



Ministry
of Defence



Defence Equipment & Support

WARPAINT

Issue 50

April 2022



Equipping and Supporting our Armed Forces

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The information on acceptable paint systems / coatings, given in this publication, updates WARPAINT Issue 49 – October 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 50

7. Front Cover: RFA Tidespring, the Royal Navy tanker which kept HMS Queen Elizabeth and her escort warships fuelled and ready for operations on her historic maiden deployment has returned home.
8. Sections within the document have been moved so that the document has a better flow of information.
9. The warpaint approval process has been enhanced with a new product evaluation form being added to the start of the process. A copy of the form has been added to annex F. To speed up assessments checklists shall be completed by the paint manufacturer as detailed in para 26.

10. RNHHD & MAST sections have been updated.
11. Needle Gun section has been updated to clarify the use by ship yards and contractors.
12. New section on fire and toxicity compliance has been added to reiterate what is required to be warpaint compliant as per BR3939 Issue 5.
13. Hot topics has been updated to include Dazzle paint, FMT updates, rust stain removers updates and the use of holding primers.
14. MAP 01-026 section has been updated. Husbandry Current Work has been updated.
15. Annex table section and Submarine specification section has been updated including the Contact details for In Service Submarines (ISM).
16. References updated.
17. Annex General Update:
 - a. Products that have been assessed as NAG category C,D and U have been greyed out.
 - b. Products that required approval for use from the Platform Authority are now highlighted Blue.
18. Annex A Updates:
 - a. NSN's added to products that were previously not codified.
 - b. Flight/ Deck Markings section updated to include products previously outlined in Annex B to avoid confusion.
 - c. New sections added for 'Rust Inhibitor' and 'External Deck Brow Positions for MCM's'.
19. Annex B Updates:
 - a. Area K has been updated, removing all products used for Flight/ Deck Markings. These products can now be found in Annex A.
20. Annex C Updates:
 - a. All BR 1326 references have been updated.
21. Annex D updates:
 - a. NSN's have been added to those products that have been codified since the last issue of Warpaint.
 - b. Dazzle paints and Belzona products have been added.
 - c. NAG classification column added to show the category assigned to each product.
22. Annex F has been added to include the submission form outlined in the Warpaint Approvals Sections of the document and the INM form.

WARPAINT APPROVAL PROCESS

23. Paint coatings on all RN surface ships and submarines are to be WARPAINT compliant. **Figure 1** details the process for product inclusion in WARPAINT.
24. To raise a request contact DES-ShipsNSS-CET-SET-HUSBANDRY@mod.gov.uk who will provide a copy of the form found in Annex F. Requests are to include the Product/Technical Data Sheets, Material Safety Data Sheets and application instructions. All areas of the form are to be completed. Requests will not be processed without this information.

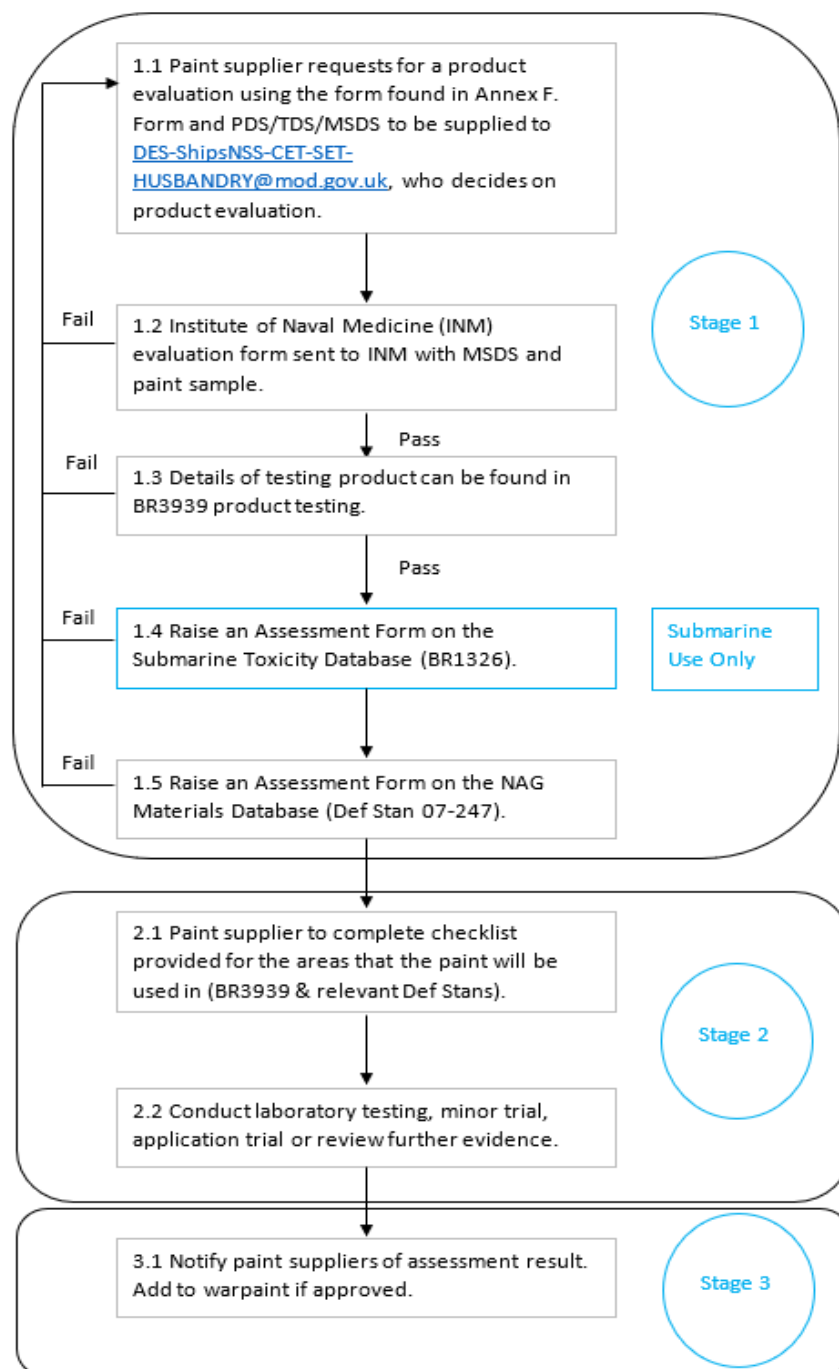


Figure 1 WARPAINT Approval Process

25. 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](#).
26. Manufacturers will be required to complete the relevant checklists for all areas that the paint will be used in. Supporting evidence shall also be supplied with the completed checklists as per paragraph 27.
27. 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.
28. Post review, a WARPAINT Approval Reference (WAR) Number will be allocated to each product and will be included in Annex D.
29. 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.
30. 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.

DE&S WATERFRONT ENGINEERING TEAM

31. 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.
32. Devonport Waterfront Engineering Team (DWET) - DESShipsNSS-CET-DWET@mod.gov.uk
33. Portsmouth Waterfront Engineering Team (PWET) - DESShipsNSS-CET-PWET@mod.gov.uk
34. 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)

35. 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.
36. 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.

37. 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.

MARITIME ASSURANCE SUPPORT TOOL (MAST)

38. 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.
39. All survey documents and corresponding quality control records are to be sent to the relevant waterfront team as per para 34 using the correct multiuser email account para 32 & 33 so that the records can be inputted in to MAST.
40. 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.

SHIPS RESPONSIBILITY FOR PAINT REPAIRS

41. 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.

42. 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.
43. Annex E 'Naval Ships Support 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.

QUALITY

44. 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.
45. 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.

46. 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.
47. 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-Struc3b.
48. 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-Struc3b and SDA-IS-EnvMgr is required.
49. For additional advice of this deliverable contact SDA-IS-Struc3b in advance of delivery.

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

NEEDLE GUNS

50. 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.
51. 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>.
52. No ships should have needle guns onboard and no RN personnel are to use needle guns.
53. The surface preparation standard for cleanliness and profile must be met IAW BR3939 Issue 5. The use of needle guns by shipyards and their contractors should be kept to a minimum for the reasons stated in para 50 and 51. Alternative preparation tools should be used where possible.

CHROMATE PAINTS

54. 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.
55. 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.
56. 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.

57. 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.
58. For guidance see HSE Information Sheet on Chromate Primers Engineering Sheet No 32.
59. Defence Instruction and Notices 2020DIN06-024 captures the management of Hexavalent Chromium (Cr(VI)) in Defence.

PROHIBITED COATINGS

60. 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
61. 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.

FIRE AND TOXICITY STANDARD AND CLASSIFICATION

62. Paint systems in the warpaint areas shown in Table 1 shall meet the fire and toxicity requirements in Defence Standard 07-247 Selection of Materials on the Basis of their Fire Characteristics.

Surface Ships (WSS)	Submarines (SS)	Annex A
G&H Above Water Hull and Superstructure Primer	S7 Internal Dry Spaces	Flight Deck/ Deck Markings
J Above Water Hull and Superstructure Finish	S8 Internal Wet Spaces	Instruments & Electronic Equipment
K Flight and Weather deck	S12 Reactor Compartment	Galvanised steel and zinc metal spray repair
L&M Interior dry compartments	S13 Interior Decks	Woodwork Stains and Varnishes
N&O Interior wet compartments	S14 Battery Compartments	Heat resistant coatings
P Interior Decks	S15 Machinery Bilges & Rafts	Powder Coatings
Q Battery Compartments	S21 Holding Primers	
R Cable Lockers & Cofferdams	S22 Primers for Non Ferrous Metals	
T Machinery Bilges		
Y Holding Primers		
Z Primers for Non Ferrous Metals & FRP		

Table 1 Warpaint areas that require Fire and Toxicity Certification

63. Fire & toxicity testing shall be carried out on a paint system and not the individual products. The following testing requirements shall be completed for all paint systems that fall in to the areas shown in Table 1.

- Fire propagation internal paint systems
- Resistance to surface spread of flame
- Smoke index of products of combustion
- Toxicity index of products of combustion

The acceptable tests can be found in Def Stan 07-247 which is available upon request.

64. The paint manufacturer shall provide all test data which will then be assessed by SDA NAG-Fire. Once assessed the paint system will be given a category and will be added to the Naval Authority System (NAS) materials database.

65. The six categories within Def Stan 07-247 are shown in Table 2. Paint systems shall only be used in Warpaint if they meet category A1 or A2. Paint systems that are categorised as B may be used if there is no suitable alternative and the Platform Authority accept the risk and have mitigation in place that meets the NAG Technical Authority.

Category	Definition
A1	Approved for use on both submarines and surface ships from a fire characteristics points of view only. This does not imply that the material is fit for purpose.
A2	Not fully satisfactory but approved for use in both submarines and surface ships from a fire characteristic point of view only. This does not imply that the material is fit for purpose.
B	Not fully satisfactory but may be accepted in the situation(s) given.
C	Not approved for use in Surface Ships or Submarines.
D	Those materials which are no longer available, no longer specified or have not been fully fire tested.
U	Uncategorised. This might be because not all the evidence to support a category have been compiled, it might be awaiting test results from the lab or detail is yet to be confirmed.

Table 2 Def Stan 07-247 categories

66. From Issue 51 of Warpaint to be issued in October 2022 paint systems that are category C, D or U will be removed from Warpaint and will not be Warpaint compliant. Category B paint systems will be greyed out and a compliant system from an alternative manufacturer should be used unless the Platform Authority has agreed to its use and can justify its use.

67. Please see Annex D for a full breakdown of the NAG classifications for each product, it is to be considered that the NAG assesses products as a system and not as individuals. The categories that have been applied to each product are the worst-case category considering that it is not possible to determine the category for each product individually.

68. Industry partners listed in Table 3 can access the NAS materials database by using the credentials. The NAS Material Database can be found at the following link.
<http://www.bmtdsl.r.mil.uk/NAS/Default.aspx>

Industry Partner	Username	Password
MoD	MODNMD	Mod_nmd789
BAE Systems	BAENMD	Baesystems_nmd1
Babcock	Babcocknmd	Babcock_nmd1
Rolls Royce	RollsRoyceNMD	RollsRoyce_nmd1
Thales	ThalesNMD	Thales_nmd1
QinetiQ	QinetiQNMD	QinetiQ_nmd1
BMT	BMTNMD	Bmt_nmd1
Team Leidos	TeamLeidosnmd	TeamLeidos_nmd1
Atlas-Elektrik UK	AEUK	AEUK_nmd123

Table 3 Access to Naval Authority System (NAS) materials database

DESIGN

69. 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.
70. 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

71. 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 4 Design Target Life of Coatings

72. 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

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

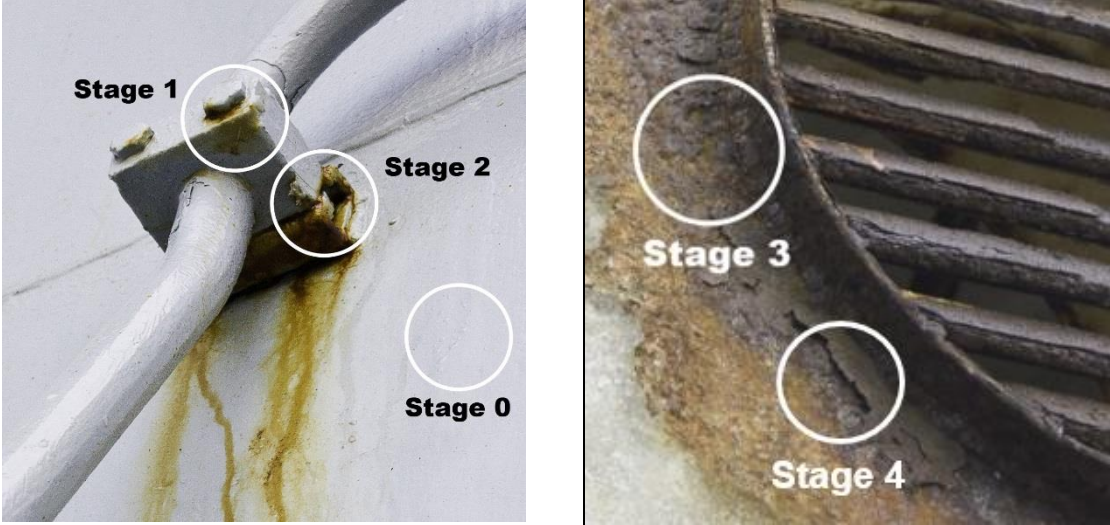
	
Stage 0	No visible signs of corrosion. No indications of paint system defects. No visible sign of oxidation products.
Stage 1	General surface corrosion is visible. Small blisters or cracks in the paint coating. Red / Orange rust staining becoming evident & deposits from water run-offs developing.
Stage 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 5 Stages of Corrosion

PAINTING AND PRESERVATION HOT TOPICS

74. 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](#).

DAZZLE PAINT SCHEME

75. Dazzle paint schemes like in **Figure 2** are to be approved by Navy Command and the Platform Authority. The paint scheme shall utilise the same paint system as the ships Topside coating system.

76. The currently approved colours are shown below and should be reflected in the ships Master Décor Scheme (MDS).

- BS381C Light Weather Work Grey (676)
- BS381C Medium Sea Grey (637)
- Dazzle Grey (International paint shade)
- BS 381C Dark Weather Work Grey (677)



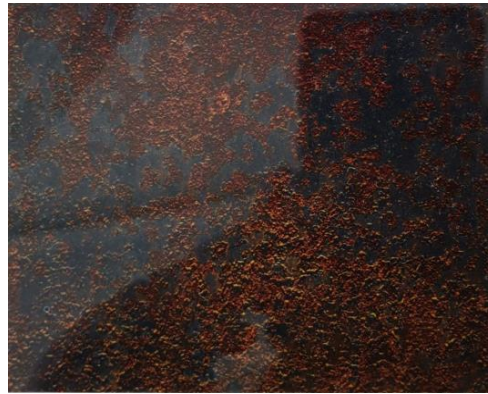
Figure 2 HMS Tamar Dazzle Paint Scheme

MILL SCALE

77. 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.
78. 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 4 *Rust Grade A*

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

Figure 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

79. 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 2022 under a new RNTM.
80. 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.
81. 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)

Table 6 Bristle Blaster Nato Stock Numbers

FLEET MINOR TRIALS

82. 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.
83. 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 have been positioned around coastal sites in the UK. The trial will conclude November 2022.

