

Introduction to IMO Performance Standard for Protective Coating of seawater ballasttanks

MiD Training – Moerdijk 12 March 2012

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1 Class vs PSPC



- Scope of application of these regulations:
 - According to MSC.216 (82) (statutory)
- Main requirements
- How to Review the documentation
- How to monitor the coating inspection

RESOLUTION MSC.215(82)

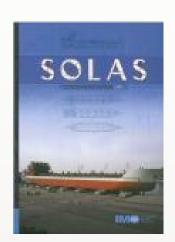
(adopted on 8 December 2006)

PERFORMANCE STANDARD FOR PROTECTIVE COATINGS FOR DEDICATED SEAWATER BALLAST TANKS IN ALL TYPES OF SHIPS AND DOUBLE-SIDE SKIN SPACES OF BULK CARRIERS

1 Application of PSPC



- SOLAS (regulation II-1, 3-2)
 - -> 500 GT and above
 - -> self propelled
 - -> dedicated seawater ballasttanks



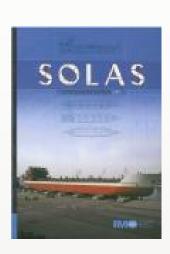
So, not applicable to smaller ships, stationary units or ships with tanks with 'technical freshwater'.

1 Application of PSPC



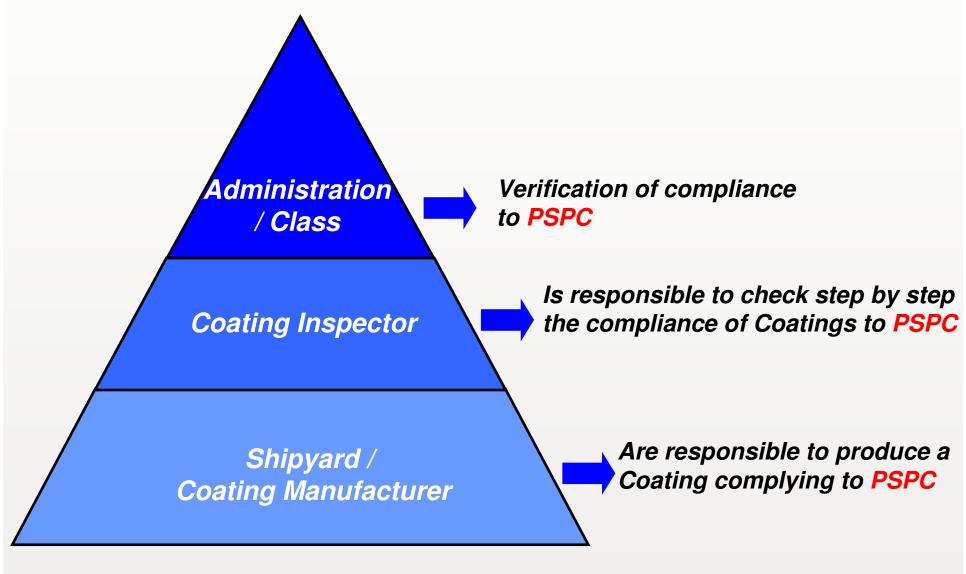
SOLAS (regulation II-1, 3-2)

- building contract > 1/7/2008 or
- keellaying > 1/1/2009 or
- delivery > 1/7/12



1 PSPC General Principles





1 Coating works - IMO PSPC



Seven main steps to be considered:

- Scope or description of the work
- Materials (Product selection)
- Surface preparation
- Coating Application
- Inspection
- Repairs
- Documentation

1 Coating works - IMO PSPC



For a new construction

These 7 main steps are to be considered at three main phases:

Phase 1: Planning and specification of coating works

Tripartite agreement and basic technical documents

Phase 2: Performance of coating works

Coating work records by the qualified Coating Inspector (CI)

Phase 3: Verification of records after the completion of construction works

The Coating Technical File (CTF)

