

GUIDELINE FOR IMPLEMENTATION OF MSC.215(82)

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

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1 Preface

The purpose of this Guideline is to provide guidance for implementation of “*Performance Standard for Protective Coatings for dedicated seawater ballast tanks in all types of ships and double-side skin spaces of bulk carriers* (hereinafter referred to as “PSPC”)” referred in the amendments to regulations II-1/3-2 and XII/6 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended adopted by resolution MSC.216 (82).

本指南旨在为进行MSC. 216 (82) 会议通过的SOLAS第 II-1/3-2和 XII/6.条修正案中所引入的PSPC所要求的执行提供指导。

The terms used in this Guideline have the same meaning as those defined in PSPC.

本指南中所引用的术语与 PSPC 中的定义相同。

2 Definitions

For the purpose of this Standard, the following definitions apply:

下列定义适用于本标准：

2.1 *Ballast tanks* are those as defined in the guidelines for the selection, application and maintenance of corrosion preventions systems of dedicated seawater ballast tanks (resolution A.798(19) and the Guidelines on the enhanced program of inspections during surveys of bulk carriers and oil tankers (A.744(18), as amended)

压载舱 为 A.798 (19) 和 A.744(18) 决议所定义的那些压载舱。

2.2 *Dew point* is the temperature at which air is saturated with moisture.

露点 为空气所含潮气饱和时的温度。

2.3 *DFT* is dry film thickness.

DFT 为干膜厚度。

2.4 *Dust* is loose particle matter present on a surface prepared for painting, arising from blast cleaning or other surface preparation processes, or resulting from the action of the environment.

灰尘为呈现在准备涂漆表面上的松散的颗粒性物质，是由于喷射清理或其他表面处理时产生的，或由于环境作用产生的。

2.5 *Edge grinding* is the treatment of edge before secondary surface preparation.

边缘打磨 系指二次表面处理前对边缘的处理。

2.6 “*GOOD*” condition is the condition with minor spot rusting as defined in resolution A.744(18).

“良好” 状况 系指 A.744 (18) 决议定义的有少量点锈的状况。

2.7 *Hard coating* is a coating that chemically converts during its curing process or a non convertible air drying coating which may be used for maintenance purposes. Can be either inorganic or organic.

硬涂层系指在固化过程中发生化学变化的涂层或非化学变化、在空气中干燥的涂层。硬涂层

可用于维护目的，类型是无机的或有机的。

2.8 *NDFT* is the nominal dry film thickness. 90/10 practice means that 90% of all thickness measurements shall be greater than or equal to NDFT and none of the remaining 10% measurements shall be below 0.9 x NDFT.

NDFT 为名义干膜厚度。90/10 规则的意义是指：所有测量点中 90%的点的测量值应大于或等于 NDFT，余下 10%的点的测量值均应不小于 0.9×NDFT

2.9 *Primer coat* is the first coat of the coating system applied in the shipyard after shop primer application.

底漆 是指在钢材预处理线涂装车间底漆后，在船厂（按建造技术规格书）规定的涂层系统所涂装的第一道涂层。

2.10 *Shop-primer* is the prefabrication primer coating applied to steel plates, often in automatic plants (and before the first coat of a coating system).

车间底漆 是指钢材预处理时涂装在钢板表面的底漆，通常在自动化车间（即：钢材预处理流水线）喷涂，（在规定的涂层系统的第一道涂层之前，即 2.9 项所定义的底漆之前）。

2.11 *Stripe coating* is painting of edges, welds, hard to reach areas, etc., to ensure good paint adhesion and proper paint thickness in critical areas.

预涂 是指对关键区域，如：边缘、焊缝、不易喷涂区域等位置的预先涂装，以保证这些区域良好的涂层附着力和合适的漆膜厚度。

2.12 *Target useful life* is the target value, in years, of the durability for which the coating system is designed.

目标使用寿命 为涂层系统设计寿命的目标值，以年计。

2.13 *Technical Data Sheet* is paint manufacturers' Product Data Sheet which contains detailed technical instruction and information relevant to the coating and its application.

技术规格书是涂料生产商的产品规格书，包含与涂料及其涂装有关的详细技术性说明和资料。

3 Application (SOLAS vs IACS)

The Performance Standard for Protective Coating (PSPC), made mandatory by SOLAS II-1, A-1, Reg. 3-2, was adopted by the IMO Maritime Safety Committee (MSC 82) in Istanbul, 8 December 2006.

PSPC 标准已在 2006 年 12 月 8 日 的 MSC82 次会议上通过 , 并引入 SOLAS 第 II-1 章 A-1 部分第 3-2 条要求强制执行。

For SOLAS the dates of entry into force are:

SOLAS 强制生效时间:

For ships of not less than 500 gross tonnage:

适用于不小于 500 总吨的船舶:

1. for which the building contract is placed on or after 1 July 2008, or

2008 年 7 月 1 日或以后签订建造合同的船舶 ; 或

2. in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 January 2009, or

无建造合同, 在 2009 年 1 月 1 日或以后铺龙骨或处于类似建造阶段的船舶 ; 或

3. the delivery of which is on or after 1 July 2012.

于 2012 年 7 月 1 日或以后交船的船舶。

The coating application (including steel surface preparation etc) shall be in conjunction with:

涂装施工 (包括钢材表面处理等) 应满足如下要求:

Coating system approval:

涂层系统的认可:

Statement of compliance or Type Approval issued by a third party

第三方提供的合格证明或型式认可证书

Coating inspection:

涂装检验

To be carried out by qualified coating inspectors certified to NACE Coating Inspection level 2 or FROSIO Inspector level III or equivalent, during coating process, to ensure compliance with the Standard. Inspection results to be included in the Coating Technical File.

为保证符合本标准, 在涂层过程中下列事项应由具有 NACE 检查员 2 级或者 FROSIO 检查员 III 级资格或同等资格的涂装检查人员完成。检查结果将包含在涂层技术文件中。

Verification:

验证

To be carried out by the Administration or recognized organization, consisting of:

应由主管机关或主管机关认可的组织进行下列各项工作：

- a. reviewing the Coating Technical File

审核涂层技术文件

- b. checking the Technical Data Sheet and Coating system approval

核查技术规格书和涂层系统型式认可证书

- c. checking the coating identification on representative containers

核查代表性包装桶上的涂料标识与技术规格书和符合证明或型式认可证书标识的涂料一致；

- d. checking that the coating inspectors are qualified and check their reports

核查检查员的资质并核查检查员关于表面处理和涂层的涂装报告

- e. monitor implementation of the coating inspection requirements.

监督涂层检查要求的执行

For IACS the dates of entry into force are:

IACS 强制生效时间

For ships covered by the IACS Common Structural Rules (CSR), PSPC applies

Ballast tanks of Double hull oil tankers with $L \geq 150$ m and
Ballast tanks of bulk carriers with $L \geq 90$ m,
Double skin void spaces bulk carriers $L \geq 150$ m

the standard was applied by IACS after adoption by MSC 82 on 8 December 2006, as decided by the IACS Council.

IACS 的共同规范中，要求 2006 年 12 月 8 日 之日及以后签订建造合同的船长为 90m 以上散货船,150m 以上油船压载水舱,和长为 150 米以上的散货船双舷侧处所，必须符合 IMO 的涂层标准。

For uniform handling of CSR until 1 July 2008, IACS has adopted a Procedural Requirement (PR No. 34) covering guidelines and procedures for:

IACS 发布了(PR No. 34)程序要求

- Type Approval of coatings

涂层系统型式认可程序

- Assessment of coating inspectors' qualifications
- Administrations' engagement in inspection procedure agreement
- Verification of application of the PSPC
- Review of Coating Technical File.

检验员资格评估认可程序·

主管机关关于检验协议程序·

验证 **PSPC** 应用情况程序·

涂层技术文件审查程序

4 General Principle for Inspection

The objective of the coating inspection is to ensure that the required minimum level and quality of protective coatings by PSPC is adequately applied.

涂层检查的目的是保证保护涂层的质量标准满足 **PSPC** 的最低要求

It is recognized that in practice it is almost impossible to obtain a perfect coating that has no small imperfections, even with the best execution of this standard. Such perfect coating may only be possible under laboratory conditions. With this in mind inspectors should have a common understanding of what is the acceptable minimum level of quality of protective coatings intended by the application of this standard.

应该清楚的是，实际的涂装施工做到一点缺陷没有是不可能的，应是尽可能的实施该标准。完美的涂层仅可以在实验室条件下实现。基于此，检验员应知道该标准在实施过程中的最低可接受标准，确保该标准的实施。

For example, the check points for DFT measurements for the judgment of 90/10 rule are clearly indicated in annex 3 of PSPC, but this cannot guarantee that 90/10 rule is perfectly achieved for the entire surface. The common understanding is that such a sampling method is enough for making the judgment, and if the sample measurements do not satisfy the criteria, additional spot checks should be taken for any area considered necessary by the coating inspector.

例如，**PSPC** 标准附件 3 中已经明确描述了 **90/10** 规则干膜厚度测量取点方法，但不能保证 **90/10** 规则完全适应全部的表面。统一的理解是这种取样方法已经可以进行判断，如果有这种取样测量方法不能满足标准的要求的地方，检查员可以在认为需要的区域增加测量点。

Unless expressly provided otherwise in PSPC (for example annex III) and this Guideline, inspection by sampling and statistical method should be adopted to the extent necessary for making practical judgment. This means that the extent of inspection could vary, depending on the quality control of shipyards, to ensure that the required minimum level and quality is achieved.

