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Bureau of Indian Standards

Metallurgical Engineering Department

MINUTES OF MEETING

Name of the Committee	Meeting No.	Day	Date	Time	Venue/Mode
Methods of Chemical Analysis of Metals Sectional Committee, **MTD 34**	10th	Thursday	27 June 2024	11:00 AM	**Hybrid**

***Chairperson*:** Dr Sanchita Chakravarty ***Member Secretary*:** Shri Ashish Wakle

Meeting Attendance

Sl No.	Member Organization	Name	E-Mail
1.	M/s Hindalco Industries Ltd, Mumbai	Shri Asutosh Acharya	asutosh.acharya@adityabirla.com
2.	M/s Hindalco Industries Ltd, Mumbai	Smt. Akshta Vaish	akshta.vaish@adityabirla.com
3.	M/s DGQA, Ichapur	Shri P. Sundharajan	cqametichapur-dgqa@nic.in
4.	M/s NALCO, Bhubaneswar	Shri Debananda Bhattacharyya	debananda.bhattacharyya@nalcoindia.co.in
		Smt. Sukla Nandi	sukla.nandi@nalcoindia.co.in
5.	M/s BARC, Mumbai	Smt. Sanjukta A. Kumar	sanjuktaak301@gmail.com

Sl No.	Member Organization	Name	E-Mail
6.	M/s Shriram Institute for Industrial Research, Delhi	Shri Puneet Kapoor	punu2685@gmail.com
7.	M/s JSW Steel Ltd., Mumbai	Shri Kotrabasavaraju Desai	kotrabasavaraju.desai@jsw.in
8.	M/s JSW Steel Ltd., Mumbai	Shri Marulasiddesha Ujjainimath	marulasiddesha.ujjainimath@jsw.in
9.	M/s NTH, Kolkata	Dr Rajeev Kumar Upadhyay	rkupadhyay@nth.gov.in
10.	Jawaharlal Nehru Aluminium Research Development and Design Centre, Nagpur	Dr Upendra Singh	upendra1970@gmail.com
11.	M/s AMNS, Mumbai	Shri Manoj Gupta	manoj.gupta@amns.in
12.	M/s AMNS, Mumbai	Shri Kirit Tailor	kirit.tailor@amns.in
13.	M/s GSI, New Delhi	Shri Nitin Nagmote	nitin.nagmote@gsi.gov.in
14.	M/s GSI, New Delhi	Smt. Sanjukta Dey Pal	sanjukta.deypal@gsi.gov.in
15.	M/s GSI, New Delhi	Shri Sudipta Lahiri Bhattacharya	gsi.lahiri.sudipta@gmail.com
16.	Research Designs and Standards Organization (RDSO), Lucknow	Smt. Sunita	sunita.jaiswara@gmail.com
17.	Steel Authority of India Limited (SAIL) - Salem Steel Plant, Salem	Shri L Sivakumar	lsk@sail.in
18.	M/s Tata Steel Ltd., Jamshedpur	Shri Jatin Kumar Mohapatra	jatin.mohapatra@tatasteel.com
19.	M/s Tata Steel Ltd., Jamshedpur	Shri Ravikrishna Chatti	r.chatti@tatasteel.com

Invitee Members

Sl No.	Member Organization	Name	E-Mail
1)	NMDC Ltd	Dr S K Sahu	sarojkumarsahu@nmdc.co.in
2)	DCMSME	Shri Gyarsi Prasad	dcts-bhopal@dcmsme.gov.in

Item 0 GENERAL

0.1 Opening Remarks by BIS

Shri Ashish Wakle, Sc-C & Member Secretary, MTD 34, welcomed all the members on behalf of BIS to the 10th Technical Committee Meeting of Methods of Chemical Analysis of Metals Sectional Committee, MTD 34. He also informed the Committee about recent decisions taken by the BIS management such as, mandatory declaration by every committee member and to ensure at least 50% attendance in the meetings. He also informed that the members have to inform the Chairperson/Member Secretary to be absent from meeting, prior to the meeting and remaining absent from 2 consecutive meetings shall invite termination of membership of that particular organization. After that, he requested all committee members to actively send their comments on the ISO ballots circulated among the members for comments/views to represent India's views as it will make the ISO standards more relevant and it will also make it easy for BIS to adopt these ISO standards in future.

0.2 Opening Remarks by the Chairman

Dr Sanchita Chakravarty, Chairperson, MTD 34, welcomed all the members to the 10th Technical Committee meeting of Methods of Chemical Analysis of Metals Sectional Committee, MTD 34. She requested all the members for active participation in meetings of TC and Panel and for adhering to the timelines for associated tasks.

Item 1 CONFIRMATION OF MINUTES OF LAST MEETING

Since, no comments have been received, the Committee confirmed the minutes of 9th meeting of Methods of Chemical Analysis of Metals Sectional Committee, MTD 34 circulated vide email dated 06 Decemeber 2023.