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

POWDER COATINGS

85. 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

86. 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.
87. 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

88. 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.

HOLDING PRIMERS

89. Holding primers are used to protect the blast profile of prepared carbon steel from corrosion. They are a temporary coating that can be used as part of a paint system as long as they are maintained IAW the manufacturers guidance.
90. Where the surface of the holding primer has been left for extended periods of time and exposed to ultraviolet, damp, dirt and grease as well as wear and tear from the build or maintenance processes it will be necessary to inspect the surface to ensure it is in a suitable condition for overcoating.
91. The surface shall be cleaned, free from dirt and grease and any areas of damage shall be repaired. Holding primers shall be removed if they have been left for ≥ 9 months unless the paint manufacturer guarantees there will be no failure in the paint system.

SUBMARINE BATTERY COMPARTMENT LINING REPAIR

92. 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-Struc3b for further information. Procurement of compounds should be sought well before maintenance period due to long lead times

RUST/STAIN REMOVERS

93. 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.
94. International Interplus 614 is being replaced by Interplus 4101 & 4103. These products have been tested and are approved for removing rust stains. These products are special order and have a long lead time. Therefore they need to be ordered ahead of time. No other products are to be used.

UNDERWATER HULL CLEANING

95. 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.
96. 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.
97. 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).
98. 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.
99. 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.
100. 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)

101. 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.

102. 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.
103. 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

104. MAP 01-26 has undergone a comprehensive update and is being finalised for publication in the coming months. It captures the new 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 also includes information on biosecurity surveys in support of the ships Biofouling Management Plans and details on the approval process for in water hull cleaning. Additional information will be communicated in the next issue of Warpaint.

HUSBANDRY - CURRENT WORK

105. Fire and Toxicity certification review is being undertaken on all Warpaint products to ensure that all Warpaint systems are compliant to Def Stan 07-247. This work is taking priority over other work and therefore the team may not be able to respond to requests as quickly as they normally would.
106. 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.
107. NSN Codification of paints is nearing completion, 358 out of 390 paints have been codified and added to Warpaint.
108. Investigate Biofouling Ultrasonic technology for ships systems. Minor trial started in July 2021. The first trial has finished and the 2nd trial is underway. Work will complete in the 2nd Qtr of 2022 and will feed in to the wider MOD community of Interest work on use of ultrasonic technology.
109. A number of Antifouling systems are under going static and dynamic in water testing. The dynamic testing is simulating the operating profile of 4 classes of RN ships. The work will feed in to the new approval process for antifouling systems and will allow DES Ships to choose the best performing system for the operational profile of an individual vessel. This will optimise ship efficiencies and reduce the bio security risk of ships in national and international waters.
110. 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. Topside surveys will be undertaken over the next 6 months to collate additional data. 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.
111. 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.

112. Bench marking of Area P internal painted decks has been completed and QinetiQ have delivered the test reports. They are now being reviewed. Deck surveys will be undertaken over the next 6 months to collate additional data. Annexe B Area P will be updated once this review has been completed. Those coatings that do not meet the criteria for Area P will be removed from Warpaint.
113. 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 out for public comment and is starting the final review process ready for publication.
114. Def Stan 02-184 Master Décor Scheme has been re-written and will be sent for public comment over the next 2 months.
115. 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

116. 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](#).
117. MOD(N) requires that paint manufacturers and suppliers quote VOC levels in accordance with local environmental regulations.
118. 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 7 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.



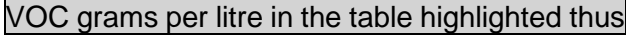
119. For the benefit of New-Building Specifications ONLY, if a paint system can offer cost benefits, but one part of it has a VOC level higher than the MOD(N) target value, this part of the scheme could be proposed on the assumption that it will be subsequently submitted for approval and inclusion in 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.

WHOLE SHIP SPECIFICATIONS

120. 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.

121. 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.
- 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.
 - 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.
 - 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.
122. 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.

ANNEX TABLES

123. Paint Products in the annex tables highlighted  with a Blue band do not fully meet MOD(N) criteria and are not to be used without prior confirmation from the relevant Platform Authority. Readers should always check their current approval status before applying.
124. Paint products in annex tables highlighted tables  highlighted with a Grey band have been categorised as C, D or U within the NAS Material Database.
125. Annex table explanations:
- 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.
 - 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: $WFT = [(DFT) / (Volume\ Solid\ \%)] \times 100$. 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.
 - VOC grams per litre in the table highlighted thus  in a box; do not comply with MOD VOC emission target levels.
 - 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 132.

126. 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.

SUBMARINE SPECIFICATIONS

127. Acceptable paint specifications are outlined in Annex C, together with a list of other acceptable materials.
128. SDA-IS-Struc3b Tel. No. 030 015 51130, is the Structures & Coatings POC for In-Service Submarines.
129. SDA-F-HullOutf2 Tel. No. 030 016 18097, is the Structures & Coatings POC for Future Submarines.
130. SDA-P-ENG-NA-Con3 Tel. No. 0300 157 1688, is the Structures & Coatings POC for Astute Class.
131. SDA-P-ENG-SP1, Tel. No. 0300 152 7984, is the POC for Annex C area S28 Lilo/Payload Bay Chamber.

132. BR 1326 Classification can be found in the 'Submarine Material Toxicity Database' located here - <http://www.tes-ssg-smt.d.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 8 BR 1326 Edition 7 Hazard Categories

133. Detailed information on the BR1326 hazard categories can be found in chapter 6 annex B.
134. No painting is to be completed within the 10 days prior to closing the hatch and sailing to allow for products to dry and the atmosphere to be maintained as per BR1326.
135. 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.
136. 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

SPECIALIST COATINGS & PAINT REMOVERS

137. "WHOLE SHIP SPECIFICATIONS" & "SUBMARINE SYSTEMS" Annexes do not cover Specialist areas. Specialist coatings & their location of use can be found in Annex A.
138. Cleaning Materials and Rust Removers
- [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.
 - BR2203 Ship Husbandry Manual dated Feb 2015 is now available on DII - http://web.apps.royalnavy.r.mil.uk/fpqo/BRd_0001_4999/BRd_2203/BRd_2203/01_Homepage.html
139. 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 Polymeric 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
<u>ANTIFOULING FOR “ARCHER” CLASS & YACHTS</u>				
<u>Superspeed 52</u> SUPERSPEED 52	Anti-Fouling	411	TBC	N/A
<u>Aquarius Marine Coatings Ltd</u> COPPER COAT	Anti-Fouling	0	TBC	N/A
<u>RUDDER, STABILISERS & “A” FRAMES</u> Corrosion & Erosion				
<u>Belzona</u> BELZONA 1311 Ceramic R-Metal (Fill and fair)	Epoxy	0	99-598-6837	N/A
<u>RUDDER, STABILISERS & “A” FRAMES</u> Cavitation Protection [Limpetite products use a proprietary Primer/Tie Coat system]				
<u>Bristol Metal Spraying</u> LIMPETITE PRC (Single coat spray applied – not as durable – low adhesion)	Liquid Rubber/ Polyurethane	0	TBC	N/A
<u>Bristol Metal Spraying</u> LIMPETITE A3 (Multiple coat system – durable – high adhesion)	Liquid Synthetic Rubber	433	TBC	N/A
<u>Belzona</u> BELZONA 1341 Supermetalgilde (Cavitation protection) (2 coats. 3 coats if blasting prior to application of anti-foul)	Epoxy	5	99-322-3979	N/A
<u>HULL (Underwater-Applied Coatings) GENERAL REPAIR</u>				
<u>Alocit</u> ALOCIT 28.15	Epoxy	0	99-248-4702	N/A
BIOFIX 561 LT Black – Kevlar reinforced	Epoxy	0	99-133-9985	N/A
<u>Belzona</u> BELZONA 5831	Epoxy	0	8010-99-980-0440	N/A
<u>International Paints Ltd</u> INTERZONE 101 Trowel Grade – WARNING: Contains Silica	Epoxy	0	99-915-9726	N/A
<u>Cactus Industrial</u> KANSAI SURESEAL 1208UWE	Epoxy Mastic	25	8010-99-847-3498	N/A
<u>HULL – LINK COATS FOR FOUL RELEASE PAINT</u>				
<u>International Paints Ltd</u> 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
<u>HPSW INTERNAL COATING FOR INTAKE PIPEWORK</u>				
<u>Belzona</u> Belzona 1341	Epoxy	5	99-322-3979	BLI (A0704)
<u>Maker Coating</u> Corroless RF35 Grey	Glass Flake Epoxy	93	99-337-0778	03YR (A1772)
<u>Bristol Metal Spraying</u> LIMPETITE A3 (Multiple coat system – slower application)	Liquid Synthetic Rubber	433	TBC	N/A
<u>PEELABLE CORROSION-INHIBITING ENCAPSULATING MEMBRANE</u>				
<u>A&E Group</u> Enviropeel E170 (External/Weather deck applications only. Not for internal use.)	Thermoplastic	0	8030-99-598-8967	CI, LF (A5207)
<u>SEAWATER BALLAST TANK SPOT REPAIR</u>				
<u>FLIGHT DECK / DECK MARKINGS</u>				
<u>Chugoku Paints (UK) Ltd.</u>				
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
Umeguard HS Grey	Epoxy	158	8010-99-126-9478	03YR (A1650)
Umeguard HS Silver	Epoxy	158	8010-99-264-0145	03YR (A1651)
Umeguard HS White	Epoxy	158	8010-99-564-2409	03YR (A1650)
<u>Hempel Paints Ltd</u>				
Hempels Non Skid 45340White	Epoxy	347	99-323-1118	N/A
Hempels Non Skid 45340Black	Epoxy	347	99-351-4222	N/A
Hempels Non Skid 45340Red BS381C 537	Epoxy	347	99-724-9085	N/A
Hempels Non Skid 45340Green BS381C 225	Epoxy	347	99-986-6762	N/A
Hempadur 45143 BS4800 14C39	Epoxy	375	8010-99-471-1920	N/A
Hempadur 45143 Red 50630	Epoxy	375	8010-99-535-5832	N/A
Hempadur 45143 White 10000	Epoxy	375	8010-99-602-7280	N/A
<u>International Paints Ltd</u> 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
<u>FLIGHT DECK / DECK MARKINGS (2)</u>				
<u>International Paints Ltd (2)</u> 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
<u>Jotun Paints (Europe) Limited</u>				
Hardtop CA BS381C 676	Acrylic	340	8010-99-846-3401	N/A
Hardtop CA BS381C 676	Acrylic	340	8010-99-368-1686	N/A
Hardtop CA BS4800 00A01	Acrylic	340	8010-99-577-8447	N/A
Hardtop CA BS4800 00A01	Acrylic	340	8010-99-856-3397	N/A
Hardtop Optima	Poly-Siloxane	215	8010-99-992-1998	N/A
Hardtop Optima	Poly-Siloxane	215	8010-99-436-0000	N/A
<u>Maker Coatings</u>				
Sigmacover 400 Black	Epoxy	106	8010-99-507-5313	BLI (A6852)
Sigmacover 400 Blue	Epoxy	106	8010-99-157-1562	BLI (A6855)
Sigmacover 400 Bright Yellow	Epoxy	106	8010-99-671-6874	BLI (A6856)
Sigmacover 400 Brunswick Green	Epoxy	106	8010-99-157-1463	BLI (A6854)
Sigmacover 400 Grey	Epoxy	106	8010-99-156-8080	BLI (A6849)
Sigmacover 400 Red	Epoxy	106	8010-99-747-2868	BLI (A6853)
Sigmacover 400 Steel	Epoxy	106	8010-99-320-1423	BLI (A6850)
Sigmacover 400 Storm	Epoxy	106	8010-99-564-3846	BLI (A6851)
Sigmacover 400 White	Epoxy	106	8010-99-156-8092	BLI (A6848)
<u>PPG Protective & Marine Coatings</u>				
Sigmadur 540 BS381C 676	Epoxy Acrylic	411	8010-99-671-3651	N/A
Sigmadur 540 Extra Dark Sea Grey	Epoxy Acrylic	411	8010-99-846-3541	N/A
<u>Sherwin-Williams Protective & Marine Coatings</u>				
EPIDEK M377 White	Epoxy	330	99-777-8690	N/A
EPIDEK M377 Black	Epoxy	330	99-777-8692	03YR (A6782)
EPIDEL M377 Green	Epoxy	330	99-777-8691	N/A
Macropoxy® M262	Epoxy	354	8010-99-133-8713	N/A

ANNEX 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				
<u>Sherwin-Williams Protective & Marine Coatings</u>				
Kem-Kromic 155 5ltrs (formerly Steel Spec™ M155)	Alkyd Anti-Corrosive	410	8010-99-753-8892	N/A
Kem-Kromic 155 20ltrs	Alkyd Anti-Corrosive	410	8010-99-184-8658	N/A
<u>International Paint Ltd</u>				
INTERLAC 497 5ltrs	Alkyd Anti-Corrosive	391	8010-99-875-8190	N/A
INTERLAC 497 20ltrs	Alkyd Anti-Corrosive	391	8010-99-157-1768	N/A
[Primer – Intergard 5000 (150 DFT) & Tie-Coat – Intergard 263 (75DFT)]				
INSTRUMENTS & ELECTRONIC EQUIPMENT PANELS Light Admiralty Grey BS381C 697				
<u>Trimite</u>	<u>Manufacturer Applied Coatings</u>			
Sp59 Primer	Stoved Epoxy	-	TBC	BLI, NF (A2009)
S59 Topcoat	Stoved Epoxy	-	8010-99-564-4008	BLI, NF (A2009)
Onboard Repairs: Q55 (X has been dropped now all products are lead free)	Synthetic	491	99-224-9624	U (A2811)
<u>Indestructible Paints</u>				
IP3-6700 epoxy primer	Epoxy	350	TBC	BLI (A7138)
IP3-6971 epoxy finish	Epoxy	420	TBC	BLI (A7139)
Specialist Systems/Materials	Generic Type	VOC g/l	NATO Stock Number	BR 1326
GALVANISED STEEL & ZINC METAL SPRAYER (REPAIR)				
<u>Maker Coatings</u>				
ZINGA	Polystyrene	539	99-884-0220	03YR (A2277)
<u>Hempel Paints Ltd</u>				
HEMPELS ZINC PRIMER 16490	Zinc Phenoxxy	590	TBC	03YR (A3328)
<u>International Paints Ltd</u>				
INTERZINC 22	Zinc Silicate	470	99-927-5431	N/A
INTERZINC 72 Grey	Zinc Epoxy	410	8010-99-993-5751	CI, CF (A1593)

ANNEX A

INTERZINC 72 Blue	Zinc Epoxy	410	8010-99-981-4272	CI, CF (A1593)
<u>PPG Protective & Marine Coatings</u>				
SIGMAZINC 19	Zinc Epoxy	584	99-152-6131	03YR (A4968)
<u>Sherwin-Williams Protective & Marine Coatings</u>				
ZINC CLAD J984	Zinc Epoxy	331	8010-99-157-1809	BLI (A3627)
<u>WOODWORK (High gloss, Clear, Protective finish)</u>				
<u>Chugoku Paints (UK) Ltd.</u>				
SPAR VARNISH	Varnish	433	8010-99-157-1808	N/A
<u>Hempel Paints Ltd</u>				
HEMPELS MARINE VARNISH 02220	Alkyd	430	99-224-5783	N/A
<u>International Paint Ltd</u>				
INTERLAC 678	Alkyd	373	99-328-9646	03YR (A2107)
<u>Jotun Paints (Europe) Limited</u>				
SPONTAN VARNISH	Urethane Alkyd	470	99-161-6220	N/A
<u>PPG Protective & Marine Coatings</u>				
SIGMARINE 42 1ltr (formerly SIGMAVAR GLOSS 8103)	Phenolic	393	8010-99-364-1912	N/A
SIGMARINE 42 5ltrs	Phenolic	393	8010-99-157-1792	N/A
<u>CORROSION INHIBITOR GREASE</u>				
CORROLESS CCI 355	HD Grease	N/A	99-676-5736	03YR (A2738)
<u>CONDUCTIVE GLANDS (QEC requirement)</u>				
<u>Parker Chomerics</u>				
Cho-shield 610	Copper Epoxy EMI	591	TBC	N/A
<u>HEAT RESISTANT COATINGS (Below 175°C)</u>				
SIGMATHERM 175	Modified Alkyd	561	8010-99-847-3590	BLI (A4080)
<u>International Paint Ltd (up to 250 °C)</u>				
INTERTHERM 891 5ltrs	Oleoresinous Aluminium	425	8010-99-988-8802	03YR (A2104)
INTERTHERM 891 20ltrs	Oleoresinous Aluminium	425	8010-99-753-8906	03YR (A2104)
<u>HEAT RESISTANT COATINGS (Above 250°C)</u>				
<u>Hempel Paints Ltd</u>				
GALVOSIL 15700	Zinc Silicate	435	99-593-8923	03YR (A1982)

