ShipRight Notice for
Linked Supporting Services
Anti-Corrosion System Notation, July 2012

The status of this Rule set is amended as shown and is now to be read in conjunction with this and prior Notices. Any corrigenda included in the Notice are effective immediately.

Issue date: September 2014

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<th>Effective date</th>
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<td>Sections 2-7</td>
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</table>
Anti-Corrosion System Notation

ShipRight
Anti-Corrosion System Notation

Effective September 2014

Section 2
ACS notation Notation and notation characters Notation
Characters

(Part only shown)

2.1 ShipRight ACS notation Notation

The Anti-Corrosion System notation Notation, ShipRight ACS (...), will be assigned when a ship complies with the requirements of this procedure at the new construction stage. The notation will be placed in Column 4 of the Register book. The requirements and procedure for the applications are given in Section 3.

During service, if at survey a mandatory notation item is found no longer complying with survey requirements, repairs must be carried out to ensure that the requirements are once again satisfied in accordance with relevant rules and regulations.

2.2 ShipRight ACS characters

The ShipRight ACS notation Notation with the following associated characters will be assigned to ships where approved protective coating systems are applied in compliance with this procedure.

- **B** for approved protective coating system of water ballast tanks;
- **D** for protective coating system of double-side skin spaces (DSS) of bulk carriers;
- **C** for approved protective coating system of cargo oil tanks of crude oil tankers;
- **C** for protection of cargo oil tanks of crude oil tankers by the use of approved corrosion resistant steel;
- **D** for approved protective coating systems in the double-side skin spaces (DSS) of bulk carriers; and
- **V** for approved protective coating systems in void spaces.

2.3 ShipRight PCWBT descriptive note Descriptive Note

The Descriptive Note ShipRight PCWBT (Date), (see Reference 7.1), is mandatory and remains applicable to ships which are not covered by the application requirements of the ShipRight ACS notation Notation.

Section 3
Notation applications Applications

3.1 ShipRight ACS notation Notation character B – Protective coating system for water ballast tanks

ACS notation character B is assigned to a ship when an approved protective coating system is applied to the sea-water ballast tanks during new construction in compliance with this procedure.

Application of protective coating system for water ballast tanks is mandatory for ships to which SOLAS Chapter II-1 Regulation 3-2 is applicable and:
- the building contract is placed on or after 1 July 2008; or
- in the absence of a contract, the keel is laid on or after 1 January 2009; or
- the delivery date is on or after 1 July 2012.

The requirement also applies to ships approved in accordance with the Common Structural Rules and contracted on or after 8 December 2006:
- ballast tanks of double hull oil tankers of length greater than or equal to 150 m and
- ballast tanks of bulk carriers of length greater than or equal to 90 m.

3.2 ShipRight ACS notation Notation character C – Protective coating system for cargo oil tanks of crude oil tankers

ACS notation character C is assigned to a ship when an approved protective coating system is applied to the cargo oil tanks of crude oil tankers during new construction in compliance with this procedure.

Unless a Lloyd’s Register approved alternative corrosion protection system is used (see 3.3) this requirement is mandatory for crude oil tankers as defined in Annex I of MARPOL 73/78, where:
- the building contract is placed on or after 1 January 2013; or
- in the absence of a contract, the keel is laid on or after 1 July 2013; or
- the delivery date is on or after 1 January 2016.
3.3 ShipRight ACS Notation character C* – Protection of cargo oil tanks of crude oil tankers using corrosion resistant steel

ACS Notation character C* is assigned to a ship when the cargo oil tanks of crude oil tankers are manufactured using corrosion resistant steel during new construction in compliance with this procedure.

As an alternative to 3.2, mandatory corrosion protection of the cargo oil tanks of crude oil tankers as defined in Annex I of MARPOL 73/78 may be achieved by the use of approved corrosion resistant steel, where:
- the building contract is placed on or after 1 January 2013; or
- in the absence of a contract, the keel is laid on or after 1 July 2013; or
- the delivery date is on or after 1 January 2016.

3.4 ShipRight ACS notation Notation character D – Protective coating system for double-side skin spaces of bulk carriers

ACS notation Notation character D is assigned to a ship when an approved protective coating system is applied to the double-side skin spaces during new construction in compliance with this procedure.

The requirement is mandatory for new bulk carriers including dedicated ore carriers of length of 150 m or above within the scope of 3.1. For CSR Common Structural Rules ships it applies to bulk carriers of length greater than or equal to 150 m.

3.5 ShipRight ACS notation Notation character V – Protective coating systems for void spaces of bulk carriers and oil tankers

ACS notation Notation character V is optional and is assigned to a ship when a protective coating system is applied to the void spaces of bulk carriers and oil tankers constructed in compliance with this procedure.

