



Alda Confraria

Hempel and the environment - painting a cleaner future

**C3P and NASA Technical Workshop
Lisbon, 8 - 9 September 2005**

HEMPEL



AGENDA



- **HEMPEL**
- **EU CHEMICALS LEGISLATION**
(a Paint Manufacturer's Perspective):
 - ❖ **REACH**
 - ❖ **SED - Solvents Emission Directive**
 - ❖ **BDP - Biocidal Products Directive**



AGENDA



- **HEMPEL**
- **EU CHEMICALS LEGISLATION**
(a paint's manufacturer's perspective):
 - ❖ **REACH**
 - ❖ **SED - Solvents Emission Directive**
 - ❖ **BDP - Biocidal Products Directive**



The Hempel Group



■ **The Hempel Group has:**

- Around 3400 employees in 82 countries
- 18 manufacturing plants
- 47 sales offices
- More than 130 stock points around the world

HEMPEL



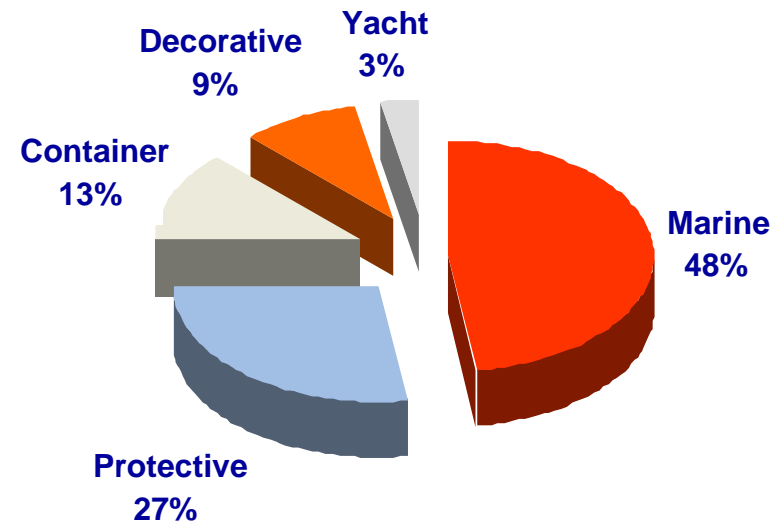
Hempel's activities



The five segments:

- **Marine and Container** are leaders in their segments
- **Protective** is a growing business
- **Decorative** is a strong regional business
- **Yacht** is a niche range, important in profiling Hempel

By segment (turnover 2004)