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<u>International Paint Ltd</u>				
INTERTHERM 50	High Temp Silicone	495	99-969-0549	03YR (A3501)
<u>PPG Protective & Marine Coatings</u>				
SIGMATHERM 500 5ltrs	Modified Alkyd	600	8010-99-858-6097	BLI (A4072)
SIGMATHERM 500 20ltrs	Modified Alkyd	600	8010-99-371-3802	BLI (A4072)
<u>Sherwin-Williams Protective & Marine Coatings</u>				
ZINC CLAD II EU	Zinc Silicate	470	8010-99-156-7968	N/A
<u>HEAT RESISTANT COATINGS (Above 400°C)</u>				
<u>Hempel Paints Ltd</u>				
HEMPELS SILICONE ALUMINIUM 56914	Polysiloxane	585	8010-99-157-1789	W (A1916)
<u>International Paint Ltd</u>				
INTERTHERM 50	High Temp Silicone	495	99-969-0549	03YR(A3501)
<u>PPG Protective & Marine Coatings</u>				
SIGMATHERM 500 5ltrs	Modified Alkyd	600	8010-99-858-6097	BLI (A4072)
SIGMATHERM 500 20ltrs	Modified Alkyd	600	8010-99-371-3802	BLI (A4072)
<u>SYSTEM FOR COATING NATURAL RUBBER MOUNTS</u> <i>Applied by Mount OEM. Not to be touched up once fitted.</i>				
<u>HANGAR DOORS FINISH</u>				
<u>International Paint Ltd</u>				
Interpon 610	Powder Coating	N/A	TBC	N/A
Specialist Systems/Materials	Generic Type	VOC g/l	NATO Stock Number	BR 1326
<u>PAINT REMOVER</u>				
<u>N A Robson Ltd</u>				
BACK TO NATURE VIII (not to be used on steel substrate)	Biodegradable	N/A	99-361-6273	BLI (A1608)
<u>Indestructible Paints</u>				
IPSTRIP 500	Biodegradable	N/A	8010-99-217-5181	N/A
<u>Maker Coating Systems Ltd</u>				
SEA TO SKY SPC-203	Biodegradable	N/A	20-003-3432	CI (A3679)
<u>RUST STAIN REMOVER</u>				
<u>International Paint Ltd</u>				
INTERPLUS 4101 (Yellow)	Biodegradable	N/A	8030-99-846-2819	N/A
INTERPLUS 4103 (Yellow)	Biodegradable	N/A	8030-99-369-2168	N/A
Corrosion source / issue must be rectified before use. 6 - 16hrs dwell time. Cover with Polythene to keep wet. Excessive orders require suitable justification.				

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<u>RUST INHIBITOR</u>				
<u>DURIEU S.A</u>				
DURIEU RUSTOL OWATROL OIL	Alkyd resins	750	TBC	N/A
<u>SMTDUNIQUE IMMERSSED AREAS – PUMPS ETC</u>				
<u>Corrocoat Limited</u>				
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
Specialist Systems/Materials	Generic Type	VOC g/l	NATO Stock Number	BR 1326
<u>MORDANT REAGENT</u>				
<u>Sherwin-Williams Protective & Marine Coatings</u>				
MORDANT WASH L703	Blue Mordant Solution	307	6810-99-861-9824	N/A
<u>CLEANING DETERGENT</u>				
<u>Ensign Chemicals</u>				
ENSIGN	Detergent Concentrate	0	TBC	N/A
<u>Greyland Ltd</u>				
Cleaner RN 190907		0	TBC	N/A
<u>Forward Chemicals Ltd</u>				
Cleaner RN 184		0	TBC	N/A

ANNEX A

<u>DAMP SURFACE PRIMER</u>				
<u>Sherwin-Williams Protective & Marine Coatings</u>				
Macropoxy® M111 Red Oxide	EpoxyZinc Phosphate	383	8010-99-884-5957	TBC
<u>External Deck Brow Positions for MCM</u>				
<u>Belzona</u>				
Belzona 4911 Magma TX Conditioner	Resin	N/A	8030-99-753-8764	N/A
Belzona 4131 Magma Screed	Screed	N/A	8030-99-753-8764	N/A
Belzona 5811 Immersion Grade Grey	N/A	32	8010-99-988-4411	N/A
Belzona 5811 Immersion Grade Grey	N/A	32	8010-99-879-5781	N/A
Belzona 5811 Immersion Grade Beige	N/A	32	8010-99-217-6523	N/A
Belzona 5811 Immersion Grade Beige	N/A	32	8010-99-847-3518	N/A
Belzona 9211 Surefoot Grit	Grit	N/A	5350-99-436-3070	N/A

*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							
<u>Chugoku Paints (UK) Ltd.</u>							
<u>Standard:</u> 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
<u>Hempel Paints Ltd</u>							
<u>Standard:</u> Hempadur Quattro 17634	Epoxy Primer	1	125/173	5.8	6 hrs	90 days	276
<u>Tie-Coat for C & F:</u> Hempadur 47182	Epoxy	1	125/201	5	7 hrs	3 1/2 days	364
<u>Tie-Coat for D:</u> Hempels Nexus II 27400	Silicone	1	100/175	5.6	#	#	400
<u>Tie-Coat for D:</u> Hempasil Nexus X-Tend 27500 (repair only)	Silicone	1	120/185	5.4	8 hrs	48 hrs	259
<u>International Paint Ltd.</u>							
<u>Standard:</u> INTERGARD 5000	Primer	1	175/213	4.68	12 hrs	2 months	155
<u>Alternative:</u> INTERSHIELD 300 Foul Release only (Area D)	Epoxy	2	125/208	4.8	7 hrs	14 months	313
<u>Tie-Coat for C:</u> INTERGARD 263	Epoxy Tie Coat	1	75/131	7.6	8 hrs	5 days	379
<u>Tie-Coat for D:</u> (if req'd): INTERSLEEK 737	Silicone	1	100/175	6.5	4 hrs	7 days	377
<u>Jotun Paints (Europe) Ltd.</u>							
<u>Standard:</u> JOTAMASTIC 87	Epoxy Primer	1	200/230	4.4	10 hrs	#	110
<u>Alternative:</u> MARATHON IQ (Impact resistant)	Epoxy	1	500/510	2	10 hrs	3 days	30
<u>Tie-Coat:</u> SAFEGUARD UNIVERSAL ES	Epoxy	1	100/161	6.2	10 hrs	3 days	330
<u>Tie-Coat:</u> SeaLion Tiecoat Plus	Elastomas tomeric Silicone Tie-coat	1	90/160	6.1	12hrs	4 days	359
<u>Maker Coating Systems Ltd.</u>							
<u>Standard:</u> CORROLESS EPF (Tie-Coat not req'd where over coated in <3 days)	Epoxy	1	200	4.8	16 hrs	3 days	80
<u>Tie-Coat:</u> (If req'd): SIGMACOVER 525 (7902)	Epoxy Tie Coat	1	75	8.2	12 hrs	14 days	365
<u>PPG Protective & Marine Coatings</u>							
<u>Tie-Coat (For C & F if req'd):</u> SIGMACOVER 525 (7902)	Epoxy Tie Coat	1	75	8.2	12 hrs	14 days	365
<u>Sherwin-Williams Protective & Marine Coatings</u>							
Macropoxy® C425V2	Epoxy Zinc Phosphate	1	175	7.5	4 hrs	#	186

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	
<u>Tie-Coat</u> (If req'd): SEAVOYAGE 1500	Epoxy	1	100/156	6.4	8 hrs	5 days	319

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m²/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA C. <u>ANTIFOULING FINISH (Self Polishing – SPC) - Red</u>							
<u>Chugoku Paints (UK) Ltd.</u>							
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
<u>Hempel Paints Ltd</u>							
7-year life: Hempels AF GLOBIC 9000 (78952)	SPC AF	2	100/172	5.8	10 hrs	#	370
Hempasil 77300 (Divers Lines)	Fouling Defence	1	150/225	4.5	TBC	#	287
<u>International Paint Ltd.</u>							
5-year life: INTERSMOOTH 7460	SPC AF	2	125/231	3.2	12 hrs	28 days	425
<u>Jotun Paints (Europe) Ltd.</u>							
SEAQUANTUM ULTRA	Hydrolysing Silyl	2	125/250	3.8	7 hrs	#	460
<u>Maker Coating Systems Ltd.</u>							
SIGMA ECOFLEET 530 (7385)	SPC AF	1	110/183	5.4	6 hrs	#	339
<u>PPG Protective & Marine Coatings</u>							
SIGMA ECOFLEET 530 (7385)	SPC AF	1	150/250	4	6 hrs	#	339
<u>Sherwin-Williams Protective & Marine Coatings</u>							
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 m²/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA D. <u>ANTIFOULING SYSTEM (Foul Release – FRC 5+ yr life) - Red</u>							
<u>Chugoku Paints (UK) Ltd.</u>							
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
<u>Propeller & Rudder:</u>							
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
<u>Hempel Paints Ltd</u>							
Hempasil 77300 (Divers Lines)	Fouling Defence	1	150/225	4.5	TBC	#	287
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
<u>International Paint Ltd.</u>							
INTERSLEEK 1100SR	Slime release Fluoropolymer	1	150/208	4.8	24 hrs	#	248
<u>Jotun Paints (Europe) Ltd.</u>							
SEAQUEST	AF Foul Release	1	170/225	4.4	#	#	247
<u>Maker Coating Systems Ltd.</u>							
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
<u>PPG Protective & Marine Coatings</u>							
SIGMAGLIDE 790	Silicone Tiecoat	1	150/190	5.3	12 hrs	5 days	187
SIGMAGLIDE 1290	Silicone Foul Release	1	180	4.8	#	#	118
<u>Sherwin-Williams Protective & Marine Coatings</u>							
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
<u>Propeller & Rudder:</u>							
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 m²/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA F. <u>BOOTTOP ANTIFOULING FINISH (SPC)</u> - Black							
<u>Chugoku Paints (UK) Ltd.</u>							
<u>Standard:</u> SEA GRANDPRIX 660 HS (Fusion)	SPC AF	1	150/224	4.46	5 hrs	#	324
<u>Alternative:</u> SEA GRANDPRIX 1000L	Hydrolysing Silyl	1	150/268	3.4	5 hrs	#	408
<u>Hempel Paints Ltd</u>							
<u>Standard:</u> Hempels AF GLOBIC 9000 78952	SPC AF	2	100/172	5.8	10 hrs	#	370
<u>Alternative:</u> Hempels AF OLYMPIC+ (72950)	SPC AF	2	100	5.0	8 hrs	#	365
Hempasil 77300 (Divers Lines)	Fouling Defence	1	150/225	4.5	TBC	#	287
<u>International Paint Ltd.</u>							
INTERSPEED 6400	Polyester	2	60/100	10	6 hrs	3 months	358
BOOTTOP ANTIFOULING FINISH (FR)							
<u>Standard:</u> INTERSLEEK 1100SR	Slime release Fluoropolymer	1	150/208	4.5	24 hrs	#	248
<u>Jotun Paints (Europe) Ltd.</u>							
<u>Standard:</u> SEAQUANTUM CLASSIC S	Silyl SPC AF	1 or 2	150/300	3.1	7 hrs	#	460
<u>Maker Coating Systems Ltd.</u>							
SIGMA ECOFLEET 530 (7385)	SPC AF	1	110/183	5.4	6 hrs	#	339
<u>PPG Protective & Marine Coatings</u>							
SIGMA ECOFLEET 530 (7385)	SPC AF	1	110/183	5.4	6 hrs	#	339
<u>Sherwin-Williams Protective & Marine Coatings</u>							
<u>Standard:</u> 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 m²/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							
<u>Chugoku Paints (UK) Ltd.</u>							
Standard: BANNOH 1500	Epoxy Primer	1	150/208	4.87	9 hrs	120 days	286
<u>Hempel Paints Ltd</u>							
Standard: Hempadur Quattro 17634	Epoxy Primer	1	125/174	5.8	6 hrs	90 days	276
<u>International Paint Ltd.</u>							
INTERGARD 5000	Primer	1	150/183	5.47	12 hrs	14 days	155
<u>Jotun Paints (Europe) Ltd.</u>							
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
<u>Maker Coating Systems Ltd.</u>							
Standard: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106
<u>PPG Protective & Marine Coatings</u>							
Standard: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106
<u>Sherwin-Williams Protective & Marine Coatings</u>							
Macropoxy® C425V2	Epoxy Zinc Phosphate	1	100/133	7.5	4 hrs	#	186

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 J. <u>ABOVE WATER HULL & SUPERSTRUCTURE FINISH</u> Light Weatherwork Grey BS381C 676							
<u>Hempel Paints Ltd</u>							
HEMPELS PRO ACRYLIC 55883	Acrylic	1	50/89	11.0	12 hrs	#	380
HEMPELS SILICONE ALKYD FINISH 53230	Silicone Alkyd	1	35/64	15.4	8 hrs	1-2 days	410
<u>Tie-Coat – (if req'd):</u> HEMPALIN UNDERCOAT 42460	Alkyd	1	40/75	12.5	8 hrs	7 days	385
<u>International Paint Ltd.</u>							
INTERFINE 878	Poly-siloxane	1	50/69	14.4	4 hrs	#	246
INTERFINE 629 HS	Acrylic	1	50/77	13	8 hrs	#	336
<u>Undercoat/Tie-Coat (if required):</u> INTERGARD 263	Epoxy Tie Coat	1	75/132	7.6	8 hrs	5 days	379
<u>Jotun Paints (Europe) Ltd.</u>							
HARDTOP OPTIMA	Poly-siloxane	1	75/99	10.1	4 hrs	#	215
HARDTOP CA	Acrylic	1	75/125	8	5 hrs	#	340
<u>Maker Coating Systems Ltd.</u>							
AMERON PSX700	Poly-siloxane	1	75/83	12	3 hrs	#	164
SIGMADUR 540 (7740)	Epoxy Acrylic	1	50/93	10.8	8 hrs	#	411
<u>Sherwin-Williams Protective & Marine Coatings</u>							
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						
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: HEMPELS NON-SKID 45710	Non Skid	2	400/526	1.9	6 hrs	30 days	206
Type 2 Repair Kit: HEMPELS 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: HEMPELS NON-SKID 45340	Non Skid	2	200/317	3.2	6 hrs	30 days	335
Type 1 Repair Kit: HEMPELS DECK REPAIR KIT 942GB	Repair kits are to be ordered through Maker Coatings Ltd NSN – 99-471-2960						

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 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
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
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							

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 K.							
FLIGHT & WEATHERDECK SYSTEMS – DEF STAN 80-134							
Colour - Flight Deck Extra Dark Sea Grey BS 381C, Hangar Deck Dark Admiralty Grey BS 381C							
<u>Maker Coating Systems Ltd. (2)</u>							
<u>(b). Hangar & Weatherdeck – Type 1 Non-Skid Finish (Fine)</u>							
<u>Primer:</u> SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106
<u>Hangar Deck & Weatherdeck:</u> AMERLOCK 400 NS		2	300/	4	16 hrs	#	106
<u>Type 1 Repair Kit:</u>							
AMERLOCK 400 NS T1R		2	300/	4	16 hrs	#	106
<u>PPG Protective & Marine Coatings</u>							
<u>(a). Flight & Weatherdeck – Type 2 Non-Skid Finish (coarse)</u>							
<u>Primer:</u> SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106
<u>Finish:</u> AMERLOCK 400 NS		2	400/	2.3	16 hrs	#	106
<u>Type 2 Repair Kit:</u>							
AMERLOCK 400 NS T2R							
<u>(b). Hangar & Weatherdeck – Type 1 Non-Skid Finish (Fine)</u>							
<u>Hangar Deck & Weatherdeck:</u> AMERCOAT 138G	Non Skid Epoxy	1	1300/158 5	0.6	24 hrs	#	168
<u>Sherwin-Williams Protective & Marine Coatings</u>							
<u>(a). Flight & Weatherdeck – Type 2 Non-Skid Finish (coarse)</u>							
<u>Primer:</u> Macropoxy® C425V2	Epoxy Zinc Phosphate	1	125/167	6.0	4 hrs	#	186
<u>Finish:</u> EPIDEK M339		2	200/282	1.8	4 hrs	#	250
<u>Type 2 Repair Kit:</u>							
EPIDEK M339			/282				
<u>(b). Hangar & Weatherdeck – Type 1 Non-Skid Finish (Fine)</u>							
<u>Primer:</u> Macropoxy® C425V2	Epoxy Zinc Phosphate	1	125/167	6.0	4 hrs	#	186
<u>Hangar Deck:</u> EPIDEK M377	Epoxy	2	250/403	2.5	4 hrs	#	330

