

# IMO PSPC – Winners and Losers

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**International Paint**

2<sup>nd</sup> Annual NACE International Marine Coatings Summit  
Westin Chosun, Busan  
31<sup>st</sup> October 2008

# Agenda

- IMO MSC.215(82) Performance Standard for Protective Coatings
- The effects of the IMO PSPC
  - Shipyards
  - Ship owners
  - Coatings companies
    - TAC's
    - Site Audits
    - Shop primer TAC's of competitors products
    - Formulation change rules
  - Class societies
  - Overall

# IMO MSC.215(82) Performance Standard for Protective Coatings

- Introduced after significant losses of ships due to corrosion in ballast tanks
- Dedicated WBT of all Newbuildings >500 GT and double side-skin spaces in bulk carriers of 150m in length and above
- Designed to achieve a *target* coating lifetime of 15 years
- Improved corrosion protection via:
  - Improved steelwork, surface preparation and cleanliness prior to coating
  - Improved application control of coating schemes
  - Use of pre-qualified anticorrosive schemes only

# IMO MSC.215(82) Performance Standard for Protective Coatings

- Adopted at IMO MSC 82 on 8<sup>th</sup> December 2006
- Applies to Newbuildings when:
  - The building contract was placed on or after 1st July 2008, or
  - If no contract, the keel of which are laid on or after 1st January 2009
  - The delivery is on or after 1st July 2012
- Tankers and Bulk Carriers immediately due to IACS Common Structural Rules

# The effects of the adoption of IMO PSPC

- Shipyards
  - IMO PSPC developed in period of unprecedented fleet growth.
  - NB orderbooks have consistently risen over the past 10 years
  - Shipyards are producing record number of vessels.
  - New shipbuilding nations are emerging
  - Fast delivery of vessels is a **key operational driver** for shipyards who want to remain competitive

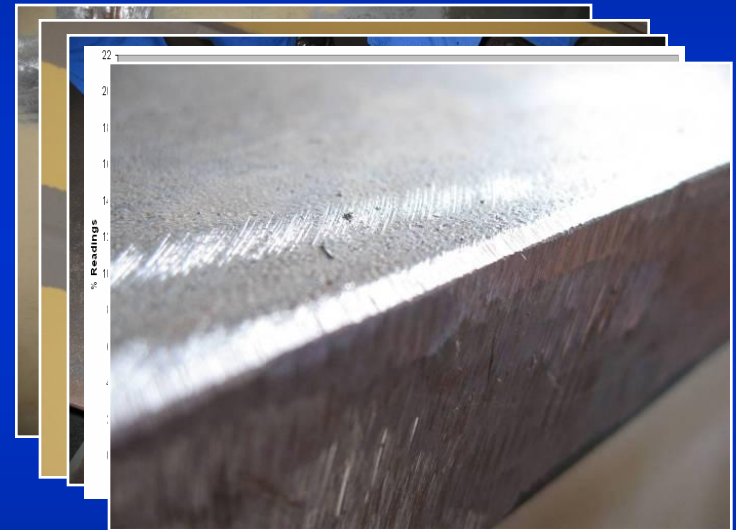
# The effects of the adoption of IMO PSPC

- Shipyards
  - Common global standard for the painting of water ballast tanks
    - Steelwork
    - Surface preparation
    - Application and inspection
    - Documentation
  - Some yards had very little to do in order to comply
  - Productivity will be effected



# The effects of the adoption of IMO PSPC

- Shipyards
  - Productivity issues
    - The hand preparation standard debate
    - The stripe coating debate
    - The salt level debate
    - The maximum film thickness debate
    - The edge preparation debate



# The effects of the adoption of IMO PSPC

- Ship owners;
  - Same coatings (in the main)
  - Consistent Newbuilding coating standards worldwide
  - Higher asset re-sale value
  - Reduction in un-planned maintenance
  - Better qualified coating inspectors
  - Little opportunity to challenge the standard of the work in any yard (though they still hold the cash!!)



