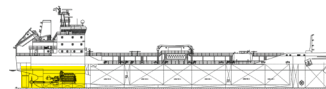


# F.O.T. CATALYST



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## FUEL OIL TREATMENT ACTING AS COMBUSTION IMPROVER, CARBON CATALYST, ASH MODIFIER FOR DIESEL ENGINES AND BOILERS.

### PHYSICAL DATA

Appearance: Clear reddish-brown liquid  
Apparent Specific Gravity: 0.90 at 20°C  
Flash Point: More than 70° C (158° F)  
Corrosive action: Metals: None - Rubber: Slight swelling

### DESCRIPTION

The latest development of a fuel oil treatment acting as a combustion improver, carbon catalyst, ash modifier and smoke suppressant for diesel engines and boilers.

### PROPRIETIES

Dark-brown liquid containing special solvents, emulsion breakers, antioxidants anti-corrosive agents, combustion catalysts, inhibitors, dispersants and ash modifiers. It is easily soluble in all types of fuel.

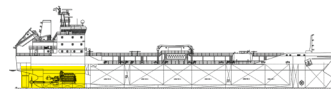
### ADVANTAGES

- Prevents formation of sludge in tanks, filters, preheaters, etc.
- Disperses existing sludge.
- Separates emulsified water and helps water separation at the separator.
- Improves atomisation and combustion.
- Allows reduction of excess air.
- Reduces unburnt particles and soot emissions.
- Limits fouling of combustion chambers, superheaters, exhaust valves, scavenge ports, turbochargers.
- Prevents high and low temperature corrosion by raising the melting point of the Vanadium compound.

### PRODUCT DOSE

Dosage point location varies depending on engine/boiler fuel system layout. The most efficient and economical method is obtained with a metering pump, dosing the additive into the suction side of the booster pump (for diesel engines) or into the burner feed line (for boilers). Alternatively the additive may be dosed directly to the day tank prior to refilling or directly to the bunker tanks. Dosage rates are depending upon engine characteristics, operating conditions and quality of fuel oil. A CCAI (Calculated Carbon Aromaticity Index) number exceeding 840 indicates a poor fuel quality which justifies the use of a chemical fuel oil treatment to counteract the effects hereof. Typical dosage rate varies between 1:1000, 1:6000 and 1:12000. Consult your local UNIservice Service Engineer for recommendations of the dosage rate based on specific problems and requirements onboard.

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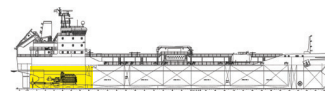


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**IMPORTANT:** WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, THIS INFORMATION IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU DO A TEST TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION FURNISHED BY URRUTY GG NIEGO SRL HEREUNDER ARE GIVEN GRATIS, AND URRUTY GG NIEGO SRL ASSUMES NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.

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## Safety Data Sheet

### 1. Identification of the substance / preparation and the Company

#### 1.1 Identification of the substance or preparation

Product name FOT CATALYST

#### 1.2 Use of the substance / preparation

Intended use Fuel oil treatment acting as combustion improver carbon catalyst ash modifier for diesel engines and boilers

#### 1.3 Company identification

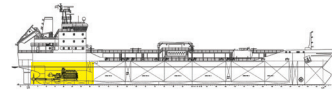
Name Urruty gg Niego S.r.l.  
Full address Via al Santuario di N.S. Guardia 58 a  
District and Country 16162 Genova Bolzaneto (GE)  
Italia  
Tel. + 39 010 711395  
Fax + 39 010 713120

e-mail address of the competent person responsible for the Safety Data Sheet  
info@uniservicemarine.com

#### 1.4 Emergency telephone

For urgent inquiries refer to First Aid Information: Centro Antiveleni Milano - Niguarda  
Phone: 02 - 66101029 (specialized in chemical products poisoning).

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## 2. Hazards Identification

### 2.1 Substance/Preparation Classification

This product is dangerous under 67/548/EEC and 1999/45/EC directives and subsequent amendments. Therefore, this product requires a safety data sheet according to the Regulation (EC) 1907/2006 and subsequent amendments. Further information on health and/or environmental hazards can be found in sections 11 and 12 of this sheet.

Danger Symbols: Xn-N  
R phrases: 36/38-51/53-65-66-67

### 2.2 Danger Identification

IRRITATING TO EYES AND SKIN.

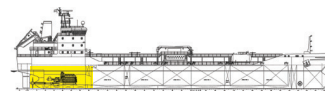
TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.

HARMFUL: MAY CAUSE LUNG DAMAGE IF SWALLOWED.

REPEATED EXPOSURE MAY CAUSE SKIN DRYNESS OR CRACKING.

VAPOURS MAY CAUSE DROWSINESS AND DIZZINESS.

