



GUIDANCE NOTES
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CHINA CLASSIFICATION SOCIETY

**GUIDELINES FOR SURVEY OF
ANTI-FOULING SYSTEMS ON SHIPS**

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CHAPTER 1 GENERAL

1.1 Purpose and application

1.1.1 These Guidelines are intended to stipulate requirements for surveys of anti-fouling systems on ships and ensure that ships and applied anti-fouling systems comply with applicable specified requirements.

1.1.2 These Guidelines are applicable to surveys in the following cases:

- (1) surveys of ships applying for issuance and endorsement of an anti-fouling system certificate;
- (2) surveys of ships applying for the AFS notation.

1.2 Definitions

1.2.1 For the purpose of these Guidelines, relevant terms are defined as follows:

- (1) “**Anti-fouling system**” means a coating, paint, surface treatment, surface, or device that is used on a ship to control or prevent attachment of unwanted organisms.
- (2) “**Specified requirements**” mean the following convention, rules and other accepted standards:
 - ① IMO International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001(hereinafter referred to as “the AFS Convention”);
 - ② CCS Rules for Classification of Sea-Going Steel Ships;
 - ③ applicable requirements of the flag State.
- (3) “**Anti-fouling system certificate**” means a formal document showing compliance of the anti-fouling system applied to the ship with specified requirements.

Note: For the purpose of ships engaged on international voyages, the certificate is to be drawn up in the common form or the EU form as follows:

- ① The common form consisting of:
 - a. International Anti-Fouling System Certificate (Form CAF) and Record of Anti-Fouling Systems (Form RAF), which are applicable to all ships flying the flag of the flag States that have accepted the AFS Convention;
 - b. Statement of Compliance of Anti-Fouling Systems (Form SAF) and Record of Anti-Fouling Systems (Form RAF), which are applicable to ships flying the flag of a non-EU Member State that has not accepted the AFS Convention.
- ② EU form of International Anti-Fouling System Certificate (Form CAF(EU)) and Record of Anti-Fouling Systems (Form RAF), which are applicable to ships flying the flag of an EU Member State that has not accepted the AFS Convention.

(4) “**Endorsement of certificate records**” means a formal document for endorsing certificate records on completion of additional surveys of anti-fouling systems on ships. The common form of endorsement of certificate records (Form RAF-E) is to be used except that the EU form of endorsement of certificate records (Form RAF-E(EU)) is to be used for ships with EU form of certificate as defined in 1.2.1(3).

(5) “**Initial survey**” means a survey carried out for the assignment of AFS notation and/or before the ship is put into service or when the International Anti-Fouling System Certificate or Statement of Compliance of Anti-Fouling Systems is issued for the first time, in order to confirm compliance with specified requirements(1.2.1(2)).

(6) “**Additional survey**” means a survey carried out when an anti-fouling system of a ship is changed or replaced entirely, or when the scope of repairs affects 25% and more of the anti-fouling system, or when a ship undergoes a major conversion, excluding simple maintenance, such as touch-up painting after chafing the dock.

(7) “**Applicant**” means the owner, the shipbuilder or the company applying for the survey of anti-fouling systems on ships by CCS.

(8) “**Company**” means the company as defined in 1.1.2(2) of CCS Rules for Certification of Safety Management System for Safe Operation of Ships and Pollution Prevention.

1.3 Requirements for controls on anti-fouling systems on ships

1.3.1 The control measures on anti-fouling systems on ships contain the following two points:

(1) Ships are not to apply or re-apply organotin compounds which act as biocides in anti-fouling systems.

(2) Ships either are not to bear such compounds which act as biocides in anti-fouling systems, or are to bear a coating that forms a barrier to such compounds leaching from the underlying non-compliant anti-fouling systems.

1.3.2 For ships applying for issuance of statutory certificates, the implementation dates for control measures specified in 1.3.1 above are to comply with the requirements of the AFS Convention or the requirements of the Administration of the flag State.

1.3.3 The anti-fouling paint is to be furnished with a works approval certificate issued by CCS.

1.4 Class notation

1.4.1 For assignment of the AFS notation, the survey is to be carried out in accordance with Chapter 2 of these Guidelines upon owner’s request to confirm compliance with relevant requirements for anti-fouling systems in Chapter 8, PART EIGHT of CCS Rules for Classification of Sea-Going Steel Ships.

CHAPTER 2 SURVEY OF SHIPS

2.1 General requirements

2.1.1 The survey of anti-fouling systems consists of initial survey and additional survey.

2.1.2 The initial survey is to be carried out in connection with a dry dock survey in so far as practicable.

2.1.3 A major conversion affecting the anti-fouling system of a ship is to be surveyed in accordance with requirements for initial survey of a newbuilding.