# The effects of the adoption of IMO PSPC

- Coating companies
  - All products for WBT's must have a Type Approval Certificate
    - Main coating testing
    - Shop primer cross-over testing (including competitors)
    - Central formulation location audit
    - Manufacturing location audit
  - Qualified inspectors

# Type Approval Certificates – The Procedure

## Demonstration of performance

1. Documented 5 years in-service performance as “good” in accordance with IMO Resolution A744
  2. Use existing Marintek or DNV B1 test reports provided the formulations now supplied are the same as those tested (verified by IR finger print and SG measurements).
  3. Full test of system in accordance with Annex 1\* of MSC.215(82)
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- Are all ‘Approved laboratories’ able to interpret the test method and test results in the same consistent way?
  - Test laboratory should also have a PR34 (Z17) audit by each class society!!! Is this being done?

# Type Approval Certificates – The Procedure – As an aside

- After weathering shop primer should be low pressure washed or other mild method – who decides what other acceptable methods are?
- How wide and long is the scribe?
- The standard states that the tank is run for 2 weeks full and 1 week empty – *Originally DNV always left water in the bottom during the dry part so that the humidity was high – the CP panel was raised so that it was out of the water (and the tank was not rocking)*
- What happens if the shop primer shows any white rust or even red rust?
  - Some will be seen – particularly around the U-beam
  - How much is allowed and what is the allowable preparation method?

# *Type Approval Certificates – The Procedure – As an aside*

- How much water is put into the tank and what angle is the tank rolled?
- How long do you wait after the test before carrying out the tests
  - Is the flexibility of the heated panel measured when it is still hot or after it has cooled down? The two results would be different
  - Same for the creep testing – We believe that NACE testing requires that panels are rested for 2 weeks prior to testing.
- How do you measure undercutting from the scribe on shop primers? We can imagine lots of confusion here.

# Type Approval Certificates – The Procedure

- Type Approval Certificates (TAC's) will be issued by a recognised organisation (generally class) if the following criteria has been satisfied
  - Documented evidence of performance
  - Audit of the supply site (IACS PR34)
  - IR fingerprint of all products (including shop primers)
  - SG's of all products
  - IMO PSPC compliant Technical Data Sheet
  - Money (with each class society charging a different rate)

	<b>Protective Coatings for Water Ballast Tanks and Double-side Skin Spaces</b>
	Certificate No: <b>MNDE/2008/2595</b>
	Page 1 of 2
<p>This is to certify that the protective coating system manufactured at the plant below is in compliance with IMO Resolution MSC.215(82) <i>Performance Standard for Protective Coatings for Dedicated Seawater Ballast Tanks in all Types of Ships and Double-side Skin Spaces of Bulk Carriers (PSPC)</i> adopted on 8<sup>th</sup> December 2006.</p>	
<p>This approval is granted in accordance with the PSPC, IACS Regulations and LR Rules. The surface preparation and application requirements specified in the product technical data sheet (PTDS) have been reviewed and comply with the PSPC. This approval does not cover properties other than corrosion prevention, such as service life, safety or toxicity etc.</p>	
<p>The approval is subject to Lloyd's Register being informed of any changes in the product's formulation, specification or status of manufacturing quality control accreditation. Periodic auditing of the manufacturer's quality control and assurance systems will confirm compliance. Lloyd's Register reserves the right to withdraw or re-issue this certificate.</p>	
Manufacturer:	<b>International Paint Limited</b> <b>Stonegate Lane, Felling, Gateshead,</b> <b>Tyne &amp; Wear, NE10 0JY</b> <b>U.K.</b>
Coating system:	<b>Intershield 300</b>
Product code(s):	<b>ENA300, ENA301</b>
Curing agent:	<b>ENA303</b>
Applications	<b>Water ballast tanks and double-side skin spaces</b>
Notes:	<ol style="list-style-type: none"><li>1. Surface preparation and coating application should be carried out in accordance with the manufacturer's PTDS.</li><li>2. Product approved for use with the compatible shop primers listed on page 2, or on clean blasted bare steel.</li></ol>
Date of issue:	<b>29 January 2008</b>
Date of expiry:	<b>31 January 2013</b>
<div style="text-align: right;"> Richard Dawson Surveyor to Lloyd's Register EMEA A member of Lloyd's Register Group</div>	
<small>Lloyd's Register, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register Group'. The Lloyd's Register Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.</small>	

# Type Approval Certificates – Approval of manufacturing sites

- Formulating site (or technical control site) **AND** the manufacturing site need to be successfully audited by the recognised organisation (generally class)
- Most class societies will want to issue their own site audits.
  - Some class societies are insisting on auditing each site
  - Some will audit selected sites and issue blanket approval
  - Others will use existing audit reports, but will still want to issue their own approval
- No class mutual recognition
- Difficulty in getting reports of the actual site audit
- Inconsistent messages from the members of IACS