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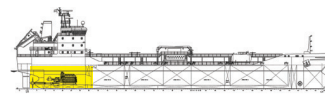
## 3. Composition / Information on ingredients

Contains:

Name	Concentration % (C)	Classification
BIS (2-ETILESANOATO) DI MANGANESE CAS No 13434-24-7 CE No 236-562-0	4,5 <= C < 5	Xi R38
MARLIPAL 31-9 CAS No 68439-54-3	8 <= C < 9	Xn R22 Xi R41
NAFTALENE CAS No 91-20-3 CE No 202-049-5 Index No 601-052-00-2	7 <= C < 8	Xn R22 N R50/53 Note H P
SOLVENT NAPHTA (PETROLEUM), HEAVY AROM CAS No 64742-94-5 CE No 265-198-5 Index No 649-424-00-3	66 <= C < 70	R66 R67 Xn R65 Xi R36/38 N R51/53 Note H 4
MESITYLENE CAS No 108-67-8 CE No 203-604-4 Index No 601-025-00-5	0,6 <= C < 0,7	R10 Xi R37 N R51/53
1,2,4-TRIMETHYLBENZENE CAS No 95-63-6 CE No 202-436-9 Index No 601-043-00-3	5 <= C < 6	R10 Xn R20 Xi R36/37/38 N R51/53
NAPHTA (PETROL.) HYDROTREATED HEAVY CAS No 64742-48-9 CE No 265-150-3 Index No 649-327-00-6	2,5 <= C < 3	R66 Xn R65 Note H P 4

The complete text of -R- phrases is specified in section 16.

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## 4. First aid measures

**EYES:** Irrigate copiously with clean, fresh water for at least 15 minutes. Seek medical advice.

**SKIN:** Wash immediately with plenty of water. Remove contaminated clothing. If irritation persists, seek medical attention. Wash contaminated clothing before using them again.

**INHALATION:** Remove to open air. If breathing is irregular, seek medical advice.

**INGESTION:** Obtain immediate medical attention. Induce vomiting only if indicated by the doctor. Never give anything by mouth to an unconscious person.

## 5. Fire-fighting measures

### GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Excess pressure may form in containers exposed to fire at a risk of explosion. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water and the remains of the fire according to applicable regulations.

### SUITABLE EXTINGUISHING MEDIA

The extinction equipment should contain carbon dioxide, foam or chemical powders. For product leaks and spills that have not caught fire, nebulised water can be used to dispel flammable fumes and protect the individuals taking part in stemming the leak.

### EXTINGUISHING MEDIA WHICH SHALL NOT BE USED FOR SAFETY REASONS

Do not use jets of water. Water is not effective for putting out fires but can be used to cool containers exposed to flames to prevent explosions.

### HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products (carbon oxide, toxic pyrolysis products, etc).

### SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

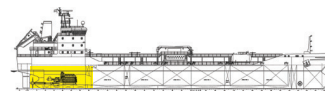
Hardhat with visor, fireproof clothing (fireproof jacket and trousers with ties around arms, legs and waist) work gloves (fireproof, cut proof and dielectric), self-respirator (self-protector).

## 6. Accidental release measures

### PERSONAL PRECAUTIONS

Eliminate all sources of ignition (cigarettes, flames, sparks, etc.) from the leakage site. If there are no contraindications, spray solid products with water to prevent the formation of dust. Use breathing equipment if fumes or powders are released into the air. Block the leakage if there is no hazard. Do not handle damaged containers or the leaked product before donning appropriate

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protective gear. For information on risks for the environmental and health, respiratory tract protection, ventilation and personal protection equipment, see the other sections of this sheet.

#### ENVIRONMENTAL PRECAUTIONS

The product must not penetrate the sewers, surface water, ground water and neighbouring areas.

#### METHODS FOR CLEANING UP

Use inert absorbent material (sand, vermiculite, diatomeous earth, Kieselguhr, etc.) to soak up leaked product. Collect the majority of the remaining material and deposit it in containers for disposal. If there are no contraindications, use jets of water to eliminate product residues. Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

## 7. Handling and storage

Store in a well ventilated place, keeping the containers closed when not used. Do not smoke while handling. Keep far away from sources of heat, bright flames and sparks and other sources of ignition.

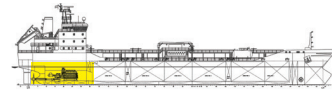
## 8. Exposure control / personal protection.

