BUREAU OF INDIAN STANDARDS
(Metallurgical Engineering Department)

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Our ref: **MTD15/A/2.28**	**Dated:** **25-04-2024**

Subject: 28th Meeting of Refractories Sectional Committee, MTD15.

To

Refractories Sectional Committee, MTD15.

Dear Sir,

Please find enclosed the minutes of the **Refractories Sectional Committee, MTD 15** held on **19th January 2024** via **Hybrid mode (through WebEx for VC).** The minutes have been approved by Dr. Arup Kumar Chattopadhyay, Chairman, MTD 15.

Last date for comments is 10th May 2024**.**

Comments if any, confined to the accuracy of recording, may please be mailed to the undersigned. If no reply is received by the last date to comment, We assume your consent to approve the minutes as recorded.

Thanking you,

Yours faithfully

(Saaqib Raahi)
Assistant Director/Scientist`B'
Member Secretary, MTD-15
E-mail: mtd15@bis.gov.in & saaqib@bis.gov.in

BUREAU OF INDIAN STANDARDS

DRAFT MINUTES

28TH MEETING OF REFRACTORIES SECTIONAL COMMITTEE, MTD 15

MEETING DATE: 19th January 2024, (Friday)

VENUE: Bureau of Indian Standard Eastern Regional Laboratory Main Building, 1/14, CIT Scheme, VIP Road, Kolkata, West Bengal, India

Chairman: Dr. Arup Kumar Chattopadhyay
Interim Chairperson: Dr Sukumar Adak **Member Secretary:** Shri Saaqib Raahi

Members Present:

S.No.	Organization	Member	Member type	attendance
1.	Global Group of Companies, Kolkata	Dr. Arup Kumar Chattopadhyay	Chairperson	P
2.	Central Glass and Ceramic Research Institute, CSIR, Kolkata	Dr. H S Tripathi	Principal Member	
3.	Dalmias Institute Of Science & Industrial Research, Sundargarh, Odisha	Dr. Prema Ranjan Rauta	Principal Member	P
4.	IFGL Refractories Limited, Odisha	Shri S D Majumdar	Principal Member	P
5.	Mahakoshal Refractories Private Limited, Katni	Dr Sukumar Adak	Principal Member	P
6.	Mahakoshal Refractories Private Limited, Katni	Shri Niloy Chakraborty	Alternate Member	p
7.	Mahakoshal Refractories Private Limited, Katni	Shri Arnab Kumar Das	Alternate Member	p
8.	Maithan Ceramic Limited, Chirkunda	Shri. S. N SU	Principal Member	P

9.	National Aluminium Company Limited, Bhubaneswar	Shri Pranab kumar Das	Principal Member	P
10.	National Council for Cement and Building Materials, Faridabad	Shri Giasuddin Ahamed	Alternate Member	P
11.	National Test House, Kolkata	Shri D. Rajagopala Rao	Principal Member	P
		Shri VR Venkatesh		
12.	Steel Authority of India Limited, Bhilai Steel Plant, Bhilai	Shri. Amit Roy	Young Professional	P
13.	Steel Authority of India, Centre for Engineering and Technology, Ranchi	Shri. Aishwarya Dewangan	Alternate Member	P
14.	TRL Krosaki Refractories Limited, Belpahar	Shri S. K. Subudhi	Alternate Member	P
15.	IN PERSONAL CAPACITY	Dr Barun Deb Mukherjee	Principal Member	P
16.	IN PERSONAL CAPACITY	Shri K K Paul	Personal Capacity	P
17.	CCRT laboratories, Thane	Shri Sanjay N Koyande	Principal member	P

Invitee:-

Organization	Member	Member type	attendance
Maithan Ceramic Limited, Chirkunda	Shri Avishek Mitra	Representative	**P**

ITEM 0 GENERAL

0.1 Inaugural address by Head of Metallurgical Engineering Department

Head MTD, Shri Sanjiv Maini welcomed all the members and Chairperson Dr A K Chattopadhyay to this 28th meeting of MTD 15 Technical Committee. Sir mentioned the committee to conduct the meetings as far as possible, once in each quarter so that we can have at least 4 meetings in a year to easily review all the pre 2000 and other pending standards for revision/formulation of new standard. Sir requested the committee members to actively participate in the proceedings of the committee and mentioned that members should comment/respond to every document either P draft, WC daft etc. circulated among the members even in case of having no comments or in case of not having any expertise. Sir further mentioned the committee to take necessary decision on the withdrawal of the organizations not actively participating or absent in two consecutive committee meeting and replacing them with new organizations. Sir further mentioned the committee to discuss/prepare and finalize the programme of work/AAP for the arriving FY 2024-25 i.e. the standards to be taken up for revision/formulation of standard on new subjects etc. Sir mentioned that the standards which are taken up for revision or to be formulated as new standard should be done as per the new guideline issued by BIS i.e. like action research project which should be a kind of literature survey, imperial data survey or as small R&D project if required for which up to 20 lakh will be funded by BIS. Further sir mentioned that many of the TOR for the R&D project has been hoisted for the revision of the Indian standard/formulation of Indian standard on new subjects on the BIS portal and requested members to go through the same, if interested and having expertise on the field mentioned can apply for the same through the BIS portal.

