Technical brochure and Cost of treatment
"rb bertomeu" beco F1/ASF
Concentrated

Complete treatment of Fuel Oil and Crude Oil with a high content of Vanadium and MCR-Micro Conradson Residues, for big Diesel engines.

Vanadium and Sodium corrosion inhibitor with Molecular Magnesium. Dispersant of the MCR-Micro Conradson Residues. It optimizes the combustion, reduces sludge by 55%, reduces the fuel consumption and saves maintenance costs.

EFFECTS
Dispersant of carbons and asphaltenes which reduces sludge by 55% and the trigger rate at the water treatment plants. It keeps the filters clean. Desemulsifier, it decants the water and removes algae and fungi. Stabilizer that slows the fuel degradation. Detergent, it keeps clean injectors, improves combustion and reduces the emission of unburned particles by 80%. Soluble Magnesium which inhibits corrosion. Neutralizes the incrustations and corrosion caused by Vanadium and Sodium in valves and turbos.

The sum of all the effects provides a 3% fuel saving and, as a result, the CO₂, NOₓ and SOₓ emissions are also reduced at the same rate of 3%.

COMPOSITION
a) >70% Soluble Magnesium carboxylate / Magnesium Organic salts of Fatty acids (molecules-trade secret) soluble in hydrocarbons. [see point a-1]
b) >20% Dispersants, surfactants, stabilizers, detergents, corrosion inhibitors, demulsifiers, and biocides. [see points b-1 to b-7]
c) <10% Organic solvents. [see point c-1]
d) Density: 0.900 Kg/L

a-1) Soluble Magnesium carboxylate / Magnesium Organic salts of Fatty acids (molecules-trade secret) soluble in hydrocarbons.
b-1) Dispersants, which cause the uniform separation of particles of asphalts, coals and other solids which the fuel oil contains, minimizing sludge formation.
b-2) Surfactants, which reduce the surface tension of the fuel and achieve better pulverization.
b-3) Stabilizers, which detain the ageing and normal degradation of the fuel, and avoid the increase in sediments by increasing the size of the small particles in suspension.
b-4) Detergents, which reduce the formation of coal deposits and flow loss in the injectors, and maintain an excellent pulverization.
b-5) Corrosion inhibitors, which protect the metal parts of the fuel circuits.
b-6) Demulsifiers, which accelerate the speed of separation of the water, to the bottom of the storage tank, for ease of removal.
b-7) Biocides, which help maintaining the integrity of fuels, preventing the bacterial and fungal contamination in the storage tanks.
c-1) Organic solvents with flash point > 65 ºC. (C.C.)

More information in our technical document: RB-28 Soluble Mg (molecules) vs Corrosion in engines and gas turbines.

DOSAGE / ADDITION POINT:
The addition must take place in the inlet pipe to the storage tank.

Heavy fuel oil, according to Vanadium ppm and Micro Conradson Residue, M.C.R. %

<table>
<thead>
<tr>
<th>MCR %</th>
<th>≤ 10%</th>
<th>12%</th>
<th>13%</th>
<th>14%</th>
<th>15%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vanadium ppm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>0.15</td>
<td>0.21</td>
<td>0.32</td>
<td>0.43</td>
<td>0.54</td>
</tr>
<tr>
<td>50</td>
<td>0.21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>0.32</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>0.43</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200</td>
<td>0.54</td>
<td></td>
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</tbody>
</table>

Additive:fuel ratio

1:6666  1:4762  1:3125  1:2326  1:1852

For higher M.C.R. content, complement with the “rb bertomeu” beco F-Plus Concentrated additive.
COST OF TREATMENT ACCORDING TO THE FUEL AND THE SUPPLIED QUANTITY OF ADDITIVE

<table>
<thead>
<tr>
<th>Package</th>
<th>Cost of treatment for 1 MT of fuel</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 L</td>
<td>3.795 €/MT</td>
</tr>
<tr>
<td>25 L</td>
<td>3.120 €/MT</td>
</tr>
<tr>
<td>4 drums x 200 L</td>
<td>1.638 €/MT</td>
</tr>
<tr>
<td>IBC x 1000 L</td>
<td>1.555 €/MT</td>
</tr>
</tbody>
</table>

Cost of treatment for fuel oil with MCR ≤ 10% and Vanadium < 35 ppm (Suggested dose 0.15 Kg/MT of fuel)

<table>
<thead>
<tr>
<th>Concentrated additive. 1 Kg</th>
<th>25.30 €/Kg</th>
<th>20.80 €/Kg</th>
<th>10.92 €/Kg</th>
<th>10.37 €/Kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Package</td>
<td>5 L</td>
<td>25 L</td>
<td>4 drums x 200 L</td>
<td>IBC x 1000 L</td>
</tr>
</tbody>
</table>

Prices and conditions:

- Tax base
- Freight paid to destination in mainland Spain and the Balearic Islands
- Export: Incoterms 2020 FCA Air and Sea FOB, from Barcelona
- Export: Express shipment by air 1-2 weeks to any worldwide destination
- Prices valid until December 30, 2020
- NC–TARIC code: 3811 90 00

If you have any technical or commercial question, please fill-in and send this form.

PRESENTATION

TRANSPORTATION
Cataloged for transportation ADR/RID, ADN, IMDG and IATA: Class 9, P.G. III, UN 3082

MANUFACTURER AND COUNTRY OF ORIGIN
Manufactured by "rb bertomeu" in Spain (European Union).

May 2020