### 8.1 Exposure limit values

Name	Type	Country	TWA/8h		STEL/15min		
			mg/m3	ppm	mg/m3	ppm	
MESITYLENE							
	TLV-ACGIH			25			
	OEL	EU	100	20			
	OEL	IRL		20			
	WEL	UK		25			
1,2,4-TRIMETHYLBENZENE							
	TLV-ACGIH		123				
	OEL	EU	100	20			
	OEL	IRL		20			
	WEL	UK		25			

### 8.2 Exposure controls

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As the use of adequate technical equipment must always take priority over personal protection equipment, make sure that the workplace is well aired through effective local aspiration or bad air vent. If such operations do not make it possible to keep the concentration of the product below the permitted workplace exposure thresholds a suitable respiratory tract protection must be used. See product label for hazard details during use. Ask your chemical substance suppliers for advice when choosing personal protection equipment. Personal protection equipment must comply with the rules in force indicated below.

## HAND PROTECTION

Protect hands with category II (ref. Directive 89/686/EEC and standard EN 374) work gloves, such as those in PVC, neoprene, nitril or equivalent. The following should be considered when choosing work glove material: degradation, breakage times and permeation. Work glove resistance to preparations should be checked before use, as it can be unpredictable. Gloves' limit depends on the duration of exposure.

## EYE PROTECTION

Wear protective airtight goggles (ref. standard EN 166).

## SKIN PROTECTION

Wear category II professional long-sleeved overalls and safety footwear (ref. Directive 89/686/CEE and standard EN 344). Wash body with soap and water after removing overalls.

## RESPIRATORY PROTECTION

If the threshold value for one or more of the substances present in the preparation for daily exposure in the workplace or to a fraction established by the company's prevention and protection service is exceeded, wear a mask with an B or universal filter, the class (1, 2 or 3) of which must be chosen according to the limit concentration of use (ref. standard EN 141).

The use of breathing protection equipment, such as masks with organic vapour and dust/mist cartridges, is necessary in the absence of technical measures limiting worker exposure. The protection provided by masks is in any case limited.

If the substance in question is odourless or its olfactory threshold is higher than the relative exposure limit and in the event of an emergency, or when exposure levels are unknown or the concentration of oxygen in the workplace is less than 17% volume, wear self-contained, open-circuit compressed air breathing apparatus (ref. standard EN 137) or fresh air hose breathing apparatus for use with full face mask, half mask or mouthpiece (ref. standard EN 138).

An emergency eye washing and shower system must be provided.

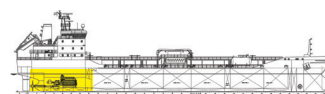
In the presence of risks of exposure to splashes or squirts during work, adequate mouth, nose and eye protection should be used to prevent accidental absorption.

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## 9. Physical and chemical properties



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Colour	Not available
Odour	aromatic solvent
Appearance	liquid
Solubility	emulsifying
Specific gravity	0,91 Kg/l
Vapour density	Not available
Evaporation speed	Not available
Comburent properties	Not available
Partition coefficient: n-octanol/water	Not available
pH	Not available
Boiling point	Not available
Melting point	<-20°C
Flash point	>61°C
Lower explosive limit	0,6% (v/v)
Upper explosive limit	8% (v/v)
Ignition temperature	450°C
Vapour pressure	0,04kPa
Specific gravity	0,910Kg/l

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## 10. Stability and reactivity

The product is stable in normal conditions of use and storage. When heated or in the event of a fire, carbon oxides may be released and vapours which are dangerous to health. The vapours may also form explosive mixtures with the air.

Petroleum naphtha solvent: it can give flammable mixtures with air.

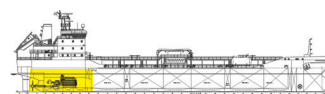
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## 11. Toxicological information

Acute effects: stinging eyes. Symptoms may include: rubescence, edema, pain and lachrymation. Contact with skin may cause: irritation, erythema, edema, dryness and chapped skin. Vapour inhalation may slightly irritate the upper respiratory tract. Ingestion may cause health disorders, including stomach pain and sting, nausea and sickness.

The introduction of even small quantities of this liquid into the respiratory system in case of ingestion or vomit may cause bronchopneumonia and pulmonary edema.

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This product may have a degreasing action on the skin, producing dryness and chapped skin after repeated exposure.  
This product contains highly volatile substances, which may cause serious depression of the central nervous system (CNS) and have negative effects, such as drowsiness, dizziness, slow reflexes, narcosis.

## 12. Ecological information

This product is dangerous for the environment and is toxic for aquatic organisms. In the long term, it may even have negative effects on aquatic environment.

Petroleum distillates, charcoal, vegetable extracts: they are mixtures of paraffinic, naphthenic, diterpenic and aromatic hydrocarbons. Their behaviour on the environment depends on the concentration. In each case use, according to good working practices, avoiding disposal in the environment. As a rule, the product is poorly biodegradable.