3.6 Ship areas covered by ACS notation Notation characters

The areas covered by the ACS notation Notation are listed in Table 1.

In addition to the areas specified in Table 1, access arrangements that are integral to the ship structure, such as stiffener depths for walkways, stringers, etc., are to fully comply with the relevant requirements for the notation.
Section 4  

Coating Requirements

4.1 General

To qualify for the ACS notation, the following requirement shall be complied with:

- submission of a coating specification agreed by the shipyard, the ship Owner and the paint manufacturer, including the coating system selection, surface preparation and coating application and inspection procedure, to Lloyd’s Register for review prior to construction;
- all coating products are to be type approved by Lloyd’s Register;
- inspection of surface preparation and coating application is to be carried out by qualified coating inspectors and verified by Lloyd’s Register Surveyors;
- a coating technical file (CTF) is to be compiled by the shipyard and submitted to Lloyd’s Register for review before ship delivery. The CTF is to include the following information:
  - coating specifications
  - coating type approval certificates
  - Approval Certificates and product technical data sheet
  - shipyard work record of coating application
  - inspection procedure and reports
  - in-service maintenance and repair procedure

<table>
<thead>
<tr>
<th>ACS notation notation characters</th>
<th>Ship type</th>
<th>Areas to be coated protected</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>All ships</td>
<td>All internal surfaces of dedicated seawater seawater ballast tanks</td>
</tr>
<tr>
<td>C</td>
<td>Bulk carriers</td>
<td>Double-side skin spaces</td>
</tr>
</tbody>
</table>
| C*                               | Crude oil tankers | The following areas of cargo oil tanks should be protected by the application of corrosion resistant steel during construction:
  - Deckhead with complete internal structure, including brackets connecting to longitudinal and transverse bulkheads. In tanks with ring frame girder construction the underdeck transverse framing to be protected down to level of the first tripping bracket below the upper faceplate.
  - Longitudinal and transverse bulkheads to be protected to the uppermost means of access level. The uppermost means of access and its supporting brackets to be protected.
  - On cargo tank bulkheads without an uppermost means of access the protection is to extend to 10% per cent of the tank height at the centreline but need not extend more than 3 m down from the deck.
  - Flat inner bottom and all structure to height of 0,3 m above inner bottom to be protected. |
| D                                | Bulk carriers | Double-side skin spaces |
| V                                | Bulk carriers and crude oil tankers | For bulk carriers:
  - Double bottom pipe passages/pipe tunnels
  - Small void spaces located behind gusset or shedder plates at the bottom of corrugation bulkheads with exception of totally enclosed spaces
  - Other small void spaces in cargo spaces, with the exception of totally enclosed spaces
  - Lower transverse stoo of transverse bulkheads, with the exception of totally enclosed spaces
  - Upper transverse stoo of transverse bulkheads, with the exception of totally enclosed spaces

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  - Deckhead with complete internal structure, including brackets connecting to longitudinal and transverse bulkheads. In tanks with ring frame girder construction the underdeck transverse framing to be coated down to level of the first tripping bracket below the upper faceplate.
  - Longitudinal and transverse bulkheads to be coated to the uppermost means of access level. The uppermost means of access and its supporting brackets to be fully coated.
  - On cargo tank bulkheads without an uppermost means of access the coating to extend to 10% per cent of the tank height at the centreline but need not extend more than 3 m down from the deck.
  - Flat inner bottom and all structure to height of 0,3 m above inner bottom to be coated. |
| D                                | Bulk carriers | Double-side skin spaces |
| V                                | Bulk carriers and crude oil tankers | For oil tankers:
  - Forward cofferdam/cofferdam separating cargo from forepeak
  - Cofferdam in cargo area/cofferdam separating incompatible cargoes
  - Aft cofferdam
  - Duct keel/pipe tunnels
  - Lower bulkhead stools
  - Upper bulkhead stools |
The following sub-Sections give the requirements for coating specification, application and inspection for different areas of ship structures.

4.2 Coating selection

Paint products of a coating system are to be type approved by Lloyd’s Register (see approval requirements and lists of Lloyd’s Register approved PSPC compliant coatings on CDLive Lloyd’s Register’s Class Direct website).

The paints of the main coating system are generally to be epoxy-based products or approved alternative coating systems.

4.2.1 Surface preparation and coating application

This section gives brief details of requirements for steel surface preparation and coating application. Full details of requirements are given in Reference 7.2 and some reduced requirements for ACS notation character V are given in 4.3.5 4.2.6.

4.3 Inspection

Inspection reports as that form part of CTF are to be submitted to Lloyd’s Register for auditing.