除了在 **PSPC** 标准和指南中已明确的部分外，可采用取样检测和统计的方法做出涂层质量的判断，这意味着检查的程度是各式各样的，依靠船厂的质量控制来保证达到 **PSPC** 标准要求的最低质量标准。

5 Qualifications

5.1 Coating Inspectors

涂层检查人员

5.1.1 PSPC Requirements

PSPC 要求

(1) *Basic requirements*

3 GENERAL PRINCIPLES

3.2 *Inspection of surface preparation and coating processes shall be agreed upon between the shipowner, the shipyard and the coating manufacturer and presented to the Administration for review. The Administration may, if it so requires, participate in the agreement process. Clear evidence of these inspections shall be reported and be included in the Coating Technical File (CTF) (see paragraph 3.4).*

表面处理和涂装过程的检验应该由船东、船厂和涂料生产商达成一致，并提交给主管机关审查。如有要求，主管机关可参与到协议过程中。应报告这些检验的明确证据并包括在涂层技术文件中（CTF）（见第 3.4 段）

6 COATING INSPECTION REQUIREMENTS

6.1 General

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

为保证符合本标准，下列事项应由具有 NACE 检查员 2 级、FROSIO 检查员 III 级资格或主管机关承认的同等资格的涂层检查人员完成。

6.1.2 *Coating inspectors shall inspect surface preparation and coating application during the coating process by carrying out, as a minimum, those inspection items identified in section 6.2 to ensure compliance with this Standard. Emphasis shall be placed on initiation of each stage of surface preparation and coatings application as improper work is extremely difficult to correct later in the coating progress. Representative structural members shall be non-destructively examined for coating thickness. The inspector shall verify that appropriate collective measures have been carried out.*

涂装检查人员应检查整个涂装过程的表面处理和涂装施工，做为最低要求，应至少进行第 6.2 节中的检查项目，保证符合本标准。检查重点应放在表面处理和涂装施工各阶段的起始，因为不恰当的工作在以后的涂装过程中很难纠正。应采用非破坏性的方法检查主要结构件的涂层厚度。检查员应保证正确执行全部的检验过程。

6.1.3 *Results from the inspection shall be recorded by the inspector and shall be included in the CTF (refer to annex 2, Example of Daily Log and Non-conformity Report).*

应由检查人员记录检查结果，并应放入 CTF 中（参考附录 2 - 检查日志和不符合报告的样本）

7 VERIFICATION REQUIREMENTS

The following shall be carried out by the Administration prior to reviewing the Coating Technical File for the ship subject to this Performance Standard:

.1 *check that the Technical Data Sheet and Statement of Compliance or Type Approval Certificate comply with this Standard;*

核查技术规格书和符合证明或型式认可证书符合本涂层性能标准；

.2 *check that the coating identification on representative containers is consistent with the coating identified in the Technical Data Sheet and Statement of Compliance or Type Approval Certificate;*

核查代表性包装桶上的涂料标识与技术规格书和符合证明或型式认可证书标识的涂料一致；

.3 *check that the inspector is qualified in accordance with the qualification standards in paragraph 6.1.1*

按第 6.1.1 段的资质标准核查检查员的资质；

- .4 *check that the inspector's reports of surface preparation and the coating's application indicate compliance with the manufacturer's Technical Data Sheet and Statement of Compliance or Type Approval Certificate; and*

核查检查员关于表面处理和涂层的检验报告，确认符合涂料商的技术规格书和符合证明或型式认可证书一致；

- .5 *monitor implementation of the coating inspection requirements.*

监督涂层检查要求的执行。

5.1.2 Guidance

- 1 The choice of coating inspectors should be part of the inspection agreement

Any of the parties involved in the inspection agreement have the right to request for replacement of the inspector who is deemed unsuitable or unsatisfactory.

If the parties to the agreement consider that such a request is justified, the inspector shall be replaced as soon as convenient.

涂层检查员的选择应该是检查协议的一部分。任何在检查协议中的一方都有权要求更换在船舶建造的进程中被认为不适合或不理想的检查员。如果协议各方认为这样的要求是合理的，检查员应尽快更换。

- 2 If the coating inspectors require additional test, measurement and inspection above the requirement of this section, the inspector has to have clear reason but he has the right to require additional measurement.

如果检查员要求 增加 本部分要求以外的试验，测定和检验，检查员要有明确的理由方可进行。

- 3 If the coating inspectors requires assistance from other persons to do the part of the inspections under the coating inspector's supervision, those persons shall be to the coating inspector's satisfaction.

如果检查员需要助手协助其完成部分检验工作, 助手应在检查员的监督之下并达到检查员的满意

6 Coatings 涂层

6.1 Coating Systems 涂层系统

6.1.1 PSPC Requirements PSPC 需求

(1) Basic requirements 基本要求

Table 1—Basic coating system requirements for dedicated seawater ballast tanks of all type of ships and double-side skin spaces of bulk carriers of 150 m and upwards

表 1-所有类型船舶的专用海水压载舱和船长不小于 150m 的散货船双舷侧处所涂层系统的基本要求

	Characteristic/Reference standard 特性	Requirement 要求
	1 Design of coating system	
.1	Selection of the coating system 涂层系统的选择	<p><i>The selection of the coating system should be considered by the parties involved with respect to the service conditions and planned maintenance. The following aspects, among other things should be considered:</i></p> <p>涂层系统的选择应由各有关方面结合涂层的使用条件和有计划的保养加以考虑。应考虑其中的下列事项</p> <ul style="list-style-type: none"> .1 location of space relative to heated surfaces; .2 frequency of ballasting and deballasting operations; .3 required surface conditions; .4 required surface cleanliness and dryness; .5 supplementary cathodic protections, if any (where coating is supplemented by cathodic protection, the coating should be compatible with the cathodic protection system). <p>.1 与受热表面相关舱室的位置;</p> <p>.2 压载和泄载作业的频率;</p> <p>.3 要求的表面条件</p> <p>.4 要求的表面清洁度和干燥度.</p> <p>5 辅助阴极保护装置, 如果有。(如果涂层有辅助的阴极保护, 涂层应与辅助阴极保护系统相兼容)。</p> <p><i>Coating manufacturers shall have products with documented satisfactory performance records and technical data sheets. The manufacturers should also be capable of rendering adequate technical assistance. Performance records, technical data sheet and technical assistance (if given) shall be recorded in the Coating Technical File.</i></p> <p><i>Coatings for application underneath sun heated decks or on bulkheads forming boundaries of heated spaces shall be able to withstand repeated heating and/or cooling without becoming brittle.</i></p> <p>涂料生产商应提供书面的、有满意性能记录和技术规格书的产品。生产商应具有提供适当技术支持的能力。性能记录、技术规格书和技术帮助(如果有), 应在涂层技术文件中记录。在阳光曝晒的甲板下面或在加热舱室周围的舱壁上应用的涂料应具有耐反复加热/或冷却而不变脆的性能。</p>

.2	<p><i>Coating type</i></p> <p>涂料类型</p>	<p><i>Epoxy based systems.</i></p> <p><i>Other coating systems with performance according to the test procedure in annex 1.</i></p> <p><i>A multi-coat system with each coat of contrasting colour is recommended.</i></p> <p><i>The top coat shall be of a light colour in order to facilitate in-service inspection.</i></p> <p>环氧基体系</p> <p>其他涂层系统的性能要通过附件 1 的试验程序。</p> <p>建议多道涂层系统，每道涂层的颜色要有对比。</p> <p>面涂层应为浅色，便于营运中检查。</p>
.3	<p><i>Coating pre-qualification test</i></p> <p>涂层的预试验</p>	<p><i>Epoxy based systems tested prior to the date of entry into force of this Standard in a laboratory by a method corresponding to the test procedure in annex 1 or equivalent, which as a minimum meets the requirements for rusting and blistering; or which have documented field exposure for 5 years with a final coating condition of not less than "GOOD" may be accepted.</i></p> <p><i>For all other systems, testing according to the procedure in annex 1, or equivalent, is required.</i></p> <p>在本标准生效日之前，依据附录 1 的试验程序或等效的方法进行实验室试验的环氧基系统，如至少满足对锈蚀和鼓泡的要求或有文件记录经现场暴露试验 5 年后涂层的最终状况不低于“良好”，可以接受。</p> <p>所有其他的系统，要求按照附录 1 的试验程序或等效的试验程序进行试验。</p>
.4	<p><i>Job Specification</i></p> <p>工作规范</p>	<p><i>There shall be a minimum of two stripe coats and two spray coats, except that the second stripe coat, by way of welded seams only, may be reduced in scope where it is proven that the NDFT can be met by the coats applied in order to avoid unnecessary over thickness. Any reduction in scope of the second stripe coat shall be fully detailed in the CTF.</i></p> <p>应至少进行两度预涂和两度喷涂。仅在焊缝区能证明涂层可满足 NDFT 要求的范围内，可减少第二道预涂，以避免不必要的涂层过厚。任何减少第二道预涂的范围都应详细地全部记录在 CTF 中。</p> <p><i>Stripe coats shall be applied by brush or roller. Roller to be used for scallops, ratholes, etc., only</i></p> <p>预涂应采用刷涂或辊涂的方法。辊涂仅用于流水孔、老鼠洞等部位。</p> <p><i>Each main coating layer shall be appropriately cured before application of the next coat, in accordance with coating manufacturer's recommendations.</i></p> <p>应根据涂料生产商的建议，使每一道主涂层在下一道主涂层涂装前适当固化。</p> <p><i>Surface contaminants such as rust, grease, dust, salt, oil, etc. shall be removed prior to painting with proper method according to the paint manufacturer's recommendation. Abrasive inclusions embedded in the coating shall be removed. Job specifications shall include the dry-to-recoat times and walk-on time given by the manufacturer.</i></p> <p>表面污染物如锈、油脂、灰尘、盐、油等应该在涂装前根据涂料生产商的建议采用适当的方法去除。应去除埋在涂层中的磨料嵌入物。工作规范应包括涂料商规定的涂层覆涂时间间隔和可踩踏时间间隔。</p>

