***भारतीय मानक ब्यूरो***

***BUREAU OF INDIAN STANDARDS***

###### **Minutes**

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| **Name of the Committee** | **No. of Meeting** | **Date & Day** | | **Time** | **Venue** |
| **CORROSION PROTECTION AND FINISHES SECTIONAL COMMITTEE, MTD 24** | **23rd** | **28th August 2024** | | **2:00 PM** | **Hybrid (Virtual + Physical)**  **Venue:** Veermata Jijabai Technological Institute (V.J.T.I.) Matunga, Mumbai Maharashtra 400 019, India |
| **Chairperson:** Dr U. Kamachi Mudali | | | **Member Secretary:** Shri Dushyant Hawelikar | | | |

**Physical Participation:**

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| --- | --- | --- | --- |
| **Sl No.** | **Organization** | **Representative** | **Email id** |
|  | Homi Bhabha National Institute , Mumbai | Dr U. Kamachi Mudali (Chairperson) | ukmudali1@gmail.com |
| 3. | Ministry of Defence DGQA, CQAMET ICHAPUR, West Bengal | Shri T. K. Prusty | [cqametichapur-dgqa@nic.in](mailto:cqametichapur-dgqa@nic.in) |
| 4. | Naval Materials Research Laboratory (Navi Mumbai, MS) | Dr G. Gunasekaran | [gunanmrl@gmail.com](mailto:gunanmrl@gmail.com) |

**Invitee Physical Participation:**

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| --- | --- | --- | --- |
| **Sl No.** | **Organization** | **Representative** | **Email id** |
| 1. | In Personal Capacity | Dr R. Suresh (Panel Member) | [rsuresh0355@gmail.com](mailto:rsuresh0355@gmail.com) |
| 2. | Naval Materials Research Laboratory (Navi Mumbai, MS) | Dr Akshaya Kumar | [tukunu@gmail.com](mailto:tukunu@gmail.com) |
| 3. | IWL India Pvt Ltd. | Shri Ashok Bansal | [ed@iwl.in](mailto:ed@iwl.in) |
| Shri Satya Mitra Bagga | [smb@iwl.in](mailto:smb@iwl.in) |
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**Virtually Participation:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl No.** | **Organization** | **Representative** | **Email id** |
|  | Bhabha Atomic Research Centre (Mumbai) | Dr Supratik Roychowdhary | supratik@barc.gov.in |
|  | Bharat Heavy Electricals Limited (Hyderabad) | Dr A K Maiti | maiti@bhel.in, |
|  | Central Electrochemical Research Institute, Karaikudi (Tamilnadu) | Dr Rakesh Barik | [rakesh@cecri.res.in](mailto:rakesh@cecri.res.in) |
| Dr C. Arunchandran | [acchenan@gmail.com](mailto:acchenan@gmail.com) |
|  | Confideration of Indian Industry (Punjab) | Dr Shubhra Pareek | shubhra.pareek@cii.in |
|  | National Metallurgical Laboratory (Jamshedpur) | Dr S. K. Jha | [skjha@nmlindia.org](mailto:skjha@nmlindia.org) |
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|  | Galbro Ispat Galvanisers Pvt. Ltd., Mumbai | Shri Rajeev Kandhari | [rajeev@jencogalva.com](mailto:rajeev@jencogalva.com) |
|  | GAIL India Ltd. Noida (UP) | Shri Shiv Shanker Verma | [ssverma@gail.co.in](mailto:ssverma@gail.co.in) |
|  | Indian Lead Zinc Development Association, New Delhi | Shri K. Sridhar | ilzda.info@gmail.com |
|  | Lalita Infraprojects Pvt. Ltd., Kolkata | Dr Buddhadeb Duari | [buddhadebduari1704@gmail.com](mailto:buddhadebduari1704@gmail.com) |
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|  | Ministry of Railways (RDSO), Lucknow, UP | Dr P. K. Bala | [pkbala66@gmail.com](mailto:pkbala66@gmail.com) |
|  | National Aerospace Laboratories, Bangalore | Dr J. N. Balaraju | jnbalraj@nal.res.in |
|  | S J Engineers & Consultants, Kolkata | Dr Jayanta K. Saha | [jayantaksaha@gmail.com](mailto:jayantaksaha@gmail.com) |
|  | Steel Authority Of India Limited (SAIL), Research & Development Centre for Iron & Steel, Ranchi | Shri A. Chatterjee | achatterjee1620@sail.in |
|  | Tata Steel Limited (Jamshedpur) | Dr Tapan Rout | [tapankumarrout@tatasteel.com](mailto:tapankumarrout@tatasteel.com)  [tkrout5@gmail.com](mailto:tkrout5@gmail.com) |
| Dr A. N. Bhagat | [anbhagat@tatasteel.com](mailto:anbhagat@tatasteel.com) |

**Item 0 WELCOME AND OPENING REMARKS**

Dr U. Kamachi Mudali, Chairperson of MTD 24 committee welcomed the members of the committee and appreciated the interest shown by them in the work of committee and their contribution to the national standardization effort. He also requested all the members to participate actively in the meeting and complete the work allotted to them adhering to the time norms. He also requested members that if possible try to attend the future meeting in physical mode whenever scheduled.

Member secretary expressed gratitude towards VJTI, Mumbai for hosting the 23rd TC meeting of MTD 24. He informed committee members about the latest initiatives taken by BIS, participation of committee members in activities of ISO, instructions from BIS management for structural reforms in TCs and active involvement of corrosion protection industry in the committee.

# Item 1 CONFIRMATION OF MINUTES OF THE LAST MEETING

The committee has confirmed the minutes of **22nd TC** meeting of Corrosion Protection and Finishes Sectional Committee, MTD 24 held on **05th May 2024**.