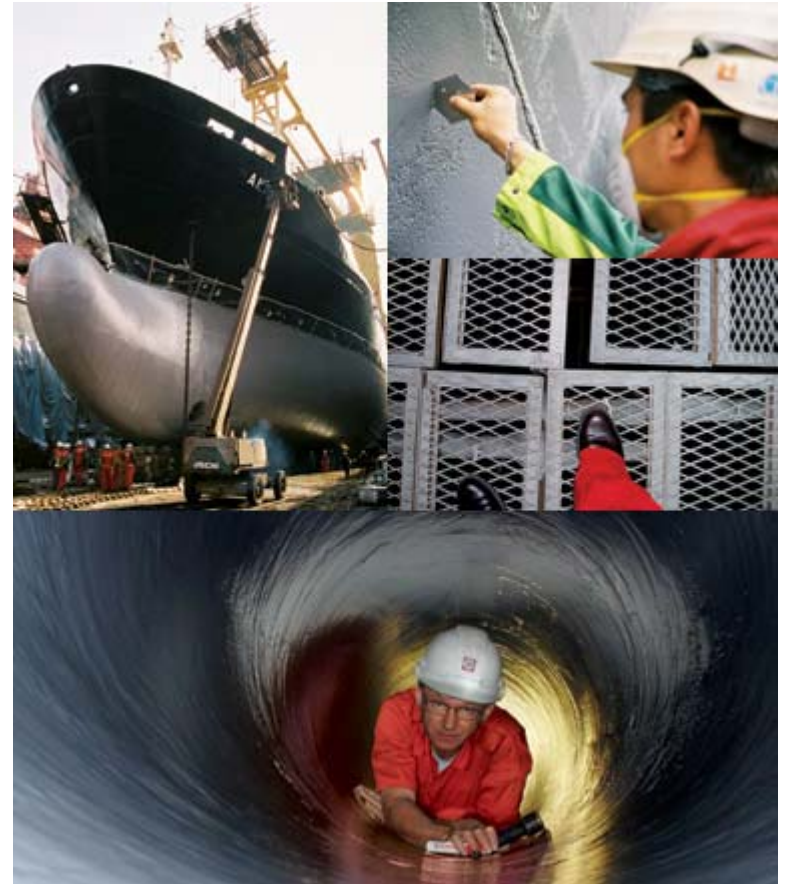


HEMPEL



Technical service

- Hempel offers extensive technical advice
 - Pre-sales
 - After-sales
 - Coating advisers on site
 - All highly qualified FROSIO and NACE



HEMPEL



Innovation

- Hempel has three global research and development centres and three regional/national centres
- The Research Centre in Copenhagen is the largest private coating research centre in the world



HEMPEL



Environmental Regulations

- a challenge to the paint industry

- Environmental regulations have been a continuous challenge to the paint industry.
- HEMPEL has been prepared to meet these challenges for many years with continuous research and development
- **HEMPEL – contribution to a cleaner world**
 - ❖ reduction of problematic emissions
 - ❖ substitution of components which are considered a risk to man or to the environment.



HEMPEL



AGENDA



- HEMPEL
- **EU CHEMICALS LEGISLATION**
(a Paint Manufacturer's Perspective):
 - ❖ **REACH**
 - ❖ SED - Solvents Emission Directive
 - ❖ BDP - Biocidal Products Directive



New EU-chemical policy

European Commission's White Paper for a new Chemical Strategy - published in 2001

REACH

New Chemical Regulation presented by the European Commission on
29 October 2003

Registration

Evaluation

Authorisation of
Chemicals



HEMPEL



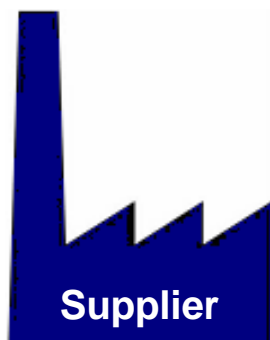
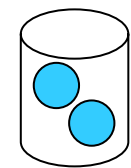
REACH – an overview

Supply Chain

USE



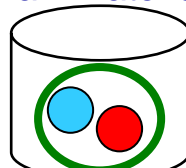
Substance



DU



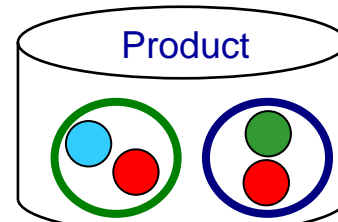
Raw material



DU



Product



Extended SDS

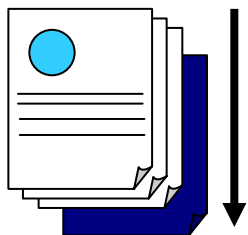


Customer

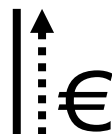
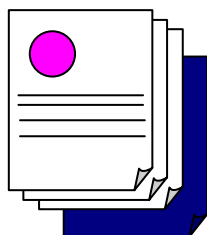
DU

Registration

Authorisation



€



EU Agency



Exposure Scenario describing how to use substance safely



Chemical Safety Report (CSR)



All substances produced > 1 ton/year/ manufacturer must be registered. (2009; 2012; 2017)



