



भारत सरकार/ GOVERNMENT OF INDIA

पोत परिवहन मंत्रालय / MINISTRY OF SHIPPING

नौवहन महानिदेशालय / DIRECTORATE GENERAL OF SHIPPING

“बिटा बिल्डिंग”, 9 वी मंजि / “BETA BUILDING”, 9th FLOOR

आई-थिंक टेक्नो कैम्पस / I-THINK TECHNO CAMPUS

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F. No. 75-NT(1)/2004

Dated : 28.11.16

Merchant Shipping Notice No. 14 of 2016

Sub.: Amendments to the IMSBC Code and the revised scrutiny sheet for assessment & approval of laboratories engaged in the testing of cargo for carriage on board merchant ships, as per the IMSBC Code - reg.

1. The International Convention for the Safety of Life at Sea, 1974 [SOLAS Convention], in its Chapter VI, deals with provisions for the carriage of cargoes on board merchant ships. Chapter VI of the SOLAS Convention was amended vide the Resolution MSC.269 (85) of International Maritime Board [IMO], requiring the carriage of solid bulk cargo (other than grain cargo) to be in compliance with the provisions of the International Maritime Solid Bulk Cargoes Code [IMSBC Code], which was adopted by the IMO on 4th December, 2008, vide its Resolution MSC.268 (85). These provisions have already come into force from the 1st of January, 2011.
2. The Merchant Shipping (Carriage of Cargo) Rules, 1995, under the Merchant Shipping [MS] Act, as amended, in India governing the carriage of cargo [Part III of the said Rules] also deals, inter-alia, with the carriage of solid bulk cargoes. Rule 14 ibid governs the carriage of solid bulk cargoes other than grain cargo and refers to the erstwhile BC Code, which has since been superseded by the IMSBC Code. All concerned are, therefore, required to comply with the provision of the IMSBC Code, instead of the BC Code referred in the said rule.
3. The IMSBC Code has been further amended by the IMO Resolution MSC.354 (92) and stands adopted on 21.06.2013. These amendments have entered into force on 1st of January, 2015. The IMSBC Code has again been incrementally amended by the Resolution MSC.393(95) of the IMO, on 11.06.15 and will enter into force from the 1st of January 2017.
4. The amendments under the same resolutions have made changes to several sections/clauses of the IMSBC Code. In addition, a new section 14 supra has been introduced on 'Prevention of pollution by cargo residues from ships'. The new section 14 ibid addresses the management of residues of solid bulk cargoes, in relation to the 2012 Guidelines for the implementation of MARPOL Annex - V. The management of residues of solid bulk cargoes depends primarily on the classification of a solid bulk cargo as to whether it is harmful to the marine environment (HME) or is non-HME. Shippers are, therefore, required to ensure that due care is taken while classifying and declaring whether a bulk cargo is HME or non-HME.

5. The amendments under the same resolution have also modified Appendix-1 of the IMSBC Code on individual schedules of solid bulk cargoes. The schedule stipulates particulars of each cargo with respect to its characteristics, hazards, precautions etc. All concerned are required to refer to these amendments while handling cargoes specified in the amendments.
6. The amendments under the same resolution have, in addition, also revised the Appendix-2 of the IMSBC Code on 'laboratories test procedure, associated apparatus and standards' to include new 'Modified Proctor/Fagerberg test procedure for Iron Ore Fines' cargo.
7. The procedure for an approval of marine laboratories engaged in the testing of cargo as per the IMSBC Code was issued by this office vide M.S. Notice No. 17 of 2014 [F. No. 75-NT(1)/2004] dated 03.09.14, as per the requirements of the Ministry of Shipping, Govt. of India, contained in its communication addressed to the Chairmen of all major ports, inter-alia, requiring the assessing organization (i.e. marine laboratories) to be approved by the Directorate General of Shipping, Govt. of India [The said Ministry's letter F. No. PT.11033/67/2010-PT dated 28.05.10 may please be seen in this regard].
8. As the recent amendments of the IMSBC Code have introduced a new test procedure for iron ore fines cargo in its Appendix-2, the scrutiny sheet for an assessment and approval of marine laboratories issued vide the said M.S. Notice No. 17 of 2014 dated 03.09.14 of this office has been amended, inter-alia, to include the new test procedures. The revised scrutiny sheet for an inspection and approval of the said laboratories is enclosed herewith as an Annexure to this M.S. Notice and hence, the said erstwhile M.S. Notice No. 17 of 2014 dated 03.09.14 is hereby superceded.
9. Fee for an inspection of marine laboratories may be charged as per item No. 33 (fee for miscellaneous surveys per visit) of this office DGS Circular No. 13 of 2010 (F. No. F&A - 12(3)/97-III) dated 06.09.10.
10. All marine laboratories which are engaged in the testing of cargoes on board merchant ships as per the said IMSBC Code and desiring to be approved by this office, for the said purpose, shall follow the revised requirements stipulated in the enclosed inspection scrutiny sheet and approach the jurisdictional Mercantile Marine Department (under this office) of the Govt. of India for an inspection & approval of their respective marine laboratories.
11. This M.S. Notice shall come into force with an immediate effect.
12. This is issued with the approval of the Director General of Shipping & Secretary to the Govt. of India.


