Ministry of Defence

de&s

Defence Equipment & Support

WARPAINT

Issue 49

October 2021

Equipping and Supporting our Armed Forces

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CONTENTS

The information on acceptable paint systems / coatings, given in this publication, updates WARPAINT Issue 48 – April 2021.

INTRODUCTION

1. WARPAINT is the main guidance document of acceptable paint coatings for all in-service and new-build Royal Naval Vessels. It is to be read in conjunction with Issue 5 of BR 3939 Hull Preservation Processes.

2. WARPAINT offers guidance on the various approved 'Commercial Off The Shelf' (COTS) protective coatings that have been assessed for their health and safety, fire characteristics and suitability when applied to various areas of Royal Naval Vessels in accordance with BR 3939 Issue 5.

3. WARPAINT is currently released biannually in April & October. It is used to disseminate changes to MOD policy or guidance in between major updates of BR 3939 or any of the other paint related Defence Standards.

4. Not all approved coatings are necessarily listed in WARPAINT as paint manufacturers are constantly striving to improve their current paint systems. Consequently, the Whole Ship Specifications (WSS) / Annexes are regularly updated. Should a coating therefore be proposed, which is not listed in the current issue of WARPAINT, confirmation of acceptance must be obtained from DES-ShipsNSS-CET-SET-HUSBANDRY before it is used.

5. All paint coatings listed in the Annexes are to be applied strictly in accordance with their respective Product / Technical Data Sheets (PDS / TDS), Material Safety Data Sheets (MSDS) and Application Instructions. This includes all aspects of the preparation stage and post application. PDS's define a process that must be followed in conjunction with the TDS and MSDS. Full Quality Control (QC) data must be recorded to provide assurance and evidence that the specification has been satisfactorily achieved in accordance with BR 3939.

6. WARPAINT is only available electronically. It can be easily downloaded from the link below:

    a. https://www.gov.uk/government/publications/warpaint

AMENDMENTS TO ISSUE 49

7. Front Cover: HMS Lancaster, transiting through the Baltic sea in 2021.

8. DE&S Waterfront Engineering Team details added to document. Paint Material State Database has been updated and renamed to Maritime Assurance Support Tool.
9. Hot topics section updated:

    a. Tool Section has been updated with Bristle Blaster RNTM details and a new paragraph added to include Pinovo Blasting.
    b. Fleet Minor Trials section updated to include Cold Metal Spray (CMCS) and Low Solar Absorbance paint trials.

c. New paragraphs added clarifying the painting of wet and dry compartments and clarifying the ordering paint due to the new FMSP contract.

10. Safety section updated:

a. Needle gun section updated to reflect the most recent information.
b. Chromate paints additional paragraph added with information of Defence Instruction Notice (DIN).
c. Submarine battery compartment lining details added.
d. Notification of MAP 01-026 update.

11. Husbandry Current Work has been updated.
12. Submarine specification Contact details updated.
13. References updated.
14. Annex A – minor amendments to fix spelling errors and to update Hempel flight deck marking coating.

15. Annex B colour information has been added to each area.

16. Annex C paints have been removed where there is no BR1326 information available. International paints Intergard 5000 & 1735 have been added to Area S12. Post information added at the request of In Service Submarine (ISM) Design Authority (DA).

17. Annex D NSN numbers have been updated to reflect the most current information. Quantity of 20 Ltrs has also been added to Sigmacover 400 in white.

WARPAINT APPROVAL PROCESS

18. Paint coatings on all RN surface ships and submarines are to be WARPAINT compliant. Figure 1-1 details the process for product inclusion in WARPAINT.

19. All requests for approval are to be sent to DES-ShipsNSS-CET-SET-HUSBANDRY. Requests are to include the Product/Technical Data Sheets, Material Safety Data Sheets, application instructions and where the paint is to be used or which paint it will be replacing. Requests will not be processed without this information especially where the paint is to be used or what it is replacing.

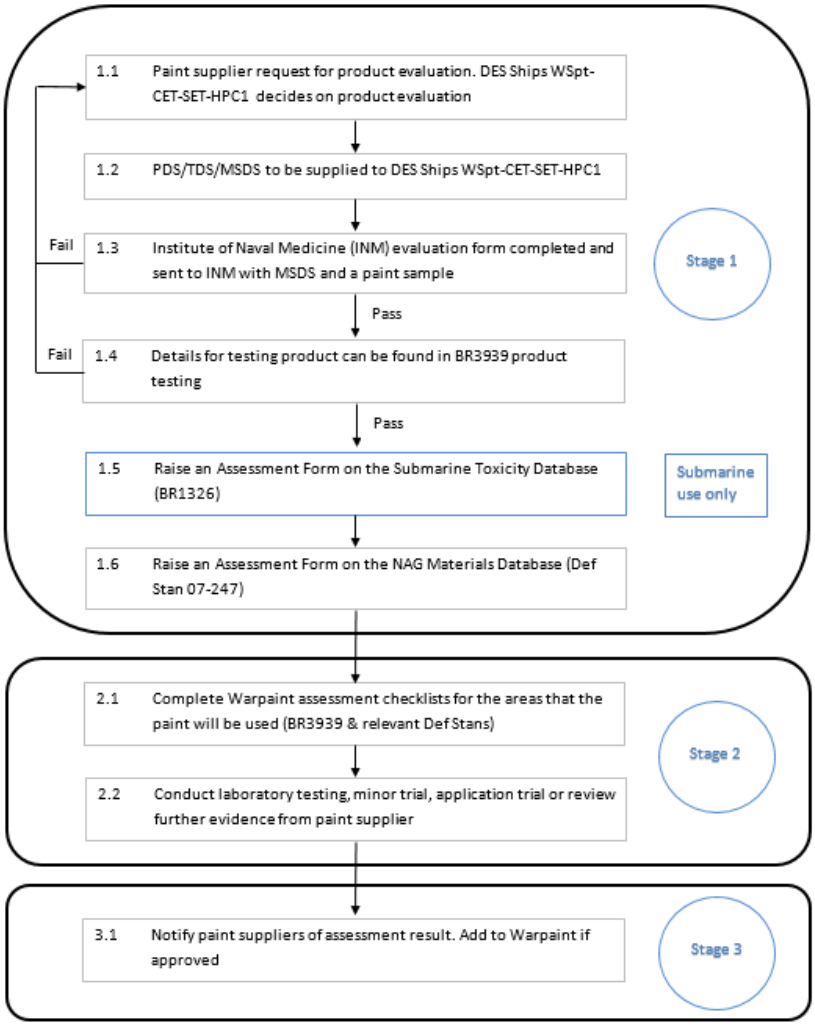


Figure 1-1 WARPAINT Approval Process

20. Requests are not to be sent directly to Institute of Naval Medicine (INM). Requests sent directly to INM will not be actioned. The latest INM Request template can be obtained from DES-ShipsNSS-CET-SET-HUSBANDRY.

21. All paints shall be reassessed every 5 years to ensure they still meet Warpaint requirements. This may be carried out sooner if there has been a change in legislation or the manufacturer notifies DES-ShipsNSS-CET-SET-HUSBANDRY of a change to the formulation.

22. As part of the approval process the manufacturer shall be required to submit in confidence Identification Characteristics (IC) In Accordance With (IAW) BR3939 Issue 5.

23. The manufacturer shall supply in confidence all type approval certification and relevant test data relating to a paint IAW BR3939 Issue 5. If the data is not provided then the product will not be approved for inclusion in to Warpaint.

24. Post review, a WARPAINT Approval Reference (WAR) Number will be allocated to each product and will be included in Annex D.

DE&S WATERFRONT ENGINEERING TEAM

25. DE&S have stood up engineering teams in Devonport and Portsmouth to extend the reach of Naval Ship Support, they will provide an assurance and oversight role within the Naval Bases. They are to be the first point of contact within the dockyards for Husbandry and Habitability platform queries.

26. Devonport Waterfront Engineering Team (DWET) - DESShipsNSS-CET-DWET@mod.gov.uk

27. Portsmouth Waterfront Engineering Team (PWET) - DESShipsNSS-CET-PWET@mod.gov.uk

28. The Devonport and Portsmouth Engineering Teams will also support platforms at other locations:

    a. Devonport Waterfront Engineering Team: Falmouth, Clyde & Rosyth

    b. Portsmouth Waterfront Engineering Team: Forward based platforms

RN HUSBANDRY HABITABILITY DATABASE (RNHHD)

29. The RNHHD Application is located on the RLI network and can be found at http://www.rnhhdb.r.mil.uk log ins are not required. The toolset is General Data Protection Records (GDPR) compliant and is MOD accredited.

30. RNHHD has been updated to include product data sheets and safety data sheets for all warpaint coatings. Links have been created between the Naval Authority Group (NAG) Non-Metallic Materials Database where possible. This will continue to be updated as the two databases are aligned.

31. The sore thumbs section of RNHHD allows ships company to raise issues and upload documents and photos of the problem. All users are encouraged to use this function so that issues can be captured and actioned.

32. It is the intention to replace RNHHD with a new application that aligns with Project Nelson Architecture and contains greater functionality.

MARITIME ASSURANCE SUPPORT TOOL (MAST)

33. Paint Material State Database (PMSD) has been renamed to Maritime Assurance Support Tool (MAST) as it will be used more widely in capturing data from the waterfront engineering teams based in the Naval Bases.

34. MAST is a web-based software application. The application securely records the results of surveys conducted of platforms, the corrosion state of the surfaces within and work carried out to rectify or prevent corrosion issues. By centralising this data, a holistic view of the platform's corrosion state can be maintained, performance of paints understood, and the impact of work undertaken or deprioritised can be reported on.

35. All survey documents and corresponding quality control records are to be sent to the relevant waterfront team as per para 28 using the correct multiuser email account para 26 & 27 so that the records can be inputted in to MAST.

36. Phase 2 development of the application will finish in November 2021. This major update will include a new reporting function to allow users to create and save individual reports from the data captured within the application.

37. The application will be further developed to add additional functionality over the next 12 months. Ships company will be able to request access to their platforms data in Summer 2022.

DESIGN

38. During the design phase of a vessel either in build or in service it is essential that engineers are aware of the impact of corrosion and to use best practice when designing new structures and systems. A good guide for engineers is the Marine Paint forums "Guidance information on design for preservation and corrosion control for steel hulled vessels". Membership of the Marine Paint Forum is made up of the Paint Suppliers, Paint Applicators, MOD, Consultants and UK Shipyards.

39. Ministry of Defence Ship Acquisition and in-service platform teams should refer to the following documents in line with Knowledge in Defence (KiD) when specifying paint requirements.

- Def Stan 21-005 Code of Practice for Protective Finishes
- BR 3939 Hull Processes
- WARPAINT

DESIGN TARGET LIFE OF COATINGS

40. The expected design target life of coatings applied to Royal Naval Vessels, in accordance with the performance requirements of BR 3939 and the paint manufacturer's declaration, are as follows:

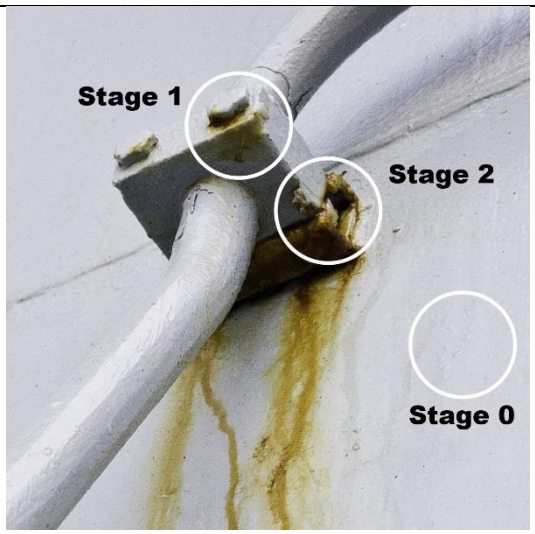
Description	Design Life
Holding Primer	6 Months
Hull Primer	20 Years
Anti-Fouling	5 Years
Anti-Fouling Foul Release	6 Years
Internal Primer	25 Years
Internal Finish	15 Years
External Finish	5 Years
Tank Coatings	15 Years
Bilges (Zinc metal sprayed)	25 Years

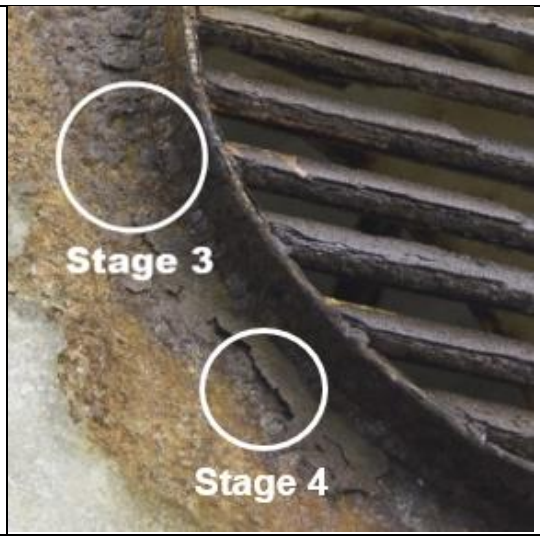
Table 1-1 Design Target Life of Coatings

41. Where Bilges are not zinc metal sprayed, they shall meet the 25-year design life using alternative approved coatings IAW BR3939 Issue 5.

THE 4 STAGES OF CORROSION

42. The table below is to assist surveyors to categorise the level of corrosion that has been identified through routine survey.





Stage 0	No visible signs of corrosion. No indications of paint system defects. No visible sign of oxidation products.
Stage 1	General surface corrosion is visible. Small blisters or cracks in the paint coating. Red / Orange rust staining becoming evident & deposits from water run-offs developing.
Stage 2	Heavy corrosion is visible. Severe blister or cracking in the paint coating. Prominent rust staining is now visible with medium to heavy deposits from water run-offs.
Stage 3	Severe corrosion has resulted in visible metal loss at the point of attack to the point that structural integrity may have been compromised. Very prominent rust staining is visible, with heavy deposits from water run-offs.
Stage 4	Complete perforation of the base metal has occurred, and structural integrity has been lost.

Table 1-2 Stages of Corrosion

QUALITY

43. Quality is an important aspect to painting and cannot be underestimated. It is paramount that robust processes are in place and adhered to. BR 3939 Issue 5 Section 14 Quality Assurance & Quality Control outlines the requirement for a Quality Test Plan (QTP) and variable check points in the process as well as the qualification level of the paint inspectors. In addition, the requirements of Annex C of BR 3939 must also be noted.

44. Periodic checks should be carried out by the prime contractor to ensure that only qualified painters and blasters carry out work on RN vessels and that they are in date In Accordance With (IAW) BR3939 Issue 5 para 1408.

45. At the completion of any work undertaken on surface ships copies of the paint specification and QC data is to be forwarded to DES-ShipsNSS-CET-SET-HUSBANDRY for information.

46. New RDAR Deliverable. On completion of the maintenance period, all Certificate of Conformance (CofC) produced in accordance with BR3939 (Hull Preservation Process) to be forwarded to SDA-IS-Navarch3b.

47. If the maintenance period is a docking, an additional request to forward a “Declaration letter of anti-fouling system compliance with AFS/CONF/26” to SDA-IS-Navarch3b and SDA-IS-EnvMgr is required.

48. For additional advice of this deliverable contact SDA-IS-Navarch3b in advance of delivery.

PAINTING AND PRESERVATION HOT TOPICS

49. Relevant news stories, direct questions on approved coatings or paint systems and all matters regarding preparation standards, NATO stock numbers and MOD(N) Paint Policy can be directed to DES-ShipsNSS-CET-SET-HUSBANDRY alternatively telephone 030 679 35047.

MILL SCALE

50. Mill scale issues are increasingly being reported by new build and in-service projects. The Marine Paint Forum has set up a working group to look to investigate this issue and will deliver their findings in 2021.

51. Mill scale is an iron oxide layer that forms when steel is manufactured, during hot rolling. It is generally between 25-100 µm thick, can be tightly or loosely bonded to a steel surface, and is more noble than mild steel. Because mill scale is more noble than steel, galvanic corrosion of mild steel in preference to mill scale will occur when exposed to seawater. Mill scale can also cause adhesion problems, as loosely bonded mill scale may flake away, taking the primer with it. To avoid adhesion issues and corrosion of steel, **all loose mill scale should be removed** prior to priming. The photos below show 2 different rust grades. The pictures and the descriptions of rust grades are taken from BS EN ISO 8501-1:

Figure 1-2 Rust Grade A

Rust grade A – Steel surface largely covered with adhering mill scale but little, if any, rust

Figure 1-3 Rust Grade B

Rust grade B – Steel surface which has begun to rust and from which the mill scale has begun to flake

TOOLING

52. DE&S have been working to re-introduce the Anti-Corrosion Kit (ACK) to the Fleet. This will provide essential equipment to ships staff to carry out surface preparation and painting IAW BR3939 Issue 5. These kits will be issued to ships during 2021/22 under a new RNTM.

53. Pinovo blasting is being investigated as an alternative preparation process for internal spaces to reduce the use of mechanical surface preparation for use in-service.

54. Bristle Blasters will be rolled out across the RN Surface Ships under RNTM 04-026/21.

NSN	Description
5130-12- 414-0271	Bristle Blaster Electric 110V (with special gear reduction), UK CEE PLUG, MONTI Adaptor Systems 11 + 23 mm, 5 Bristle Blaster Belts 23mm Red, 5 Bristle Blaster Belts 11mm Red, Packed in blow moulded case.
5130-12- 413-9065	Bristle Blaster® Set Electric 230V / 60Hz, 1 x Bristle Blaster® Drive Unit, 1 x MONTI Adaptor System 23 mm, 1 x Bristle Blaster® Accelerator Bar 23 mm, 1 x Bristle Blaster® Accelerator Bar 23 mm, Packed in blow moulded case.
5130-12- 383-4661	Bristle Blaster Belt Carbon Spring Steel 23mm (10 pack)
5130-12- 404-5082	Bristle Blaster Belt Carbon Spring Steel 11mm (10 pack)
5130-12- 383-4545	Adaptor System 23mm
5130-12- 383-4561	Adaptor System 11mm
5315-12- 414-0275	Accelerator Bar Carbon Spring Steel for 23mm Belts (5 pack)
5315-12- 414-0276	Accelerator Bar Carbon Spring Steel for 11mm Belts (5 pack)

FLEET MINOR TRIALS

55. Fleet Minor Trial (FMT) for temporary holding paints commenced in Nov 2020. The trial has recently completed and the data is now being analysed.

56. Cold Metal Spray FMT commenced October 2021 and will run for 12 months. A number of upper deck equipment items that are known to show signs of heavy corrosion have been metal sprayed and painted with both wet and powder coatings. Areas of a T23 structure were also prepared and coated with an aluminium cold metal spray coating.