# Item 2 SCOPE AND COMPOSITION OF COMMITTEE

* 1. The committee noted the information given in item no 2.1 to 2.4 of the agenda.
  2. Following requests have been received through email to BIS for association with the committee:

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| **Sl No.** | **Organization** | **Description of Request** | **Decision of the committee** |
|  | Spanish Waterproofing (I) Pvt Ltd- **Shri Shilpam Vaid** | User of bitumen tapes. Requested to co-opt in the panel/working group on bitumen. | The committee decided to co-opt **Shri Shilpam Vaid -** Spanish Waterproofing (I) Pvt Ltd. in the working group on bitumen. |
|  | MK Petro Products India Pvt. Ltd. – **Shri Rishabh Jaini** | Requested to co-opt in the panel/working group on bitumen | The committee decided to co-opt **Shri Rishabh Jaini -** MK Petro Products India Pvt. Ltd. in the working group on bitumen. |
|  | Shivam Tar Products – **Shri Padma Kumar** | Requested to co-opt in the panel/working group on bitumen as well as in the committee. | The committee decided to co-opt **Shri Padma Kumar** - Shivam Tar Products in the working group on bitumen. |
|  | SMC Infrastructure  - **Shri Kishor Herwadkar** | User of bitumen tapes. Requested to co-opt in the panel/working group on bitumen. | The committee decided to co-opt **Shri Kishor Herwadkar**  **-** SMC Infrastructure  in the working group on bitumen. |
|  | Tiki Tar Danosa India Pvt. Ltd - **Shri Piyush Kumar Bhimani** | Requested to co-opt in the panel/working group on bitumen. | The committee decided to co-opt **Shri Piyush Kumar Bhimani -** Tiki Tar Danosa India Pvt. Ltd. in the working group on bitumen. |

**2.3** The committee has set up a **new working group**, description is as follows:

**Scope of work:** Development of working draft on 'Coating and Wrapping of Underground Mild Steel Pipelines: Bituminous Hot Melt Enamel Coatings' and 'Coating and Wrapping of Underground Mild Steel Pipelines – Specifications: Preformed Bituminous Wrapping Tapes' and recommendation to committee. Provide clarification of comments/queries on the draft.

**Timeline:** 1 month (21 September to 21 October 2024)

**Composition:**

1. Dr G Gunasekaran – NMRL (Convenor)

2. Smt. Maushumi – ONGC

3. Shri Shilpam Vaid – Spanish Waterproofing (I) Pvt Ltd

4. Shri Rishabh Jaini – MK Petro Products India Pvt. Ltd.

5. Shri Padma Kumar – Shivam Tar Products,

6. Shri Kishor Herwadkar – SMC Infrastructure.

7. Piyush Kumar Bhimani – Tiki Tar Danosa India Pvt. Ltd.

8. Shri Arham Rahman – IWL India Pvt ltd.

**2.4** The committee decided to remove the following organization from **Panel 1 on Corrosion Protection of Pipelines**

1. M/s Bhotika Pipeline Services Co Pvt Ltd, New Delhi
2. M/s Corrtech International Pvt Limited, Ahmedabad

# 2.5 The committee decided to remove the following organization from Panel 5 Electroplated coatings

1. Graure & Weil (India) LTD
2. Ronuk Group
3. Daulat International

# Item 3 ACTION TAKEN REPORT

# The committee considered the actions taken on the decisions taken during last meeting of the committee, as given at item no 3 of the agenda. After deliberation, the committee took following decisions:

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| **SI no** | **Subject** | **Decision of the committee in last meeting** | **Action Taken** |
|  | [IS 7808](#bookmark=id.23ckvvd) Code of Procedure for Conducting Studies on Underground Corrosion of Metals | In the 18th meeting, the committee deliberated on the comments made by Dr Duari and decided to constitute a **panel 10** of following members to go through the comments and suggest for issuing amendment/revision to the standard alongwith draft amendment/revision.  The comments received from the panel was circulated to the committee members on 25.08.22 but we have not received any comments.  The committee after discussion and deliberation decided to revise the standard according the comments received send the same for wide circulation for the period of 30 days.  While processing the document, member secretary was unable to find the **reference for the electrical conductivity values that are proposed to be incorporated in the standard.**  Member secretary also felt that there is a need to incorporate the **new soil map of India** if it is available. Accordingly, member secretary has consulted Dr Duari for clarification.  After the receipt of clarification, the document will be processed further.  Meanwhile, following working draft is prepared by incorporating the comments:    The committee requested Dr Duari to give suitable reference for the electrical conductivity values that are suggested to be included in the standard.  The committee requested to Dr Rakesh Barik to provide the latest data available on soil map of India and reference to electrical conductivity values of soil available with CECRI.  Committee also advised member secretary to write a letter to following Institutes and get the corrosion maps available.   1. Indian Institute of Soil Science, Bengaluru 2. Geological Survey of India 3. Soil Research Institute, Mathura road, Delhi   Inquiry was sent through email dated 01/03/2024  Indian Institute of Soil Science, Bengaluru – Mr Tapan and Mr Narendra Lenka  ICAR- National Bureau of Soil Survey and Land Use Planning Bengaluru, Delhi, Kolkata, Jorhat, Udaipur.  regarding the data related to Corrosion Map of India.  No response is received.  The committee reconstituted the panel 10 as follows:   1. Dr Gunasekaran – Convenor 2. Ms Maushumi Kakoti Talukdar- ONGC – Member 3. Dr Rakesh C Barik – CECRI – Member 4. Dr Buddhadeb Duari- Lalita Infraprojects – Member 5. Shri Lokesh Paliwal – TATA motors – Member   Committee advised the panel to discuss deliberately and prepare a document with available information and standard practices.  A 1st panel meeting was held on 13/07/2024.  Minutes:   1. Data like corrosion map of India, air pollution levels, corrosivity values of particular locations, etc. should be omitted from the standard due to its dynamic nature. An annex can be included if necessary, however, incorporating data from specific locations that frequently changes is generally not recommended. In the view of this, the **dynamic data should be deleted from the standard**. Panel members were requested to identify such data from the drafts shared so that the same can be discussed in next meeting. 2. IS 7808 and IS 8629 Parts 1, 2, and 3 are codes of procedure standards that should encompass **standard procedures followed** within the Indian context. Any necessary modifications ought to be justified and referenced appropriately. These are old standards and needs to be verified thoroughly for latest practices. 3. The panel acknowledges the preliminary work previously mentioned by Dr Duari. However, it has been determined that a thorough discussion is necessary. Consequently, the panel has decided to resume work **beginning with IS 8629 (Part 1)** and will address the subsequent parts progressively. 4. It was learned that CECRI conducts the studies on corrosion of metals hence role of CECRI is crucial. **Dr Barik** was requested to go through the standard and **share his comments** that can be discussed in the next meeting. 5. **Dr Jayant Saha** may be invited to be a part of this panel as he has also worked in atmospheric corrosion area. MTD 24 Technical Committee may also be requested to reconstitute the panel 10 with **serious members only.** 6. Shri Dushyant was asked to share the drafts of IS 8629 part 1, 2 and 3. (Attached herewith) | The committee advised Panel on Atmospheric corrosion to complete the task by 30th October. The panel may create milestones and decide their timelines to complete the tasks in planned manner. This is a long pending issue and hence should be addressed on priority. |
|  | Revision of **IS 8629:1977** - Code of practice for protection of iron and steel structure from atmospheric corrosion.  Part 1 – General Principles of corrosion and its prevention**.**  Part 2 – Pretreatment  Part 3 – Protective Schemes | Dr Duari of Lalita infrastructure informed that the data has been provided by CECRI in which data for a few stations has been changed and incorporating these changes the document may be processed further. The committee after deliberation agreed that, since CECRI has suggested only a few changes in the data, the document incorporating the latest data provided by CECRI may be sent for WC after seeking comments from members.  On review of the revised standards it was observed that the changes have been made in few clauses and there is no change in major part of the standard which consists of 47 pages. Thus, on discussion with Dr Duari it was proposed to not revise the standard but to issue an amendment to the standard.  The committee requested member secretary to prepare the document and send the document for Wide circulation for one month.  It was proposed to revise the standard with the changes approved by the committee and as the revised draft submitted by Dr. Duari.    The Committee after deliberation and discussion decided to send the draft standard for wide circulation for the period of one month after removing data mentioned in **table 5 and 6.**  Meeting with Dr Duari and Dr Barik was held on 21/02/2023 to discuss the draft.  Dr Barik has informed that there may be latest data available at CECRI. He requested 2-week time to check the availability of the data. He also kindly agreed to revise the standard based on the latest available data.  Dr Barik informed to committee that the data available is old from 2004 survey. After 2004, there was no any survey conducted. Hence, latest data is not available.  ISO 12944 different parts may also be studied for this subject.  It was also discussed that whenever there is a need of corrosion values of particular region, each project conducts its own study for corrosion values of the required site. Since, the corrosivity values change within some distance. Hence, the corrosion values indicated in standard are indicative and represents the general conditions at that particular region. Procedure is more important to conduct the studies. Emphasis should be given to procedure and whatever latest data available on soil corrosivity may be included in the standard.  Dr. Duari sent the comment received via email on 15/07/2024.  Comments were attached herewith:  2nd panel meeting was held on 18/07/2024. Dr Barik, Dr Duari and Shri Dushyant attended the meeting.  Dr Barik has suggested additions to the draft which he will share by 24/07/2024, which can be discussed in the next panel meeting.  Meanwhile members can suggest the following:   1. Clauses / tables which can be deleted. 2. Modification to clauses along with the reference. 3. Identify the dynamic data that can be deleted or put in annexure for reference. 4. Whether this standard should be limited to steel only or scope can be expanded to include more metals like alu**mi**nium.   Dr Rakesh Barik shared a draft for IS 8629 Part 1. All the corrections are marked in **blue** color.  The draft attached herewith:    Draft was shared with panel members for their comments. **Further discussion is needed**. |
|  | **MTD/24/21011****IS 5555: 1970**  **ISO 8565 : 2011**  Code of procedure for conducting field studies on atmospheric corrosion of metals First Revision | wide circulation of the document was done through standards portal on 06-09-2023 the document can be accessed at:  <https://www.services.bis.gov.in/tmp/WCMTD11121011_06092023_1.pdf>  The 21st technical committee meeting decided to adopt IS 5555 : 1970 as ISO 8565 : 2011 and sent the document for wide circulation for one month.  Subsequently, the Member Secretary found that IS 5555 : 1970 should not be adopted as ISO 8565 : 2011, as IS 5555 is very comprehensive and detailed standard. The committee requested to again review IS 5555 : 1970  Working draft attached herewith:    The committee requested Panel 10 to review the standard and give their recommendation.  Email was sent on 14/05/2024. | The committee noted the suggestion by the member secretary and advised to drop the current ongoing document MTD/24/21011. This subject should be again reviewed by the Panel on atmospheric corrosion.  Adoption of ISO 8565 should also be justified by the panel. |
|  | **IS 12753 : 1989**  Electrogalvanized coatings on round steel wire - Specification | The officer submitted the ARP through the portal which is placed below:    Remarks of MTD on the recommendation submitted in ARP: IS 4826 Specification for hot - Dipped galvanized coatings on round steel wires and IS 12753 cannot be merged since method of plating is different.  Committee was also of opinion that IS 4826 and IS 12753 should be two separate standards and should not merged as recommended in ARP.  Shri K Sridhar informed to committee that the ARP was circulated to members of ILZDA. No comments were received from the members.  The committee requested **Dr Tapan Kumar Rout** to review the ARP report, which was submitted by Satyendra Kumar Pandey and provide their recommendations regarding IS 12753:1989.  Email was sent to Dr Tapan Kumar Rout on 14/05/2024. | The committee requested **Dr. Tapan Kumar Rout and Dr. A. N. Bhagat** to take up the responsibility of the IS 12753 standard and give their recommendations for revision. |
|  | [**MTD/24/21029 IS 6745 : 1972**](https://www.services.bis.gov.in/php/BIS_2.0/StandardsFormulationV2/Upload3.php?ID=TzV4L0F3bjJMK2l5ZG5Ed09BdjNZZz09) Methods for determination of mass of zinc coating on zinc coated iron and steel articles (First Revision) | The officer submitted the ARP through the portal and gave his recommendation.  The comment file attached herewith:    Request committee member to study ISO 7989-2 Steel wire and wire products Non-ferrous metallic coatings on steel wire Part 2: Zinc or zinc-alloy coating.  The committee requested to Dr Tapan Kumar Rout review the standard IS 6745 : 1972 and give their recommendation.  Email was sent to Dr Tapan Kumar Rout on 14/05/2024.  Inputs received from Dr tapan via email dated 19 Aug :  Zn-mass determination: My comment “DETERMINATION OF MASS OF COATING ON WIRE (BELOW 5 mm IN NOMINAL DIAMETER) BY VOLUMETRIC METHOD is of no use therefore it should be deleted from IS 6745 : 1972. | The committee requested Dr. Tapan Kumar Rout, Dr. A. N. Bhagat, Shri Rajeev K. and Dr Jayanta K Saha to convene a meeting and provide recommendation for revision. Member Secretary may arrange for a meeting. |