ANNEX B

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m²/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREAS L & M. INTERIOR DRY COMPARTMENTS Finish coat colour - Ash Grey 00A01 to BS4800							
<u>Chugoku Paints (UK) Ltd.</u>							
<u>Primer:</u> BANNOH 1500	Epoxy Primer	1	125/171	5.84	9 hrs	120 days	286
<u>Primer:</u> Idromarina Primer	Acrylic Resin Primer	1	80/230	4.4	5 days	#	24
<u>Finish:</u> Idromarina Finish	Acrylic Resin	1	45/113	10	24 hrs	#	28
<u>Hempel Paints Ltd</u>							
<u>Standard Primer:</u> HEMPADUR 45880 MIO 12430	Epoxy	1	125/156	6.4	7 hrs	#	198
<u>Standard Finish:</u> HEMUCRYL ENAMEL 58100	Water-borne	2	30/73	13.7	6 hrs	#	63
<u>International Paint Ltd.</u>							
INTERGARD 5000	Primer	1	125/152	6.56	12 hrs	#	155
<u>Finish:</u> INTERGARD 1735	Epoxy	1	50/100	11.2	12 hrs	#	132
<u>Maker Coating Systems Ltd.</u>							
<u>Primer & Finish:</u> SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	100/118	8.75	16 hrs	#	106
<u>Alternative Primer:</u> AQUACOVER 25 (7150)	Zinc Phosphate	1	75/170	5.7	4 hrs	#	25
<u>PPG Protective & Marine Coatings</u>							
<u>Primer:</u> AQUACOVER 25 (7150)	Zinc Phosphate	1	75/170	6.6	4 hrs	#	31
<u>Primer & Finish:</u> SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	100/118	8.75	16 hrs	#	106
<u>Sherwin-Williams Protective & Marine Coatings</u>							
<u>Primer:</u> Macropoxy® C425V2	Epoxy Zinc Phosphate	1	125/167	6.0	5 hrs	#	186
<u>Finish:</u> Sher-CrylTM M770	Sealercoat	1	25/	15.6	3 hrs	#	78

ANNEX B

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m²/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)							
<u>Chugoku Paints (UK) Ltd.</u>							
<u>Primer:</u> BANNOH 1500	Epoxy Primer	1	125/171	5.84	9 hrs	120 days	286
<u>Primer:</u> Idromarina Primer	Acrylic Resin Primer	1	80/230	4.4	5 days	#	24
<u>Finish:</u> Idromarina Finish	Acrylic Resin	1	45/113	10	24 hrs	#	28
<u>Hempel Paints Ltd</u>							
<u>Standard Primer:</u> HEMPADUR 45880 MIO 12430	Epoxy	1	125/156	6.4	7 hrs	#	198
<u>Standard Areas Finish, Citadel Lobby Finish & Magazine Use Finish:</u> HEMUDUR FC 48582	Epoxy	1	80/145	6.9	12 hrs	15 days	27
<u>Cleansing Stations Finish:</u> HEMPADUR 45143	Epoxy	1	100/167	6.0	8 hrs	#	375
<u>International Paint Ltd.</u>							
<u>Primer:</u> INTERGARD 5000	Primer	1	125/152	6.56	24 hrs	#	155
<u>Standard Areas Finish, Citadel Lobby Finish & Magazine Use Finish:</u> INTERGARD 1735	Epoxy	1	50/100	11.2	12 hrs	#	132
<u>Cleansing Stations Finish:</u> INTERFINE 979 (overcoat primer within 4 days)		1	125/164	7.6	4 hrs	#	165
<u>Maker Coating Systems Ltd.</u>							
<u>Primer, Standard Finish, Citadel Lobby Finish, Magazines Finish & Cleansing Stations Primer:</u> SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	100/118	8.75	16 hrs	#	106
<u>Cleansing Stations Finish:</u> AMERON PSX 700	Poly-siloxane	1	125/139	7.2	4.5 hrs	#	120
<u>PPG Protective & Marine Coatings</u>							
<u>Cleansing Stations:</u> SIGMAGUARD CSF 650	Epoxy	1	350/350	2.9	24 hrs	20 days	143
<u>Primer, Standard Finish, Citadel Lobby Finish, Magazines Finish & Cleansing Stations Primer:</u> SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	100/118	8.75	16 hrs	#	106
<u>Sherwin-Williams Protective & Marine Coatings</u>							
<u>Primer:</u> Macropoxy® C425V2	Epoxy Zinc Phosphate	1	125/167	6.8	5 hrs	#	186
<u>Standard Areas Finish & Citadel Lobby Finish:</u> Macropoxy® M630V2	Epoxy	1	75/150	6.8	24 hrs	#	0

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	
AREAS N & O. INTERIOR WET COMPARTMENTS (2) Finish Colour Ash Grey BS4800 00A01 Or BS381C 676 (citidal lobbies)							
<u>Sherwin-Williams Protective & Marine Coatings (2)</u>							
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							
<u>Chugoku Paints (UK) Ltd.</u>							
Standard Primer & Cleansing Stations Primer: BANNOH 1500	Epoxy Primer	1	125/171	5.84	9 hrs	120 days	286
Primer: Idromarina Primer	Acrylic Resin Primer	1	80/230	4.4	5 days	#	24
Finish: Idromarina Finish	Acrylic Resin	1	45/113	10	24 hrs	#	28
<u>Hempel Paints Ltd</u>							
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
<u>International Paint Ltd.</u>							
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
<u>Maker Coating Systems Ltd.</u>							
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
<u>PPG Protective & Marine Coatings</u>							
Standard & Cleansing Stations Finish: SIGMACOVER 400	Epoxy	1	100/123	8.5	16 hrs	30 days	180
<u>Sherwin-Williams Protective & Marine Coatings</u>							
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							
<u>Chugoku Paints (UK) Ltd.</u> Primer: BANNOH 1500	Epoxy Primer	1	125/171	5.84	9 hrs	120 days	286
<u>Hempel Paints Ltd</u> Primer: HEMPADUR 45880 MIO 12430	Epoxy	1	150/188	6.0	8 hrs	#	198
<u>International Paint Ltd.</u> INTERGARD 5000	Primer	1	150/183	5.47	12 hrs	#	155
<u>Maker Coating Systems Ltd.</u> Primer & Finish: SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	100/118	8.75	16 hrs	#	180
<u>PPG Protective & Marine Coatings</u> Primer & Finish: SIGMACOVER 400	Epoxy	1	100/118	8.5	16 hrs	30 days	180
<u>Sherwin-Williams Protective & Marine Coatings</u> 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							
<u>Chugoku Paints (UK) Ltd.</u> BANNOH 1500	Epoxy Primer	1	125/171	5.84	9 hrs	120 days	286
<u>Hempel Paints Ltd</u> HEMPADUR 45880	Epoxy	1	150/188	6.0	8 hrs	#	198
<u>International Paint Ltd.</u> INTERGARD 5000	Primer	1	150/183	5.46	12 hrs	3 months	155
<u>Jotun Paints (Europe) Ltd.</u> Standard: JOTAMASTIC 80	Anticorrosive	1	175/219	4.6	10 hrs	#	145
<u>Maker Coating Systems Ltd.</u> SIGMASHIELD 880	Polyamine	1	350/	2.9	3.5 hrs	14 days	207
<u>PPG Protective & Marine Coatings</u> SIGMASHIELD 880	Polyamine	1	350/	2.9	3.5 hrs	14 days	207
<u>Sherwin-Williams Protective & Marine Coatings</u> 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 m²/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA S. <u>BLACK/GREY & WATER BALLAST TANKS IMO PSPC</u> Colour - Grey (manufacturers standard colour)							
<u>Chugoku Paints (UK) Ltd.</u>							
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
<u>Hempel Paints Ltd</u>							
<u>Water Ballast:</u> Hempadur Quattro 17634	Epoxy Primer	2	160/222	4.5	6 hrs	90 days	275
<u>Black & Grey Water:</u> HEMPADUR 85671	Epoxy Phenolic	3	100/147	6.8	36 hrs	5 days	320
<u>International Paint Ltd.</u>							
<u>Water Ballast:</u> INTERGARD 5000	Primer	2	160/195	5.13	12 hrs	3 months	155
<u>Black & Grey Water:</u> INTERLINE 850	Epoxy Phenolic	2	125/164	6.08	6 hrs	30 days	212
<u>Galley Grey Water:</u> INTERLINE 994		3	100/143	7	44 hrs	25 days	290
<u>Jotun Paints (Europe) Ltd.</u>							
<u>Water Ballast</u>							
<u>Standard:</u> BALLOXY HB LIGHT	Anti-corrosive	1	160/195	5.1	10 hrs	#	150
<u>Black & Grey Water</u>							
<u>Standard:</u> TANKGUARD STORAGE	Epoxy Phenolic	1	150/238	4.2	10 hrs	30 days	310
<u>Alternative:</u> TANKGUARD DW	Epoxy	1	150/150	6.7	12 hrs	5 days	2
<u>Maker Coating Systems Ltd.</u>							
CORROLESS EPF	Epoxy	1	200/	4.8	16 hrs	#	80
CORROLESS RF35	Epoxy	1	200/	4.8	16 hrs		93
<u>PPG Protective & Marine Coatings</u>							
<u>Black / Grey Water:</u> SIGMAGUARD CSF 650	Epoxy	1	350/350	2.9	24 hrs	20 days	143
<u>Sherwin-Williams Protective & Marine Coatings</u>							
<u>Water Ballast Tanks:</u> Macropoxy® L524 (typical dft 125. care req'd on overlap at 160)	Epoxy	2	160/250	3.9	12 hrs	#	296
<u>Black & Grey Water Tanks:</u> 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 T. <u>MACHINERY SPACE BILGES</u> Colour White RAL 9010							
<u>Chugoku Paints (UK) Ltd.</u> BANNOH 1500	Epoxy Primer	2	125/171	4.87	9 hrs	30 days	286
<u>Hempel Paints Ltd</u> HEMPADUR 45880	Epoxy	2	125/156	6.4	7 hrs	#	198
<u>International Paint Ltd.</u> INTERGARD 5000	Primer	1	175/213	4.68	12 hrs	3 months	155
<u>Jotun Paints (Europe) Ltd.</u> Finish: HARDTOP CA	Acrylic	1 or 2	75/125	10.1	4 hrs	#	340
<u>Maker Coating Systems Ltd.</u> SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	2	125/147	7	16 hrs	#	106
<u>PPG Protective & Marine Coatings</u> SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	175/201	5	5 hrs	30 days	153
<u>Sherwin-Williams Protective & Marine Coatings</u> 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. <u>AVCAT, DIESEL, LUB & HYDRAULIC OIL TANKS SYSTEM DEF STAN 80-97 (HIGH SOLIDS)</u> Colour - White (manufacturers standard colour)							
<u>Chugoku Paints (UK) Ltd.</u> EPICON T-800	Epoxy Phenolic	2	125/192	5.2	16 hrs	21 days	359
<u>Hempel Paints Ltd</u> HEMPADUR 85671	Epoxy Phenolic	3	100/147	6.8	36 hrs	21 days	320
<u>International Paint Ltd.</u> INTERLINE 850	Epoxy Phenolic	2	125/164	6.08	6 hrs	30 days	212
<u>Jotun Paints (Europe) Ltd.</u> TANKGUARD STORAGE	Epoxy Phenolic	1	125/198	5.0	10 hrs	30 days	310
<u>Maker Coating Systems Ltd.</u> CORROLESS EPF	Epoxy	1	200/	4.8	16 hrs	3 days	80
CORROLESS RF35	Epoxy	1	200/	4.8	16 hrs	3 days	93
<u>PPG Protective & Marine Coatings</u> SIGMAGUARD CSF 650	Epoxy	1	350/350	2.9	24 hrs	20 days	143
<u>Sherwin-Williams Protective & Marine Coatings</u> 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 m²/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA V. POTABLE WATER TANKS Colour - White (manufacturers standard colour)							
<u>Chugoku Paints (UK) Ltd.</u> CLEANKEEP 5000	Solventfree Epoxy	1 (2)	300/300	3.33	32 hrs	14 days	0
<u>Hempel Paints Ltd</u> HEMPADUR 35560	Epoxy	2	200/200	5.0	24 hrs	30 days	0
<u>International Paint Ltd.</u> INTERLINE 925	Epoxy	1	300/300	3.33	18 hrs	3 days	1
<u>Jotun Paints (Europe) Ltd.</u> TANKGUARD DW	Epoxy	1	150/150	6.7	12 hrs	5 days	2
<u>Maker Coating Systems Ltd.</u> CORROLESS EPF	Epoxy	1	200/	4.8	16 hrs	3 days	80
CORROLESS RF35	Epoxy	1	200/	4.8	16 hrs	3 days	93
<u>PPG Protective & Marine Coatings</u> 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)							
<u>Chugoku Paints (UK) Ltd.</u> EPICON T-800	Epoxy Phenolic	2	125/192	5.2	16 hrs	21 days	359
<u>Hempel Paints Ltd</u> HEMPADUR 85671	Epoxy Phenolic	3	100/147	6.8	36 hrs	21 days	320
<u>International Paint Ltd.</u> INTERLINE 704		2	125/236	4.24	23 hrs	21 days	425
<u>Jotun Paints (Europe) Ltd.</u> TANKGUARD DW	Epoxy	1	150/150	6.7	12 hrs	5 days	2
<u>Maker Coating Systems Ltd.</u> 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
<u>PPG Protective & Marine Coatings</u> SIGMAGUARD CSF 650	Epoxy	1	350/350	2.9	24 hrs	20 days	143
<u>Sherwin-Williams Protective & Marine Coatings</u> 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 X. <u>DEMINERALISED WATER TANKS (Max Temperature 90°C)</u> Colour - White (manufacturers standard colour)							
<u>Chugoku Paints (UK) Ltd.</u>							
Standard: EPICON T-800	Epoxy Phenolic	2	125/192	5.2	16 hrs	21 days	359
<u>Hempel Paints Ltd</u> HEMPADUR 85671	Epoxy Phenolic	3	100/147	6.8	36 hrs	21 days	320
<u>International Paint Ltd.</u> INTERLINE 925 (up to 60°C only)	Epoxy	1	300/300	3.33	18 hrs	3 days	1
<u>Jotun Paints (Europe) Ltd.</u> Standard: TANKGUARD DW	Epoxy	1	125/125	5.0	10 hrs	30 days	2
<u>Maker Coating Systems Ltd.</u> 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
<u>PPG Protective & Marine Coatings</u> SIGMAGUARD CSF 650	Epoxy	1	350/350	2.9	24 hrs	20 days	143
<u>Sherwin-Williams Protective & Marine Coatings</u> 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							
<u>Chugoku Paints (UK) Ltd.</u> NZ PRIMER S	Epoxy	1	25/83	12	16 hrs	120 days	659
<u>Hempel Paints Ltd</u> HEMPADUR 15570	Epoxy	1	40/74	13.5	#	#	420
<u>International Paint Ltd.</u> Standard: INTERGARD 269	Epoxy Primer	1	30/64	15.67	6 hrs	#	411
<u>Jotun Paints (Europe) Ltd.</u> MUKI EPS	Epoxy	1	20/80	12.5	7 hrs		610
<u>Maker Coating Systems Ltd.</u> SIGMACOVER 280 (7417)	Anti-corrosive	1	50/88	11.4	8 hrs	6 months	432
<u>PPG Protective & Marine Coatings</u> SIGMACOVER 280 (7417)	Anti-corrosive	1	50/88	11.4	8 hrs		432
<u>Sherwin-Williams Protective & Marine Coatings</u> 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							
<u>Chugoku Paints (UK) Ltd.</u> Aluminium: ALP 500	Epoxy Primer	1	50/86	11.6	10 hrs	#	414
<u>Stainless Steel</u> : BANNOH 1500	Epoxy Primer	1	125/171	5.84	9 hrs	120 days	286
<u>Zinc Spray & Galvanise</u> : GALVANITE 200	Epoxy Primer	1	30/64	12.7	4 hrs	30 days	587
<u>FRP Indicator Coat</u> : CLEANKEEP 5000	Solventfree Epoxy	1	300/300	3.33	32 hrs	14 days	0
<u>Hempel Paints Ltd.</u> <u>Aluminium, Stainless Steel, Zinc Spray & Galvanised surfaces:</u> Standard: HEMPADUR 15553 (2 pack)	Epoxy	1	50/91	11	2 hrs	#	388
<u>FRP Indicator Coat</u> : 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 m²/l	20°C Recoat Interval		VOC g/l
					Min	Max	
AREA Z. <u>PRIMERS FOR NON-FERROUS METALS & FRP (2)</u>							
<u>International Paint Ltd.</u> Aluminium, Stainless Steel, Zinc Spray & Galvanised surfaces:							
FRP Indicator Coat: INTERLINE 925	Epoxy	1	300/300	5.0	18 hrs	3 days	1
<u>Jotun Paints (Europe) Ltd.</u>							
FRP Indicator Coat: PENGUARD HB	Epoxy Primer	2	150/278	3.6	8 hrs	#	390
<u>Maker Coating Systems Ltd.</u> 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
<u>PPG Protective & Marine Coatings</u> 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
<u>Sherwin-Williams Protective & Marine Coatings</u> 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

