



**NAVIGASA**  
NAVIERA DE GALICIA, S. A.

NAVIGASA fleet is composed of 3 units:  
 ✓ M/V Cedeira;  
 ✓ M/V Manuela E;  
 ✓ M/V Finita R.

The marine transport company **Navigasa** was used to treat the fuel of its fleet with the chemical additive Aderco. They have decided to compare the combustion parameters of this additive to the Xbee Enzyme Fuel Treatment.

A baseline of the gas emissions has been measured in September 2011, then the ship has used Xbee IFO 180 fuel during more than a year before measuring again the gas emissions in February 2013.

PARAMETERS	20/09/11	28/02/13	Difference
Temperature (C°)	296.00	253.90	-14.22%
Humidity (%)	4.80	4.10	-14.58%
Flow (Nm3/h) dry gas	15.02	15.50	3.18%
GAS	20/09/11	28/02/13	Difference
O2 (%)	13.00	15.20	16.92%
CO2 (%)	6.50	5.60	-13.85%
CO (ppmv)	62.00	54.00	-12.90%
CO (kg/h)	1.20	1.05	-12.50%
NOx (mg/Nm3 eq. NO2)	1,866.00	814.00	-56.38%
NOx (kg/h)	28.00	12.61	-54.96%
SO2 (mg/Nm3)	1,984.00	702.00	-64.62%
SO2 (kg/h)	29.80	10.88	-63.49%



Both gas analyzing campaigns have been managed by the accredited laboratory Dekra.

Engines and fuels guarantees:

α Xbee is recognized by some of the most important marine engines manufacturers.



α On the other hand, Xbee respects the European regulation EN 590 Diesel norm and CSR 500 IFO 380 norm.



Pictures of the engine – Wärtsilä 6L32 – 2,500 kW  
22,500 running hours on November 29, 2013 (last 5,000 with Xbee fuel).