# Item 4 DRAFT STANDARDS/AMENDMENTS FOR FINALIZATION

4.1 The committee decided to send the followings documents to publication.

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| **Sl No.** | **IS / ISO** | **Title** | **Decision of the committee** |
|  | **MTD/24/25740**  (Revision of IS 1068/ ISO 1456)  (Amalgamation of IS 1068 : 1993 and IS 12393: 1988) | Metallic and Other Inorganic Coatings Electrodeposited Coatings of Nickel, Nickel Plus Chromium Copper Plus Nickel and of Copper Plus Nickel Plus Chromium | The document was sent for wide circulation for 1 month on 03/06/2024. No comments have been received in the said period.  **The committee decided to send the document to publication stage.** |
|  | **MTD/24/25741**  (Revision of IS 11268/ISO 2143) | Anodizing of aluminium and its alloys Estimation of loss of absorptive power of anodic oxidation coatings after sealing Dye-spot test with prior acid treatment | The document was sent for wide circulation for 1 month on 03/06/2024. No comments have been received in the said period.  **The committee decided to send the document to publication stage.** |
|  | **MTD/24/25769**  (Revision of IS 8602/  ISO 3613) | Metallic and Other Inorganic Coatings Chromate Conversion Coatings on Zinc Cadmium Aluminium-Zinc Alloys and Zinc-Aluminium Alloys Test Methods | The document was sent for wide circulation for 1 month on 05/07/2024. No comments have been received in the said period.  **The committee decided to send the document to publication stage.** |
|  | **MTD/24/25739**  (Revision of IS 3266/  ISO 27874) | Metallic and Other Inorganic Coatings Electrodeposited Gold and Gold Alloy Coatings for Electrical Electronic and Engineering Purposes Specification and Test Methods | The document was sent for wide circulation for 1 month on 15/07/2024. No comments have been received in the said period.  **The committee decided to send the document to publication stage.** |
|  | **MTD/24/21005**  (Revision of IS 6651) | Specification for anodized aluminium for automobile use | The document was sent for wide circulation for 1 month on 20/12/2022. No comments have been received in the said period.  **The committee decided to send the document to publication stage.** |
|  | **MTD/24/21008**  (Revision of IS 1067) | Specification for electroplated coating of silver for decorative and protective purposes | The document was sent for wide circulation for 1 month on 23/12/2024. No comments have been received in the said period.  **The committee decided to send the document to publication stage.** |

**4.2** The committee noted the information given in. 4.2 and 4.3 of the agenda.

# Item 5 DRAFT STANDARD / AMENDMENTS FOR APPROVAL FOR WIDE CIRCULATION

The committee decided to send the following documents for wide circulation.

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| **Sl No.** | **IS / ISO** | **Title** | **Decision of the committee** |
|  | **MTD/24/25073**  (Amalgamation of IS 1340 and IS 9839) | Code of practice for chromate conversion coating on zinc and cadmium coated articles and zinc base alloys | The document was sent for P Draft for 21 days on 15/03/2024. No comments have been received in the said period.  **The committee decided to send the document for wide circulation of 1 month.** |
| Specification for chromate conversion coatings on electroplated zinc and cadmium coatings |
|  | **IS 10461(Part1) : 1994** | Resistance to Inter-Granular Corrosion of Austenitic Stainless Steels - Method for Determination - Part 1 : Corrosion Test in Nitric Acid Medium by Measurement of Loss in Mass (Huey Test) | The document was sent for P Draft for 21 days on 03/06/2024. No comments have been received in the said period.  **The committee decided to send the document for wide circulation of 1 month.** |
|  | **IS 2629**  (Amalgamation of IS 2629: 1985, IS 6159: 1998 and IS 4759: 1996) | Code of Practice for Process Design Testing and Application of Hot Dip Galvanizing of Iron and Steel - Part 1 : Batch Process | The document was sent for P Draft for 30 days on 02/08/2024. No comments have been received in the said period.  **The committee decide to send the document for wide circulation of 1 month.** |
|  | **IS 13677 : 1993** | Electroless nickel - Phosphorus coatings - Specification | There exists a similar ISO standard on electroless nickel phosphororus coating, **ISO 4527 : 2003**  Metallic coatings — Autocatalytic (electroless) nickel-phosphorus alloy coatings — Specification and test methods.  Initial comparison between IS 13677 and ISO 4527 was provided by the member secretary. Committee requested Dr J N Balaraju- NAL to further study both the standards and provide a suitable recommendation.  Dr J N Balaraju provided following recommendation:  “Details provided in the document: Comparison with ISO 4527 : 2003 is satisfactory. The ISO 4527 : 2003 document covers all the details provided in IS 13677 : 1993 and it is recommended.”  **In the view of this, the committee decided to adopt ISO 4527 : 2003 for revision of IS 13677 and send the document for wide circulation of 1 month.** |