Item 2 COMPOSITION OF THE COMMITTEE

The Committee noted the information given in Item No. **2.1** ,**2.2** ,**2.3** ,**2.4** of the Agenda.

During the meeting Committee has decided to Co opt following new members:

a) Dr Sukumar Adak, M/s TRL KROSAKI Refractories Limited
b) Dr Saroj Kumar Sahu and Dr Srivastava , NMDC

c) Shri Daniel, Professor, IIT Delhi
d) Smt Sunita, RDSO ,Lucknow

Item 3 REVIEW OF INDIAN STANDARDS

3.1 The committee noted the information as given in Item **3.1**, **3.3**, **3.4** of the Agenda.

3.2 The following Indian standards are due for review/reffiermation this year.

SI No	Doc No / IS No./ ISO No.	Title	Remarks
1.	IS 14644 (Part 1) : 2020/ISO 7530-1-1:1990	Nickel Alloys — Flame Atomic Absorption Sepctrometric Analysis Part 1 Determination of Cobalt, Chromium, Copper, Iron and Manganese (First Revision)	The Committee decided to allot these standards **(Sl No. 1, 2, 3** and **4)** to M/s Tata Steel and SAIL for review and provide their recommendations within 30 days.
2.	IS 1493 (Part 5) : 2020/ISO 5418-2 : 2006	Methods of Chemical Analysis of Iron Ores Part 5 Determination of Copper Content — Flame Atomic Absorption Spectrometric Method (First Revision)	
3.	IS 1493 (Part 6) : 2020/ISO 13313 : 1997	Methods of Chemical Analysis of Iron Ores Part 6 Determination of Sodium Content — Flame Atomic Absorption Spectrometric Method (First Revision)	
4.	IS 1493 (Part 9) : 2020/ISO 13312 : 2017	Methods of Chemical Analysis of Iron Ores Part 9 Determination of Potassium Content â€" Flame Atomic Absorption Spectrometric Method (First Revision)	
5.	IS 17319 : 2020/ISO 6352 : 1985	Ferronickel â€" Determination of Nickel Content â€" Dimethylglyoxime Gravimetric Method	The Committee decided to allot standards (from Sr. No. 5, 6, 7, 8, 9, 10 and 11) to M/s Tata Steel, Indian Metal Ferro Alloys Limited and provide their recommendations within 60 days.
6.	IS 17320 : 2020/ISO 11400	Nickel, Ferronickel and Nickel Alloys â€" Determination of Phosphorus	

		Content â€" Phosphovanadomolybdate Molecular Absorption Spectrometric Method	
7.	IS 17321 : 2020/ISO 8343 : 1985	Ferronickel â€" Determination of Silicon Content â€" Gravimetric Method	
8.	IS 17324 : 2020/ISO 7524 : 1985	Nickel, Ferronickel and Nickel Alloys â€" Determination of Carbon Content â€" Infra-Red Absorption Method after Induction Furnace Combustion	
9.	IS 17325 : 2020/ISO 7520	Ferronickel â€" Determination of Cobalt Content â€" Flame Atomic Absorption Spectrometric Method	
10.	IS 17322 : 2020/ISO 7527 : 1985	Nickel, Ferronickel and Nickel Alloys â€" Determination of Sulfur Content â€" Iodimetric Titration Method after Induction Furnace Combustion	
11.	IS 17323 : 2020/ISO 7526 : 1985	Nickel, Ferronickel and Nickel Alloys â€" Determination of Sulfur Content â€" Infra-Red Absorption Method After Induction Furnace Combustion	

Item 5 ACTION TAKEN REPORT

The summary of the action taken report on the decisions of the committee is placed below:

<table>
<tr><th>Sl No.</th><th>Subject</th><th>Decision taken by the Committee in the 8th Meeting</th><th>Actions taken on the decisions of the last meeting</th><th>Decisions of the committee</th></tr>
<tr><td>1)</td><td>IS 1559 : 1961
Methods of chemical analysis of Ferro – Alloys</td><td>The drafts are being prepared, once the drafts are ready, these may be circulated in WC for 60 days. And if no comments received or comments received are in editorial in nature</td><td>Following is the break up of IS 1559
<table>
<tr><th>Section</th><th>Section Name</th><th>Existing/Proposed IS</th></tr>
<tr><td>Section - I</td><td>Ferrosilicon</td><td>IS 1559 (Part 1 to 7) as IS 1559</td></tr>
</table></td><td>The Committee has decided for P Circulation for 15 days (with MTD 34 and MTD 05) and then wide circulation for a period of 60 days of follwoign standards derived from IS 1559 :1961.</td></tr>
</table>

<table>
<tr>
<td></td>
<td></td>
<td>during the WC period, the same may be sent to printing with approval of the chairperson.

