

## The International Organization for Standardization (ISO) updates the ISO 8217 standard, expanding the bio content in marine fuels

The ISO 8217 specification for 2024 has been recently updated. Unlike the 2017 version, it allows the incorporation of up to 100% BIO content in marine fuels, contributing to the decarbonization of the sector.

### Most relevant changes in ISO 8217:2024

The most significant change is the reorganization of grades, increasing from 2 to 4 tables. This is due to the incorporation of up to 100% BIO in residual fuels, leading to the creation of new RF grades (Table 3) and a reorganization of the existing tables from the previous version, based on sulfur content and viscosity.

- It addresses fuel composition, stipulating that the final fuel must be homogeneous, free from harmful substances, and meet the requirements of the standard. It may consist of conventional fossil fuel, synthetic hydrocarbons (HVO, GTL, PtL, or BTL), as well as co-processed renewable or recycled raw materials, fatty acid methyl esters (FAME), or a blend of all of them.
- In the previous version, FAME was only permitted in distillates (DF) up to 7%. The new version removes that limitation, allowing FAME to be added to residual fuels up to 100%, which was previously not allowed. Fuels containing FAME are now classified as DF grades (parameters defined in Table 1) and RF grades (parameters defined in Table 3). FAME used for fuel blending must comply with the requirements of ASTM D6751 (except for sulfur requirements) or EN 14214 except for:
  - Sulfur content, which is a legal requirement.
  - Cloud Point (CP) and Cold Filter Plugging Point (CFPP).

The same applies to 100% HVO, which must comply with EN 15940 standards, except for specific requirements in EN 15940:2023, Tables 2 and 3. The final product must meet the corresponding table requirements.

### Details on specification table changes

- **Table 1:** For bio-distillates (DF grades), new parameters have been added, such as oxidation stability, net combustion, and FAME content.

**Cloud Point and CFPP:** Summer/winter distinction is eliminated.

**Sulfur:** The buyer is expected to define the maximum level based on relevant legal limitations (under buyer agreement). DF Grades (distillates containing FAME):

- **FAME:** The maximum limit is removed, allowing up to 100%. FAME content must be reported.
- **Heat of Combustion:** Reported per ASTM D240.
- **Cetane Index:** Minimum limit is removed.
- **Oxidation Stability:** A minimum limit is added.

**Table 1 - Distillate and bio-distillate marine fuels**

Characteristics	Unit	Limit	Category ISO-F						
			DMX	DMA	DFA	DMZ	DFZ	DMB	DFB
Oxidation stability	g/m <sup>3</sup>	max.	25	-	-	25	-	25	-
	h	min.	-	-	8,0	-	8,0	-	8,0
Fatty acid methylester (FAME) content by mass or volume	%		-	-	Report	-	Report	-	Report
Net heat of combustion	MJ/kg		-	-	Report	-	Report	-	Report
Cloud point	°C	max.	-16	Report				-	Report
Cold filter plugging point	°C		-	Report					
Pour point (upper)	Winter	max.	-	-6				0	
	Summer	max.	-	0				6	
Cetane index		min.	45,0	40,0	-	40,0	-	35,0	-

Table 2: For marine residual fuels with up to 0.5% sulfur (without FAME), a minimum viscosity limit at 50°C is introduced for all grades.

**Table 2 - Residual marine fuels with sulfur content below or at 0,50% by mass**

Characteristics	Unit	Limit	Category ISO-F			
			RMA 20-0,5 RMA 20-0,1	RME 180-0,5 RME 180-0,1	RMG 380-0,5 RMG 380-0,1	RMK 500-0,5 RMK 500-0,1
Kinematic viscosity at 50 °C	mm <sup>2</sup> /s	max.	20,00	180,0	380,0	500,0
		min.	2,000	20,00	120,0	150,0
Potential total sediment content by mass (TSP)	%	max.	0,10			
Accelerated total sediment content by mass (TSA)	%		Report			
Existent total sediment content by mass (TSE)	%		Report			
Fatty acid methyl ester (FAME) content by mass or volume	%		<0.5			

Table 3: New grades. For marine residual fuels with FAME, a minimum viscosity at 50°C is introduced for all grades, along with new parameters for FAME content and net combustion.

**Table 3 - Bio-residual marine fuels**

Characteristics	Unit	Limit	Category ISO-F				
			RF 20	RF 80	RF 180	RF 380	RF 500
Kinematic viscosity at 50 °C	mm <sup>2</sup> /s	max.	20,00	80,0	180,0	380,0	500,0
		min.	2,000	20,00	80,0	120,0	380,0
Potential total sediment content by mass (TSP)	%	max.	0,10				
Accelerated total sediment content by mass (TSA)	%		Report				
Existent total sediment content by mass (TSE)	%		Report				
FAME content by mass	%		Report				
Net heat of combustion	MJ/kg		Report				

Table 4: For marine fuels with sulfur content above 0.5% (without FAME), a minimum viscosity limit at 50°C is introduced.

**Table 4 - Residual marine fuels with sulfur content above 0,50% by mass**

Characteristics	Unit	Limit	Category ISO-F				
			RME 180H	RMG 180H	RMG 380H	RMK 500H	RMK 700H
Kinematic viscosity at 50 °C	mm <sup>2</sup> /s	max.	180,00	180,0	380,0	500,0	700,0
		min.	2,000	20,00	120,0	150,0	
Accelerated or potential total sediment content by mass	%	max.	0,10				
Fatty acid methyl ester (FAME) content by mass or volume	%		<0.5				

## New annexes

Finally, the annexes have also been reorganized. New annexes have been added: Annex F (cold flow characteristics), annex K (characterization of marine residual fuels) and annex H (residual fuel stability).

