

## MINUTES OF MEETING

### BUREAU OF INDIAN STANDARDS (METALLURGICAL ENGINEERING DEPARTMENT)

#### Powder Metallurgical Materials and Products Sectional Committee, MTD 25

**Meeting Date** 30 August 2024, (Wednesday)

**& Time** 03:00 PM

**No. of Meeting** 21<sup>th</sup> TC Meeting

**Venue** Hybrid Meeting (IIT Kanpur)

**Chairman:** Dr Anish Upadhyaya

**Member Secretary:** Shri G. Ram Sai Kumar

**Members Present:**

**Physically:**

Sl No.	Organization	Representative(s)
1.	IIT Kanpur	Dr Anish Upadhyaya (Chairman)
2.	Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), Hyderabad	Dr Gururaj Telasang
3.	CSIR-Institute of Minerals and Materials Technology, Bhubaneswar	Dr. Mayadhar Debata
4.	CSIR-Institute of Minerals and Materials Technology, Bhubaneswar	Dr. Pradyut Sengupta
5.	CSIR- Central Electro Chemical Research Institute, Karaikudi	Dr. Deepak Kumar Pattanayak
6.	Emitec Technologies India Private Limited, Pune	Mr. Shrikant Biradar
7.	Emitec Technologies India Private Limited, Pune	Mr. Vishal Sadafal
8.	Hoganas India Ltd (Ahmednagar)	Mahesh Nipanikar

**Virtually:**

Sl No.	Organization	Representative(s)
1.	Bhabha Atomic Research Centre, Mumbai	Dr Amit Sinha
2.	Bharat Heavy Electricals Ltd, Hyderabad	Shri B.K. Pant/ Shri Vivek Arya (Alternate)
3.	Defence Metallurgical Research Laboratory, Hyderabad	Dr. Mithun Palit (tried to join)
4.	Defence Metallurgical Research Laboratory, Hyderabad	Dr. G Prabhu (Alternate) (tried to join)
5.	Electronica Tungsten Limited, Nasik	Shri B.V. Pathak (Alternate) (Virtual)
6.	Innomet Advanced Materials Pvt Ltd, Hyderabad	Shri Vinay Chilakapati

Sl No.	Organization	Representative(s)
7.	Kennametal India Ltd, Bangalore	Shri Alok Bhaskar
8.	Ministry of Defence (CQA), Ichapur	Shri Rupesh banait
9.	National Metallurgical Lab, Jamshedpur	Dr. V.C. Srivastava
10.	Society of Indian Automobile Manufacturers (SIAM), New Delhi	Shrimati Mukti
11.	The Metal Powder Co Ltd, Madurai	Shri P. Sundarapandian
12.	The Metal Powder Co Ltd, Madurai	Shri Chandra shekar (Alternate)
13.	The Metal Powder Co Ltd, Madurai	Shri R. Krishna Moorthy (Alternate)

## Item 0 GENERAL

### 0.1 Welcome remarks by Member Secretary

Shri Ram Sai Kumar Gedela (Member Secretary of MTD 25) Welcomed Chairman Dr. Anish Upadhyaya, and all the members who present physical and via video conference to the 21<sup>th</sup> TC Meeting of MTD 25. He informed about latest reforms to hold quarterly meeting, at least 3 meeting in a year and fixed the tentative date and venue for the TC Meeting in which one meeting should be physical. He also informed that the attendance of the committee member in TC meeting is mandatory if any members fail to attend the consecutive two meeting then organization can be terminated from the committee. He also informed that the each and every committee members has to respond the mail and not only physically presence but proactively take part in the committee.

### 0.2 Opening Remarks by the Chairman


Prof. Anish Upadhyaya, the Chairman of the Committee, MTD-25 had welcomed the members of the Committee to the 21<sup>th</sup> meeting of Powder Metallurgical Materials and Products Sectional Committee, MTD 25. He thanked all the members for taking time out of their busy schedule and attending the meeting. During his address he requested all the members of the Committee to take active participation in review/revision the Indian Standards as well as International Standards.


## Item 1. CONFIRMATION OF MINUTES OF LAST MEETING





Since, there were no comments on the **minutes of 20th meeting of Powder Metallurgical Materials and Products Sectional Committee, MTD 25** held on **08 May 2024** via Virtual Platform (Webex), the Committee **confirmed the minutes** as circulated vide BIS letter no. **MTD-25/A-2.20** dated **01-07-2024**.



## Item 2. ACTION TAKEN REPORT






The Committee considered the summary of Actions taken as given in Annexure-I of the agenda of the Meeting and decided as follows:





Sl. No.	Subject	Decision of the committee in the Previous Meetings	Action taken on the decision of the Committee	Decision of the committee
1.	New Indian standard on Tungsten based heavy alloys used in Defence sector.	The committee after deliberation decided to formulate standards on heavy alloys and constituted the following <b>panel 4</b> for the same: <ol style="list-style-type: none"> <li>Dr Anish Upadhyaya – IIT – Convener</li> <li>Shri Ramesh Rao- Kenna metals</li> </ol>	Panel meeting was held on 24 July 2024. Minutes of the meeting is placed below:   2nd Minutes of Panel Meeting (1).dc	Committee after detailed deliberation, requested to member secretary to prepare the basic draft within 1 month and also requested <b>CSIR-IMMT</b> to review the draft document. In case of any R&D required for