2.2 Request for survey

2.2.1 A written request for survey is to be submitted to CCS by the applicant along with the following information:

(1) Particulars of ship:

- ① name of ship;
- ② distinctive number or letters;
- ③ port of registry;
- ④ gross tonnage;
- ⑤ IMO number.

(2) A declaration from the anti-fouling system manufacturer with regard to anti-fouling system containing no organotin compounds, including:

- ① type (e.g. “organotin-free self polishing type”, “organotin-free ablative type”, “organotin-free conventional”, “biocide-free silicon type paint, others”. In the case of an anti-fouling system containing no active ingredients, the words “biocide-free” are to be used.), name and colour of anti-fouling system;
- ② name of anti-fouling system manufacturer;
- ③ active ingredient(s) and their Chemical Abstract Service Registry Number (CAS number(s));
- ④ works approval certificate.

(3) Proof of purchase of the anti-fouling system and/or sealer coat containing no organotin compounds.

(4) Coating application procedure, including procedures for removal of existing coating as appropriate.

(5) Relevant information of the sealer coat, e.g. name, type and colour if it has been applied.

(6) Material Safety Data Sheets (MSDSs) of the anti-fouling systems or similar documentation.

2.3 Initial surveys for newbuildings

2.3.1 The following items are to be verified during initial surveys for new buildings:

- (1) confirming that the documentation contained in 2.2.1 submitted with the request for survey by the applicant is identical to that given in the specified requirements and the request for survey;
- (2) confirming that the anti-fouling system applied to the ship is furnished with a valid marine product certificate and/or works approval certificate issued by CCS;
- (3) confirming that the product identification on anti-fouling system containers or packages used during the application process is identical to the system specified in the request for survey;
- (4) confirming that the coating process of the anti-fouling system, including removal of existing coating as appropriate, complies with the application procedure.

2.3.2 Where the Surveyor has doubts with regard to the items set out in 2.3.1, sampling and testing are to be carried out either before, during, or after the anti-fouling primer has been applied, in order to verify compliance. See Annex 1 of these Guidelines for sampling methods. No sampling or testing is to affect the integrity, structure or operation of the anti-fouling system.

2.4 Initial surveys of existing ships

2.4.1 The anti-fouling system not complying with specified requirements on existing ships is to be removed and the removal is to be confirmed. The anti-fouling system complying with specified requirements is to be applied and to be surveyed in accordance with requirements given in 2.3 of this Chapter.

2.4.2 If a sealer coat has been applied, a verification is to be carried out to confirm that the name, type and colour of the sealer coat applied to the ship match those specified in the request for survey, and that the existing anti-fouling system has been fully covered with that sealer coat. The relevant requirements described in 2.3 of this Chapter also apply.

2.4.3 If the existing anti-fouling system on ship is declared to contain no organotin compounds in the request for survey by the applicant, compliance with specified requirements is to be confirmed for the anti-fouling system by one or more of the following means of verification:

- (1) Sampling and/or testing, as appropriate, may be carried out in accordance with Annex 1 of these Guidelines.
- (2) Reliable documentation, including:
 - ① Material Safety Data Sheets (MSDSs), or similar;
 - ② a declaration of compliance from the anti-fouling system manufacturer; or
 - ③ invoices from the shipyard and/or the anti-fouling system manufacturer.

2.5 Additional surveys

2.5.1 Additional surveys are to be carried out in any of the following cases:

- (1) where the anti-fouling system of a ship is changed or replaced entirely;
- (2) where the scope of repairs affects 25% and more of the anti-fouling system;
- (3) where a ship undergoes a major conversion affecting the anti-fouling system, e.g. adding a hull midsection.

2.5.2 Additional surveys related to 2.5.1(1) and (2) are to be carried out in accordance with requirements of 2.4.

2.5.3 Additional surveys of parts of major conversion related to 2.5.1(3) are to be carried out in accordance with requirements of 2.3.



CHAPTER 3 STATUTORY CERTIFICATE

3.1 Issuance and endorsement of certificate

3.1.1 The International Anti-Fouling System Certificate or Statement of Compliance of Anti-Fouling Systems along with the Record of Anti-Fouling Systems will be issued to ships by CCS, when authorized by the Administration of the flag State, if it is satisfied, at the initial survey carried out in accordance with these Guidelines, that the requirements of the AFS Convention are complied with.