(Capt. K.P. Jayakumar)

Deputy Nautical Adviser to the Govt. of India

Encl: Annexure

SCRUTINY SHEET FOR ASSESSMENT AND APPROVAL OF LABORATORIES AS PER IMSBC CODE

Sr. No.	Requirements	Compliance	Remarks
A	BASIC REQUIREMENTS		
1	Name of the Organization [Marine Laboratory]		
2	Names of the Owners/Directors/Proprietor/ Trustees etc., of the organization owning the marine Laboratory		(Documentary evidence to be attached)
3	Date of Registration of the Organization [Company/Society etc.,]		1. Copy of certificate incorporation of the organization to be attached. 2. Copy of Memorandum and Articles of Association/other equivalent documents to be attached [as applicable]
4	Fees: Online payment details /Demand Draft for Rs. _____/- in favour of the Jurisdictional MMD		
5	Address for Communication Telephone / Fax /E-Mail		
6	Address of Location of the Laboratory Telephone /Fax/E-Mail		
7	Layout of the premises with relevant documents		Copy of the layout plan to be attached
8	Ownership details of the premises of the marine laboratory	Lease deed valid upto : Whether lease deed has enabling provision for renewal of lease for a further period.	If owned : copy of the ownership documents to be attached If leased : copy of the leased deed duly registered with the appropriate authority to be attached
9	The marine laboratory premises to have the necessary permissions from the concerned local authorities (Municipal /Panchayat /Industrial etc. as applicable).		Shop and Establishment registration, Municipality licence, etc as applicable to be attached

B	PERSONNEL (Qualification, Training and Practical Experience)		
1	<p><u>Competent Person</u> [Head of the marine laboratory]</p> <p>1. Qualification and Experience – An Officer of Merchant Navy with following experience:- 2nd Mate FG CoC having at least 2 years of rank experience or MEO Class 1 CoC with atleast 24 months of experience in carrying out cargo survey.</p> <p>2. Have conducted more than 25 tests with each apparatus (Flow table & Penetration test) at an NABL accredited laboratory.</p> <p>3. Should have preferably 1 year experience of handling samples in an NABL accredited laboratory pertaining to testing of FMP & Moisture.</p> <p>4. Completed training on Internal Quality Auditor for 9001:2008/9001:2015</p>	<p>1. Name _____</p> <p>2. CoC grade _____</p> <p>3. CoC No. _____</p> <p>4. Age _____</p> <p>5. Experience _____</p>	<p>1. Copy of CoC to be submitted.</p> <p>2. Copy of experience certificate to be submitted.</p> <p>2.1 If working for any cargo surveying organization – letter from the organization to be submitted.</p> <p>2.2 If self employed and having own cargo surveying firm – copy of oldest report signed by the owner to be submitted.</p>
2	<p><u>Technical Head / Chemist</u></p> <p>1. At least a graduate in Chemistry/Physics</p> <p>2. Trained in IMSBC Code</p> <p>3. Trained in Laboratory Management (as per ISO 17025:2005)</p> <p>4. Trained on estimation of Measurement of Uncertainty</p> <p>5. Have conducted more than 25 tests with each apparatus (Flow table / Penetration test/Modified Proctor/Fagerberg test, as applicable) at an NABL accredited laboratory.</p> <p>6. To have a minimum of 6 months experience of handling samples in an NABL accredited laboratory pertaining to testing of FMP & Moisture.</p>		Copy of Certificates to be attached.
C	Infrastructure		