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.								
<u>PRESSURE HULL & EXTERNAL SUPERSTRUCTURE PRIMER</u> Untiled Areas								
<u>Chugoku Paints (UK) Ltd.</u>								
UMEGUARD SX HS	Surface Tolerant	1	150/195	5.13	28 hrs	7 days	232	EXT
<u>Hempel Paints Ltd.</u>								
HEMPADUR 45880	Epoxy	2	175/219	4.6	8 hrs	30 days	198	BLI (A7305)
<u>International Paint Ltd.</u>								
INTERGARD 5000	Primer	1	175/213	4.68	12 hrs	2 months	155	03YR (A5713)
<u>Maker Coating Systems Ltd.</u>								
13CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	03YR (A6857)
<u>Sherwin-Williams Protective & Marine Coatings.</u>								
Macropoxy® M922M	Epoxy	2	200/-	4.2	4 hrs	#	146	03YR (A6786)
AREA S2.								
<u>ANTIFOULING SYSTEM(S) Black Finish FOUL RELEASE / DEFENCE (FRC / FD)</u> Sonar Dome								
<u>Chugoku Paints (UK) Ltd.</u>								
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 BIOCLEAR R	Silicone Elastomer	1	100/154	6.5	4 hrs	24 hrs	278	EXT
CMP BIOCLEAR HB	Silicone Elastomer	1	150/211	3.55	#	#	261	EXT
CMP BIOCLEAR SG R	Epoxy	1	125/208	4.86	6 hrs	#	406	EXT
<u>Hempel Paints Ltd.</u>								
<u>Primer:</u> HEMPADUR 15570	Epoxy	2	125/231	4	8 hrs	30 days	414	03YR (A2701)
<u>Tie-Coat for D:</u> Hempels 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
<u>International Paint Ltd.</u>								
<u>Primer:</u> INTERSHIELD 300	Epoxy	2	125/208	4.8	7 hrs	14 days	313	EXT
<u>Tie coat:</u> INTERSLEEK 737	Silicone	1	100/175	6.5	4 hrs	7 days	377	EXT
INTERSELEK 1100SR Fluoropolymer	Slime Release	1	150/208	4.8	24 hrs	#	248	EXT

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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. Hempels AF OLYMPIC+ (72950)	SPC AF	2	120/190	5.0	8 hrs	#	367	EXT
International Paint Ltd. INTER SPEED 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	03YR (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	03YR (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		
<div>AREA S4.</div> <div>PERISCOPES & MASTS Visible portions outside the submarine</div>								
<div>Sherwin-Williams Protective & Marine Coatings</div> <div>Macropoxy® L425</div>	EpoxyZinc Phosphate	1	35/-	17.1	5 hrs	#	346	BLI (A0565g)
<div>AREA S5.</div> <div>SUPERSTRUCTURE CASING General steelwork</div>								
<div>Hempel Paints Ltd.</div> <div>HEMPADUR 45880 MIO 12430</div>	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
<div>International Paint Ltd.</div> <div>INTERGARD 5000</div>	Primer	1	175/213	4.68	12 hrs	2 months	155	03YR (A5713)
<div>Sherwin-Williams Protective & Marine Coatings</div> <div>Macropoxy® M922M</div>	Epoxy	2	200/-	4.2	4 hrs	#	146	03YR (A6786)
<div>Maker Coating Systems Ltd</div> <div>SIGMACOVER 400 (FKA AMERLOCK 400C)</div>	Epoxy	2	125/147	7	16 hrs	#	106	BLI (A6852)
<div>PPG Protective & Marine Coatings</div> <div>SIGMACOVER 400 (FKA AMERLOCK 400C)</div>	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 m²/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)
HEMPELS 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	03YR (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	S (A3736)
EPIDEK M377 TYPE 1	Epoxy	2	250/403	4	4 hrs	#	330	EXT

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m²/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S7. <u>INTERNAL DRY SPACES</u> White								
<u>Chugoku Paints (UK) Ltd.</u>								
UMEGUARD HS	Epoxy	1	125/162	7.4	20 hrs	30 days	158	03YR (A1651)
<u>Hempel Paints Ltd.</u>								
HEMUCRYL ENAMEL 58100	Water-borne	2	30/73	13.7	6 hrs	#	63	03YR (A0823)
<u>International Paint Ltd</u>								
INTERGARD 5000	Primer	1	125/152	6.56	12 hrs	#	155	03YR (A5713)
INTERGARD 1735	Epoxy	1	50/100	11.2	12 hrs	#	132	BLI (A7312)
<u>Maker Coating Systems Ltd</u>								
SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106	BLI (A6848)
<u>Sherwin-Williams Protective & Marine Coatings</u>								
Macropoxy® C425V2	Epoxy Zinc Phosphate	1	125/-	6.0	5 hrs	#	186	S (A3736)
Sher-CrylTM M770	Sealercoat	2	25/-	15.6	3 hrs	#	78	S (A3274)
AREA S8. <u>INTERIOR WET COMPARTMENTS</u> (Complete Re-preservation) White								
<u>Chugoku Paints (UK) Ltd.</u>								
UMEGUARD HS	Epoxy	1	125/162	7.4	20 hrs	30 days	158	03YR (A1651)
<u>Hempel Paints Ltd.</u>								
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)

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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	BR 1326
					Min	Max		
AREA S8. <u>INTERIOR WET COMPARTMENTS (Complete Re-preservation) White (2)</u>								
<u>International Paint Ltd.</u> 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)
<u>Maker Coating Systems Ltd</u> SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106	BLI (A6848)
<u>PPG Protective & Marine Coatings</u>								
SIGMACOVER 456 HS (7712)		2	75/103	9.7	8 hrs	#	277	03YR (A2733)
<u>Sherwin-Williams Protective & Marine Coatings</u>								
Macropoxy® C425V2	Epoxy Zinc Phosphate	1	125/167	6.0	5 hrs	#	186	S (A3736)
Macropoxy® M630V2	Epoxy	1	75/-	6.8	24 hrs	#	0	S (A2973)
AREA S9. GROUP EXHAUST VALVES (Consult SDA-IS-Struc3b due to lack of paints)								
<u>Sherwin-Williams Protective & Marine Coatings</u>								
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-Struc3b)								
<u>Sherwin-Williams Protective & Marine Coatings</u>								
Macropoxy® C425V2	Epoxy Zinc Phosphate	1	175/233	4.3	8 hrs	#	186	S (A3736)
EPIDEK L716		2	75/-	6.8	4 hrs	#	420	BLI (A1010)

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m²/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S11.								
INTERIOR PRESSURE HULL SURFACE Emergency Cooling Tanks (RR Approved)								
a) <u>S Class Soft and Saddle Tanks</u> <u>Hempel Paints Ltd.</u>								
GALVOSIL 15700	Zinc Silicate	1	75/-	8.53	36 hrs	#	434	03YR (A1982)
b) <u>Trafalgar Class Hard Tank</u> <u>PPG Protective & Marine Coatings.</u>								
Phenguard 965	Epoxy Phenolic	3	100/147	6.8	8 hrs	14 days	329	BLI (A7390)
<u>Maker Coating Systems Ltd.</u>								
CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	03YR (A6857)
CORROLESS RF35	Epoxy	1	200/-	4.8	16 hrs	3 days	93	03YR (A1772)
c) <u>Trafalgar Class Jacket Tank</u> <u>International Paint Ltd.</u>								
INTERGARD 5000	Primer	2	125/152	6.56	12 hrs	3 months	155	03YR (A5713)
<u>Maker Coating Systems Ltd.</u>								
CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	03YR (A6857)
CORROLESS RF35	Epoxy	1	200/-	4.8	16 hrs	3 days	93	03YR (A1772)
SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	2	125/147	7	16 hrs	3 days	106	BLI (A6849)
<u>Sherwin-Williams Protective & Marine Coatings.</u>								
Macropoxy® M922 (Not RR Approved)	Epoxy	2	200/-	4.2	4 hrs	#	143	S (A1471)
<u>INTERIOR SURFACES</u>								
d) <u>Vanguard Class High Pressure Decay Heat Removal Tank (HPDR)</u> <u>PPG Protective & Marine Coatings</u>								
Phenguard 965	Epoxy Phenolic	3	100/147	6.8	8 hrs	14 days	329	BLI (A7390)

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m²/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	03YR (A6857)
CORROLESS RF35 (Not RR Approved)	Epoxy	1	200/-	4.8	16 hrs	3 days	93	03YR (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.								

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m²/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S13. <u>INTERIOR DECKS</u>								
<u>Sherwin-Williams Protective & Marine Coatings.</u>								
Macropoxy® C425V2	EpoxyZinc Phosphate	1	175/233	4.3	8 hrs	#	186	S (A3736)
Macropoxy® M630V2	Epoxy	1	75/-	6.8	24 hrs	#	0	S (A2973)
<u>International Paint Ltd.</u> 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)
<u>Maker Coating Systems Ltd/PPG.</u> SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	2	125/147	7	16 hrs	#	106	BLI (A6849)
AREA S14. <u>BATTERY COMPARTMENTS BS4800 00A01</u>								
<u>Chugoku Paints (UK) Ltd.</u>								
UMEGUARD HS	Epoxy	1	125/162	7.12	20 hrs	7 days	108	03YR (A1651)
<u>Hempel Paints Ltd.</u>								
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)
<u>International Paint Ltd.</u>								
INTERGARD 5000	Primer	1	125/152	6.56	12 hrs	#	155	03YR (A5713)
<u>Jotun Paints (Europe) Limited.</u>								
<u>Maker Coating Systems Ltd/PPG</u> SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106	BLI (A6849)
<u>Sherwin-Williams Protective & Marine Coatings</u>								
Macropoxy® C425V2	EpoxyZinc Phosphate	1	100/133	7.5	4 hrs	#	186	S (A3736)
Macropoxy® M630V2	Epoxy	1	75/-	6.8	24 hrs	#	0	S (A2973)

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m²/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S15. <u>MACHINERY SPACE BILGES & MOUNTED MACHINERY RAFTS</u>								
<u>Chugoku Paints (UK) Ltd.</u>								
UMEGUARD HS	Epoxy	1	125/100	6.5	15 hrs	10 days	108	03YR (A1651)
<u>Finish for Mounted Machinery Rafts</u> <u>Hempel Paints Ltd.</u> 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)
<u>International Paint Ltd.</u>								
INTERGARD 5000	Primer	1	175/213	4.68	12 hrs	3 months	155	03YR (A5713)
<u>Finish for Mounted Machinery Rafts</u> INTERGARD 1735	Epoxy	1	50/100	11.2	12 hrs	#	132	CI (A3217)
<u>Maker Coating Systems Ltd</u>								
CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	03YR (A6857)
<u>Finish for Mounted Machinery Rafts</u> SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106	BLI (A6849)
<u>PPG Protective & Marine Coatings</u>								
<u>Finish for Mounted Machinery Rafts</u> SIGMACOVER 400 (FKA AMERLOCK 400C)	Epoxy	1	125/147	7	16 hrs	#	106	BLI (A6849)

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m²/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S15. MACHINERY SPACE BILGES & MOUNTED MACHINERY RAFTS (2)								
<u>Sherwin-Williams Protective & Marine Coatings</u>								
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)
<u>Finish for Mounted Machinery Rafts</u>								
AREA S16. BULK FUEL & OIL, LUBE OIL, HYDRAULIC & LP AIR TANKS - DEF STAN 80-97 (HIGH SOLIDS)								
<u>Chugoku Paints (UK) Ltd.</u>								
CLEANKEEP 5000	Solventfree Epoxy	1	300/300	3.33	48 hrs	14 days	0	BLI (A1687)
<u>Hempel Paints Ltd.</u>								
HEMPADUR 85671	Epoxy Phenolic	3	100/147	6.8	36 hrs	5 days	320	BLI (A7290)
<u>International Paint Ltd.</u>								
INTERLINE 850	Epoxy Phenolic	2	125/164	6.08	8 hrs	30 days	212	03YR (A2052)
<u>Jotun Paints (Europe) Limited.</u>								
TANKGUARD STORAGE	Epoxy Phenolic	2	125/198	5.0	10 hrs	30 days	310	BLI, BLP (A7288)
<u>Maker Coating Systems Ltd.</u>								
CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	03YR (A6857)
CORROLESS RF35	Epoxy	1	200/-	4.8	16 hrs	3 days	93	03YR (A1772)
<u>Sherwin-Williams Protective & Marine Coatings</u>								
Macropoxy® M922	Epoxy	2	200/-	5.4	4 hrs	14 days	143	S (A1471)

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m²/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S17. <u>POTABLE WATER TANKS</u>								
<u>Chugoku Paints (UK) Ltd.</u> CLEANKEEP 5000	Solventfree Epoxy	1	300/300	3.33	48 hrs	7 days	0	BLI (A1687)
<u>International Paint Ltd.</u> INTERLINE 925	Epoxy	1	300/300	3.35	48 hrs	3 days	1	03YR (A2236)
<u>Jotun Paints (Europe) Limited.</u>								
TANKGUARD DW	Epoxy	2	150/150	6.7	12 hrs	5 days	2	03YR (A4764)
<u>Maker Coating Systems Ltd.</u> CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	03YR (A6857)
CORROLESS RF35	Epoxy	1	200/-	4.8	16 hrs	3 days	93	03YR (A1772)
AREA S18. <u>SLOP DRAIN TANKS</u> (alternatives being sought)								
<u>Maker Coating Systems Ltd.</u> CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	03YR (A6857)
CORROLESS RF35	Epoxy	1	200/-	4.8	16 hrs	3 days	93	03YR (A1772)

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Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m²/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S19. <u>AFFF TANKS</u> (supplied with Demin Water)								
<u>Chugoku Paints (UK) Ltd.</u> CLEANKEEP 5000	Solventfree Epoxy	1	300/300	3.33	48 hrs	14 days	0	BLI (A1687)
<u>International Paint Ltd</u> INTERLINE 704		2	125/236	5.0	23 hrs	21 days	425	BLI (A7286)
<u>Jotun Paints (Europe) Limited.</u> TANKGUARD DW	Epoxy	2	150/150	4.24	12 hrs	5 days	2	03YR (A4764)
<u>Maker Coating Systems Ltd.</u> CORROLESS EPF	Epoxy	1	200/-	4.8	16 hrs	3 days	80	03YR (A6857)
CORROLESS RF35	Epoxy	1	200/-	4.8	16 hrs	3 days	93	03YR (A1772)
AREA S20. <u>DEMINERALISED WATER TANKS (Max Temperature 90°C)</u> (Inc. Hotwells, Surge, Reserve Feed, Made Water, Reactor Water Storage Tanks) Consult 'DES SM PG-NavArch3b' for latest approved coatings.								
<u>Chugoku Paints (UK) Ltd.</u> CLEANKEEP 5000 – RR approved – Check with ISM before use.	Solventfree Epoxy	1	300/300	3.33	48 hrs	14 days	0	BLI (A1687)
<u>Maker Coating Systems Ltd Limited to 60°C</u> CORROLESS EPF – Approved by Rolls Royce	Epoxy	1	200/-	4.8	16 hrs	3 days	80	03YR (A6857)
CORROLESS RF35 – Approved by Rolls Royce	Epoxy	1	200/-	4.8	16 hrs	3 days	93	03YR (A1772)