Sl. No.	Subject	Decision of the committee in the Previous Meetings	Action taken on the decision of the Committee	Decision of the committee
		<p>3. Shri Badri Vishal Pandey – Midhani</p> <p>4. Shri Vinay Chilakapati - Innomet Powders</p> <p>5. Shri Jobin Koshy – NFC, Hyderabad</p> <p>6. Dr G Apparao – DMRL</p> <p>7. Shri V K Sohal - CQA Metals –</p> <p>8. Dr Lokesh Pathak - NML</p> <p>9. Representative from Plancee India</p> <p>10. M/s CSIR-IMMT</p> <p>In the 16<sup>th</sup> meeting, M/s CSIR-IMMT to be included into the <b>Panel-4</b> prepared in the previous meeting and will propose a new draft standard on Tungsten heavy alloys powders before the next committee meeting.</p> <p>In the 17<sup>th</sup> Meeting, the committee after detailed deliberation proposed to co-opt following members into Panel-4 and requested member secretary to seek their interest:</p> <p>i) Dr Mayadhar Debata of CSIR-IMMT</p> <p>Committee requested the panel to submit their recommendations in next three months Also, as Dr Lokesh Pathak of M/s NML is superannuated, Dr V C Srivastava will replace him.</p> <p>In 18<sup>th</sup> TC Meeting, The committee after detailed deliberation requested <b>panel-4</b> to conduct a panel meeting within one month and requested M/s CSIR-IMMT to provide a working draft before the next meeting/ within three month whichever is earlier.</p> <p>Further, Dr Anish Upadhyaya – IITK and M/s CSIR-IMMT had requested for funding to conduct the R&amp;D work.</p> <p> TOR for RnD on Hardmetals MTD25 f</p> <p>In 19<sup>th</sup> TC Meeting, The committee wants to include strain rate in deliverables and finalized the TOR.</p>	<p>Panel requested member secretary to prepare the basic draft standard and circulate among the panel members to incorporate necessary Specifications.</p> <p>Further, panel decided to send the working draft separately to G Prabhu and Mithun Palit of M/s DMRL for their views.</p> <p>Also, As per recommendation of the panel, MIDHANI and NFC has been withdrawal from the panel-4.</p> <p>Modified list of the panel member are given below:</p> <ol style="list-style-type: none"> <li>1. Dr Anish Upadhyaya – IIT – Convener</li> <li>2. Shri ALOK BHASKAR - Kenna metals</li> <li>3. Shri Uday bindre - Innomet Powders</li> <li>4. Dr Mithun Palit – DMRL</li> <li>5. Shri Rupesh banait - CQA Metals –</li> <li>6. Dr. V.C. Srivastava - NML</li> <li>7. M/s CSIR-IMMT</li> </ol>	<p>validation of data, <b>Terms of reference</b> may be prepared and R&amp;D has to be floated on BIS website.</p>

Sl. No.	Subject	Decision of the committee in the Previous Meetings	Action taken on the decision of the Committee	Decision of the committee
		<p>Also, Committee after detailed deliberation requested Panel 4 to prepare the basic Draft Document before the end of current financial year 2023 and circulate to committee members for their comments and modify based on the comments during the panel meeting.</p> <p>In 20<sup>th</sup> TC Meeting, the committee after detail deliberation decided to conduct the panel meeting on 1<sup>st</sup> week of July and prepare a working draft on tungsten based heavy alloys used in defence sector.</p> <p>Also, committee recommended to withdraw MIDHANI and NFC from the panel 4.</p>		
2.	Powder Characterization for additive manufacturing (3D Printing) - Methods	<p>Powder additives the committee after deliberation constituted the following <b>panel 5</b> to decide on the topic on which the standards needs to be formulated on additives. Further the ISO standard on additive manufacturing like <b>ISO 52907, ISO 52904</b> also needs to be studied by the panel and recommendation may be provided for adoption. The panel was also requested to give their recommendation whether India needs to apply for P or O membership in ISO committee ISO /TC 261 Additive manufacturing.</p> <ol style="list-style-type: none"> <li>1. Shri Badri Vishal Pandey – Convenor.</li> <li>2. Dr. Gururaj (ARCI), Hyderabad</li> <li>3. Represtative from GE additive, Bangalore</li> <li>4. Shri Vinay Chilakapati - Innomet Powders</li> </ol> <p>An Indian standard on Powder additive manufacturing (3D Printing) can be prepared. Committee requested the Panel prepared in the previous meeting and proposed to take assistance from M/s Wipro, M/s CSIR-CECRI and M/s NML during formulation of this standard.</p> <p>In 17<sup>th</sup> Meeting, the committee after detailed deliberation proposed to co-opt following members into Panel-5 and</p>	<p>Comments are placed against the draft submitted by the intern as follows:</p> <div style="text-align: center;">   Additive manufacturing Draft </div> <div style="text-align: center;">   Literature on Powders for additive </div> <p>Further, a request has been made by Prof. Dr. Ram Krishna of M/s NIT Jamshedpur to fund R&amp;D project on Feedstock powder for 3D printing as follows:</p> <div style="text-align: center;">   doc0068832024073  0123238.pdf </div> <p>Panel meeting was held on 7 Aug 2024 and Minutes of the meeting placed below:</p> <div style="text-align: center;">   Minutes of 1st meeting.docx </div>	<p><b>Dr. Gururaj of M/s ARCI</b> had informed that, a standard which contains all the validation data is to be prepared which helps in validation of product standards. Thus, committee requested member secretary to prepare a <b>ToR</b> for funding from BIS for generation of data. Further, committee requested <b>Dr. Gururaj</b> to prepare <b>financial and technical bit</b> to BIS and inform the required time to prepare data.</p>