Problematic substances must have an authorisation before use

DU

Downstream User



EU Import from outside EU

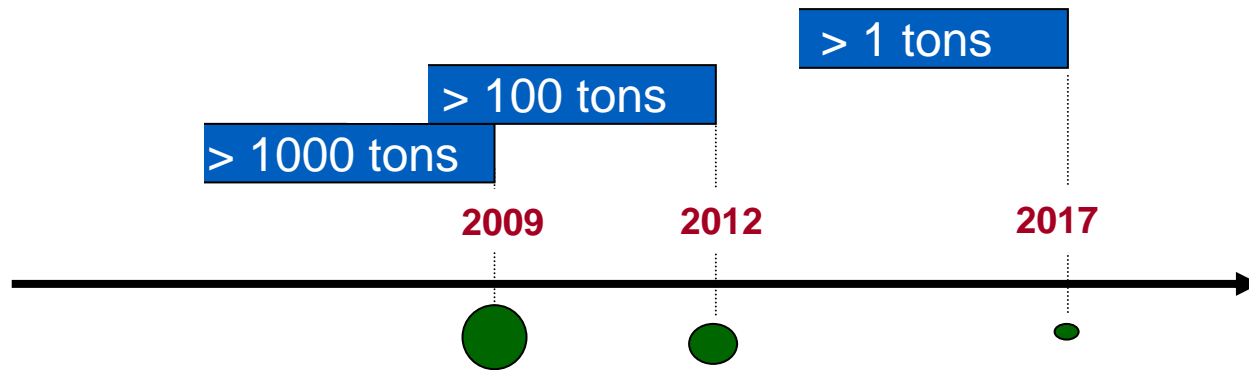


Key Concepts of REACH

▪ SUPPLY CHAIN

▪ REGISTRATION

dependant of production volume/year/producer



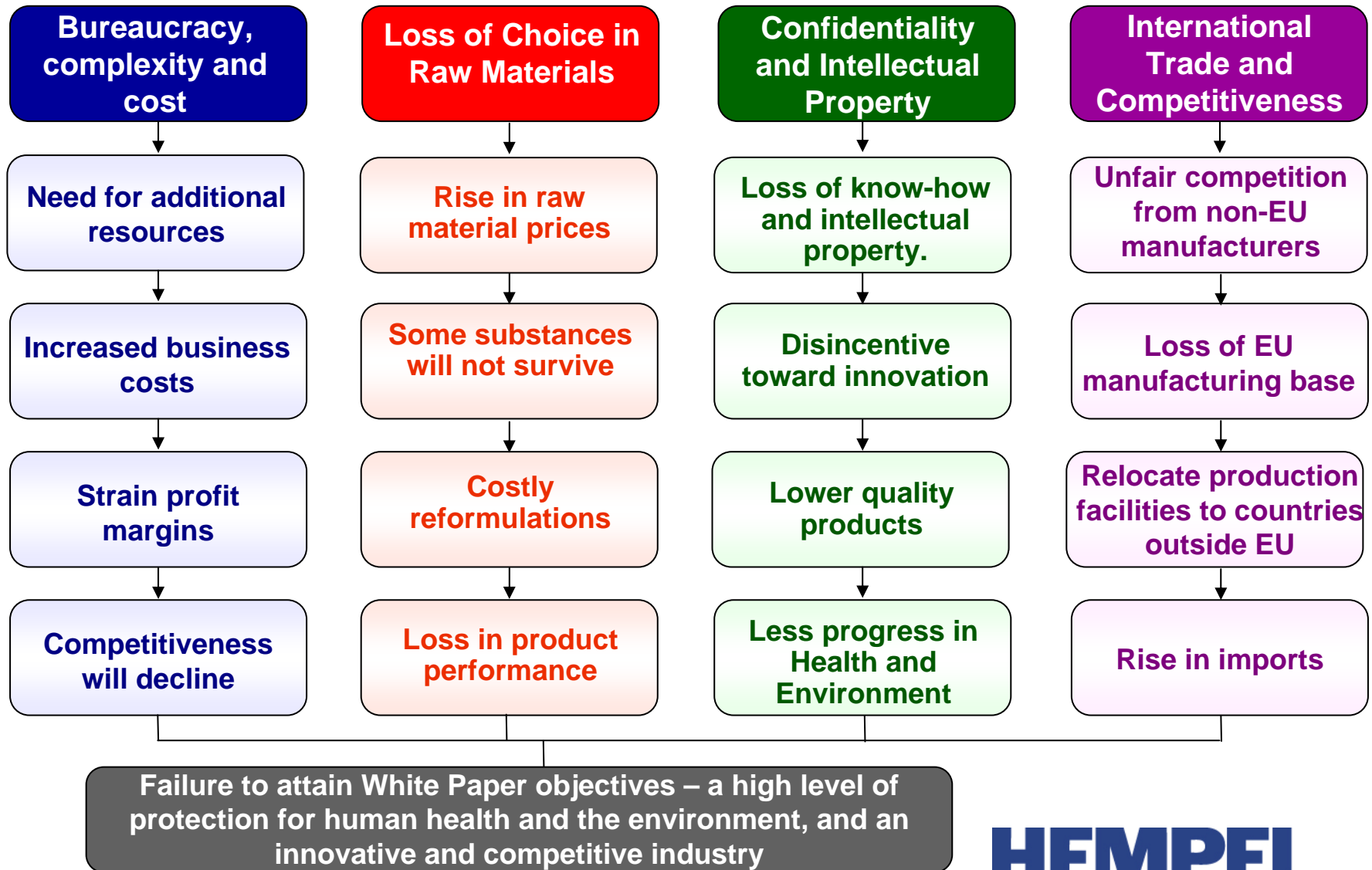
Time of
Registration

Registration deadlines if regulation is enforced by 2006

▪ AUTHORISATION



Main concerns about REACH





AGENDA



- HEMPEL
- **EU CHEMICALS LEGISLATION**
(a Paint Manufacturer's Perspective):
 - ❖ REACH
 - ❖ **SED - Solvents Emission Directive**
 - ❖ BDP - Biocidal Products Directive



Solvent Emission Directive (SED)

- Directive 1999/13/EC – came into force **March 1999**
- Objective: To limit the **emission of volatile organic compounds** due to the use of organic solvents in certain activities and installations



It also aims to phase out the use of more harmful solvents such as carcinogens, mutagens and those toxic to reproduction

- Scope: **20 different activities and installations** where a prescribed annual solvent consumption limit is exceeded

(Other coating, including metal, plastic, textile, fabric, film and paper coating (>5 solvent consumption in tons/year) - No. 8)



Solvent Emission Directive (SED)

Annex II A, no 8. Consumption and emission limits

