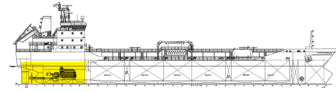


ECONOMIZER TREAT LIQUID



Page
1 of 3

LIQUID TO PREVENT SOOT DEPOSITS IN EXHAUST GAS BOILERS AT LOW TEMPERATURE

PHYSICAL DATA

Green/blue coloured neutral product
containing special metal salts.
Fully miscible with water.
Specific gravity: approx. 1.19 Kg/ltr.
Flash point: none
pH (1% solution): approx. 7
Contains: Nitrates inorganic NOS

ADVANTAGES

- Effective above 200°C
- An easily dosed liquid
- Complete coverage of entire exhaust gas unit
- Greatly improved heat transfer
- Neutralises sulphuric acid
- Reduces corrosion and fire risk

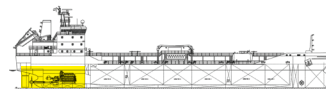
INTRODUCTION

Today's main propulsion units have low exhaust gas outlet temperatures. This is due to increased engine and turbo blower efficiency. Lower gas temperatures are also the result of running at reduced power. The low temperature and reduced gas volume gives increased soot deposition and subsequent corrosion. The increased deposition greatly reduces the thermal efficiency of the economizer. As "dew point" is often reached in the unit, causing the generation of sulphuric acid, the corrosion process is greatly accelerated. Economizer Treat Liquid is a specially developed liquid which is easily dosed into the system, using a special UNIservice injection unit. The special air assisted nozzles create a fine mist so that the liquid vaporizes on contact with the hot gas. The vapor mixes intimately with the exhaust gases and the active material is dispersed throughout the system in microscopic particles. These tiny particles have an extremely large "active surface area" and being light, remain in the gas fully dispersed. This ensures that all parts of the economizer are covered efficiently.

In the past, powder products have been developed for this purpose. However, their large particle size and greater weight makes them difficult to inject efficiently, so they cannot reach all areas requiring treatment. This leads to product wastage and ineffective cleaning of the upper areas, where most of the soot is deposited.

Economizer Treat Liquid catalyses the post combustion process, resulting in modified soot particles which are dry and non adherent. The resulting deposit is more friable and can be more easily removed by the action of the soot-blowers.

ECONOMIZER TREAT LIQUID



Page
2 of 3

DIRECTIONS FOR USE

Economizer Treat Liquid is designed to prevent major build ups of soot in service. If the economizer is badly fouled we strongly recommend a pre-cleaning of the unit using UNIservice Gas Side Cleaner or Alkaclean

Dosage Instructions

1-2 litres of Economizer Treat Liquid is required for every 1000 m² of heating surface area. This amount should be increased / decreased dependant on economizer design and fuel consumption.

Dosage Period

ECONOTREAT should be injected daily or twice daily after soot-blowing.

Dosing Equipment

The product must be dosed via the specially developed UNIservice injection unit which is made of materials suitable for prolonged contact with Economizer Treat Liquid.

Injection Points

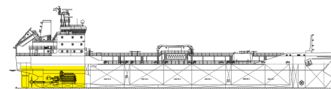
In most cases a single injector can be put into the exhaust system immediately after the turbo charger gas outlet. UNIservice Engineers will inspect and make detailed recommendations for exact positioning.

PRODUCT DOSE

UNIservice Gas Side Cleaner Liquid provides a portable Economiser Washdown Unit for low and high pressure jetting of economisers etc. This is a complete pump, hose and lance system which takes suction directly from the Gas Side Cleaner Liquid drum. Vessels with permanent semi or fully automatic water washing systems can have a UNIservice Pre-Wash Injection Unit retrofitted. This can be custom built to give total control over the timing of the whole operation. Please contact UNIservice for further details.

