



GUIDE FOR THE CLASS NOTATION

COATING PERFORMANCE STANDARD (CPS)

JULY 2013

**American Bureau of Shipping
Incorporated by Act of Legislature of
the State of New York 1862**

**Copyright © 2013
American Bureau of Shipping
ABS Plaza
16855 Northchase Drive
Houston, TX 77060 USA**

Foreword

The Guide specifies the criteria for the class notation **CPS** (Coating Performance Standard), based on compliance with IMO Resolution MSC.215(82) *Performance Standard for Protective Coatings for Dedicated Seawater Ballast Tanks in all Types of Ships and Double-Side Skin Spaces of Bulk Carriers* (IMO PSPC-SWBT), as interpreted by IACS Unified Interpretations (UI) SC223, SC227 and SC226.2.

The class notation **CPS** has been developed with the objective of promoting the effective application of the IMO PSPC-SWBT on ABS-classed vessels. In applying IACS UI SC223 for the ABS CPS notation, “Administration” is to be read to be “ABS”. For issuance of the ABS CPS Notation, ABS type-Approved coating system(s) is required.

The following is scope of the ABS **CPS** Notation:

- i) The ABS **CPS** Notation is mandatory for ABS-classed Common Structural Rules (CSR) vessels contracted for construction between the builder and the owner on or after 8 December 2006.
- ii) The ABS **CPS** Notation is optional for all other ABS-classed vessels contracted for construction between the builder and the owner on or after 8 December 2006 and subject to owner’s request.

This Guide becomes effective on the first day of the month of publication.

Users are advised to check periodically on the ABS website www.eagle.org to verify that this version of this Guide is the most current.

We welcome your feedback. Comments or suggestions can be sent electronically by email to rsd@eagle.org.



GUIDE FOR THE CLASS NOTATION

COATING PERFORMANCE STANDARD (CPS)

CONTENTS

1	General	1
1.1	Scope and Application	1
1.2	Abbreviations	1
1.3	Basis of Notation	1
1.4	Effective Date	2
2	Process	2
2.1	Process Flow	2
3	Detailed Instructions	4
3.1	Coating Process	4
3.2	Verification Procedure	6
3.3	Maintenance, Repair, and Partial Re-coating	7
4	Documentation	7
4.1	Required Specific Certification and Documentation	7
4.2	Assembly of Information and Retention	7
5	Certification of Coating Systems	7
5.1	General	7
5.2	Existing Epoxy Coating Systems	7
5.3	New Epoxy Coating Systems	8
5.4	Alternative Systems	8
5.5	Certification	8
6	Survey After Construction	8
FIGURE 1	Coating Process Flow	3
FIGURE 2	Coating Pre-qualification Testing Flow (Referred to in Figure 1)	4



1 General

1.1 Scope and Application

This Guide is applicable to coatings of dedicated seawater ballast tanks in all type of ships and double-side skin spaces of bulk carriers on ABS-classed vessels. Vessels and marine structures designed, built, and coated in full compliance with the International Regulations, standards, guidelines, and recommendations as listed in 1.3 below may be assigned a class notation **CPS**, Coating Performance Standard.

Compliance with this Guide is mandatory for ABS-classed Common Structural Rules (CSR) vessels contracted for construction between the builder and the owner on or after 8 December 2006. For all other ABS-classed vessels, the **CPS** Notation is optional and subject to owner's request.

The Guide is based on the criteria contained in the IMO PSPC-SWBT as interpreted by IACS UIs SC223, SC227 and SC226.2. In applying IACS UI SC223 for ABS-classed vessels, "Administration" is to be read to be "ABS".

