

## DIESEL FUEL

Diesel fuel is produced by fractional distillation of crude oil between 170 and 360C. It is intended as propulsion fuel for high-compression piston-type diesel motors where the mixture is spontaneously combusted in compressed air.

The following physical and chemical characteristics are very important for diesel fuel:

- Low-temperature characteristics
- Chemical stability
- Sulfur content and
- Combustion characteristics

Low-temperature characteristics depend on the climatic conditions in certain regions and the solutions used in the construction of the diesel motor. This relates to problems with diesel motors which can occur when used in low temperature conditions.

The chemical stability of diesel is especially important for diesel-powered locomotives, which have a very dense protective filter, as well as the problem of aging when stored over longer periods. A number of tests have been carried worldwide regarding the accelerated aging of diesel fuel on the basis of both stable and unstable components, as well as additives for improved stability, which has yielded some knowledge as to the cost effectiveness of diesel production.

Sulfur content must be kept to a minimum due to its corrosive effects and environmental pollution.

The most important combustion characteristic is the cetane number, or diesel index, which depends on the chemical composition of the fuel component. The cetane number is a measure of ignition quality for diesel. The greater the cetane number, the better the ignition quality. The number represents the relation between fast-burning (n-hexane) and low-burning ( $\alpha$ -methyl-naphthalene) cetane volumes.

Permitted values according to standards and regulations - **DIESEL FUEL**

Characteristics	Regulation for Diesel (D2)	Regulation for Euro Diesel (NSD)	Method
Cetane number	at least 45	at least 46	JUS ISO 4264
Density at 15°C	up to 860	820-845	JUS B.H8.015
Copper strip corrosion	Class 1	Class 1	JUS ISO 8754
Ignition point (°C)	at least 55	over 55	JUS ISO 2719
Filterability temperature (°C)	up to -5*	up to 0*/-5**	EN 116
Viscosity at 20°C (mm <sup>2</sup> /s)	2,0 - 9,0		ASTM D 445
Viscosity at 40°C (mm <sup>2</sup> /s)		2,0 - 4,5	
Distillation:			
% v/v predistilled at 250°C		up to 65	JUS B.H8.028
% v/v predistilled at 350°C		at least 85	
95 % v/v predistilled at, °C	up to 375	up to 360	

\*intermediate period: August 16 – October 15

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