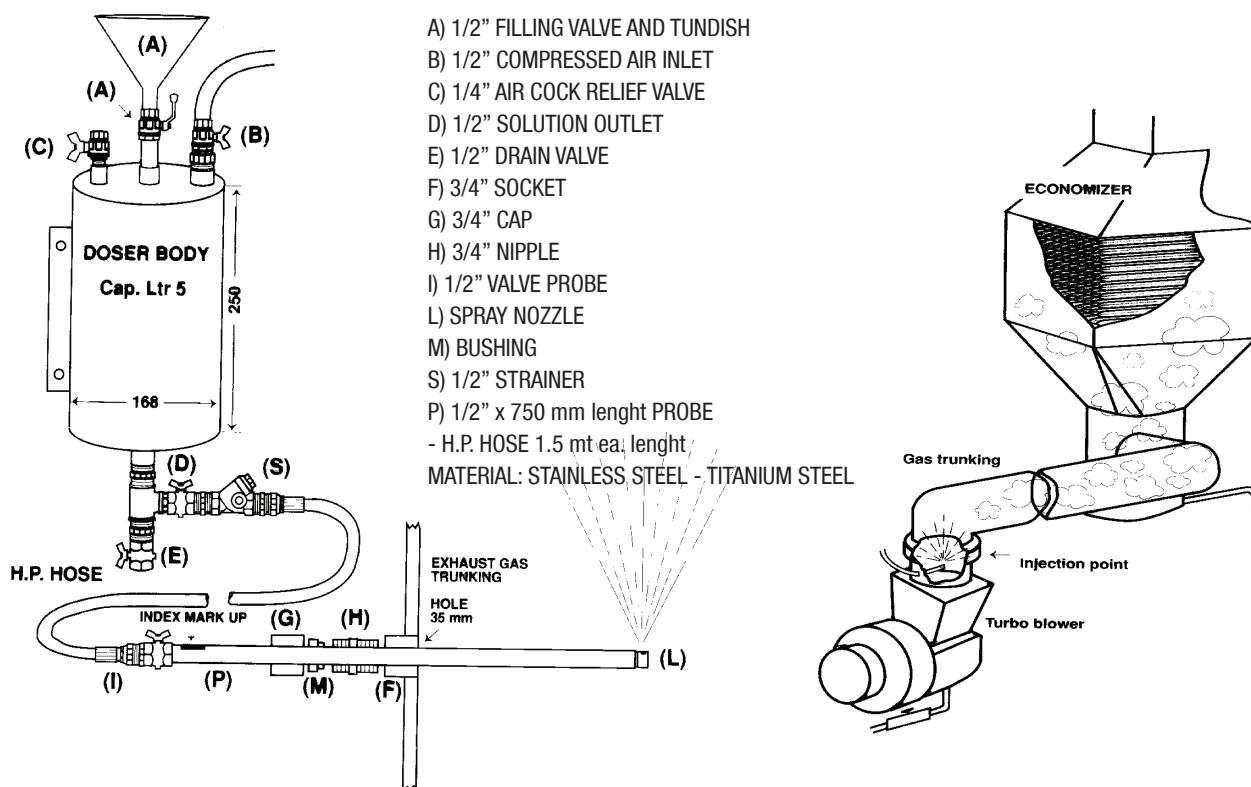
IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, THIS INFORMATION IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU DO A TEST TO DETERMINE THE 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.

ECONOMIZER TREAT LIQUID



EXHAUST GAS CLEANING SYSTEM

FOR DOSING ECONOMIZER TREAT - SOOT REMOVER (LIQUID) FOR LOW TEMPERATURE EXHAUST GAS



ASSEMBLING INSTRUCTION

Choose a position in the GAS TRUNK about 1 or 2 meters above the turbo blower where the probe has to be positioned. Drill an Hole of 35 mm into the plate of the gas trunk and weld the 3/4" socket (F). Insert the probe inside the 3/4" socket and screw in the 3/4" nipple (H). The PROBE can slide inside and outside for the regulation of the exact position of the spray nozzle into the middle of the trunk. Tight well the (G) union.

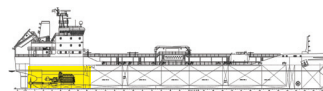
Probe can be pulled out for repair, cleaning of nozzle (if it has not been used for a long time) just releasing the (G) union. WHEN ASSEMBLING THE PROBE, TAKE CARE TO PUT ON UPRIGHT POSITION THE INDEX MARK. The doser should be rigidly plumbed into the pipework system with the tundish vertical and uppermost the drain valve should be piped to a nearby open drain. Access should be left above the tundish to pour liquid into the unit. The air cock should be accessible from the front of the unit.

OPERATING PROCEDURE

1. Ensure that all valves of the doser are closed.
2. Open the drain valve (E) and air cock (C) and allow the doser to empty. Close the drain valve (E).
3. Measure the chemical to be added into a small jug or bucket and ensure there are no undissolved particles.
4. Open the filling valve (A) and slowly pour the chemical into the tundish, taking care not to overflow the tundish.
5. When the tundish is empty, close the filling valve (A) and the air cock (C).
6. Open the compressed air inlet valve (B) immediately after the outlet valve (D) and (I) to the injection probe (P).
7. When, after few minutes all chemical has been injected, fill up the doser with fresh water and repeat the above operation in order to flush the system.

Note: average dosage is 5 liters every 3 days of ECONOMIZER TREAT (SOOT REMOVER). Dosage can be increased or decreased according the heating surface area.

ECONOMIZER TREAT LIQUID



Rev.
004

Safety Data Sheet

1. Identification of the substance / preparation and the Company

1.1 Identification of the substance or preparation

Product name ECONOMIZER TREATMENT

1.2 Use of the substance / preparation

Intended use Gas side Cleaner

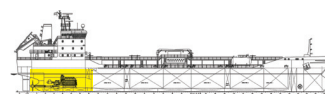
1.3 Company identification

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 info@uniservicemarine.com
for the Safety Data Sheet

1.4 Emergency telephone

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

ECONOMIZER TREAT LIQUID



Rev.
004

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: Xi
R phrases: 36/37/38

2.2 Danger Identification

IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.

