



POSEIDON PROJECT

MESSINGAS ship&sea

MARINE WASTE AND CLEANING SYSTEM

REIMEX GROUP
ENTERPRISE NETWORK



MESSINGAS *ship&sea*



MULTIPURPOSE TREATMENT SYSTEM FOR MARINE APPLICATIONS

Complex for SMW treatment and pure water generation on board
of ships with service water and sea waste cleaning action

OVERVIEW

A lot of garbage appears in the process of normal exploitation of the ship and people's work, in other words, food waste, human waste and exploitation waste. The problem of its constant and periodic recycling appears as a result of waste collection. As previously garbage was thrown overboard, key problem of the world ocean pollution by waste from ships arose nowadays.

Global ocean is the source of living on the Earth, it forms our planet's climate, serves as source for atmosphere precipitations, more than a half of oxygen goes to the atmosphere from the ocean, and it also regulates the content of carbon dioxide in the atmosphere, as it is able to take up its excess.



THE TASK

The *global ocean* is the source of life on Earth

The impurity of the *global ocean* increases every year

POSEIDON project wants to contribute reducing
seawater pollution

MESSINGAS ship&sea technology was born to contribute to the
purification of marine areas, whilst making ships more eco-friendly
and less polluting



THE PROJECT

WHAT

- ❖ Reclaim the transit paths of the ships, collecting and recycling the waste dispersed at sea
- ❖ Introduce a new generation of waste disposal facilities on board of ships during their navigation
- ❖ Contribute to reducing the polluting effect of billions of cubic meters of waste water from marine services

WHY

- ❑ Our oceans and seas are infested with poisonous waste and sewage that have become part of the human biological cycle
- ❑ In our oceans, the presence of waste has reached a concentration of up to 290 billion fragments per square kilometer

HOW

- Use of our proprietary multifunctional plant technology called **MESSINGAS**



TECHNICAL SOLUTION

The technical characteristics of our plants allow to treat both the liquid and solid waste produced by the crew and passenger on board and the waste water generated during the ship operations.

In addition, a special intake facility collects the solid waste dispersed at sea, channeling the debris to the main solid waste system for treatment. The modular and plug-in concept facilitates to fit the intake tool and the main system different modules to each ship individual characteristics.

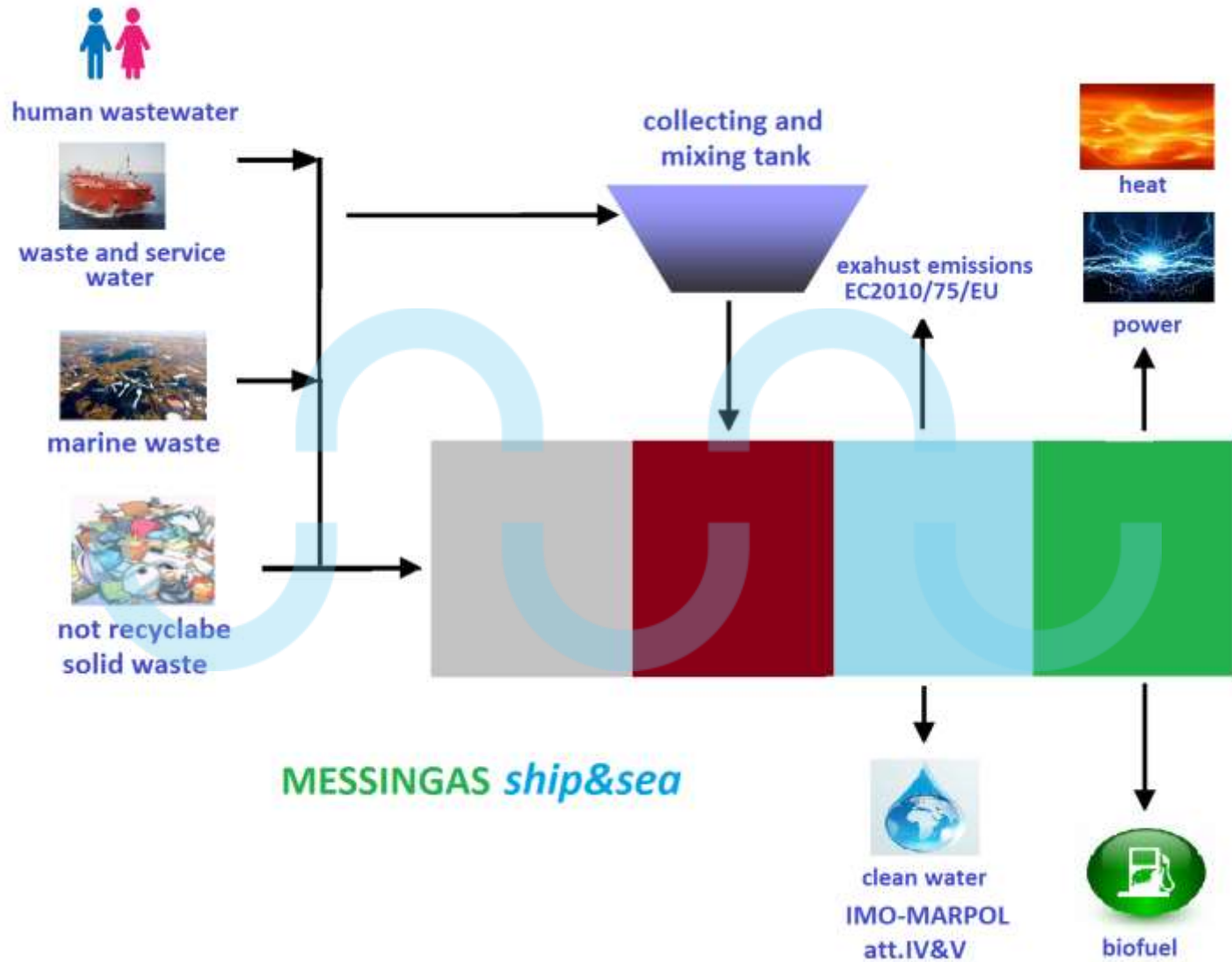
The process used in our technology neutralizes as well any biologically contaminated waste streams, contributing to reduce the sanitary and pollution hazard in the area of intervention.