# Type Approval Certificates – Formulation changes

- How much of the formulation can you change?
- Why do you need to change formulations anyway?
  - RM like for like substitutions (RM supplier stops supply)
  - Unable to source exact local RM's
  - Incremental improvement in performance for yard or owner
  - Regulations such as REACH in Europe.
- Need to agree
  1. Changes that can be made without notifying recognised organisation
  2. Changes that can be made where Recognised Organisation (RO) is informed but no re-test is required
  3. Changes that when made require a full re-test

# Type Approval Certificates – Formulation changes

- Currently, an IPPIC formulation change rule (agreed by coatings companies) has been proposed.
  - The proposal is with IACS Expert Group for consideration
  - Our understanding is that all IACS members with the exception of one are agreeing to the formulation change rules.
  - Potential stalemate for IACS.
  - We may have to agree formulation change rules on a case-by-case basis with individual class societies
  - A unified message from IACS would have been a great benefit.



# Type Approval Certificates – Shop primer validation

- IMO PSPC allows for application of epoxy anticorrosive system over a competitors zinc silicate shop primer;
  - The shop primer must have been through a full test (Marintek/DNV) as part of a full anticorrosive system
  - The epoxy anticorrosive must have been through a full test (Marintek/DNV) over a zinc silicate shop primer
  - The full system (that is required in this case) has passed a 'cross-over' test



# Type Approval Certificates – Shop primer validation

- Epoxy anticorrosive supplier needs to source relevant test samples of competitors shop primer
- Determine whether the shop primer has been through a full test, and preferable get access to the test report (from who??)
- Carry out a cross over test (including IR spectrum of the tested shop primer)
- Some Class societies have refused to issue a TAC for an epoxy system over a competitors shop primer until they have seen the shop primer full test report
  - How is that going to happen?
  - **Shipyard using the shop primer should supply full test report to anyone who wants it.**

# Type Approval Certificates – Shop primer validation

- What happens if the shop primer manufacturer changes the shop primer formulation?
  - The shop primer manufacturer would know about the change before any other paint manufacturer
  - Would therefore be able to get full approval of the shop primer
  - AND approval with all their epoxy anticorrosives, even before the change was made public
- Who is responsible for informing other paint companies that a shop primer formulation change has been made?
  - Shipyard
  - Trade coater/Steel plate supplier
  - Shop primer manufacturer
  - Trade Associations

# Type Approval Certificates – Shop primer validation

- CEPE has agreed to produce a list of 'approved' IMO PSPC shop primers.
- List is on the CEPE website

Company name	Product name	Approved by	Approval date	Approval reference number	Remarks
PPG Protective @ Marine Coatings	DSP 1M	DNV (Marintek)	18/09/2006	BGII-R2706342	
Jotun	Muki Z 2001	Horsok/DNV	1/12/2004	BGII R-2705235	
International Paint	Interplate 937	DNV	18/06/2002	BGII-R270259	
	Interplate 937	DNV	26/01/2004	BGII-R2703411	
	Interplate 997	DNV	19/12/2000	BGII-R2700359	
	Interplate 997	DNV	19/12/2000	BGII-R2700358	
	Interplate 997	Marintek	3/02/1999	2,111,55	
	Interplate 997	Marintek	30/07/1999	78,1220,01	
	Interplate 0	DNV	19/01/2004	BGII-R2703409	
	Interplate 0	DNV	24/08/2004	BGII-R2704092	
SigmaKalon Marine & Protective Coatings BV	Sigmaweld 199	Marintek	21/10/1998	78.1149.03	
Hempel	Hempel's Shopprimer ZS 15890	DNV	21/03/2001	BGII-R2701002	
	Hempel's Shopprimer ZS 15890	DNV	23/04/2002	BGII-R2702055	
	Hempel's Shopprimer ZS 15890	DNV	19/06/2003	BGII-R2703174	
	Hempel's Shopprimer ZS 15890	DNV	19/06/2003	BGII-R2703175	
	Hempel's Shopprimer ZS 15890	DNV	27/01/2006	BGII-R2705263	
	Hempel's Shopprimer ZS 15890	DNV	30/01/2006	BGII-R2705264	
	Hempel's Shopprimer ZS 15890	DNV	30/01/2006	BGII-R2705266	
	Hempel's Shopprimer ZS 15890	DNV	30/01/2006	BGII-R2705267	
	Hempel's Shopprimer ZS 15890	DNV	30/01/2006	BGII-R2705268	
	Hempel's Shopprimer ZS 15890	DNV	30/01/2006	BGII-R2705265	
	Hempel's Shopprimer ZS 15890	DNV	17/08/2006	BGII-R2705480	
	Hempel's Shopprimer ZS 15890	DNV	29/11/2006	BGII-R2706469	