ANNEX C

Proposed Systems/Materials	Generic Type	No. of coats	NDFT / NWFT per coat Microns	Theo SR m²/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S21. <u>HOLDING PRIMER</u> (blasted steel work)								
<u>Chugoku Paints (UK) Ltd.</u> NZ PRIMER S	Epoxy	1	25/83	15.9	16 hrs	#	641	BLI (A7303)
<u>Hempel Paints Ltd.</u> HEMPADUR 15570	Epoxy	1	40/74	13.5	#	#	414	03YR (A2701)
<u>International Paint Ltd.</u> INTERGARD 269	Epoxy Primer	1	30/85	15.67	6 hrs	#	411	BLI (A5954)
<u>Jotun Paints (Europe) Limited.</u> MUKI EPS	Epoxy	1	20/80	12.5	7 hrs	7 days	610	BLI (A4527)
<u>Sherwin-Williams Protective & Marine Coatings.</u> Macropoxy® L574	Epoxy Primer	1	25/42	11.6	3 hrs	#	594	03YR (A0565f)
AREA S22. <u>PRIMERS FOR NON-FERROUS METALS</u>								
<u>Chugoku Paints (UK) Ltd.</u> 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)
<u>Hempel Paints Ltd.</u> Aluminium, Stainless Steel, Zinc Spray & Galvanise: HEMUCRYL TIE COAT 18200 (1 pack)	Acrylic	1	20/-	19.0	24 hrs	30 mins	40	03YR (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 m²/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S22. <u>PRIMERS FOR NON-FERROUS METALS (2)</u>								
<u>International Paint Ltd.</u> <u>Aluminium, Stainless steel, Zinc Spray & Galvanise:</u> 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	03YR (A2236)
<u>Jotun Paints (Europe) Limited.</u>								
FRP Indicator Coat: PENGUARD HB	Epoxy Primer	2	150/-	3.6	8 hrs	#	390	BLI BLP (A7291)
<u>Maker Coating Systems Ltd</u> <u>Aluminium & Zinc Spray:</u> 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)
<u>Sherwin-Williams Protective & Marine Coatings.</u> <u>Aluminium, Stainless Steel & Galvanise:</u>								
Macropoxy® L425	EpoxyZinc Phosphate	1	35/58	17.1	5 hrs	#	346	BLI (A0565g)
<u>Zinc Spray:</u> 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	03YR (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. <u>HIGH EROSION AREAS</u>								
<u>Hempel Paints Ltd.</u>								
HEMPADUR MULTI STRENGTH GF 35870	Epoxy	1	300/-	2.9	16 hrs	30 days	180	03YR (A2816)
<u>International Paint Ltd.</u>								
INTERZONE 505	GF Epoxy	1	300/-	3.0	6 hrs	4 days	157	BLI (A7293)
<u>Maker Coating Systems Ltd.</u>								
CORROLESS EPF	Epoxy	2	200/-	4.8	16 hrs	3 days	80	03YR (A6857)
<u>Sherwin-Williams Protective & Marine Coatings</u>								
Macropoxy® M922	Epoxy	1	400/-	4.2	#	#	143	S (A1471)
AREA S24. <u>BENEATH TILING</u>								
<u>Wessex Resins:</u>								
UW46 Primer								BLI (A6862)
UW 46 Adhesive								S (A6863)
AREA S25. <u>SYSTEM FOR COATING NATURAL RUBBER MOUNTS</u> (applied by mount supplier not to be touched up once fitted)								
AREA S26. <u>INTERNAL NUTS & BOLTS AND TO FILL GAPS BETWEEN CANNING PLATES & LEAD SHIELDING</u>								
<u>Maker Coating Systems Ltd.</u>								
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 m²/l	20°C Recoat Interval		VOC g/l	BR 1326
					Min	Max		
AREA S27. <u>SEA WATER TANKS</u>								
<u>Chugoku Paints (UK) Ltd</u> 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)
<u>Hempel Paints Ltd</u> IMO PSPC Hempadur Quattro 17634	Epoxy Primer	2	160/222	4.5	6 hrs	90 days	275	BLI (A7289)
<u>International Paint Ltd</u> IMO PSPC INTERGARD 5000	Primer	2	160/195	5.13	12 hrs	3 months	155	03YR (A5713)
<u>Jotun Paints (Europe) Ltd</u> IMO PSPC BALLOXY HB LIGHT	Anti-Corrosive	2	160/195	5.16	10 hrs	#	150	BLI (A1156)
<u>Maker Coating Systems Ltd</u> CORROLESS EPF	Epoxy	2	200/-	4.8	16 hrs	3 days	80	03YR (A6857)
<u>Sherwin-Williams Protective & Marine Coatings.</u> 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. <u>LILO / PAYLOAD BAY CHAMBER (Internal)</u> Consult 'SDA-IS-Struc3' 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	NAG Category	NSN
BELZONA						
Belzona 4911 Magma TX Conditioner	N/A	N/A	N/A	3KG	U	8030-99-753-8764
Belzona 4131 Magma Screed	N/A	N/A	N/A	20KG	U	8030-99-753-8764
Belzona 5811 Immersion Grade Grey	N/A	N/A	32	4 ltrs	Not Assessed	8010-99-988-4411
Belzona 5811 Immersion Grade Grey	N/A	N/A	32	16 ltrs	Not Assessed	8010-99-879-5781
Belzona 5811 Immersion Grade Beige	N/A	N/A	32	4 ltrs	Not Assessed	8010-99-217-6523
Belzona 5811 Immersion Grade Beige	N/A	N/A	32	16 ltrs	Not Assessed	8010-99-847-3518
Belzona 9211 Surefoot Grit	N/A	N/A	N/A	2 x 2KG	Not Assessed	5350-99-436-3070

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Product	Ref	BR 1326	VOC g/l	Pack Size	NAG Category	NSN
CHUGOKU PAINTS (UK) LTD						
ALP 500 Aluminium	201	BLI (A1923)	414	5 ltrs	Not Assessed	8010-99-967-8636
BANNOH 1500 Grey	202a	BLI (A7302)	286	20 ltrs	Not Assessed	8010-99-594-2828
BANNOH 1500 Red Brown	202b	BLI (A7302)	286	20 ltrs	Not Assessed	8010-99-671-4223
BANNOH 1500 RZ Black	024b	EXT	319	5 ltrs	N/A	8010-99-217-5165
BANNOH 1500 RZ Black	024b	EXT	319	20 ltrs	N/A	8010-99-671-3957
BANNOH 1500 RZ Grey	024c	EXT	319	5 ltrs	N/A	8010-99-851-0865
BANNOH 1500 RZ Grey	024c	EXT	319	20 ltrs	N/A	8010-99-476-7885
BANNOH 1500 RZ Plum	024a	EXT	319	5 ltrs	N/A	8010-99-499-0158
BANNOH 1500 RZ Plum	024a	EXT	319	20 ltrs	N/A	8010-99-993-2082
CAMIDECK FINISH Type 1 Black	203	BLI (A7186)	374	20 ltrs	U	8010-99-543-0790
CAMIDECK FINISH Type 2 BS381C 640	204	N/A	374	20 ltrs	U	8010-99-147-1303
Cleankeep 5000	209	BLI (A1687)	0	20 ltrs	Not Assessed	8010-99-846-9828
CMP BIOCLEAR HB Black	210a	EXT	261	20 ltrs	N/A	8010-99-157-0240
CMP BIOCLEAR HB Red Brown	210b	EXT	261	20 ltrs	N/A	8010-99-976-4197
CMP BIOCLEAR R Black	211a	EXT	325	16 ltrs	N/A	8010-99-447-2539
CMP BIOCLEAR R Red Brown	211b	EXT	325	16 ltrs	N/A	8010-99-157-0242
CMP BIOCLEAR SG R Black	212a	EXT	406	20 ltrs	N/A	TBC
CMP BIOCLEAR SG R Red Brown	212b	EXT	406	20 ltrs	N/A	TBC
EPICON T-800 Grey	213b	N/A	359	20 ltrs	TBC	8010-99-846-9834
EPICON T-800 Red Brown	213a	N/A	359	20 ltrs	TBC	8010-99-753-5350
EPICON T-800 HS GF Grey	214b	N/A	349	20 ltrs	TBC	8010-99-589-2965
EPICON T-800 HS GF Red Brown	214a	N/A	349	20 ltrs	TBC	8010-99-581-9466
GALVANITE 200 White	215	W (A1922)	495	5 ltrs	Not Assessed	8010-99-995-4247
GALVANITE 200 White	215	W (A1922)	495	20 ltrs	Not Assessed	8010-99-290-5829
IDROMARINA PRIMER Red	TBC	N/A	24	5 ltrs	B	8010-99-449-0695
IDROMARINA PRIMER Red	TBC	N/A	24	20 ltrs	B	8010-99-157-1729
IDROMARINA PRIMER White	TBC	N/A	24	5 ltrs	B	8010-99-753-8852
IDROMARINA PRIMER White	TBC	N/A	24	20 ltrs	B	8010-99-847-3521
IDROMARINA PRIMER Light-Grey	TBC	N/A	24	5 ltrs	B	8010-99-987-6770
IDROMARINA PRIMER Light-Grey	TBC	N/A	24	20 ltrs	B	8010-99-676-3453
IDROMARINA FINISH Ash Grey	TBC	N/A	28	5 ltrs	B	8010-99-331-8976
IDROMARINA FINISH Ash Grey	TBC	N/A	28	20 ltrs	B	TBC
IDROMARINA FINISH Holly Green	TBC	N/A	28	5 ltrs	B	8010-99-564-3949
IDROMARINA FINISH Holly Green	TBC	N/A	28	20 ltrs	B	TBC
IDROMARINA FINISH Light Weather Work Grey	TBC	N/A	28	5 ltrs	B	8010-99-671-7068
IDROMARINA FINISH Light Weather Work Grey	TBC	N/A	28	20 ltrs	B	TBC
IDROMARINA FINISH Black	TBC	N/A	28	5 ltrs	B	8010-99-280-7667
IDROMARINA FINISH Black	TBC	N/A	28	20 ltrs	B	TBC
NZ PRIMER S Red Oxide	216	BLI (A7303)	659	20 ltrs	N/A	8010-99-595-6056
SEA GRANDPRIX 1000L Brown	217a	N/A	408	20 ltrs	TBC	8010-99-671-5989
SEA GRANDPRIX 1000L Light Brown	217b	N/A	408	20 ltrs	TBC	8010-99-350-3772
SEA GRANDPRIX 660 HS - Black	218c	EXT	324	20 ltrs	N/A	8010-99-994-0641

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SEA GRANDPRIX 660 HS - Brown	218b	EXT	324	20 ltrs	TBC	8010-99-362-2214
SEA GRANDPRIX 660 HS - Light Brown	218a	EXT	324	20 ltrs	TBC	8010-99-877-2315
Spot Repair CMP NOVA 5000 Barrier	219	N/A	0	20 ltrs	N/A	8030-99-847-0896
UMEGUARD HS Grey	220a	03YR (A1650)	158	5 ltrs	U	8010-99-126-9478
UMEGUARD HS Silver	220c	03YR (A1651)	158	5 ltrs	U	8010-99-264-0145
UMEGUARD HS White	220b	03YR (A1650)	158	5 ltrs	U	8010-99-564-2409
UMEGUARD SX HS Black	220e	EXT	232	5 ltrs	N/A	8010-99-695-4847
UMEGUARD SX HS Red Brown	220d	EXT	232	5 ltrs	N/A	8010-99-232-4760
UMEGUARD SX HS Grey	220f	EXT	232	5 ltrs	N/A	8010-99-258-5954
UMEGUARD SX HS Black	220e	EXT	232	20 ltrs	N/A	8010-99-693-2354
UMEGUARD SX HS Red Brown	220d	EXT	232	20 ltrs	N/A	8010-99-564-1985
UMEGUARD SX HS Grey	220f	EXT	232	20 ltrs	N/A	8010-99-308-1640

ANNEX D

Product	Ref	BR 1326	VOC g/l	Pack Size	NAG Category	NSN
HEMPEL PAINTS LTD						
AF GLOBIC 9000 78952 Black 19990	223c	N/A	370	20 ltrs	N/A	8010-99-496-6897
AF GLOBIC 9000 78952 Brown 60600	223b	N/A	370	20 ltrs	TBC	8010-99-182-3980
AF GLOBIC 9000 78952 Red 51110	223a	N/A	370	20 ltrs	N/A	8010-99-894-2161
Hempels Blakes Gel Protect SFE 200 Cream	TBC	N/A	10	2.5 ltrs	Not Assessed	99-517-4318
Hempadur 15553 Grey 11320	227a	BLI (A7272)	388	5 ltrs	Not Assessed	8010-99-753-1967
Hempadur 15553 Grey 11320	227b	BLI (A7272)	388	20 ltrs	Not Assessed	8010-99-671-3559
Hempadur 15570 Light Grey 12430	229c	03YR (A2701)	430	5 ltrs	N/A	8010-99-943-1152
Hempadur 15570 Light Grey 12430	229c	03YR (A2701)	430	20 ltrs	N/A	8010-99-170-5097
Hempadur 35560 Cream 20320	230a	N/A	0	19.4 ltrs	Not Assessed	8010-22-626-9620
Hempadur 35560 Red 50900	230b	N/A	0	19.4 ltrs	Not Assessed	8010-99-310-1262
Hempadur 45143 BS4800 14C39	231c	N/A	330	5 ltrs	U	8010-99-471-1920
Hempadur 45143 Red 50630	231a	N/A	330	5 ltrs	U	8010-99-535-5832
Hempadur 45143 White 10000	231b	N/A	330	5 ltrs	U	8010-99-602-7280
Hempadur 45880 Black 19990	233	BLI (A7305)	220	5 ltrs	Not Assessed	8010-99-414-4162
Hempadur 45880 Black 19990	233	BLI (A7305)	220	20 ltrs	Not Assessed	8010-99-350-3748
Hempadur 45880 MIO Grey 12430	234	BLI (A7305)	198	5 ltrs	Not Assessed	8010-99-803-7233
Hempadur 45880 MIO Grey 12430	234	BLI (A7305)	198	20 ltrs	Not Assessed	8010-99-479-5449
Hempadur 45880 White	232	BLI (A7305)	220	5 ltrs	Not Assessed	8010-99-264-0387
Hempadur 85671 Light Grey 11150	238a	BLI (A7290)	320	20 ltrs	N/A	8010-99-980-9800
Hempadur 85671 Light Red 50900	238b	BLI (A7290)	320	20 ltrs	N/A	8010-99-864-6001
Hempadur Multi-Strength 35560 Black	239a	N/A	0	18ltrs	TBC	8010-99-671-3685
Hempadur Multi-Strength 35560 Grey	239b	N/A	0	TBC	TBC	8010-33-213-1342
Hempadur Multi-Strength GF 35870 Black 19990	240a	03YR (A2816)	180	18 ltrs	TBC	8010-99-671-3685
Hempadur Multi-Strength GF 35870 Grey 11480	240b	TBC	180	18 ltrs	TBC	8010-99-861-4230
Hempadur Quattro 17634 Buff 22090	241b	N/A	276	20 ltrs	Not Assessed	8010-33-210-7050
Hempadur Quattro 17634 Red 50630	241a	N/A	276	20 ltrs	Not Assessed	8010-33-210-7049
Hempadur Spray-Guard 35490	242	N/A	0	15 ltrs	TBC	8010-99-404-0927
Hempaguard X7 89900 Hydrogel c/w Biocides Black 19740	243a	EXT	262	20 ltrs	N/A	8010-22-635-5462
Hempaguard X7 89900 Hydrogel c/w Biocides Red 59161	243b	EXT	262	20 ltrs	N/A	8010-33-213-1342