Activity (solvent consumption threshold in tons/year)	Solvent consumption threshold in tons/year	Emissions limit values in waste gases (mg C/Nm ³)	Fugitive emission values (percentage of solvent input)
Other coating, including metal, plastic, textile, fabric, film and paper coating (>5)	5-15	100	25
	>15	50 drying processes 75 coating application processes	20



Key Issues of SED

Compliance options for VOC:

- Emission and fugitive emission limits (Annex IIA)
- Reduction scheme (Annex IIB).
Notification to regulator by **31 October 2005**
- Total emission limit values (Annex IIA)



A **Solvent Management Plan** may also be produced (Annex III)

All existing activities must comply with SED requirements by **31 October 2007**



SED

Article 5, Emission of specific VOC's

Substances / preparations containing VOC's assigned any of the following risk phrases:

R45: May cause cancer

R46: May cause heritable genetic damage

R49: May cause cancer by inhalation

R60: May impair fertility

R61: May cause harm to the unborn child

Substitution

(in the shortest possible time)

Substitution plan by
19 May 2004

**Hempel do not have
VOC-substances
with those phrases.**

Yes



If mass flow >
10 g/h
Emission limit:
2 mg/Nm³

No



If Halogenated & assigned R40
Limited evidence of carcinogenic effect
Mass flow > 100 g/h
Emission limit: 20 mg/Nm³

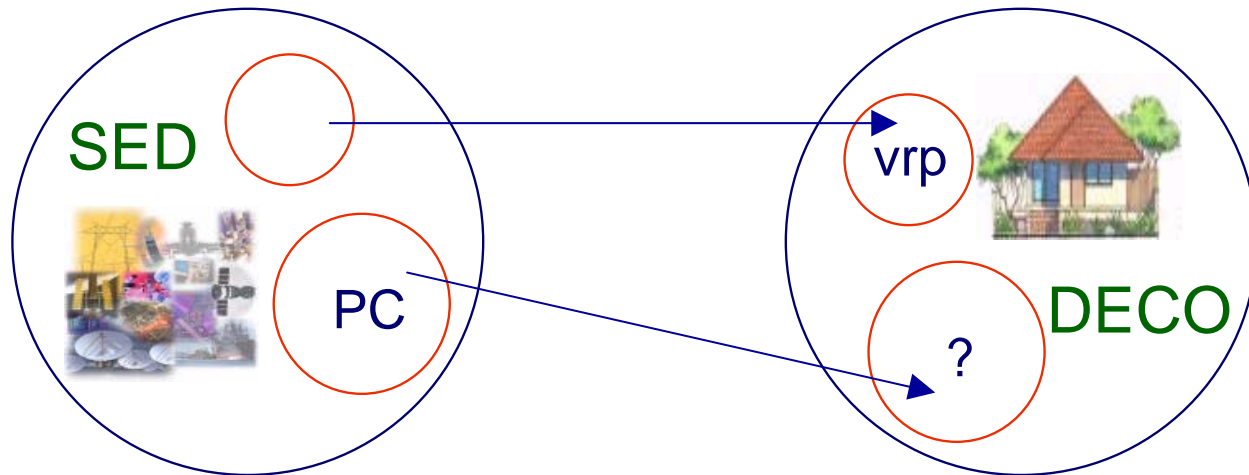
Mass flow: Flow of substance through chimney