Sl. No.	Subject	Decision of the committee in the Previous Meetings	Action taken on the decision of the Committee	Decision of the committee
		<p>requested member secretary to seek their interest:</p> <ol style="list-style-type: none"> <li>1. Shri T Sasi Kumar of Indo MIM</li> <li>2. T Shiv Shankar of Indo MIM</li> </ol> <p>Committee requested the panel-5 to submit the Working Draft before the next committee meeting.</p> <p>In 18<sup>th</sup> TC Meeting, The committee after detailed deliberation requested panel-5 to conduct a panel meeting after receiving the Working draft and Pre-standardization documents from the BIS-Intern who is sent to CMTI and other allied organizations.</p> <p>Please find the report submitted by BIS-Intern:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">             Draft.docx         </div> <div style="text-align: center;">             Prestandardization report.docx         </div> </div> <p>In 19<sup>th</sup> TC Meeting, Committee after detailed deliberation and decided to conduct the panel meeting within one month. The committee wants to prepare a series of standards under 2 categories:</p> <ol style="list-style-type: none"> <li>1) Ferrous Powders (super alloys, steels &amp; etc.)</li> <li>2) Non-Ferrous Powders (Aluminium, titanium, etc.)</li> </ol> <p>Also, Committee proposed to formulate the new Indian Standard based on Copper beryllium alloy powder which is used nuclear applications.</p> <p>In the 20<sup>th</sup> TC meeting, committee after deliberation, decided to conduct a meeting on 2<sup>nd</sup> week of June 2024 and also prepared the working draft on powder additive manufacturing.</p> <p>Committee nominated the Dr. Deepak pattnaik of M/s CSIR-CECRI as a convener of Panel 5</p>	<p>Panel after deliberation, proposal for funding cannot be approved by the panel.</p> <p>The panel also decided to prepare an Indian standard with the Title <b>“Powder Characterization for additive manufacturing - Methods”</b>.</p> <p>Further, panel requested member secretary to prepare a base draft and share it with Panel members. Also, requested Dr Gururaj to mention the specifications along with reference from national or international journal.</p>	


Sl. No.	Subject	Decision of the committee in the Previous Meetings	Action taken on the decision of the Committee	Decision of the committee
		Further committee recommended to withdraw the GE additive and Co-opt Dr VC Srivastava of M/s NML from the panel 5.		
3.	IS 7506 : 1987 Specification for nickel powder (First Revision).	<p>As a part of Action Research Project, BIS officer Shri Ram Sai kumar has reviewed and Prepared a Draft as given below:</p> <p style="text-align: center;"> WD_IS 7506.docx</p> <p>The committee after deliberation decided to formulate a <b>panel-6</b> to review/recommendation. List of the panel members are given below:</p> <ol style="list-style-type: none"> <li>Dr. Anieh upaydyaye of M/s IIT Kanpur</li> <li>Shri Vinay Chilakapati of M/s Innomet Hyderabad</li> <li>Shri Alok Bhaskar of M/s Kennametal Bangalore,</li> <li>Shri A.N.Chaskar of M/s Electronica Tungsten</li> <li>Dr. Mayadhar Debata of M/s CSIR – IMMT</li> </ol> <p>In 19th TC Meeting, The Committee after detailed deliberation and decided to Conduct a panel meeting within two month. Also requested member secretary to visit M/s Innomet Hyderabad during review of Indian standard.</p> <p>In 20<sup>th</sup> Meeting, TC decided to hold a panel meeting to finalize the specifications.</p>	<p>Panel meeting was held on 24 July 2024. Minutes of the meeting was placed below:</p> <p style="text-align: center;"> 2nd Minutes of Panel Meeting (1).dc</p> <p>Panel after detailed deliberation, decided to send the Indian standard IS 7506 for 30 days as a wide circulation. If no comments received then it can be send for printing.</p>	<p>Committee after detailed deliberation, decided to circulate the draft document of <b>IS 7506</b> as a <b>P-circulation</b> among the committee members for <b>21 days</b>.</p> <p>Further, Committee informed to hold a panel meeting with including <b>M/s Emitec</b> as the panel member within 1 month from the date of circulation of Minutes of meeting.</p>
4.	New Indian standard on chemical analysis of Nickle powder	<p>Chemical analysis of Nickle powder is can be prepared based on the following ASTM standards:</p> <p style="text-align: center;">  ASTM 354 - 14.pdf ASTM E2594-20.pdf</p> <p style="text-align: center;"> ASTM E2823 - 17.pdf</p> <p>In 20<sup>th</sup> TC meeting, Committee after deliberation and decided to conduct the</p>	<p>It is to inform that as per IS 228 (part5), it can be referred for measuring upto 85% nickel.</p> <p>The following is the draft prepared taking reference from ASTM E 2823 which can measure from 25% to 100% nickel:</p>	<p>Committee after detailed deliberation, decided to circulate the draft document as <b>P-circulation</b> among the committee members for <b>21 days</b>.</p>

