

Implementation of PSPC in China Shipbuilding

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Abstract

PSPC has already been adopted for over two years .During this period, China shipbuilding industry has been paying high attention to the enforcement of the new coating standard. Such as the improvement of facilities, construction process, technology and management level, and setting up certification system of marine coating inspectors, etc.

After PSPC has been implemented for two years, most of China mainstay shipbuilding enterprises have built ships according with the demand of PSPC. And through the implementation of PSPC, also found some irrational contents in PSPC, and we would be appreciated to have PSPC reviewed and make it more perfect than usual.

1 Introduction

On July 1 2008, PSPC was adopted by MSC216(86), China shipbuilding industry has been paying high attention to the enforcement of the new coating standard for more than two years, and has got improvement in

technology of construction and management substantially, established certification system of marine coating inspectors , set up the coating qualification laboratory authorized by the government.

After having implemented PSPC for two years, China's shipbuilding enterprises have got ability to build ships complied with PSPC, meanwhile, through the implementation of PSPC, we found irrational contents in PSPC, PSPC should be revised properly.

2 Implementation of PSPC

From 2009, China's shipbuilding enterprises have gradually started to build ships complied with PSPC; application of PSPC is as follows.

2.1 setting up specialized internal coordination groups in shipbuilding enterprises

In order to make each department in shipyards to work efficiently, specialized internal coordination groups or equivalent groups have been set up in shipyards, which are responsible to coordinate the work of each department in shipyards, carry out the management and inspection of the construction process and check the job of each department in shipyards.



Fig.1 Internal coordination group

2.2 In order to ensure the construction process up to PSPC, Shipbuilding enterprises have done some technology researches on shipbuilding and adopted the new techniques during construction process.

(1) Carried out The Inspection agreement for paint of Dedicated Seawater Ballast Tanks in all type of ships and Double-side Skin Spaces of Bulk Carriers

In order to ensure implementation of Performance Standards on Protective Coatings (PSPC) on ships built by the shipyards ,and to correspond coating inspection process, inspection of surface preparation and coating processes agreement shall be agreed among shipyard, ship owner and coating manufacturer.

This agreement has an explicit view that coating inspectors shall be dispatched by shipyards, which are responsible for carrying out

coating inspection with assistance and instructor from representatives of paint manufacturer. Ship owner has supervisory authority to the inspection of inspectors, and may spot check the inspection results at any moment.

Representatives of the shipyard, the ship owner and the coating manufacturer shall be qualified coating inspectors certified to PSPC, by who CTF is signed and the event of any discrepancy is solved.

(2) Carrying out the relevant standards and guidance documents on PSPC

1) Guideline for implementation of Performance Standards on Protective Coatings (PSPC) during ship construction

The guideline is considered for the purpose of IMO/MSC.215(82) PSPC requirement, according relevant China National Standards, China Shipbuilding Industry Standards, IACS PR34,IACS UI223,Guideline for implementation of MSC.215(82) performance standard of protective coating(draft) by IACS industry JWG/coating group and so on. In the guideline, requirements have been carried down, such as technical and inspection requirements of the surface pretreatment, coating application of every stage, and the submission and confirmation requirements of CTF, etc.

At the same time, the requirements of ships construction up to PSPC have been stipulated, such as treatment of steel edges, design for reservation

length of welding, the design of stick parts, the defect treatment of the structure surface, controlling steel deformation caused by welding, the construction of pre-outfitting production and leakage test on block stage, etc.

By implementing the guidelines prescribed in the relevant contents, damage areas of coating could be greatly reduced up to PSPC, and the cost and cycle of ships construction would be decreased.

2) Require of painting techniques and technology for ballast tanks
“Require of painting techniques and technology for ballast tanks” has been adopted as China shipbuilding industry standards.

This standard provides technical requirements for surface preparation, painting tasks of each stage, safety, inspection and technical documents of painting of ballast tanks of ships.

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Require of painting technics and technology for ballast tanks
(征求意见稿)

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Fig.2 Sample of “Require of painting techniques and technology for ballast tanks”

3) Assessment and calculating method for damaged coatings area for marine ballast tanks

“Assessment and calculating method for damaged coatings area for marine ballast tanks” has been adopted as China shipbuilding industry standard.

This document prescribes the sorts and definitions of coating damages for ballast tanks of ships, and the assessment and calculation method of defective areas of coating for ballast tanks of ships, etc.