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Hempalin Undercoat 42460 White 10000	244	N/A	385	5 ltrs	Not Assessed	8010-99-969-1241
Hempasil Nexus X-Tend 27500 Yellow 23410	246	N/A	259	20 ltrs	N/A	8010-99-850-1509
Hempasil X3+ 87500 Hydrogel Silicone Black 19990	247b	N/A	265	20 ltrs	TBC	8010-99-269-5072
Hempasil X3+ 87500 Hydrogel Silicone Red 59151	247a	N/A	265	20 ltrs	N/A	8010-99-846-3921
Hempasil 77300	TBC	N/A	287	5 ltrs	TBC	8010-99-217-5181
Hempels Nexus II 27400 Light Grey 11070	061	EXT	400	20 ltrs	N/A	8010-99-969-4772
Hempels Galvosil 15700	222	03YR (A1982)	434	20ltrs	Not Assessed	8010-99-593-8923
Hempels Non-Skid (No Aggregate) 45143 BS381C 640 Type 1	256	N/A	335	20 ltrs	U	8010-99-213-1121
Hempels Non-Skid (No Aggregate) 45143 BS381C 640 Type 2	256	N/A	335	5 ltrs	TBC	8010-99-879-5150
Hempels Non-Skid 45340 BS381C 632 Type 1	258	EXT BLI (A7264)	335	20 ltrs	U	8010-99-670-9581
Hempels Non-Skid 45340 Type 1 Black	259	N/A	335	20 ltrs	Not Assessed	8010-99-480-7979
Hempels Non-Skid 45710 Black 19990	261	N/A	206	20 kg	TBC	8010-99-507-2851
Hempels Non-Skid 45710 BS381C 640 Type 2	260	N/A	206	20 ltrs	Not Assessed	8010-99-831-0343
Hempels Pro Acrylic 55883 BS381C 676	468a	N/A	380	20 ltrs	Not Assessed	8010-22-635-6277
Hempels Pro Acrylic 55883 BS381C 676	468b	N/A	380	5 ltrs	Not Assessed	8010-22-635-6276
Hempels Silicone Alkyd Finish 53230 BS381C 676	282	N/A	410	2.5 ltrs	TBC	8010-99-156-9292
Hempels Silicon Alkyd Finish 536 GB	TBC	N/A	420	2.5 ltrs	Not Assessed	99-772-5448
Hemucryl Enamel 58100 Black	265a	03YR (A0823)	63	5 ltrs	Not Assessed	8010-99-175-1334
Hemucryl Enamel 58100 BS381C 104	265c	03YR (A0823)	63	5 ltrs	Not Assessed	8010-99-382-4025
Hemucryl Enamel 58100 BS381C 226	265i	03YR A0823)	63	5 ltrs	Not Assessed	8010-99-162-2531
Hemucryl Enamel 58100 BS381C 309	265e	03YR (A0823)	63	5 ltrs	Not Assessed	8010-99-858-1263
Hemucryl Enamel 58100 BS381C 414	265g	03YR (A0823)	63	5 ltrs	Not Assessed	8010-99-562-6381
Hemucryl Enamel 58100 BS381C 537	265k	03YR (A0823)	63	5 ltrs	Not Assessed	8010-99-250-8046
Hemucryl Enamel 58100 BS4800 00A01	265d	03YR (A0823)	63	5 ltrs	Not Assessed	8010-99-660-9288
Hemucryl Enamel 58100 BS4800 18C39	265f	03YR (A0823)	63	5 ltrs	Not Assessed	8010-99-290-5925
Hemucryl Enamel 58100 BS381C 225	265h	03YR (A0823)	63	5 ltrs	Not Assessed	8010-99-831-8959
Hemucryl Enamel 58100 BS4800 18D43	265j	03YR (A0823)	63	5 ltrs	Not Assessed	8010-99-317-6235
Hemucryl Enamel 58100 White	265b	03YR (A0823)	63	5 ltrs	Not Assessed	8010-99-299-0228

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Hemucryl Tie-Coat 18200 Red 50710	267	03YR (A1779)	40	5 ltrs	Not Assessed	8010-99-199-2908
Hemudur 18500 Grey 12170	270	03YR (A1218), (A1777)	85	20 ltrs	U	8010-99-867-8090
Hemudur Finish FC 48582 Black	272	BLI (A7306)	25	5 ltrs	TBC	8010-99-864-5046
Hemudur Finish FC 48582 BS4800 00A01	273	BLI (A7306)	25	5 ltrs	TBC	8010-99-988-2715
Hemudur Finish FC 48582 BS4800 14C39	275	BLI (A7306)	25	5 ltrs	TBC	8010-99-279-8221

ANNEX D

Product	Ref	BR 1326	VOC g/l	Pack Size	NAG Category	NSN
INTERNATIONAL PAINTS LTD						
Intercryl 700 Yellow	TBC	N/A	50	5 ltrs	C	99-774-1224
Interfine 629 HS Black	286a	N/A	336	5 ltrs	Not Assessed	8010-99-375-3200
Interfine 629 HS BS381C 225	286b	N/A	336	5 ltrs	Not Assessed	8010-99-957-7410
Interfine 629 HS BS381C 537	286c	N/A	336	5 ltrs	Not Assessed	8010-99-535-9034
Interfine 629 BS381C 676	286d	N/A	336	5 ltrs	Not Assessed	8010-99-664-5391
Interfine 629 HS Light Weather Work Grey	TBC	N/A	339	5 ltrs	Not Assessed	8010-99-920-5440
Interfine 629 HS Light Weather Work Grey	TBC	N/A	339	20 ltrs	Not Assessed	8010-99-156-9062
Interfine 629 HS Medium Sea Grey	TBC	N/A	339	5 ltrs	Not Assessed	8010-99-380-1890
Interfine 629 HS Medium Sea Grey	TBC	N/A	339	20 ltrs	Not Assessed	8010-99-940-7153
Interfine 629 HS Dazzle Grey	TBC	N/A	339	5 ltrs	Not Assessed	8010-99-564-1369
Interfine 629 HS Dazzle Grey	TBC	N/A	339	20 ltrs	Not Assessed	8010-99-564-1371
Interfine 629 HS Dark Weather Work Grey	TBC	N/A	339	5 ltrs	Not Assessed	8010-99-959-5324
Interfine 629 HS Dark Weather Work Grey	TBC	N/A	339	20 ltrs	Not Assessed	8010-99-258-5551
Interfine 878 Black	287a	N/A	246	5 ltrs	Not Assessed	8010-99-907-6683
Interfine 878 BS381C 676	287b	N/A	246	5 ltrs	B	8010-99-274-4682
Interfine 979 Green	288a	N/A	165	5 ltrs	D	8010-99-729-7357
Interfine 979 White	288b	N/A	165	5 ltrs	D	8010-99-168-7337
Intergard 1735 Deep Base Yellow	469	TBC	132	20 ltrs	Not Assessed	8010-99-753-1954
Intergard 1735 WB BS4800 00A01	289a	BLI (A7312)	132	5 ltrs	B	8010-99-255-0527
Intergard 1735 WB BS381C 640	297	BCI (A7275)	132	5 ltrs	Not Assessed	8010-99-702-0607
Intergard 1735 WB BS4800 14C39	289b	BCI (A4417)	132	5 ltrs	Not Assessed	8010-99-483-1994
Intergard 1735 White	289	BCI (A4417)	132	5 ltrs	U	8010-99-615-7042
Intergard 263 Tie Coat Light Grey	290a	N/A	379	20 ltrs	Not Assessed	8010-99-133-3854
Intergard 269 Protective Primer	291a	BLI (A5954)	411	20 ltrs	C	8010-99-983-0743
Intergard 276 Grey	292a	BLI BLP (A7304)	411	20 ltrs	Not Assessed	8010-66-158-8437
Intergard 276 White	292b	BLI BLP (A7304)	411	20 ltrs	Not Assessed	8010-99-564-0695
Intergard 5000 Aluminium	293e	03YR (A1783)	220	20 ltrs	C	8010-99-846-1310
Intergard 5000 Black	293a	BLI NF (A8103)	155	20 ltrs	B	8010-99-345-8079
Intergard 5000 Buff	293c	BLI NF (A8102)	155	20 ltrs	B	8010-99-156-8012
Intergard 5000 White	293d	03YR (A5713)	155	20 ltrs	B	8010-99-366-6762
Intergard 5000 BS 4800 00A01	293b	BLI (A7312)	155	5 ltrs	B	8010-99-000-5256
Intergard 5000 Green	293f	LF (A5713)	155	5 ltrs	B	8010-99-555-1384

ANNEX D

Intergard 740 Black ECY999/A	294a	N/A	420	20 ltrs	U	8010-99-285-3824
Intergard 740 BS381C 640	294b	N/A	420	5 ltrs	U	8010-99-182-2627
Interline 704	299	BLI (A7286)	385	20 ltrs	U	8010-99-555-6072
Interline 850 Grey	300b	03YR (A6860)	212	20 ltrs	D	8010-99-690-8481
Interline 850 White	300a	03YR (A2052)	212	20 ltrs	D	8010-99-669-8513
Interline 925	301	03YR (A2236)	1	20 ltrs	Not Assessed	8010-99-131-8010
Interline 925 Cream	302	03YR (A2236)	1	20 ltrs	Not Assessed	8010-99-216-8379
Interline 994 Buff	303d	N/A	290	20 ltrs	N/A	8010-99-391-4659
Interline 994 Buff	303c	N/A	290	5 ltrs	N/A	8010-99-379-1407
Interline 994 Grey	303b	N/A	290	20 ltrs	N/A	8010-99-238-9885
Interline 994 Grey	303a	N/A	290	5 ltrs	N/A	8010-99-258-5403
Intershield 300	306	EXT	386	10 ltrs	B	8010-99-151-9594
Intershield 851 Black	307a	N/A	169	10 ltrs	D	8010-99-371-6753
Intershield 851 BS381C 640	307b	N/A	169	20 ltrs	D	8010-99-391-0953
Intershield 851 Repair Kit BS381C 640	307c	N/A	169	5 ltrs	D	8010-99-325-0579
Intershield 852 Black	308a	N/A	134	5 ltrs	Not Assessed	8010-99-250-1864
Intershield 852 BS381C 632	308b	N/A	134	5 ltrs	Not Assessed	8010-99-149-8996
Intershield 852 BS381C 640	308c	N/A	134	5 ltrs	Not Assessed	8010-99-583-1344
Intershield 852 Green	308e	N/A	134	5 ltrs	Not Assessed	8010-99-871-6360
Intershield 852 Red	308f	N/A	134	5 ltrs	Not Assessed	8010-99-666-9269
Intershield 852 BS381C 632	308h	N/A	134	5 ltrs	Not Assessed	8010-99-993-9328
Intershield 852 White	308g	N/A	134	5 ltrs	Not Assessed	8010-99-968-9269
Intersleek 1100SR Black	309	EXT	248	10 ltrs	N/A	8010-99-615-7741
Intersleek 1100SR Red	310	EXT	248	10 ltrs	N/A	8010-99-841-5218
Intersleek 737	312	EXT	377	10 ltrs	N/A	8010-99-918-1064
Intersleek 737	312	EXT	377	20 ltrs	N/A	8010-99-396-1959
Intersmooth 7460	313	N/A	425	20 ltrs	N/A	8010-99-216-8317
Interspeed 6400	316	EXT	358	20 ltrs	N/A	8010-33-209-1579
Intertherm 50	318	03YR (A3501)	495	10 ltrs	A2	8010-99-969-0549
Interzone 505 Off-White	319b	BLI (A7293)	157	17.5 ltrs	Not Assessed	8010-99-338-5354

ANNEX D

Product	Ref	BR 1326	VOC g/l	Pack Size	NAG Category	NSN
JOTUN PAINTS (EUROPE) LTD						
Balloxy HB Light Green	320a	BLI (A1156)	150	18 ltrs	N/A	8010-17-108-7825
Hardtop CA BS381C 676	321a	N/A	340	5 ltrs	Not Assessed	8010-99-846-3401
Hardtop CA BS381C 676	321b	N/A	340	20 ltrs	Not Assessed	8010-99-368-1686
Hardtop CA BS4800 00A01	321c	N/A	340	5 ltrs	Not Assessed	8010-99-577-8447
Hardtop CA BS4800 00A01	321d	N/A	340	20 ltrs	Not Assessed	8010-99-856-3397
Hardtop Optima BS381C 676	322a	N/A	215	5 ltrs	Not Assessed	8010-99-992-1998
Hardtop Optima BS381C 676	322b	N/A	215	20 ltrs	Not Assessed	8010-99-436-0000
Jota Armour BS381C 640	323	N/A	70	10 ltrs	Not Assessed	8010-99-690-8235
Jota Armour AS BS381C 640	324	N/A	70	20 ltrs	Not Assessed	8010-99-226-7300
Jotamastic 80 Aluminium Red Tone	327a	N/A	145	20 ltrs	Not Assessed	8010-99-235-5945
Jotamastic 80 Aluminium Red Tone	327b	N/A	145	5 ltrs	Not Assessed	8010-99-226-7124
Jotamastic 87 Grey	328	N/A	150	5 ltrs	Not Assessed	8010-99-549-5820
Jotamastic 87 Red Tone	329	N/A	150	6ltrs	Not Assessed	8010-99-549-5820
Jotamastic Smart Pack Aluminium	330b	N/A	230	10 ltrs	Not Assessed	8010-99-217-4903
Jotamastic Smart Pack Black	330f	N/A	230	10 ltrs	Not Assessed	8010-99-969-4665
Jotamastic Smart Pack Buff	330a	N/A	230	10 ltrs	Not Assessed	8010-99-426-9913
Jotamastic Smart Pack Green	330d	N/A	230	10 ltrs	Not Assessed	8010-99-415-3159
Jotamastic Smart Pack Grey	330c	N/A	230	10 ltrs	Not Assessed	8010-99-687-4076
Jotamastic Smart Pack Red	330e	N/A	230	10 ltrs	Not Assessed	8010-32-083-4870
Marathon IQ Red	331	N/A	30	5 ltrs	N/A	8010-99-958-6838
Muki EPS Red	332a	BLI (A4527)	610	18.5 ltrs	N/A	8010-99-564-0809
Penguard HB White	333	BLI BLP (A7291)	390	5 ltrs	U	8010-99-958-9132
Safeguard Universal ES Grey Plum	336	N/A	330	18 ltrs	N/A	8010-99-671-3575
SeaLion Tiecoat Plus	TBC	N/A	359	21.75 ltrs	TBC	8010-99-847-3409
Seaquantum Classic S Dark Red	340	N/A	460	20 ltrs	N/A	8010-99-156-7984
Seaquantum Ultra S Dark Red	342	N/A	460	20 ltrs	N/A	8010-99-690-8855

ANNEX D

Sequest Red	343	N/A	247	18.45 ltrs	N/A	8010-99-937-0885
Tankguard DW Light Grey	345a	03YR (A4764)	2	15 ltrs	N/A	8010-99-241-9602
Tankguard DW White	345c	03YR (A4764)	2	15 ltrs	N/A	8010-99-846-3419
Tankguard Plus Buff	346	N/A	300	20 ltrs	N/A	8010-99-472-1514
Tankguard Plus White	347	N/A	300	20 ltrs	N/A	8010-99-991-2612
Tankguard Storage Light Grey	348	BLI BLP (A7288)	310	18.8 ltrs	N/A	8010-99-156-7988
Tankguard Storage Light Red	349	BLI BLP (A7288)	310	18.8 ltrs	N/A	8010-99-359-5632
Tankguard Storage Red	350	BLI BLP (A7288)	310	18.8 ltrs	N/A	8010-99-959-5076

ANNEX D

Product	Ref	BR 1326	VOC g/l	Pack Size	NAG Category	NSN
MAKER COATING SYSTEMS LTD						
CORROLESS EPF Buff	375	03YR (A6857)	80	5 ltrs	Not Assessed	8010-25-150-0972
CORROLESS EPF Black	376	03YR (A6858)	80	5 ltrs	Not Assessed	8010-99-212-7555
CORROLESS RF35 White	378c	03YR (A1772)	93	5 ltrs	TBC	8010-25-150-0973
CORROLESS RF35 Grey	378b	03YR (A1772)	93	5 ltrs	TBC	8010-99-337-0778
CORROLESS CCI 355	374	03YR (A2738)	N/A	20 Kg	TBC	9150-99-676-5736