.5	<p><i>NDFT (nominal total dry film thickness)</i></p> <p>NDFT 名义总干膜厚度</p>	<p><i>NDFT 320 µm with 90/10 rule for epoxy based coatings, other systems to coating manufacturer's specifications.</i></p> <p>对环氧类涂层为在90/10原则下达到NDFT 320µm，，其他系统根据涂料生产商的说明书。</p> <p><i>Maximum total dry film thickness according to manufacturer's detailed specifications.</i></p> <p>总干膜厚度最大值依据涂料生产商的详细规范。</p> <p><i>Care shall be taken to avoid increasing the thickness in an exaggerated way. Wet film thickness shall be regularly checked during application.</i></p> <p>应小心避免涂膜过厚。涂装中应定期检查湿膜厚度。</p> <p><i>Thinner shall be limited to those types and quantities recommended by the manufacturer.</i></p> <p>稀释剂应限于使用涂料商推荐的类型和数量。</p>
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3 Secondary surface preparation 二次表面处理

.2	Surface treatment ⁴	<p><i>Sa 2½ on damaged shop primer and welds.</i></p> <p>被破坏的车间底漆和焊缝处达到 Sa2½ ;</p> <p><i>Sa 2 removing at least 70% of intact shop primer, which has not passed a pre-qualification certified by test procedures in 1.3.</i></p> <p>如车间底漆未通过按 1.3 所述试验程序的合格证明预试验, 完整底漆至少要去掉 70%, 达到 Sa 2。</p> <p><i>If the complete coating system comprising epoxy based main coating and shop primer has passed a pre-qualification certified by test procedures in 1.3, intact shop primer may be retained provided the same epoxy coating system is used. The retained shop primer shall be cleaned by sweep blasting, high pressure water washing or equivalent method.</i></p> <p>如果由环氧基的主涂层和车间底漆组成的整体涂层系统按表 1.3 的试验程序通过了合格证明预试验, 则当使用同样的环氧涂层系统时, 可保留完整的车间底漆。保留的车间底漆应用扫掠式喷砂、高压水洗或等效的方法清洁。</p> <p><i>If a zinc silicate shop primer has passed the pre-qualification test of 1.3 as part of an epoxy coating system, it may be used in combination with other epoxy coatings certified under 1.3, provided that the compatibility has been confirmed by the manufacturer by the test in accordance with paragraph 1.7 of appendix 1 to annex 1 without wave movement.</i></p> <p>如果一种硅酸锌车间底漆作为环氧涂层系统的一部分已通过 1.3 的涂层合格预试验, 该底漆可以和其他的通过表 1.3 涂层合格预试验的环氧涂层组合使用, 只要该底漆的兼容性得到生产商的确认, 并通过附录 1 的附 1 第 1.7 段所述的无浪运动条件下的试验。</p>
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4 Reference standard: ISO 8501-1:1988/Suppl: 1994. Preparation of steel substrate before application of paints and related products – Visual assessment of surface cleanliness

参考标准 : **ISO 8501-1 : 1988/Suppl : 1994**。在涂装或使用相关产品之前的钢表面准备一表面清洁的目测评估。

4.4 Basic coating requirements

4.4.2 Coating manufacturers shall provide a specification of the protective coating system to satisfy the requirements of table 1.

涂料生产商应提供满足表 1 所要求的保护涂层系统的规范

5 COATING SYSTEM APPROVAL 涂层系统的认可

Results from prequalification tests (table 1, paragraph 1.3) of the coating system shall be documented, and a Statement of Compliance or Type Approval Certificate shall be issued if found satisfactory by a third party, independent of the coating manufacturer.

涂层系统合格预试验 (表 1, 1.3) 的结果应以文件记录。如结果令人满意, 应由独立于涂料生产商的第三方签发一份符合证明或型式认可证书。

7 VERIFICATION REQUIREMENTS

The following shall be carried out by the Administration prior to reviewing the Coating Technical File for the ship subject to this Performance Standard:

核查技术规格书和符合证明或型式认可证书符合本涂层性能标准：

- .1 *check that the Technical Data Sheet and Statement of Compliance or Type Approval Certificate comply with this Standard;*
- .2 *check that the coating identification on representative containers is consistent with the coating identified in the Technical Data Sheet and Statement of Compliance or Type Approval Certificate;*
- .3 *check that the inspector is qualified in accordance with the qualification standards in paragraph 6.1.1;*
- .4 *check that the inspector's reports of surface preparation and the coating's application indicate compliance with the manufacturer's Technical Data Sheet and Statement of Compliance or Type Approval Certificate; and*
- .5 *monitor implementation of the coating inspection requirements.*

- .1 核查技术规格书和符合证明或型式认可证书符合本涂层性能标准；
- .2 核查代表性包装桶上的涂料标识与技术规格书和符合证明或型式认可证书标识的涂料一致；
- .3 按第 6.1.1 段的资质标准核查检查员的资质；
- .4 核查检查员关于表面处理和涂装施工的报告，证明符合涂料商的技术规格书和符合证明或型式认可证书一致；
- .5 监督涂层检查要求的执行。

6.1.2 Guidance

-1 It is anticipated that the specification of the protective coating system required by 4.4.2 may require supplementary information to that provided in the technical data sheet. Full information to fulfill the requirement of 4.4.2 shall be provided by the coating manufacturer.

可以预计，由 4.4.2 要求的保护涂层体系规范可能需要技术规格书中提供的补充信息符合 4.4.2 要求的全部资料将由涂料生产商提供。

-2 Light colour in these guidelines means a colour that reflects light to an extent that a simple flash light (hand torch) will make inspection easy and fast. Normally light grey, buff, off-white, swimming pool blue/green, etc. are easily distinguishable from rust.

这些规定中的浅光意味着反映光的颜色，一定程度上，一个简单的闪光灯(手电筒)将使检查变得简单快捷。通常情况下：浅灰、浅黄、白色、游泳蓝/绿等都很容易从铁锈中分辨出来。

-3 Welded seams mean both butt and fillet welds.

焊缝是指对接焊缝和角焊缝。

-4 To dispense the second stripe coat in scope, the DFT measurement adjacent to the welds, not further than 15mm from the welds, is acceptable. Statistical sampling measurement similar to annex 3 for flat surface is acceptable for the verification of NDFT.

为了进行第二次预涂，DFT 测量与焊缝相邻，与焊缝不大于 15 毫米是可以接受的。与附录 3 平面表面类似的统计抽样测量对于 NDFT 的确认是可以接受的。

-5 Stripe coats must be applied as a coherent film showing good film formation and no visible defects such as pores or un-wet areas.

预涂必须连续施工从而保证良好的成膜，同时没有诸如气孔或者漏涂的明显缺陷。

-6 The application method employed must ensure that all areas which require stripe coating are properly stripe coated by alternative application methods which include brush or roller.

应用的方法必须确保所有需要预涂的区域由可选择的方法合适地进行，包括刷涂和滚涂。

-7 Wet film thickness of each coating is typically checked by the painter for reference to achieve objectives of dry film thickness.

为达到合适的干膜厚度，应由喷涂人员适时检查每度湿膜的厚度。

-8 It is recommended that steel rust grade A or B plates to be used by way of the ballast tank areas to ensure the stipulated profiles of 30 – 75 are reliably obtained and the profile gauging may be reduced accordingly when these plates are used. Where steel plate rust grade C is used then the extent of inspection should be increased focusing on profile gauging as well as salt contamination accordingly to ensure the standard is complied with. Rust grade D is not acceptable for ballast tanks.

为保证粗糙度30-75 μm 的需求，A级和B级板可以用于船舶压载舱的建造。应用C级板时，应增加粗糙度和盐份检测，并确保符合标准。D级板不可用于压载舱-

Note that the incoming plate before blasting should be relatively clean. Oil, grease and excessive salt contamination on the incoming plates should be removed first to the extent possible before blasting (since blasting will push these contaminants into the steel pores and profile).

注意：在喷砂前的钢板应该相对干净。钢板上的油、油脂和过量的盐污染应该在喷砂前在可能的范围内被去除。（因为喷砂将使这些污染物嵌入钢材气孔和剖面）

-9 It is recognised that when blasting abrasive is recycled it may become contaminated with other matter including water soluble salts. Blasting abrasive is typically controlled through a Quality Control system, however this potential source of salt contamination may need to be taken into account should an increase in salt contamination be encountered.

必须承认，当磨料被反复利用时，它可能和其他物质成为污染，包括水溶性盐。磨料通常由QA系统来控制，这需要考虑潜在的污染来源可能会增加盐污染。

-10 It is recognised that in some cases the steel plates may arrive at the yard already shop primed from the steel plant or paint subcontractors. In such cases full blasting to Sa 2.5 for shop primed surface shall be carried out in addition to the requirements of the standard for secondary surface preparation, unless all requirements of the standard for primary surface preparation have been complied with, including the inspection requirements of section 6.2, cleanliness/ compatibility/ maximum thickness requirements along with all proper documentation of such tests and inspections by the coating inspector.

