

# Distillate Marine Fuels

ISO 8217:2017 (E)

| Characteristics  | Unit                              | Limit | Category ISO –F– |       |     |        |     |                     | Test method(s) and references |   |
|--|-----------------------------------|-------|------------------|-------|-----|--------|-----|---------------------|-------------------------------|---|
|  |                                   |       | DMX              | DMA   | DFA | DMZ    | DFZ | DMB                 |                               | DFB                                     |
| Kinematic viscosity at 40°C  | mm <sup>2</sup> /s <sup>(A)</sup> | Max   | 5,500            | 6,000 |     | 6,000  |     | 11,00               |                               | ISO 3104                                |
|  |                                   | Min   | 1,400            | 2,000 |     | 3,000  |     | 2,000               |                               |   |
| Density at 15°C  | kg/m <sup>3</sup>                 | Max   | –                | 890,0 |     | 890,0  |     | 900,0               |                               | ISO 3675 or ISO 12185; ↯6.1             |
| Cetane index   |                                   | Min   | 45               | 40    |     | 40     |     | 35                  |                               | ISO 4264                                |
| Sulfur <sup>(B)</sup>  | mass%                             | Max   | 1,00             | 1,00  |     | 1,00   |     | 1,50                |                               | ISO 8754 or ISO 14596, ASTM D4294; ↯6.3 |
| Flash point  | °C                                | Min   | 43,0             | 60,0  |     | 60,0   |     | 60,0                |                               | ISO 2719; ↯6.4                          |
| Hydrogen sulfide   | mg/kg                             | Max   | 2,00             | 2,00  |     | 2,00   |     | 2,00                |                               | IP 570; ↯6.5                            |
| Acid number  | mg KOH/g                          | Max   | 0,5              | 0,5   |     | 0,5    |     | 0,5                 |                               | ASTM D664; ↯6.6                         |
| Total sediment by hot filtration                                     | mass %                            | Max   | –                | –     |     | –      |     | 0,10 <sup>(C)</sup> |                               | ISO 10307-1; ↯6.8                       |
| Oxidation stability  | g/m <sup>3</sup>                  | Max   | 25               | 25    |     | 25     |     | 25 <sup>(D)</sup>   |                               | ISO 12205                               |
| Fatty acid methyl ester (FAME) <sup>(E)</sup>                        | volume %                          | Max   | –                | –     | 7,0 | –      | 7,0 | –                   | 7,0                           | ASTM D7963 or IP 579; ↯6.10             |
| Carbon residue – Micro method on the 10% volume distillation residue | mass %                            | Max   | 0,30             | 0,30  |     | 0,30   |     | –                   |                               | ISO 10370                               |
| Carbon residue – Micro method  | mass %                            | Max   | –                | –     |     | –      |     | 0,30                |                               | ISO 10370                               |
| Cloud point <sup>(F)</sup>   | winter                            | °C    | Max              | -16   |     | report |     | –                   |                               | ISO 3015; ↯6.11                         |
|  | summer                            | °C    | Max              | -16   |     | –      |     | –                   |                               |   |
| Cold filter plugging point <sup>(F)</sup>                            | winter                            | °C    | Max              | –     |     | report |     | –                   |                               | IP 309 or IP 612; ↯6.11                 |
|  | summer                            | °C    | Max              | –     |     | –      |     | –                   |                               |   |
| Pour point (upper) <sup>(F)</sup>                                    | winter                            | °C    | Max              | –     |     | -6     |     | 0                   |                               | ISO 3016; ↯6.11                         |
|  | summer                            | °C    | Max              | –     |     | 0      |     | 6                   |                               |   |
| Appearance   |                                   |       | Clear & Brighth  |       |     |        |     |                     | <sup>(C)</sup>                | ↯6.12                                   |
| Water  | volume %                          | Max   | –                | –     |     | –      |     | 0,30 <sup>(C)</sup> |                               | ISO 3733                                |
| Ash  | mass %                            | Max   | 0,010            | 0,010 |     | 0,010  |     | 0,010               |                               | ISO 6245                                |
| Lubricity, corrected wear scar diameter (WSD) at 60°C <sup>(H)</sup> | µm                                | Max   | 520              | 520   |     | 520    |     | 520 <sup>(D)</sup>  |                               | ISO 12156-1                             |

<sup>(A)</sup> 1mm<sup>2</sup>/s = 1 cSt. <sup>(B)</sup> Notwithstanding the limits given, the purchaser shall define the maximum sulfur content in accordance with relevant statutory limitations. See Introduction. <sup>(C)</sup> If the sample is not clear and bright, the total sediment by hot filtration and water tests shall be required. ↯6.8 and ↯6.12 <sup>(D)</sup> If the sample is not clear and bright, the test cannot be undertaken and therefore, compliance with this limit cannot be shown <sup>(E)</sup> ↯5.1 and ↯Annex A <sup>(F)</sup> Pour point cannot guarantee operability for all ships in all climates. The purchaser should confirm that the cold flow characteristics (pour point, cloud point, cold filter plugging point) are suitable for the ship's design and intended voyage. ↯6.11 <sup>(G)</sup> If the sample is dyed and not transparent, then the water limit and test method as given in ↯6.12 shall apply. <sup>(H)</sup> This requirement is applicable to fuels with a sulfur content below 500 mg/kg (0,050 mass %)