The Committee may decide.</td>
<td>
<table>
<tr><td>Section - II</td><td>Ferrochromium</td><td>Existing Standard: IS 13452 : 2019</td></tr>
<tr><td>Section - III</td><td>Ferromanganese and Speigeleisen</td><td>Existing Standard: IS 13938 (Part 1, 3 & 4)</td></tr>
<tr><td>Section - IV</td><td>Silicomanganese</td><td>New Standard</td></tr>
<tr><td>Section - V</td><td>Ferromolybdenum</td><td>Existing Standard IS 12614 (Part 1 to 7)</td></tr>
<tr><td>Section - VI</td><td>Ferrophosphorus</td><td>New Standard</td></tr>
<tr><td>Section - VII</td><td>Ferrotitanium</td><td>Existing Standard :IS 13840 : 2019</td></tr>
<tr><td>Section - VIII</td><td>Ferrovanadium</td><td>New Standard</td></tr>
<tr><td>Section - IX</td><td>Ferrotungsten</td><td>New Standard</td></tr>
</table>
Draft for new standard:
a) Methods of Chemcial Analysis of Silicomanganese
b) Methods of Chemical analysis of Ferrophosphorus
c) Methods of Chemical analysis of Ferrovanadium
d) Methods of Chemical analysis of Ferrotungsten
is prepared and is ready for wide circulation.
</td>
<td>a) Methods of Chemcial Analysis of Silicomanganese
b) Methods of Chemical analysis of Ferrophosphorus
c) Methods of Chemical analysis of Ferrovanadium
d) Methods of Chemical analysis of Ferrotungsten</td>
</tr>
<tr>
<td>2)</td>
<td>IS 2277 : 1964
Methods of Chemical</td>
<td>The draft has been prepared, as there are no technical changes, the standard may be</td>
<td>IS 2277: 1964 is reaffirmed and draft for revision is pending for wide circulation.

The committee may pl. note.</td>
<td>Committee noted the information, and requested BIS to kindly expediat ethe</td>
</tr>
</table>

	Analysis of Metallic Silicon	circulated in wide circulation for 60 days. And if no comments received or comments received are in editorial in nature during the WC period, the same may be sent to printing with approval of the chairperson. **The Committee may decide.**		wide circulation of draft of IS 2277.
3)	**Doc : MTD 34 (20145)** Methods of chemical analysis of iron ores: Part 1 Determination of common constituents (first revision of IS 1493 (Part 1)		 IS 1493 Part 1 Printing.docx Wide circulation is completed, Document is ready to be sent for printing.	Committee noted the information and requested BIS to kindly expediate the printing of IS 1493 Part 1.
4)	**IS 3685 : 1966** Methods of chemical analysis of brass	The Committee decided to send the standard with M/s Shriram Institute for Industrial Research and M/s National Test House for their recommendations and also follow up with MTD 8 TC.	IS 3685 :1966 has been reaffirmed , However no recommendation received from M/s National Test House and M/s Shriram Institute. No nomination received from MTD 8.	Committee recommended that IS 3685:1966 is relevant and standard is already relevant and there is no need for revision of IS 3685.
5)	Requirement of Optical Emission Spectrometer or Any other Instrumental	The Committee after deliberation decided to take this subject as a R&D project.	Terms of reference proposal for the subject : Chemical Analysis of Pig iron : Instrumental test methods is pending with Tata Steel.	The committee noted that Terms of reference (TOR) proposal for the subject : Chemical Analysis of pig Iron

	method for Chemical Analysis of Pig Iron **Panel 4**	Member Secretary informed the committee that ToR for this project will be prepared and shared by Shri Jatin Mohapatra of Tata Steel. And the Terms of reference prepared will be put up for discussion during next committee meeting.		:Instrumental test method is pending with M/s Tata Steel. Committee requested M/s Tata Steel to kindly expediate the proposal for R& D Project.
6)	Formulation of new draft on determination of Manganese, Chromium, Cobalt and Copper content in ferronickel	The Committee after detailed deliberation reconstituted the Panel as: 1. Indian Metals and Ferro-alloys Ltd. (Convenor): Shri Dinesh Kumar Mohanty 2. FACOR Alloys Ltd. 3. National Test House: Dr. Rajeev Kumar Upadhyay 4. Tata Steel: Dr Jatin Mohapatra 5. SAIL: L. Sivakumar 6. AMNSMr. Kirit Tailor The committee requested to the new panel to have a meeting and put a draft on determination of manganese, chromium and copper in ferronickel.	Draft on new subject in Line with ISO 23156:2021(ICP OES Method0 is prepared and circulated within Panel for comments.  Mail Ferro Nickel.pdf	The Committee decided that ICP OES test method, ISO 23156:2021; Ferronickels — Determination of phosphorus, manganese, chromium, copper and cobalt contents — Inductively coupled plasma optical emission spectrometric method , P Circulated within (MTD 34 and MTD 05) for 15 days. And then wide circulation for a period of 60 days.