HEMPEL



European Paint Directive

- Directive (2004/42/CE) - came into force **30 April 2004** - amending Directive 1999/13/EC
- Objective: To limit the total content of volatile organic compounds (VOCs) in certain paints and varnishes and vehicle refinishing products in order to prevent or reduce air pollution from VOCs.



- Member States have until **30 October 2005** to transpose the Directive into law
- The EPD has permitted VOC limit values for 2007 and 2010



European Paint Directive

Selected Maximum VOC content Limit Values for Decorative Paints and Varnishes

	Product Sub-category	Type	Phase I (g/l) 1.1.2007	Phase I (g/l) 1.1.2010
a	Interior mat walls and ceilings (Gloss < 25 @ 60 gr.)	WB	75	30
		SB	400	30
b	Interior glossy walls and ceilings (Gloss > 25 @60 gr.)	WB	150	100
		SB	400	100
c	Exterior walls of mineral substrate	WB	75	40
		SB	450	430

...

- The products shall carry a label when they are placed on the market.
- The label shall indicate the subcategory of the product.



AGENDA

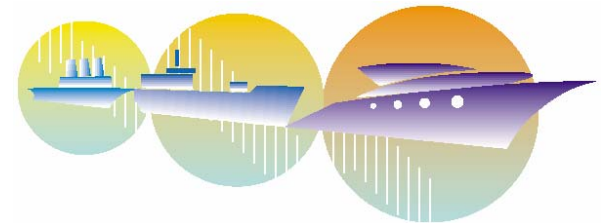


- HEMPEL
- **EU CHEMICALS LEGISLATION**
(a Paint Manufacturer's Perspective):
 - ❖ REACH
 - ❖ SED - Solvents Emission Directive
 - ❖ **BDP - Biocidal Products Directive**



Biocidal Products Directive (BDP)

- Directive 98/8/EC – entered into force **14 May 2000**
 - harmonise the European market for **biocidal products and their active substances**.
 - secure a high level of protection for humans and the environment.
- Scope: **23 different product types** in four main categories:
 - ❖ Desinfectants
 - ❖ Preservatives
 - ❖ Non-agricultural pesticides
 - ❖ Other biocidal products e.g.
(Antifouling products – PT 21)
- Data packages for existing active substances in antifouling paints – have to be submitted by **1 May 2006**. - Provisional list - ECB homepage (<http://ecb.jrc.it/biocide>).
- Product data packages – have to be submitted for authorization during **2008 – 2009**.



HEMPEL



IMO Antifouling System Convention

- in compliance with IMO (UN) recommendation



- Sale and application of TBT antifoulings has ceased under the 2001 IMO Antifouling System Convention.
- The treaty banned application from 1st January 2003 and **total prohibition on hulls by 1st January 2008.**



HEMPEL



The IMO Convention

- *not yet entered into force*

- Entry into force requires:
 - Ratification is being awaited to fully enforce the banRatification by 25 countries representing 25% of the merchant shipping tonnage

- Status of Convention by 31 July 2005:

- Contracting States:

- Denmark (first)
 - Sweden
 - Spain
 - Latvia
 - Norway
 - Antigua & Barbuda
 - Japan
 - Nigeria
 - Bulgaria
 - Poland
 - Romania