Sl. No.	Subject	Decision of the committee in the Previous Meetings	Action taken on the decision of the Committee	Decision of the committee
		<p>panel meeting on 1<sup>st</sup> week of July 2024 and prepare the basic draft on Chemical analysis of nickel powder.</p>	<p> Draft standard for Chemical analysis of</p> <p>Panel meeting was held on 24 July 2024. Minutes of the meeting is placed below:</p> <p> 2nd Minutes of Panel Meeting (1).dc</p> <p>Panel after detail deliberation requested Dr. Pradyut Sengupta from M/s CSIR-IMMT to review the initial draft standard prepared by the member secretary of MTD 25 and incorporate necessary changes and eliminate any unnecessary paragraphs.</p> <p>Draft which is edited is received from Dr. Pradyut Sengupta vide email dated 26 Aug 2024 as follows:</p> <p> PS edited_Draft standard for Chemic</p>	
5.	<p><b>IS 12286 : 1988</b> Method for determination of abrasive wear resistance of hardmetals</p>	<p>As a part of Action Research Project, BIS officer Shri Ram Sai kumar has reviewed and Prepared a Draft as given below:</p> <p> IS 12286.docx</p> <p>In 18<sup>th</sup> TC Meting, The committee after deliberation requested M/s Kenna metals to review the standard and give their recommendation on adoption of <b>ISO 28080 : 2021</b> Hardmetals — Abrasion tests</p>	<p>Finalised draft document was prepared and sent for printing on 15-07-2024.</p>	<p>Committee noted the information.</p>

Sl. No.	Subject	Decision of the committee in the Previous Meetings	Action taken on the decision of the Committee	Decision of the committee
		<p>for hardmetals. The committee decided to recirculate among members.</p> <p>In 19th TC Meeting, The Committee after detailed deliberation and decided to adoption of ISO 28080: 2021 and circulate the standard as WC. If no comments were received within one month/30 days during WC, it can be send for printing.</p> <p>National Foreword is circulated among the committee members as Wide Circulation on 27th Feb 2024. However, no comments were received. National foreword is placed below:</p> <div style="text-align: center;">             IS 12286            WC(30-11-2023).doc         </div> <p>In 20<sup>th</sup> TC meeting, committee after detailed deliberation, decided to send the document for printing.</p>		
6.	IS 7970 : 1987 Specification for tantalum powder for capacitors (First Revision)	<p>As a part of Action Research Project, Member secretary has reviewed and Prepared a Draft as given below:</p> <div style="text-align: center;">             WD_IS 7970.docx         </div> <p>The committee after deliberation decided to send the document for Wide circulation for one month. The committee further decided, if no comments were received, it can be sent for printing.</p> <p>Draft document was circulated to ETD via email dated 12th Dec 2024 and 23rd Feb 2024, However no comments were received Hence the document was send for printing on 13 March 2024.</p> <p>In 19th TC Meeting, The Committee after detailed deliberation and decided to circulate the draft document as WC to LITD and ETD for their views. If No comments were received then the document can be send to printing.</p> <p>Draft document was circulated to ETD via email dated 12<sup>th</sup> Dec 2023 and 13<sup>th</sup> March 2024, However no comments were received Hence the document was sent for</p>	The Draft Standard is still under printing.	Committee noted the information.




Sl. No.	Subject	Decision of the committee in the Previous Meetings	Action taken on the decision of the Committee	Decision of the committee
		printing on 13 <sup>th</sup> March 2024. Draft document was placed below:		
7.	IS 12483 : 1988 Determination of titanium in hard metals by spectrophotometric method	<p>As a part of Action Research Project, Committee member Shri Bhal Chandra Pathak had reviewed and given his recommendations. A panel meeting held on 26/10/2023. Accordingly, a Draft Document is finalized and placed below:</p> <p>Draft Document was circulated among the committee members on 10 April 2024 as Wide circulation for 30 days. However, no comments were received till date.</p> <p>In 19<sup>th</sup> TC Meeting, Committee after detail deliberation and decided to send the draft document for Wide Circulation. If no comments were received within 1 month/ 30 days the document can be send for printing.</p> <p>In 20<sup>th</sup> TC meeting Committee after detailed deliberation and decided to send the document for printing.</p>	Testing and Laboratory visit is necessary for Wide circulation of documents.	<p>Committee after detailed deliberation, requested member secretary to visit any one of the labs in <b>MIDHANI</b> or <b>DMRL</b> or <b>Hoganas</b> and circulate the industrial report with the committee.</p> <p>Further, If no changes are required on the draft document can wither be <b>archived</b> or <b>Wide Circulation</b> for <b>30 days</b>.</p>
8.	IS 12513 : 1988 Determination of cobalt in hardmetals by potentiometric method	<p>As a part of Action Research Project, Committee member Shri Bhal Chandra Pathak had reviewed and given his recommendations. A panel meeting held on 26/10/2023. Accordingly, a Draft Document is finalized and placed below:</p> <p style="text-align: center;"> IS 12513.docx</p> <p>In 19<sup>th</sup> TC Meeting, Committee after detail deliberation and decided to send the draft document for Wide Circulation. If no comments were received within 30 days the document can be send for printing.</p> <p>In 20<sup>th</sup> TC Meeting, Committee decided to send the draft document for Wide Circulation.</p>	Testing and Laboratory visit is necessary for Wide circulation of documents.	<p>Committee after detailed deliberation, requested member secretary to visit any one of the labs in <b>MIDHANI</b> or <b>DMRL</b> or <b>Hoganas</b> and circulate the industrial report with the committee.</p> <p>Further, If no changes are required on the draft document can wither be <b>archived</b> or <b>Wide Circulation</b> for <b>30 days</b>.</p>
9.	IS 12571 : 1988 Method for determination of green strength by transverse rupture of	As a part of Action Research Project, Committee members, Dr Mayadhar Debata & Dr Pradyut Sengupta from M/s CSIRIMMT had reviewed and given their recommendations. A panel meeting held	Draft Document was sent for printing on 15-07-2024.	Committee noted the information.