7)	**IS 1493 (Part 4) : 1988** Methods of chemical analysis of iron ores: Part 4 Determination of aluminium by atomic absorption spectrophotometry	The Committee after deliberation revised the Panel as: 1. NMDC (Convenor) 2. Geological Survey of India 3. TATA Steel Ltd. 4. Arcelor Mittal and Nippon Steel The committee requested the new panel to have meeting and give recommendation for revision of IS 1493.	Panel 8 Formed for revision of IS 1493 . Composition of Panel is attached. Recommendations are awaited.	NMDC(Convenor) is requested to call a meeting and submit the recommendation within 1 month for revision of IS 1493 Part 4.
8)	**New Subject ISO Adoption :** Adoption of ISO 4940:1985 and ISO 4939:2016	IS 228 : Part 5 Methods for chemical analysis of steels: Part 5 determination of nickel by dimethylglyoxime (Gravimetric) method (For Nickel ≥ 0.1 percent) (Third Revision: ISO 4940:1985 and ISO 4939:2016 as subsequent parts of IS 228. The Committee also decided to circulate the national forewords for 60 days and if, no comment received orcomment(s) received are editorial in nature then the same may be sent to printing with approval of the	Draft for wide circulation of ISO 4940 and ISO 4939 as subsequent part of IS 228 is under preparation.	The Committee noted the information.And the committee decided that new standard as subsequent part of IS 228 ; ISO 4940 :1985 ; Steel and cast iron — Determination of nickel content — Flame atomic absorption spectrometric method and ISO 4939 :2016 ; Steel — Determination of nickel — Dimethylglyoxime spectrophotometric method be wide circulated for a period of 60 days.

		Chairperson.		
9)	**ISO Adoption** ISO 439:2020 and ISO 17055:2002	IS 228 : Part 8 Methods for chemical analysis of steels: Part 8 determination of silicon by the gravimetric method (For Silicon 0.05 To 5.00 Percent) (Third Revision) The Committee decided to adopt ISO439:2020 and ISO 17055:2002 as subsequent parts of IS 228. The Committee also decided to circulate the national forewords for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent to printing with approval of the Chairperson.	Draft for wide circulation of ISO 439 and ISO 17055 as subsequent part of IS 228 is under preparation.	The Committee noted the information. And the committee decided that new standard as subsequent part of IS 228; ISO 439 :2020; Steel and Cast Iron : Determination of Silicon content : Gravimetric Method and ISO 17055 :2002 ; Steel : Determination of Silicon Content : Inductively coupled Plasma Atomic emission spectrometric method.

10)	Adoption of ISO 4935:1989	IS 228 : Part 9 Methods for chemical analysis of steels : Part 9 determination of sulphur by evolution method (For Sulphur 0.01 To 0.25 Percent) (Third Revision) The Committee decided to adopt ISO 4935:1989 as subsequent part of IS 228.The Committee also decided to circulate the national foreword for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent to printing with approval of the Chairperson.	Draft for wide circulation of ISO 4935 as subsequent part of IS 228 is under preparation.	The Committee noted the information , The Committee decided for wide circulation for 60 days of ISO 4935:1989; Steel and iron — Determination of sulfur content — Infrared absorption method after combustion in an induction furnace as subsequent part of IS 228.
11)	adoption ISO 11535:2006	IS 16743 (Part 1) : 2018 / ISO 9516 Part 1 :2003 Iron ores - Determination of various elements by X-ray fluorescence spectrometry: Part 1 comprehensive procedure The Committee decided to adopt ISO 11535:2006 as a separate standard.	Draft for wide circulation of ISO 11535	The Committee was of the view that IS 16743 Part 1 :2018 /ISO 9516 Part 1:2003; Iron Ores – Determination of various elements by X Ray fluorescence spectrometry : part 1 comprehensive procedure is a routine test method. ISO 11535 :2006 is a Inductively coupled plasma atomic emission spectrometric method will be better test method for lab analysis and decided to adopt ISO 11535:2006 as a new standard.

		The Committee also decided to circulate the national foreword for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent to printing with approval of the Chairperson.		
12)	Adoption of ISO 1169:2006,Zinc alloys — Determination of aluminium content — Titrimetric method.	The Committee decided to adopt ISO 1169:2006 for IS 2600 (Part 7) : 2022. The Committee also decided to circulate the national foreword for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent to printing with approval of the Chairperson.	Draft is under preparation	The committee decided to adopt ISO 1169:2006; Zinc alloys : Determination of Aluminium Content : Titrametric method as a new test method and decided for wide circulation of the document for a period of 60 days.
13)	Adoption of ISO 3750:2006 Zinc alloys — Determination of magnesium content — Flame atomic absorption spectrometric method	The Committee decided to adopt ISO 3750:2006 for IS 2600 (Part 6) : 2022. The Committee also decided to circulate the national foreword for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent	Draft is under preparation	The committee decided to adopt ISO 3750:2006;Zinc alloys — Determination of magnesium content — Flame atomic absorption spectrometric method as a new test method and decided for wide circulation of the document for a period of 60 days.