# Type Approval Certificates – Shop primer validation

Company name	Product name	Approved by	Approval date	Approval reference number	Remarks
Chugoku	Welbond HM	DIIV	30/10/2001	BGIH-R2701443	
	Welbond HM	DIIV	30/10/2001	BGIH-R2701445	
	Welbond HM	DIIV	30/10/2001	BGIH-R2701444	
	Cerabond 2000	DIIV	7/05/2003	BGIH-R2703034	
	Cerabond 2000	DIIV	18/12/2003	BGIH-R2703408	
	Cerabond 2000	DIIV	7/05/2003	BGIH-R2703040	

- Whilst a list of shop primers was published, CEPE has not indicated how a shop primer change would be notified, to allow all paint companies to carry out the 6 month [8 month in total] cross-over test

# Approval of Inspector Training

- The IMO PSPC calls for paint inspector to be qualified;

## 6.1 General

6.1.1 To ensure compliance with this Standard, the following shall be carried out by qualified coating inspectors certified to NACE Coating Inspector Level 2, FROSIO Inspector Level III or equivalent as verified by the Administration.

- Cost of NACE Level 2 - \$4,000 (for both level 1 and 2)
- Cost of FROSIO inspector Level III - \$4,000/person
- The recognised organisation (generally class) can approve an equivalent qualification. There is no IACS mutual recognition of this

# Approval of Inspector Training

- Some class societies are happy to consider 'equivalent' qualifications
  - LR famously qualified KACE very early.
  - This qualification was originally seen as an IACS qualification
- Others however, are developing their own 'qualifications'
  - Revenue earning.
- At the moment, approval of 'equivalent' qualifications has to be given by each individual class societies (those that will) even though NACE and FROSIO is accepted by everyone.

# The effects of the adoption of IMO PSPC



- Class societies
  - IACS members as ‘Recognised Organisations’ have a big responsibility
    - They ultimately decide what is acceptable and what is not
    - They ultimately decide the interpretation of the standard
    - They ultimately decide what is ‘equivalent’ and what is not
    - They ultimately have authority to approve coating systems
    - They ultimately have responsibility to approve laboratories
    - They ultimately have responsibility to approve paint manufacturers facilities
    - They are also in a competitive environment and are not independent



# The effects of the adoption of IMO PSPC



- Class societies
  - IACS members as 'Recognised Organisations' have a big responsibility
  - Inundated with Z17 (PR34) manufacturing sites audits (not all class societies have procedures in place for doing this)
  - Inundated with requests for Type Approval Certificates for every combination of epoxy system and shop primer including all possible competitors shop primers
    - Huge delays in getting reports and TAC's
    - Inconsistent requests from class (e.g. IR spectra)
  - Opportunity to offer services
    - Training courses

# The effects of the adoption of IMO PSPC

- Overall
  - We must not forget that IMO PSPC was implemented to save lives (SOLAS regulation)
  - The condition of water ballast tanks coated in accordance with the IMO PSPC should last for 15 years and longer with minimal routine maintenance
  - Vessels should maintain a higher asset value
  - Reduction in the requirement for 'special' surveys due to water ballast tank condition