57. Low Solar Absorbing coatings have undergone lab testing. The best performing coatings have been down selected to undergo a 12 month shore based trial. The modules will be positioned around coastal sites in the UK. The trial will start in November 2021.

58. A number of additional FMT are being planned for 2022/23. These will be communicated in the future releases of Warpaint.

POWDER COATINGS

59. Powder Coatings have been used in the past on OEM equipment. Predominantly on brackets and furniture. Only powder that meet Def Stan 80-122 Issue 4 Powder Coating, High Durability, Stoving and Def Stan 07-247 Issue3 Selection of Materials on the Basis of their Fire Characteristics can be used. DE&S are conducting tests on a number of powders so that a Fleet Minor Trial can be conducted to expand the use of powders to equipment in external environments. A new section in Annex A will be created for approved powders in future issues of Warpaint.

WET AND DRY INTERNAL COMPARTMENTS

60. BR 3939 states that all New Build vessels contracted from 2018, shall use coatings listed in Warpaint WSS Areas N and O (Interior Wet Compartments) for both Wet and Dry Compartments.

61. In-service vessels shall continue to use both wet and dry internal systems. However, if a compartment is taken back to bare then it is to be replaced with an interior wet compartment specification.

ORDERING PAINTS FOR IN-SERVICE PLATFORMS

62. Update to BR3939 Issue 5 para 9. Due to the introduction of the FMSP contract, all paints available on an ALPHA or CHARLIE code are to be requested by Ship Staff with sufficient notice for Fleet Time Support Periods. BR3939 will be updated to reflect this at the update.

SAFETY TOPICS (TO BE READ IN CONJUNCTION WITH BR 3939)

NEEDLE GUNS

63. The use of needle guns is prohibited and has been for many years now as far back as issue 23 September 2006. Needle guns although effective at removing paint tend to peen the surface which can lead to entrapment of corrosion and other contaminants which leads to the premature failure of coatings.

64. There is also the HSE issue with regards to Hand Arm Vibration Syndrome (HAVS). Employers should check their obligations under the Control of Vibration at Work Regulations 2005. Details can be found on HSE website https://www.hse.gov.uk/vibration/hav/index.htm.

65. No ships should have needle guns onboard and no RN personnel are to use needle guns.

CHROMATE PAINTS

66. The use of paints with chromate pigments have now been banned in accordance with REACH. The sunset date for use of these substances was January 2019. The use of chromate pigments has been banned from warships and submarines since the very 1st issue of Warpaint back in 1994. There is still the possibility of zinc chromate primers being present in the early T23 Class and some other older vessels. Chromate primers may also be present on OEM equipment.

67. Chromate paints in their cured state do not present a health and safety issue. However, if the primers are disturbed, they can release dust particles that are carcinogenic. The most likely occurrence of this happening is during re-preservation either during hot work or where the paint needs to be removed.

68. It is possible to effect small-scale repairs to coatings by using paint remover rather than abrasive methods. However, for large-scale removals full precautions should be taken, including the use of PPE, containment and appropriate ventilation. Environmental warning signs should be posted.

69. These precautions should be taken if the presence of chromate primer is known or suspected. If the exact nature of the primer is unknown, and cannot be traced through records, then it

must be assumed that the presence of chromate is likely and full protective precautions should be undertaken.

70. For guidance see HSE Information Sheet on Chromate Primers Engineering Sheet No 32.

71. Defence Instruction and Notices 2020DIN06-024 captures the management of Hexavalent Chromium (Cr(VI)) in Defence.

PROHIBITED COATINGS

72. To clarify the Institute of Naval Medicine (INM) have advised in the past that the use of coatings containing, or based on the following, represent a significant health and safety risk:

- Lead based pigments
- Chromate based pigments
- Bitumen
- Coal Tar
- Chlorinated, brominated and fluorinated Rubbers
- Isocyanates

73. Therefore, IAW BR 3939 Section 3 material requirements, coatings containing these substances are prohibited for use on UK Warships or Submarines. This includes both the ship's structure and equipment installed on board ships and submarines.

SUBMARINE BATTERY COMPARTMENT LINING REPAIR

74. The battery compartment lining is to be repaired using only specialist rubber compounds stated in Annex A, please note that the Pang/Truflex “SuperSolution” (A1344) must not be used while conducting rubber lining repairs as this item is prohibited for use on HM submarines. Repairs to battery lining should not be completed using a preservation coating, please contact SDA-IS-Navarch3b for further information. Procurement of compounds should be sought well before maintenance period due to long lead times

RUST/STAIN REMOVERS

75. International Interplus 614 is being replaced by Interplus 4101 & 4103. These products have been tested and are approved for removing rust stains. No other products are to be used. Stain removers can have an effect on the life expectancy of coatings and therefore are to be used sparingly and only once the initial corrosion issue has been rectified.

UNDERWATER HULL CLEANING

76. Due to the threat posed by contaminants from hull cleaning and the risk of introducing non-native invasive species, it is necessary to restrict hull cleaning activities. It is also recognised that a fouled hull will have significant impact to the efficiency of the platform if it does not remain clean.

77. The need for hull cleaning has significantly reduced since the widespread use of Foul Release & Foul Defence coatings, but detrimental levels of fouling can build up particularly in warmer ambient conditions and following extended periods alongside. Full power runs in accordance

with RNTM 04-003/20, as a minimum, will often resolve the issue but occasionally fouling will become so severe that hull cleaning is the only solution.

78. Under water cleaning is to be identified In Accordance with BR3939 chapter 5. Hull cleans shall be approved by the Platform Authority and agreed with NCHQ in consultation with either the Queen's Harbour Master (if in a UK naval base) or Salvage and Marine Operations (external to a UK naval base).

79. If a hull clean is required inside one of Her Majesty's Naval Bases, commercial diving support should be sought through the current MSDF arrangement with either BAES or Babcock Marine. Being cognisant of RNTM 04-032-19 Hull Cleaning in HMNB Portsmouth and Babcock FP14-31-000 Control of diving operations in the dockyard port of Plymouth.

80. If a hull clean is required outside of Her Majesty's Naval Bases, Authorities must use the Underwater Engineering Services contract managed by Salvage & Marine Operations (SALMO) for provision of accredited diving contractors who conduct hull cleaning and propeller polishing in accordance with the HSE Diving at Work Regulations 1997 and MOD Diving Policy.

81. Underwater cleaning is for provision of Underwater Engineering Support or advice; the Salvage & Marine Operations Underwater Engineering Desk can be contacted at E-mail: DESSAMO-UWE-OPS@MOD.UK Tel - Mil: 9679 87363 Civ: 030 679 87363.

INTERNATIONAL ANTIFOULING SYSTEM CERTIFICATES (IAFS)

82. To comply with Defence Safety Authority DSA02-DMR – Defence Maritime Regulations for Health, Safety and Environmental Protection regulation 616 Anti-fouling System; all platforms must carry an extant International Antifouling System Certificate (IAFS) as evidence of compliance with the International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001.

83. Surveys and certification requirements for Anti-fouling Systems can be found in Annex 4 of International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001.

84. S238 Report on Docking reports are to be completed when a platform is docked down. The completed form shall be forwarded to DES-ShipsNSS-CET-SET-HUSBANDRY IAW BR3939.

MAP 01-26 SURFACE SHIP HULL FOULING MANAGEMENT

85. MAP 01-26 is undergoing a comprehensive update which will see changes in the warpaint approval process for anti-fouling coatings as well as the introduction of a new process on choosing the right anti-fouling coating system based on the operating profile of the vessel. The update will also include information on biosecurity as well as details on the approval process for in water hull cleaning. Additional information will be communicated in the next issue of Warpaint.

SHIPS RESPONSIBILITY FOR PAINT REPAIRS

86. Ships Company are responsible for paint repairs of up to 1m², referring to BR 3939 for specialist information, and utilise Preservation Application & Work Instruction Forms (PAWIF). A robust Ship Husbandry management organisation IAW BR2203 (Ship Husbandry) is a

necessity to enable the smooth running and planning of all Ship Husbandry activities. These responsibilities are Fleet wide, and across all classes of vessels.

Note: Platforms running with the CLS / CFA contracts are required to liaise with their respective Platform Managers for approval before any preservation work is carried out.

87. The mixing of different supplier's coatings in any given paint system is prohibited. If it becomes essential, then it will only be permitted with the written approval of the relevant MOD Platform Project Group.

88. Annex E 'WSpt Ships Paint Table' details the manufacturers whose products are used on each platform. Currently It does not include all surface ships. The table will be updated in the next edition of WARPAINT to reflect all surface ships.

HUSBANDRY - CURRENT WORK

89. There are still a large number of paints currently being assessed for inclusion in to WARPAINT as well as the reassessment of the current products. This has been delayed due to resource pressures within INM & DE&S.

90. NSN Codification of paints is nearing completion, 253 out of 265 paints have been codified and added to Warpaint.

91. Investigate Biofouling Ultrasonic technology for ships systems. Minor trial started in July 2021. There will be 3 separate trials that will be completed over the next 12 months.

92. Bench marking of Area J above water hull and superstructure finish coatings has been completed and QinetiQ have delivered the test reports. They are now being reviewed. Annexe B Area J will be updated once this review has been completed. Those coatings that do not meet the criteria for Area J will be removed from Warpaint.

93. Bench marking of Powder Coatings against Def Stan 80-122 Powder Coating. High Durability, Stoving has been completed and QinetiQ have delivered the test reports. They are now being reviewed; those coatings that have met the criteria shall be added to a new section of Annexe A specifically for powder coatings.

94. Bench marking of Area P internal painted decks will commence in November 2021.

95. Defence Standard 80-134 Paint System, Anti-Slip for Ships Decking, Multi-Pack Type 1: Rough Texture (Flight Decks, Hangar Decks and Weather Decks) Type 2: Smooth Margin and Deck Markings has been updated and is out for public comment until the 7th December 2021.

96. Def Stan 02-184 Master Décor Scheme has been re-written and will be sent for public comment over the next 2 months.

97. A laboratory assessment is being undertaken which replicates the harsh environment of diesel tanks compensated with sea water (area S16). This laboratory test cultivates sulphate reducing bacteria (SRB) and exposes the paint coating the corrosive effects caused by this type of microbial induce corrosion. The test intends to provide an insight into coating performance against SRB corrosion.

VOC COMPLIANT COATING SYSTEMS

98. EU Legislation changed the way VOC emissions are recorded. Notwithstanding this, there remains a MOD requirement for low VOC materials. Based on the guidance table below, Paint Manufacturers and Suppliers are reminded that any formulation changes to their existing products must be advised and reported to DES-ShipsNSS-CET-SET-HUSBANDRY. They will then be required to provide the Institute of Naval Medicine (INM) with full details of formulation changes, along with revised MSDS on request. Failure to do so will automatically result in the withdrawal of MOD(N) acceptance. INM forms can be provided on request and any submissions must go through DES-ShipsNSS-CET-SET-HUSBANDRY.

99. MOD(N) requires that paint manufacturers and suppliers quote VOC levels in accordance with local environmental regulations.

100. The MOD(N) maximum VOC target levels are shown in the following table and both paint manufacturers and applicators are encouraged to propose/apply coatings which at least meet or are lower than these target levels. These target levels are also specified in BR 3939.

Category No.	Category	VOC limit – gms/litre, Paint less Water (See Note 1)
(i)	Blast/Weldable Primer*	600
(ii)	Tie-coats/sealers	550
(iii)	General primer/undercoat	200
(iv)	External Finishes	420
(v)	Internal Finishes	200
(vi)	Anti-Fouling#	400
(vii)	AFFF Tanks	390
(viii)	Demineralised Water Tanks	390
(ix)	AVCAT, Dieso & Hydraulic Oil Tanks	390
(x)	All other tank coating systems Inc. cofferdams, engine room bilges & chain lockers	300
(xi)	Marine Varnish	530

Note 1. VOC calculations carried out in accordance with Def Stan 05-133 Part 1, Test 6.13.

Table 1-3 VOC Levels

*****Blast or holding primers are typically applied to a specified thickness of 25 - 40 micrometres and are not considered to be weldable. Shop primers, or weldable primers, are applied by automatic spray, typically to a dft of 15 - 25 micrometres. It is recommended that the primer is removed before welding unless the user can demonstrate that the presence of the material does not affect weld integrity. This is particularly important where high strength steels, such as QN1, QN2, HY80 etc, with susceptibility to hydrogen cracking, are used. In all cases, the end user must establish whether the condition of supply of the coated steel substrate is suitable for their specific welding process conditions.

#The balance between VOC level and toxic content (should there be any) will be assessed. It may prove necessary to accept a higher VOC material if the lower toxic content outweighs the release of VOC.

101. For the benefit of New-Building Specifications ONLY, if a paint system can offer cost benefits, but one part of it has a VOC level higher than the MOD(N) target value, this part of the scheme could be proposed on the assumption that it will be subsequently submitted for approval and inclusion in WARPAINT. In this instance, data will be required supporting the case, including a statement that the total VOCs to be emitted during application, will be equal to or less than when applying a paint scheme fully in accordance with the MOD(N) target values.

SUBMARINE SPECIFICATIONS

102. Acceptable paint specifications are outlined in Annex C, together with a list of other acceptable materials.

103. SDA-IS-NavArch3b Tel. No. 030 015 51130, is the Structures & Coatings POC for In-Service Submarines.

104. SDA-F-HullOutf2 Tel. No. 030 016 18097, is the Structures & Coatings POC for Future Submarines.

105. SDA-P-ENG-NA-Con3 Tel. No. 0300 157 1688, is the Structures & Coatings POC for Astute Class.

106. SDA-P-ENG-SP1, Tel. No. 0300 152 7984, is the POC for Annex C area S28 Lilo/Payload Bay Chamber.

107. BR 1326 Classification can be found in the 'Submarine Material Toxicity Database' located here - http://www.tes-ssg-smtd.r.mil.uk SDA-NAG-SMAtm-Tox is the sponsor of the hazard assessment process in line with the requirements set for submarine atmosphere control – This process is documented in BR 1326 Chapter 6. SDA-NAG-SMAtm-Tox has the responsibility for assessing materials for internal submarine use. Enquiries regarding material assessments should therefore in the first instance be directed to SDA-NAG-SMAtm-Tox at MOD Abbeywood South, Bristol, BS34 8JH. Tel. 030 679 35045.

Code	Hazard Category
BLI	Build / Maintenance
U	Hazards Unknown
S	Superseded
BCI / E / CF / CI	Controlled Item
03YR	3 Year Review Pending
W	Withdrawn
V	Prohibited

Table 1-4 BR 1326 Edition 7 Hazard Categories

108. Detailed information on the BR1326 hazard categories can be found in chapter 6 annex B.

109. In-Service Submarines then have to be contacted and provide a risk assessment to the whole boat, and Clearance for Use (CFU) of a product (This is for Vanguard, Trafalgar, and Astute classes). CFU is obtained through the nominated ISM Platform Safety Co-ordinator, SDA-IS-A-WS1b Tel. 030 679 85097.

110. Not all of the Astute class has been adopted by in service submarines so Clearance for Use can be sought from the Design Authority – BAE systems.

Engineering Manager Non-Metallic Materials
BAE SYSTEMS - Submarine Solutions
Phone: 01229 873380 x3380
Email: sean.leighton@baesystems.r.mil.uk

WHOLE SHIP SPECIFICATIONS

111. The Whole Ship Specifications were submitted by seven major marine paint manufacturers / suppliers. **All** of these companies must be approached when tendering on a new build project to conform to EU competitive law and to achieve VFM for the taxpayer. It is considered advantageous to choose more than one company for an entire Class of RN vessel in order to engage more across all seven companies and put their differing products/technologies into service. New build paint specifications are no longer separately included as they so closely mirror upkeep, maintenance and repair.

a. Submarine Systems Annex C does not use a Whole Boat Specification allowing freedom to use the most durable product from a multitude of companies. However, this does not prevent a Whole Boat Specification being presented and accepted.

b. The differing paint manufacturers 'Whole Ship Specification' are listed in alphabetical order and it is important to first determine your current paint supplier before ordering any specific coating. For example, there have been instances where coatings manufactured by Chugoku Paints (UK) Ltd have been ordered, simply because they are listed first (alphabetically) in the annexes.

c. The paint specifications in Annex B and Annex C are the recommendations of the respective paint manufacturers. They are based on performance requirements, VOC and health and safety criteria of MOD(N). They are not specifications prescribed by MOD(N) and their fitness for purpose remains the responsibility of the paint manufacturer.

112. Items in the tables highlighted with a grey band do not fully meet MOD(N) criteria and are not to be used without prior confirmation from the relevant Platform Project Group. Readers should always check their current approval status before applying.

113. To ensure that vessels allocated under the Whole Ship Specification concept receive paints from the selected supplier, their specific materials have been codified where necessary.

114. Tables

a. These include Nominal Dry Film Thickness (NDFT) per coat in micrometres (µm), as well as both the minimum and maximum recoat intervals. The figures quoted are meant for guidance only. The manufacturers product data sheet should always be consulted.

b. The Wet Film Thickness (WFT) has been added alongside the Dry Film Thickness (DFT) for both Annex B and C. The WFT is calculated with the following equation: WFT = [(DFT) / (Volume Solid %)] x 100. The Volume Solid percentage can be found in the TDS/PDS for that paint. In the same column there is both the NDFT and NWFT, the first value being the NDFT and the second value being the NWFT.

c. VOC grams per litre in the table highlighted thus in a box; do not comply with MOD VOC emission target levels.

d. Items with a '?' appearing in the boxes, indicate that manufacturer/supplier information is awaited.

e. The paint manufacturers are listed in alphabetical order under each Ship and Submarine Area in Annex B and C as follows: -

Chugoku Paints (UK) Ltd

Hempel Paints Ltd

International Paint Ltd

Jotun Paints (Europe) Ltd

Maker Coating Systems Ltd

PPG Protective & Marine Coatings

Sherwin Williams Protective & Marine Coatings

NATO Stock Numbers (NSN's) for each manufacturer's products, where available, are listed in Annex D.

f. BR 1326 – In the Specialist Coatings table 'N/A' depicts either not for use on Submarines or only assessed to be used on Submarines externally to the pressure hull.

g. In Annex C where a coating has the designation EXT in the BR 1326 column it means that the coating has not been assessed and can only be used externally to the pressure hull.

h. Breathable atmosphere (Axxxx) reference numbers are taken from the Submarine Material Toxicity Database discussed in paragraph 107.