		to printing with approval of the Chairperson.		
14)	Adoption of ISO 3815-2:2005 Zinc and zinc alloys — Part 2: Analysis by inductively coupled plasma optical emission spectrometry.	The Committee decided to adopt ISO 3815-2:2005 for 2600 (Part 5) : 2022. The Committee also decided to circulate the national foreword for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent to printing with approval of the Chairperson.	Draft is under preparation	The Committee decided to adopt ISO 3815-2:2005; Zinc and zinc alloys — Part 2: Analysis by inductively coupled plasma optical emission spectrometry as a new alternate instrumental test method for analysis of Zinc and decided for wide circulation of the document for a period of 60 days.
15)	Adoption of ISO 3815-1:2005 Zinc and zinc alloys — Part 1: Analysis of solid samples by optical emission spectrometry	The Committee decided to adopt ISO 3815-1:2005 as subsequent part of IS 2600. The Committee also decided to circulate the national foreword for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent to printing with approval of the Chairperson.	Draft is under preparation.	The Committee decided to adopt ISO 3815-1:2005 Zinc and zinc alloys — Part 1: Analysis of solid samples by optical emission spectrometry as a new alternate test method for analysis of Zinc and decided for wide circulation of the document for a period of 60 days.

16)	Adoption : ISO 4829-2:2016 Spectrophotometric method for the determination of total silicon in steels using reduced molybdosilicate.	The Committee decided to adopt ISO 4829- 2:2016 for IS 228 (Part 11). The Committee also decided to circulate the national foreword for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent to printing with approval of the Chairperson.	Draft under preparation.	The Committee decided to adopt ISO 4829 Part 2 :2016; Steels — Determination of total silicon contents — Reduced molybdosilicate spectrophotometric method; Part 2: Silicon contents between 0.01 % and 0.05 % as alternate test method for testing total silicon as subsequent part of IS 228. The committee decided for the wide circulation of the document for a period of 60 days.
17)	Adoption : ISO 17058:2004 Steel and iron — Determination of arsenic content — Spectrophotometric method	The Committee decided to adopt ISO 17058:2004 for IS 228 (Part 13). The Committee also decided to circulate the national foreword for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent to printing with approval of the Chairperson.	Draft under preparation.	IS 228 Part 13; Method for determination of Arsenic content in Steel is a wet method. The Committee decided to adopt ISO 17058 :2004;Steel and Iron : Determination of arsenic content : Spectrophotmetric method as a alternate instrumental test method. The Committee decided for the wide circulation for the period of 60 days.

18)	Adoption ISO 4943:2022 Steel and cast iron — Determination of copper content — Flame atomic absorption spectrometric method.	The Committee decided to adopt ISO 4943:2022 as subsequent part of IS 228. The Committee also decided to circulate the national foreword for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent to printing with approval of the Chairperson.	Draft under preparation.	ISO 4943:2022;Steel and cast iron — Determination of copper content — Flame atomic absorption spectrometric method. The Committee decided to adopt ISO 4943:2022 as a alternate test method. The Committee decided for the wide circulation for the period of 60 days.
19)	Adoptiono ISO 13899 Part 1; Steel — Determination of Mo, Nb and W contents in alloyed steel — Inductively coupled plasma atomic emission spectrometric method — **Part 1: Determination of Mo content.** ISO 13899 Part 2; Steel — Determination of Mo, Nb and W contents in alloyed steel — Inductively coupled plasma atomic emission spectrometric	The Committee decided to adopt ISO/TS 13899-1:2004 and IS 13899 Part 2 and Part 3 as subsequent part of IS 228. The Committee also decided to circulate the national foreword for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent to printing with approval of the Chairperson.	Draft under preparation.	ISO 13899 Part 1; Steel — Determination of Mo, Nb and W contents in alloyed steel — Inductively coupled plasma atomic emission spectrometric method — **Part 1: Determination of Mo content** **Part 2: Determination of Nb content** **Part 3: Determination of W content**. ISO 13899 Part 1, 2,3 are Instrumental test methods. The Committee decided to adopt these test methods as subsequent parts of IS 228. The Committee decided for wide circulation for a period of 60 days.

	method — **Part 2: Determination of Nb content.** ISO 13899 Part 3 ; Steel — Determination of Mo, Nb and W contents in alloyed steel — Inductively coupled plasma atomic emission spectrometric method — **Part 3: Determination of W content**.			
20)	New subject for Determination of Aluminum in Steel by AAS I SO 9658:1990; Steel - Determination of aluminium Content – Flame atomic absorption spectrometric method.	The Committee decided to adopt ISO 9658:1990 as subsequent part of IS 228. The Committee also decided to circulate the national foreword for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent	Draft under preparation.	There is no standard presently for determination of Aluminium Content in Steel ; Therefore company decided to adopt the ISO standard ; ISO 9658:1990 ; Steel : Determination of Aluminium Content : Flame atomic absorption spectrometric method. The Committee decided for wide circulation of the document for a period of 60 days.