2	The walls of the premises are to be properly coated / painted		
3	The premises to have modern flooring of ceramic tiles/ granite/ mosaic or similar material.		
4	The premises to have adequate lighting.		
5	The premises to be adequately ventilated.		
6	The laboratory to be accredited by the National Accreditation Board for Testing & Calibration Laboratories (NABL)		Certificate of Accreditation by NABL is to be attached
7	The laboratory to be in possession of quality certification under ISO 9001:2008 or ISO 9001:2015		Certificate is to be attached
8	The laboratory shall have the following updated/amended publications/standards as required (i.e. IMSBC Code (latest Edition), ASTM C230/C230M, ISO 3082 [Iron ore sampling and sample preparation, IS1405 – 2010 methods of sampling Iron ore, understanding laboratory management system 17025:2005, determining of specific gravity IS 11896. etc. are some of the publications required to be maintained]		Complete list of publications & standards to be attached
9	The laboratory to have necessary fire-fighting equipment (in view of the hot air ovens being used)		
D	FLOW TABLE TEST		
1	Scope: The Flow Table is generally suitable for mineral concentrates or other fine material with a maximum grain size of 1 mm. It may also be applicable to materials having a maximum grain size of upto 7mm. It may not give satisfactory results for materials coarser than this or for some materials with high clay content. If the flow table test is not suitable for a material in question, the procedures should be those approved by the authority of the port state.		

2	Apparatus		Photographs to be attached
3	Standard Flow table & Frame		
4	The frame of the flow table is to be made of apparent good quality cast iron consisting of three ribs extending the full height of the frame & 120 deg apart		
5	The top of the frame as well as the bottom should be suitably ground to give complete contact with shaft the collar and the steel plate respectively		
6	The table -top to be made of finely machined brass or bronze		
7	The dimensions of the table-top should be 254 mm (+/- 2.5mm) X 8mm		
8	The table-top should be supported by six ribs at the bottom		
9	The shaft should be attached to the table-top by means of a screw thread		
10	The play between the shaft and the boring in the frame should be within 0.26 mm		
11	The shaft should make contact with the cam only after the cam has rotated by 120 deg after falling of the shaft		
12	The Drop height should be as per ASTM Standard C230 - (12.7 mm)		
13	The Drop counter should operate at 25 drops/minute		
14	There should be proper markings on the Flow table as described in the IMSBC Code		
15	The Flow table rotating cam should be fitted tightly		
16	Flow table Mounting		
17	The Flow table frame should be tightly bolted to a cast iron or steel plate atleast 25 mm thick and 250 mm square		

18	The top surface of this plate should be machined to a smooth plane surface		
19	The plate should be apparently anchored to the top of a concrete pedestal & partly embedded in the concrete pedestal as required by the IMSBC Code		
20	The pedestal should be cast inverted on the base plate		
21	A positive contact between the base plate and pedestal should be obtained at all times		
22	The flow table is levelled in perpendicular axis (No additional plates or nuts to be used)		
23	The pedestal height, top square and the bottom square should be as per the ASTM Standard C 230:		
24	The pedestal height should be between 625 - 750 mm		Actual height ___ mm
25	The pedestal square at the top should be between 250 - 275 mm		Actual height ___ mm
26	The square at the bottom should be between 375 - 400 mm		Actual height ___ mm
27	The construction of the pedestal should be of a monolithic structure, i.e. the pedestal should be made up of a cast consisting of concrete		
28	A suitable and stable gasket cork pad should be inserted under each corner of the pedestal		
29	The flow table should be checked frequently for levelness of the table top, stability of the pedestal and tightness of the bolts and nuts in the table base and the pedestal plate		
30	The vertical shaft of the table should be kept clean and should be lightly lubricated with light oil.		
31	There should be no oil present between the contact faces of the table top and the supporting frame.		
32	The table should be raised and permitted to drop a dozen or more times just prior to use if it has not been operated for some time.		
33	The rotating cam should be properly lubricated.		

34	The Gear box should be properly lubricated.		
35	Mould		
36	The mould for casting the flow specimen should be made of cast bronze or brass.		
37	The measurements of the mould should be as per the standard, i.e. the diameter of the top should be 69.8 mm +/- 0.5 mm		Actual diameter ____ mm
38	The surfaces of the base and top should be parallel and at a right angle to the vertical axis of the cone.		
39	The mould should have a minimum wall thickness of 5 mm		Actual thickness ____ mm
40	The outside of the top edge of the mould should be shaped so as to provide an integral collar for convenient lifting of the mould		
41	All the surfaces of the mould should be machined to a smooth finish		
42	Tamper		
43	The tamper should be designed and constructed as per the recommendations in the IMSBC Code.		
44	Scales and Weights		
45	The scales should conform to the following requirements. On scales in use, the permissible variation at a load of 2000 gms should be +/- 2.0 gms.		Calibration certificates are to be attached
46	The weighing balances should be placed in an appropriate position.		
47	The weighing balances should be placed on a flat surface.		
48	The weights should be calibrated by an NABL accredited laboratory.		Calibration certificates to be attached
49	Glass graduated measuring cylinder and burette		Calibration certificates to be attached