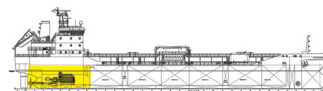
3. Composition / Information on ingredients

Contains:

Name	Concentration % (C)	Classification
MAGNESIUM NITRATE CAS No 10377-60-3	9 <= C < 10,5	Xi R36/37/38
AMMONIUM NITRATE CAS No 6484-52-2 CE No 229-347-8	35 <= C < 37,5	O R 8 Xi R36/37/38

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

ECONOMIZER TREAT LIQUID



Rev.
004

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

In the event of a fire, cool containers immediately to prevent hazard of explosions and the generation of gas hazardous to health and safety. Always wear full fireproof gear.

GENERAL INFORMATION

In the case of fire, use jets of water to cool the containers to prevent the risk of explosions (product decomposition and excess pressure) and the development of substances potentially hazardous for health. Always wear full fire prevention gear.

SUITABLE EXTINGUISHING MEDIA

Use extinction equipment containing carbon dioxide, foam and chemical powders. For product leaks and spills that do not catch 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 water.

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 straps around arms, legs and waist) work gloves (fireproof, cut proof and dielectric), self-respirator (self-protector).

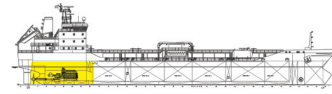
6. Accidental release measures

PERSONAL PRECAUTIONS

If there are no contraindications, spray powder with water to prevent the formation of dust. Use breathing equipment if powders are released into the air.

ENVIRONMENTAL PRECAUTIONS

ECONOMIZER TREAT LIQUID



Rev.
004

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

METHODS FOR CLEANING UP

Use mechanical tools to collect leaked product and eliminate the remainder using jets of water. 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 only in the original container. Follow the instructions of the supplier. Store in a ventilated and dry place, far away from sources of ignition. Ensure that there is an adequate earthing system for the equipment and personnel.

8. Exposure control / personal protection.

8.1 Exposure limit values

Not available

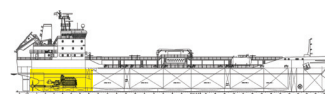
8.2 Exposure controls

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.

ECONOMIZER TREAT LIQUID



Rev.
004

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.

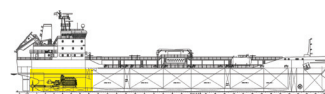
If the substance in question is odourless or its olfactory threshold is higher than the relative exposure limit and in the event of an emergency, or when exposure levels are unknown or the concentration of oxygen in the workplace is less than 17% volume, wear self-contained, open-circuit compressed air 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.

9. Physical and chemical properties

Colour	Not available
Appearance	liquid
Solubility	soluble
Vapour density	Not available
Evaporation speed	Not available
Comburent properties	Not available
Partition coefficient: n-octanol/water	Not available
pH	7
Boiling point	Not available
Flash point	Not available
Explosive properties	Not available
Vapour pressure	Not available
Specific gravity	1,190Kg/l

ECONOMIZER TREAT LIQUID



Rev.
004

10. Stability and reactivity

The product is stable in normal conditions of use and storage. Due to thermal decomposition or in the event of a fire vapours may be produced potentially dangerous to health.

Ammonium nitrate decomposes above 210 °C producing toxic gases of nitrogen oxide. Keep the containers tightly closed and far away from reducing agents, combustible agents and metal powders in order to avoid explosive reactions and fires.

11. Toxicological information

Acute effects: stinging eyes. Symptoms may include rubescence, edema, pain and lachrymation. Vapour inhalation may moderately irritate the lower and upper respiratory tract and cause cough and respiratory disorders. At higher concentrations, it may also cause pulmonary edema. Contact with skin may cause irritation, erythema, dryness and chapped skin. Ingestion may cause health problems, including stomach pain and sting, nausea and sickness.

AMMONIUM NITRATE: oral LD50 (mg/kg) 2217 (RAT) ; inhalation LC50 (rat) > 88,8 mg/l/4h.

12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or sewers or contaminate soil or vegetation.

13. Disposal consideration

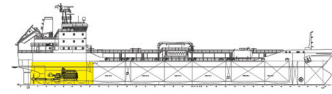
Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

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.

ECONOMIZER TREAT LIQUID

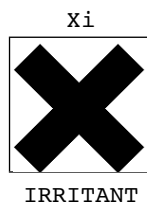


Rev.
004

14. Transport information

This product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

15. Regulatory information

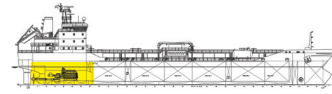


- R36/37/38 IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.
S25 AVOID CONTACT WITH EYES.
S26 IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.
S37 WEAR SUITABLE GLOVES.

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.

ECONOMIZER TREAT LIQUID



Rev.
004

16. Other information

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

R 8 CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE.
R36/37/38 IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.

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 / 08 / 09 / 13