Sl. No.	Subject	Decision of the committee in the Previous Meetings	Action taken on the decision of the Committee	Decision of the committee
	rectangular compacts of metallic powder	<p>on 19/10/2023. Accordingly, a Draft Document is finalized and placed below:</p> <p style="text-align: center;"> IS 12571.docx</p> <p>In 19th TC meeting, Committee after detail deliberation and decided to adopt ISO 3995: 2023 and send the document for Wide Circulation. If no comments were received within 30 days.</p> <p>Draft Document was circulated among the committee members on 10 April 2024 as Wide circulation for 30 days.</p> <p>In 20<sup>th</sup> TC meeting, Committee after detailed deliberation and decided to send the draft document for printing.</p>		
10.	IS 12783 : 1989 Hardmetals - Vickers hardness test	<p>As a part of Action Research Project, Committee members, Dr Mayadhar Debata &amp; Dr Pradyut Sengupta from M/s CSIRIMMT had reviewed and given their recommendations. A panel meeting held on 19/10/2023. Accordingly, a Draft Document is yet to be finalized and placed below:</p> <p>Panel meeting after deliberate and decided to Revise the Indian Standard IS 12783. Following are Changes proposed or need justification by the panel; 1. Reference clause has to be added; 2. In Clause 5.3, indentation diagonals deviation 3 % will give better result. 3. In Clause 6.6, the following mounting materials may be used, example : Bakelite, epoxy resin, thermosetting resin has to be added; 4. In Clause 8, Maximum deviation from the mean has to be limited to a particular value, where we can reject the test or can inform the sample is defective.</p> <p>In 19th TC Meeting, Committee after detailed deliberation and decided to send the draft document for Wide Circulation. If no comments were received within 1 month/ 30 days the document can be send for printing.</p> <p>Draft document was circulated as WC on 6 March 2024 among the committee</p>	<p>Email was sent to the Dr. Pradyut Sengupta and Dr. Mayadhar Debata on 16/07/2024 to modify the draft document.</p> <p>Recommendations were received from Dr. Pradyut Sengupta on 25 August 2024 as follows:</p> <p>“We feel that we can adopt ISO 28079 as a separate standard instead of merging it with IS 12783”.</p>	<p>Committee after deliberation, decided to <b>Send the draft document for printing.</b></p> <p>Further, committee agreed to adopt <b>ISO 28079</b> as a separate standard.</p>

Sl. No.	Subject	Decision of the committee in the Previous Meetings	Action taken on the decision of the Committee	Decision of the committee
		<p>members for 1 month/ 30 Days. However, no comments were received till date.</p> <p>In 20<sup>th</sup> TC meeting, committee after detailed deliberation requested panel to include the photograph for indentation and also include the determination of toughness using crack generation during indentation on brittle samples by palmqvist toughness test.</p> <p>Also after finalization of draft document of IS 12783 can be circulated as wide circulation for 30 days If no comments received during the WC period, if no comments were received then it can be send for printing.</p>		
11.	IS 12473 (Part 1) : 1988 Chemical analysis of hardmetals by flame atomic absorption spectrometry: Part 1 general requirements	<p>As a part of Action Research Project, Committee Chairman of MTD 25, Anish Upadhyaya from M/s IIT Kanpur has reviewed and also prepared a Draft Document Placed below:</p> <p>In 19<sup>th</sup> TC Meeting, Committee after detailed deliberation and decided to send the draft document for P – Circulation. If no comments were received within 21 days the document can be send for Wide Circulation.</p> <p>Draft document was circulated as P-Circulation on 23 Nov 2023 among the committee members for 21 Days. However, no comments were received till date.</p> <p>In 20<sup>th</sup> TC meeting, Committee after detailed deliberation and decided to circulate the document for WC for 30 days for views and comments. If no comments received during the WC period, the document can be sent for printing.</p>	Testing and Laboratory visit is necessary for Wide circulation of documents.	<p>Committee after detailed deliberation, requested member secretary to <b>visit the lab in Kenna Metal</b> and circulate the industrial report with the committee.</p> <p>Further, If no changes are required on the draft document, then document can be <b>archived</b> or <b>Wide Circulation</b> for 30 days.</p>
12.	IS 12473 (Part 2) : 1988 Chemical Analysis of Hardmetals by Flame Atomic Absorption Spectrometry - Part 2 : Determination	<p>As a part of Action Research Project, Committee Chairman of MTD 25, Anish Upadhyaya from M/s IIT Kanpur has reviewed and also prepared a Draft Document Placed below:</p> <p>In 19<sup>th</sup> TC Meeting, Committee after detailed deliberation and decided to send</p>	Testing and Laboratory visit is necessary for Wide circulation of documents.	Committee after detailed deliberation, requested member secretary to <b>visit the lab in Kenna Metal</b> and circulate the industrial report with the committee.