1 Coating works - IMO PSPC



BV Surveyor' activities: three main phases identified

Phase 1: Prior to the commencement of coating works

Review of the tripartite Agreement and referred technical documents

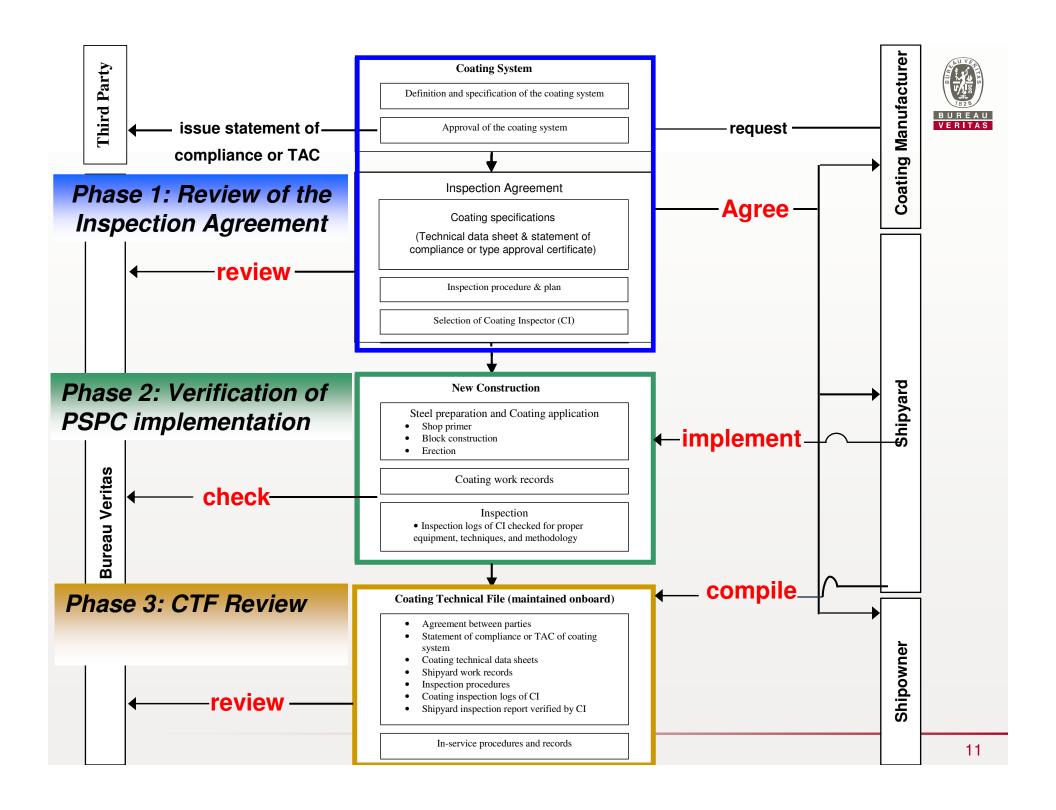
Phase 2: During the performance of coating works

Check at random the inspection works by the CI

Phase 3: After the completion of coating works

Check the CTF (at random basis)

2 The phases



2a Phase 1: Review of the Inspection Agreement

2a IMO PSPC BV Tasks/ Action



Items	Tasks	Action / Unit Verification		
1 N°	Coating System Type Approval by Bureau Veritas	Local office and HO		
2	Review of the Inspection Agreement on surface preparation and coating process	The Inspection Agreement on surface preparation and coating process agreed between Shipyard, Shipowner and Coating Manufacturer is to be reviewed by qualified BV Surveyor		



Reviewed as per IMO MSC.215 (82) 06 June 2008 X. Durand

2a Phase 1: Review of Inspection Agreement



Is to cover at least the following:

IACS

The scope of inspection,

IMO

- Who carries out the inspection,
- The qualifications of the coating inspector(s) and appointment,
- The areas of responsibility of each coating inspector.
- To facilitate the review, the following shall be available:
 - Coating Specification including selection of areas (spaces) to be coated, selection of coating system, surface preparation and coating process,
 - Statement of Compliance or Type Approval of the coating system,