3.1.2 The Endorsement of Records of Anti-Fouling Systems is to be issued to ships upon satisfactory completion of additional surveys, indicating the details of the changed or replaced anti-fouling system. Where a sealer coat has been applied for the existing anti-fouling system on ship and a new anti-fouling system complying with specified requirements is applied after removal of the existing one, the International Anti-Fouling System Certificate or Statement of Compliance of Anti-Fouling Systems along with the Record of Anti-Fouling Systems are to be re-issued.

3.1.3 The International Anti-Fouling System Certificate or Statement of Compliance of Anti-Fouling Systems along with the Record of Anti-Fouling Systems are to be re-issued to ships holding an International Anti-Fouling System Certificate or Statement of Compliance of Anti-Fouling Systems, upon completion of survey of transfer of flag and/or initial classification survey by CCS.

3.2 Expiry and revalidation of certificate

3.2.1 When the anti-fouling system of a ship is changed or replaced, or when the scope of repairs affects 25% and more of the anti-fouling system, or when a ship undergoes a major conversion and the additional survey is not carried out, the International Anti-Fouling System Certificate or Statement of Compliance of Anti-Fouling Systems along with the Record of Anti-Fouling Systems will automatically cease to be valid.

3.2.2 Where the ship's certificate ceases to be valid, the survey when applying for revalidation of the certificate is to be carried out in accordance with 2.4.3.

ANNEX 1

METHODS FOR SAMPLING AND ANALYSIS OF ANTI-FOULING SYSTEMS

1 Purpose

1.1 These Guidelines are intended to stipulate methods for sampling and analysis of anti-fouling systems on ships in order to verify compliance with specified requirements.

1.2 Method 1 specified in these Guidelines applies to anti-fouling systems other than silicon-based anti-fouling systems on ships.

2 Definitions

2.1 “Threshold value” means the concentration limit of the chemical under investigation below which compliance with the relevant provisions of the AFS Convention may be assumed.

2.2 “Tolerance range” means the numerical range added to the threshold value indicating the range where detected concentrations above the threshold value are acceptable due to recognised analytical inaccuracy and thus do not compromise the assumption of compliance specified in the International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001.

3 Precautions and secure means

3.1 The material safety data sheet (MSDS) for the solvent or paint is to be made available to persons carrying out sampling and read by them. Appropriate precautions are to be taken, e.g. wearing long sleeve gloves of nitrile rubber.

3.2 Persons carrying out sampling are to be provided with the following safeguards:

- (1) safe access to reach the hull, e.g. scaffolding or platforms, crane baskets, cherry-pickers, gangways;
- (2) means of preventing falling from high altitude, e.g. railings, a climbing harness, a safety line;
- (3) a lifejacket.

3.3 Access to ships is to be made by secure means. Scaffolding is to be securely constructed and cherry-pickers or dock-arms are to be properly constructed and maintained if they are to be used to gain access. There is to be a system to record the presence of the inspector in the dock area, and he is preferably to be accompanied. Safety harnesses is to be worn in cherry-picker baskets, if used.

4 General requirements for sampling

4.1 Specimens of paint for analysis during survey and certification can be taken either as wet paint from product containers, or dry paint film sampled from the hull.

4.2 Wet paint samples are to be taken in accordance with the following requirements:

- (1) Wet paint samples are to be taken from a newly opened container and paint is to be stirred to ensure even consistency before sampling.

- (2) The equipment used for sampling is to be clean.
- (3) Liquid paint samples are to be stored in appropriate sealed packaging which will not react with or contaminate the sample.
- (4) In the case of multi-component coatings (where on-site mixing of several components is required prior to application), samples of each component are to be taken and the required mixing ratio recorded.
- (5) When a sample of wet paint is taken from a container, details of the paint are to be recorded, e.g. details required for the International Anti-Fouling System Certificate along with a batch number for the product.

4.3 When samples are directly taken from the hull, the following requirements are to be complied with:

- (1) The integrity or operation of the anti-fouling system is not to be affected.
- (2) Sampling where the anti-fouling coating is visibly damaged or on block mark areas on the flat bottom of the ship is to be avoided. Sampling adjacent to or below areas where the anti-fouling system is damaged is also to be avoided.
- (3) When a sample point on the hull has been selected, any fouling present is to be removed with water and a soft sponge/cloth before taking a specimen of the anti-fouling system to avoid contamination of sample. Where possible, if carried out in dry-dock, sampling is to be carried out after the hull has been water-washed.
- (4) Persons conducting sampling are to receive appropriate training to be familiar with sampling procedures and methods.
- (5) The sampling method is to take into account the type of anti-fouling system used on the ship.