# Item 6 DRAFTS UNDER PREPARATION

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| **SI no** | **Subject Title** | **Decision of the committee in last meeting** | **Decision of the committee** |
|  | **IS 3618 : 1966**  Specification for Phosphate Treatment of Iron and Steel for protection against corrosion | Dr P.K. Bala, RDSO sent a comment on IS 3618 via email dated 26-10-2022.  The comment attached here.    A working draft has been prepared incorporating all the received comments.  **Clarification is sought** for many clauses that need to be discussed.    The committee suggested that more working group meetings are required for a discussion on the comments received regarding IS 3618.  It was discussed that phosphate coating is generally used in automotive and appliances industry. So, an expert may be included from that sector. Dr A N Bhagat and Dr Tapan Kumar Rout was requested to suggest an expert on ‘**Specification for Phosphate Treatment of Iron and Steel for protection against corrosion’**.  A research project ‘Study of methods of test for phosphate coatings for determination of characteristics of phosphate coatings on metallic substrate’ has been floated on BIS website. Data collected from this study will also be useful in revision of IS 3618.  This standard can be revised after the study is received from R&D project ‘Study of methods of test for phosphate coatings for determination of characteristics of phosphate coatings on metallic substrate’  Project is awarded to NIT Jalandhar  Project Lead: Dr Sumit Sharma,  Project code: MTD 0181  Duration: 4 Months  Project start date : 25 June 2024 | The committee advised the member secretary to arrange a meeting with project leader **Dr. Sumit Sharma from NIT Jalandhar** to discuss the progress of the R&D project.  The committee also requested **Dr Tapan K Rout - Tata Steel Limited (Jamshedpur)** and **Dr P K Bala - RDSO** to guide the project leader on the R&D project. |
|  | **IS 10493 : 1983**  Method for corrosion protection tests for temporary corrosion preventives. | The committee deliberated on the comments made by Dr Duari and decided to constitute a panel. **Panel 10** of following members to go through the comments and suggest for issuing amendment/revision to the standard along with draft amendment/revision.  The comments received from the member was circulated to the committee members on 25.08.22 but we have not received any comments.  Recheck Clause 8.1 Sulphur dioxide test (IP test)  Remarks of the member secretary need to be clarified.    The committee advised member secretary to contact **Mr Sudhakar Bonde - Subodh Technology Navi Mumbai** and seek their comments on the draft IS 10493  Mr Sudhakar Bonde shared his inputs on IS 10493 which is as follows:  “I referred cross specification like IS 1448 also I found the draft fit for the purpose.  **My suggestion:** We should have control specimen for each type of material readily available.”  The committee requested Panel 10 to review IS 10493 : 1983 and give their recommendation.  Email was sent to panel 10 on 14/05/2024 and 23/07/2024. | The committee advised the member secretary to contact TCR Engineering Services Private Limited, Navi Mumbai, regarding **IS 10493.** |
|  | [**IS 8221**](about:blank)  Code of practice for corrosion prevention of metals and metal components in packages. | The panel has provided the following remark    The comments received from the member was circulated to the committee members on 25.08.22 but we have not received any response.  Some withdrawn standards have been referred in the draft. Alternate standards need to be identified.    Panel was again requested to study the comments and replace withdrawn standards with necessary latest Indian Standards.  Suprabha protective products pvt ltd should be contacted and comments should be requested from them on IS 8221.  The last reminder mail was sent on 03/04/2024 to Suprabha Protective Products Pvt Ltd.  Recommendation was awaited.  The committee requested Panel 10 to review the IS 8221 : 1976 and give its recommendation.  Email was sent to panel 10 on 14/05/2024 and 23/07/2024. | The committee advised member secretary to seek comments from from Mr. P.K. Mathew, CEO of Cortec Corrosion Solutions India, Pvt. Ltd. (Bangalore,. India) on revision of IS 8221. |
|  | [**IS 9077 : 1979**](about:blank)  Corrosion protection of steel reinforcement in RB and RCC construction | Dr Rajeev Kandhari’s comment on IS 9077 via email dated 02/08/2023 is placed below:    Following are the comments from Dr J K Saha and Shri Rajeev Kandhari as per the discussion held on 23/11/2023 :    The committee reconstituted the existing working group:   1. Dr Jayanta K Saha 2. Dr V. Saraswathy - CECRI 3. Dr Rajeev Kandhari – Galbro Ispat Galvanizers pvt ltd 4. Dr G. Pillai- IIT Madras 5. Dr Durvesh 6. Expert to be recommended by Dr A N Bhagat and Dr Tapan Rout   De Jayanta K Saha informed the committee that in IS 9077 there are some points that are to be addressed with civil engineering background for IS 456 and concrete grades.  Dr A N Bhagat commented that sacrificial cathodic protection technique should also be included in the draft. The working group members were requested to discuss the same and provide recommendation.  The committee decided to appoint Dr Radhakrishna Pillai from IIT Madras as the working group convener.  Committee advised the working group to review the document.  Email was sent to panel 10 on 07/08/2024.  Inputs received from Dr Tapan vide email dated 19 Aug :  Expert names for RCC:  (a) Dr Ganesh Kumar Sahu, Chief Scientist, Bridge Engineering and Structures, CSIR-CRRI,  (b) Prof. P. Dinakar, Professor, IIT-Bhubaneswar;  c) Dr. Ramakrishna GUDIMELLA [gramakrishna@ptuniv.edu.in](mailto:gramakrishna@ptuniv.edu.in); Pondicherry University;  d) G. RAMESH;  Phone No.91-44-22549152 Principal Scientist Fax No.91-44-22541508; CSIR-Advanced Concrete Testing Evaluation Laboratory e) School of Infrastructure; Chennai ; | The committee advised the working group to address the issue as soon as possible and recommend a working draft for revision of IS 9077. |
|  | [**IS 10221 : 2008**](about:blank)  Coating and wrapping of underground mild steel pipelines - code of practice | Letter dated 14th June 2022 received from IWL on inclusion of prefabricated tapes based on bitumen for wrapping, coating of buried MS pipelines as per IS 10221.    It was decided that IWL should submit a draft proposing the changes. The same will be discussed in next panel meeting.  Committee advised M/s IWL to identify Manufacturers and users of prefabricated bituminous tapes.  A meeting should be organised with these industries and need of standard can be established.  IS 10221 should be studied along with [IS 15337](about:blank) since it is a product specification which is also referred in IS 10221.  Dr Tapan Rout has suggested that material of the pipes should also be clearly mentioned in the standard as the standard should address the compatibility of the tape material and pipe material.  Manufacturers of bituminous tapes – M/s IWL was also invited to the meeting to appraise the committee about their concerns. They shared that bitumen tapes are being used in corrosion protection of water pipelines, fire fighting equipment’s, irrigation sectors, etc. They requested the committee to include IWL to the working group or panel being formed to develop the standard. They have also suggested that users of bitumen tape should also be a part of the working group.  After the deliberation, committee advised member secretary to conduct a special stakeholder meeting with all the stakeholders like manufacturers of coal tar and bituminous tapes, users, govt bodies and test labs to collect the views from each sector on developing the standard.  Potential experts for the development of the standard need to be identified and placed before the committee so that committee can form a working group for the same.  Stakeholder consultation meeting for development of comprehensive standards for preformed bituminous tapes within the Indian standards framework was conducted on 11 Jan 2024. Summary of the discussion link given below for your reference.  <https://docs.google.com/document/d/1nWUDP2T4S6dFQi8_Lr6jm5m2PXo0El2A/edit?usp=sharing&ouid=102909214286571029063&rtpof=true&sd=true>  Committee noted the summary of stakeholder consultation and came to conclusion that since there was no sustained opposition to formulation of the standard on preformed bituminous tapes. The draft standard along with relevant reference to national and international standards or established technical publications should be submitted. If reference is not available then proposer or any other industry/lab can provide the supportive test data for that parameter. R&D provisions laid by BIS can also be exercised if need arises.  Shri Arham Shafiq Rahman – IWL shared test reports on preformed bitumen tapes for the tests mentioned below via email dated 11/06/2024.   1. Thickness of the Tape 2. Softening Point 3. Tensile Strength 4. Peel Strength 5. Dielectric Strength (Electrical Strength) 6. Water Absorption (%) 7. Microbiological Degradation of Bitumen tapes \_ (Technical paper, Pg 8706, Lines 12 to 18) 8. Degradation by UV for Bitumen Tapes (Clause 4 - Conclusions) 9. Corrosion Resistance - Performance Certificates attached   (Test reports can be made available to members on consent from M/s IWL)  Shri Arham Shafiq Rahman – IWL shared a B2 EFF test report FLL Procedure via email dated 18/06/2024- to establish the anti-root penetration with added chemical.  Shri Arham Shafiq Rahman – IWL shared drafts for ‘Coating and Wrapping of Underground Mild Steel Pipelines  : Bitumen Tape Specification’ and ‘Coating and Wrapping of Underground Mild Steel Pipelines  : Bituminous Hot Melt Enamel Coatings’  via email dated 24/07/2024.  The draft is attached herewith:    The draft on bitumen tapes was shared with panel on corrosion protection of pipelines. The comments received from Dr Duari on the draft via email dated 05/08/02024 is placed below: | Committee has setup a dedicated working group for the formulation of standard on Bitumen Tapes (*see item no. 2.3 of this minutes of meeting*).  The committee advised Dr Duari and Smt. Maushumi to provide relevant test reports, technical papers or reports for the root penetration and microbial attack on bitumen tapes by 20th September 2024.  The working group is advised to go through all the relevant documents submitted by different stakeholders and provide a suitable working draft.  This is a long pending issue hence, actions may be expedited. |
|  | **IS 1573 : 1986**  Specification for electroplated coatings of zinc on iron and steel | The ARP was allotted to BIS Officer Harsh Sonkar  Last reminder mail sent on 24/04/2023, 05/06/2023  The recommendation is still awaited.  Committee requested member secretary to follow up with the BIS officers.  Shri Harsh Sonkar submitted the ARP report for IS 1573 : 1986 through the standards portal on 26/11/2023.  The ARP report is attached herewith:    The committee requested to Dr J N Balaraju review the ARP report, which was submitted by Harsh Sonkar – BIS and give their recommendations.  Comments were received by Dr J. N. Balaraju - NAL via email dated 27/05/2024.  The comments were attached herewith: | The committee noted the comments of Dr J N Balaraju and requested him to submit the comments again stating the exact change that is required to be incorporated. |
|  | [**IS 8062 (Part 2) : 2006**](https://www.services.bis.gov.in/php/BIS_2.0/bisconnect/knowyourstandards/Indian_standards/isdetails_mnd/20420)  Cathodic protection of buried pipeline/ structure for transportation of natural gas, oil and liquids - Code of practice (First Revision) | Revised draft received from Dr Duari and are placed below    The committee decided to constitute a working group for review of IS 8062 (Part 2) : 2006  The working group members are as follows:   1. Dr Raghavanachari Suresh (convener) 2. Ms Maushumi of ONGC 3. Dr G. Gunasekaran of Naval Materials Research Laboratory 4. Dr Duari – Lalita infraprojects   Committee requested to review the standard and provide revised draft.  The committee advised to member secretary conduct a working group meeting and resolve the comments.  The committee also decided to appoint Dr Raghavanachari Suresh as the convener of the working group.  A working group meeting was conducted on 12/08/2024, revised draft as suggested by WG is placed below:    Needs further discussion and inputs from Oil and Gas industry.  Committee is requested to advise whether this standard should also be applicable to water pipelines? If the same CP technique is used for water pipelines. Relevant expert may be requested to address this query. | Committee noted the progress of working group. The committee advised that, let this standard IS 8062 (Part 2) be limited to applications in oil and gas sector. A separate standard or section in the same IS series can be developed in future.  Committee advised working group to recommend a revised working draft within 3 weeks’ time. The draft provided by working group shall be circulated to the committee members for the period of 30 days. |

