CEPSA	PRODUCT SPECIFICATION CATALOGUE		
Product	47200~000~	RMK 500	
Extension	5 - 03/27/2017 09:45:3	**Origin**	
Catalogue	0 - 03/27/2017 09:43:3	Generated on: 03/30/2017 13:26:31	**Valid since** 03/27/2017 09:43:3
			Valid until

Product extension data — *47200~000~*

Product	RMK 500	*Origin*	
Name		*Product type*	HYDROCARBON
Revision	5 - 03/27/2017 09:45:37	*Page Book*	
Valid since	03/27/2017 09:43:38	*Mod. user*	Macarena Cadiz
Valid until		*Mod. date*	03/27/2017 09:45:37
Quality level	Specification according to European Directive 2016/802/UE and Royal Decree 290/2015. It complies with ISO 8217:2017. ISO-F-RMK 500 grade. It includes national agreements between the involved sectors.		

Specification catalogue data — *47200~000~*

Status	Publicado - Macarena Cadiz - 03/27/2017 12:45:37		
Revision	0 - 03/27/2017 09:43:39		
Valid since	03/27/2017 12:45:24	*Mod. user*	Macarena Cadiz
Valid until		*Mod. date*	03/27/2017 12:45:37
Reference	FUEL OILS BUNKER		
Market	International		
Notes			

Catalogue specification data — *47200~000~*

C	*Test*	*Property*	*Standard*	*Min. limit*	*Max. limit*	*Std. limit*	*P*	*N*
	A044504	**V20 Viscosity at 50°C [mm2/s]**	**ASTM D 445**		**500.0**		**C**	
	A405200	**R05 Densidad 15°C [kg/l]**	**ASTM D 4052**		**1.0100**		**C**	
	P054100	**366 Indice de Aromaticidad CCAI**	**-**		**870**		**C**	**[0]**
	A429400	**061 Sulphur [%(m/m)]**	**ASTM D 4294**		**3.50**		**C**	**[1]**
	A009300	**195 Inflamabilidad P/M [°C]**	**ASTM D 93**	**60.0**			**C**	**[2]**
	P057000	**Z89 Sulfuro de Hidrogeno [mg/kg]**	**IP 570**		**2.00**		**C**	**[3]**
C	**A066401**	**237 Numer. de Acido [mg KOH/g]**	**ASTM D 664**		**2.5**		**C**	**[4]**
	V014501	**946 Sedimento Total Pot. [%(m/m)]**	**ISO 10307-2**		**0.10**		**C**	**[5]**
	A453000	**121 Residuo Carbon Micro [%(m/m)]**	**ASTM D 4530**		**20.00**		**C**	
C	**A595000**	**118 Upper Pour Point [°C]**	**ASTM D 5950**		**30**		**C**	**[6]**
	A009500	**W20 Water by Distillatio [%(V/V)]**	**ASTM D 95**		**0.50**		**C**	
	A048200	**085 Ashes [%(m/m)]**	**ASTM D 482**		**0.150**		**C**	
	P050103	**360 Vanadio [mg/kg]**	**IP 501**		**450**		**C**	
	P050104	**314 Sodium [mg/kg]**	**IP 501**		**100**		**C**	
	P050102	**138 Aluminio+Silicio [mg/kg]**	**IP 501**		**60**		**C**	
	P050100	**Aceite Lub.Usado ULO**	**IP 501**					
		077 Calcium [mg/kg]			**30**		**C**	**[7]**
		163 Phosphorous [mg/kg]			**15**		**C**	**[8]**
		424 Zinc [mg/kg]			**15**		**C**	**[9]**
	A038104	**ZA1 Notas. general**	**-**				**C**	**[10**
	A038105	**ZA2 Met.Lab.Alternativos**	**-**				**C**	**[11**

(*) Notes

[0] It shall be calculated with the Lewis formula in accordance with section 6.3 of ISO 8217:2017. For precision calculations, refer to section C.2 of Annex C.
[1] Depending on the geographical market of this product and the date this specification comes into force, the most restrictive of the regulations susceptible of being applied has been taken into account (shown with an *):
- ISO 8217:2017
- Revised Annex VI of MARPOL*
- Directive 2016/802/UE*
- Royal Decree 290/2015*
National and regional bodies may impose their own emission requirements. Evolution of sulphur content specifications:
- Use in ECAs: 0,10%
- Use outside of ECAs: currently 3,50%; 0,50% in 2020.
[2] Please refer to section 6.4 of ISO 8217:2017 for more information. A FP > 62.5ºC is recommended in the manufacturing process to avoid getting values below 60ºC in subsequent analysis, due to the tolerance of the method.