5 Number of samples

5.1 Each sample is to allow for a retention quantity for back-up in the event of a dispute. For dry samples, triplicate specimens of paint at each sampling point are to be taken as close to each other as possible on the hull (e.g. at least within 10 cm of each other but without overlap).

5.2 In cases where it is recognized that more than one type of anti-fouling system is present on the hull, where access can be gained, samples are to be taken from each type of system and the number of sample points is to reflect representative areas of the ship's hull.

6 Record sheet for the sampling procedure

6.1 The results of sampling and analysis are to be fully documented. Refer to the model form in Appendix 1 for the record of Method 1 and refer to the model form in Appendix 2 for the record of Method 2.

7 Analysis

7.1 The analysis of the anti-fouling system is to be conducted by a laboratory recognized by CCS and meeting the ISO 17025 standard.

7.2 For organotin, results of the analysis are to be expressed in unit such as: mg tin (Sn) per kg of dry paint.

8 Sampling method 1

8.1 Sampling device and materials on the hull

8.1.1 The sampling device is constructed in a way that only the upper layer of paint is removed, thereby and is to leave any underlying paint (sealer, primer etc.) intact. This is achieved through the use of a moving disk, (eccentric rotation) which is covered by an abrasive material like quartz or glass fibre fabric. This abrasive material has to be suitable for its use as a supporting material for the removed paint. For example, a polyethylene disk, on which fibre glass fabric can be mounted by the use of an O-ring, is moved on an eccentrically rotating axis.

8.1.2 The device is to fulfill the following requirements:

- (1) the device has to work independently from any stationary power supply;
- (2) the applied force has to be constant during the operation, and the area for paint removal has to be defined;
- (3) the abrasive material has to be inert against chemical solvents and acids and must not contain more than trace amounts of tin or tin compounds;
- (4) the amount of paint removed after a regular operation of the device has to be shown to exceed 20 mg per sample.

8.2 Sampling procedure on the hull

8.2.1 The mass of the fibre glass pads is to be weighed with a precision of at least 1 mg. The weight of the fibre glass pads is to be documented for each sample.

8.2.2 The fabric is to be moistened thoroughly with isopropanol (0.8ml per sample) immediately before sampling.

8.2.3 When a sample point on the hull has been selected, any fouling present is to be removed with water and a soft sponge/cloth before taking a specimen of the anti-fouling system. Where possible, if carried out in dry-dock, sampling is to be carried out after the hull has been water-washed.

8.2.4 The sampling device is then held against the surface to be sampled for a period of 5 seconds, prior to the sampling device (see Fig. 1) being switched on.

8.2.5 The sampling device is switched on, thereby removing paint by the circular motion of the fibre glass fabric against the surface of the ship.

8.2.6 The sampling device is to be applied to the surface of the hull for a suitable period of time, such that at least 20 mg of paint is taken up by the pad. As a general rule, if the pad colour after sampling matches the colour of the hull coating a sufficient sample has been taken.

8.2.7 Every sample is to be taken in triplicate. Two of the specimens are to be labelled Specimen 'A' and Specimen 'B'. In addition a third specimen for storage/back-up is to be taken. These specimens are to be taken in accordance with the provision of 5.1 above.