		to printing with approval of the Chairperson		
21)	New subject for Determination of Vandium in Steel ISO 4942:2016; Steels and Irons – Determination of Vandium content – N-BPHA spectrophotometric method.	the Committee decided to adopt ISO 4942:2016 as subsequent part of IS 228. The Committee also decided to circulate the national foreword for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent to printing with approval of the Chairperson.	Draft under preparation.	Presently there is no standard for testing of Vanadium in Steel. The Committee decided to adopt the ISO standard ISO 4942:2016; Steels and Irons – Determination of Vandium content – N- BPHA spectrophotometric method. The Committee decided for wide circulation for a period of 60 days.
22)	New subject for Determination of Cobalt in Steel, AAS ISO 11652:1997; Steel and Iron – Determination of cobalt content – Flame atomic absorption spectrometric method.	The Committee decided to adopt ISO 11652:1997 as subsequent part of IS 228. The Committee also decided to circulate the national foreword for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent to printing with approval of the Chairperson.	Draft under preparation.	Presently there is no standard for testing of Cobalt in Steel.Therefore committee decided to adopt the standard ISO 11652:1997 ; Steel and Iron : Determination of Cobalt content: Flame atomic absorption spectrometric method. The Committee decided the wide circulation of the document for a period of 60 days.

23)	New subject for Determination of Titanium in Steel ISO 10280:1991; Steel and Iron – Determination of titanium content - Diantipyrlmethane spectrophotometric method.	The Committee decided to adopt ISO 10280:1991 as subsequent part of IS 228. The Committee also decided to circulate the national foreword for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent to printing with approval of the Chairperson.		Presently there is no standard for determination of Titanium in Steel . The Committee has decided to adopt ISO 10280:1991 ; Steel and Iron : Determination of Titanium content : Diantipyrylmethane spectrometric method as a alternate instrumental test method. The Committee decided for wide circulation of the document for a period of 60 days.
24)	New subject for Determination of Boron in Steel ISO 10153:1997; Steel Determination of Boron Content-Curcumin spectrophotometric method	The Committee decided to adopt ISO 10153:1997 as subsequent part of IS 228. The Committee also decided to circulate the national foreword for 60 days and if, no comment received or comment(s) received are editorial in nature then the same may be sent to printing with approval of the Chairperson.	Draft under preparation.	Presently there is no standard for determination of Boron in Steel. The committee has decided to adopt ISO 10153:1997; Steel — Determination of boron content — Curcumin spectrophotometric method, as a alternate instrumental test method. The Committee decided for wide circulation of the document for a period of 60 days.

Item 6 DRAFT STANDARDS/AMENDMENTS FOR FINALIZATION

6.1 The standards are under printing with publication department.

Sl No.	Doc No/ IS no.	Title	Remarks
1.	MTD/34/21371 IS 228 : Part 2: 1987	Methods for chemical analysis of steels Part 2 Determination of manganese in plain-carbon and low alloy steels by arsenite method	The standards are under printing with publication department.
2.	MTD/34/21384 IS 228 : Part 3: 1987	Methods for chemical analysis of steels Part 3 Determination of phosphorus by alkalimetric method	
3.	MTD/34/21395 IS 3186: 1965	Chemical analysis of cadmium copper - Methods (First Revision)	
4.	MTD/34/21396 IS 3863: 1966	Methods of chemical analysis of copper-tellurium alloys (First Revision)	

6.2 Documents pending for Finalization; Wide circulation completed;

Sl No.	Doc No/IS No	Title	Decisions of the committee
1)	MTD/34/20145 IS 1493 : Part 1: 1981	Methods of chemical analysis of iron ores: Part 1 Determination of common constituents (Second Revision)	Committee noted the information, that Sl No. 1 to 46, wide circulation is completed, no comments are received, therefore committee decided to send the documents (Sl No. 1 to 46) for printing.
2)	MTD/34/20732 IS 1760 : Part 1: 1991	Chemical Analysis Of Limestone Dolomite And Allied Materials Part 1 Determination Of Loss On Ignition	
3)	MTD/34/20747 IS 1760 : Part 2: 1991	Chemical Analysis of Limestone Dolomite and Allied Materials Part 2 Determination of Silica	
4)	MTD/34/20750 IS 1760 : Part 3: 1992	Chemical Analysis of Limestone Dolomite and Allied Materials Part 3 Determination of Iron Oxide Alumina Calcium Oxide and Magnesia	
5)	MTD/34/20752 IS 1760 : Part 4: 1991	Chemical Analysis of Limestone Dolomite and Allied Materials	