Sl. No.	Subject	Decision of the committee in the Previous Meetings	Action taken on the decision of the Committee	Decision of the committee
	of Calcium, Potassium, Magnesium and Sodium in Contents from 0	<p>the draft document for P – Circulation. If no comments were received within 21 days the document can be send for Wide Circulation.</p> <p>Draft document was circulated as P-Circulation on 23 Nov 2023 among the committee members for 21 Days. However, no comments were received till date.</p> <p>In 20<sup>th</sup> TC meeting, Committee after detailed deliberation and decided to circulate the document for WC for 30 days for views and comments. If no comments received during the WC period, the document can be sent for printing.</p>		<p>Further, If no changes are required on the draft document, then document can be <b>archived</b> or <b>Wide Circulation</b> for 30 days</p>
13.	IS 12473 (Part 3) : 1988 Chemical analysis of hardmetals by flame atomic absorption spectrometry: Part 3 determination of cobalt, iron, manganese and nickel in contents from 0.01 to 0.5 percent (M/m)	<p>As a part of Action Research Project, Committee Chairman of MTD 25, Anish Upadhyaya from M/s IIT Kanpur has reviewed and also prepared a Draft Document Placed below:</p> <p>In 19th TC Meeting, Committee after detailed deliberation and decided to send the draft document for P – Circulation. If no comments were received within 21 days the document can be send for Wide Circulation.</p> <p>Draft document was circulated as P-Circulation on 23 Nov 2023 among the committee members for 21 Days. However, no comments were received till date.</p> <p>In 20<sup>th</sup> TC meeting, Committee after detailed deliberation and decided to circulate the document for WC for 30 days for views and comments. If no comments received during the WC period, the document can be sent for printing.</p>	<p>Testing and Laboratory visit is necessary for Wide circulation of documents.</p>	<p>Committee after detailed deliberation, requested member secretary to <b>visit the lab in Kenna Metal</b> and circulate the industrial report with the committee.</p> <p>Further, If no changes are required on the draft document, then document can be <b>archived</b> or <b>Wide Circulation</b> for 30 days</p>
14.	IS 12473 (Part 4) : 1988 Chemical analysis of hardmetals by flame atomic absorption spectrometry: Part 4 determination of	<p>As a part of Action Research Project, Committee Chairman of MTD 25, Anish Upadhyaya from M/s IIT Kanpur has reviewed and also prepared a Draft Document Placed below:</p> <p>In 19th TC Meeting, Committee after detailed deli beration and decided to send</p>	<p>Testing and Laboratory visit is necessary for Wide circulation of documents.</p>	<p>Committee after detailed deliberation, requested member secretary to <b>visit the lab in Kenna Metal</b> and circulate the industrial report with the committee.</p>

Sl. No.	Subject	Decision of the committee in the Previous Meetings	Action taken on the decision of the Committee	Decision of the committee
	molybdenum, titanium and vanadium in contents from 0.01 to 0.5 percent (M/m)	<p>the draft document for P – Circulation. If no comments were received within 21 days the document can be send for Wide Circulation.</p> <p>Draft document was circulated as P-Circulation on 23 Nov 2023 among the committee members for 21 Days. However, no comments were received till date.</p>  <p>IS 12473 P-6 (17-10-2023).docx</p> <p>In 20<sup>th</sup> TC meeting, Committee after detailed deliberation and decided to circulate the document for WC for 30 days for views and comments. If no comments received during the WC period, the document can be sent for printing.</p>		<p>Further, If no changes are required on the draft document, then document can be <b>archived</b> or <b>Wide Circulation</b> for 30 days</p>
15.	IS 12473 (Part 5) : 1988 Chemical analysis of hardmetals by flame atomic absorption spectrometry: Part 5 determination of cobalt, iron, manganese, molybdenum, nickel, titanium and vanadium in contents from 0.5 to 2 percent (M/m)	<p>As a part of Action Research Project, Committee Chairman of MTD 25, Anish Upadhyaya from M/s IIT Kanpur has reviewed and also prepared a Draft Document Placed below:</p> <p>In 19<sup>th</sup> TC Meeting, Committee after detailed deliberation and decided to send the draft document for P – Circulation. If no comments were received within 21 days the document can be send for Wide Circulation.</p> <p>Draft document was circulated as P-Circulation on 23 Nov 2023 among the committee members for 21 Days. However, no comments were received till date.</p> <p>In 20<sup>th</sup> TC meeting, Committee after detailed deliberation and decided to circulate the document for WC for 30 days for views and comments. If no comments received during the WC period, the document can be sent for printing.</p>	<p>Testing and Laboratory visit is necessary for Wide circulation of documents.</p>	<p>Committee after detailed deliberation, requested member secretary to <b>visit the lab in Kenna Metal</b> and circulate the industrial report with the committee.</p> <p>Further, If no changes are required on the draft document, then document can be <b>archived</b> or <b>Wide Circulation</b> for 30 days</p>
16.	IS 12473 (Part 6) : 1988 Chemical analysis of hardmetals by flame atomic absorption	<p>As a part of Action Research Project, Committee Chairman of MTD 25, Anish Upadhyaya from M/s IIT Kanpur has reviewed and also prepared a Draft Document Placed below:</p>	<p>Testing and Laboratory visit is necessary for Wide circulation of documents.</p>	<p>Committee after detailed deliberation, requested member secretary to <b>visit the lab in Kenna Metal</b> and circulate the</p>