[3] Given the toxicity of hydrogen sulphide, it is essential that ship-owners, operators and other involved parties keep the appropriate safety standards to protect the crew and personnel that might be exposed to said substance. Refer to Annex D of ISO 8217:2017 for more information.
[4] Should the Fuel come from the distillation of naphthenic crudes, values above the established limit might be accepted at the discretion of the buyer and the supplier. Refer to Annex e of ISO 8217:2017 for more information.
[5] The Total Sediment Accelerated (TSA) test may be used, although the reference method is the Total Sediment Potential (TSP) test.
[6] The purchaser should confirm that this pour point is suitable for the ship's intended area of operation.
[7] It shall be considered that the product contains ULO and, thus, is out of specification when Ca > 30 and Zn > 15 or when Ca > 30 and P > 15.
[8] It shall be considered that the product contains ULO and, thus, is out of specification when Ca > 30 and Zn > 15 or when Ca > 30 and P > 15.
[9] It shall be considered that the product contains ULO and, thus, is out of specification when Ca > 30 and Zn > 15 or when Ca > 30 and P > 15.
[10] GENERAL NOTES:
Specifications according to ISO 8217:2017. ISO-F-RMK 500 grade. National agreements between the sectors involved have been taken into account. The sampling shall comply with ISO 13739 or its National equivalent.

This document specifies the requirements for fuels for use in marine diesel engines and boilers, prior to conventional onboard treatment (settling, centrifuging, filtration) before use. The specifications for fuels in this document can also be applied to fuels used in stationary diesel engines of the same or similar type as those used for marine purposes.

For the purposes of this document, the term "fuels" is currently used to include the following: a) hydrocarbons from petroleum crude oil, oil sands and shale; b) hydrocarbons from synthetic or renewable sources, similar in composition to petroleum distillate fuels; c) blends of the above with FAME component where permitted.

The fuel as supplied shall be homogeneous and conform to the characteristics and limits given in this specification when tested in accordance with the methods specified. The fuel composition shall consist predominantly of hydrocarbons primarily derived from petroleum sources while it may also contain hydrocarbons from the following: a) synthetic or renewable sources such as HVO, GTL, BTL; b) co-processing of renewable feedstock at refineries with petroleum feedstock.

The fuel shall not include FAME other than a "de minimis" level. In the context of this document, "de minimis" means an amount that does not render the fuel unacceptable for use in marine applications that are not designed or suited to handling fuels containing FAME. Fuel producers and suppliers should ensure that a) there is no deliberate blending of FAME into the fuel, and b) adequate controls are in place so that the resultant fuel, as delivered, does not exceed the "de minimis" which is now taken to be a level of approximately 0,5 volume % FAME. Refer to Annex A of ISO 8217:2017 for more information.

The fuel shall be free from any material at a concentration that causes the fuel to be unacceptable for use in accordance with second paragraph (i.e. material not at a concentration that is harmful to personnel, jeopardizes the safety of the ship, or adversely affects the performance of the machinery). It is not considered practical to require detailed chemical analyses beyond those included in this specification. However, it is required that refineries and supply stations, including tank barges and tankers, have a quality management system suitable for guaranteeing that the product complies with the requirements included in Clause 5 of ISO 8217:2017. Refer to Annex B of ISO 8217:2017 for more information.

Subject to the requirements in two previous paragraphs, additives that improve some aspects of the fuel's characteristics or performance are permitted.

In case of disagreement on the precision and interpretation of the results of the relevant tests, ISO 4259:2006 shall be applied. Refer to CIMAC guideline 'The interpretation of marine fuel analysis test results (02/2016)' for more information.
[11] REFERENCE AND/OR ALTERNATIVE TEST METHODS:
The reference lab method, when available, shall be designated "(R)".

Viscosity at 50ºC
ISO 3104 (R)

Density at 15ºC
ISO 3675
ISO 12185
In case of disagreement concerning density, all parties shall agree, prior to additional testing, upon the test method to be used.

Sulphur
ISO 8754 (R)
ISO 14596

Flash Point
ISO 2719 Procedure B (R)

Hydrogen Sulphide
IP570 Procedure A (R)
IP570 Procedure B

Total Sediment
ISO 10307-2 Procedure A (TSP, potential) (R)
ISO 10307-2: Procedure B (TSA, accelerated)

Carbon Residue
ISO 10370 (R)

Upper Pour Point
ISO 3016 (R)
ASTM D6892

Water
ISO 3733 (R)

Ash
ISO 6245 (R)

Vanadium
IP 501 (R)
IP 470
ISO 14597

Sodium
IP 501 (R)
IP 470

Aluminium+Silicon
IP 501 (R)
IP 470
ISO 10478

Used Lubricating Oil (ULO): Calcium, Zinc, Phosphorus
IP 501 (R)
IP 470
IP 500

C - Control Specification. **C - P. Continuous. W - P. Winter. T - P. Transition. S - P. Summe**

**** End of Report ****