# Item 7 COMMENTS ON PUBLISHED STANDARDS

Comments received on published standard through the standards portal dated 31st March 2024.

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| **Sl no.** | **IS & Title** | **Commenter** | **Comments/Suggestions along with Justification for the Proposed Change** | **Decision of the committee in last meeting** | **Decision of the committee** |
| 1. | **IS 4826 : 2023**  **Hot-Dip Galvanized Coatings on Round Steel Wires ― Requirements** | Ritwick Kar- BIS | As per Cl. 9.2 Galvanizing Test, “The zinc coating shall conform to ‘Heavy Coating” as laid down in IS 4826”. As per IS 4826 Heavily-Coated Wire can be Hard or Soft for which requirements such as Mass of Coating and Number of Dips are different. The same (Hard or Soft) may be mentioned for the product in Cl. 9.2 Galvanizing Test. | The committee has decided that the comments received on IS 4826 : 2023 will be reviewed by panel members, and the comments will be discussed during a panel meeting.  Inputs from Shri Rajeev K. :  Based on the data gathered from both the ISO standards viz. ISO 7989-2 & 1, attached is my submission for your review and further consideration. The collective details gathered may be referred as interpretation of ISO standards for considering the "testing and adhesion requirements of Hot dip galvanising of round steel wire". Also please note I have tried my best to collaborate available data from referred ISO standards only for providing clarity | The committee noted the views of Shri Rajeev K.  Committee advised panel on Hot Dip Galvanizing to review the comments of Shri Ritwick and Shri Rajeev.  Panel to provide suitable recommendation. |

# Item 8 NEW SUBJECTS

The Committee decided to set up a dedicated panel for the formulation of standards related to hydrogen embrittlement. The details are as follows:

**Scope of work**: Formulation and developments of Indian standards related to hydrogen embrittlement. Address the queries/questions on Indian standards and provide suitable clarifications. Provide suggestions and comments on ISO ballots related to hydrogen embrittlement. Review and address the suggestions/recommendations provided by MNRE for the success of NATIONAL GREEN HYDROGEN MISSION.