必须承认，在一些情况下，钢板到达船厂之前，已在钢厂或承包商处涂装了车间底漆。在这种情况下，二次表面处理时应喷砂处理至 Sa2.5 级。除非该车间底漆满足标准的所有要求，包括：PSPC 标准的第 6.2 节检查要求，清洁度/兼容性/最大膜厚和所有的符合要求的试验和检验文件

7 Primary Surface Preparation (PSP)

表面预处理

7.1 Blasting

喷砂（抛丸）

7.1.1 PSPC Requirements PSPC 的要求

(1) Basic requirements 基本要求

Table 1—Basic coating system requirements for dedicated seawater ballast tanks of all type of ships and double-side skin spaces of bulk carriers of 150 m and upwards

	Characteristic/Reference standard 特性/标准	Requirement 要求
2 PSP (Primary Surface Preparation) 表面预处理		
.1	Blasting and profile ^{4, 5} 喷砂和粗糙度	<p>Sa 2½; with profiles between 30-75 µm.</p> <p>Blasting shall not be carried out when:</p> <p>.1 the relative humidity is above 85%; or</p> <p>.2 the surface temperature of steel is less than 3°C above the dew point.</p> <p>Checking of the steel surface cleanliness and roughness profile shall be carried out at the end of the surface preparation and before the application of the primer, in accordance with the manufacturer's recommendations.</p> <p>Sa 2 ½ 级，粗糙度介于 30-75 um。</p> <p>在下列情况下不应进行喷砂：</p> <p>.1 相对湿度超过 85%；或</p> <p>.2 钢板表面温度高于露点温度小于 3°C。</p> <p>在表面处理结束时，在车间底漆涂装前，应依据涂料商的建议检查钢板表面的清洁度和粗糙度。</p>
.2	Water soluble salt limit equivalent to NaCl ⁶ 水溶性盐（相当于 NaCl）	<p>≤ 50 mg/m² of sodium chloride.</p> <p>≤ 50 mg/m²</p>
<p>4 Reference standard: ISO 8501-1:1988/Suppl: 1994. Preparation of steel substrate before application of paints and related products – Visual assessment of surface cleanliness.</p> <p>5 Reference standard: ISO 8503-1/2:1988. Preparation of steel substrate before application of paints and related products – Surface roughness characteristics of blast-cleaned steel substrates.</p> <p>6 Conductivity measured in accordance with ISO 8502-9:1998. Preparation of steel substrate before application of paints and related products – Visual assessment of surface cleanliness – Test for the assessment of surface cleanliness</p> <p>.4 相关标准：ISO8501-1:1998/1994。在涂装或使用相关产品之前的钢表面准备一表面清洁度评估。</p> <p>.5 相关标准：ISO8503-1/2:1988。在涂装或使用相关产品之前的钢表面准备一喷射后的表面粗糙度评估。</p> <p>.6 传导率的测量根据 ISO8502-9:1998。在涂装或使用相关产品之前的钢表面准备一表面清洁度评估测试。</p>		

(2) Inspection requirements for the coating inspector 涂层检验要求

6 COATING INSPECTION REQUIREMENTS

6.2 Inspection items 检验项目

Construction stage 建造阶段	Inspection items 检验项目
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Primary surface preparation 表面预处理	1	The surface temperature of steel, the relative humidity and the dew point shall be measured and recorded before the blasting process starts and at times of sudden changes in weather. 在喷砂开始前和天气发生突变时，应测量钢板表面温度、相对湿度和露点，并记录。
	2	The surface of steel plates shall be tested for soluble salt checked for oil, grease and other contamination. 应测量钢板表面的可溶性盐，并检查油、油脂和其他污染物。
	3	The cleanliness of the steel surface shall be monitored in the shop primer application process. 车间底漆涂装过程中应监控钢板表面的清洁度。

7.1.2 Guidance

-1 Where blasting is carried out in a blasting chamber the 85% humidity limit refers to the humidity inside the chamber not the outside humidity.

当喷砂在喷砂间里进行时，85%的湿度限制是指室内，而非室外。

7.1.3 Records

The results of inspection related to this section are to be recorded by the coating inspector. (See Form PSP as an example of the type of record form that could be used.)

与本节相关的检查结果将由涂层检查员记录。（详见 PSP 作为一个可以使用的记录范例）

7.2 Shop Primer Application

车间底漆施工

7.2.1 PSPC Requirements **PSPC 的要求**

(1) Basic requirements 基本要求

Table 1 – Basic coating system requirements for dedicated seawater ballast tanks of all type of ships and double-side skin spaces of bulk carriers of 150 m and upwards

Characteristic/Reference standard	Requirement
2 PSP (Primary Surface Preparation)	
.3 Shop primer 车间底漆	Zinc containing inhibitor free zinc silicate based or equivalent. 无缓蚀剂的含锌硅酸锌基涂料或等效的涂料。 Compatibility with main coating system shall be confirmed by the coating manufacturer. 底漆与主涂层系统的相容性应由涂料生产商确认。

(2) Inspection requirements for the coating inspector

6 COATING INSPECTION REQUIREMENTS

6.2 Inspection items		
Construction stage		Inspection items
Primary surface preparation 表面预处理	4	The shop primer material shall be confirmed to meet the requirements of 2.3 of table 1. 应确认车间底漆的材料满足表 1 中 2.3 的要求。
Thickness 漆膜厚度		If compatibility with the main coating system has been declared, then the thickness and curing of the zinc silicate shop primer to be confirmed to conform to the specified values. 如证明硅酸锌车间底漆与主涂层体系相兼容，则应确认车间底漆膜厚和固化情况与规定值一致。

7.2.2 Guidance

-1 The coating manufacturer will confirm the compatibility of the shop primer in way of the PSPC test given in Table 1 3.2, paragraph 4, and perform any additional tests or data investigation the coating manufacturer finds necessary for confirmation that the inclusion of the shop primer will provide at least equivalent performance for the coating system, indicated in 4.1 in the standard.

涂料生产商将按 PSPC 中表 1, 3.2 节, 第 4 段的试验程序确认车间底漆的兼容性。涂料商可以为进一步确认而增加一些试验或进行必要的研究, 包括至少提供车间底漆和主涂层系统的相当性能, 即: PSPC 第 4.1 项

-2 3.3 of Table 1 of PSPC, the “coating in overlap” is to be treated according to the coating manufacturer's recommendation. Compatibility between main coatings is to be confirmed by the coating manufacturer, where a main coating certified under 1.3 of Table 1 inevitably contacts or overlaps with another type of certified main coating, e.g. partial re-coating of damaged part and coating nearby butts, where different seasonal type of coatings have to be applied due to the change in environmental condition.

PSPC 表 1 中, “涂层搭接处” 是根据涂层生产商的建议处理的, 主要涂层间的兼容性由涂料生产商确认。主涂层间的兼容性由涂料生产商通过表 1 的 1.3 程序确认, 或与另一经鉴定的主涂层搭接, 例如由于环境变化而应用的不同季节性的涂料类型, 导致破损处和涂层接缝附近的部分重涂。

7.2.3 Records 记录

The results of inspection related to this section are to be recorded by the coating inspector. (See Form PSP as an example of the type of record form that could be used.)

与本节相关的检查结果将由涂层检查员记录。(详见 PSP 作为一个可以使用的记录范例)

8 Assembly

8.1 Steel Surface Preparation

8.1.1 PSPC Requirements

(1) Basic requirements

Table 1—Basic coating system requirements for dedicated seawater ballast tanks of all type of ships and double-side skin spaces of bulk carriers of 150 m and upwards

	Characteristic/Reference standard	Requirement
3 Secondary surface preparation		
.1	Steel condition ⁷ 钢板状况	<p>The steel surface shall be prepared so that the coating selected can achieve an even distribution at the required NDFT and have an adequate adhesion by removing sharp edges, grinding weld beads and removing weld spatter and any other surface contaminant.</p> <p>钢板表面应加以处理，去除毛边，打磨焊道，去除焊接飞溅物和其他的表面污染物，以使选择的涂层能够均匀涂布，达到所要求的 NDFT 和有足够的附着力。</p> <p>Edges to be treated to a rounded radius of minimum 2mm, or subjected to three pass grinding or at least equivalent process before painting.</p> <p>涂装前边缘应处理成半径至少为 2mm 的圆角，或经过三次打磨，或至少经过等效的处理。</p>
<p>⁷ Reference standard: ISO 8501-3:2001 (grade P2). Preparation of steel substrate before application of paints and related products – Visual assessment of surface cleanliness – Visual assessment of surface cleanliness.</p>		

(2) Inspection requirements for the coating inspector

6 COATING INSPECTION REQUIREMENTS

6.2 Inspection items

Construction stage		Inspection items
Block assembly 分段组装	1	<p>After completing construction of the block and before secondary surface preparation starts, a visual inspection for steel surface treatment including edge treatment shall be carried out.</p> <p>分段建造完成后，二次表面处理开始前，应目视检查钢板表面处理，包括检查边缘的处理。</p>
	4	<p>Inspection to be performed of the steps in the coating application process mentioned in table 1.</p> <p>应按表 1 中的涂装程序进行检查。</p>

8.1.2 Guidance

-1 “Equivalent process” means a process that produces an edge profile geometrically equivalent to, or better than that usually obtained by three pass grinding which results in an effective coating performance.

“等效过程”是指外形等同于或优于过去通常所应用的三次打磨，结果表明了这是一种很有效的涂装方法。

8.1.3 Record 记录

The results of inspection related to this section are to be recorded by the coating inspector. (See Form SSP as an example of the type of record form that could be used.)