1.2 Abbreviations

The following abbreviations are used through this Guide:

CPS	Coating Performance Standard notation or general reference to this Guide.
CSR	Common Structural Rules, see <i>ABS Rules for Building and Classing Steel Vessels</i> , Part 5A (Double Hull Oil Tankers) and Part 5B (Bulk Carriers).
CTF	Coating Technical File
IACS	International Association of Classification Societies
IACS UR Z17	IACS Procedural Requirements for Service Suppliers
IMO PSPC-SWBT	IMO Resolution MSC.215(82) – Performance Standard for Protective Coatings for Dedicated Seawater Ballast Tanks in All Types of Ships and Double Side Spaces of Bulk Carriers

1.3 Basis of Notation

It is a prerequisite for receiving the **ABS** notation **CPS** that the applicable requirements of the following are fully complied with:

- i) SOLAS Regulation Chapter II-1/3-2, Consolidated Edition 2004, amended by IMO Resolution MSC.216(82)
- ii) IMO Resolution MSC.215(82) Performance Standard for Protective Coatings for Dedicated Seawater Ballast Tanks in All Types of Ships and Double-Side Skin Spaces of Bulk Carriers (IMO PSPC-SWBT)
- iii) IACS UIs SC223, SC227 and SC226.2: IACS Unified Interpretations For Application of SOLAS Regulation II-1/3-2 Performance Standard for Protective Coatings(PSPC-SWBT) for Dedicated Seawater Ballast Tanks in All Types of Ships and Double-side Skin Spaces of Bulk Carriers, adopted by Resolution MSC.215(82)
- iv) IACS UR Z17, IACS Procedural Requirements for Service Suppliers

1.4 Effective Date

1.4.1 CSR Vessel Application

Vessels to be classed with ABS, which are subject to the Common Structural Rules (CSR) for Oil Tankers and Bulk Carriers which were contracted for construction between the builder and the owner on or after 8 December 2006, are required to comply with this Guide. The Guide applies to:

- All dedicated seawater ballast tanks arranged in Oil Tankers of 150 meters in length or greater; and
- All dedicated seawater ballast tanks arranged in Bulk Carriers of 90 meters in length or greater; and
- Double-side skin void spaces arranged in Bulk Carriers of 150 meters in length and upwards.

