

# ECOTOR MARINE PE (FOR EXTRA EU COUNTRIES)

(Patent n. 1399476 – PCT n. IB2010/001505)

Technical data sheet July 2018

**presentation** **ECOTOR MARINE PE** is a bactericidal and ionizing additive based on salts and mineral micro and nanoparticles in powder form. This is an exclusive product that has been studied expressly for the treatment of ship bilges, but it can also be used as an anti-fermentation and anti-mold in any type solvent-based varnishes and water-based paints.

## FEATURES

**ECOTOR MARINE PE** is a mixture of silver salts and in micro and nanoparticles of mineral of tourmaline in powder form, which creates a valid antibacterial barrier against the adhesion of any organic and inorganic particles. Thanks to these features, the surfaces treated with products containing **ECOTOR MARINE PE** prevent the deposition of dirt and become bactericidal and self-cleaning under the action of water. This action remains active as long as **ECOTOR MARINE PE** remains on the surface.

The essential feature of **ECOTOR MARINE PE** is its capacity to emit electro-negative charges (ionization) on the surface of the paint and into the surrounding environment under any condition of light. Ionization enhances the bactericidal features of the nano particles of silver ions that compose **ECOTOR MARINE PE**, moving their action to the outside.

**ECOTOR MARINE PE** makes the water and the air cleaner and purer, and it substitutes the traditional bactericidal and anti-mold products, which belong to the category of poisons and heavy metals. Thus, water from ship bilges can be disposed of in the sea without damaging the marine ecosystem (due to the absence of traditional bactericidal products).

The extraordinary features of **ECOTOR MARINE PE** are proved by different university certifications concerning its bactericidal effect (*Università degli Studi di Urbino; Università degli Studi di Modena e Reggio Emilia*) and they are detectable by special equipments for the detection of ionization.

In the field of wall paints, instead, **ECOTOR MARINE PE** can block permanently the formation and the proliferation of molds in wet environments and it is therefore indicated for the treatment of any kind of environment with insufficient or no air recirculation, thus avoiding the mandatory re-treatment that traditional bactericidal products require.

Moreover, as it has been already explicated for the naval sector, **ECOTOR MARINE PE** is neither poisonous nor toxic at all during or after the application. On the contrary, it improves the hygiene of the surfaces treated and of the air and the liveability inside the rooms. The dispersant contained in the mixture makes the dispersion of the product easier and it greatly improves the homogeneity of the finished product.

## RESULTS OF THE ANTIBACTERIAL ACTIVITY

Tests carried out by Istituto di Scienze Tossicologiche Igienistiche e Ambientali - Università degli Studi di Urbino "Carlo Bo". Test report N.1/B/P/L.

The assessment was carried out on TSA plates, charged with the powder and inoculated with the microorganisms under consideration, with the "SPOT in SOLID" technique. The table shows the effectiveness of the powder on the four bacterial strains under examination, expressed as a percentage of reduction. The bactericidal efficacy on the four strains studied proved to be of 100%.

	Staphylococcus aureus ATCC 29213	Escherichia Coli ATCC 25922	Pseudomonas Aeruginosa ATCC 15442	Enterococcus Faecalis ATCC 49149
<i>Powder</i>	<i>% reduction</i>	<i>% reduction</i>	<i>% reduction</i>	<i>% reduction</i>
0,1%	100	100	100	100

Further tests showed a 100% reduction also of Legionella and Salmonella bacteria.

**ECOTOR MARINE PE** showed the property to both inhibit the growth of the micro-organisms and to kill them.

## USE

### SHIPBUILDING Sector

Varnishes with **ECOTOR MARINE PE** are used to treat ship bilges, places where bacteria of stagnant waters and decomposing bacteria proliferate. It works very well also in the other areas, where it has also an anti-smell and anti-particulate effect.

**CONSTRUCTION Sector**

**ECOTOR MARINE PE** is employed for its self-cleaning and sanitizing effect in the preparation of cement skim plasters and plasters for indoor and outdoor application, and for cement and silicate paints. Besides, it is normally used as a bactericidal, anti-mold and sanitizing product in water-based paints and in solvent-based varnishes, especially in wet and insufficiently aerated environments.

	Data	Method	
<b>TECHNICAL DATA</b>	<b>Composition:</b>	Elbaites and Uvites and micro and nanoparticles of silver	
	<b>State:</b>	Powder	Visual
	<b>Color:</b>	Light grey	Visual
	<b>Granulometry:</b>	Min. 95.0% < 5 µm	IST. 10.09
	<b>Water solubility</b>	Insoluble	IST. 10.21

**DOSAGE**

The recommended dosage of **ECOTOR MARINE PE** is normally of 1.5 – 2.5% on the solid components of the mixtures. However, it is advisable to carry out preventive tests on the specific mixtures in order to establish the most suitable and convenient dosage according to the expected results.

**STORAGE AND VALIDITY**

If it is stored in a dry place, in the original containers perfectly closed, **ECOTOR MARINE PE** has a 12 months validity from the date of the transport document. It is recommended to close the container with care after each collection.

**PRECAUTIONS**

Given the present state of our knowledge, there are no special recommendations for handling **ECOTOR MARINE PE**.

**PACKAGING**

10 and 25 kg paper bags, 10 kg plastic buckets.

The specifications stated in this report have been got either through standardized tests and rules or their modifications following NCT systems. The methods applied can be requested to our technical service.

All the data stated in this technical sheet are based on our knowledge and experience. However, before using the item differently from indicated, it is advisable to carry out preventive tests. In any case, NCT does not assume any responsibility for any damage or defect caused by the use of our products, as the employment conditions are not under our control. We also inform that our technical service is at our customers' disposal for any information concerning the correct employment of our products