涂层检查员应对上述的检查情况进行记录。（参照 SSP 作为一个可以使用的记录范例）

8.2 Secondary Surface Preparation (SSP)

二次表面处理（SSP）

8.2.1 PSPC Requirements

PSPC 的要求

(1) Basic requirements

Table 1—Basic coating system requirements for dedicated seawater ballast tanks of all type of ships and double-side skin spaces of bulk carriers of 150 m and upwards

	Characteristic/Reference standard	Requirement
3 Secondary surface preparation		
.1	Steel Condition 钢板状况	<p>The steel surface shall be prepared so that the coating selected can achieve an even distribution at the required NDFT and have an adequate adhesion by removing sharp edges, grinding weld beads and removing weld spatter and any other surface contaminant.</p> <p>钢板表面应加以处理，去除毛边，打磨焊道，去除焊接飞溅物和其他的表面污染物，以使选择的涂层能够均匀涂布，达到所要求的NDFT和有足够的附着力。</p> <p>Edges to be treated to a rounded radius of minimum 2 mm, or subjected to three pass grinding or at least equivalent process before painting.</p> <p>涂装前边缘应处理成半径至少为 2mm 的圆角，或经过三次打磨，或至少经过等效的处理。</p>

.2	<i>Surface treatment⁴</i> 表面处理	<p><i>Sa 2½ on damaged shop primer and welds.</i></p> <p>被破坏的车间底漆和焊缝处达到 Sa2½ ;</p> <p><i>Sa 2 removing at least 70% of intact shop primer, which has not passed a pre-qualification certified by test procedures in 1.3.</i></p> <p>如车间底漆未通过按 1.3 所述试验程序的涂层合格证明预试验, 完整底漆至少要去掉 70%, 达到 Sa 2。</p> <p><i>If the complete coating system comprising epoxy based main coating and shop primer has passed a pre-qualification certified by test procedures in 1.3, intact shop primer may be retained provided the same epoxy coating system is used. The retained shop primer shall be cleaned by sweep blasting, high pressure water washing or equivalent method.</i></p> <p>如果由环氧基的主涂层和车间底漆组成的整体涂层系统按表 1.3 的试验程序通过了合格证明预试验, 则当使用同样的环氧涂层系统时, 可保留完整的车间底漆。保留的车间底漆应用扫掠式喷砂、高压水洗或等效的方法清洁。</p> <p><i>If a zinc silicate shop primer has passed the pre-qualification test of 1.3 as part of an epoxy coating system, it may be used in combination with other epoxy coatings certified under 1.3, provided that the compatibility has been confirmed by the manufacturer by the test in accordance with paragraph 1.7 of appendix 1 to annex 1 without wave movement.</i></p> <p>如果一种硅酸锌车间底漆作为环氧涂层系统的一部分已通过 1.3 的涂层合格预试验, 该底漆可和其他的通过表 1.3 涂层合格预试验的环氧涂层组合使用, 只要该底漆的兼容性得到生产商的确认, 并通过附录 1 的附 1 第 1.7 段所述的无浪运动条件下的试验。</p>
.3	<i>Surface treatment after erection⁴</i> 合拢后的表面处理	<p><i>Butts St 3 or better or Sa 2½ where practicable. Small damages up to 2% of total area: St 3. Contiguous damages over 25 m² or over 2% of the total area of the tank, Sa 2½ should be applied.</i></p> <p>对大接缝为 St 3, 或更好, 或可行时为 Sa 2½。小面积破坏区域不大于总面积的 2% 时为 St3。相邻接的破坏区域的总面积超过 25 m² 或超过舱室总面积 2% 时, 应为 Sa2½。</p> <p><i>Coating in overlap to be feathered.</i></p>
.4	<i>Profile requirements⁵</i> 粗糙度要求	<p><i>In case of full or partial blasting 30-75 µm, otherwise as recommended by the coating manufacturer.</i></p> <p>全面或局部喷射处理, 30-75 µm, 其他的处理按照涂料生产商的建议。</p>
.5	<i>Dust⁶</i> 灰尘	<p><i>Dust quantity rating "1" for dust size class "3", "4" or "5". Lower dust size classes to be removed if visible on the surface to be coated without magnification.</i></p> <p>颗粒大小为“3”、“4” or “5”的灰尘分布量为 1 级。</p> <p>如不用放大镜, 在待涂表面可见的更小颗粒的灰尘应去除。</p>
.6	<i>Water soluble salts limit equivalent to NaCl after blasting/ grinding⁶</i> 喷砂后水溶性盐的界定 (相当于 NaCl)	<p><i>≤ 50 mg/m² of sodium chloride.</i></p> <p>≤ 50 mg/m²</p>
.7	<i>Oil contamination</i>	<p><i>No oil contamination.</i></p>

4 Reference standard: ISO 8501-1:1988/Suppl: 1994. Preparation of steel substrate before application of paints and related products – Visual assessment of surface cleanliness.

参考标准：ISO 8501-1：1988/Suppl：1994。在涂装或使用相关产品之前的钢表面准备—表面清洁的视觉评估。

5 Reference standard: ISO 8503-1/2:1988. Preparation of steel substrate before application of paints and related products – Surface roughness characteristics of blast-cleaned steel substrates.

参考标准：ISO 8503-1/2：1988。在涂装或使用相关产品之前的钢表面准备—清洁后的钢表面粗糙度特征

8 Reference standard: ISO 8502-3:1993. Preparation of steel substrate before application of paints and related products – Test for the assessment of surface cleanliness.

参考标准：ISO8502-3：1993 涂覆涂料前钢材表面处理—表面清洁度的评定（试验）

6 Conductivity measured in accordance with ISO 8502-9:1998. Preparation of steel substrate before application of paints and related products – Visual assessment of surface cleanliness – Test for the assessment of surface cleanliness

传导率的测量根据 ISO8502-9:1998。在涂装或使用相关产品之前的钢表面准备—表面清洁度评估测试。

(2) Inspection requirements for the coating inspector

6 COATING INSPECTION REQUIREMENTS

6.2 Inspection items

Construction stage		Inspection items
Block assembly 分段合拢	1	Any oil, grease or other visible contamination to be removed. 任何油、油脂或其它可见的污染均应被清除。
	2	After blasting/grinding/cleaning and prior to coating, a visual inspection of the prepared surface shall be carried out. 喷砂/打磨/清洁后，在涂装前应目视检查处理好的表面。 On completion of blasting and cleaning and prior to the application of the first coat of the system, the steel surface shall be tested for levels of remaining soluble salts in at least one location per block. 完成喷射、清洁，系统第一道涂层涂装前，应检查钢板表面残留可溶性盐的状况，每个分段至少取一点。
	4	Inspection to be performed of the steps in the coating application process mentioned in table 1. 应按表 1 中的涂装过程步骤进行检查。

8.2.2 Guidance

-1 “Equivalent process” means a process that produces an edge profile geometrically equivalent to, or better than that usually obtained by three pass grinding which results in an effective coating performance

“等效过程”是指外形等同于或优于三次打磨

-2 Sa 2¹/₂ treatment is required to “Damaged shop primer” in the areas where the condition of the shop primer in the opinion of the coating inspector or coating manufacturer of main coating system, will result in a reduced performance of the main coating system. (Example areas of burn damage or corrosion)

Sa2¹/₂ 处理对于破坏的车间底漆区域是必须的，该状态下的车间底漆将导致主要涂层系统的性能降低。

-3 St 3 may be accepted in case of surface treatment to rectify small insufficiently treated areas after blasting.

喷砂不完全的区域，可采用 St3 处理。

-4 Contamination on retained shop primer shall be removed. It is not always appropriate to remove all types of contamination on the shop primer by sweep blasting or high pressure washing; this may include small areas of localized contamination. In which case contamination should be removed by an appropriate method recommended by the coating manufacturer.

车间底漆上的污染物应去除。当采用扫砂或高压水的方式不能去除所有类型的污染物时，如：局部小区域的污染，将根据涂料商建议的合适的方法去除”。

-5 The requirements for complete coating systems existing prior to date of entry into force that are qualified under 3.2 of Table 1 include those verified by satisfactory field exposure of at least 5 years.

在 3.2 条，表格 1 合格试验之前的现有的整个涂层系统的需求，包括了那些令人满意的户外使用结果是可以采用的。

- 6 Referring to .3 (surface treatment after erection) ‘butts’ refers to the erection joints. Damages mean, areas where the damage reaches steel surface, these require surface treatment of St 3 or Sa 2.5.

Defects within the coating layers not reaching the steel surface are to be touched up to the specified DFT after appropriate treatment of coating surface, defects are not to be counted towards the 2% or 25m2 assessment.

根据 3（合拢后的表面处理）“对接焊缝”属于合拢焊缝。

“破损”指的是破损达到钢材表面，需按 St3 或 Sa2.5 进行表面处理的区域。

涂层间的缺陷没有达到钢材表面的区域，其表面在采用合适的方法进行表面处理后，补涂到规定的膜厚。涂层间的缺陷不作为合拢舱室破损率 2%或 25M²的测算。

-7 Lower dust size classes less than “3” are invisible on the steel surface unless they are accumulated in large quantity. Visible accumulated dust shall be removed to the extent of invisible level.

小于 3 级的灰尘，在钢材表面是不可见的，除非他们大量聚集。可见灰尘应该被去除至不可见。

-8 Cleaning of oil contamination is to be carried out always according to the coating manufacturer recommendation.

油污的清洁通常根据涂料生产商的建议进行。

-9 Representative dry film thickness shall be measured after each coat except for final coat for reference as guidance for subsequent work, and the total dry film thickness after completion of final coat shall be confirmed in accordance with annex 3.

每度涂层施工后均应测量干膜厚度，最后的完工漆膜将按照附录 3 进行确认。

-10 Where any defective areas were found at inspection, all such repairs shall be checked after rectification and recorded in non-conformity report by the coating inspector

当有缺陷的地方在检查中被发现，这些缺陷都应该在修补后被检查，并由涂层检查员记录在不符合报告里。

-11 For the assessment of damaged areas of coatings reference to

ISO 4628-3:2003 (Paints and varnishes – Evaluation of degradation of coating – Designation of quantity and size of defects, and of intensity of uniform changes in appearance – Part 3: Assessment of degree of rusting) may be found to be helpful.

涂层破坏区域的评估将参考：ISO4628-3:2003

8.2.3 Records

The results of inspection related to this section are to be recorded by the coating inspector. (See Form SSP as an example of the type of record form that could be used.)

