

## TITAN PSW 40

### Marine and stationary engine oil according to API CF

#### Description

TITAN PSW 40 is high quality, alkaline dual purpose API CF level lubricating oil specially formulated to meet the requirements of medium speed trunk piston diesel engines operating on heavy residual fuel with sulfur level up to 2%. TITAN PSW 40 provides the necessary extra alkalinity to effectively neutralize acidic products of combustion when operating on heavy residual fuels and crude oil and to give a high level of detergency to keep pistons and piston rings free of deposits.

#### Application

TITAN PSW 40 is blended with latest technology additive packages developed especially for use with engines burning heavy residual fuels and crude oil. The additive system of TITAN PSW 40 SAE 40 has been extensively tested in Wartsila, MWM Deutz and MAN B&W engines. TITAN PSW 40 SAE 40 have undergone extensive field trials on Wärtsilä engines and based on the results of engine inspection, Wartsila Engine division approves the use of these products in engines operating on Wärtsilä fuel standards ISO-F-DMC, ISO-F-RMA 30-RMK 700 and CRO. In the engines types Wartsila Vasa 22 / 22/26 and Wartsila Vasa 32 / 32LN, the suitability of SAE 40 grade depends on the capacity of the lubricating oil cooler used in the installation. In the engine types Wartsila Vasa 32, Wartsila 20, 26, 32, 38, 46, 64, the use of TBN 50-55 lubricants in heavy fuel installations is recommended, especially if fuel sulphur content is above 2.0% mass. TBN 40 lubricants can be used as

well, if the experience shows the retention of TBN to be of acceptable level.

#### Advantages/Benefits

- The use of TITAN PSW 40 will ensure engine cleanliness, resulting in longer periods between overhauls
- TITAN PSW 40 is fully inhibited for protection against bearing corrosion
- TITAN PSW 40 has a high level of oxidation resistance to prevent premature ageing and to give longer oil life
- TITAN PSW 40 offers optimum alkalinity to neutralize acidic by-products of combustion

#### Specifications/Approvals

- API CF
- Wärtsilä (PSW 40 SAE 40)
- MWM Deutz (PSW 40 SAE 40)
- SKL Motor (PSW 40 SAE 40)

## CHARACTERISTICS

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### TITAN PSW 40 SAE 30

Density @ 35 °C	0.898	g/ml	ASTM D 4052
Flash Point, CoC	240	°C	ASTM D 92
Pour Point	-12	°C	ASTM D 97
Kinematic Viscosity @ 40 °C	108	mm <sup>2</sup> /s	ASTM D 445
Kinematic Viscosity @ 100 °C	11.7	mm <sup>2</sup> /s	ASTM D 445
Viscosity Index	96	-	ASTM D 2270
TBN	40	mg KOH/gm	ASTM D 2896
Sulphated Ash	5	% wt	ASTM D 874

### TITAN PSW 40 SAE 40

Density @ 35 °C	0.903	g/ml	ASTM D 4052
Flash Point, CoC	250	°C	ASTM D 92
Pour Point	-12	°C	ASTM D 97
Kinematic Viscosity @ 40 °C	157	mm <sup>2</sup> /s	ASTM D 445
Kinematic Viscosity @ 100 °C	15.3	mm <sup>2</sup> /s	ASTM D 445
Viscosity Index	98	-	ASTM D 2270
TBN	40	mg KOH/gm	ASTM D 2896
Sulphated Ash	5	% wt	ASTM D 874