8.2.8 Upon completion of the sampling, the fibre glass fabric pads are to be left to dry, and re-weighed.

8.2.9 Samples are to be stored in appropriate sealed packaging, which will not react with or contaminate the sample.

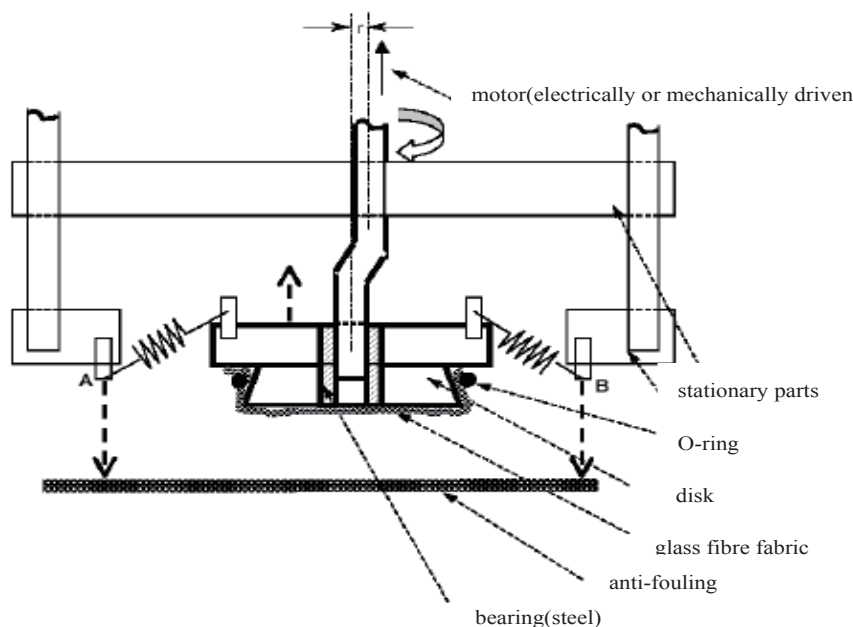


Fig.1 Schematic cross section of the sampling device

The indicated points A and B are to be pressed against the surface. The polyethylene disk, covered with the glass fibre fabric, is moved with an amplitude of $2r$ ($r = 1.0$ cm) on the surface.

Specific data:

Force applied on the paint surface:	25 N (Newton)
Effective diameter of the disk:	50 mm
Frequency of rotation:	6 rotations/s
Solvent used:	isopropanol (0.8 ml per sample)

8.3 Analytical procedure

8.3.1 The identification of anti-fouling systems containing organotin is based on a two-step analysis. The first step analyzes Specimen 'A' for the presence of total tin; the second step, detecting specific organotin compounds, is only necessary in the case of Specimen 'A' producing positive result.

8.3.2 Specimen 'A' is analysed for mass of total tin per kilogram of dry paint or mass of tin per sample by applying inductively coupled plasma/mass spectrometry (ICP/MS), once the material has been solubilized by digestion using aqua regia. Any other scientifically recognized procedure for tin analysis (such as AAS, XRF and ICP-OES) is acceptable.

8.3.3 Where Specimen 'A' produces positive results, the second step is to be carried out. Specimen 'B' is analysed using the following procedure and specific organotin compounds are to be identified and quantified:

- (1) solvent extraction as supported by sonication in an ultrasonic bath;
- (2) derivatisation with ethylmagnesium bromide;
- (3) clean-up of the extract;
- (4) analysis using high resolution gas chromatography/mass spectrophotometry (GC/MS);
- (5) quantifications using tripropyltin as a standard.

8.3.4 Other equally reliable method for the chemical identification and quantification of organotin compounds is acceptable.

8.4 Threshold value and tolerance range for the analytical method

8.4.1 The threshold value for the method is “2500 mg tin (Sn) per kg of dry paint”.

8.4.2 The tolerance range is 20% above the threshold value, i.e. 500 mg Sn/kg of dry paint in addition to the threshold value.

8.4.3 Small quantities of organotin compounds, acting as chemical catalysts are allowed, provided they are not acting as a biocide. When used a catalyst, an organotin compound is not to be present above 2500 mg total tin per kg of dry paint.

8.5 Procedure for verification of compliance

8.5.1 The analytical verification of compliance is performed in a two-step procedure according to Fig.2 below.

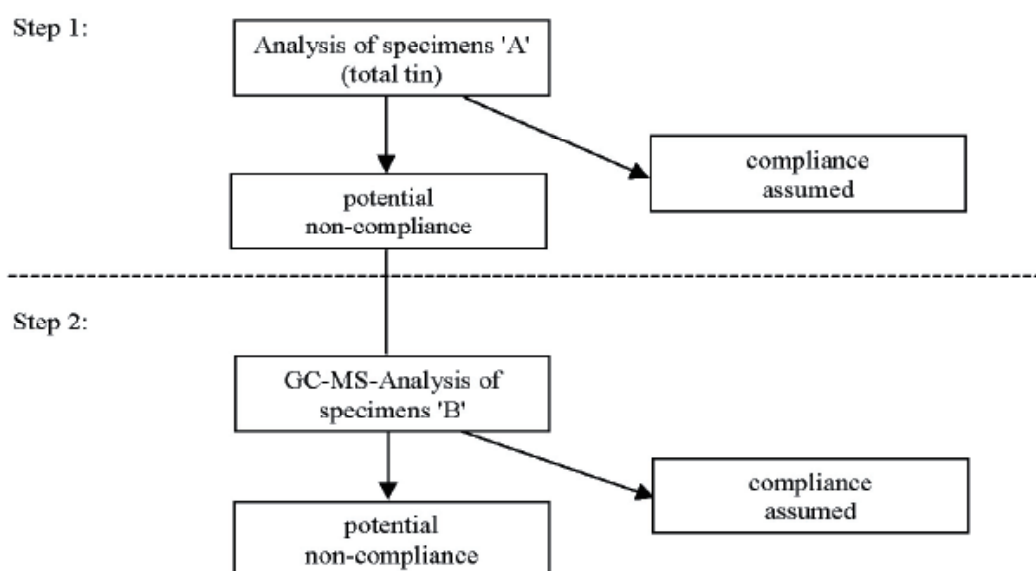


Fig.2 Flow diagram illustrating the two-step analytical procedure

8.5.2 Compliance with the specified requirements is assumed when the results from the specimen 'A', analysed in step 1, meet the following (unless expressly provided otherwise), and then performing step 2 is not necessary:

(1) no more than 25% of the total number of samples yield results above 2,500 mg total tin per kilogram dry paint; and

(2) no sample of the total number of samples shows a concentration of total tin higher than the sum of threshold value plus the tolerance range, i.e. no sample must exceed the concentration 3,000 mg Sn/kg of dry paint.

8.5.3 Where Specimen 'A' produces analytical result not complying with 8.5.2, Specimen 'B' is to be analyzed in accordance with 8.3.3.

8.5.4 Compliance with the specified requirements is assumed when the results from the specimens 'B', analysed in step 2, meet the requirements contained in 8.5.2 at the same time (unless expressly provided otherwise). Non-compliance with the specified requirements is indicated if the requirements contained in 8.5.2 are not met. Such results are to be interpreted to mean that organotin compounds acting as a biocide are present in the anti-fouling system.

9 Sampling method 2

9.1 Sampling device and materials

9.1.1 The sampling is carried out by using abrasive paper rubbing on the surface of the anti-fouling system. Abrasive paper is pasted on a disc of approximately 10 mm in diameter. Rubbing the surface of the anti-fouling system with the disc collects several milligrams of the sample on to the abrasive paper.

9.1.2 Rubbing the thin area, less than several micrometer in depth from the surface of the anti-fouling system, avoids affecting the coatings lying underneath such as sealers.

9.1.3 The sampling device consists of an electric motor, two (or three) rotating rods on each of which a disc is attached, and a battery for electric power supply. The discs are pressed on to the surface of ship's hull by spring coils. The disks rotate counter-clockwise while the rods turn clockwise around the centre of the device. See Fig.3.

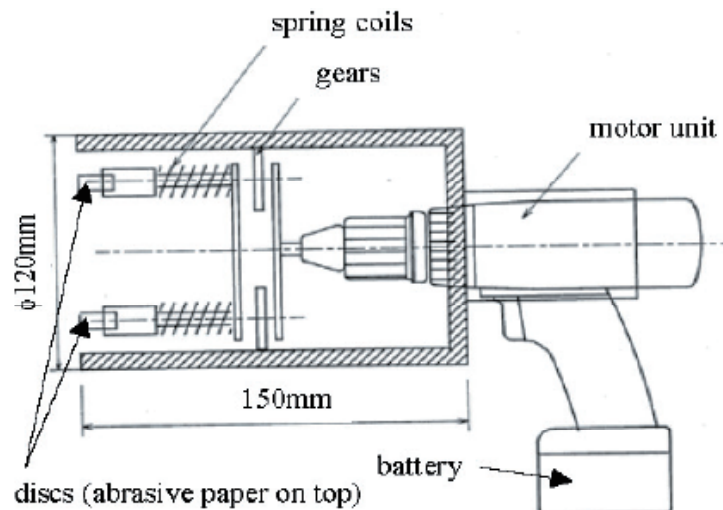


Fig.3 Schematic diagram of sampling device

9.1.4 Sampling point is selected such that the anti-fouling system is intact over an area of approximately 50 cm × 50 cm or more. At each sampling point, three sets of sampling, or more if necessary, are to be carried out to obtain at least six specimens.

9.1.5 The device is pressed on the ship's hull where it is appropriate to be sampled and held by hand. The electric motor is switched on to slide along the painted surface to lightly scrape off the fragments of the paint onto the abrasive paper. After the sample collection, each disc is removed from the device and stored in an inert container.

9.1.6 Sampling is normally to be carried out with the sampling device. However, in the case that accessibility to the sampling point is poor, it is acceptable to collect samples with the discs by hand.

9.2 The first-stage analysis

9.2.1 The first-stage analysis may be carried out on the spot of the survey, e.g. dry docks and sea ports. In order to accomplish the on-site analysis, X-ray fluorescence analysis (XRF) method may be used to detect total tin content.

9.2.2 Among several types of the XRF instruments, an energy-dispersive spectrometer with a silicon drift detector (SDD), which is compact in size and be able to be operated without liquid nitrogen, is preferable to the present analytical system for a field use, whereas wave-length dispersion system or solid-state detector are also available if the analysis carried out at laboratories.