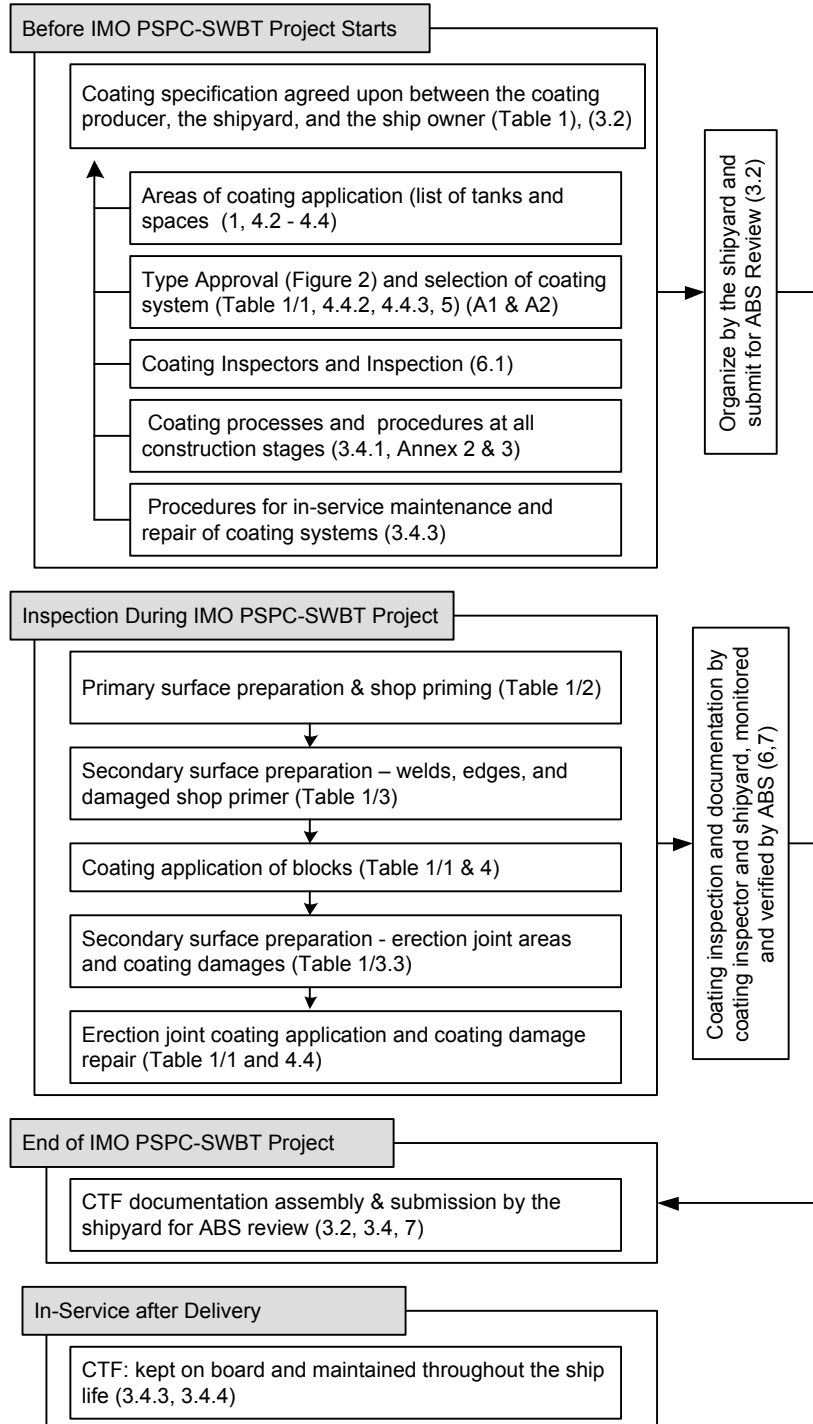
2 Process

2.1 Process Flow

The general coating process typically follows a process flow as shown in Figure 1. Each of the major coating steps is indicated, together with a cross reference to the applicable section within the IMO PSPC-SWBT. The various documentation and review steps are necessary to demonstrate compliance with the IMO PSPC-SWBT and IACS UIs SC223 and SC227.

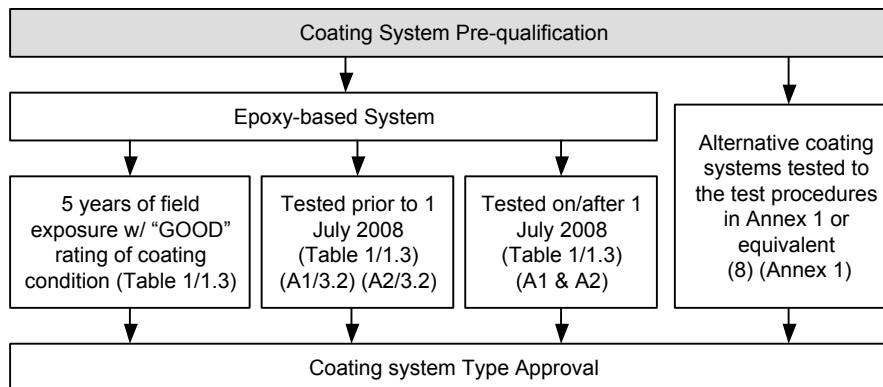
The IMO PSPC-also includes requirements for pre-qualifying IMO PSPC-coating systems. The general process flow for pre-qualifying coatings is shown in Figure 2.

**FIGURE 1
Coating Process Flow**



Note: () Reference to IMO PSPC-SWBT and related IACS UIs

FIGURE 2
Coating Pre-qualification Testing Flow (Referred to in Figure 1)



Note: () Reference to IMO PSpC-SWBT and related IACS UIs

3 Detailed Instructions

3.1 Coating Process

Detailed instructions for each of the major steps shown in Figures 1 and 2 are provided in this section.

3.1.1 Coating Inspection Agreement

The inspection procedure of surface preparation and coating processes is to be agreed by the ship owner, the shipyard, and the coating manufacturer. The resulting Tripartite Agreement is to be submitted to an ABS Technical Office for the PSpC-SWBT compliance review prior to commencement of any coating work on any stage of a new building. ABS may, if it so determines, participate in the agreement process. The Tripartite Agreement is to be included in The Coating Technical File (CTF). See IMO PSpC-SWBT 3.2.

The specification is, as a minimum, to be in accordance with all the requirements of IMO PSpC-SWBT Table 1. The specification, as defined in IMO PSpC-SWBT paragraph 2 of Annex 1, is to contain the type of coating system, steel preparation, surface preparation, surface cleanliness, environmental conditions, application procedure, acceptance criteria and inspection criteria.