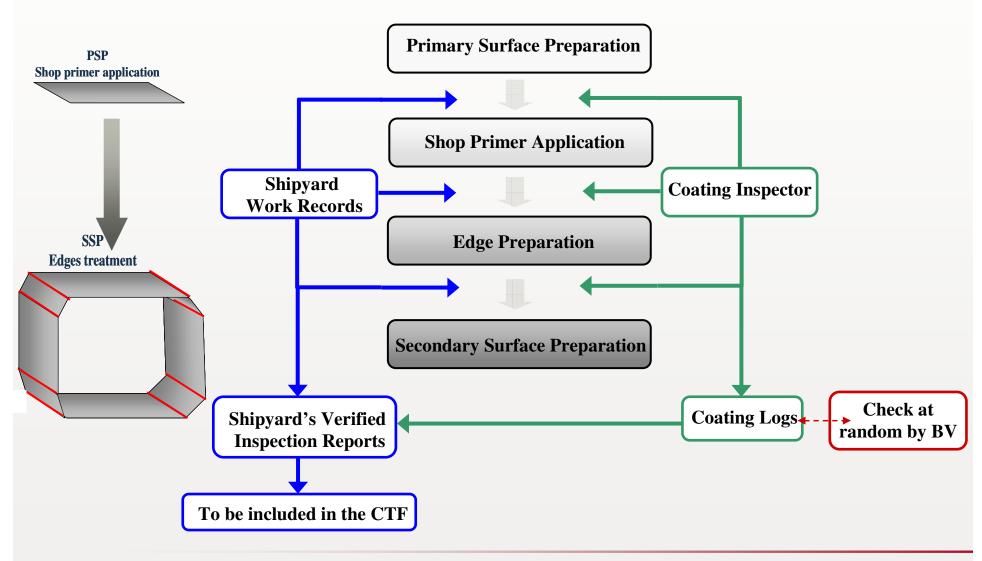




Coating Process



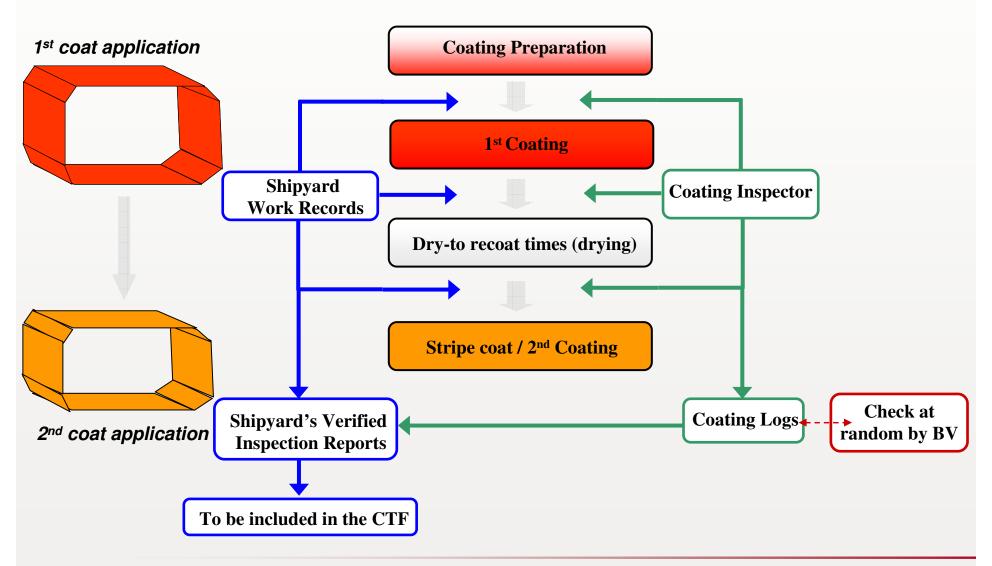
Coating process scheme new building – surface preparation



