

## Fuel Bunkering All Over Indonesia

**PERTAMINA BUNKER FUEL** always emphasizes customer satisfaction and operates with the goal of providing high quality fuel

Pertamina Bunker is engaged in the domestic supply of bunker fuel, as well as the transportation and storage of oil products.

Pertamina Bunker has more than 20 branch offices located in major ports of Indonesia, Including: Jakarta, Surabaya, Semarang, Medan, Batam, Benoa and Makasar, also supported by more than 100 Bunker Agents providing physical supply services.

As a part of PT Pertamina (government owned Oil Company), to assure the availability of bunker fuel, Pertamina bunker is supported by 6 company owned refineries.

Pertamina Bunker always emphasizes customer satisfaction, operates with the goal of providing high quality fuel to it's customers. The company supplies fuel that comply with ISO 8217:2005 standards, which have been established for marine fuels.

CHARACTERISTIC	UNIT	LIMIT	MEET TO
ISO 8217:2005			
Density at 15°C	Kg/m <sup>3</sup>	Max	865
Kinematic Viscosity at 40°C	Mm <sup>2</sup> /dt	Min	1.5
		Max	4.5
Flash Point PMcc	°C	Min	60
Pour Point	°C	Max	18
Carbon Residue	%wt	Max	0.1
Ash Content	%wt	Max	0.01
Total Sediment Potential	% (m/m)	Max	0.01
Cetane Index	-	Min	48
Sulfur Content	%wt	Max	0.35
Water Content	% (m/m)	Max	0.1
Alumunium Plus Silicon	ppm	Max	500

## LOW POUR POINT MARINE GAS OIL

### PERTAMINA MGO-5/MDA

Is a fuel oil used in marine market especially for ships that mostly operate in sub tropic area and winter climate.

Is produced of hydro carbon fraction modified from Light Gas Oil (LGO). It has max -6°C pour point that suitable for low temperature condition.

CHARACTERISTIC	UNIT	LIMIT	MEET TO
ISO 8217:2005			
Density at 15°C	Kg/m <sup>3</sup>	Max	885
Kinematic Viscosity at 40°C	Mm <sup>2</sup> /dt	Min	1.5

		Max	4.5
Flash Point PMcc	°C	Min	60
Pour Point	°C	Max	-6
Carbon Residue	%wt	Max	0.1
Ash Content	%wt	Max	0.01
Centane Index	-	Min	40
Sulfur Content	%wt	Max	0.35
Water Content	ppm	Max	500

## MARINE DIESEL FUEL

### PERTAMINA MDF

The fuel of distillate type is used for diesel engine with medium or low speed (300 - 1.000 RPM), these type of fuel is often referred to as Industrial Diesel Oils.

CHARACTERISTIC	UNIT	LIMIT	MEET TO
ISO 8217:2005			
Density at 15°C	Kg/m <sup>3</sup>	Max	900
Kinematic Viscosity at 40°C	Mm <sup>2</sup> /dt	Max	11
Flash Point	°C	Min	60
Pour Point	°C	Max	18
Cetane Index	-	Min	48
Carbon Residue	%wt	Max	0.3
Ash	%wt	Max	0.01
Water	% (v/v)	Max	0.3
Sulfur	%(m/m)	Max	2.0
Vanadium	Mg/Kg	Max	100
Total Sediment Potensial	% (m/m)	Max	0.1
Alumunium Plus Silicon	Mg/Kg	Max	25

## ECONOMICAL FUEL OIL

### PERTAMINA MFO 180

Is a heavy fuel oil which contain a residu, it is used as fuel oil in marine market especially for low speed diesel engine (<350rpm).

CHARACTERISTIC	UNIT	LIMIT	MEET TO
ISO 8217:2005			
Density at 15°C	Kg/m <sup>3</sup>	Max	991
Kinematic Viscosity at 40°C	Mm <sup>2</sup> /dt	Max	180
Flash Point	°C	Min	60
Pour Point	°C	Max	30
Carbon Residue	%wt	Max	15
Ash	%wt	Max	0.10
Water	% (v/v)	Max	0.5
Sulfur	%(m/m)	Max	4.5

Vanadium	Mg/Kg	Max	200
Total Sediment Potensial	% (m/m)	Max	0.1
Alumunium Plus Silicon	Mg/Kg	Max	25

## ECONOMICAL FUEL OIL

### PERTAMINA MFO 380

Is a heavy fuel oil which contain a residu, it is used as fuel oil in marine market especially for low speed diesel engine (<350rpm).

Is produced by blending components in refinery which ensure that the product will be more homogeneous, stable, compatible and less contaminant.

CHARACTERISTIC	UNIT	LIMIT	MEET TO
ISO 8217:2005			
Density at 15°C	Kg/m <sup>3</sup>	Max	991
Kinematic Viscosity at 40°C	Mm <sup>2</sup> /dt	Max	380
Flash Point	°C	Min	60
Pour Point	°C	Max	30
Carbon Residue	%wt	Max	18
Ash	%wt	Max	0.15
Water	% (v/v)	Max	0.5
Sulfur	%(m/m)	Max	4.5
Vanadium	Mg/Kg	Max	300
Total Sediment Potential	% (m/m)	Max	0.1
Alumunium Plus Silicon	Mg/Kg	Max	80