3.1.2 Selection of Areas to be Coated

The IMO PSpC-SWBT is applicable for protective coatings in dedicated seawater ballast tanks of all types of ships of not less than 500 gross tonnage and double-side skin spaces arranged in bulk carriers per Section 1.4 above.

Together with the Tripartite Agreement submitted, the shipyard is to prepare and submit a list of all spaces including block identifications to be coated in accordance with the IMO PSpC-SWBT Sections 1, 4.2, and 4.3 to an ABS Technical Office for review. The final list is to be included in the CTF per Section 4.1.1 below.

3.1.3 Coating Inspector(s)

The qualifications of the coating inspector(s) are to comply with the requirements in the IMO PSpC-SWBT 6.1.1. Coating inspector qualification, requirements for assistant inspectors, and equivalent qualification of coating inspectors are clarified in IACS UI SC223.

3.1.4 Selection of Coatings

The selection of coatings is to be made taking into account the expected service conditions and intended planned maintenance program that should provide a target useful coating life of 15 years in “GOOD” condition in accordance with IMO PSPC-SWBT section 4.1. The selected coatings are to be listed and cross referenced to the spaces to be coated as per 3.1.2 above. See IMO PSPC-SWBT Table 1, 1.1.

The selected coating system shall be Type Approved (per 3.1.5 below) for compliance with IMO PSPC-SWBT 5, by a pre-qualification test as illustrated in Figure 2. See IMO PSPC-SWBT Table 1, 1.3.

“Technical Data Sheets” of each selected coating is also to be documented with its product identification, verified application procedures and application requirements. See IMO PSPC-SWBT Sections 3.4.2.2, 4.4.4, and Table 1, 1.1.

The coating manufacturer is to provide copies of the Technical Data Sheets for each coating system to be used to the shipyard for inclusion into the CTF per Section 4.1.1 below.

3.1.5 Type Approval Certificate

An “ABS Type Approval Certificate” which signifies that one of the options as illustrated in Figure 2 has been satisfied is to be obtained for each coating system selected. See IMO PSPC-SWBT Section 4.4.3 and 5.

The coating manufacturer is to provide copies of the ABS Type Approval Certificate for each coating system to be used in accordance with the IMO PSPC-SWBT to the shipyard for inclusion into the CTF per Section 4.1.1 below.

3.1.6 Primary Surface Preparation

The primary surface preparation is to comply with IMO PSPC-SWBT Table 1, 2.1 and 2.2.

The yard is to carry out the primary surface preparation and retain work records or other documentation as confirmation of the preparation treatment. Coating inspector(s) shall carry out inspections and document their confirmation that the primary surface preparation is within the standard. The documents are to be included in the CTF per Section 4.1.1 below.

3.1.7 Shop Primer Application

The shop primer is to be applied in compliance with the IMO PSPC-SWBT Table 1, 2.3. See IACS UI SC223 for review of Quality Control of Automated Shop Primer plants and section 7.3 for common interpretations concerning shop primer.

The yard is to apply the shop primer and retain work records or documentation. Coating inspector(s) shall carry out inspections and document that the shop primer application is within the standard and compatible with the selected coating to be applied. The documents are to be included in the CTF per Section 4.1.1 below.

3.1.8 Secondary Surface Preparation

The secondary surface preparation is to comply with IMO PSPC-SWBT Table 1, 3.

The yard is to carry out the secondary surface preparation and retain work records or other documentation as confirmation of the surface preparation. Coating inspector(s) shall carry out inspections and document their confirmation that the secondary surface preparation is within the standard. The documents are to be included in the CTF per Section 4.1.1 below.

3.1.9 Protective Coating Application

The protective coating is to be applied in compliance with IMO PSPC-SWBT Table 1, 1.4 and 1.5. The application conditions from IMO PSPC-SWBT Table 1, 4.1 and 4.2 are to be followed. Inspection of the coating is to be performed as per Section 3.1.10 below.

The yard is to apply the coatings and retain work records or documentation. Coating inspector(s) shall carry out inspections and document that the coating application is within the standard. The documents are to be included in the CTF per Section 4.1.1 below.