115. LCUs and LCVP's

a. In general, LCU's and LCVP's follow the Whole Ship Specifications except for Above Water Hull coatings where Chemical Agent Resistant Coatings (CARC) and Infra-Red Resistant coatings (IRR) are specified. For advice, review of proposed Paint Specifications and queries in relation to these vessels contact DES-ShipsNSS-CET-SET-HUSBANDRY or DESShipsWSpt-Amph-LC-TLM.

SPECIALIST COATINGS & PAINT REMOVERS

116. "WHOLE SHIP SPECIFICATIONS" & "SUBMARINE SYSTEMS" Annexes do not cover Specialist areas. Specialist coatings & their location of use can be found in Annex A.

117. Cleaning Materials and Rust Removers

a. DES-ShipsNSS-CET-SET-HUSBANDRY is the Ship Husbandry (Inc. Paint) & Habitability desk officer. All enquiries regarding cleaning materials and rust removers should be emailed to DES-ShipsNSS-CET-SET-HUSBANDRY alternatively telephone 030 679 35047.

b. BR2203 Ship Husbandry Manual dated Feb 2015 is now available on DII - http://web.apps.royalnavy.r.mil.uk/fpgo/BRd_0001_4999/BRd_2203/BRd_2203/01_Homepage.html

118. Specialist Coatings Suppliers Contact Details:

Superspeed 52	H Marcel Guest	Tel 01612 057631
Coppercoat	Aquarius Marine Coatings Ltd	Tel 01258 861059
Limpetite	Bristol Metal Spraying & PC Ltd	Tel 01179 662206
BIOFIX 561LT	Maker Coating Systems Ltd	Tel 01392 822600
Interzone 101	International Paints	Tel 01489 775060
Alocit & Enviropeel	A&E Group	Tel 01362 694915
Chemi-Tech UW	Thortex Ltd	Tel 01609 780170
MMP Repairite	MMP International	Tel 08704 587781
Belzona	Belzona Polymerics Ltd	Tel 01423 567641
S*59	Trimite	Tel 01895 201444
IP3-6* **	Indestructible Paint	Tel 01217 022485
Zinga	Maker Coating Systems Ltd	Tel 01392 822600
Gummipaint-Orange	Maker Coating Systems Ltd	Tel 01392 822600
Back to Nature VIII	N A Robson ltd	Tel 01253 393406
Sea to Sky SPC-203	Maker Coating Systems Ltd	Tel 01392 822600
Corroglass & Polyglass	Corrocoat Ltd	Tel 01132 760760
Kansai & ARC	Cactus Industrial Ltd	Tel 01698 591635
RapidShield	Quaker Chemical Ltd	Tel 01453 820800

REFERENCES

BR1326 Air Purification in Submarines

BR2203 Ship Husbandry Manual

BR3939 Hull Preservation Processes

Def Stan 05-133 Methods for Testing Paints, Chemicals and Associated Products Part 1 Paints

Def Stan 07-247 Selection of materials on the basis of their fire characteristics

Def Stan 80-208 Paint, finishing, polyurethane, multi-pack, IRR, chemical agent resistant, non-aircraft use, low VOC. Withdrawn December 2018

Def Stan 80-122 Issue 4 Powder Coating, High Durability, Stoving

Def Stan 80-225 Paint system, low VOC, single or multi-pack.

RNTM 04-003/20 Procedure for shipboard monitoring of hull fouling

RNTM 04-032-19 Hull Cleaning in HMNB Portsmouth

FP14-31-000 Control of diving operations in the dockyard port of Plymouth.

HSE Diving at Work Regulations 1997

MOD Diving Policy

MAP 01-026 SURFACE SHIP HULL FOULING MANAGEMENT

DSA02 DMR Defence Maritime Regulations for Health, Safety and Environmental Protection

International Convention on the Control of Harmful Anti-Fouling Systems on Ships 2001

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ANNEX A

ANNEX A: SPECIALIST COATINGS AND PAINT REMOVERS

Specialist Systems/Materials	Generic Type	VOC g/l	NATO Stock Number	BR 1326
ANTIFOULING FOR "ARCHER" CLASS & YACHTS				
Superspeed 52 SUPERSPEED 52	Anti-Fouling	411	TBC	N/A
Aquarius Marine Coatings Ltd COPPER COAT	Anti-Fouling	0	TBC	N/A
RUDDER, STABILISERS & "A" FRAMES **Corrosion & Erosion**				
Belzona BELZONA 1311 Ceramic R-Metal (Fill and fair)	Epoxy	0	99-598-6837	N/A
RUDDER, STABILISERS & "A" FRAMES **Cavitation Protection [Limpetite products use a proprietary Primer/Tie Coat system]**				
Bristol Metal Spraying LIMPETITE PRC (Single coat spray applied – not as durable – low adhesion)	Liquid Rubber/ Polyurethane	0	TBC	N/A
Bristol Metal Spraying LIMPETITE A3 (Multiple coat system – durable – high adhesion)	Liquid Synthetic Rubber	433	TBC	N/A
Belzona BELZONA 1341 Supermetalglide (Cavitation protection) (2 coats. 3 coats if blasting prior to application of anti-foul)	Epoxy	5	99-322-3979	N/A
HULL (Underwater-Applied Coatings) GENERAL REPAIR				
Alocit ALOCIT 28.15	Epoxy	0	99-248-4702	N/A
BIOFIX 561 LT Black – Kevlar reinforced	Epoxy	0	99-133-9985	N/A
Belzona BELZONA 5831	Epoxy	0	TBC	N/A
International Paints Ltd INTERZONE 101 Trowel Grade – WARNING: Contains Silica	Epoxy	0	99-915-9726	N/A
Cactus Industrial KANSAI SURESEAL 1208UWE	Epoxy Mastic	0	TBC	N/A
HULL – LINK COATS FOR FOUL RELEASE PAINT				
International Paints Ltd Link Coat for INTERSLEEK 737: INTERSLEEK 7180	Silicone	377	99-593-3810	N/A

ANNEX A

Specialist Systems/Materials	Generic Type	VOC g/l	NATO Stock Number	BR 1326
HPSW INTERNAL COATING FOR INTAKE PIPEWORK				
Belzona Belzona 1341	Epoxy	5	99-322-3979	BLI (A0704)
Maker Coating Corroless RF35 Grey	Glass Flake Epoxy	93	99-337-0778	BLI (A1772)
Bristol Metal Spraying LIMPETITE A3 (Multiple coat system – slower application)	Liquid Synthetic Rubber	433	TBC	N/A
PEELABLE CORROSION-INHIBITING ENCAPSULATING MEMBRANE				
A&E Group Enviropeel E170 (External/Weather deck applications only. Not for internal use.)	Thermoplastic	0	TBC	CI, LF (A5207)
Belzona Belzona 8411 (includes approval for limited internal use)	Hybrid Polymer	0	TBC	BLI (A6633)
Belzona 3411 (includes approval for limited internal use)	Hybrid Polymer	0	TBC	BLI (A6634 & A6635)
SEAWATER BALLAST TANK SPOT REPAIR				
FLIGHT DECK / DECK MARKINGS				
Chugoku Paints (UK) Ltd. 521E0020 Type 1 White	Epoxy	374	99-541-9583	N/A
521E0013 Type 1 Black	Epoxy	374	99-543-0790	N/A
521E2947 Type 1 Red	Epoxy	374	99-543-0793	N/A
521E0013 Type 1 Green	Epoxy	374	99-543-0791	N/A
Hempel Paints Ltd Hempel's Non Skid 45340White	Epoxy	347	99-323-1118	N/A
Hempel's Non Skid 45340Black	Epoxy	347	99-351-4222	N/A
Hempel's Non Skid 45340Red BS381C 537	Epoxy	347	99-724-9085	N/A
Hempel's Non Skid 45340Green BS381C 225	Epoxy	347	99-986-6762	N/A
International Paints Ltd Use 852 for Flight Deck Markings – Annex E INTERGARD 740 White	Epoxy	420	99-773-8674	N/A
INTERGARD 740 Black	Epoxy	420	99-488-7443	N/A

ANNEX A

Specialist Systems/Materials	Generic Type	VOC g/l	NATO Stock Number	BR 1326
FLIGHT DECK / DECK MARKINGS (2)				
International Paints Ltd (2) Use 852 for Flight Deck Markings – Annex E INTERGARD 740 Red	Epoxy	420	99-377-5457	N/A
INTERGARD 740 Green	Epoxy	420	99-262-7677	N/A
INTERGARD 740 Yellow	Epoxy	420	99-969-1037	N/A
Sherwin-Williams Protective & Marine Coatings EPIDEK M377 White	Epoxy	330	99-777-8690	N/A
EPIDEK M377 Black	Epoxy	330	99-777-8692	BLI (A6782)
EPIDEK M377 Green	Epoxy	330	99-777-8691	N/A
LCU & LVCP – CARC & IRR A/W HULL FINISH **Def Stan 80-208 has been replaced by Def Stan 80-225. Coatings to Def Stan 80-225 to be identified**				
NAVIGATION LIGHT ENCLOSURES Matte Black Finish				
Sherwin-Williams Protective & Marine Coatings Steel Spec™ M155	Alkyd Anti-Corrosive	410	TBC	N/A
International Paint Ltd INTERLAC 497	Alkyd Anti-Corrosive	391	TBC	N/A
[Primer – Intergard 5000 (150 DFT) & Tie-Coat – Intergard 263 (75DFT)]				
INSTRUMENTS & ELECTRONIC EQUIPMENT PANELS **Light Admiralty Grey BS381C 697**				
Trimite	**Manufacturer Applied Coatings**			
Sp59 Primer/ S59 Topcoat	Stoved Epoxy	-	TBC	BLI, NF (A2009)
Onboard Repairs: Q55 (X has been dropped now all products are lead free)	Synthetic	491	99-224-9624	U (A2811)
Indestructible Paints IP3-6700 epoxy primer	Epoxy	350	TBC	BLI (A7138)
IP3-6971 epoxy finish	Epoxy	420	TBC	BLI (A7139)

ANNEX A

Specialist Systems/Materials	Generic Type	VOC g/l	NATO Stock Number	BR 1326
GALVANISED STEEL & ZINC METAL SPRAYER (REPAIR)				
Maker Coatings				
ZINGA	Polystyrene	539	99-884-0220	03YR (A2277)
Hempel Paints Ltd				
HEMPEL'S ZINC PRIMER 16490	Zinc Phenoxy	590	TBC	03YR (A3328)
International Paints Ltd				
INTERZINC 22	Zinc Silicate	470	99-927-5431	N/A
INTERZINC 72	Zinc Epoxy	410	TBC	CI, CF (A1593)
PPG Protective & Marine Coatings				
SIGMAZINC 19	Zinc Epoxy	584	99-152-6131	03YR (A4968)
Sherwin-Williams Protective & Marine Coatings				
ZINC CLAD J984	Zinc Epoxy	331	TBC	BLI (A3627)
WOODWORK (High gloss, Clear, Protective finish)				
Chugoku Paints (UK) Ltd.				
SPAR VARNISH	Varnish	433	TBC	N/A
Hempel Paints Ltd				
HEMPEL'S MARINE VARNISH 02220	Alkyd	430	99-224-5783	N/A
International Paint Ltd				
INTERLAC 678	Alkyd	373	99-328-9646	03YR (A2107)
Jotun Paints (Europe) Limited				
SPONTAN VARNISH	Urethane Alkyd	470	99-161-6220	N/A
PPG Protective & Marine Coatings				
SIGMAVAR GLOSS 8103	Phenolic	393	TBC	N/A
CORROSION INHIBITOR GREASE				
CORROLESS CCI 355	HD Grease	N/A	99-676-5736	03YR (A2738)
CONDUCTIVE GLANDS (QEC requirement)				
Parker Chomerics				
Cho-shield 610	Copper Epoxy EMI	591	N/A	N/A
HEAT RESISTANT COATINGS (Below 175°C)				

ANNEX A

Specialist Systems/Materials	Generic Type	VOC g/l	NATO Stock Number	BR 1326
SIGMATHERM 175	Modified Alkyd	561	TBC	BLI (A4080)
International Paint Ltd (up to 250 °C) INTERTHERM 891	Oleoresinous Aluminium	425	TBC	03YR (A2104)
HEAT RESISTANT COATINGS (Above 250°C)				
Hempel Paints Ltd GALVOSIL 15700	Zinc Silicate	435	99-593-8923	03YR (A1982)
International Paint Ltd INTERTHERM 50	High Temp Silicone	495	99-969-0549	03YR (A3501)
PPG Protective & Marine Coatings SIGMATHERM 500	Modified Alkyd	600	TBC	BLI (A4072)
Sherwin-Williams Protective & Marine Coatings Zinc-Clad II EU	Zinc Silicate	470	TBC	N/A
HEAT RESISTANT COATINGS (Above 400°C)				
Hempel Paints Ltd HEMPEL'S SILICONE ALUMINIUM 56914	Polysiloxane	585	TBC	W (A1916)
International Paint Ltd INTERTHERM 50	High Temp Silicone	495	99-969-0549	03YR(A3501)
PPG Protective & Marine Coatings SIGMATHERM 500	Modified Alkyd	600	TBC	BLI (A4072)
SYSTEM FOR COATING NATURAL RUBBER MOUNTS ***Applied by Mount OEM. Not to be touched up once fitted.***				
HANGAR DOORS FINISH				
International Paint Ltd Interpon 610	Powder Coating	N/A	TBC	N/A

ANNEX A

Specialist Systems/Materials	Generic Type	VOC g/l	NATO Stock Number	BR 1326
PAINT REMOVER				
N A Robson Ltd BACK TO NATURE VIII (not to be used on steel substrate)	Biodegradable	N/A	99-361-6273	BLI (A1608)
Indestructible Paints IPSTRIP 500	Biodegradable	N/A	8010-99-217-5181	N/A
Maker Coating Systems Ltd SEA TO SKY SPC-203	Biodegradable	N/A	20-003-3432	CI (A3679)
RUST STAIN REMOVER				
International Paint Ltd INTERPLUS 4101 (Yellow)	Biodegradable	N/A	8030-99-846-2819	N/A
INTERPLUS 4103 (Yellow) Corrosion source / issue must be rectified before use. 6 - 16hrs dwell time. Cover with Polythene to keep wet. Excessive orders require suitable justification.	Biodegradable	N/A	8030-99-369-2168	N/A
SMTDUNIQUE IMMERSED AREAS – PUMPS ETC				
Corrocoat Limited CORROGLASS 202	Polyester Glass Flake		TBC	N/A
CORROGLASS 232	Polyester Glass Flake		TBC	N/A
CORROGLASS 602	Vinyl Ester Glass Flake		TBC	BLI (A1818)
CORROGLASS 632	Vinyl Ester Glass Flake		TBC	BLI (A1819)
POLYGLASS VE	Vinyl Ester Glass Flake		TBC	N/A
POLYGLASS VE HAND APPLIED	Vinyl Ester Glass Flake		TBC	N/A
POLYGLASS VEF	Vinyl Ester Glass Flake		TBC	N/A
POLYGLASS ZIPCOAT	Polyester Glass Flake		TBC	N/A
CORROCOAT ZIP E	Glass Flake Epoxy		TBC	N/A

ANNEX A

Specialist Systems/Materials	Generic Type	VOC g/l	NATO Stock Number	BR 1326
MORDANT REAGENT				
Sherwin-Williams Protective & Marine Coatings MORDANT WASH L703	Blue Mordant Solution	307	TBC	N/A
CLEANING DETERGENT				
Ensign Chemicals ENSIGN	Detergent Concentrate	0	TBC	
Greyland Ltd Cleaner RN 190907		0	TBC	
Forward Chemicals Ltd Cleaner RN 184		0	TBC	
DAMP SURFACE PRIMER				
Sherwin-Williams Protective & Marine Coatings Macropoxy® M111 Red Oxide	EpoxyZinc Phosphate	383	8010-99-884-5957	

*Advance BR 1326 assessment from INM. Full request via SMTD required.
TBC – To Be Confirmed

ANNEX B

ANNEX B: WHOLE SHIP SPECIFICATION

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREAS A & B. **BELOW WATER HULL PRIMER** Colour to be determined by the paint manufacturer, Annex D displays colours available for each manufacturers paint in this area							
Chugoku Paints (UK) Ltd.							
Standard: BANNOH 1500	Epoxy Primer	1	150/208	4.87	9 hrs	120 days	286
BANNOH 1500 RZ	Epoxy Tie coat	1	100/156	6.4	8 hrs	5 days	319
Hempel Paints Ltd							
Standard: Hempadur Quattro 17634	Epoxy Primer	1	125/173	5.8	6 hrs	90 days	276
Tie-Coat for C & F: Hempadur 47182	Epoxy	1	125/201	5	7 hrs	3 1/2 days	364
Tie-Coat for D: Hempel Nexus II 27400	Silicone	1	100/175	5.6	#	#	400
Tie-Coat for D: Hempasil Nexus X-Tend 27500 (repair only)	Silicone	1	120/185	5.4	8 hrs	48 hrs	259
International Paint Ltd.							
Standard: INTERGARD 5000	Primer	1	175/213	4.68	12 hrs	2 months	155
Alternative: INTERSHIELD 300 Foul Release only (Area D)	Epoxy	2	125/208	4.8	7 hrs	14 months	313
Tie-Coat for C: INTERGARD 263	Epoxy Tie Coat	1	75/131	7.6	8 hrs	5 days	379
Tie-Coat for D: (if req'd): INTERSLEEK 737	Silicone	1	100/175	6.5	4 hrs	7 days	377
Jotun Paints (Europe) Ltd.							
Standard: JOTAMASTIC 87	Epoxy Primer	1	200/230	4.4	10 hrs	#	110
Alternative: MARATHON IQ (Impact resistant)	Epoxy	1	500/510	2	10 hrs	3 days	30
Tie-Coat: SAFEGUARD UNIVERSAL ES	Epoxy	1	100/161	6.2	10 hrs	3 days	330
Maker Coating Systems Ltd.							
Standard: CORROLESS EPF (Tie-Coat not req'd where over coated in <3 days)	Epoxy	1	200	4.8	16 hrs	3 days	80
Tie-Coat: (If req'd): SIGMACOVER 525 (7902)	Epoxy Tie Coat	1	75	8.2	12 hrs	14 days	365
PPG Protective & Marine Coatings							
Tie-Coat (For C & F if req'd): SIGMACOVER 525 (7902)	Epoxy Tie Coat	1	75	8.2	12 hrs	14 days	365
Sherwin-Williams Protective & Marine Coatings							
Macropoxy® C425V2	Epoxy Zinc Phosphate	1	175	7.5	4 hrs	#	186
Tie-Coat (If req'd): SEAVOYAGE 1500	Epoxy	1	100/156	6.4	8 hrs	5 days	319

