



Previous Name: **Shell Delima S**

# Shell Paper Machine Oil S3 M

## Paper Machine Circulating Oils

- **EXTRA PROTECTION**
- **WATER SHEDDING**
- **LONG LIFE**

Shell Paper Machine Oils S3 M are high performance oils based on modern ashless additive technology. They are designed to provide excellent all round protection for the diverse needs and conditions found in modern paper machines. They meet the requirements of Metso, SKF and Voith systems.

### Performance Benefits

- **Good oil life – Maintenance saving**

Shell Paper Machine Oils S3 M have been designed to resist breakdown under high temperatures and in the presence of water. They have excellent performance in tests such as the ASTM Turbine Oil Stability Test (TOST), a commonly used method of assessing relative oil life capability.

- **Reliable wear & corrosion protection**

Shell Paper Machine Oils S3 M use a modern, ashless (zinc-free) anti-wear system to provide high performance protection against wear.

In addition, they are formulated to provide effective protection against corrosion, even in the wet environments found in paper machine applications.

- **Maintaining system efficiency**

Excellent water separation and air release helps in conjunction with high quality base oils helps ensure the efficient lubrication of the machines and systems.

Shell Paper Machine Oils S3 M are also suitable for use with fine filtration to help ensure effective contaminant free lubrication to critical machine parts.

### Applications

- **Paper machine applications**

There is extensive operator experience with Shell Paper Machine Oils S3 M in many applications especially in Metso and Voith paper

machine circulating systems, which include the dry and wet ends of the machine along with the calender stacks.

The bulk temperature of the oil should not continuously exceed 80°C.

Shell Paper Machine Oils S3 M are specifically designed for:

- Lubrication of bearings, gears and auxiliary equipment in the wet end and dryer sections of paper machines.
- Hydraulic and lubrication systems in deflection-compensating rolls.
- Enhanced protection of gears under severe operating conditions.

### Seal & Paint Compatibility

Shell Paper Machine Oils S3 M are compatible with seal materials and paints normally specified for use with mineral oils.

### Specification and Approvals

Shell Paper Machine Oils S3 M can be used when the following specifications or performance levels are required:

- DIN 51517-2 – type CLFAG FE-8 (120°C)
- FZG load stage 12 (DIN 51354)
- SKF (paper machine oils)
- Metso (paper machine oils)
- Voith VN 108

### Health and Safety

Guidance on Health and Safety is available on the appropriate Material Safety Data Sheet, which can be obtained from your Shell representative.



## Protect the Environment

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

## Advice

Advice on applications not covered in this leaflet may be obtained from your Shell representative.

## Typical Physical Characteristics

Shell Paper Machine Oil S3 M			150	220	320
ISO Viscosity grade			150	220	320
Kinematic Viscosity	ASTM D445				
	at 40°C	mm <sup>2</sup> /s	150	220	320
	at 100°C	mm <sup>2</sup> /s	14.8	19.2	23.5
Viscosity Index		ISO 2909	98	98	95
Density at 15°C		kg/m <sup>3</sup> ISO 12185	890	897	899
Flash Point, COC		°C ISO 2592	240	250	260
Pour Point		°C ISO 3016	-21	-21	-21
Demulsibility at 82°C		ASTM D1401			
Separation Time		min	10	10	10
Rust Test		ASTM D665B			
Synthetic Sea Water			Pass	Pass	Pass
Oxidation Life (TOST)		hrs ASTM D943	3364	4378	2850
Timken, OK Load		lbs ASTM D2782	50	60	70
Foam Test, Seq. II		ASTM D892			
ml foam at 0/10 minutes			0/0	0/0	0/0
FZG Load Stage		ASTM D5182	12 Pass	12 Pass	12 Pass

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



### Viscosity - Temperature Diagram for Shell Paper Machine Oil S3 M