8.3 Coating

8.3.1 PSPC Requirements

(1) *Basic requirements*

Table 1 – Basic coating system requirements for dedicated seawater ballast tanks of all type of ships and double-side skin spaces of bulk carriers of 150 m and upwards

表 1 – 所有类型船舶的专用海水压载舱和船长不小于 150m 的散货船双舷侧处所涂层系统的基本要求

	Characteristic/Reference standard 特性	Requirement 要求
1	Design of coating system	
.4	Job specification 工作规范	<p>There shall be a minimum of two stripe coats and two spray coats, except that the second stripe coat, by way of welded seams only, may be reduced in scope where it is proven that the NDFT can be met by the coats applied in order to avoid unnecessary over thickness. Any reduction in scope of the second stripe coat shall be fully detailed in the CTF.</p> <p>应至少进行两度预涂和两度喷涂。仅在焊缝区能证明涂层可满足 NDFT 要求的范围内，可减少第二道预涂，以避免不必要的涂层过厚。任何减少第二道预涂的范围都应详细地全部记录在 CTF 中。</p> <p><i>Stripe coats shall be applied by brush or roller. Roller to be used for scallops, ratholes, etc. only.</i></p> <p>预涂将采用刷涂或辊涂。辊涂仅应用在过水孔，老鼠洞等区域。</p> <p><i>Each main coating layer shall be appropriately cured before application of the next coat, in accordance with coating manufacturer's recommendations. Surface contaminants such as rust, grease, dust, salt, oil, etc. shall be removed prior to painting with proper method according to the paint manufacturer's recommendation. Abrasive inclusions embedded in the coating shall be removed. Job specifications shall include the dry-to-recoat times and walk-on time given by the manufacturer.</i></p> <p>应根据涂料生产商的建议，使每一道主涂层在下一道主涂层涂装前适当固化。表面污染物如锈、油脂、灰尘、盐、油等应该在涂装前根据涂料生产商的建议采用适当的方法去除。应去除埋在涂层中的磨料嵌入物。工作规范应包括涂料商规定的涂层覆涂时间间隔和可踩踏时间间隔</p>

.5	<i>NDFT (nominal total dry film thickness)³DFT</i> 名义干膜总厚度	<i>NDFT 320μm with 90/10 rule for epoxy based coatings, other systems to coating manufacturer's specifications.</i> 对环氧类涂层为在 90/10 原则下达到 NDFT 320μm ，，其他系统根据涂料生产商的说明书。 <i>Maximum total dry film thickness according to manufacturer's detailed specifications.</i> 总干膜厚度最大值依据涂料生产商的详细规范。 <i>Care shall be taken to avoid increasing the thickness in an exaggerated way. Wet film thickness shall be regularly checked during application.</i> 应小心避免涂膜过厚。涂装中应定期检查湿膜厚度。 <i>Thinner shall be limited to those types and quantities recommended by the manufacturer.</i> 稀释剂应限于使用涂料商推荐的类型和用量。
4 Miscellaneous		
.1	<i>Ventilation</i> 通风	<i>8.3.1.1.1 Adequate ventilation is necessary for the proper drying and curing of coating. Ventilation should be maintained throughout the application process and for a period after application is completed, as recommended by the coating manufacturer.</i> 为使涂料适当地干燥和固化，必须予以充足的通风。应根据涂料生产商的建议，在整个涂装过程中和涂装完成后的一段时间内保持通风。
.2	<i>Environmental conditions</i> 环境条件	<i>8.3.1.1.2 Coating shall be applied under controlled humidity and surface conditions, in accordance with the manufacturer's specifications. In addition, coating shall not be applied when:</i> <i>.1 the relative humidity is above 85%; or</i> <i>.2 the surface temperature is less than 3°C above the dew point.</i> 应按照生产商的技术条件，在控制湿度和表面的条件下进行涂装。此外，下述情况下不应进行涂装： .1 相对湿度超过 85%，或 .2 钢材表面温度高于露点温度小于 3℃。
.3	<i>Testing of coating³ of</i> 涂层试验	<i>Destructive testing should be avoided.</i> 应避免破坏性检验。 <i>Dry film thickness shall be measured after each coat for quality control purpose and the total dry film thickness shall be confirmed after completion of final coat, using appropriate thickness gauges (see annex 3).</i> 为了质量控制，每道涂层干膜厚度都要进行测量。最后一道涂层涂装后应使用适当的测厚计确定总干膜厚度。(见附录 3)
.4	<i>Repair</i> 修补	<i>Any defective areas, e.g. pin-holes, bubbles, voids, etc. should be marked up and appropriate repairs effected. All such repairs shall be re checked and documented.</i> 任何缺陷区域，如针孔，气泡，露底等，应做标记，并适当修复受影响的区域。所有这类修补应再次检查并以文件记录。
<i>3 Type of gauge and calibration in accordance with SSPC-PA2: 2004. Paint Application Specification No.2.</i> 根据 SSPC-PA2:2004 来测量。涂装根据 No.2 说明书。		

(2) *Inspection requirements for the coating inspector*
6 COATING INSPECTION REQUIREMENTS
6.2 Inspection items

Construction stage		Inspection items
Block assembly 分段合拢	3	<i>The surface temperature, the relative humidity and the dew point shall be monitored and recorded during the coating application and curing.</i> 在涂层涂装和固化阶段，应监控钢板表面温度、相对湿度和露点，并记录。
	4	<i>Inspection to be performed of the steps in the coating application process mentioned in table 1.</i> 应按表 1 中的涂装程序进行检查。
	5	<i>DFT measurements shall be taken to prove that the coating has been applied to the thickness as specified and outlined in annex 3.</i> 应按附录 3 的规定和列出的要求进行 DFT 测量，验证涂层达到了规定的厚度。
Erection 合拢	1	<i>Visual inspection for steel surface condition, surface preparation and verification of conformance to other requirements in table 1, and the agreed specification to be performed.</i> 目视检查钢板表面状况，表面处理情况，验证表 1 中其他要求是否达到，达成一致的规范是否得到执行。
	2	<i>The surface temperature, the relative humidity and the dew point shall be measured and recorded before coating starts and regularly during the coating process.</i> 涂装前和涂装中应定期测量钢板表面温度、相对湿度和露点，并做记录。
	3	<i>Inspection to be performed of the steps in the coating application process mentioned in table 1.</i> 应按表 1 中的涂装程序进行检查。

8.3.2 Guidance

Where:-

(1) Primary surface preparation is carried out at a facility where environmental condition and quality level do not change substantially, and;

环境变化不大的情况下在涂装房进行一次表面处理

(2) Primary surface preparation and shop primer are carried out by automation, and;

用自动抛丸处理进行表面处理。

(3) Shop primer is applied immediately after blasting.

抛丸处理后立即涂装车间底漆。

The primary surface preparation inspection requirements of 6.2 may be satisfied by periodic spot checks and this procedure is to be documented in 3.2.

表面处理检查要求能由定期抽查来满足，这种程序将被记录在 3.2 中

8.3.3 Records

The results of inspection related to this section are to be recorded by the coating inspector. (See Form CA and Form DFT as an example of the type of record form that could be used.)

与本节有关的检查结果将由涂层检查员记录

9 Others

其它

9.1 Verification

9.1.1 PSPC Requirements

(1) *Basic requirements*

3 GENERAL PRINCIPLES

3.1 *The ability of the coating system to reach its target useful life depends on the type of coating system, steel preparation, application and coating inspection and maintenance. All these aspects contribute to the good performance of the coating system.*

涂层系统达到其目标使用寿命的能力取决于涂层系统的类型、钢材处理、涂装和涂层检查及维护。所有这些方面对涂层系统的优良性能都有影响

3.2 *Inspection of surface preparation and coating processes shall be agreed upon between the shipowner, the shipyard and the coating manufacturer and presented to the Administration for review. The Administration may, if it so requires, participate in the agreement process. Clear evidence of these inspections shall be reported and be included in the Coating Technical File (CTF) (see paragraph 3.4).*

表面处理和涂装过程的检查应该由船东、船厂和涂料生产商达成一致，并提交给主管机关审查。如有要求，主管机关可参与到协议过程中。应报告这些检查的明确证据并包括在涂层技术文件中（CTF）（见第 3.4 段）

.4 Coating Technical File 涂层技术文件**3.4.2 New construction stage 新造阶段**

The Coating Technical File shall contain at least the following items relating to this Standard and shall be delivered by the shipyard at new ship construction stage:

涂层技术文件至少应包括与本标准相关的下列项目，并在新船建造阶段由船厂提交：

.1 copy of Statement of Compliance or Type Approval Certificate;

符合证明或型式认可证书的副本

.2 copy of Technical Data Sheet, including:

技术规格书副本，包括：

- product name and identification mark and/or number;
- materials, components and composition of the coating system, colours;
- minimum and maximum dry film thickness;
- application methods, tools and/or machines;
- condition of surface to be coated (de-rusting grade, cleanliness, profile, etc.); and
- environmental limitations (temperature and humidity);

产品名称，识别标记和/或编号；

涂层系统的材料、成份和组成，颜色；

最小和最大干膜厚度；

涂装的方式、工具和/或机械；

涂装前的表面状况（除锈等级、清洁度、粗糙度等）；和

环境限制条件（温度和湿度）；

.3 shipyard work records of coating application, including:

船厂的涂装作业工作记录，包括：

- applied actual space and area (in square metres) of each compartment;
- applied coating system;
- time of coating, thickness, number of layers, etc.;
- ambient condition during coating; and
- method of surface preparation;
- 每个舱室涂装的真实空间和面积（平方米计）；
- 涂装的涂层系统；
- 涂装的时间、厚度、道数，等等；
- 涂装时的周围环境条件；和
- 表面处理的方式；

.4 procedures for inspection and repair of coating system during ship construction;

船舶建造期间涂层系统的检查和修补程序

.5 coating log issued by the coating inspector – stating that the coating was applied in accordance with the specifications to the satisfaction of the coating supplier representative and specifying deviations from the specifications (example of daily log and non-conformity report, see annex 2);

涂层检查人员签署的涂装日志——声明涂层依照技术条件涂装，已得到涂料供应商代表的认可，并详细说明与规范的差异（检查日志和不符合报告格式见附录 2）

.6 shipyard's verified inspection report, including:

船厂核实过的检查报告，包括：

- completion date of inspection;
- result of inspection;
- remarks (if given); and
- inspector signature; and

- 检查完成日期

- 检查结果

- 备注（如有时）

- 检查人员签名

2 Guidelines to be developed by the Organization.

5 COATING SYSTEM APPROVAL

Results from prequalification tests (table 1, paragraph 1.3) of the coating system shall be documented, and a Statement of Compliance or Type Approval Certificate shall be issued if found satisfactory by a third party, independent of the coating manufacturer.

