80

Document Information

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SHELL ONDINA OILS

MEDICINAL WHITE OILS

DESIGNED TO MEET CHALLENGES

Shell Ondina Oils are highly refined, non-additive, aromatic-free paraffinic white mineral oils complying with the stringent pharmacopoeia purity requirements. Shell Ondina Oils can be used in pharmaceutical, food packaging, cosmetic and other applications, where this high purity is required by legislation or important for the quality of the finished product.

PERFORMANCE FEATURES

HIGH PURITY

- Refined to the highest degree of purity removing all aromatics; consist only of chemically inert n- and iso-paraffin molecules.

OPTIMAL QUALITY CONTROL

- Segregated product lines during production, storage, blending and filling; extensive laboratory control testing.

EXCELLENT STABILITY

- Exceeding oxidation and light stability of standard process oils.

APPLICATIONS

COSMETIC AND PHARMACEUTICALS

- Components in cosmetic creams, lotions, oils and toiletries.

FOOD PACKAGING

- Extender oil in polystyrene and other plastics, price labels.

HYGIENE ARTICLES

- Extender oil in thermoplastic TPE (e.g. SIS, SEPS), TPV and other elastomers.

TECHNICAL APPLICATIONS AND CAR COMPONENTS

- Carrier fluid and extender oil for a variety of high quality applications, where colour and stability is important. Suitable when PVC is replaced by TPE elastomers.

TOYS AND SIMILAR ARTICLES

- Extender oil in TPE elastomers (e.g. SBS, SEBS).

MACHINERY LUBRICATION

- The use of medicinal white oils in direct and indirect food applications. These requirements may deviate from country to country and must be taken into account by the user.

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

EXCEEDS SPECIFICATIONS OF:

- European Pharmacopoeia 3rd Edition
- US Pharmacopoeia 29th and 30th Editions
- US FDA §172.878 ('White Mineral Oil') for direct food contact
- US FDA §178.3620(a) for indirect food contact
- FDA specifications, where above specified oils are positively listed e.g.
 - §173.340, §175.105, §175.210
 - §175.230, §175.300, §176.170,
 - §176.180, §176.200, §176.210
 - §177.1200, §177.2260, §177.2600
 - §177.2800, §178.3120, §178.3570
 - §178.3740, §178.3910, §573.680.
- UK 'The Mineral Hydrocarbon in Food Regulations 1966'

TYPICAL PHYSICAL CHARACTERISTICS

CHARACTERISTICS	15	32	68
Kinematic Viscosity @ 40°C mm ² /s	15	32	68
@ 100°C mm ² /s	3.3	5.1	6.5
Density @ 15°C kg/m ³ (ISO 12185)	850	865	865
Flash Point °C (COC) (ISO 2592)	180	210	210
Pour Point °C (ISO 3016)	-12	-12	-12
Colour (Saybolt) (ASTM D 156)	+30	+30	+30
Specifications: Europ Pharmacopoeia 3	Light Liquid Paraffin	Light Liquid Paraffin	Liquid Paraffin
US Pharmacopoeia 23	Light mineral oil	Light mineral oil	Mineral oil
Purity Requirements for Medicinal White Oils acc. Europ. Pharm. 3; US Pharm. 23, 30; US FDA §172.878, FDA §178.3620(a)	Pass	Pass	Pass