0.2 Opening Remarks by the Chairperson

Dr A. K. Chattopadhyay, Chairperson, MTD-15 welcomed the members of the committee to the 28th Meeting of Refractories Sectional Committee, MTD 15. During his address, he thanked Head MTD Shri Sanjiv Maini sir and enlightened the point raised by him about increasing the frequency of meeting so that a greater number of issues can be addressed. Also, he said to hasten up the process so that we can cope up with requirement of robustly growing economy and also stressed upon conducting at least one of the meetings in a physical manner. Also sir has requested all the committee members to actively participate in all the proceedings of the committee as mentioned by head MTD. Sir mentioned that the committee should work in a manner that the associated industry get maximum benefits out of it. Sir further nominated Dr Sukumar Adak as the interim chairperson for the 28th Meeting of Refractories Sectional Committee since Dr. Arup Kumar Chattopadhyay was unable continue in the meeting due to his health issue.

ITEM 1 CONFIRMATION OF MINUTES OF LAST MEETING

1.1 Since, there were no comments received till the last date of comments i.e. 27-08-2023 on the minutes of the 27th meeting of Refractories Sectional Committee, MTD-15 held on 20th June 2023 via WebEx (VC) circulated vide our letter No. MTD-15/A-2.27 dated 16-08-2023 through BIS portal, hence the committee during its meeting confirmed the minutes of its previous (27th) meeting.

ITEM 2 SCOPE AND COMPOSITION OF SECTIONAL COMMITTEE, MTD 15

2.1 The Committee noted the information given in Item **2.1** to **2.2** of the Agenda of the Meeting.

2.2 The Committee noted the information given in Item **2.3** of the Agenda of the meeting and after deliberation requested all the members to participate actively in the committee meetings to avoid any termination of his/her membership. In case of any emergency, if any member unable to attend the committee meeting,

member should inform the same to the chairperson. Further the committee requested member secretary to send reminder to committee members who had not yet submitted the self - declaration (either principal or alternate) (list is enclosed below) to submit the same to the member secretary at the earliest.

membernotsubmitteddeclaration.docx

2.3 The committee noted the composition of the committee and panel given in Item **2.4** of the Agenda of this meeting and after deliberation decided to add Dr Somnath Sinhamahapatra as an alternate member of M/s CSIR - Central Glass and Ceramic Research Institute, Kolkata, the committee further decided withdraw as of now M/s MECON Limited, Ranchi and M/s Rashtriya Ispat Nigam Ltd, Vishakhapatnam and requested Member secretary to send the termination letter to them if they responded and interested to continue/participate in proceedings of the committee the same will be tabled in the upcoming MTDC meeting. The committee further requested Member secretary to send reminder for active participation to M/s Steel Authority of India Ltd, R&D Centre for Iron and Steel, Ranchi, TATA Steel, Jamshedpur and M/s India Refractories Makers Association, Kolkata and the organization not present in this committee meeting.The committee further decided to include Shri Sanjay N Koyande of CCRT laboratories, Thane into Panel 1 and panel 4.The committee requested the members to comment in all the ISO ballot circulated among the committee members, so that ISO standard so formulate shall have the contents as per our industrial requirements.

2.4 The Committee noted the information given in Item **2.6** of the Agenda of this meeting regarding the co-opted organization and after deliberation decided as follows:

Sl. No.	**Name of the Organization**	**Decision of the committee in this meeting**
1.	RHI Magnesita Private Limited, Gurugram	The committee in its meeting after deliberation requested member secretary to write the letter for co-option again to get the nominations from the organization with cc to Dr A.K. Chattopadhyay.
4.	Sigma Test and Research Centre Delhi	As no reply of the multiple co-option request was received from this organization and also at present there are 2 and more testing laboratories are there as a member of the committee, hence the committee in its meeting after deliberation decided not to co-opt and withdraw the nomination of this organization.
5.	BHEL, Hyderabad	The committee in its meeting after deliberation requested member secretary to write the letter for co-

		option again to get the nominations from the organization cc to Shri S D Majumdar and Dr A.K. Chattopadhyay.

2.5 The committee noted the information given in Item **2.7** of the agenda of this meeting and after deliberation decided to withdraw the membership of M/S Rashtriya Ispat Nigam Ltd, Vishakhapatnam from the committee.