Represent 8,72 % world tonnage

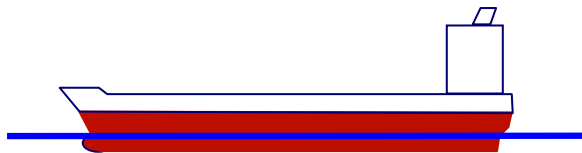


Successfull substitution of TBT

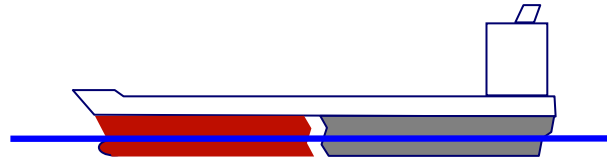
- in compliance with IMO (UN) recommendation

Ship's antifouling

- Until 1. Jan 2003:



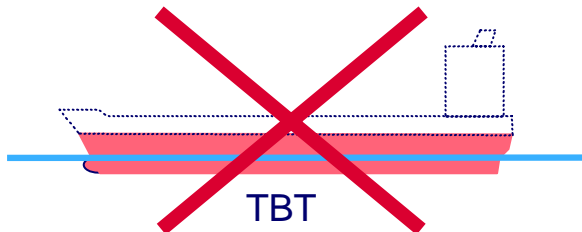
tin (TBT) - based paint



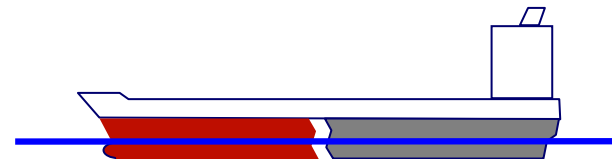
Alternative active ingredients- **GLOBIC**

Smooth surface (prevents organisms from sticking)- **HEMPASIL**

- After 1. Jan 2003: HEMPEL has been in full compliance world-wide



TBT



GLOBIC
OCEANIC
OLYMPIC

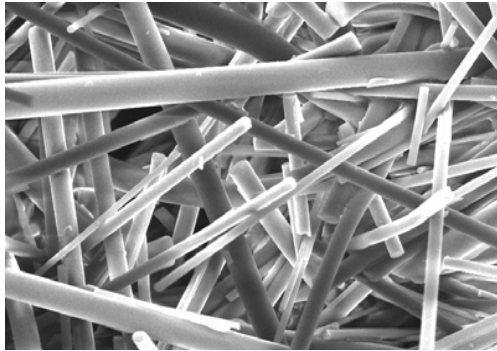
HEMPASIL

HEMPEL



GLOBALIC / OCEANIC / OLYMPIC

- the answer to the new generation TBT-free antifouling



- **Micro fibers (worldwide patent)**
- **Advanced biocides**
- **Low VOC emissions**
- **High volume solids - low paint consumption**
- **Optimised application work - fewer coats**

More than 2000 applications:



HEMPEL

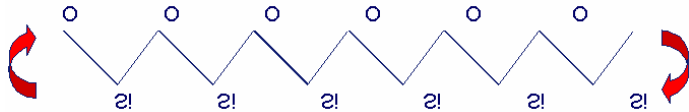


HEMPASIL

- the answer to the new generation TBT-free antifouling

Fouling Release Coatings

an environmentally friendly way of controlling fouling on maritime surfaces



- Biocide-free
- Fuel saving
- Low VOC
- Copper free

Applications:



HEMPEL



THANKS FOR YOUR ATTENTION

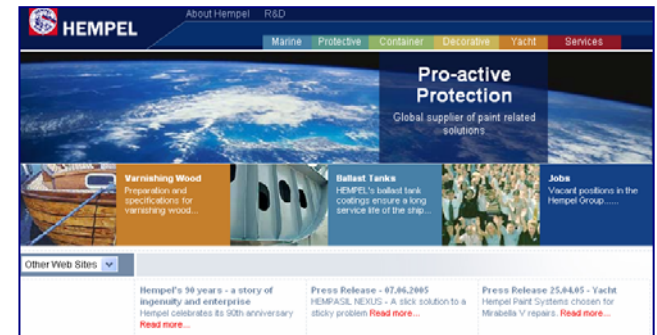
Alda Confraria

Hempel - Southern Europe Quality & HSE-P Manager

Email: amc@pt.hempel.com

Read much more about Hempel at

www.hempel.com



HEMPEL