ANNEX B

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA C. **ANTIFOULING FINISH (Self Polishing – SPC)** - Red							
Chugoku Paints (UK) Ltd.							
SEA GRANDPRIX 1000L	Hydrolysing Silyl	2	150/268	3.4	5 hrs	#	408
SEA GRANDPRIX 660 HS	SPC AF	1	150/224	4.46	5 hrs	#	324
Hempel Paints Ltd							
7-year life: Hempel AF GLOBIC 9000 (78952)	SPC AF	2	100/172	5.8	10 hrs	#	370
International Paint Ltd.							
5-year life: INTERSMOOTH 7460	SPC AF	2	125/231	3.2	12 hrs	28 days	425
Jotun Paints (Europe) Ltd.							
SEAQUANTUM ULTRA	Hydrolysing Silyl	2	125/250	3.8	7 hrs	#	460
Maker Coating Systems Ltd.							
SIGMA ECOFLEET 530 (7385)	SPC AF	1	110/183	5.4	6 hrs	#	339
PPG Protective & Marine Coatings							
SIGMA ECOFLEET 530 (7385)	SPC AF	1	150/250	4	6 hrs	#	339
Sherwin-Williams Protective & Marine Coatings							
SEA GRANDPRIX 1000L	Hydrolysing Silyl	2	150/268	3.4	5 hrs	#	408
SEAVOYAGE 5600	Hydrolysing Silyl	1	150/224	4.46	5 hrs	#	324

ANNEX B

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA D. **ANTIFOULING SYSTEM (Foul Release – FRC 5+ yr life)** - Red							
Chugoku Paints (UK) Ltd.							
CMP BIOCLEAN SG R	Epoxy	1	125/208	4.86	20 hrs	#	406
CMP BIOCLEAN R	Silicone Elastomer	1	100/154	6.5	4 hrs	24 hrs	325
CMP BIOCLEAN HB	Silicone Elastomer	1	150/211	4.73	#	#	261
Propeller & Rudder:							
CMP BIOCLEAN SG R	Epoxy	1	100/167	6	4 hrs	#	406
CMP BIOCLEAN R single pack	Silicone Elastomer	1	200/308	3.3	4 hrs	24 hrs	325
Hempel Paints Ltd							
Hempasil X3+ 87500	Hydrogel Silicone	1	150/211	4.7	6 hrs	#	265
Hempaguard X7 89900 Hydrogel c/w Biocides	Fouling Defence	1 *CW*	150	4.7	6 hrs	48 hrs	262
Cold Water (CW) & Warm Water (WW) systems provided		2 *WW*	100	7	6 hrs	48 hrs	262
International Paint Ltd.							
INTERSLEEK 1100SR	Slime release Fluoropolymer	1	150/208	4.8	24 hrs	#	248
Jotun Paints (Europe) Ltd.							
SEAQUEST	AF Foul Release	1	170/225	4.4	#	#	247
Maker Coating Systems Ltd.							
SIGMACOVER 295	Epoxy Primer	1	100/182	5.5	16 hrs	10 days	436
SIGMAGLIDE 790	Silicone Tiecoat	1	150/190	5.3	12 hrs	5 days	187
PPG Protective & Marine Coatings							
SIGMAGLIDE 790	Silicone Tiecoat	1	150/190	5.3	12 hrs	5 days	187
SIGMAGLIDE 1290	Silicone Foul Release	1	180	4.8	#	#	118
Sherwin-Williams Protective & Marine Coatings							
CMP BIOCLEAN SG R	Epoxy	1	125/208	4.86	20 hrs	#	406
CMP BIOCLEAN R	Silicone Elastomer	1	100/154	6.5	4 hrs	24 hrs	325
CMP BIOCLEAN HB	Silicone Elastomer	1	150/211	4.73	#	#	261
Propeller & Rudder:							
CMP BIOCLEAN SG R	Epoxy	1	100/167	6	4 hrs	#	406
CMP BIOCLEAN R single pack	Silicone Elastomer	1	200/308	3.3	4 hrs	24 hrs	325

ANNEX B

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA F. **BOOTTOP ANTIFOULING FINISH (SPC)** - Black							
Chugoku Paints (UK) Ltd.							
Standard: SEA GRANDPRIX 660 HS (Fusion)	SPC AF	1	150/224	4.46	5 hrs	#	324
Alternative: SEA GRANDPRIX 1000L	Hydrolysing Silyl	1	150/268	3.4	5 hrs	#	408
Hempel Paints Ltd							
Standard: Hempel AF GLOBIC 9000 78952	SPC AF	2	100/172	5.8	10 hrs	#	370
Alternative: Hempel AF OLYMPIC+ (72950)	SPC AF	2	100	5.0	8 hrs	#	365
International Paint Ltd.							
INTERSPEED 6400	Polyester	2	60/100	10	6 hrs	3 months	358
BOOTTOP ANTIFOULING FINISH (FR)							
Standard: INTERSLEEK 1100SR	Slime release Fluoropolymer	1	150/208	4.5	24 hrs	#	248
Jotun Paints (Europe) Ltd.							
Standard: SEAQUANTUM CLASSIC S	Silyl SPC AF	1 or 2	150/300	3.1	7 hrs	#	460
Maker Coating Systems Ltd.							
SIGMA ECOFLEET 530 (7385)	SPC AF	1	110/183	5.4	6 hrs	#	339
PPG Protective & Marine Coatings							
SIGMA ECOFLEET 530 (7385)	SPC AF	1	110/183	5.4	6 hrs	#	339
Sherwin-Williams Protective & Marine Coatings							
Standard: SEAVOYAGE 5600	Hydrolysing Silyl	1	150/224	4.46	5 hrs	#	324

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREAS G & H. **ABOVE WATER HULL & SUPERSTRUCTURE & PRIMER** Colour to be determined by the paint manufacturer, Annex D displays colours available for each manufacturers paint in this area							
Chugoku Paints (UK) Ltd. Standard: BANNOH 1500	Epoxy Primer	1	150/208	4.87	9 hrs	120 days	286
Hempel Paints Ltd Standard: Hempadur Quattro 17634	Epoxy Primer	1	125/174	5.8	6 hrs	90 days	276
International Paint Ltd. INTERGARD 5000	Primer	1	150/183	5.47	12 hrs	14 days	155
Jotun Paints (Europe) Ltd. Standard: JOTAMASTIC 80	Anticorrosive	1	200/250	4.0	10 hrs	#	145
Repair Kit (1:1 mix): JOTAMASTIC SMART PACK	Anticorrosive	2	70/93	10.7	7 hrs	#	230
Maker Coating Systems Ltd. Standard: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106
PPG Protective & Marine Coatings Standard: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106
Sherwin-Williams Protective & Marine Coatings Macropoxy® C425V2	Epoxy Zinc Phosphate	1	100/133	7.5	4 hrs	#	186

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA J. **ABOVE WATER HULL & SUPERSTRUCTURE FINISH** Light Weatherwork Grey BS381C 676							
Hempel Paints Ltd							
HEMPEL'S PRO ACRYLIC 55883	Acrylic	1	50/89	11.0	12 hrs	#	380
HEMPEL'S SILICONE ALKYD FINISH 53230	Silicone Alkyd	1	35/64	15.4	8 hrs	1-2 days	410
Tie-Coat – (if req'd): HEMPALIN UNDERCOAT 42460	Alkyd	1	40/75	12.5	8 hrs	7 days	385
International Paint Ltd.							
INTERFINE 878	Poly-siloxane	1	50/69	14.4	4 hrs	#	246
INTERFINE 629 HS	Acrylic	1	50/77	13	8 hrs	#	336
Undercoat/Tie-Coat (if required): INTERGARD 263	Epoxy Tie Coat	1	75/132	7.6	8 hrs	5 days	379
Jotun Paints (Europe) Ltd.							
HARDTOP OPTIMA	Poly-siloxane	1	75/99	10.1	4 hrs	#	215
HARDTOP CA	Acrylic	1	75/125	8	5 hrs	#	340
Maker Coating Systems Ltd.							
AMERON PSX700	Poly-siloxane	1	75/83	12	3 hrs	#	164
SIGMADUR 540 (7740)	Epoxy Acrylic	1	50/93	10.8	8 hrs	#	411
Sherwin-Williams Protective & Marine Coatings Kem-Kromik A165	Silicone Alkyd	1	35/69	14.6	16 hrs	#	407
Sherwin M671	Tie Coat	1	35/67	14.9	4 hrs	#	380

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA K. **FLIGHT & WEATHERDECK SYSTEMS – DEF STAN 80-134** Colour - Flight Deck Extra Dark Sea Grey BS 381C, Hangar Deck Dark Admiralty Grey BS 381C							
Chugoku Paints (UK) Ltd. Primer: UMEGUARD HS	Epoxy	1	125/162	5.93	20 hrs	30 days	158
(a). Flight & Weatherdeck – Type 2 Non-Skid Finish (coarse) CAMIDECK FINISH Type 2	Non Skid	2	208/353	2.84	16 hrs	#	374
CAMIDECK REPAIR KIT Type 2 available to order (2l)	Non Skid						
(b). Hangar & Weatherdeck – Type 1 Non-Skid Finish (fine) CAMIDECK FINISH Type 1	Non Skid	2	190/352	2.84	16 hrs	#	374
Hangar Deck: CAMIDECK REPAIR KIT Type 1 available to order (2l)	Non Skid						
(c). Gloss for Deck Margins: UMEGUARD HS	Epoxy	2	75/97	5.93	20 hrs	7 days	158
Hempel Paints Ltd **(a).** Flight & Weatherdeck – Type 2 Non-Skid Finish (coarse) Primer: HEMPADUR 45880 MIO 12430	Epoxy	1	100/125	8.0	7 hrs	#	198
Finish: HEMPEL'S NON-SKID 45710	Non Skid	2	400/526	1.9	6 hrs	30 days	206
Type 2 Repair Kit: HEMPEL'S DECK REPAIR KIT 941GB	Repair kits are to be ordered through **Maker Coatings Ltd** NSN – 99-340-2100						
(b). Hangar & Weatherdeck – Type 1 Non-Skid Finish (fine) Primer: HEMPADUR 45880 MIO 12430	Epoxy	1	100/125	8.0	7 hrs	#	198
Hangar Deck Finish & Weatherdeck Finish: HEMPEL'S NON-SKID 45340	Non Skid	2	200/317	3.2	6 hrs	30 days	335
Type 1 Repair Kit: HEMPEL'S DECK REPAIR KIT 942GB	Repair kits are to be ordered through **Maker Coatings Ltd** NSN – 99-471-2960						
(c). Gloss for Deck Margins: HEMPADUR 45143	Epoxy	2	125/208	5.0	3 hrs	30 days	330

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA K. **FLIGHT & WEATHERDECK SYSTEMS – DEF STAN 80-134** Colour - Flight Deck Extra Dark Sea Grey BS 381C, Hangar Deck Dark Admiralty Grey BS 381C							
International Paint Ltd.							
Markings: INTERFINE 629 HS	Acrylic	1	50/77	13	8 hrs	#	336
INTERFINE 878	Poly-siloxane	1	50/69	14.4	4 hrs	#	246
(a). Flight & Weatherdeck – Type 2 Non-Skid Finish (coarse) INTERGARD 5000	Primer	1	150/183	5.47	12 hrs	14 days	155
Finish: INTERSHIELD 851		2	300/390	1.28	16 hrs	#	169
(b). Hangar & Weatherdeck – Type 1 Non-Skid Finish (fine) INTERGARD 5000	Primer	1	150/183	5.47	12 hrs	14 days	155
Hangar Deck: INTERSHIELD 852		2	200/267	1.92	12 hrs	#	134
(c). Gloss for Deck Margins: INTERGARD 740		1	50/98	10.2	16 hrs	#	420
Jotun Paints (Europe) Ltd. **(a).** Flight & Weatherdeck – Type 2 Non-Skid Finish (coarse) JOTAMASTIC 87	Epoxy Primer	1	150/183	5.5	10 hrs	#	150
Finish: JOTA ARMOUR	Anti-corrosive	2	375/417	2.4	14 hrs	#	70
(b). Hangar & Weatherdeck – Type 1 Non-Skid Finish (Fine) JOTAMASTIC 87	Epoxy Primer	1	150/183	5.5	10 hrs	#	150
(c). Gloss for Deck Margins: HARDTOP CA	Acrylic	1	75/125	8	5 hrs	#	340
HARDTOP OPTIMA	Poly-siloxane	1	75/99	10.1	4 hrs	#	215
Maker Coating Systems Ltd. **(a).** Flight & Weatherdeck – Type 2 Non-Skid Finish (coarse) Primer: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106
Finish: AMERLOCK 400 NS		2	400/	2.3	16 hrs	#	106
Type 2 Repair Kit: AMERLOCK 400 NS T2R							

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA K. **FLIGHT & WEATHERDECK SYSTEMS – DEF STAN 80-134** Colour - Flight Deck Extra Dark Sea Grey BS 381C, Hangar Deck Dark Admiralty Grey BS 381C							
Maker Coating Systems Ltd. (2) **(b).** Hangar & Weatherdeck – Type 1 Non-Skid Finish (Fine)							
Primer: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106
Hangar Deck & Weatherdeck: AMERLOCK 400 NS		2	300/	4	16 hrs	#	106
Type 1 Repair Kit: AMERLOCK 400 NS T1R		2	300/	4	16 hrs	#	106
(c). Gloss for Deck Margins: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	2	125/147	7	16 hrs	#	106
PPG Protective & Marine Coatings **(a).** Flight & Weatherdeck – Type 2 Non-Skid Finish (coarse)							
Primer: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106
Finish: AMERLOCK 400 NS		2	400/	2.3	16 hrs	#	106
Type 2 Repair Kit: AMERLOCK 400 NS T2R							
(b). Hangar & Weatherdeck – Type 1 Non-Skid Finish (Fine)							
Hangar Deck & Weatherdeck: AMERCOAT 138G	Non Skid Epoxy	1	1300/1585	0.6	24 hrs	#	168
(c). Gloss for Deck Margins: SIGMADUR 540	Epoxy Acrylic	1	50/93	12	8 hrs	#	411
Sherwin-Williams Protective & Marine Coatings **(a).** Flight & Weatherdeck – Type 2 Non-Skid Finish (coarse)							
Primer: Macropoxy® C425V2	Epoxy Zinc Phosphate	1	125/167	6.0	4 hrs	#	186
Finish: EPIDEK M339		2	200/282	1.8	4 hrs	#	250
Type 2 Repair Kit: EPIDEK M339			/282				
(b). Hangar & Weatherdeck – Type 1 Non-Skid Finish (Fine)							
Primer: Macropoxy® C425V2	Epoxy Zinc Phosphate	1	125/167	6.0	4 hrs	#	186
Hangar Deck: EPIDEK M377	Epoxy	2	250/403	2.5	4 hrs	#	330
(c). Gloss for Deck Margins: Macropoxy® M262	Epoxy	1	75/			#	354

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREAS L & M. **INTERIOR DRY COMPARTMENTS** Finish coat colour - Ash Grey 00A01 to BS4800							
Chugoku Paints (UK) Ltd. Primer: BANNOH 1500	Epoxy Primer	1	125/171	5.84	9 hrs	120 days	286
Hempel Paints Ltd Standard Primer: HEMPADUR 45880 MIO 12430	Epoxy	1	125/156	6.4	7 hrs	#	198
Standard Finish: HEMUCRYL ENAMEL 58100	Water-borne	2	30/73	13.7	6 hrs	#	63
International Paint Ltd. INTERGARD 5000	Primer	1	125/152	6.56	12 hrs	#	155
Finish: INTERGARD 1735	Epoxy	1	50/100	11.2	12 hrs	#	132
Maker Coating Systems Ltd. Primer & Finish: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	100/118	8.75	16 hrs	#	106
Alternative Primer: AQUACOVER 25 (7150)	Zinc Phosphate	1	75/170	5.7	4 hrs	#	25
PPG Protective & Marine Coatings Primer: AQUACOVER 25 (7150)	Zinc Phosphate	1	75/170	6.6	4 hrs	#	31
Primer & Finish: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	100/118	8.75	16 hrs	#	106
Sherwin-Williams Protective & Marine Coatings Primer: Macropoxy® C425V2	Epoxy Zinc Phosphate	1	125/167	6.0	5 hrs	#	186
Finish: Sher-CrylTM M770	Sealercoat	1	25/	15.6	3 hrs	#	78

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREAS N & O. **INTERIOR WET COMPARTMENTS** Finish Colour Ash Grey BS4800 00A01 Or BS381C 676 (citidal lobbies)							
Chugoku Paints (UK) Ltd. Primer: BANNOH 1500	Epoxy Primer	1	125/171	5.84	9 hrs	120 days	286
Hempel Paints Ltd Standard Primer: HEMPADUR 45880 MIO 12430	Epoxy	1	125/156	6.4	7 hrs	#	198
Standard Areas Finish, Citadel Lobby Finish & Magazine Use Finish: HEMUDUR FC 48582	Epoxy	1	80/145	6.9	12 hrs	15 days	27
Cleansing Stations Finish: HEMPADUR 45143	Epoxy	1	100/167	6.0	8 hrs	#	375
International Paint Ltd. Primer: INTERGARD 5000	Primer	1	125/152	6.56	24 hrs	#	155
Standard Areas Finish, Citadel Lobby Finish & Magazine Use Finish: INTERGARD 1735	Epoxy	1	50/100	11.2	12 hrs	#	132
Cleansing Stations Finish: INTERFINE 979 (overcoat primer within 4 days)		1	125/164	7.6	4 hrs	#	165
Maker Coating Systems Ltd. Primer, Standard Finish, Citadel Lobby Finish, Magazines Finish & Cleansing Stations Primer: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	100/118	8.75	16 hrs	#	106
Cleansing Stations Finish: AMERON PSX 700	Poly-siloxane	1	125/139	7.2	4.5 hrs	#	120
PPG Protective & Marine Coatings Cleansing Stations: SIGMAGUARD CSF 650	Epoxy	1	350/350	2.9	24 hrs	20 days	143
Primer, Standard Finish, Citadel Lobby Finish, Magazines Finish & Cleansing Stations Primer: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	100/118	8.75	16 hrs	#	106
Sherwin-Williams Protective & Marine Coatings Primer: Macropoxy® C425V2	Epoxy Zinc Phosphate	1	125/167	6.8	5 hrs	#	186
Standard Areas Finish & Citadel Lobby Finish: Macropoxy® M630V2	Epoxy	1	75/150	6.8	24 hrs	#	0