ANNEX D

Product	Ref	BR 1326	VOC g/l	Pack Size	NAG Category	NSN
PPG PROTECTIVE & MARINE COATINGS						
Ameron PSX 700 BS4800 14C39	368	N/A	164	5 ltrs	Not Assessed	8010-17-113-6169
Ameron PSX 700 White	369	N/A	164	5 ltrs	TBC	8010-17-113-5689
Amerlock 138G BS381C 640	410	EXT	168	5 Gallons	TBC	8010-01-397-3806
Amerlock 400 NS BS381C 640	355	BLI (A9827)	106	25 ltrs	U	TBC
Aquacover 25 7150 Buff	370	BLI (A7281)	31	5 ltrs	Not Assessed	8010-99-321-6318
Novaguard 840 Cream	415a	BLI (A7297)	13	20 ltrs	TBC	8010-99-472-1508
Novaguard 840 Green	415b	BLI (A7297)	13	20 ltrs	TBC	8010-99-156-7970
Phenguard 930	416	BLI (A7860)	300	6 ltrs	TBC	8010-99-667-6118
Phenguard 935	417	A7284	300	6 ltrs	TBC	8010-99-925-0882
Phenguard 940	418	BLI (A7283)	300	6 ltrs	TBC	8010-99-976-1657
Phenguard 965 Grey	053	BLI (A7390)	329	20 ltrs	N/A	8010-99-671-3967
Phenguard 965 Off-white	TBC	BLI (A7390)	329	20 ltrs	Not Assessed	8010-99-671-6996
Phenguard 965 Pink	TBC	BLI (A7390)	329	20 ltrs	Not Assessed	8010-99-371-3796
91-92 Thinner (for Phenguard 965)	TBC	TBC	TBC	5 ltrs	Not Assessed	8010-17-054-9628
Sigma Ecofleet 530 Black	412	EXT	339	20 ltrs	N/A	8010-99-375-0408
Sigma Ecofleet 530 Brown	413	EXT	339	20 ltrs	TBC	8010-99-996-2266
Sigma Ecofleet 530 Red Brown	414	EXT	339	20 ltrs	N/A	8010-99-153-6929
Sigmacover 280 LT 7417 Yellow	404	A7292	432	20 ltrs	Not Assessed	8010-99-569-7697
Sigmacover 400 Black	419a	BLI (A6852)	106	20 ltrs	D	8010-99-507-5313
Sigmacover 400 Blue	419d	BLI (A6855)	106	20 ltrs	Not Assessed	8010-99-157-1462
Sigmacover 400 Bright Yellow	419e	BLI (A6856)	106	20 ltrs	Not Assessed	8010-99-671-6874
Sigmacover 400 Brunswick Green	419f	BLI (A6854)	106	20 ltrs	Not Assessed	8010-99-157-1463
Sigmacover 400 Grey	419c	BLI (A6849)	106	20 ltrs	Not Assessed	8010-99-156-8080
Sigmacover 400 Red	419g	BLI (A6853)	106	20 ltrs	Not Assessed	8010-99-847-2868
Sigmacover 400 Steel	419h	BLI (A6850)	106	20 ltrs	D	8010-99-320-1413

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Sigmacover 400 Storm	419i	BLI (A6851)	106	20 ltrs	D	8010-99-564-3846
Sigmacover 400 White	419b	BLI (A6848)	106	20 ltrs	D	8010-99-156-8092
Sigmacover 295	385	N/A	436	20 ltrs	N/A	8010-99-156-8108
Sigmacover 525	386	N/A	365	20 ltrs	N/A	8010-99-322-9677
Sigmadur 540 BS381C 676	423a	N/A	411	20 ltrs	Not Assessed	8010-99-671-3651
Sigmadur 540 Extra Dark Sea Grey	423b	N/A	411	20 ltrs	Not Assessed	8010-99-846-3541
Sigmatglide 1290	424	EXT	118	TBC	N/A	8010-99-217-0543
Sigmatglide 790	405	EXT	187	20 ltrs	N/A	8010-99-406-0976
Sigmaguard CSF 585 Blue	428	A7300	6	20 ltrs	N/A	8010-17-120-3206
Sigmaguard CSF 650 Grey	429a	A7301	143	20 ltrs	Not Assessed	8010-99-489-1723
Sigmaguard CSF 650 White	429b	A7301	143	20 ltrs	TBC	8010-99-376-9810
Sigmaguard CSF 650 Red Brown	429c	A7301	143	20 ltrs	TBC	8010-99-902-6226
Sigmashield 880 Black	396	N/A	207	20 ltrs	TBC	8010-99-871-5235
Zinga		N/A		1Kg	Not Assessed	13-122-4848
Zinga		N/A		5Kg	Not Assessed	13-122-4849
Zinga		N/A		10Kg	Not Assessed	13-122-4850

ANNEX D

Product	Ref	BR 1326	VOC g/l	Pack Size	NAG Category	NSN
SHERWIN-WILLIAMS PROTECTIVE & MARINE COATINGS						
Epidek L716 Black	433	BLI (A1010)	420	2 ltrs	Not Assessed	8010-99-225-0689
Epidek M339	434	03YR (A6944)	250	2 ltrs	Not Assessed	8010-99-383-4334
Epidek M339 Extra Dark Sea Grey	434a	03YR (A6944)	250	20 ltrs	Not Assessed	8010-99-215-4495
Epidek M339NA	434b	03YR (A6944)	250	5 ltrs	Not Assessed	8010-99-845-5203
Epidek M377 BS381C 632	435	TBC	330	4 ltrs	Not Assessed	8010-99-777-8689
Epidek M377 Non-Skid Type 1 Black	436	03YR (A6782)	330	4 ltrs	Not Assessed	8010-99-777-8692
Kem-Kromik A165 Silicone Alkyd BS381C 676	438	N/A	407	5 ltrs	Not Assessed	8010-99-982-2604
Macropoxy® ARD M630V2 White	453a	BLI (A6830)	0	5 ltrs	TBC	8010-99-313-4440
Macropoxy® C251 White	439	BLI (A5025)	235	5 ltrs	N/A	8010-99-284-3464
Macropoxy® C425V2 Light Grey	440	S (A3736)	186	5 ltrs	D	8010-99-786-7949
Macropoxy® C425V2 Light Grey	440	S (A3736)	186	20 ltrs	D	8010-99-126-6377
Macropoxy® C425V2 Off White	441	03YR (A6837)	186	20 ltrs	U	8010-99-133-8714
Macropoxy® H766 BS4800 14C39	442	N/A	395	5 ltrs	Not Assessed	8010-99-501-4661
Macropoxy® H766 White	443	03YR (A0565j)	395	5 ltrs	Not Assessed	8010-99-623-9946
Macropoxy® L425	444	BLI (A0565g)	346	5 ltrs	C	8010-99-777-8688
Macropoxy® L524 White	446	03YR (A6928)	296	5 ltrs	Not Assessed	8010-99-564-2934
Macropoxy® L574	447	03YR (A0565f)	594	20 ltrs	C	8010-99-895-9894
Macropoxy® M111 Red Oxide	448	A0662	383	5 ltrs	TBC	8010-99-884-5957
Macropoxy® M262	450	N/A	354	5 ltrs	Not Assessed	8010-99-133-8713
Macropoxy® M630V2 Black	452	N/A	0	5 ltrs	U	8010-99-739-8402
Macropoxy® M630V2 Holly Green	TBC	N/A	0	20 ltrs	U	99-671-6651
Macropoxy® M630V2 Fathom Blue	TBC	N/A	0	20 ltrs	U	99-753-8430
Macropoxy® M630V2 Dark Admiralty Grey	TBC	N/A	0	20 ltrs	U	99-868-4125
Macropoxy® M630V2 BS4800 00A01	454	S (A2973)	0	5 ltrs	U	8010-99-535-5105
Macropoxy® M630V2 BS4800 14C39	453	N/A	0	5 ltrs	U	8010-99-255-5237
Macropoxy® M630V2 BS381C 676	453a	BLI (A6833)	0	5 ltrs	U	8010-99-131-6908
Macropoxy® M902 Aluminium	455	BLI (A1084)	219	2.5 ltrs	U	8010-99-421-0972

ANNEX D

Macropoxy® M922	456	S (A1471)	143	5 ltrs	D	8010-99-834-8384
Macropoxy® M922M Mastic Aluminium	457	03YR (A6786)	146	20 ltrs	N/A	8010-99-495-3873
Sher-Cryl™ M770 BS381C 104	459a	N/A	128	5 ltrs	U	8010-99-878-8150
Sher-Cryl™ M770 Black	459b	N/A	128	5 ltrs	U	8010-99-768-1426
Sher-Cryl™ M770 BS4800 00A01	459	S (A3274)	128	5 ltrs	U	8010-99-517-5228
Sher-Cryl™ M770 BS381C 309	460	N/A	128	5 ltrs	U	8010-99-726-4136
Sher-Cryl™ M770 BS4800 18C39	459c	N/A	128	5 ltrs	U	8010-99-723-3650
Sher-Cryl™ M770 BS381C 676	459d	03YR (A6825)	128	5 ltrs	U	8010-99-833-4765
Sher-Cryl™ M770 BS381C 225	459e	N/A	128	5 ltrs	U	8010-99-313-9445
Sher-Cryl™ M770 BS381C 226	459f	N/A	128	5 ltrs	U	8010-99-862-5170
Sher-Cryl™ M770 BS381C 537	459g	N/A	128	5 ltrs	U	8010-99-225-7155
Sher-Cryl™ M770 BS4800 18D43	459h	N/A	128	5 ltrs	U	8010-99-723-3651
Sher-Cryl™ M770 White	459i	S (A3274)	128	5 ltrs	U	8010-99-231-3852
Sherwin M671 Medium Grey	463	N/A	380	5 ltrs	Not Assessed	8010-99-872-1746
Sherwin M671 Medium Grey	463	N/A	380	20 ltrs	Not Assessed	8010-99-862-7354
ZINC CLAD II EU	465	W (A1984) / N/A	470	5 ltrs	TBC	8010-99-156-7968

ANNEX E

ANNEX E: NAVAL SHIPS SUPPORT 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

ANNEX F: WARPAINT APPROVAL AND INM FORM.

Date of Request:	(dd/mm/yyyy)
Manufacturer:	(Name)
Point of Contact:	(Name and Email Address)
Product Name:	(Name and any Identifiers)
New Product:	(If the product is new, please outline why it should be assessed and confirm if it forms part of a system)
Replacement Product:	(If the product is meant to replace one currently in Warpaint please give details of said product)
Type of Paint:	(Epoxy, Primer ETC)

Documentation Required for Submission	(✓)
Technical Data Sheet / Product Data Sheet (TDS/PDS)	
Safety Data Sheet / Material Safety Data Sheet (SDS/MSDS)	
Application guide	
Institute of Naval Medicine (INM) Form	
Submission Form	

Additional Information
(Is there any additional information that you would like to provide to support this submission?)

ANNEX F

Areas for Use (Please Highlight/Circle the areas that the product is intended for use in)		
Specialist Area (Annex A)	Ships (Annex B)	Submarines (Annex C)
Antifouling for "Archer" class & Yachts	A&B - BELOW WATER HULL PRIMER	S1 - PRESSURE HULL & EXTERNAL SUPERSTRUCTURE PRIMER
Rudder, Stabilisers & "A" Frames (Corrosion and Erosion)	C - ANTIFOULING FINISH (Self Polishing – SPC)	S2 - ANTIFOULING SYSTEM(S) / FOUL RELEASE / DEFENCE (FRC / FD)
Rudder, Stabilisers & "A" Frames (Cavitation Protection)	D - ANTIFOULING SYSTEM (Foul Release – FRC 5+ yr life)	S3 - PRESSURE HULL & EXTERNAL SUPERSTRUCTURE FINISH
Hull (Underwater-applied coatings) General Repair	F - BOOTTOP ANTIFOULING FINISH (SPC)	S4 - PERISCOPES & MASTS
Hull – Link Coats for Foul Release Paint	G&H - ABOVE WATER HULL & SUPERSTRUCTURE & PRIMER	S5 - SUPERSTRUCTURE CASING
HPSW Internal Coating for Intake Pipework	J - ABOVE WATER HULL & SUPERSTRUCTURE FINISH	S6 - WALKWAYS ON STEEL CASING
Peelable Corrosion-Inhibiting Encapsulating Membrane	K - FLIGHT & WEATHERDECK SYSTEMS – DEF STAN 80-134	S7 - INTERNAL DRY SPACES
Seawater Ballast Tank Spot Repair	L&M - INTERIOR DRY COMPARTMENTS	S8 - INTERIOR WET COMPARTMENTS
Flight Deck / Deck Markings	N&O - INTERIOR WET COMPARTMENTS	S9 - GROUP EXHAUST VALVES
LCU & LVCP – CARC & IRR A/W Hull Finish	P - INTERIOR DECKS	S10 - DSRV SEATING
Navigation Light Enclosures	Q - BATTERY COMPARTMENTS	S11 - INTERIOR PRESSURE HULL SURFACE
Instruments & Electronic Equipment Panels	R - CABLE LOCKERS & COFFERDAMS	S12 - REACTOR COMPARTMENT
Galvanised Steel & Zinc Metal Sprayer (Repair)	S - BLACK/GREY & WATER BALLAST TANKS IMO PSPC	S13 - INTERIOR DECKS
Woodwork	T - MACHINERY SPACE BILGES	S14 - BATTERY COMPARTMENTS
Corrosion Inhibitor Grease	U - AVCAT, DIESO, LUB & HYDRAULIC OIL TANKS SYSTEM DEF STAN 80-97 (HIGH SOLIDS)	S15 - MACHINERY SPACE BILGES & MOUNTED MACHINERY RAFTS
Conductive Glands	V - POTABLE WATER TANKS	S16 - BULK FUEL & OIL, LUBE OIL, HYDRAULIC & LP AIR TANKS
High Resistant Coatings (Above 175°C)	W - AQUEOUS FILM-FORMING FOAM (AFF) TANKS	S17 - POTABLE WATER TANKS
High Resistant Coatings (Above 250°C)	X - DEMINERALISED WATER TANKS (Max Temperature 90°C)	S18 - SLOP DRAIN TANKS
High Resistant Coatings (Above 400°C)	Y - EPOXY HOLDING PRIMER	S19 - AFF TANKS
System for Coating Natural Rubber Mounts	Z - PRIMERS FOR NON-FERROUS METALS & FRP	S20 - DEMINERALISED WATER TANKS (Max Temperature 90°C)
Hangar Doors Finish		S21 - HOLDING PRIMER (blasted steel work)
Paint Remover		S22 - PRIMERS FOR NON-FERROUS METALS
Rust Stain Remover		S23 - HIGH EROSION AREAS
SMTDUNIQUE Immersed Areas – Pumps ETC		S24 - BENEATH TILING
Mordant Reagent		S26 - INTERNAL NUTS & BOLTS AND TO FILL GAPS BETWEEN CANNING PLATES & LEAD SHIELDING
Cleaning Detergent		S27 - SEA WATER TANKS
Damp Surface Primer		S28 - LILO / PAYLOAD BAY CHAMBER (Internal)

ANNEX F

1. This form is to be completed for each product to be evaluated by INM to determine the hazards to health associated with it and the measures that may be necessary to control exposure.

2. Sections 1 to 7 are to be completed by the Originator who should then forward the request to jason.jones460@mod.gov.uk (FAO: Jason Jones), together with all relevant Technical and Health & Safety data sheets attached.

3. Sections 8 and 9 are to be completed by WSpt PEG Husbandry before being forwarded to INM (and DES NAG-SMAtm1, if appropriate).

4. Section 10 is to be completed by INM and the form returned to SDA-Husbandry.

1. Product Name: (N.B. attach data sheets) Details of product this is to replace (if applicable):	2. Manufacturer/Supplier:	3. Intended Use and Method of Applicator:
4. Manufacturer's/Suppliers Address and Telephone Number (if not on data sheets): Tel No.:	5. Originator's Details: (Block Caps) Name: Dept: Tel No.:	
	6. Originator's Ref and Date:	
7. Is BR1326 Clearance Required*?	8. DES Ships WSpt PEG Husbandry Ref:	9. BR1326 Classification (if applicable):
10. INM Response:		

*Note – This only applies if material is to be used onboard RN Submarines: see BR1326a for details.

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