3.1.10 Coating Inspection

The coating is to be inspected at various stages of surface preparation and application to verify and document that the surface preparation and the coating application are within the standard as per IMO PSPC-SWBT Section 6.1.2.

The coating inspectors are to document the results from the inspections per IMO PSPC-SWBT Section 6.1.3, Annex 2 and Annex 3. The documents are to be included in the CTF per Section 4.1.1 below.

ABS is to monitor and verify (see 3.2) the implementation of the PSPC-SWBT requirements as indicated by the PSPC-SWBT Section 7.

3.1.11 Coating Repair

Any defective areas of the coatings are to be repaired per IMO PSPC-SWBT Table 1, 4.4. The coating inspectors are to document the results from the inspections of the repaired areas per IMO PSPC-SWBT Section 6.1.3 and Annex 2. The documents are to be included in the CTF per Section 4.1.1 below.

3.1.12 CTF Documentation and Review

The IMO PSPC-SWBT mandates that each step in the coating process is performed strictly in accordance with the specifications and properly documented. The Coating Inspection Agreement, called the Tripartite Agreement, is to be documented and reviewed prior to the performance of the actual work. Daily log and non-conformity reports for the inspection items listed in IMO PSPC-SWBT Section 6.2 are required to illustrate the conditions and inspection results of the actual work carried out. The assembly and submission of all documents called the Coating Technical File (CTF) is the overall responsibility of the shipyard as per IMO PSPC-SWBT Section 3.4 and Section 4 of this Guide below. The final CTF file is to be submitted to the attending ABS surveyor for review.

3.2 Verification Procedure

The basic verification procedure is included in IMO PSPC-SWBT Section 7. The following information shall be verified by ABS prior to reviewing the CTF in support of the **CPS** notation.

3.2.1 Technical Data Sheet, Type Approval Certificate

Verify the Technical Data Sheet and the ABS Type Approval Certificates for compliance with the IMO PSPC-SWBT Section 5.

3.2.2 Coating Identification

The attending ABS Surveyor shall verify on sampling basis that the coating identification on representative containers is the same coating identified in the Technical Data Sheet and the ABS Type Approval Certificate.

3.2.3 Coating Inspector Qualification

The attending ABS Surveyor shall verify that the coating inspector(s) and assistant inspector(s) are qualified in accordance with the qualification standards in IMO PSPC-SWBT Section 6.1.1 and IACS UI SC223.

3.2.4 Coating Inspector's Reports

The attending ABS Surveyor shall verify that the coating inspector's reports of surface preparation and the coatings' application indicate compliance with the manufacturers' Technical Data Sheet, the ABS Type Approval Certificate and coating specification agreed in the tripartite agreement.

3.2.5 Implementation of Coating Inspection Requirements

The attending ABS Surveyor shall monitor implementation of the coating inspection requirements, see IMO PSPC-SWBT Section 7.5 and IACS UI SC223.

3.3 Maintenance, Repair, and Partial Re-coating

The coatings are to be maintained and repaired in accordance with the Guidelines for Maintenance and Repair of Protective Coatings from IMO Circular MSC.1/Circ.1330. See IMO PSPC-SWBT Sections 3.4.3 and 3.4.4.

Records of maintenance, repair, and partial re-coating are to be documented in the CTF, which is to be kept on board and maintained throughout the life of the ship in accordance with IMO PSPC-SWBT Section 3.4.5.

4 Documentation

4.1 Required Specific Certification and Documentation

The following documentation and certification are required in order to receive and maintain the **CPS** notation:

4.1.1 Coating Technical File (CTF)

As mentioned above in 3.1, the preparation and continuous update of the CTF and the existence of the CTF endorsed by qualified coating inspector(s) onboard the vessel are the basis for the **CPS** notation. The CTF is to include the information listed in IMO PSPC-SWBT Sections 3.4.2, 3.4.3, and 3.4.4. The CTF is to be available for reference by the Surveyor during new construction and during class surveys after construction. See IMO PSPC-SWBT 3.4.5.