Coating Process



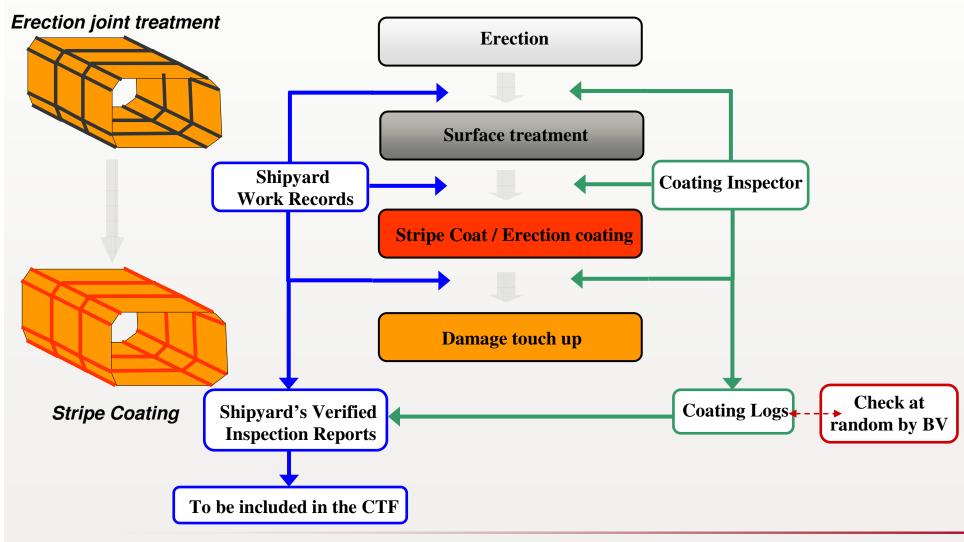
Coating process of blocks



Coating Process



Coating process scheme during new building





- ► Procedure for Verification of PSPC implementation
 - Checklists may be used by the BV Surveyor.

- Shipyard name and address:
- Ship Register Number:
- Date:
- BV Office:
- Surveyor's Name:

N°in PSPC	Item N°	Check the TAC	S*	F*	Evidences / Remarks
§7.1	I.1.2 - Coating System Approval	Check that the Statement of Compliance (SOC) or Type Approval Certificate (TAC) of the coating system(s) attests compliance with the PSPC.			
II - Check the coating identification representative containers					
N°in PSPC	Item N°	Check during the Patrol Survey	S*	F*	Evidences / Remarks
§7.2	II.1.1 – Base component Identification on containers (Epoxy coating)	Check that the Base component indicated on the container corresponds to the Base component given in the SOC or TAC.			Record batch number or container number, if any, of the container checked
§7.2	II.1.2 – Curing Agent component Identification on containers (Epoxy coating)	Check that the Curing Agent component indicated on the container corresponds to the Curing Agent component given in the SOC or TAC.			Record batch number or container number, if any, of the container checked



► Check the coating inspector's report (coating log) on sampling basis

At least one coating log(s) of each type shall be reviewed:

- Coating log Primary Surface Preparation
- Coating log Secondary Surface Preparation
- Coating log Coating Application
- Coating log Erection works
- ► Check the coating inspector's equipment used on sampling basis, as laid down in the inspection agreement









- Coating Inspector equipment required by FROSIO
 - Note book
 - Surface Preparation ISO standard (ISO 8501-1, 8501-2)
 - Torch
 - Mirrors + Telescope pole
 - Surface profile comparator (ISO 8503-1)
 - Lens (G ×5 , ×10 , ×30)
 - Adhesive tape for dust rating evaluation (ISO 8502-3)
 - Bresle patch + syringe + Conduct meter (ISO 8502-6, ISO 8502-9)
 - Plastic or glass beaker for abrasive contamination evaluation (ASTM D 4940)
 - White paper or chiffon for compress air pollutant control
 - pH paper
 - Psychrometer or electronic Hygrometer