9.2.3 The Surveyor may use software for the tin analysis to detect total tin in the specimens. Where analysis is carried out with software, the software may in advance need a calibration curve of the characteristic X-ray intensity of tin in relation to the tin content particularly in the range of 0.1 to 0.5%.

9.2.4 After the warming-up of the XRF instrument and starting-up of the computer, a specimen is placed on the sample stage of the instrument. Analysis may be executed by the customized software. A single batch of analysis for one specimen normally takes 5 minutes and the result is shown on a display automatically.

9.2.5 Since the XRF analysis does not affect any properties of the specimens, all of the collected specimens (six to nine specimens), including those for the second analysis and storage, are able to be used for this analysis.

9.2.6 Interpretation of the result at the first-stage analysis

(1) Following the procedures above, XRF data of six, or nine, specimens are obtained for each sampling point. Omitting the maximum and minimum values from the data, an average of the tin content is calculated from the intermediate values for the representing value of the sampling point.

(2) Compliance with the specified requirements is assumed when the tin contents (average values) from the samples do not exceed the sum of the threshold value (2,500 mg per kg) and a tolerance range (500 mg per kg) (unless expressly provided otherwise).

(3) When one or more average values of samples from different sampling points do not meet the above criteria, the samples are to be sent to a laboratory for the second stage analysis.

9.3 Second-stage analysis

9.3.1 Since the second-stage analysis provides the final and definitive results of the samples, the method is to be thoroughly reviewed by experts based on scientific evidence.

9.3.2 The collected paint specimens are removed from the abrasive paper and total mass is measured with an electronic balance to an order of 0.1 mg. The specimens are hydrolysed with sodium hydroxide aqueous solution, extracted with organic solvent, and then derivatised with propylmagnesium bromide. After cleaning up the extract, analysis using high resolution gas chromatography/mass spectrometry (GC/MS) is carried out. For quantification analysis, tetrabutyl tin d36 is added as the internal standard.

9.3.3 These analyses provide the data of chemical species and their content. The content of organotin is expressed as mass of tin (mg) per kg of dry paint.

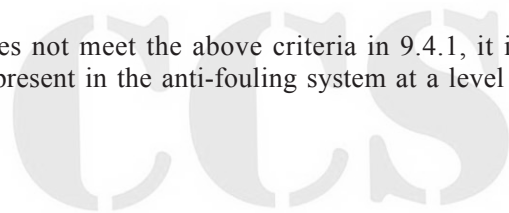
9.4 Procedure for verification of compliance

9.4.1 Compliance with the specified requirements is assumed when the results from the second-stage analysis meet the following requirements at the same time (unless expressly provided otherwise):

(1) no more than 25% of the total number of samples yield results above 2,500 mg total tin per kilogram dry paint; and

(2) no sample of the total number of samples shows a concentration of total tin higher than the sum of threshold value plus the tolerance range, i.e. no sample must exceed the concentration 3,000 mg Sn/kg of dry paint.

9.4.2 When the result does not meet the above criteria in 9.4.1, it is interpreted to mean that organotin compounds are present in the anti-fouling system at a level where they would act as a biocide.



APPENDIX 2 FORM OF RECORD SHEET APPLICABLE TO METHOD 2

**RECORD SHEET FOR THE SAMPLING AND ANALYSIS OF ANTI-FOULING SYSTEMS
ON SHIP HULLS – ORGANOTIN COMPOUNDS**

		Record number
Section A: Particulars of ship		
1. Country		2. Location
3. Date		
4. Reason for Survey/Inspection <input type="checkbox"/> Survey & Certification <input type="checkbox"/> Other		
5. Details of the ship		
	5.1 Name of ship	
	5.2 Distinctive number or letters	
	5.3 Gross tonnage	5.4 Year of built
	5.5 Owner or operator of ship	
	5.6 Flag State	5.7 Class of ship
	5.8 Authority of AFS Certificate	
	5.9 Date of issue	
	5.10 Date of last endorsement	
	5.11 IMO number	
	5.12 Name of shipmaster	
	5.13 Product name of anti-fouling system	
	5.14 Name of manufacturer	
	5.15 Name of shipyard where applied	
	5.16 Comments	
6. Surveyor's details		
	6.1 Name	
	6.2 Comments	