Sl. No.	Subject	Decision of the committee in the Previous Meetings	Action taken on the decision of the Committee	Decision of the committee
	spectrometry: Part 6 determination of chromium in contents from 0.01 to 2 percent (M/m)	<p>In 19th TC Meeting, Committee after detailed deliberation and decided to send the draft document for P – Circulation. If no comments were received within 21 days the document can be send for Wide Circulation.</p> <p>Draft document was circulated as P-Circulation on 23 Nov 2023 among the committee members for 21 Days. However, no comments were received till date.</p> <p>In 20<sup>th</sup> TC meeting, Committee after detailed deliberation and decided to circulate the document for WC for 30 days for views and comments. If no comments received during the WC period, the document can be sent for printing.</p>		<p>industrial report with the committee.</p> <p>Further, If no changes are required on the draft document, then document can be <b>archived</b> or <b>Wide Circulation</b> for 30 days</p>
17.	IS 8368 : 2010 Tungsten carbide powder for hardmetals – Specification (Second Revision)	<p>As a part of Action Research Project, Panel 6 has reviewed the standard, and decided to reaffirm the standard. Following are the member of the panel 6 :</p> <ol style="list-style-type: none"> <li>1. Anish Upadhyaya of M/s IIT Kanpur</li> <li>2. Shri Vinay Chilakapati of M/s Innomet Adavance Material</li> <li>3. Alok Bhaskar of M/s Kanna metal</li> <li>4. Shri Bhal Chandra Pathak of M/s Electronica Tungsten</li> <li>5. Dr Mayadhar Debata of M/s CSIR - IMMT</li> </ol> <p>In 19th TC Meeting, Committee after detailed deliberation and requested panel 6 for review of the standard give their recommendations/suggestions within 2 months.</p> <p>Email sent to panel members on 13 Dec 2023 and 23 Feb 2024. No reply is received.</p> <p>Also, Member Secretary allocated the standard to BIS officer Saurav Verma as an ARP (Action Research Project) to review the standard on 24 Jan 2024.</p>	<p>Email was sent on 12 July 2024 to Saurabh Verma for visit the industry and gather the data after that you will submit the report through BIS portal.</p>	<p>Committee after detailed deliberation, requested <b>Saurabh Verma</b> (BIS officer) to submit the ARP report and industrial report within 2 months.</p>

Sl. No.	Subject	Decision of the committee in the Previous Meetings	Action taken on the decision of the Committee	Decision of the committee
		In 20 <sup>th</sup> TC meeting, Committee after detailed deliberation and requested the BIS officer (Saurav Verma) who was allocated to review the standard IS 8368 as ARP to visit the industry and gather the data and submit the report to member secretary. Member secretary will circulate the report with the panel members.		
18.	IS 8369 : 2010 Titanium carbide powder for hardmetals - Specification (Second Revision)	<p>As a part of Action Research Project, Panel 6 has reviewed the standard, and decided to reaffirm the standard. Following are the member of the panel 6 :</p> <ol style="list-style-type: none"> <li>1. Anish Upadhyaya of M/s IIT Kanpur</li> <li>2. Shri Vinay Chilakapati of M/s Innomet Advanace Material</li> <li>3. Alok Bhaskar of M/s Kanna metal</li> <li>4. Shri Bhal Chandra Pathak of M/s Electronica Tungsten</li> <li>5. Dr Mayadhar Debata of M/s CSIR - IMMT</li> </ol> <p>In 19th TC Meeting, Committee after detailed deliberation and requested panel 6 for review of the standard give their recommendations/suggestions within 2 months.</p> <p>In 20<sup>th</sup> TC meeting, Committee after detailed deliberation and requested the BIS officer (Saurav Verma) who was allocated to review the standard IS 8369 as ARP to visit the industry and gather the data and submit the report to member secretary. Member secretary will circulate the report with the panel members.</p>	Email was sent on 12 July 2024 to Saurabh Verma for visit the industry and gather the data after that you will submit the report through BIS portal. The ARP report is still awaited.	Committee after detailed deliberation, requested <b>Saurabh Verma</b> (BIS officer) to submit the ARP report and industrial report within 2 months.
19.	IS 8485 - Copper powder for powder metallurgical applications (First Revision)	<p>Comments were received on IS 8485 from Shri Vinay chilakapati of M/s Innomet Advanced Materials Pvt Ltd. vide email dated 03-10-2023.</p> <p>In 20<sup>th</sup> TC meeting, Committee after detailed deliberation and requested the BIS officer (Krishna Sudheendran) who was allocated to review the standard IS 8485 as ARP to visit the industry and gather the data and submit the report to member secretary. Member secretary will circulate the report with the panel members.</p>	Email was sent on 12 July 2024 to Ranjit kumar (BIS Officer) for visit the industry and gather the data after that you will submit the report through BIS portal. The ARP report is still awaited.	Committee after detailed deliberation, requested <b>Ranjit kumar</b> (BIS Officer) to submit the ARP report and industrial report within 2 months.