涂层系统合格预试验（表 1，1.3）的结果应以文件记录。如结果令人满意，应由独立于涂料生产商的第三方签发一份符合证明或型式认可证书。

7 VERIFICATION REQUIREMENTS 验证要求

The following shall be carried out by the Administration prior to reviewing the Coating Technical File for the ship subject to this Performance Standard:

在审核执行本性能标准船舶的涂层技术文件之前，应由主管机关进行下列各项工作：

- .1 check that the Technical Data Sheet and Statement of Compliance or Type Approval Certificate comply with this Standard;

核查技术规格书和符合证明或型式认可证书符合本涂层性能标准；

- .2 check that the coating identification on representative containers is consistent with the coating identified in the Technical Data Sheet and Statement of Compliance or Type Approval Certificate;

核查代表性包装桶上的涂料标识与技术规格书和符合证明或型式认可证书标识的涂料一致；

- .3 check that the inspector is qualified in accordance with the qualification standards in paragraph 6.1.1;

按第 6.1.1 段的资质标准核查检查员的资质；

- .4 check that the inspector's reports of surface preparation and the coating's application indicate compliance with the manufacturer's Technical Data Sheet and Statement of Compliance or Type Approval Certificate; and

核查检查员关于表面处理和涂层的涂装报告，表明符合涂料商的技术规格书和符合证明或型式认可证书一致；

- .5 monitors implementation of the coating inspection requirements.

监督涂层检查要求的执行

9.1.2 Guidance

-1 Each Coating manufacturer (main and or shop primer) should submit the following documents to the shipyard.

- (1) Copy of Statement of Compliance or Type Approval Certificate (3.4.2.1)
- (2) Copy of Technical Data Sheet (3.4.2.2)
- (3) Procedures for repair of coating system during ship construction (3.4.2.4)

涂料生产商应提供下列文件于船厂：

- (1) 符合证明或型式认可证书的副本（3.4.2.1）
- (2) 技术规格书副本（3.4.2.2）

- (3) 船舶建造期间涂层系统的检查和修补程序（3.4.2.4）

-2 See the following forms for the documents to be included the "Coating Technical File" specified in 3.4.2 of PSPC. These forms are just examples and different forms may be accepted by the Administration.

参考下列包含在 PSPC3.4.2 “涂层技术文件” 的表格。这些表格仅仅举例说明，其他不同的表格也可被接受。

- (1) Form PSP (3.4.2.3 and 3.4.2.5)
- (2) Form SSP (3.4.2.3 and 3.4.2.5)
- (3) Form CA (3.4.2.3 and 3.4.2.5)
- (4) Form DFT (3.4.2.3 and 3.4.2.5,)

-3 It is important that the Coating Technical File (CTF) contains a detailed and accurate report of the whole coating process. It should be recognized that the list under 3.4.2 is a minimum recommended list of items to be included.

涂装全过程详细、精确的记录在 **CTF** 中是十分重要的。如果发生涂层早期失效, **CTF** 将是分析涂层早期失效原因的最好的指南。注意 **3.4.2 of PSPC** 项目下的清单是推荐的最少的清单条目。

-4 Procedure for in-service maintenance and repair shall be included in CTF after guideline is developed.

运行中的维护和保养程序将在指南被制定后包括在 **CTF** 中。

9.2 Inspection

9.2.1 PSPC Requirements

Table 6.2 Inspection Items

Construction stage		Inspection items
Primary surface preparation 表面预处理	1	The surface temperature of steel, the relative humidity and the dew point shall be measured and recorded before the blasting process starts and at times of sudden changes in weather. 在喷砂开始前和天气发生突变时，应测量钢板表面温度、相对湿度和露点，并记录。
	2	The surface of steel plates shall be tested for soluble salt and checked for oil, grease and other contamination. 测量钢板表面的可溶性盐分并检查油、油脂和其他污染物。
	3	The cleanliness of the steel surface shall be monitored in the shop-primer application process. 车间底漆涂装过程中应监控钢板表面的清洁度。
	4	The shop-primer material shall be confirmed to meet the requirements of 2.3 of table 1. 应确认车间底漆的材料满足表1中2.3的要求。
Thickness 厚度		If compatibility with the main coating system has been declared, then the thickness and curing of the zinc silicate shop primer to be confirmed to conform to the specified values. 如证明硅酸锌车间底漆与主涂层体系相兼容，则应确认车间底漆厚度和固化情况与规定值一致。
Block assembly 分段组装	1	After completing construction of the block and before secondary surface preparation starts, a visual inspection for steel surface treatment including edge treatment shall be carried out. Any oil, grease or other visible contamination shall be removed. 分段建造完成后，二次表面处理开始前，应目视检查钢板表面处理，包括检查边缘的处理。
	2	After blasting/grinding/cleaning and prior to coating, a visual inspection of the prepared surface shall be carried out. On completion of blasting and cleaning and prior to the application of the first coat of the system, the steel surface shall be tested for levels of remaining soluble salts in at least one location per block. 喷砂/打磨/清洁后，在涂装前应目视检查处理好的表面。完成喷射、清洁，系统第一道涂层涂装前，应检查钢板表面残留可溶性盐水平，每个分段至少取一点。
	3	The surface temperature, the relative humidity and the dew point shall be monitored and recorded during the coating application and curing. 在涂层涂装和固化阶段，应监控钢板表面温度、相对湿度和露点，并记录。
	4	Inspection shall be performed of the steps in the coating application process mentioned in table 1. 应按表 1 中的涂装过程步骤进行检查。
	5	DFT measurements shall be taken to prove that the coating has been applied to the thickness as specified and outlined in annex 3. 应按附录 3 的规定和列出的要求进行 DFT 测量，验证涂层达到了规定的厚度。
Erection 合拢	1	Visual inspection for steel surface condition, surface preparation and verification of conformance to other requirements in table 1, and the agreed specification shall be performed. 目视检查钢板表面状况，表面处理情况，验证表 1 中其他要求是否达到，达成一致的规范是否得到执行。
	2	The surface temperature, the relative humidity and the dew point shall be measured and recorded before coating starts and regularly during the coating process. 涂装前和涂装中应定期测量钢板表面温度、相对湿度和露点，并做记录。
	3	Inspection shall be performed of the steps in the coating application process mentioned in table 1. 应按表 1 中的涂装过程步骤进行检查。

9.2.2 Guidance

-1 Visible accumulated dust shall be removed to the extent of invisible level.

可见灰尘应处理至不可见。

-2 After surface preparation and cleaning, visual inspection to check dust on the steel surface shall be carried out.

表面处理和清洗后, 应目视检查钢材表面的灰尘。

-3 If there is no dispute among all parties to the inspection and it is agreed by those parties that it is unnecessary, then the tape test for dust may be dispensed with.

如果没有争议, 参与检验的所有代表一致认为没有必要, 可不采用胶带法测试清洁度。

-4 If there is no such agreement, then at least one measurement per block shall be carried out to confirm dust quantity level according to the ISO 8502-3.

如果没有这样协议, 那么每个分段应至少进行一次测量灰尘, 采用 **ISO 8502-3** 标准。

-5 In case of quantity level over "1", corrective action to be taken to the satisfaction of coating inspector.

在超过"1"级情况下, 那么必须采取正确行动以满足涂层检查员。

-6 Confirmation that the measured DFT meets the requirements of PSPC shall be made for each tank or unit smaller than a tank, e.g., part/area of a section. At least the following items shall be recorded.

- (1) Date and signature of the coating inspector
- (2) Name of the tank (Name of part/area of the section, if smaller unit than the whole tank)
- (3) Coating specification (NDFT, max. and min. thickness etc.)
- (4) Number of measurements, minimum, maximum, average DFT readings.

测量 DFT 满足 PSPC 要求的确认必须为每个舱室或者比舱室更小的单元, 比如部分的区域/段. 至少有以下几个项目应记录在案:

- (1) 涂层检查员的日期和签名
- (2) 舱室名
- (3) 涂层规格(NDFT, 最大厚度, 最小厚度等)
- (4) 测量数据, 最大值, 最小值, 平均 DFT 读数

-7 Inspection for confirming suitable conditions for the erection joint prior to coating may be limited to visual inspection at the coating inspector's discretion

确认涂层之前合拢的适宜条件的检查可能受限于涂层检查员方面的视觉检查。

9.3 Annex 3 Dry Film Thickness Measurements

附录 3 干膜厚度测量

9.3.1 PSPC Requirements

- 1 The following verification check points of DFT are to be taken:
- .1 one gauge reading per 5 m² of flat surface areas;
 - .2 one gauge reading at 2 to 3 m intervals and as close as possible to tank boundaries, but not further than 15 mm from edges of tank boundaries;
 - .3 longitudinal and transverse stiffener members:

DFT验证检查点的选取方式：

- .1 平板区域每5 m²测量一个数据；
- .2 2~3米间隔测量一个数据，尽可能地靠近压载舱边界，但距压载舱边界的边缘不少于15mm；
- .3 纵向和横向扶强材。

One set of gauge readings as shown below, taken at 2 to 3 m run and not less than two sets between primary support members; 一组测量点如下所示进行取点，每2~3米测量一组数据，在主支撑构件间不得少于2组；

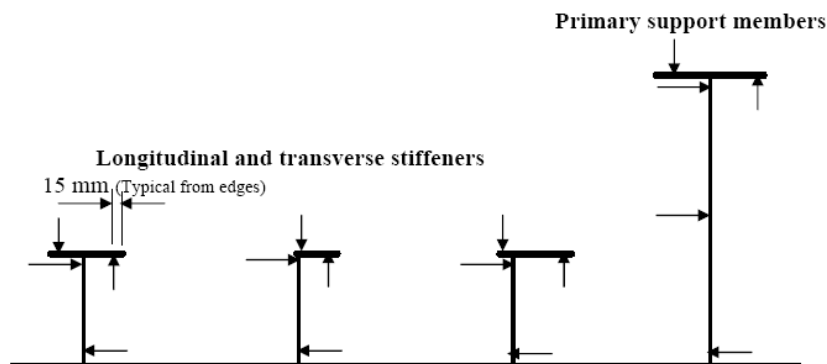


Figure 3

Note: Arrows of diagram indicate critical areas and should be understood to mean indication for both sides.