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREAS N & O. **INTERIOR WET COMPARTMENTS (2)** Finish Colour Ash Grey BS4800 00A01 Or BS381C 676 (citidal lobbies)							
Sherwin-Williams Protective & Marine Coatings (2)							
Cleansing Stations Finish: Macropoxy® H766		1	10/	14.0	5 hrs	#	395
Magazine Finish: Macropoxy® M630V2	Epoxy	1	75/150	6.8	24 hrs	#	0
AREA P. **INTERIOR DECKS** Colour BS4800 Green 14C39							
Chugoku Paints (UK) Ltd.							
Standard Primer & Cleansing Stations Primer: BANNOH 1500	Epoxy Primer	1	125/171	5.84	9 hrs	120 days	286
Hempel Paints Ltd							
Primer: HEMPADUR 45880 MIO 12430	Epoxy	1	125/156	6.4	7 hrs	#	198
Cleansing Station Finish: HEMPADUR 45143	Epoxy	1	100/167	6.0	8 hrs	#	375
International Paint Ltd. 2 Coat System:							
INTERGARD 5000	Primer	1	150/183	5.47	24 hrs	#	155
INTERGARD 1735	Epoxy	1	50/100	11.2	12 hrs	#	132
Cleansing Stations Finish: INTERFINE 979 (Overcoat primer within 4 days)		1	125/164	7.6	4 hrs	#	165
Maker Coating Systems Ltd. Primer & Finish: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	100/118	8.75	16 hrs	#	106
Cleansing Stations Finish: AMERON PSX 700	Poly-siloxane	1	125/139	7.2	4.5 hrs	#	120
PPG Protective & Marine Coatings Standard & Cleansing Stations							
Finish: SIGMACOVER 400	Epoxy	1	100/123	8.5	16 hrs	30 days	180
Sherwin-Williams Protective & Marine Coatings							
Standard Primer: Macropoxy® C425V2	Epoxy Zinc Phosphate	1	125/167	6.0	5 hrs	#	186
Finish: Macropoxy® M630V2	Epoxy	1	75/150	6.8	24 hrs	#	0
Cleansing Stations Finish: Macropoxy® H766		1	40/	14.0	5 hrs	#	395

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA Q. **BATTERY COMPARTMENTS** Colour Ash Grey BS4800 00A01							
Chugoku Paints (UK) Ltd. Primer: BANNOH 1500	Epoxy Primer	1	125/171	5.84	9 hrs	120 days	286
Hempel Paints Ltd Primer: HEMPADUR 45880 MIO 12430	Epoxy	1	150/188	6.0	8 hrs	#	198
International Paint Ltd. INTERGARD 5000	Primer	1	150/183	5.47	12 hrs	#	155
Maker Coating Systems Ltd. Primer & Finish: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	100/118	8.75	16 hrs	#	180
PPG Protective & Marine Coatings Primer & Finish: SIGMACOVER 400	Epoxy	1	100/118	8.5	16 hrs	30 days	180
Sherwin-Williams Protective & Marine Coatings Primer: Macropoxy® C425V2	Epoxy Zinc Phosphate	1	100/133	7.5	4 hrs	#	197
Finish: Macropoxy® M630V2	Epoxy	1	75/150	6.8	24 hrs	#	0
AREA R. **CABLE LOCKERS & COFFERDAMS**- White RAL 9010							
Chugoku Paints (UK) Ltd. BANNOH 1500	Epoxy Primer	1	125/171	5.84	9 hrs	120 days	286
Hempel Paints Ltd HEMPADUR 45880	Epoxy	1	150/188	6.0	8 hrs	#	198
International Paint Ltd. INTERGARD 5000	Primer	1	150/183	5.46	12 hrs	3 months	155
Jotun Paints (Europe) Ltd. Standard: JOTAMASTIC 80	Anticorrosive	1	175/219	4.6	10 hrs	#	145
Maker Coating Systems Ltd. SIGMASHIELD 880	Polyamine	1	350/	2.9	3.5 hrs	14 days	207
PPG Protective & Marine Coatings SIGMASHIELD 880	Polyamine	1	350/	2.9	3.5 hrs	14 days	207
Sherwin-Williams Protective & Marine Coatings Macropoxy® L524	Epoxy	2	125/195	5.1	12 hrs	#	296

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA S. **BLACK/GREY & WATER BALLAST TANKS IMO PSPC** Colour - Grey (manufacturers standard colour)							
Chugoku Paints (UK) Ltd.							
BANNOH 1500	Epoxy Primer	1	160/219	4.56	9 hrs	30 days	286
Spot Repair CMP NOVA 5000 Barrier	MIO Epoxy	1	300/300	3.3	12 hrs	7 days	175
Hempel Paints Ltd							
Water Ballast: Hempadur Quattro 17634	Epoxy Primer	2	160/222	4.5	6 hrs	90 days	275
Black & Grey Water: HEMPADUR 85671	Epoxy Phenolic	3	100/147	6.8	36 hrs	5 days	320
International Paint Ltd.							
Water Ballast: INTERGARD 5000	Primer	2	160/195	5.13	12 hrs	3 months	155
Black & Grey Water: INTERLINE 850	Epoxy Phenolic	2	125/164	6.08	6 hrs	30 days	212
Galley Grey Water: INTERLINE 994		3	100/143	7	44 hrs	25 days	290
Jotun Paints (Europe) Ltd.							
Water Ballast							
Standard: BALLOXY HB LIGHT	Anti-corrosive	1	160/195	5.1	10 hrs	#	150
Black & Grey Water							
Standard: TANKGUARD STORAGE	Epoxy Phenolic	1	150/238	4.2	10 hrs	30 days	310
Alternative: TANKGUARD DW	Epoxy	1	150/150	6.7	12 hrs	5 days	2
Maker Coating Systems Ltd.							
CORROLESS EPF	Epoxy	1	200/	4.8	16 hrs	#	80
CORROLESS RF35	Epoxy	1	200/	4.8	16 hrs		93
PPG Protective & Marine Coatings							
Black / Grey Water: SIGMAGUARD CSF 650	Epoxy	1	350/350	2.9	24 hrs	20 days	143
Sherwin-Williams Protective & Marine Coatings Water Ballast Tanks: Macropoxy® L524 (typical dft 125. care req'd on overlap at 160)	Epoxy	2	160/250	3.9	12 hrs	#	296
Black & Grey Water Tanks: Macropoxy® C251	Epoxy Phenolic	2	125/	5.9	24 hrs	28 days	235

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA T. **MACHINERY SPACE BILGES** Colour White RAL 9010							
Chugoku Paints (UK) Ltd. BANNOH 1500	Epoxy Primer	2	125/171	4.87	9 hrs	30 days	286
Hempel Paints Ltd HEMPADUR 45880	Epoxy	2	125/156	6.4	7 hrs	#	198
International Paint Ltd. INTERGARD 5000	Primer	1	175/213	4.68	12 hrs	3 months	155
Jotun Paints (Europe) Ltd. Finish: HARDTOP CA	Acrylic	1 or 2	75/125	10.1	4 hrs	#	340
Maker Coating Systems Ltd. SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	2	125/147	7	16 hrs	#	106
PPG Protective & Marine Coatings SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	175/201	5	5 hrs	30 days	153
Sherwin-Williams Protective & Marine Coatings Macropoxy® L524	Epoxy	2	125/195	5.1	12 hrs	#	296
Optional Hygiene Coat: Macropoxy® M630V2	Epoxy	1	75/150	6.8	12 hrs	#	0
AREA U. **AVCAT, DIESO, LUB & HYDRAULIC OIL TANKS SYSTEM DEF STAN 80-97 (HIGH SOLIDS)** Colour - White (manufacturers standard colour)							
Chugoku Paints (UK) Ltd. EPICON T-800	Epoxy Phenolic	2	125/192	5.2	16 hrs	21 days	359
Hempel Paints Ltd HEMPADUR 85671	Epoxy Phenolic	3	100/147	6.8	36 hrs	21 days	320
International Paint Ltd. INTERLINE 850	Epoxy Phenolic	2	125/164	6.08	6 hrs	30 days	212
Jotun Paints (Europe) Ltd. TANKGUARD STORAGE	Epoxy Phenolic	1	125/198	5.0	10 hrs	30 days	310
Maker Coating Systems Ltd. CORROLESS EPF	Epoxy	1	200/	4.8	16 hrs	3 days	80
CORROLESS RF35	Epoxy	1	200/	4.8	16 hrs	3 days	93
PPG Protective & Marine Coatings SIGMAGUARD CSF 650	Epoxy	1	350/350	2.9	24 hrs	20 days	143
Sherwin-Williams Protective & Marine Coatings Macropoxy® M922	Epoxy	2	200/	5.4	4 hrs	14 days	143

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA V. **POTABLE WATER TANKS** Colour - White (manufacturers standard colour)							
Chugoku Paints (UK) Ltd. CLEANKEEP 5000	Solventfree Epoxy	1 (2)	300/300	3.33	32 hrs	14 days	0
Hempel Paints Ltd HEMPADUR 35560	Epoxy	2	200/200	5.0	24 hrs	30 days	0
International Paint Ltd. INTERLINE 925	Epoxy	1	300/300	3.33	18 hrs	3 days	1
Jotun Paints (Europe) Ltd. TANKGUARD DW	Epoxy	1	150/150	6.7	12 hrs	5 days	2
Maker Coating Systems Ltd. CORROLESS EPF	Epoxy	1	200/	4.8	16 hrs	3 days	80
CORROLESS RF35	Epoxy	1	200/	4.8	16 hrs	3 days	93
PPG Protective & Marine Coatings SIGMAGUARD CSF 585	Epoxy	1	300/	3.3	24 hrs	20 days	6
AREA W. **AQUEOUS FILM-FORMING FOAM (AFFF) TANKS** Colour - White (manufacturers standard colour)							
Chugoku Paints (UK) Ltd. EPICON T-800	Epoxy Phenolic	2	125/192	5.2	16 hrs	21 days	359
Hempel Paints Ltd HEMPADUR 85671	Epoxy Phenolic	3	100/147	6.8	36 hrs	21 days	320
International Paint Ltd. INTERLINE 704		2	125/236	4.24	23 hrs	21 days	425
Jotun Paints (Europe) Ltd. TANKGUARD DW	Epoxy	1	150/150	6.7	12 hrs	5 days	2
Maker Coating Systems Ltd. Standard: CORROLESS EPF	Epoxy	1	200/	4.8	16 hrs	3 days	80
CORROLESS RF35	Epoxy	1	200/	4.8	16 hrs	3 days	93
PPG Protective & Marine Coatings SIGMAGUARD CSF 650	Epoxy	1	350/350	2.9	24 hrs	20 days	143
Sherwin-Williams Protective & Marine Coatings Macropoxy® C251	Epoxy Phenolic	2	125/	5.9	24 hrs	28 days	235

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA X. **DEMINERALISED WATER TANKS (Max Temperature 90°C)** Colour - White (manufacturers standard colour)							
Chugoku Paints (UK) Ltd. Standard: EPICON T-800	Epoxy Phenolic	2	125/192	5.2	16 hrs	21 days	359
Hempel Paints Ltd HEMPADUR 85671	Epoxy Phenolic	3	100/147	6.8	36 hrs	21 days	320
International Paint Ltd. INTERLINE 925 (up to 60°C only)	Epoxy	1	300/300	3.33	18 hrs	3 days	1
Jotun Paints (Europe) Ltd. Standard: TANKGUARD DW	Epoxy	1	125/125	5.0	10 hrs	30 days	2
Maker Coating Systems Ltd. Standard: CORROLESS EPF	Epoxy	1	200/	4.8	16 hrs	3 days	80
CORROLESS RF35	Epoxy	1	200/	4.8	16 hrs	3 days	93
PPG Protective & Marine Coatings SIGMAGUARD CSF 650	Epoxy	1	350/350	2.9	24 hrs	20 days	143
Sherwin-Williams Protective & Marine Coatings Macropoxy® C251	Epoxy Phenolic	2	125/	5.9	24 hrs	28 days	235

ANNEX B

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA Y. **EPOXY HOLDING PRIMER** Colour to be determined by the paint manufacturer, Annex D displays colours available for each manufacturers paint in this area							
Chugoku Paints (UK) Ltd. NZ PRIMER S	Epoxy	1	25/83	12	16 hrs	120 days	659
Hempel Paints Ltd HEMPADUR 15570	Epoxy	1	40/74	13.5	#	#	420
International Paint Ltd. Standard: INTERGARD 269	Epoxy Primer	1	30/64	15.67	6 hrs	#	411
Jotun Paints (Europe) Ltd. MUKI EPS	Epoxy	1	20/80	12.5	7 hrs		610
Maker Coating Systems Ltd. SIGMACOVER 280 (7417)	Anti-corrosive	1	50/88	11.4	8 hrs	6 months	432
PPG Protective & Marine Coatings SIGMACOVER 280 (7417)	Anti-corrosive	1	50/88	11.4	8 hrs		432
Sherwin-Williams Protective & Marine Coatings Macropoxy® L574	Epoxy Primer	1	25/	11.6	3 hrs	#	594
AREA Z. **PRIMERS FOR NON-FERROUS METALS & FRP** Colour to be determined by the paint manufacturer, Annex D displays colours available for each manufacturers paint in this area							
Chugoku Paints (UK) Ltd. Aluminium: ALP 500	Epoxy Primer	1	50/86	11.6	10 hrs	#	414
Stainless Steel: BANNOH 1500	Epoxy Primer	1	125/171	5.84	9 hrs	120 days	286
Zinc Spray & Galvanise: GALVANITE 200	Epoxy Primer	1	30/64	12.7	4 hrs	30 days	587
FRP Indicator Coat: CLEANKEEP 5000	Solventfree Epoxy	1	300/300	3.33	32 hrs	14 days	0
Hempel Paints Ltd. Aluminium, Stainless Steel, Zinc Spray & Galvanised surfaces: Standard: HEMPADUR 15553 (2 pack)	Epoxy	1	50/91	11	2 hrs	#	388
FRP Indicator Coat: HEMPADUR 35560	Epoxy	1	200/200	5	8 hrs	30 days	0
Using **Y.** Epoxy Holding Primer as tie-coat for subsequent coats		1	40/	13.5	4 hrs	#	420

ANNEX B

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA Z. PRIMERS FOR NON-FERROUS METALS & FRP (2)							
International Paint Ltd. Aluminium, Stainless Steel, Zinc Spray & Galvanised surfaces: Standard: INTERGARD 269	Epoxy Primer	1	30/64	15.67	6 hrs	#	411
FRP Indicator Coat: INTERLINE 925	Epoxy	1	300/300	5.0	18 hrs	3 days	1
Jotun Paints (Europe) Ltd. FRP Indicator Coat: PENGUARD HB	Epoxy Primer	2	150/278	3.6	8 hrs	#	390
Maker Coating Systems Ltd. Stainless Steel: SIGMACOVER 280 (7417)	Anti-corrosive	1	50/88	11.4	8 hrs	#	432
Aluminium/ Zinc Spray/ Galvanised surfaces, FRP Indicator Coat: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106
PPG Protective & Marine Coatings Aluminium / Stainless Steel / Zinc Spray / Galvanise: SIGMACOVER 280 (7417)	Anti-corrosive	1	50/88	11.4	8 hrs	3 months	432
FRP Indicator coat: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	2	125/147	7	16 hrs	#	106
Sherwin-Williams Protective & Marine Coatings Aluminium / Galvanise / Stainless Steel: Macropoxy® L425	EpoxyZinc Phosphate	1	35/58	17.1	5 hrs	#	346
Zinc Spray: Macropoxy® L574	Epoxy Primer	1	25/	11.6	3 hrs	#	594
FRP Indicator Coat: Macropoxy® C425V2 Off white	Epoxy Zinc Phosphate	2	150/200	5	4 hrs	#	186

FKA – Formerly Known As

ANNEX B

Notes:

1. The recoat intervals published above are based on the manufacturer's figures quoted for 20°C (Chugoku Paints, Hempel UK, Maker Coating Systems, PPG Protective & Marine Coatings), 23°C (Jotun Coatings, Sherwin Williams Protective & Marine Coatings) and 25°C (International Paints).

2. The number of coats stated in the above table, relate to airless spray application to achieve the stated nominal dry film thickness (NDFT). Should brush application be required for touch up and repair then additional coats may be necessary to achieve the required NDFT.

3. # = No recoat interval, see Manufacturer's Technical Data Sheet/Application Instructions for requirements.

4. It is important to ensure that surfaces are clean and free of contamination when overcoating materials, that have been left exposed, this is especially true for those products with an indefinite recoat interval.

5. The Theoretical Spreading Rate (TSR) quoted in the table above is calculated from the coatings physical constants and makes no allowance for loss and assumes a totally smooth surface. The actual spreading rate achieved Practical Spreading Rate (PSR) is dependent upon many factors and in practice the factor used may vary from as little as 1.05 up to as much as 4+. It is usual for paint manufactures to use figures of 1.3 or 1.4 for estimating purposes but they always add the caveat that actual consumption achieved may vary due to such factors as surface profile, wastage due to material left in the can, weather conditions, skill of operator etc.

6. ~ = Use epoxy holding primer Y, when appropriate.