Table 2 Minimum requirements for ACS notation character V

<table>
<thead>
<tr>
<th>Surface preparation and coating stage</th>
<th>Item</th>
<th>Minimum requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary preparation</td>
<td>Steel condition</td>
<td>Grade P1 with ISO 8501-3. Edges subject to one pass grinding or equivalents.</td>
</tr>
<tr>
<td></td>
<td>Surface cleanliness</td>
<td>Sa2 or St3 on areas of damaged shop primer.</td>
</tr>
<tr>
<td></td>
<td>Surface salt contaminations</td>
<td>100 mg/m² total soluble salts measured equivalent to sodium chloride.</td>
</tr>
<tr>
<td></td>
<td>Dust level</td>
<td>Dust quantity rating “2” for dust size class “3”, “4” and “5”.</td>
</tr>
<tr>
<td></td>
<td>Surface cleanliness of erection joints</td>
<td>St3 or Sa2 or better.</td>
</tr>
<tr>
<td>Main coating application (block and erection stages)</td>
<td>Number of coats</td>
<td>1 or 2 coats.</td>
</tr>
<tr>
<td></td>
<td>Dry film thickness (DFT)</td>
<td>200 µm with 90/10 rule or according to manufacturer’s recommendation if the DFT is higher.</td>
</tr>
<tr>
<td></td>
<td>Stripe coating</td>
<td>Minimum one stripe coat on thermally cut free edges and small holes only.</td>
</tr>
</tbody>
</table>
Section 5
Coating Verification

Verification is to be carried out by Lloyd’s Register Surveyors and is to include document auditing and on-site attendance on a sampling basis. Details of guidelines are found in Reference 7.2.

The Product Technical Data Sheet and Statement of Compliance issued by the manufacturer are to be verified against the Lloyd’s Register Type Approval Certificate.

The coating identification on representative containers is to be consistent with the coating system identified in the Technical Data Sheet and Type Approval Lloyd’s Register Approval Certificate.

A full CTF in accordance with Section 4.1 is to be submitted to Lloyd’s Register for review prior to ship delivery.

Section 6
Corrosion Resistant Steel

6.1 General

To qualify for ACS Notation character C*, the following requirements shall be complied with:

- the corrosion resistant steels used are to be approved by Lloyd’s Register;
- the application of corrosion resistant steel is to be verified by Lloyd’s Register Surveyors;
- a Technical File is to be compiled by the shipyard and submitted to Lloyd’s Register for review before ship delivery. The Technical File is to include the following information:
  - copies of the Approval Certificate(s);
  - details of the welding consumables and welding procedures used;
  - repair methods, if specified by manufacturer;
  - areas of application/location of corrosion resistant steel;
  - brand and grade of corrosion resistant steel, including location and thicknesses;
  - in-service maintenance and repair procedures.

Sections 6.2 and 6.3 give the requirements for material selection, application and verification for corrosion resistant steel.

6.2 Material selection

Only corrosion resistant steels approved by Lloyd’s Register shall be utilised, see Ch 3, 1.3 of the Rules for Materials. Approved manufacturers can be identified on Lloyd’s Register’s Class Direct website. Lloyd’s Register Approval Certificates indicate the acceptable locations of use, and any approved welding consumables.

In locations where additional corrosion protection is necessary, i.e.:

a) if two different grades of corrosion resistant steel are used together;
b) if corrosion resistant steel and conventional steel are used together; or
c) if a non-compatible welding consumable is used, the weld and any conventional steel is to be coated in accordance with the requirements of Sections 4 and 5 of this procedure, using Lloyd’s Register approved cargo oil tank coating products. The use of additional corrosion protection by the use of coatings is to be recorded in the vessel’s Coating Technical File.

6.3 Verification

During construction Lloyd’s Register will verify that the specified grades of corrosion resistant steel have been applied at the appropriate locations. This verification activity shall be on a sampling basis, with the frequency determined from the shipyard quality control records. Any non-compliant locations are to be identified to the shipyard, who shall formulate a plan of corrective action. Such corrective action shall be recorded in the Technical File.

The shipyard will be informed by Lloyd’s Register of any corrective actions that are not acceptable to Lloyd’s Register, or have not been closed out.

A complete Technical File is to be submitted to Lloyd’s Register for review prior to ship delivery.

A Class certificate will not be issued until all required corrective actions have been closed out to the satisfaction of Lloyd’s Register.
References

2. LR Verification Guidelines for the Application of the Performance Standard for Protective Coatings (PSPC) for Dedicated Seawater Ballast Tanks, January 2013, Class Direct, ShipRight Procedures.
3. LR Shipyard PSPC Auditing Guidelines.