



Turn IMO  
regulation into  
opportunity !

# Marine fuel additives

Your specific range  
formulated by  
Additives and Fuels Solutions



**TotalEnergies**

# Asphaltene Inhibitors

## EMDFA 462 - Combo Additive for Bunker Fuel Oil

### WHAT FOR ?

EMDFA 462 is a multipurpose fuel additive, especially designed for improving engine operation and combustion properties of fuel oils in the context of "IMO 2020" evolution.

### BENEFITS

EMDFA 462 is a safety-net to avoid filter blocking and injector fouling linked to the presence of sludges and asphaltenes in fuel oil. It combines deposit control additive, cetane improver and improved sludge / asphaltene dispersancy.



# Cold Flow Improver & Pour Point Depressant

## COLD FLOW IMPROVER

The precipitation of paraffins creates a three-dimensional network that totally immobilizes the oil, the wax structuring very effectively restricts pumpability, thereby placing a lower temperature limit.

**Cold Flow Improver (CFI)** additives acts by lowering the Cold Filter Plugging Point and pour point by reducing the size of the paraffin crystals that appears at low temperature.

## POUR POINT DEPRESSANT

**Pour Point depressant (PPD)** additives act by reducing the size of the paraffin crystals and/or modifying their shapes in order to make it easier to cold pump heavy fuels. PPD additives modify the wax crystallization of Heavy Fuel Oils and Crude Oils and prevents growth of interlinking crystals.

CP 7404 - designed for MGO  
CP 3850 - designed for VLSFO and HFO

Effective in  
improving cold  
operability fuel  
by improving the  
pour point.

Code	Type	Chemistry	Treatment rate (ppm)	Handling			
				Viscosity (40°C, mm <sup>2</sup> /s)	PP (°C)	Density (20°C, kg/m <sup>3</sup> )	Flash point (°C)
CP 3850		Polyester/ EVA	100 - 600	70	21	900	> 45
CP 3852	Pour Point Depressant	EVA	100 - 600	< 200	27	885	> 37
CP 3880		Polyester	100 - 600	< 30	< 33	875 - 905	> 55

# Biofuels Additives

## AC 486 - Additive for Bio and Renewable Fuels

### WHAT FOR ?

AC 486 is a 'all in one' multifunctional additive designed for the safe use of bio and renewable components (such as FAME, UCOME or HVO) either as blending components into regular diesel fuel oils or as 100% pure fuels.

### BENEFITS

Beside their sustainability benefits, bio and renewable fuels can indeed present technical drawbacks (lubricity for HVO, oxidation stability for FAME, filter clogging...) which must be mitigated for a safe use. AC 486 can be used in preventive mode to maintain original fuel quality but also for curative treatment when some fuel parameters are already out-of-line.



# Performance Additives



## WHAT FOR ?

**Excellium Pro Concentrate** is an exclusive premium fuel additive protecting the engines and increasing fuel efficiency. It is adapted for all types of marine fuels, from fossil to bio-, renewable- and recycled-containing feedstocks.

## BENEFITS

**Excellium Pro Concentrate** provides full engine cleanliness, enhances combustion and reduces engine wear, leading to fuel savings and reduced emissions. It also improves fuel filterability, increases oxidation stability and protects engine, fuel lines and storage installations against corrosion.

## EMDFA 401 - For Fuel Oil

## WHAT FOR ?

**EMDFA 401** is a multipurpose diesel fuel additive, especially designed for improving engine operation and combustion properties of a wide range of diesel fuels (from gas-oil to heavy fuel oils corresponding to different crude oil natures, compositions, sulfur and cetane levels).

## BENEFITS

The combination of deposit control additive and cetane improver leads to **valid fuel economy figures**.



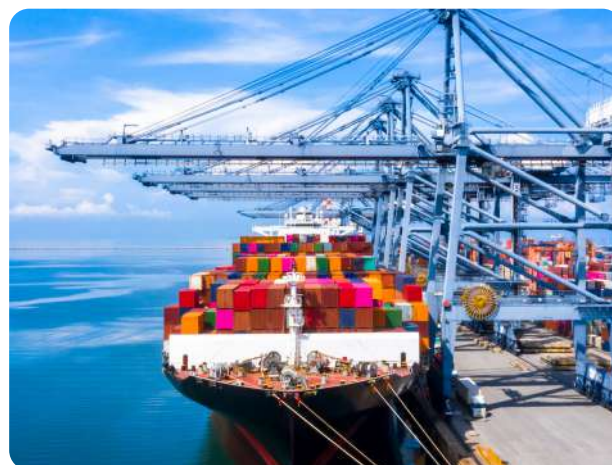
# Lubricity Additives

**Lubricity is the fuel quality necessary to prevent wear inside Diesel Fuel Injection Equipment (FIE).** Hydro treating processes used to remove the Sulphur have also the potential to reduce the fuel viscosity and significant amounts of polar and aromatic compounds that give low Sulphur Diesel fuel adequate lubricating ability.

## INTERNATIONAL STANDARDS

To date it is measured thru the **HFRR test**. The HFRR test is a tribological test that measures the wear. Most international standards recommend a max wear scar (HFRR result) of  $460 \pm 60 \mu\text{m}$ .

Code	Type	Recommended dosage (mg/kg)	Viscosity (mm <sup>2</sup> /s)	Pour Point (°C)	Flash point (°C)
PC 10	Vegetable origin	100 -250	25 at 40°C	≤ 3	> 100
PC 12	Vegetable origin	75 - 250	15 at 40°C	≤ -6	> 100
PC 32	TOFA origin	50 - 150	30 at 20°C	≤ -6	> 100
PC 60	Ester-based	50 - 200	<100 at 40°C	-	> 100



# Your customized package ...

## TotalEnergies Additives and Fuels Solutions at your service !

A wide range of products is available to develop tailor-made solutions to meet your specific needs and branding from concentrates to ready to use products.

## Contact us !

[additives-fuels.totalenergies.com](mailto:additives-fuels.totalenergies.com)

**TotalEnergies Additives and Fuels Solutions** relies on the Company's capacity in R&D with leading edge research centers and benefits from this strength to ensure its development while drawing advantage from its own flexible structure. A competence center for the TotalEnergies company, TotalEnergies Additives and Fuels Solutions combines additive and special fuel formulation and production activities



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## **TotalEnergies Additives and Fuels Solutions**

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