### Item 3 PROCESS REFORMS (A)

3.1 The committee had noted the information as given in item 3.1 of the agenda of the meeting.

3.2 The committee had noted the information as given in item 3.2.1 to item 3.2.3 of the agenda of the meeting.

3.3 Annual Calendar of Technical Committee meetings. The committee decided to hold the next 2 TC meetings of MTD 25 as Physical/Hybrid/Virtual meetings are given below:

Sl No.	Meetings planned for FY 2024-25	Date & Time	Venue
1.	First Meeting	08 May 2024, 11:00 AM	BIS HQ (Manak Bhavan), New Delhi (Hybride)
2.	Second Meeting	30 Aug 2024	Meeting/ Seminar IIT, Kanpur (Hybride mode)
3.	Third Meeting	29 Nov 2024	BIS HQ (Manak Bhavan), New Delhi (Hybride)
4.	Fourth Meeting (if possible )	Yet to be decided	Yet to be decided

### Item 4 SCOPE AND COMPOSITION OF SECTIONAL COMMITTEE, MTD 25

4.1 The committee had noted the information given in Items 4.1 to 4.4 of the agenda of the meeting.

4.1.1 Nomination were received from Emitec Technologies India Private Limited, Pune and INDO-MIM. The committee accept the nominations.

4.2 The committee had noted the information given in Items 4.4.1 and 4.4.2 of the Agenda of the meeting

4.3 The committee had noted the information given in Item 4.5 to 4.7 of the agenda of the meeting and after deliberation proposed to co-opt following members into committee and requested member secretary to seek their interest:

SI No.	Name of the organization
1.	NTPC
2.	RVB Shorelube Industry Pvt. Ltd.

However, the chairman of MTD 25 will share the contact details of Dr Abhijeet Mondal from NTPC.

4.6 The Committee noted the list of Organisations which are Co-opted in the previous Committee meetings:

SI No.	Name of the organization
1.	M/s High Energy Projectile Factory (HEPF), Tiruchy
2.	M/s Centre For Materials For Electronics Technology (C-MET), Hyderabad
3.	M/s Saveer Matrix Nano Private Limited, Greater Noida.
4.	M/s The Heavy Alloy Penetrator Project (HAPP)

The committee had noted the information given in Items 4.7.1 and 4.7.2 after deliberation requested member secretary to seek their interest once again in participating in the TC Meeting of MTD25.

### Item 5 LIST OF INDIAN STANDARDS

5.1 The committee had noted the information as given in item 5.1 of the agenda of the meeting.

### Item 6 COMMENTS ON PRINTED STANDARDS



6.1 The committee had noted the information as given in item 6.1 of the agenda of the meeting.

#### Item 7 REVIEW OF INDIAN STANDARDS

7.1 The Committee had noted the information as given in item 7.1 to 7.4 of the agenda of the meeting.

#### Item 8 NEW SUBJECTS FOR STANDARDIZATION

8.1 The Committee had noted the information as given in item 8.1 to 8.4 of the agenda of the meeting.

8.2 Dr. Gururaj Telsang of M/s ARCI suggested a new Indian standard on 'powders for Spray forming -Specifications' may be prepared. Accordingly, committee suggested to provide relevant draft documents or literature to consider the proposal.

8.3 Recommendations were received from Dr. Pradyut Sengupta to adopt "ISO 28079 as a separate standard instead of merging it with IS 12783". Accordingly committee agreed to adopt ISO 28079 as Indian Standard.

#### Item 9 WTO-TBT Enquiry Point

9.1 The Committee had noted the information as given in item 9.1 to 9.6 of the agenda of the meeting.

#### Item 10 INTERNATIONAL ACTIVITIES

10.1 The Committee had noted the information as given in item 10.1 to 10.4 of the agenda of the meeting.

#### Item 11 IMPLEMENTATION OF INDIAN STANDARDS

11.1 The Committee had noted the information as given in item 11.1 of the agenda of the meeting.

#### Item 12 BIS Initiatives

12.1 The Committee had noted the information as given in item 12.1 to 12.6 of the agenda of the meeting.

12.2 The committee after detailed deliberation thanked Dr. Pradyut Sengupta, Senior Scientist of CSIR-IMMT, Bhubaneswar for his contributions and proposed BIS to accredit **Dr. Pradyut Sengupta with a Letter of Appreciation.**

#### Item 13 R&D PROJECTS FOR ESTABLISHMENT/REVISION OF INDIAN STANDARDS

13.1 The Committee had noted the information as given in item 13.1 of the agenda of the meeting.

13.2 Terms of reference on **Tungsten based heavy alloys used in Defence sector** was prepared yet to be floated in BIS website.

13.3 Committee requested member secretary to prepare a Terms of reference on **Powder additive manufacturing (3D Printing) - Methods** and to circulate via BIS website for accepting application.

#### Item 14 ANY OTHER BUSINESS

14.1 The Member Secretary proposed changing the title of the Sectional Committee from "**Powder Metallurgical Materials and Products Sectional Committee, MTD 25**" to "**Powder Metallurgical Processes and Products Sectional Committee, MTD25.**" After a thorough discussion, the committee agreed to adopt the new title: "**Powder Metallurgical Process and Products Sectional Committee, MTD 25**".

14.2 The meeting ended with a hearty vote of thanks by member secretary to the chair and members of the committee.