注：图示箭头指示关键区域，应理解为指示两侧。

- .4 3 gauge readings for each set of primary support members and 2 gauge readings for each set of other members as indicated by the arrows in the diagram;
- .5 For primary support members (girders and transverses) one set of gauge readings for 2 to 3 m run as shown in figure 3 above but not less than three sets;
- .6 Around openings one gauge reading from each side of the opening;
- .7 five gauge readings per square meter (m²) but not less than three gauge readings taken at complex areas (i.e., large brackets of primary support members); and
- .8 additional spot checks are to be taken to verify coating thickness for any area considered necessary by the coating inspector.

- .4 每组主支撑构件测三个数据，其他的每组构件如图中箭头所示测二个数据；
- .5 主支撑构件（纵桁和横材）每2~3米(如图3)所示进行一组数据的测量，但不得少于3组；
- .6 开口周围每一边测一个数据；
- .7 每平方米测五个数据，但复杂区域测量不得少于三个数据（如主支撑构件的大肘板）；
- .8 涂层检查员对认为必要的任何区域可额外取点以验证涂层厚度。

9.3.2 Guidance

-1 The arrows in Figure 3 do not indicate the number of readings but indicate critical areas and should refer to both sides.

-1 图 3 中的箭头不代表读数，但代表关键区域应该是双面检测。

-2 'Tank Boundaries' means the extreme longitudinal, transverse, and vertical corner welds of the tank boundary plates, and gauge readings shall be taken adjacent to the welds, not further than 15mm from the welds.

“舱界”（压载舱分界线）指压载舱分界线平面的纵向横向及垂直角度的焊缝。在邻近焊缝处取点读数，不超过焊缝以外 15mm 处。

-3 Longitudinal girders and transverse webs in double skin structure which do not have a free edge, except for openings, shall be measured as flat surface areas i.e. one gauge reading per 5m² and at least one reading per girder or transverse web.

没有自由边的双壳结构的纵桁或肋板，除了开口处，当作平板表面来测量，例如每 5M² 取一个规格读数，并且每一个纵桁或肋板都有一个读数。

-4 The arrows shown in Figure 3 are not intended to be the number of gauge readings but indicate critical areas and refer to both sides of the member. Locations of individual gauge readings (refer to -4, -5 and -6 below) shall be selected among those indicated by the arrows, but all critical areas should be evenly selected for total number of gauge readings.

图 3 箭头所示不代表读数，但代表关键区域应该是双面检测。各个规格读数的位置应根据下列 4/ 5/ 6) 的箭头所示处挑选，但全部规格读数要在所有关键区域平均选择。

-5 For primary members, 1 set consisting of 3 gauge readings is required at every 2 to 3m of the member but not less than three (3) sets in any run between cross directional primary support members.

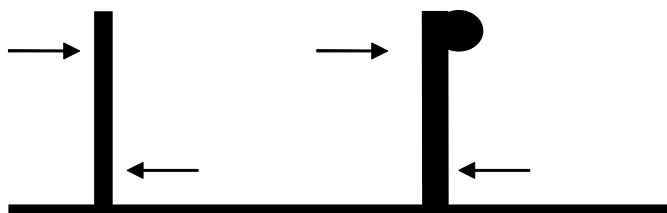
对于主要构件，每 2-3 米需测 1 组 3 个数据；同时在与交叉的主要支撑构件间不能少于 3 组读数。

-6 For longitudinal and transverse stiffeners (secondary members), 1 set consisting of 2 gauge readings, is required every 2 to 3m of the member but not less than 2 sets in any run between primary support members.

对于纵向和横向扶强材（次要构件），每 2-3m 需测 1 组 2 个读数，同时在其主要支撑构件间不少于 2 组读数。

For Flat Bar and Bulb Flat Stiffeners

平铁和球扁钢



Note: The arrows in Figure above do not indicate the number of readings but indicate critical areas and should refer to both sides.

注：对于上图的箭头不代表读数的数量，而代表对关键区域应是双面检测。

-7 For flat and bulbous bar stiffeners (see diagram) which are not covered by Figure 3, 1 gauge reading is required every 2 to 3m of the member but not less than 2 readings in any run between primary support members.

对于不包括在图 3 中的平铁和球扁钢，构件每 2-3m 为 1 个读数，但在其主要支撑构件间不少于 2 个读数。

-8 openings are defined as having a diameter equal to or greater than 400mm .

开口被定义为直径等于或大于 400mm

9.4 Example Reporting Forms

Form PSP
COATING LOG (PRIMARY SURFACE PREPARATION)

涂装日志（一次表面处理）

Sheet No. 第 页

NAME/NO. OF SHIP 船名/船号	
PLATE NUMBERS 钢板编号	
INSPECTION DATE 检查日期	

ENVIRONMENT

	BEFORE 涂装前	WEATHER CHANGES 气候变化				REMARKS: 备注
MEASURED TIME 测量时间						
DRY TEMP. (°C)						
RELATIVE HUMIDITY (%) 相对湿度						
DEW POINT (%) 露点						
SURFACE TEMP. (°C) 表面温度						

SURFACE PREPARATION

SURFACE PROFILES 粗糙度		REMARKS: 备注
WATER SOLUBLE SALTS (mg/m ² of NaCl) 水溶性盐含量		

SHOP PRIMER

MANUFACTURER 生产商		REMARKS: 备注
PRODUCT NAME 产品名称		
IDENTIFICATION MARK/NUMBER 产品名称及产品标识号/编号		
MANUFACTURER'S RECOMMENDED DFT 规定干膜厚度		
MEASURED DFT. 干膜厚度测量结果		
CURING 固化		

COATING INSPECTOR'S NAME:

涂装检查员姓名

SIGNATURE:

签名

Form SSP

COATING LOG (SECONDARY SURFACE PREPARATION)

涂装日志（二次表面处理） Sheet No. 第 页

NAME/NO. OF SHIP 船名/船号	
PART OF STRUCTURE 结 构 部 分 (BLOCK /TANK No., etc.) （分段/舱柜编号，等）	
CONSTRUCTION STAGE 建造阶段	BLOCK ASSEMBLY 分段组装 / ERECTION 合拢

Steel condition Confirm 钢板条件确认

Type of Defect 缺陷类型	Repair Method 修补方法	Repair Confirm / Date 修补确认/日期

SURFACE TREATMENT 表面处理

INSPECTION DATE 检查日期		REMARKS 备注
METHOD, GRADE 方法，等级		

COATING INSPECTOR'S NAME:

涂装检查员姓名

SIGNATURE:

签名

Form CA

COATING LOG (COATING APPLICATION)

涂装日志 (涂装施工)

Sheet No. _____

	FIRST COAT 第一道涂层		SECOND COAT 第二道涂层	
	BEFORE 涂装前	AFTER 涂装后	BEFORE 涂装前	AFTER 涂装后
INSPECTION DATE 检查日期				
ENVIRONMENT 环境 DRY TEMP. (°C) 干燥温度 RELATIVE HUMIDITY (%) 相对湿度 DEW POINT (%) 露点 SURFACE TEMP. (°C) 表面温度				
WATER SOLUBLE SALTS (mg/m ² of NaCl equivalents) 可溶性盐含量(mg/m ² 相当于 NaCl)		X	X	X
DUST 灰尘		X	X	X
OIL CONTAMINATION 油污		X		X
ABRASIVE INCLUSION 喷砂物	X	X		
STRIPE COATS 预涂				
MANUFACTURER 涂料生产厂				
PRODUCT NAME OF COATING 涂料产品名称				
PRODUCT IDENTIFICATION MARK/ NUMBER 产品标识号/编号				
REMARKS: 备注				
COATING INSPECTOR'S NAME: 涂装检查员姓名				
SIGNATURE: 签名				

Form DFT

COATING LOG (DRY FILM THICKNESS MEASUREMENT)

涂装日志 (干膜厚度测量) Sheet No. 第 页

NAME/NO. OF SHIP 船名/船号	
PART OF STRUCTURE 构造部分 (BLOCK /TANK No., etc.) 分段/舱柜编号, 等	
CONSTRUCTION STAGE 建造阶段	BLOCK ASSEMBLY 分段组装 / ERECTION 合拢

DRY FILM THICKNESS MEASUREMENT 干膜厚度检测

DRY FILM THICKNESS (μm) 干膜厚度	NUMBER OF POINTS 测量点数	RATIO 百分比
320 -		
288 - 320		
0 - 288		
TOTAL		100%

MAXIMUM THICKNESS (μm) 最大厚度	
MINIMUM THICKNESS (μm) 最小厚度	

REMARKS:

备注

Final Coating Condition Confirm 完工涂层确认

Type of Defect 缺陷类型	Repair Method 修补方法	Repair Confirm / Date 修补确认/日期

COATING INSPECTOR'S NAME:

涂装检查员姓名

SIGNATURE:

签名

受到国际造船界和航运界广泛关注的《船舶专用海水压载舱保护涂层性能标准》审议基本结束。5月10—19日在英国伦敦召开的国际海事组织(IMO)海上安全委员会(MSC)第81届会议批准了这一标准,按照强制性公约和标准的批准通过程序,该标准将由今年11月底召开的第82届海安会最终通过,

该标准将适用于2008年7月1日以后签订建造合同的500总吨以上新船的专用海水压载舱和船长超过150米的散货船;无建造合同的则为2009年1月1日以后铺设龙骨或处于类似建造阶段的船舶;或在2012年7月1日以后交船的船舶。