ANNEX C: SUBMARINE SYSTEMS

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S1. **PRESSURE HULL & EXTERNAL SUPERSTRUCTURE PRIMER Untiled Areas**								
Chugoku Paints (UK) Ltd. UMEGUARD SX HS	Surface Tolerant	1	150/195	5.13	28 hrs	7 days	232	EXT
Hempel Paints Ltd. HEMPADUR 45880	Epoxy	2	175/219	4.6	8 hrs	30 days	198	BLI (A7305)
International Paint Ltd. INTERGARD 5000	Primer	1	175/213	4.68	12 hrs	2 months	155	BLI (A5713)
Maker Coating Systems Ltd. 13CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	BLI (A6857)
Sherwin-Williams Protective & Marine Coatings. Macropoxy® M922M	Epoxy	2	200/-	4.2	4 hrs	#	146	BLI (A6786)
AREA S2. **ANTIFOULING SYSTEM(S) Black Finish FOUL RELEASE / DEFENCE (FRC / FD) Sonar Dome**								
Chugoku Paints (UK) Ltd.								
BANNOH 1500	Epoxy Primer	1	150/208	4.87	9 hrs	120 days	286	EXT
BANNOH 1500 RZ	Tie coat	1	100/156	6.4	8 hrs	5 days	319	EXT
CMP BIOCLEAN R	Silicone Elastomer	1	100/154	6.5	4 hrs	24 hrs	278	EXT
CMP BIOCLEAN HB	Silicone Elastomer	1	150/211	3.55	#	#	261	EXT
CMP BIOCLEAN SG R	Epoxy	1	125/208	4.86	6 hrs	#	406	EXT
Hempel Paints Ltd. Primer: HEMPADUR 15570	Epoxy	2	125/231	4	8 hrs	30 days	414	03YR (A2701)
Tie-Coat for D: Hempel Nexus II 27400	Silicone	1	100/175	5.6	#	#	400	EXT
HEMPAGUARD X7 89900 Hydrogel c/w Biocides	Fouling Defence	2	100/143	7	6 hrs	#	262	EXT
International Paint Ltd. Primer: INTERSHIELD 300	Epoxy	2	125/208	4.8	7 hrs	14 days	313	EXT
Tie coat: INTERSLEEK 737	Silicone	1	100/175	6.5	4 hrs	7 days	377	EXT
INTERSLEEK 1100SR Fluoropolymer	Slime Release	1	150/208	4.8	24 hrs	#	248	EXT

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S2. **ANTIFOULING SYSTEM(S)** Black Finish **FOUL RELEASE / DEFENCE (FRC / FD) Sonar Dome (2)**								
PPG Protective & Marine Coatings SIGMAGLIDE 790	Silicone Tiecoat	1	150/190	5.3	12 hrs	5 days	187	EXT
SIGMAGLIDE 1290	Silicone Foul Release	1	180/207	4.8	#	#	118	EXT
SELF POLISHING (SPC) **Chugoku Paints (UK) Ltd.** SEA GRANDPRIX 660 HS (Fusion)	SPC AF	1	150/224	4.46	5 hrs	#	324	EXT
Hempel Paints Ltd. Hempel AF OLYMPIC+ (72950)	SPC AF	2	120/190	5.0	8 hrs	#	367	EXT
International Paint Ltd. INTERSPEED 6400	Polyester	2	90/150	6.7	6 hrs	3 months	358	EXT
PPG Protective & Marine Coatings SIGMA ECOFLEET 530 7385	SPC AF	3	100/167	6.6	6 hrs	#	339	EXT
Sherwin-Williams Protective & Marine Coatings SEAVOYAGE 5600	Hydro-lysing Silyl	1	150/224	4.46	5 hrs	#	324	EXT
AREA S3. **PRESSURE HULL & EXTERNAL SUPERSTRUCTURE FINISH** Untiled areas								
Hempel Paints Ltd. HEMPADUR 47182	Epoxy	1	125/202	6	9 hrs	5 days	364	EXT
International Paint Ltd. INTERGARD 5000	Primer	1	125/152	6.56	12 hrs	2 months	155	BLI (A5713)
Sherwin-Williams Protective & Marine Coatings SEAVOYAGE 1500	Epoxy	1	100/156	6.4	8 hrs	5 days	319	EXT
Maker Coating Systems Ltd CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	BLI (A6858)

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S4. **PERISCOPES & MASTS** **Visible portions outside the submarine**								
Sherwin-Williams Protective & Marine Coatings Macropoxy® L425	EpoxyZinc Phosphate	1	35/-	17.1	5 hrs	#	346	BLI (A0565g)
AREA S5. **SUPERSTRUCTURE CASING** **General steelwork**								
Hempel Paints Ltd. HEMPADUR 45880 MIO 12430	Epoxy	1	175/219	4.6	8 hrs	30 days	198	EXT/BLI (A7305)
HEMPADUR 47182	Epoxy	1	125/-	6	9 hrs	3.5 days	364	EXT
International Paint Ltd. INTERGARD 5000	Primer	1	175/213	4.68	12 hrs	2 months	155	BLI (A5713)
Sherwin-Williams Protective & Marine Coatings Macropoxy® M922M	Epoxy	2	200/-	4.2	4 hrs	#	146	BLI (A6786)
Maker Coating Systems Ltd SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	2	125/147	7	16 hrs	#	106	BLI (A6852)
PPG Protective & Marine Coatings SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	2	125/147	7	16 hrs	#	106	BLI (A6852)

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S6. **<u>WALKWAYS ON STEEL CASING</u>** Black								
<u>Chugoku Paints (UK) Ltd</u>								
UMEGUARD HS	Epoxy	1	125/162	7.4	20 hrs	30 days	158	03YR (A1651)
CAMIDECK FINISH TYPE 1		2	190/352	2.84	16 hrs	#	374	BLI (A7186)
<u>Hempel Paints Ltd.</u> HEMPADUR 45880 MIO 12430	Epoxy	1	100/125	8.5	7 hrs	6 hrs*	168	EXT BLI (A7305)
HEMPEL'S NON-SKID 45340 TYPE 1	Non Skid	2	200/317	3.2	6 hrs	30 days	335	EXT BLI (A7264)
<u>International Paint Ltd.</u> INTERGARD 5000	Primer	1	150/183	5.47	12 hrs	4 days	155	BLI (A5713)
<u>Maker Coating Systems Ltd.</u> SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106	BLI (A6852)
AMERLOCK 400 NS TYPE 1		2	300/-	4	16 hrs	#	106	EXT
<u>PPG Protective & Marine Coatings</u>								
SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106	BLI (A6852)
AMERCOAT 138G	Non Skid Epoxy	1	1300/ 1585	0.6	24 hrs	#	168	EXT
<u>Sherwin-Williams Protective & Marine Coatings</u> Macropoxy® C425V2	Epoxy Zinc Phosphate	1	125/-	76.0	5 hrs	#	186	BLI (A3736)
EPIDEK M377 TYPE 1	Epoxy	2	250/403	4	4 hrs	#	330	EXT

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S7. INTERNAL DRY SPACES White								
Chugoku Paints (UK) Ltd. UMEGUARD HS	Epoxy	1	125/162	7.4	20 hrs	30 days	158	03YR (A1651)
Hempel Paints Ltd.								
HEMUCRYL ENAMEL 58100	Water-borne	2	30/73	13.7	6 hrs	#	63	03YR (A0823)
International Paint Ltd								
INTERGARD 5000	Primer	1	125/152	6.56	12 hrs	#	155	BLI (A5713)
INTERGARD 1735	Epoxy	1	50/100	11.2	12 hrs	#	132	BLI (A7312)
Maker Coating Systems Ltd SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106	BLI (A6848)
Sherwin-Williams Protective & Marine Coatings								
Macropoxy® C425V2	Epoxy Zinc Phosphate	1	125/-	6.0	5 hrs	#	186	BLI (A3736)
Sher-CrylTM M770	Sealercoat	2	25/-	15.6	3 hrs	#	78	S (A3274)
AREA S8. INTERIOR WET COMPARTMENTS (Complete Re-preservation) White								
Chugoku Paints (UK) Ltd. UMEGUARD HS	Epoxy	1	125/162	7.4	20 hrs	30 days	158	03YR (A1651)
Hempel Paints Ltd. HEMPADUR 45880 MIO 12430	Epoxy	1	125/156	6.5	5 hrs	#	198	BLI (A7305)
HEMUDUR FC 48582	Epoxy	1	80/-	6.9	12 hrs	15 days	27	BLI (A7306)

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S8. **INTERIOR WET COMPARTMENTS (Complete Re-preservation) White (2)**								
International Paint Ltd. 2 Coat System: INTERGARD 5000	Primer	1	125/152	6.56	24 hrs	#	155	BLI (A7312)
INTERGARD 1735		1	50/100	11.2	12 hrs	#	132	BLI (A7312)
Maker Coating Systems Ltd SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106	BLI (A6848)
PPG Protective & Marine Coatings SIGMACOVER 456 HS (7712)		2	75/103	9.7	8 hrs	#	277	03YR (A2733)
Sherwin-Williams Protective & Marine Coatings Macropoxy® C425V2	Epoxy Zinc Phosphate	1	125/167	6.0	5 hrs	#	186	BLI (A3736)
Macropoxy® M630V2	Epoxy	1	75/-	6.8	24 hrs	#	0	S (A2973)
AREA S9. **GROUP EXHAUST VALVES** (Consult SDA-IS-Navarch3b due to lack of paints)								
Sherwin-Williams Protective & Marine Coatings Zinc-Clad II EU (previously Dox Anode D5V2)		1	75/-	8.7	24 hrs	#	470	W (A1984)
AREA S10. **DSRV SEATING** (No painting should be attempted without consultation with SDA-IS-Navarch3b)								
Sherwin-Williams Protective & Marine Coatings Macropoxy® C425V2	Epoxy Zinc Phosphate	1	175/233	4.3	8 hrs	#	186	BLI (A3736)
EPIDEK L716		2	75/-	6.8	4 hrs	#	420	BLI (A1010)

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S11. INTERIOR PRESSURE HULL SURFACE Emergency Cooling Tanks (RR Approved)								
a) S Class Soft and Saddle Tanks								
Hempel Paints Ltd. GALVOSIL 15700	Zinc Silicate	1	75/-	8.53	36 hrs	#	434	03YR (A1982)
b) Trafalgar Class Hard Tank **PPG Protective & Marine Coatings.** Phenguard 965	Epoxy Phenolic	3	100/147	6.8	8 hrs	14 days	329	BLI (A7390)
Maker Coating Systems Ltd. CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	BLI (A6857)
CORROLESS RF35	Epoxy	1	200/-	4.8	16 hrs	3 days	93	(BLI (A1772)
c) Trafalgar Class Jacket Tank **International Paint Ltd.** INTERGARD 5000	Primer	2	125/152	6.56	12 hrs	3 months	155	BLI (A5713)
Maker Coating Systems Ltd. CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	BLI (A6857)
CORROLESS RF35	Epoxy	1	200/-	4.8	16 hrs	3 days	93	BLI (A1772)
SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	2	125/147	7	16 hrs	3 days	106	BLI (A6849)
Sherwin-Williams Protective & Marine Coatings. Macropoxy® M922 (Not RR Approved)	Epoxy	2	200/-	4.2	4 hrs	#	143	BLI (A1471)
INTERIOR SURFACES **d)** Vanguard Class High Pressure Decay Heat Removal Tank (HPDR) **PPG Protective & Marine Coatings** Phenguard 965	Epoxy Phenolic	3	100/147	6.8	8 hrs	14 days	329	BLI (A7390)

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S11. INTERIOR PRESSURE HULL SURFACE Emergency Cooling Tanks (RR Approved) (2)								
EXTERNAL SURFACES								
Maker Coating Systems Ltd.								
CORROLESS EPF (Not RR Approved)	Epoxy	1	200/-	4.8	16 hrs	3 days	80	BLI (A6857)
CORROLESS RF35 (Not RR Approved)	Epoxy	1	200/-	4.8	16 hrs	3 days	93	BLI (A1772)
SIGMACOVER 400 (FKA AMERLOCK 400C) (Not RR Approved)	Epoxy	2	125/147	7	16 hrs	3 days	106	BLI (A6849)
PPG Protective & Marine Coatings.								
Phenguard 965	Epoxy Phenolic	3	100/147	6.8	8 hrs	14 days	329	BLI (A7390)
e) Astute Class								
Advanced Polymer Coatings								
SILOXIRANE 2031LE		2	150/-	1.72	24 hrs	3 days	102	V (A1941)
PPG Protective & Marine Coatings								
Phenguard 965	Epoxy Phenolic	3	100/147	6.8	8 hrs	14 days	329	BLI (A7390)
AREA S12. REACTOR COMPARTMENT White								
PPG Protective & Marine Coatings SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106	BLI (A6848)
Firwood Paints Ltd								
FIRGLO 64		1-2	25/-	15	4 hrs	#	620	CI (A3171)
International Paint Ltd.								
INTERTHERM 50	High Temp Silicone	1-2	25/-	18	12 hrs	#	495	03YR (A3501)
INTERGARD 5000	Primer	1	125/152	6.56	12 hrs	#	155	BLI (A7312)
INTERGARD 1735	Epoxy	1	50/100	11.2	12 hrs	#	132	BLI (A7312)
b) External surfaces **Refer to AREA S1.** **NOTE: -** **DFT not to exceed that stated in BR 3939 Section 12.**								

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S13. INTERIOR DECKS								
Sherwin-Williams Protective & Marine Coatings.								
Macropoxy® C425V2	EpoxyZinc Phosphate	1	175/233	4.3	8 hrs	#	186	BLI (A3736)
Macropoxy® M630V2	Epoxy	1	75/-	6.8	24 hrs	#	0	S (A2973)
International Paint Ltd. 2 Coat System:								
INTERGARD 5000	Primer	1	125/152	6.56	12 hrs	#	155	BLI (A7312)
INTERGARD 1735	Epoxy	1	50/100	11.2	12 hrs	#	132	BLI (A7312)
Maker Coating Systems Ltd/PPG. SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	2	125/147	7	16 hrs	#	106	BLI (A6849)
AREA S14. BATTERY COMPARTMENTS BS4800 00A01								
Chugoku Paints (UK) Ltd.								
UMEGUARD HS	Epoxy	1	125/162	7.12	20 hrs	7 days	108	03YR (A1651)
Hempel Paints Ltd.								
HEMPADUR 45880 MIO 12430	Epoxy	1	150/188	5.5	5 hrs	#	198	BLI (A7305)
HEMUDUR FC 48582	Epoxy	1	80/-	6.9	12 hrs	15 days	27	BLI (A7306)
International Paint Ltd.								
INTERGARD 5000	Primer	1	125/152	6.56	12 hrs	#	155	BLI (A5713)
Jotun Paints (Europe) Limited.								
POLYMASTIC 2000		1	200/-	4.8	9 hrs	#	80	V (A2417)
Maker Coating Systems Ltd/PPG								
SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106	BLI (A6849)
Sherwin-Williams Protective & Marine Coatings								
Macropoxy® C425V2	EpoxyZinc Phosphate	1	100/133	7.5	4 hrs	#	186	BLI (A3736)
Macropoxy® M630V2	Epoxy	1	75/-	6.8	24 hrs	#	0	S (A2973)

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S15. MACHINERY SPACE BILGES & MOUNTED MACHINERY RAFTS								
Chugoku Paints (UK) Ltd. UMEGUARD HS	Epoxy	1	125/100	6.5	15 hrs	10 days	108	03YR (A1651)
Finish for Mounted Machinery Rafts **Hempel Paints Ltd.** HEMPADUR 45880	Epoxy	1	150/188	5.5	5 hrs	#	220	BLI (A7305)
HEMUCRYL ENAMEL 58100	Water-borne	1	30/73	13.7	6 hrs	#	63	03YR (A0823)
International Paint Ltd. INTERGARD 5000	Primer	1	175/213	4.68	12 hrs	3 months	155	BLI (A5713)
Finish for Mounted Machinery Rafts INTERGARD 1735	Epoxy	1	50/100	11.2	12 hrs	#	132	CI (A3217)
Maker Coating Systems Ltd CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	BLI (A6857)
Finish for Mounted Machinery Rafts SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106	BLI (A6849)
PPG Protective & Marine Coatings								
Finish for Mounted Machinery Rafts SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106	BLI (A6849)

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S15. MACHINERY SPACE BILGES & MOUNTED MACHINERY RAFTS (2)								
Sherwin-Williams Protective & Marine Coatings								
Macropoxy® M902		1	125/-	6.0	6.5 hrs	#	219	BLI (A1781)
Macropoxy® L524	Epoxy	1	125/208	5.1	12 hrs	#	296	BLI (A0661)
Finish for Mounted Machinery Rafts								
AREA S16. BULK FUEL & OIL, LUBE OIL, HYDRAULIC & LP AIR TANKS - DEF STAN 80-97 (HIGH SOLIDS)								
Chugoku Paints (UK) Ltd.								
CLEANKEEP 5000	Solventfree Epoxy	1	300/300	3.33	48 hrs	14 days	0	BLI (A1687)
Hempel Paints Ltd.								
HEMPADUR 85671	Epoxy Phenolic	3	100/147	6.8	36 hrs	5 days	320	BLI (A7290)
International Paint Ltd.								
INTERLINE 850	Epoxy Phenolic	2	125/164	6.08	8 hrs	30 days	212	03YR (A2052)
Jotun Paints (Europe) Limited.								
TANKGUARD STORAGE	Epoxy Phenolic	2	125/198	5.0	10 hrs	30 days	310	BLI, BLP (A7288)
Maker Coating Systems Ltd.								
CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	BLI (A6857)
CORROLESS RF35	Epoxy	1	200/-	4.8	16 hrs	3 days	93	BLI (A1772)
Sherwin-Williams Protective & Marine Coatings								
Macropoxy® M922	Epoxy	2	200/-	5.4	4 hrs	14 days	143	BLI (A1471)

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S17. POTABLE WATER TANKS								
Chugoku Paints (UK) Ltd. CLEANKEEP 5000	Solventfree Epoxy	1	300/300	3.33	48 hrs	7 days	0	BLI (A1687)
International Paint Ltd. INTERLINE 925	Epoxy	1	300/300	3.35	48 hrs	3 days	1	CF, BLI (A2236)
Jotun Paints (Europe) Limited. TANKGUARD DW	Epoxy	2	150/150	6.7	12 hrs	5 days	2	03YR (A4764)
Maker Coating Systems Ltd. CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	BLI (A6857)
CORROLESS RF35	Epoxy	1	200/-	4.8	16 hrs	3 days	93	BLI (A1772)
AREA S18. SLOP DRAIN TANKS (alternatives being sought)								
Maker Coating Systems Ltd. CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	BLI (A6857)
CORROLESS RF35	Epoxy	1	200/-	4.8	16 hrs	3 days	93	BLI (A1772)

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S19. **AFFF TANKS (supplied with Demin Water)**								
Chugoku Paints (UK) Ltd. CLEANKEEP 5000	Solventfree Epoxy	1	300/300	3.33	48 hrs	14 days	0	BLI (A1687)
International Paint Ltd INTERLINE 704		2	125/236	5.0	23 hrs	21 days	425	BLI (A7286)
Jotun Paints (Europe) Limited. TANKGUARD DW	Epoxy	2	150/150	4.24	12 hrs	5 days	2	03YR (A4764)
Maker Coating Systems Ltd. CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	BLI (A6857)
CORROLESS RF35	Epoxy	1	200/-	4.8	16 hrs	3 days	93	BLI (A1772)
AREA S20. **DEMINERALISED WATER TANKS (Max Temperature 90°C)** **(Inc. Hotwells, Surge, Reserve Feed, Made Water, Reactor Water Storage Tanks)** **Consult 'DES SM PG-NavArch3b' for latest approved coatings.**								
Chugoku Paints (UK) Ltd. CLEANKEEP 5000 – RR approved – Check with ISM before use.	Solventfree Epoxy	1	300/300	3.33	48 hrs	14 days	0	BLI (A1687)
Maker Coating Systems Ltd Limited to 60°C CORROLESS EPF – Approved by Rolls Royce	Epoxy	1	200/-	4.8	16 hrs	3 days	80	BLI (A6857)
CORROLESS RF35 – Approved by Rolls Royce	Epoxy	1	200/-	4.8	16 hrs	3 days	93	BLI (A1772)