		Part 4 Determination of Carbon Dioxide	
6)	MTD/34/20753 IS 1760 : Part 5: 1991	Chemical Analysis of Limestone Dolomite and Allied Materials Part 5 Determination of Chlorides	
7)	MTD/34/20770 IS 1917 : Part 1: 1991	Chemical Analysis of Quartzite and High Silica Sand Part 1 Determination of Loss on Ignition	
8)	MTD/34/20772 IS 1917 : Part 2: 1991	Chemical Analysis of Quartzite and High Silica Sand Part 2 Determination of Sodium and Potassium by Flame Photometry	
9)	MTD/34/20774 IS 1917 : Part 3: 1992	Chemical Analysis of Quartzite and High Silica Sand Part 3 Determination of Silica	
10)	MTD/34/20775 IS 1917 : Part 4: 1991	Chemical Analysis of Quartzite and High Silica Sand Part 4 Determination of Aluminium by Atomic Absorption Spectrometric Method	
11)	MTD/34/20776 IS 1917 : Part 5: 1992	Chemical Analysis of Quartzite and High Silica Sand Part 5 Determination of Iron by Atomic Absorption Spectrometric Method	
12)	MTD/34/20817 IS 999: 1959	Methods of Chemical Analysis of Brazing Solder	
13)	MTD/34/20856 IS 1917 : Part 6: 1992	Chemical Analysis of Quartzite and High Silica Sand Part 6 Determination of Calcium and Magnesium by Atomic Absorption Spectrometric Method	
14)	MTD/34/20874 IS 8097: 1976	Methods of chemical analysis of soft solders for jointing aluminium and aluminium alloys	
15)	MTD/34/21051 IS 4027 : Part 1: 1987	Methods of Chemical Analysis of Bronzes Part 1 Determination of Copper and Lead by Electrolytic Method	

16)	MTD/34/21055 IS 4027 : Part 3: 1987	Methods of Chemical Analysis of Bronzes Part 3 Determination of Phosphorus Volumetric Method	
17)	MTD/34/21056 IS 4027 : Part 4: 1987	Methods of Chemical Analysis of Bronzes Part 4 Determination of Nickel-Dimethylglyoxime Photometric Method	
18)	MTD/34/21057 IS 4027 : Part 5: 1987	Methods of Chemical Analysis of Bronzes Part 5 Determination of Tin - Iodimetric Method	
19)	MTD/34/21113 IS 4027 : Part 6: 1987	Methods of Chemical Analysis of Bronzes Part 6 Determination of Zinc by Complexometric EDTA Method	
20)	MTD/34/21114 IS 4027 : Part 7: 1990	Methods of chemical analysis of bronzes: Part 7 determination of antimony by rhodamine B spectrophotometric method	
21)	MTD/34/21117 IS 4027 : Part 8: 1991	Methods of chemical analysis of bronzes: Part 8 determination of iron	
22)	MTD/34/21119 IS 4027 : Part 9: 1991	Methods of chemical analysis of bronzes: Part 9 determination of aluminium by atomic absorption spectrometric method	
23)	MTD/34/21385 IS 228 : Part 4: 1987	Methods for chemical analysis of steels Part 4 Determination of total carbon by gravimetric method for carbon 0.1 percent	
24)	MTD/34/21392 IS 228 : Part 6: 1987(Not Equivalent To: ISO 4937:1986 ISO 10138:1991)	Methods for chemical analysis of steels Part 6 Determination of chromium by persulphate oxidation method for chromium > 0.1 percent	
25)	MTD/34/21393 IS 228 : Part 7: 1990	Methods for chemical analysis of steels Part 7 Determination of molybdenum by alpha-benzoinoxime method in alloy steels for molybdenum > 1 percent and not containing tungsten	

26)	MTD/34/21394 IS 228 : Part 18: 1998	Methods for chemical analysis of steels Part 18 Determination of oxygen by instrumental method for oxygen 0.001 to 0.1000 percent	
27)	MTD/34/21468 IS 12308 : Part 1: 1987	Methods for chemical analysis of cast iron and pig iron: Part 1 Determination of total carbon by thermal conductivity method for carbon 1.00 to 4.50 percent	
28)	MTD/34/21469 IS 12308 : Part 2: 1987	Methods for chemical analysis of cast iron and pig iron: Part 2 Determination of sulphur by iodimetric titration after combustion for sulphur 0.005 to 0.25 percent	
29)	MTD/34/21470 IS 12308 : Part 3: 1987	Methods for chemical analysis of cast iron and pig iron: Part 3 Determination of manganese by periodate spectrophotometric method for manganese 0.1 to 2.5 percent	
30)	MTD/34/21472 IS 12308 : Part 5: 1991	Methods for chemical analysis of cast iron and pig iron: Part 5 Determination of phosphorus 0.01 to 0.50 percent by alkalimetric method	
31)	MTD/34/21474 IS 12308 : Part 6: 1991	Methods for chemical analysis of cast iron and pig iron: Part 6 Determination of silicon by gravimetric method for silicon 0.1 to 6.0 percent	
32)	MTD/34/21487 IS 12308 : Part 7: 1991	Methods for chemical analysis of cast iron and pig iron: Part 7 Determination of nickel by dimethyl-glyoxime gravimetric method for nickel 0.5 to 36 percent	
33)	MTD/34/21488 IS 12308 : Part 8: 1997	Methods for chemical analysis of cast iron and pig iron: Part 8 Determination of chromium by	