The process generates power and heat for auto-consumption and can be used for supporting additional services.

No hazardous effluents, no dangerous exhausts, low temperatures regime and absence of pressure in the complex make the exploitation of the equipment safe.



CONCEPTUAL DESIGN



FEEDSTOCKS



MARINE WASTE



HUMAN WASTEWATER



UNSORTED WASTE



SERVICE WATER



FOOD WASTE

MAIN APPLICATIONS

The capability to process any kind of solid waste and wastewater from different origin, characteristics and pollution level, makes our system suitable for use in most of shipping services, like, but not limited to:

- Merchant ships**
- Passengers ships**
- Cruise ships**
- Service vessels**
- Navy**
- Humanitarian emergency vessels**



MAIN FEATURES

- *ship&sea* variable layout, modular design concept and plug-in installation philosophy can fit **EVERY SIZE** and **CLASS** of vessels
- *ship&sea* is compliant with with environmental code **IMO-MARPOL-att. IV&V** and **EC2010/75/EU**
- *ship&sea* can be used as **FIRST INTERVENTION** waste and sanitation system during **EMERGENCY** situations
- *ship&sea* can treat **ALL TYPE** of liquid and solid waste and does not need external energy supply but **WASTE FEEDSTOCK**
- *ship&sea* not invasive installation on board nearby existing systems **NO NEED TO DRY DOCK** the vessel for the installation (partially even during cruising)
- *ship&sea* may represent a secondary safe power generation system in case of shipwreck or unavailability of fuel supply
- **HIGH LEVEL OF SAFETY** – low temperature, no pressure, no chemical hazard, no bad smell, no dangerous exhaust

TARGET REGIONS CRITICAL ISSUES

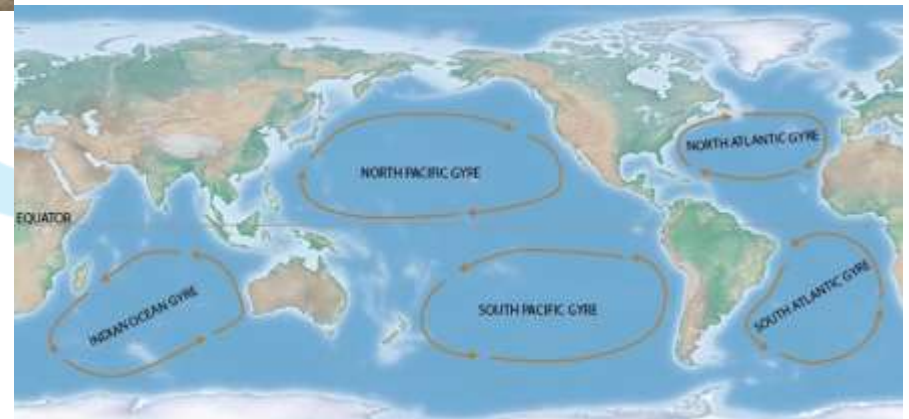


MEDITERRANEAN SEA

- ✓ Close sea surrounded by up to 350 millions people
- ✓ Average of 12 thousand ships crossing per year
- ✓ Up to one million waste particles per square km
- ✓ Toxic substances polluting the marine habitat

OCEANS MAIN GARBAGE ISLANDS

- ✓ Up to 10 million sqm total extension
- ✓ More than 270 ktons of plastic dispersed in the oceans on a total of 2,43 Mtons of garbage
- ✓ Up to one hundred thousand waste particles per square km
- ✓ Toxic substances and waste particles entering the human food chain





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