				Record number		
Section B: Sampling and stage I analysis (X-ray fluorescence analysis)						
Date				Instrument I.D.		
Sampling/location	Specimen I.D.	Sampling disk	Content of tin (mg/kg)	Max	Min	Average
A	A1	<input type="checkbox"/> Abrasives		<input type="checkbox"/>	<input type="checkbox"/>	Average _____ mg/kg <input type="checkbox"/> >2,500mg/kg <input type="checkbox"/> >3,000mg/kg
	A2	<input type="checkbox"/> Metal		<input type="checkbox"/>	<input type="checkbox"/>	
	A3	<input type="checkbox"/> Others		<input type="checkbox"/>	<input type="checkbox"/>	
	A4	<input type="checkbox"/> Abrasives		<input type="checkbox"/>	<input type="checkbox"/>	
	A5	<input type="checkbox"/> Metal		<input type="checkbox"/>	<input type="checkbox"/>	
	A6	<input type="checkbox"/> Others		<input type="checkbox"/>	<input type="checkbox"/>	
	A7	<input type="checkbox"/> Abrasives		<input type="checkbox"/>	<input type="checkbox"/>	
	A8	<input type="checkbox"/> Metal		<input type="checkbox"/>	<input type="checkbox"/>	
	A9	<input type="checkbox"/> Others		<input type="checkbox"/>	<input type="checkbox"/>	
B	B1	<input type="checkbox"/> Abrasives		<input type="checkbox"/>	<input type="checkbox"/>	Average _____ mg/kg <input type="checkbox"/> >2,500mg/kg <input type="checkbox"/> >3,000mg/kg
	B2	<input type="checkbox"/> Metal		<input type="checkbox"/>	<input type="checkbox"/>	
	B3	<input type="checkbox"/> Others		<input type="checkbox"/>	<input type="checkbox"/>	
	B4	<input type="checkbox"/> Abrasives		<input type="checkbox"/>	<input type="checkbox"/>	
	B5	<input type="checkbox"/> Metal		<input type="checkbox"/>	<input type="checkbox"/>	
	B6	<input type="checkbox"/> Others		<input type="checkbox"/>	<input type="checkbox"/>	
	B7	<input type="checkbox"/> Abrasives		<input type="checkbox"/>	<input type="checkbox"/>	
	B8	<input type="checkbox"/> Metal		<input type="checkbox"/>	<input type="checkbox"/>	
	B9	<input type="checkbox"/> Others		<input type="checkbox"/>	<input type="checkbox"/>	
C	C1	<input type="checkbox"/> Abrasives		<input type="checkbox"/>	<input type="checkbox"/>	Average _____ mg/kg <input type="checkbox"/> >2,500mg/kg <input type="checkbox"/> >3,000mg/kg
	C2	<input type="checkbox"/> Metal		<input type="checkbox"/>	<input type="checkbox"/>	
	C3	<input type="checkbox"/> Others		<input type="checkbox"/>	<input type="checkbox"/>	
	C4	<input type="checkbox"/> Abrasives		<input type="checkbox"/>	<input type="checkbox"/>	
	C5	<input type="checkbox"/> Metal		<input type="checkbox"/>	<input type="checkbox"/>	
	C6	<input type="checkbox"/> Others		<input type="checkbox"/>	<input type="checkbox"/>	
	C7	<input type="checkbox"/> Abrasives		<input type="checkbox"/>	<input type="checkbox"/>	
	C8	<input type="checkbox"/> Metal		<input type="checkbox"/>	<input type="checkbox"/>	
	C9	<input type="checkbox"/> Others		<input type="checkbox"/>	<input type="checkbox"/>	
D	D1	<input type="checkbox"/> Abrasives		<input type="checkbox"/>	<input type="checkbox"/>	Average _____ mg/kg <input type="checkbox"/> >2,500mg/kg <input type="checkbox"/> >3,000mg/kg
	D2	<input type="checkbox"/> Metal		<input type="checkbox"/>	<input type="checkbox"/>	
	D3	<input type="checkbox"/> Others		<input type="checkbox"/>	<input type="checkbox"/>	
	D4	<input type="checkbox"/> Abrasives		<input type="checkbox"/>	<input type="checkbox"/>	
	D5	<input type="checkbox"/> Metal		<input type="checkbox"/>	<input type="checkbox"/>	
	D6	<input type="checkbox"/> Others		<input type="checkbox"/>	<input type="checkbox"/>	
	D7	<input type="checkbox"/> Abrasives		<input type="checkbox"/>	<input type="checkbox"/>	
	D8	<input type="checkbox"/> Metal		<input type="checkbox"/>	<input type="checkbox"/>	
	D9	<input type="checkbox"/> Others		<input type="checkbox"/>	<input type="checkbox"/>	