		persulphate oxidation method for chromium 0.1 to 28 percent	
34)	MTD/34/21489 IS 12308 : Part 10: 1991	Methods for chemical analysis of cast iron and pig iron: Part 10 Determination of manganese up to 7.0 percent by arsenite volumetric method	
35)	MTD/34/21490 IS 12308 : Part 11: 1991	Methods for chemical analysis of cast iron and pig iron: Part 11 Determination of total carbon by the direct combustion volumetric method for carbon 1.50 to 4.50 percent	
36)	MTD/34/21491 IS 12308 : Part 12: 1992	Methods for chemical analysis of cast iron and pig iron: Part 12 Determination of copper by atomic absorption spectrometric method for copper 0.01 to 0.5 percent	
37)	MTD/34/21492 IS 12308 : Part 13: 1992	Methods for chemical analysis of cast iron and pig iron: Part 13 Determination of magnesium by atomic absorption spectrometric method for magnesium upto 0.1 percent	
38)	MTD/34/21954 IS 6226 : Part 1: 1994	Recommendations for apparatus for chemical analysis of metals: Part 1 apparatus for determination of carbon by direct combustion	
39)	MTD/34/21955 IS 5425 : Part 1: 1969	Methods of chemical analysis of misch metal: Part 1 determination of cerium	
40)	MTD/34/21956IS 5425 : Part 2: 1984	Method of chemical analysis of misch metal: Part 2 determination of total rare earths	
41)	MTD/34/21958IS 4667 : Part 1: 1968	Methods of chemical analysis of silver - Copper brazing alloys: Part 1 analysis for silver and copper	

42)	MTD/34/21959IS 4667 : Part 2: 1969	Methods of chemical analysis of silver - Copper brazing alloys: Part 2 determination of silver copper and tin	
43)	MTD/34/22153IS 228 : Part 1: 1987(Not Equivalent To: (ISO 9556:1989))	Methods For Chemical Analysis Of Steels Part 1 Determination Of Carbon By Volumetric Method For Carbon 0.05 To 2.50 Percent	
44)	MTD/34/22190IS 440: 1964	Methods of chemical analysis of copper	
45)	MTD/34/22195IS 1559 : Part 2: 1982	Methods Of Chemical Analysis Of Ferrosilicon Part 2 Determination of Carbon	
46)	MTD/34/22196IS 1559 : Part 3: 1982	Methods Of Chemical Analysis Of Ferrosilicon Part 3 Determination Of Sulphur	

Item 7 DRAFT STANDARD/ AMENDMENTS FOR APPROVAL FOR WIDE CIRCULATION

No drafts standard/amendments are pending for approval for wide circulation,the Committee noted the information.

Item 8 DRAFTS UNDER PREPARATION:

No Drafts are under preparation, The committee noted the information.

Item 9 COMMENTS ON PUBLISHED STANDARDS

No comments receieved on published standards, the committee noted the information.

Item 10 NEW SUBJECTS

The Committee noted the information and performa for proposing new subject given in Item No. 10 of the Agenda.

Item 11 INTERACTION ACTIVITIES WITH ISO

The Committee noted the information given in Item No. 11, Interaction activities with ISO , of the Agenda.

Item 12 PROGRAMME OF WORK

The Committee noted the Program of work given in Item No. 12 of the Agenda.

Item 13 R & D GUIDELINES AND TERMS OF REFERENCE

The Committee noted the information given in Item No. 13 of the Agenda.As only one Expression of interest (EOI) was received and they too have declined to proceed with the project(Shri Nikhil Dhawan , IIT Roorkee) , the committee recommended to float the terms of reference(TOR) for the project : Study for identification and validation of test method for analysis of tungsten Concentrate , Scheelite and Wolframite to BIS.

Item 14. LATEST INITIATIVES TAKEN BY BIS:

The committee noted the latest initiatives undertaken by BIS as given in Item 1**4.1**, 1**4.2**, 1**4.3, 14.4** and 1**4.5** of the Agenda.

Item 15 DATE AND PLACE OF NEXT MEETING

The Committee decided to conduct the next committee meeting on 20 Nov 2024 at National Metallurgical Lab (NML), Jamshedpur.

Item 16 ANY OTHER BUSINESS

The Committee noted the information given in Item No. 16 of the agenda and requested BIS to put up Prestandardisation report of the interns (Instrumental analysis of ferro alloys , Aluminium alloys, Copper and Copper alloys , Steel , Stainless steel and Alloy Steel) as a part of agenda for the next MTD 34 meeting.