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S21. HOLDING PRIMER (blasted steel work)								
Chugoku Paints (UK) Ltd. NZ PRIMER S	Epoxy	1	25/83	15.9	16 hrs	#	641	BLI (A7303)
Hempel Paints Ltd. HEMPADUR 15570	Epoxy	1	40/74	13.5	#	#	414	03YR (A2701)
International Paint Ltd. INTERGARD 269	Epoxy Primer	1	30/85	15.67	6 hrs	#	411	BLI (A5954)
Jotun Paints (Europe) Limited. MUKI EPS	Epoxy	1	20/80	12.5	7 hrs	7 days	610	BLI (A4527)
Sherwin-Williams Protective & Marine Coatings. Macropoxy® L574	Epoxy Primer	1	25/42	11.6	3 hrs	#	594	BLI (A0565f)
AREA S22. PRIMERS FOR NON-FERROUS METALS								
Chugoku Paints (UK) Ltd.								
Aluminium: ALP 500	Epoxy Primer	1	50/86	11.6	10 hrs	#	414	BLI (A1923)
Stainless Steel: UMEGUARD HS	Epoxy	1	125/162	7.4	20 hrs	30 days	158	03 YR (A1650)
Zinc Spray & Galvanise: GALVANITE 200	Epoxy Primer	1	30/64	14.1	4 hrs	30 days	587	W (A1922)
Hempel Paints Ltd. Aluminium, Stainless Steel, Zinc Spray & Galvanise: HEMUCRYL TIE COAT 18200 (1 pack)	Acrylic	1	20/-	19.0	24 hrs	30 mins	40	BLI (A1779)
HEMPADUR 15553 (2 pack)	Epoxy	1	50/91	8.6	2 hrs	#	388	BLI (A7272)

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S22. PRIMERS FOR NON-FERROUS METALS (2)								
International Paint Ltd. Aluminium, Stainless steel, Zinc Spray & Galvanise: INTERGARD 269	Epoxy Primer	1	30/64	15.67	6 hrs	#	411	BLI (A5954)
INTERGARD 276	Epoxy	1	30/64	15.67	6 hrs	#	411	BLI, BLP (A7304)
Indicator Coat for FRP: INTERLINE 925	Epoxy	1	300/300	5	18 hrs	3 days	1	CF, BLI (A2236)
Jotun Paints (Europe) Limited. FRP Indicator Coat: PENGUARD HB	Epoxy Primer	2	150/-	3.6	8 hrs	#	390	BLI BLP (A7291)
Maker Coating Systems Ltd Aluminium & Zinc Spray: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/-	7	16 hrs	#	106	BLI (A6848)
Indicator Coat for FRP: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	2	125/147	7	16 hrs	#	106	BLI (A6854)
Sherwin-Williams Protective & Marine Coatings. Aluminium, Stainless Steel & Galvanise: Macropoxy® L425	EpoxyZinc Phosphate	1	35/58	17.1	5 hrs	#	346	BLI (A0565g)
Zinc Spray: Macropoxy® L574	Epoxy Primer	1	25/-	11.6	4 hrs	#	594	BLI (A2026)
Indicator Coat for FRP: Macropoxy® C425V2	EpoxyZinc Phosphate	2	150/-	5	4 hrs	#	186	BLI (A6837)

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S23. HIGH EROSION AREAS								
Hempel Paints Ltd. HEMPADUR MULTI STRENGTH GF 35870	Epoxy	1	300/-	2.9	16 hrs	30 days	180	03YR (A2816)
International Paint Ltd. INTERZONE 505	GF Epoxy	1	300/-	3.0	6 hrs	4 days	157	BLI (A7293)
Maker Coating Systems Ltd. CORROLESS EPF	Epoxy	2	200/-	4.8	16 hrs	3 days	80	BLI (A6857)
Sherwin-Williams Protective & Marine Coatings Macropoxy® M922	Epoxy	1	400/-	4.2	#	#	143	BLI (A1471)
AREA S24. BENEATH TILING								
Wessex Resins: UW46 Primer								BLI (A6862)
UW 46 Adhesive								S (A6863)
AREA S25. SYSTEM FOR COATING NATURAL RUBBER MOUNTS (applied by mount supplier not to be touched up once fitted)								
AREA S26. INTERNAL NUTS & BOLTS AND TO FILL GAPS BETWEEN CANNING PLATES & LEAD SHIELDING								
Maker Coating Systems Ltd. CORROLESS CCI 355 CORROSION INHIBITOR	HD Grease	1	N/A			N/A	N/A	03YR (A2738)

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m^2/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S27. SEA WATER TANKS								
Chugoku Paints (UK) Ltd IMO PSPC								
UMEGUARD HS	Epoxy	2	160/208	5.08	15 hrs	10 days	108	03YR (A1650)
BANNOH 1500	Epoxy Primer	2	160/219	4.56	19 hrs	30 days	286	BLI (A7302)
Hempel Paints Ltd IMO PSPC Hempadur Quattro 17634	Epoxy Primer	2	160/222	4.5	6 hrs	90 days	275	BLI (A7289)
International Paint Ltd IMO PSPC INTERGARD 5000	Primer	2	160/195	5.13	12 hrs	3 months	155	BLI (A5713)
Jotun Paints (Europe) Ltd IMO PSPC BALLOXY HB LIGHT	Anti-Corrosive	2	160/195	5.16	10 hrs	#	150	BLI (A1156)
Maker Coating Systems Ltd CORROLESS EPF	Epoxy	2	200/-	4.8	16 hrs	3 days	80	BLI (A6857)
Sherwin-Williams Protective & Marine Coatings. Macropoxy® L524 (typical dft 125. care req'd on overlap at 160)	Epoxy	2	160/250	3.9	12 hrs	#	296	S (A0661)
AREA S28. LILO / PAYLOAD BAY CHAMBER (Internal) Consult 'SDA-IS-Navarch3b for latest approved coatings.								

FKA – Formerly Known As

ANNEX D

ANNEX D: PRODUCT STOCK NUMBERS (NSNs) AND BR 1326 REFERENCES

Product	Ref	BR 1326	VOC g/l	Pack Size	NSN
CHUGOKU PAINTS (UK) LTD					
ALP 500 Aluminium	201	BLI (A1923)	414	5 ltrs	8010-99-967-8636
BANNOH 1500 Grey	202a	BLI (A7302)	286	20 ltrs	8010-99-594-2828
BANNOH 1500 Red Brown	202b	BLI (A7302)	286	20 ltrs	8010-99-671-4223
BANNOH 1500 RZ Black	024b	EXT	319	5 ltrs	8010-99-217-5165
BANNOH 1500 RZ Black	024b	EXT	319	20 ltrs	8010-99-671-3957
BANNOH 1500 RZ Grey	024c	EXT	319	5 ltrs	8010-99-851-0865
BANNOH 1500 RZ Grey	024c	EXT	319	20 ltrs	8010-99-476-7885
BANNOH 1500 RZ Plum	024a	EXT	319	5 ltrs	8010-99-499-0158
BANNOH 1500 RZ Plum	024a	EXT	319	20 ltrs	8010-99-993-2082
CAMIDECK FINISH Type 1 Black	203	BLI (A7186)	374	20 ltrs	8010-99-543-0790
CAMIDECK FINISH Type 2 BS381C 640	204	N/A	374	20 ltrs	8010-99-147-1303
Cleankeep 5000	209	BLI (A1687)	0	20 ltrs	8010-99-846-9828
CMP BIOCLEAN HB Black	210a	EXT	261	20 ltrs	8010-99-157-0240
CMP BIOCLEAN HB Red Brown	210b	EXT	261	20 ltrs	8010-99-976-4197
CMP BIOCLEAN R Black	211a	EXT	325	16 ltrs	8010-99-447-2539
CMP BIOCLEAN R Red Brown	211b	EXT	325	16 ltrs	8010-99-157-0242
CMP BIOCLEAN SG R Black	212a	EXT	406	20 ltrs	TBC
CMP BIOCLEAN SG R Red Brown	212b	EXT	406	20 ltrs	TBC
EPICON T-800 Black	213c	N/A	359	20 ltrs	TBC
EPICON T-800 Grey	213b	N/A	359	20 ltrs	8010-99-846-9834
EPICON T-800 Red Brown	213a	N/A	359	20 ltrs	8010-99-753-5350
EPICON T-800 HS GF Grey	214b	N/A	349	20 ltrs	8010-99-589-2965
EPICON T-800 HS GF Red Brown	214a	N/A	349	20 ltrs	8010-99-581-9466
GALVANITE 200 White	215	W (A1922)	495	5 ltrs	8010-99-995-4247
GALVANITE 200 White	215	W (A1922)	495	20 ltrs	8010-99-290-5829
NZ PRIMER S Red Oxide	216	BLI (A7303)	659	20 ltrs	8010-99-595-6056
SEA GRANDPRIX 1000L Brown	217a	N/A	408	20 ltrs	8010-99-671-5989
SEA GRANDPRIX 1000L Light Brown	217b	N/A	408	20 ltrs	8010-99-350-3772
SEA GRANDPRIX 660 HS - Black	218c	EXT	324	20 ltrs	8010-99-994-0641
SEA GRANDPRIX 660 HS - Brown	218b	EXT	324	20 ltrs	8010-99-362-2214
SEA GRANDPRIX 660 HS - Light Brown	218a	EXT	324	20 ltrs	8010-99-877-2315
Spot Repair CMP NOVA 5000 Barrier	219	N/A	0	20 ltrs	8030-99-847-0896
UMEGUARD HS Grey	220a		158	5 ltrs	8010-99-126-9478
UMEGUARD HS Silver	220c	03YR (A1651)	158	5 ltrs	8010-99-264-0145
UMEGUARD HS White	220b	03YR (A1650)	158	5 ltrs	8010-99-564-2409
UMEGUARD SX HS Black	220e	EXT	232	20 ltrs	8010-99-693-2354
UMEGUARD SX HS Brown	220d	EXT	232	20 ltrs	TBC
UMEGUARD SX HS Grey	220f	EXT	232	20 ltrs	8010-99-308-1640
HEMPEL PAINTS LTD					
AF GLOBIC 9000 78952 Black 19990	223c	N/A	370	20 ltrs	8010-99-496-6897
AF GLOBIC 9000 78952 Brown 60600	223b	N/A	370	20 ltrs	8010-99-182-3980
AF GLOBIC 9000 78952 Red 51110	223a	N/A	370	20 ltrs	8010-99-894-2161
Hempadur 15553 Grey 11320	227a	BLI (A7272)	388	5 ltrs	8010-99-753-1967
Hempadur 15553 Grey 11320	227b	BLI (A7272)	388	20 ltrs	8010-99-671-3559
Hempadur 15570 Light Grey 12430	229c	03YR (A2701)	430	5 ltrs	8010-99-943-1152
Hempadur 15570 Light Grey 12430	229c	03YR (A2701)	430	20 ltrs	8010-99-170-5097

ANNEX D

Product	Ref	BR 1326	VOC g/l	Pack Size	NSN
HEMPEL PAINTS LTD (2)					
Hempadur 35560 Cream 20320	230a		0	19.4 ltrs	8010-22-626-9620
Hempadur 35560 Red 50900	230b		0	19.4 ltrs	8010-99-310-1262
Hempadur 45143 BS4800 14C39	231c	N/A	330	5 ltrs	8010-99-471-1920
Hempadur 45143 Red 50630	231a	N/A	330	5 ltrs	8010-99-535-5832
Hempadur 45143 White 10000	231b	N/A	330	5 ltrs	8010-99-602-7280
Hempadur 45880 Black 19990	233		220	5 ltrs	8010-99-414-4162
Hempadur 45880 Black 19990	233		220	20 ltrs	8010-99-350-3748
Hempadur 45880 MIO Grey 12430	234	BLI (A7305)	198	5 ltrs	8010-99-803-7233
Hempadur 45880 MIO Grey 12430	234	BLI (A7305)	198	20 ltrs	8010-99-479-5449
Hempadur 45880 White	232		220	5 ltrs	8010-99-264-0387
Hempadur 85671 Light Grey 11150	238a	BLI (A7290)	320	20 ltrs	8010-99-980-9800
Hempadur 85671 Light Red 50900	238b	BLI (A7290)	320	20 ltrs	8010-99-864-6001
Hempadur Multi-Strength 35560 Black	239a		0		8010-99-671-3685
Hempadur Multi-Strength 35560 Grey	239b		0		8010-33-213-1342
Hempadur Multi-Strength GF 35870 Black 19990	240a	03YR (A2816)	180	18 ltrs	8010-99-671-3685
Hempadur Multi-Strength GF 35870 Grey 11480	240b		180	18 ltrs	8010-99-861-4230
Hempadur Quattro 17634 Buff 22090	241b	N/A	276	20 ltrs	8010-33-210-7050
Hempadur Quattro 17634 Red 50630	241a	N/A	276	20 ltrs	8010-33-210-7049
Hempadur Spray-Guard 35490	242	N/A	0	15 ltrs	8010-99-404-0927
Hempaguard X7 89900 Hydrogel c/w Biocides Black 19740	243a	EXT	262	20 ltrs	8010-22-635-5462
Hempaguard X7 89900 Hydrogel c/w Biocides Red 59161	243b	EXT	262	20 ltrs	8010-33-213-1342
Hempalin Undercoat 42460 White 10000	244	N/A	385	5 ltrs	8010-99-969-1241
Hempasil Nexus X-Tend 27500 Yellow 23410	246	N/A	259	20 ltrs	8010-99-850-1509
Hempasil X3+ 87500 Hydrogel Silicone Black 19990	247b	N/A	265	20 ltrs	8010-99-269-5072
Hempasil X3+ 87500 Hydrogel Silicone Red 59151	247a	N/A	265	20 ltrs	8010-99-846-3921
Hempel Nexus II 27400 Light Grey 11070	061	EXT	400	20 ltrs	8010-99-969-4772
Hempels Galvosil 15700	222	03YR (A1982)	434		8010-99-593-8923
Hempels Non-Skid (No Aggregate) 45143 BS381C 640 Type 1	256	N/A	335	20 ltrs	8010-99-213-1121
Hempel's Non-Skid (No Aggregate) 45143 BS381C 640 Type 2	256	N/A	335	5 ltrs	8010-99-879-5150
Hempels Non-Skid 45340 BS381C 632 Type 1	258	EXT BLI (A7264)	335	20 ltrs	8010-99-670-9581
Hempels Non-Skid 45340 Type 1 Black	259		335	20 ltrs	8010-99-480-7979
Hempels Non-Skid 45710 Black 19990	261	N/A	206	20 kg	8010-99-507-2851
Hempel's Non-Skid 45710 BS381C 640 Type 2	260	N/A	206	20 ltrs	8010-99-831-0343
Hempel's Pro Acrylic 55883 BS381C 676	468a	N/A	380	20 ltrs	8010-22-635-6277
Hempel's Pro Acrylic 55883 BS381C 676	468b	N/A	380	5 ltrs	8010-22-635-6276
Hempels Silicone Alkyd Finish 53230 BS381C 676	282	N/A	410	2.5 ltrs	8010-99-156-9292
Hemucryl Enamel 58100 Black	265a		63	5 ltrs	8010-99-175-1334
Hemucryl Enamel 58100 BS381C 104	265c		63	5 ltrs	8010-99-382-4025

ANNEX D

Product	Ref	BR 1326	VOC g/l	Pack Size	NSN
Hemucryl Enamel 58100 BS381C 226	265i		63	5 ltrs	8010-99-162-2531
HEMPEL PAINTS LTD (3)					
Hemucryl Enamel 58100 BS381C 309	265e		63	5 ltrs	8010-99-858-1263
Hemucryl Enamel 58100 BS381C 414	265g		63	5 ltrs	8010-99-562-6381
Hemucryl Enamel 58100 BS381C 537	265k		63	5 ltrs	8010-99-250-8046
Hemucryl Enamel 58100 BS4800 00A01	265d	03YR (A0823)	63	5 ltrs	8010-99-660-9288
Hemucryl Enamel 58100 BS4800 18C39	265f		63	5 ltrs	8010-99-290-5925
Hemucryl Enamel 58100 BS381C 225	265h		63	5 ltrs	8010-99-831-8959
Hemucryl Enamel 58100 BS4800 18D43	265j		63	5 ltrs	8010-99-317-6235
Hemucryl Enamel 58100 White	265b		63	5 ltrs	8010-99-299-0228
Hemucryl Tie-Coat 18200 Red 50710	267	03YR (A1779)	40	5 ltrs	8010-99-199-2908
Hemudur 18500 Grey 12170	270		85	20 ltrs	8010-99-867-8090
Hemudur Finish FC 48582 Black	272		25	5 ltrs	8010-99-864-5046
Hemudur Finish FC 48582 BS4800 00A01	273	BLI (A7306)	25	5 ltrs	8010-99-988-2715
Hemudur Finish FC 48582 BS4800 14C39	275		25	5 ltrs	8010-99-279-8221
INTERNATIONAL PAINTS LTD					
Interfine 629 HS Black	286a	N/A	336	5 ltrs	8010-99-375-3200
Interfine 629 HS BS381C 225	286b	N/A	336	5 ltrs	8010-99-957-7410
Interfine 629 HS BS381C 537	286c	N/A	336	5 ltrs	8010-99-535-9034
Interfine 629 BS381C 676	286d	N/A	336	5 ltrs	8010-99-664-5391
Interfine 878 Black	287a	N/A	246	5 ltrs	8010-99-907-6683
Interfine 878 BS381C 676	287b	N/A	246	5 ltrs	8010-99-274-4682
Interfine 979 Green	288a	N/A	165	5 ltrs	8010-99-729-7357
Interfine 979 White	288b	N/A	165	5 ltrs	8010-99-168-7337
Intergard 1735 Deep Base Yellow	469		132	20 ltrs	8010-99-753-1954
Intergard 1735 WB BS4800 00A01	289a	BLI (A7312)	132	5 ltrs	8010-99-255-0527
Intergard 1735 WB BS381C 640	297		132	5 ltrs	8010-99-702-0607
Intergard 1735 WB BS4800 14C39	289b		132	5 ltrs	8010-99-483-1994
Intergard 1735 White	289	BLI (A4417)	132	5 ltrs	8010-99-615-7042
Intergard 263 Tie Coat Light Grey	290a	N/A	379	20 ltrs	8010-99-133-3854
Intergard 269 Protective Primer	291a	BLI (A5954)	411	20 ltrs	8010-99-983-0743
Intergard 276 Grey	292a		411	20 ltrs	8010-66-158-8437
Intergard 276 White	292b	BLI BLP (A7304)	411	20 ltrs	8010-99-564-0695
Intergard 5000 Aluminium	293e	BLI (A1783)	220	20 ltrs	8010-99-846-1310
Intergard 5000 Black	293a		155	20 ltrs	8010-99-345-8079
Intergard 5000 Buff	293c		155	20 ltrs	8010-99-156-8012
Intergard 5000 White	293d	BLI (A5713)	155	20 ltrs	8010-99-366-6762
Intergard 5000 BS 4800 00A01	293b	BLI (A7312)	155	5 ltrs	8010-99-000-5256
Intergard 5000 Green	293f		155	5 ltrs	8010-99-555-1384
Intergard 740 Black ECY999/A	294a	N/A	420	20 ltrs	8010-99-285-3824
Intergard 740 BS381C 640	294b	N/A	420	5 ltrs	8010-99-182-2627
Interline 704	299	BLI (A7286)	385	20 ltrs	8010-99-555-6072
Interline 850 Grey	300b		212	20 ltrs	8010-99-690-8481
Interline 850 White	300a	03YR (A2052)	212	20 ltrs	8010-99-669-8513
Interline 925	301	CF BLI (A2236)	1	20 ltrs	8010-99-131-8010
Interline 925 Cream	302		1	20 ltrs	8010-99-216-8379
Interline 994 Buff	303d	N/A	290	20 ltrs	8010-99-391-4659
Interline 994 Buff	303c	N/A	290	5 ltrs	8010-99-379-1407
Interline 994 Grey	303b	N/A	290	20 ltrs	8010-99-238-9885
Interline 994 Grey	303a	N/A	290	5 ltrs	8010-99-258-5403