- Coating Inspector equipment required by FROSIO
 - Contact thermometer
 - Dew Point and RH% calculator table (Ix diagram)
 - Chalk
 - · Wheel gage
 - Calibrated thickness gage + calibrate shims and metallic support
 - PIG
 - Daily log
 - Prosity detector (High and low voltage)
 - Pull off tester
 - · Viscosity cup
 - Filter paper + Potassium Hexacyanoferrate
 - Distilled water





N° in PSPC and <u>in PR 34</u>	ltem N°	Check during the monitoring of coating inspections	S*	F*	Evidences / Remarks
§7.5 and §4.1.1	D.4 - Check the correct equipment for the extraction of water soluble salts	Check that the Coating inspector is equipped with: • Standard Adhesive Patch (Bresle patch), • Distilled or de-ionized water, • Syringe and needle,			
§7.5 and §4.1.1	D.5 - Check the correct equipment for water soluble salts content control	 Check that the Coating inspector is equipped with: Glass beaker of convenient size and shape for housing the electrode end of the conductometer, Calibrated conductometer, with temperature compensation and sufficient range, e.g. from 0 mS/m (0 μS/cm) to 200 mS/m (2000 μS/cm). 			
§7.5 and §4.1.1	D.6- Check the correct equipment for dust control	Check that the Coating inspector is equipped with: Adhesive tape, consisting of pressure sensitive tape of width 25 mm, Display board, of colour contrasting to that of the dust, for use as a background, Hand lens, capable of magnification x 10.			



2c IMO PSPC BV Tasks/ Action



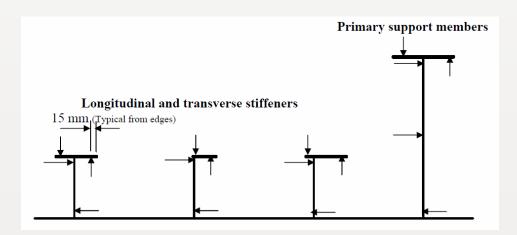
- **▶** CTF content
 - TAC of coating systems used
 - Technical data sheets
 - Shipyard work records of coating application
 - Includes a large number of DFT measurments
 - Procedures for repairs during construction
 - Coating log of Cl
 - Procedures for in-service maintenance and repairs of coating system

2c DFT measurements



▶ CTF content

- . DFT measurments (annex 3 of MSC 215)
- -> 320 mu
- -> 90/10 rule (90% of readings is > 320 mu AND none of the remaining 10% readings is below 0,9 X 320 mu)
- 1 reading per 5 m2 flat surface
- 1 reading each 2 3 meter
- 4 readings each 2 3 m on profiles
- + more

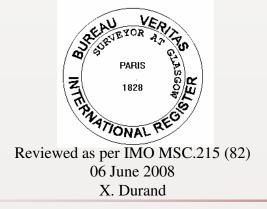


2c IMO PSPC BV Tasks/ Action



Items	Tasks	Action / Unit Verification
N ° 4	CTF documentation review for content	Qualified BV Surveyor is to review for content the CTF documentation submitted by the Shipyard.

•The BV stamp shall be affixed on the CTF final version.

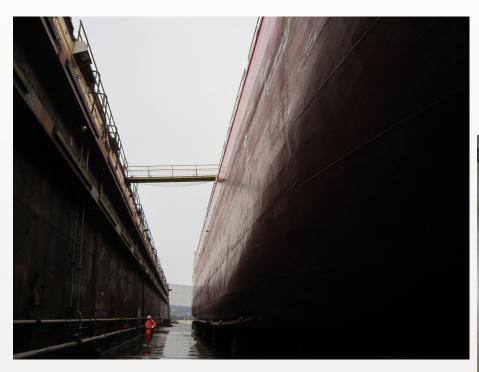




3 CTF in-service



► PSPC fully applicable during repairs of those seawater ballasttanks build under PSPC during newbuilding!









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