50	A hemispherical mixing bowl approx 30 cm diameter, rubber gloves and drying dishes or pans. Alternatively, an automatic mixer of similar capacity can be used for the mixing operations. In this case, care should be exercised to ensure that the use of such a mechanical mixer does not reduce the particle size or consistency of the test material.		
51	A drying oven with controlled temperature upto approx 110 degree Celsius. This oven should be without air circulation.		Calibration Certificates to be attached
52	Is the Procedure for carrying out the test as specified in the IMSBC Code		
E	PENETRATION TEST		
1	<u>Scope:</u> The penetration test is generally suitable for mineral concentrates, similar materials, and coals upto a top size of 25 mm. In this procedure, the sample, in a cylindrical vessel, is subjected to vertical vibration of 2g rms +/- 10% (g = gravity acceleration) for 6 minutes. When the penetration depth of a bit put on the surface exceeds 50 mm, it is judged that the sample contains moisture content greater than the flow moisture point.		
2	Apparatus		Photographs to be attached
3	The test apparatus consists of: vibrating table cylindrical vessels indicators (penetration bits and a holder) tamper ancillary equipment		
4	The Penetration machine should consist of a vibrator with a table on which a cylindrical vessel can be clamped. The vibrator should be capable of exciting a mass of 30 kg at a frequency of either 50 Hz or 60 Hz with acceleration of 3g rms or more, and it can be controlled to adjust the acceleration level.		The acceleration to be checked with a calibrated accelerometer upto 3 gms

5	The cylindrical vessels should be made of reasonably rigid, non-magnetic, impermeable and lightweight material such as acrylics or vinyl chloride.		
6	Penetration bits are made of brass. The mass of the bit for concentrates should be adjusted to 177g. When the sample contains coarse particles, it is recommended that two bits of the same pressure are put on the surface to avoid misjudgement.		
7	A holder should be made to guide the rod with minimum friction to the centre of a cylindrical vessel. When two bits are used, they should be positioned suitably.		
8	A cylindrical vessel and penetration indicators should be selected in accordance with the nature and condition of the test sample, viz. size of particles and bulk density.		
9	Is the Procedure for carrying out the test as specified in the IMSBC Code		
F	Modified Proctor/Fagerberg Test Procedure for Iron Ore Fines (up-to size of 5 mm) (Not to be used for coal or other porous material)		
1	<u>Eligibility for approval</u> The Laboratory should have approval of DGS for the flow table test for a period of at least 1 year before applying for approval for Modified Proctor / Fagerberg test. However, if the laboratory has approval for carrying out penetration test in addition to the flow table test, they may apply for approval on completion of 6 months from the date of approval by the Directorate for the flow table test.	1. Date of approval of Flow table test _____ 2. Date of approval of Penetration test _____	Copy of approval certificates to be attached.
2	Accreditation of the laboratory with NABL for conduct of Modified Proctor/Fagerberg test for Iron Ore Fines.	NABL accreditation for modified Proctor & Fagerberg test valid till _____	NABL certificate to be attached.

3	<u>The Validation of the Method & Results</u> The laboratory should have conducted a minimum of 50 tests by the modified Proctor & Fagerberg test and prepare comparison charts of the results of the same sample against Flow Table Test [FTT] and Penetration Table Test [PTT] for validation of the results.	Data and graph of deviation obtained between the different test methods to be verified.	Data and deviation graph to be attached.
	<u>Additional equipments required</u> [in addition to the requirements for the Flow Table Test & Penetration Table Test]		
4	<u>The Compaction Cylinder</u> A cylindrical iron mould with a removable extension piece having an inner volume of 1000 cm ³ .	To be verified against Fig 1.3.2 of the IMSBC Code 2013, for the required specifications of the proctor equipment	Photo to be attached.
5	<u>The Compaction Hammer</u> This is a compaction tool guided by an open pipe at its lower end. The weight of the hammer is 350 gms which may be applied by a bit having a diameter of 50 mm. The drop height of the hammer is 20 cms.	To be verified against Fig 1.3.2 of the IMSBC Code 2013, for the required specifications of the compaction hammer.	Photo to be attached.
6	<u>Pycnometer</u> (an instrument employed to measure material density of solids)		1. Photo to be attached. 2. Must be accompanied with a calibration certificate
7	<u>Suitable vibration equipment for Pycnometer</u> The penetration table may be modified for this purpose if the design of the pycnometer allows for adequate vibrations. (To remove all void spaces in the sample)	Please see adequate standard for calculating density.	Photo to be attached.

Recommendations / Comments of MMD Surveyor:

Surveyor of MMD

List of enclosures