**Timeline**: 30th October 2024

**Composition of the panel is mentioned below**:

1. Dr S. Ningshen – IGCAR, Kalpakkam (Convenor)
2. Dr Supratik Roychowdhary – BARC, Mumbai
3. Dr Raghuvir Singh – CSIR-NML, Jamshedpur
4. Dr Tapan Kumar Rout – TATA Steel, Kolkata
5. Dr Jayanta K Saha – S J Engineers & Consultants

The tasks assigned to the Panel are as follows:

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| **Sl no.** | | **Topic** | **Proposer** | | **Remarks** | | **Remarks by the committee** | |
|  | **[ISO 16573-1:2020](#one)**  Steel — Measurement method for the evaluation of hydrogen embrittlement resistance of high strength steels  *Part 1: Constant load test* | | | MNRE | | 2nd report of the WG on Regulations Codes and Standards  MNRE has shared the *draft* report containing the **second set of recommendations** to Ministries regarding regulations, codes and standards.  {*Two out of the three subgroups (Subgroups I and II) have submitted detailed recommendations based on the analysis of national and international frameworks.*}  A meeting held on 14/06/2024 and 19/07/2024, held for discussing the second set of recommendations received from MNRE.  Minutes attached herewith:    **The committee may discuss and decide to adopt ISO standards.** | | **IS 17175 : 2020** is due for review this year. The revised ISO 16573 is divided into two parts, as follows:  **ISO 16573-1 : 2020** Steel — Measurement method for the evaluation of hydrogen embrittlement resistance of high strength steels Part 1: Constant load test; and  **ISO** **16573-2 : 2022** Steel — Measurement method for the evaluation of hydrogen embrittlement resistance of high-strength steels Part 2: Slow strain rate test.  The standard due for review was circulated to **Panel 9 ‘Testing Method**’ via email dated 09/08/2024.  Comments from Dr A. Ravi Shankar – IGCAR, received via email dated 12/08/2024. The comments on ISO 16573-2:2022are given below:   1. Water quality (DM water) and chemicals of analytical reagent grade should be specified for preparing solutions. 2. In table 2, the time for dry process is 2 h, whereas in part-1 of this standard it is mentioned as 4 h. The reason for deviation or editorial correction need to be incorporated. 3. In section 6.2.2, Please elaborate or provide more details on “homogenization treatment at room temperature exposure”. 4. In section 8.2, point c, the sentence may be corrected as “For full characterization of the hydrogen embrittlement behaviour of the material, ………..”. | |
|  | **[ISO 16573-2:2022](#two)**  Steel — Measurement method for the evaluation of hydrogen embrittlement resistance of high-strength steels  *Part 2: Slow strain rate test* | | | MNRE | |  | |  | |
|  | **ISO 17081:2014**  Method of measurement of hydrogen permeation and determination of hydrogen uptake and transport in metals by an electrochemical technique | | | MNRE | |  | | The panel may address the issue and recommend the suitable actions. | |
|  | **ISO 10587:2000**  Metallic and other inorganic coatings — Test for residual embrittlement in both metallic-coated and uncoated externally-threaded articles and rods — Inclined wedge method | | | MNRE | |  | | The panel may address the issue and recommend the suitable actions. | |
|  | **ISO 2626:1973**  Copper — Hydrogen embrittlement test | | | MNRE | |  | | Review IS 6243 : 1985 “Method of hydrogen embrittlement test for copper” vis a vis ISO 2626 and recommend a revised draft. | |
|  | **ISO 15330:1999**  Fasteners — Preloading test for the detection of hydrogen embrittlement — Parallel bearing surface method | | | MNRE | |  | | The committee noted the information that, ISO 15330 : 1999 standard has been adopted by **PGD 37 “General Engineering and Fasteners Standards Sectional Committee**” as **IS 17445 : 2020 / ISO 15330 : 1999** Fasteners — Preloading Test for the Detection of Hydrogen Embrittlement — Parallel Bearing Surface Method. | |
|  | Standard Practice for Evaluation of Hydrogen Uptake, Permeation, and Transport in Metals by an Electrochemical Technique (ASTM G 148) | | | MNRE | | MTD was requested to examine if Any Indian Standard exists on the similar Subject of Evaluation of Hydrogen Uptake, Permeation and Transport in Metals. If No Indian Standard is available, MTD was requested to review the adoption / Formulation of similar standard as that of ASTM G148 (2018).  There is no Indian Standard under MTD which addresses this subject. | | The panel may address the issue and recommend the suitable actions. | |
|  | Test Methods For Evaluating Material Compatibility In Compressed Hydrogen Applications – Metals (ANSI/CSA CHMC-1: 2014) | | | MNRE | | MTD was requested to carry out a Comparative analysis of this standard with IS/ISO 11114-4 and come up with recommendation on whether a new standard based on ANSI Document is required or IS/ISO 11114-4 is sufficient. | |  | |
|  | Embrittlement Testing for Hydrogen Piping and Storage Bullets | | | MNRE | | MTD was requested to examine whether already existing standards cover the subject of “Embrittlement Testing for Hydrogen Piping and Storage Bullets”. | |  | |
|  | Test methods for evaluating material compatibility in compressed hydrogen applications – metals (ANSI/CSA CHMC 1) | | | MNRE | | Ministry of New and Renewable Energy through its letter has shared first set of recommendations to Ministries regarding regulations, codes and standards.    As per the recommendation of subgroup formed at MNRE, 6 standards pertain to MTD and the subgroup has recommended to adopt them as it is.  According to the recommendation of MNRE, 3 standards of ISO were adopted as same. (IS 18463 : 2023 / ISO 9587:2007, IS 18436 : 2023 / ISO 9588 : 2007, IS 18435 (Part 11) : 2023 / ISO 7539-11 : 2013)  Remaining three standards, for which a word draft will be provided by MNRE. As soon as the word draft is received, it will be circulated to the committee members and further discussion will be initiated. | |  | |
|  | Storage and Transportation systems for gaseous hydrogen - Part 3. Test method for determination of the susceptibility of metallic materials to hydrogen. ( GBIT-34542.3- Chinese standard) | | | MNRE | |  | |  | |
|  | Method for measurement of pressure composition-temperature (PCT) ( JIS H 7201- Japanese standard) | | | MNRE | |  | |  | |
|  | ISO 15730 : 2023 Metallic and other inorganic coatings — Electropolishing as a means of smoothing and passivating stainless steel | | |  | |  | | The Committee requested to Dr Tapan Kumar Raut **-** Tata Steel Limited, Kolkata study the ISO 15730 : 2023 standard and give their recommendation with in a two weeks along with justification. | |