This standard is to be applied for the dedicated seawater ballast tanks of new ships and double-side skin spaces of bulk carriers; it also can be used for reference to other tanks.

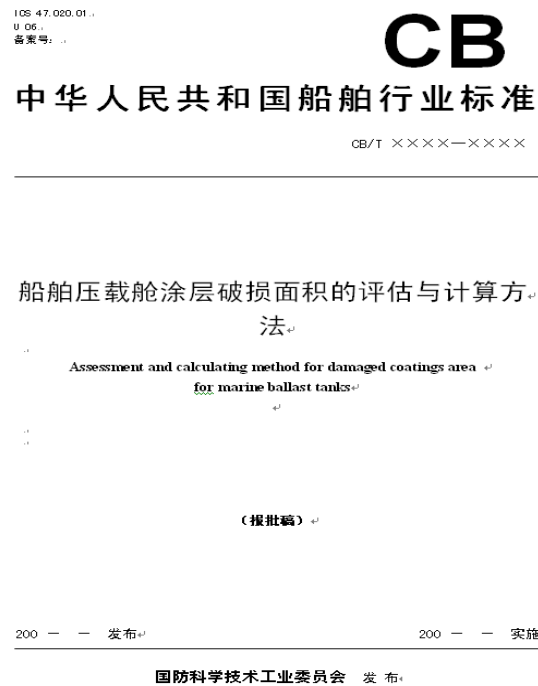


Fig.3 Sample of “Assessment and calculating method for damaged coatings area for marine ballast tanks”

(3) Technology research and utilization in shipbuilding

1) Improvement and increase of technology in key production processes, such as improvement on precision of the block production so as to decrease altering work on dock/quay stage.

2) Improvement of pre-outfitting production designs, and carried out standards for the outfitting technology.

3) Modified methods of welding, parameters of welding and welding

sequence.

4) Made guidelines of leakage test in block stage.

5) Got clear technical requirements of installing and dislodging hook.

6) Modified methods of staging installing.

7) Specialized route ways in ballast tanks for staffs for protecting paint film.



Fig.4 Pre-outfitting production

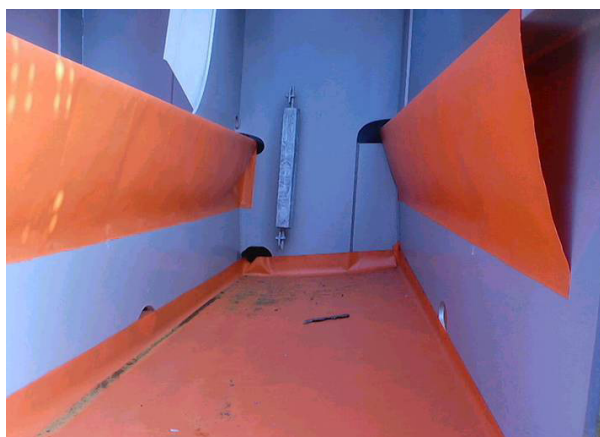


Fig.5 Protection for paint film

2.3 Training

Technical training has been given to employees on designing, manufacturing, management and construction of ships.

Such as the standards dissemination work ; methods of grinding to R2; training course for welders and coating inspection; skills of modification of structure designing and improvement on construction technology, etc.



Fig.6 Sample plates of structure treatment

3 Suggestion of revision

PSPC requires that the roughness after the first and second surface treatment is among 30-75 μm in accordance with ISO 8503-1/2: 1988. (Preparation of steel substrates before application of paints and related products – Surface roughness characteristics of blast-cleaned steel substrates.)

ISO 8503-1/2: 1988 describes a visual and tactile method for assessing

the grade of profile that has been produced by blasting on steel surface, and the limits of profile grades are defined as “Fine”, “Medium” and “coarse”.

But in PSPC, requirement of roughness is among 30-75 μm , not using profile grades defined in ISO 8503-1/2 ,such as “Fine”, “Medium” or “coarse”. The expression of roughness is not uniformity; shipyards always feel puzzled about assessing the grade of profile during construction.

Therefore, amendment job should be done in accordance with ISO 8503 - 1/2: 1988, “30 – 75 μm ” statement in PSPC should be replaced by “Medium” defined in ISO 8503 – 1/2.