# Is 15 years lifetime is achievable

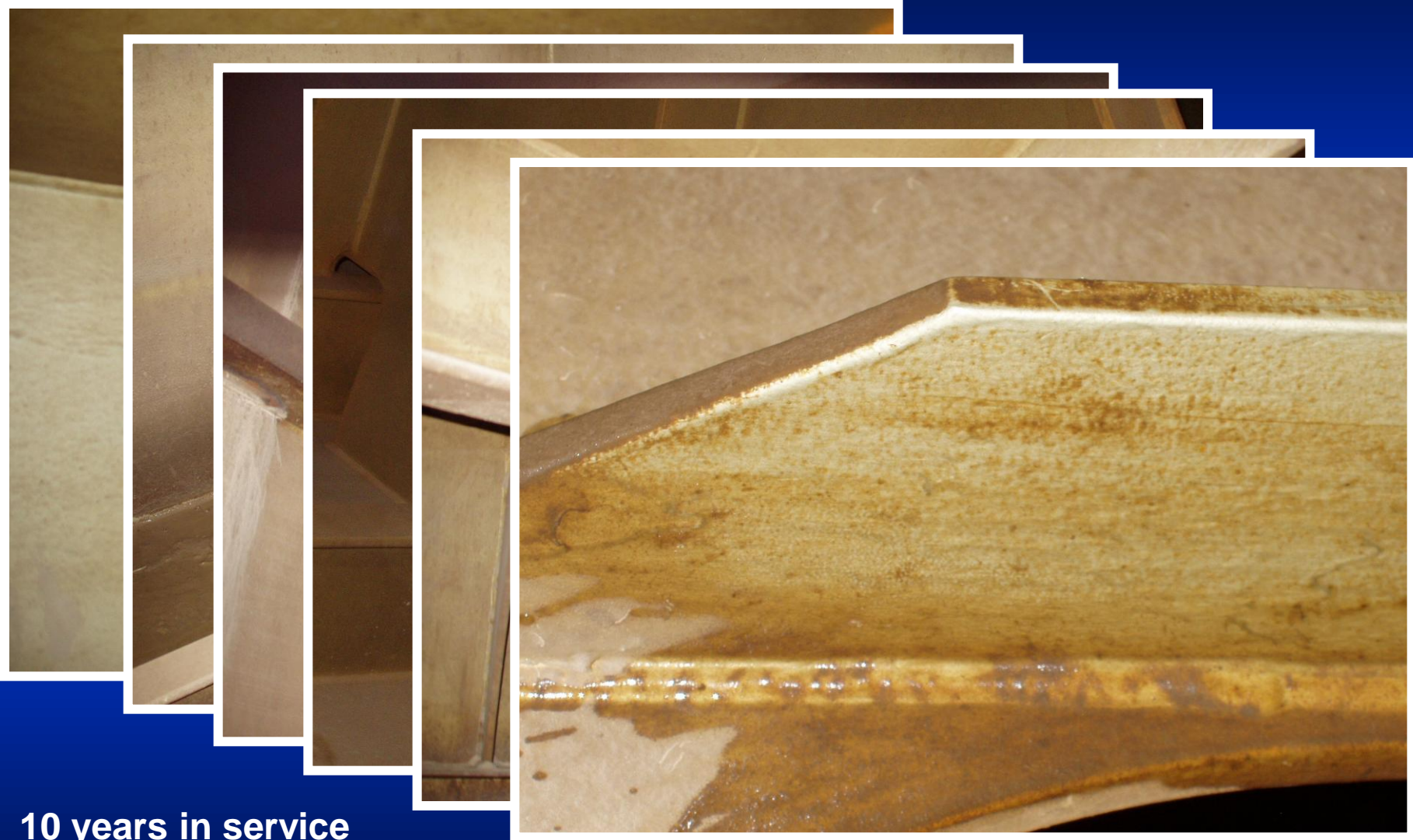
- How can we be sure that the test in the IMO PSPC that lasts 6 months can predict the condition of a coating in 15 years?
- We can't.....
- However, the test adopted was the only recognised industry test at the time and has been developed over many years
- Are there coatings out there that we know will have a 15 year lifetime?
- Proof that careful selection and sensible application of a good quality coating can achieve the desired result.....

# 9 years and counting



9 years in service

# 10 years and counting



10 years in service



# 13 years and counting



13 years in service

# So who are the winners and who are the losers?

- Winners
  - Seafarers
  - Owners
  - Class societies
- Losers
  - Shipyards
  - Coating companies
  - Class societies

# Summary

- The adoption of the IMO PSPC is a good thing for the marine shipping industry
- All interested parties are working hard to ensure that implementation occurs smoothly
- There are still issues to be resolved
- There still needs to be dialogue
- Mutual recognition by IACS members would help everyone
- And finally, we must not lose sight of why this standard was introduced and what it is trying to achieve.



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