4.2 Assembly of Information and Retention

4.2.1 New Construction Phase

The CTF is to be initiated prior to commencement of any coating work and continuously updated by the shipbuilder or their representative qualified coating inspector(s) throughout the construction phase. The CTF is to be endorsed by qualified coating inspector(s) and is to be placed onboard the vessel upon delivery of the vessel. See IMO PSPC-SWBT Sections 3.4.2 and 3.4.5

4.2.2 In-service Phase

The CTF is to be retained onboard and continuously updated to reflect any coating work by the shipowner or their representative qualified coating inspector(s) throughout the vessel's life for the Surveyor's verification, as necessary, at the class surveys after construction. See IMO PSPC-SWBT Sections 3.4.3, 3.4.4 and 3.4.5 and IMO Circular MSC.1/Circ.1330.

5 Certification of Coating Systems

5.1 General

There are three different methodologies clarified in IACS UI SC223 for the coating manufacturer to apply for approval of its coating system, namely, laboratory testing for new coating systems, five years of field exposure for existing coating systems, or an existing Marintek B1 test reported prior to 8 December 2006. Additionally, the coating manufacturer is to comply with sections of the procedural requirements for service suppliers as per IACS UR Z17 and IACS UI SC223 Method D.

5.2 Existing Epoxy Coating Systems

5.2.1 5 Year Field Test

As indicated in IMO PSPC-SWBT Table 1, 1.3, existing epoxy coating systems may be applied to provide protection against corrosion provided they have documented field exposure for at least five (5) years with a final coating condition of not less than "GOOD". An ABS Technical Office is to review the particulars related to an existing epoxy system and, if found satisfactory, may issue a Product Design Assessment (PDA) Certificate indicating adherence to the standard. See IACS UI SC223 "Method B".

5.2.2 Marintek B1 Approvals

Epoxy coating systems with **an** existing satisfactory Marintek B1 test reported prior to 8 December 2006 may be applied to provide protection against corrosion. An ABS Technical Office is to review the particulars related to an existing epoxy system and, if found satisfactory, may issue a Product Design Assessment (PDA) Certificate indicating adherence to the standard. See IACS **UI SC223** “Method C”.

5.3 New Epoxy Coating Systems

As indicated in IMO PSPC-**SWBT** Table 1, 1.3 and Table 1, 3.2 (“Crossover Test”), new epoxy coating systems may be applied to provide protection against corrosion provided that they have been tested and documented in accordance with the procedures detailed in IMO PSPC-**SWBT** Annex 1.

An ABS Technical Office is to review the particulars related to the testing of the epoxy system and, if found satisfactory, may issue a Product Design Assessment (PDA) Certificate indicating adherence to the standard. It is noted in IMO PSPC-**SWBT** Annex 1, 3.2 that, if the testing is performed prior to the entry into force of the standard, only the criteria for blistering and rust needs to be satisfied. After the entry into force all aspects of the test need to be satisfied. See IACS **UI SC223** “Method A”.

5.4 Alternative Systems

Alternative systems may be certified in accordance with IMO PSPC-**SWBT** Section 8. An ABS Technical Office **is to** review the particulars related to the testing of the alternative system (IMO PSPC-**SWBT** Annex 1, Appendix 1 Section 3 and Appendix 2 Section 3) and, if found satisfactory, may issue a Product Design Assessment (PDA) Certificate indicating adherence to the standard.

5.5 Certification

Certification of a coating system may be made by issuance of **an ABS-Type** Approval Certificate.

Upon satisfactory review of the particulars related to the testing of the coating system as indicated in 5.2, 5.3, or 5.4 above, and the details of the ABS Type Approval Program specified in 1-1-4/7.7 and Appendix 1-1-A3 of the *ABS Rules for Conditions of Classification (Part 1)*, if found satisfactory, ABS may issue a Type Approval Certificate **to the coating manufacturer**.

6 Survey After Construction

In order to retain the **CPS** notation, all annual, intermediate, and renewal or periodic surveys, as applicable for the various documents listed in 1.3 above, are to be satisfactorily completed. At each periodical survey, the attending Surveyor is to verify **that**:

- i)* Certification and documentation **are** onboard as outlined in **Section 4.2** above,
- ii)* Approved operational procedures as outlined in 3.3 above are maintained onboard, **and**
- iii)* At the time of the corresponding periodical survey (Annual, Intermediate, or Renewal), any maintenance or repair of coating that **has** been carried out are properly documented, as per above paragraph 3.3.