**8.2** The committee noted the information given in item no 8.2 of the agenda of the meeting.

# Item 9 TECHNICAL ISSUES

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| **Sl No.** | IS no and Title | Issue | Action Proposed |
| 1. | **IS 2605 : 1985** Specification for zinc anodes for electroplating  **IS 2602 : 1989** Cadmium anodes for electroplating specification (First Revision)  **IS 2605 : 2023** Zinc Anodes For Electroplating - Specification (Second Revision) | MTDC in its 31st meeting which was held on 20th March 2024 has approved the transfer of subjects to MTD 24.  **Under Process.** | **Committee noted the information.** |
| **2.** | IS 6243 : 1985 Method of hydrogen embrittlement test for copper | During the 30th Division council meeting, it was decided that hydrogen embrittlement should be dealt by MTD 24 committee and all the standards on hydrogen embrittlement under MTD department are to be transferred to MTD 24.  MTDC in its 31st meeting which was scheduled on 20th March 2024 has approved the transfer of subjects to MTD 24.  IS 6243 has been transferred from MTD 3 to MTD 24. | **Committee noted the information.** |

# Item 10 INTERNATIONAL ACTIVITIES

10.1 The committee noted the information given under item 10.1 of the agenda.

## **10.2 India’s participation in ISO meetings**

## The committee noted the information given under item 10.2 of the agenda.

## **10.3 Harmonizing of Indian standards with ISO standards**

**10.3.1** Efforts to be made to harmonize maximum number of BIS standards with ISO standards **-** While harmonizing the Indian standards with International standards the reasons/justifications are needed to be given in the foreword of Indian Standards, if there is any deviation from the provisions stipulated in the corresponding ISO standards.

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| **Sl No.** | **IS Number** | **Relevant ISO standards** | **Decision of the committee in previous meeting** | **Decision of the committee** |
|  | **IS 5905 : 1989**  Sprayed aluminium and zinc coatings on iron and steel - Specification (First Revision) | ISO 2063-1:2019 Thermal spraying — Zinc, aluminium and their alloys — Part 1: Design considerations and quality requirements for corrosion protection systems  ISO 2063-2 : 2017 Thermal spraying — Zinc, aluminium and their alloys — Part 2: Execution of corrosion protection systems | Panel on Thermal spray was requested to study IS 5905 vis a vis ISO 2063 part 1 & 2. And recommend their adoption.  A panel meeting was scheduled on 06/03/2024. Dr Satish Tailor joined the meeting.  He was appraised about the subject and his role as panel convener.  Following comment was received from Dr Satish Tailor – Metalizing equipments Pvt. Ltd. via email dated 08/08/2024:  I have gone through all these standards and I **recommend the adoption of ISO 2063-1 and ISO 2063-2 as revision of IS 5905.**  Justification- IS 5905, content is so brief and not in detail. Many important things are missing which are given in detail in ISO 2063-1 and ISO 2063-2. | The committee requested Dr. Duari to study the ISO 2063-1 : 2019 and ISO 2063-2 : 2017 and provide their recommendations for the adoption of these ISO standards along with justification for adoption. |

**10.3.2** The committee noted the information given in item 10.3.2 of the agenda.

# Item 11 PROGRAMME OF WORK

**11.1** The committee noted the information given in item 11.1 of the agenda.

## **11.2 Review of Indian Standards**

**11.2.1** Thecommittee noted the information given in item 11.2.1 to 11.2.5 of the agenda.

**11.2.2** Standards that are due for review this year are as follows:

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| **Sl. No.** | **IS no.** | **Title** | **Last date of due for review** | **Remarks** | **Decision of the committee** |
|  | **IS 17175 : 2020**  **ISO 16573 : 2015** | Steel ― Measurement Method for the Evaluation of Hydrogen Embrittlement Resistance of High Strength Steels | March, 2025 | **IS 17175 : 2020** is due for review this year. The revised ISO 16573 is divided into two parts, as follows:  **ISO 16573-1 : 2020** Steel — Measurement method for the evaluation of hydrogen embrittlement resistance of high strength steels Part 1: Constant load test; and  **ISO** **16573-2 : 2022** Steel — Measurement method for the evaluation of hydrogen embrittlement resistance of high-strength steels Part 2: Slow strain rate test.  The standard due for review was circulated to **Panel 9 ‘Testing Method**’ via email dated 09/08/2024.  Comments from Dr A. Ravi Shankar – IGCAR, received via email dated 12/08/2024. The comments on ISO 16573-2:2022are given below:   1. Water quality (DM water) and chemicals of analytical reagent grade should be specified for preparing solutions. 2. In table 2, the time for dry process is 2 h, whereas in part-1 of this standard it is mentioned as 4 h. The reason for deviation or editorial correction need to be incorporated. 3. In section 6.2.2, Please elaborate or provide more details on “homogenization treatment at room temperature exposure”. 4. In section 8.2, point c, the sentence may be corrected as “For full characterization of the hydrogen embrittlement behaviour of the material, ………..”. | See **item no. 8 sl no.** **[1](#one1) and**[**2**](#Two2)of this minutes of meeting. |

# Item 12 R&D PROJECTS FOR ESTABLISHMENT/REVISION OF INDIAN STANDARDS

The committee noted the information as given in item 12 of the agenda.

# Item 13 LATEST INITIATIVES TAKEN BY BIS:

**13.1** Committee noted the information as given in item 13 of the agenda of the meeting.

**13.2 Tentative Annual Calendar of Technical Committee Meetings**

Annual meeting calendar which will be hosted on BIS website is placed below. Committee will try to adhere to the annual calendar to achieve our targets in more timely manner.

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| **Quarterly Meeting Schedule 2024-25** | | | | | | | | | | | |
| **April, 2024** | **May, 2024** | **June, 2024** | **July, 2024** | **August, 2024** | **September, 2024** | **October, 2024** | **November, 2024** | **December, 2024** | **January, 2025** | **February, 2025** | **March, 2025** |
| **05th April** | - | **-** | **-** | **23rd August**  **28th August** | **-** | **-** | **-** | **3rd week** | **10th January** | **-** | 3rd week |

# ITEM 14 TASKS ASSIGNED TO THE TECHNICAL COMMITTEES BY BIS:

The committee noted the information as given in item 14 of the agenda.

# Item 15 DATE AND PLACE OF NEXT MEETING

The committee expressed willingness to schedule next meeting in 3rd week of December and the last meeting of Financial year in March.

# Item 16 ANY OTHER BUSINESS

No any other information.