## 13. Disposal consideration

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

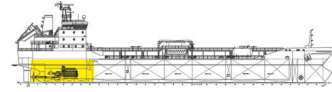
### CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

## 14. Transport information

These goods must be transported by vehicles authorized to the carriage of dangerous goods according to the provisions set out in the current edition of the Code of International Carriage of Dangerous Goods by Road (ADR) and in all the applicable national regulations. These goods must be packed in their original packagings or in packagings made of materials resistant to their content and not reacting dangerously with it. People loading and unloading dangerous goods must be trained on all the risks deriving from these substances and on all actions that must be taken in case of emergency situations.

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## Road and rail transport:

ADR/RID Class: 9  
UN: 3082  
Packing Group: III  
Label: 9  
Nr. Kemler: 90  
Limited Quantity LQ07  
Tunnel restriction code (E)  
Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (SOLVENT NAPHTA (PETROLEUM), HEAVY AROM; NAFTALENE)



## Carriage by sea (shipping):

IMO Class: 9  
UN: 3082  
Packing Group: III  
Label: 9  
EMS: F-A, S-F  
Marine Pollutant YES  
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SOLVENT NAPHTA (PETROLEUM), HEAVY AROM; NAFTALENE)

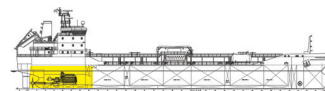


## Transport by air:

IATA: 9  
UN: 3082  
Packing Group: III  
Label: 9  
Cargo:  
Packaging instructions: 914  
Maximum quantity: 450 L  
Pass.:  
Packaging instructions: 914  
Maximum quantity: 450 L  
Special Instructions: A97, A158  
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SOLVENT NAPHTA (PETROLEUM), HEAVY AROM; NAFTALENE)

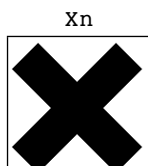


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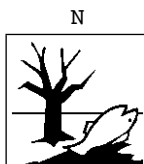


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## 15. Regulatory information



HARMFUL



DANGEROUS FOR THE ENVIRONMENT

- R36/38 IRRITATING TO EYES AND SKIN.  
R51/53 TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.  
R65 HARMFUL: MAY CAUSE LUNG DAMAGE IF SWALLOWED.  
R66 REPEATED EXPOSURE MAY CAUSE SKIN DRYNESS OR CRACKING.  
R67 VAPOURS MAY CAUSE DROWSINESS AND DIZZINESS.  
S25 AVOID CONTACT WITH EYES.  
S26 IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.  
S29 DO NOT EMPTY INTO DRAINS.  
S37 WEAR SUITABLE GLOVES.  
S61 AVOID RELEASE TO THE ENVIRONMENT. REFER TO SPECIAL INSTRUCTIONS/SAFETY DATA SHEETS.  
S62 IF SWALLOWED, DO NOT INDUCE VOMITING: SEEK MEDICAL ADVICE IMMEDIATELY AND SHOW THIS CONTAINER OR LABEL.

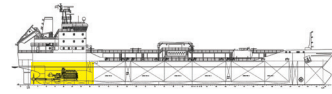
### Contains:

SOLVENT NAPHTA (PETROLEUM), HEAVY AROM

Danger labelling under directives 67/548/EEC and 1999/45/EC and following amendments and adjustments.

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

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## 16. Other information

Text of (R) phrases quoted in section 3 of the sheet.

R10	FLAMMABLE.
R20	HARMFUL BY INHALATION.
R22	HARMFUL IF SWALLOWED.
R36/37/38	IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.
R36/38	IRRITATING TO EYES AND SKIN.
R37	IRRITATING TO RESPIRATORY SYSTEM.
R38	IRRITATING TO SKIN.
R41	RISK OF SERIOUS DAMAGE TO EYES.
R50/53	VERY TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.
R51/53	TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.
R65	HARMFUL: MAY CAUSE LUNG DAMAGE IF SWALLOWED.
R66	REPEATED EXPOSURE MAY CAUSE SKIN DRYNESS OR CRACKING.
R67	VAPOURS MAY CAUSE DROWSINESS AND DIZZINESS.

### GENERAL BIBLIOGRAPHY

1. Directive 1999/45/EC and following amendments;
2. Directive 67/548/EEC and following amendments and adjustments (technical adjustment XXIX);
3. Regulation (EC) 1272/2008 (CLP) of the European Parliament;
4. Regulation (EC) 1907/2006 (REACH) of the European Parliament;
5. The Merck Index. - 10th Edition;
6. Handling Chemical Safety;
7. Niosh - Registry of Toxic Effects of Chemical Substances;
8. INRS - Fiche Toxicologique (toxicological sheet);
9. Patty - Industrial Hygiene and Toxicology;
10. N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition;

### Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product .

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Changes to previous review

The following sections were modified: 01 / 02 / 08 / 09 / 11 / 13 / 14 / 15 / 16