ANNEX D

Product	Ref	BR 1326	VOC g/l	Pack Size	NSN
Intershield 300	306	EXT	386	10 ltrs	8010-99-151-9594
INTERNATIONAL PAINTS LTD (2)					
Intershield 851 Black	307a	N/A	169	10 ltrs	8010-99-371-6753
Intershield 851 BS381C 640	307b	N/A	169	20 ltrs	8010-99-391-0953
Intershield 851 Repair Kit BS381C 640	307c	N/A	169	5 ltrs	8010-99-325-0579
Intershield 852 Black	308a	N/A	134	5 ltrs	8010-99-250-1864
Intershield 852 BS381C 632	308b	N/A	134	5 ltrs	8010-99-149-8996
Intershield 852 BS381C 640	308c	N/A	134	5 ltrs	8010-99-583-1344
Intershield 852 Green	308e	N/A	134	5 ltrs	8010-99-871-6360
Intershield 852 Red	308f	N/A	134	5 ltrs	8010-99-666-9269
Intershield 852 BS381C 632	308h	N/A	134	5 ltrs	8010-99-993-9328
Intershield 852 White	308g	N/A	134	5 ltrs	8010-99-968-9269
Intersleek 1100SR Black	309	EXT	248	10 ltrs	8010-99-615-7741
Intersleek 1100SR Red	310	EXT	248	10 ltrs	8010-99-841-5218
Intersleek 737	312	EXT	377	10 ltrs	8010-99-918-1064
Intersleek 737	312	EXT	377	20 ltrs	8010-99-396-1959
Intersmooth 7460	313	N/A	425	20 ltrs	8010-99-216-8317
Interspeed 6400	316	EXT	358	20 ltrs	8010-33-209-1579
Intertherm 50	318	03YR (A3501)	495	10 ltrs	8010-99-969-0549
Interzone 505 Off-White	319b	BLI (A7293)	157		TBC
JOTUN PAINTS (EUROPE) LTD					
Balloxy HB Light Green	320a	BLI (A1156)	150		8010-17-108-7825
Hardtop CA BS381C 676	321a	N/A	340	5 ltrs	8010-99-846-3401
Hardtop CA BS381C 676	321b	N/A	340	20 ltrs	8010-99-368-1686
Hardtop CA BS4800 00A01	321c	N/A	340	5 ltrs	8010-99-577-8447
Hardtop CA BS4800 00A01	321d	N/A	340	20 ltrs	8010-99-856-3397
Hardtop Optima BS381C 676	322a	N/A	215	5 ltrs	8010-99-992-1998
Hardtop Optima BS381C 676	322b	N/A	215	20 ltrs	8010-99-436-0000
Jota Armour BS381C 640	323	N/A	70	10 ltrs	8010-99-690-8235
Jota Armour AS BS381C 640	324	N/A	70	20 ltrs	8010-99-226-7300
Jotamastic 80 Aluminium Red Tone	327a	N/A	145	20 ltrs	8010-99-235-5945
Jotamastic 80 Aluminium Red Tone	327b	N/A	145	5 ltrs	8010-99-226-7124
Jotamastic 87 Grey	328	N/A	150	5 ltrs	8010-99-549-5820
Jotamastic 87 Red Tone	329	N/A	150		8010-99-549-5820
Jotamastic Smart Pack Aluminium	330b	N/A	230	10 ltrs	8010-99-217-4903
Jotamastic Smart Pack Black	330f	N/A	230	10 ltrs	8010-99-969-4665
Jotamastic Smart Pack Buff	330a	N/A	230	10 ltrs	8010-99-426-9913
Jotamastic Smart Pack Green	330d	N/A	230	10 ltrs	8010-99-415-3159
Jotamastic Smart Pack Grey	330c	N/A	230	10 ltrs	8010-99-687-4076
Jotamastic Smart Pack Red	330e	N/A	230	10 ltrs	8010-32-083-4870
Marathon IQ Red	331	N/A	30	5 ltrs	8010-99-958-6838
Muki EPS Red	332a	BLI (A4527)	610	18.5 ltrs	8010-99-564-0809
Penguard HB White	333	BLI BLP (A7291)	390	5 ltrs	8010-99-958-9132
Polymastic 2000 Red	334	V (A2417)	80	5 ltrs	8010-99-395-8448
Polymastic 2000 Red	334	V (A2417)	80	20 ltrs	8010-99-665-9772
Safeguard Universal ES Grey Plum	336	N/A	330	18 ltrs	8010-99-671-3575
Seaquantum Classic S Dark Red	340	N/A	460	20 ltrs	8010-99-156-7984
Seaquantum Ultra S Dark Red	342	N/A	460	20 ltrs	8010-99-690-8855
Seaquest Red	343	N/A	247	18.45 ltrs	8010-99-937-0885
Tankguard DW Light Grey	345a		2	15 ltrs	8010-99-241-9602

ANNEX D

Product	Ref	BR 1326	VOC g/l	Pack Size	NSN
Tankguard DW White	345c	03YR (A4764)	2	15 ltrs	8010-99-846-3419
JOTUN PAINTS (EUROPE) LTD (2)					
Tankguard Plus Buff	346	N/A	300	20 ltrs	8010-99-472-1514
Tankguard Plus White	347	N/A	300	20 ltrs	8010-99-991-2612
Tankguard Storage Light Grey	348	BLI BLP (A7288)	310	18.8 ltrs	8010-99-156-7988
Tankguard Storage Light Red	349		310	18.8 ltrs	8010-99-359-5632
Tankguard Storage Red	350		310	18.8 ltrs	8010-99-959-5076
MAKER COATING SYSTEMS LTD					
CORROLESS EPF Buff	375	BLI (A6857)	80	5 ltrs	8010-25-150-0972
CORROLESS EPF Black	376	BLI (A6858)	80		8010-99-212-7555
CORROLESS RF35 White	378c	BLI (A1772)	93	5 ltrs	8010-25-150-0973
CORROLESS RF35 Grey	378b	BLI (A1772)	93	5 ltrs	8010-99-337-0778
CORROLESS CCI 355	374	03YR (A2738)	N/A		9150-99-676-5736
PPG PROTECTIVE & MARINE COATINGS					
Ameron PSX 700 BS4800 14C39	368	N/A	164	5 ltrs	8010-17-113-6169
Ameron PSX 700 White	369	N/A	164	5 ltrs	8010-17-113-5689
Amerlock 138G BS381C 640	410	EXT	168		8010-01-397-3806
Amerlock 400 NS BS381C 640	355		106	25 ltrs	TBC
Aquacover 25 7150 Buff	370		31	5 ltrs	8010-99-321-6318
Novaguard 840 Cream	415a		13	20 ltrs	8010-99-472-1508
Novaguard 840 Green	415b		13	20 ltrs	8010-99-156-7970
Phenguard 930	416	U (A7860)	300		8010-99-667-6118
Phenguard 935	417		300		8010-99-925-0882
Phenguard 940	418		300		8010-99-976-1657
Phenguard 965 Grey	053	BLI (A7390)	329	20ltrs	8010-99-671-3967
Sigma Ecofleet 530 Black	412	EXT	339	20 ltrs	8010-99-375-0408
Sigma Ecofleet 530 Brown	413	EXT	339	20 ltrs	8010-99-996-2266
Sigma Ecofleet 530 Red Brown	414	EXT	339	20 ltrs	8010-99-153-6929
Sigmacover 280 LT 7417 Yellow	404		432	20 ltrs	8010-99-569-7697
Sigmacover 400 Black	419a	BLI (A6852)	106		8010-99-507-5313
Sigmacover 400 Blue	419d	BLI (A6855)	106		TBC
Sigmacover 400 Bright Yellow	419e	BLI (A6856)	106		TBC
Sigmacover 400 Brunswick Green	419f	BLI (A6854)	106		TBC
Sigmacover 400 Grey	419c	BLI (A6849)	106		8010-99-156-8080
Sigmacover 400 Red	419g	BLI (A6853)	106		TBC
Sigmacover 400 Steel	419h	BLI (A6850)	106		TBC
Sigmacover 400 Storm	419i	BLI (A6851)	106		TBC
Sigmacover 400 White	419b	BLI (A6848)	106	20 ltrs	8010-99-156-8092
Sigmacover 295	385	N/A	436		8010-99-156-8108
Sigmacover 525	386	N/A	365	20 ltrs	8010-99-322-9677
Sigmadur 540 BS381C 676	423a	N/A	411		8010-99-671-3651
Sigmadur 540 Extra Dark Sea Grey	423b	N/A	411		8010-99-846-3541
Sigmaglide 1290	424	EXT	118		8010-99-217-0543
Sigmaglide 790	405	EXT	187	20 ltrs	8010-99-406-0976
Sigmaguard CSF 585 Blue	428		6		8010-17-120-3206
Sigmaguard CSF 650 Grey	429a		143		8010-99-489-1723
Sigmaguard CSF 650 White	429b		143		8010-99-376-9810
Sigmaguard CSF 650 Red Brown	429c		143		8010-99-902-6226
Sigmashield 880 Black	396	N/A	207		8010-99-871-5235

ANNEX D

Product	Ref	BR 1326	VOC g/l	Pack Size	NSN
SHERWIN-WILLIAMS PROTECTIVE & MARINE COATINGS					
Epidek L716 Black	433	BLI (A1010)	420		8010-99-225-0689
Epidek M339	434	BLI CP (A6944)	250	2 ltrs	8010-99-383-4334
Epidek M339 Extra Dark Sea Grey	434a		250	20 ltrs	8010-99-215-4495
Epidek M339NA	434b		250	5 ltrs	8010-99-845-5203
Epidek M377 BS381C 632	435		330	4 ltrs	8010-99-777-8689
Epidek M377 Non-Skid Type 1 Black	436	BLI (A6782)	330		8010-99-777-8692
Kem-Kromik A165 Silicone Alkyd BS381C 676	438	N/A	407	5 ltrs	8010-99-982-2604
Macropoxy® ARD M630V2 White	453a	BLI (A6830)	0	5 ltrs	8010-99-313-4440
Macropoxy® C251 White	439	BLI (A5025)	235	5 ltrs	8010-99-284-3464
Macropoxy® C425V2 Light Grey	440	S (A3736)	186	5 ltrs	8010-99-786-7949
Macropoxy® C425V2 Light Grey	440	S (A3736)	186	20 ltrs	8010-99-126-6377
Macropoxy® C425V2 Off White	441	BLI (A6837)	186	20 ltrs	8010-99-133-8714
Macropoxy® H766 BS4800 14C39	442		395	5 ltrs	8010-99-501-4661
Macropoxy® H766 White	443	03YR (A0565j)	395	5 ltrs	8010-99-623-9946
Macropoxy® L425	444	BLI (A0565g)	346	5 ltrs	8010-99-777-8688
Macropoxy® L524 White	446	BLI (A6928)	296	5 ltrs	8010-99-564-2934
Macropoxy® L574	447	BLI (A0565f)	594	20 ltrs	8010-99-895-9894
Macropoxy® M111 Red Oxide	448		383	5 ltrs	8010-99-884-5957
Macropoxy® M262	450	N/A	354	5 ltrs	8010-99-133-8713
Macropoxy® M630V2 Black	452		0	5 ltrs	8010-99-739-8402
Macropoxy® M630V2 BS4800 00A01	454	S (A2973)	0	5 ltrs	8010-99-535-5105
Macropoxy® M630V2 BS4800 14C39	453		0	5 ltrs	8010-99-255-5237
Macropoxy® M630V2 BS381C 676	453a	BLI (A6833)	0	5 ltrs	8010-99-131-6908
Macropoxy® M902 Aluminium	455	BLI (A1084)	219	2.5 ltrs	8010-99-421-0972
Macropoxy® M922	456	BLI (A1471)	143	5 ltrs	8010-99-834-8384
Macropoxy® M922M Mastic Aluminium	457	BLI (A6786)	146	20 ltrs	8010-99-495-3873
Sher-Cryl™ M770 BS381C 104	459a		128	5 ltrs	8010-99-878-8150
Sher-Cryl™ M770 Black	459b		128	5 ltrs	8010-99-768-1426
Sher-Cryl™ M770 BS4800 00A01	459	S (A3274)	128	5 ltrs	8010-99-517-5228
Sher-Cryl™ M770 BS381C 309	460		128	5 ltrs	8010-99-726-4136
Sher-Cryl™ M770 BS4800 18C39	459c		128	5 ltrs	8010-99-723-3650
Sher-Cryl™ M770 BS381C 676	459d	CI (A6825)	128	5 ltrs	8010-99-833-4765
Sher-Cryl™ M770 BS381C 225	459e		128	5 ltrs	8010-99-313-9445
Sher-Cryl™ M770 BS381C 226	459f		128	5 ltrs	8010-99-862-5170
Sher-Cryl™ M770 BS381C 537	459g		128	5 ltrs	8010-99-225-7155
Sher-Cryl™ M770 BS4800 18D43	459h		128	5 ltrs	8010-99-723-3651
Sher-Cryl™ M770 White	459i	S (A3274)	128	5 ltrs	8010-99-231-3852
Sherwin M671 Medium Grey	463	N/A	380	5 ltrs	8010-99-872-1746
Sherwin M671 Medium Grey	463	N/A	380	20 ltrs	8010-99-862-7354
ZINC CLAD II EU	465	W (A1984) / N/A	470	5 ltrs	8010-99-156-7968

ANNEX E

ANNEX E: WARSHIP SUPPORT SHIPS PAINT TABLE

Ship Name	Below Water	Topsides	Weather Decks	Tanks	Internals
AIRCRAFT CARRIERS					
HMS QNLZ	Hempel	Hempel	Hempel	International	Sherwin Williams
HMS PWLS	Hempel	Hempel	Hempel	International	Sherwin Williams
TYPE 45					
HMS Daring	International	International	International	International	International
HMS Dauntless	International	International	International	International	International
HMS Diamond	International	International	International	International	International
HMS Dragon	International	International	International	International	International
HMS Defender	International	International	International	International	International
HMS Duncan	International	International	International	International	International
TYPE 23					
HMS Argyll	International	International	International	Sherwin Williams	Sherwin Williams
HMS Lancaster	International	International	International	Sherwin Williams	Sherwin Williams
HMS Iron Duke	International	International	International	Sherwin Williams	Sherwin Williams
HMS Monmouth	Hempel	International	International	Sherwin Williams	Sherwin Williams
HMS Montrose	Hempel	International	International	Sherwin Williams	Sherwin Williams
HMS Westminster	Sherwin Williams	Sherwin Williams	Sherwin Williams	Sherwin Williams	Sherwin Williams
HMS Northumberland	International	International	International	Sherwin Williams	Sherwin Williams
HMS Richmond	Hempel	International	International	Sherwin Williams	Sherwin Williams
HMS Somerset	International	International	International	Sherwin Williams	Sherwin Williams
HMS Sutherland	International	International	International	Sherwin Williams	Sherwin Williams

ANNEX E

Ship Name	Below Water	Topsides	Weather Decks	Tanks	Internals
TYPE 23 (2)					
HMS Kent	International	International	International	Sherwin Williams	Sherwin Williams
HMS Portland	Hempel	International	International	Sherwin Williams	Sherwin Williams
HMS St Albans	Sherwin Williams	Sherwin Williams	Sherwin Williams	Sherwin Williams	Sherwin Williams
ALBION CLASS					
HMS Albion	International	Sherwin Williams	Sherwin Williams	Sherwin Williams	Sherwin Williams
HMS Bulwark	Hempel	Sherwin Williams	Sherwin Williams	Sherwin Williams	Sherwin Williams
RIVER CLASS					
HMS Tyne (Batch 1)	Hempel	Hempel	Hempel	Hempel	Hempel
HMS Severn (Batch 1)	International	Hempel	Hempel	Hempel	Hempel
HMS Mersey (Batch 1)	Hempel	Hempel	Hempel	Hempel	Hempel
HMS Forth (Batch 2)	International	International	International	International	International
HMS Medway (Batch 2)	International	International	International	International	International
HMS Trent (Batch 2)	International	International	International	International	International
HMS Tamar (Batch 2)	International	International	International	International	International
HMS Spey (Batch 2)	International	International	International	International	International
HUNT CLASS					
HMS Brocklesby	Hempel	Sherwin Williams	Sherwin Williams	Sherwin Williams	Sherwin Williams
HMS Ledbury	International	Sherwin Williams	Sherwin Williams	Sherwin Williams	Sherwin Williams
HMS Middleton	Hempel	Hempel	Sherwin Williams	Jotun	Sherwin Williams
HMS Chiddingfold	Hempel	Hempel	Sherwin Williams	International	Sherwin Williams
HMS Hurworth	International	Sherwin Williams	Sherwin Williams	Sherwin Williams	Sherwin Williams
HMS Cattistock	Hempel	Sherwin Williams	Sherwin Williams	Sherwin Williams	Sherwin Williams

ANNEX E

Ship Name	Below Water	Topsides	Weather Decks	Tanks	Internals
SANDOWN CLASS					
HMS Penzance	Hempel	International	International	International	International
HMS Pembroke	International	International	International	Jotun	International
HMS Grimsby	Hempel	International	International	International	International
HMS Bangor	Hempel	International	International	International	International
HMS Ramsey	International	International	International	International	International
HMS Blyth	Hempel	International	International	International	International
HMS Shoreham	Hempel	International	International	International	International

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