2.6 The Committee noted the information given in Item **2.8** of the agenda of this meeting regarding the withdrawal of the organization listed below:

Sl. No.	**Name of the Organization**
1	M/s SAIL Refractory Production Unit (SRU), Ltd., Bokaro
2	M/s Jindal Steel & power , New Delhi
3	Hindustan National Glass Industries Ltd.
4	M.N. Dastur & Co Pvt Ltd, Kolkata
5	OCL, Dalmia India Ltd, Rajgangpur
6	National Refractories, Kolkata

ITEM 3 ACTION TAKEN REPORT

3.1 The committee considered the summary of Actions taken as given in the agenda and decided as follows:

Issues arising out of previous meeting:				
Sl. No.	**Subject**	**Background/Decisions in the previous to previous meeting**	**Decision of the committee in its 27th meeting**	**Decision of the committee in this meeting**
1.	**Doc: MTD 15 (5106)** IS 17107: 2019 Method for determination of Thermal Conductivity	The committee in its previous 25th meeting requested Shri S K Subudhi of TRL Krosaki Refractories Limited, to submit the justification for the changes proposed in the draft Amendment placed at Annexure 5 of the minutes of the 25th meeting, within one weeks' time. The committee further decided that on receipt of the	The committee noted the information given in Item 3, Annexure2, Sl No. 8 of the agenda of the 27th meeting and after detailed deliberation decided to reaffirm and Amend the standard.	The committee noted the information regarding the decision taken on the review of the standard to reaffirm and amend the standard, also the committee noted the publication

	of Dense as well as Insulating Fired Refractories, Refractory Monolithics and Precast Prefired (PCPF) Shapes	justifications, the MS would send the justification proposed to the Chairperson for his approval and if approved, the MS would process the draft amendment for printing. **Actions taken:** Shri S K Subudhi was requested vide email dated 3 October 2022 and reminder sent on 23 November 2022 to submit justifications for the changes proposed in the amendment placed at **Appendix2.** The justification and the amendment were received vide email dated 27 November 2022.Since the changes proposed are pertaining to the changes in the figure. Hence the new figure including these changes are being sought from drawings department of BIS**.** The drawings and the modified Amendment are enclosed below. The modified draft enclosed below was approved by chairperson for wide circulation for a period of one month on 04-January 2023. The draft enclosed below was accordingly sent for wide circulation on 06-01-2023 inviting comments till 08-February 2023.  IS 17107 AMENDMENT WITH  IS 17107 Drgs.zip	**Action taken:** The standard had been reaffirmed and amended, the same decision had been updated on the portal. Also the Amendment was published on 16 October 2023.	of the amendment on 16 October 2023 given in Item 3, Annexure 2, Sl No 1 of the agenda of this meeting.

		FW Gentle Reminder Justificatic **Decision of the committee in its 26th meeting:** The Committee noted the information as given in **Annexure 2 Sl. No. 7** of the Agenda of the 26th meeting and after detailed deliberation decided that if no comments are received on the WC Draft enclosed at Annexure 2 of the agenda of 26th meeting or comments received are editorial in nature then the same will be sent for printing with the permission of the Chairman, MTD 15 **Action taken:** No comments were received on the wide circulated document enclosed below till 08-Feb-2023. WCMTD3821726_06 012023_1(2).pdf Accordingly, chairperson approval was sought vide email dated 25 May 2023 and is enclosed below for finalizing the amendment and sending the same for printing. Chair approval 17107.pdf		

		Final Status: The Amendment No.1 enclosed below was sent for printing. Final Draft AMD IS 17107.pdf **Further Actions Required:** **Recommendations of Panel 4**: The panel 4 on test methods standards while reviewing the standard and need for its continuance although we already have standards for thermal conductivity determination by IS 1528 (Part 16)/ISO 8894-2 and (Part 21)/ISO 8894-1 which describe hot-wire (parallel) method and Hot-wire methods (cross-array and resistance thermometer) respectively for the determination of the thermal conductivity. The panel after deliberation recommended that this IS 17107 is a different technique than IS Part 16 and Part 21 and widely used in India and the instrument for Part 16 and Part 21 is not widely available in India. Hence the IS should stay as it is. The panel further recommended to bring it in IS 1528 series while **during revision in the future.(**Kindly refer to Item **6.7.1**, Page No. 28 of the agenda of 27th meeting for the detailed recommendations of the panel)		

		Further the standard is **due for review** under Item 6.5, Sl No 14, Page 21-22 of the Agenda of 27th meeting.It is being **proposed to reaffirm and Amend the standard**.		
2.	**Doc:MTD 15(11337)** **Revision of IS 10047:1981** Method of Testing Refractory Ramming Masses	Dr I N Chakraborty was requested vide our email dated 26-04-2022 to submit the revised draft by incorporating the changes by incorporating the drying schedule of the ramming mass in the brick shape to make it compatible to be tested as per IS 17107 in the revision draft placed at **Appendix 6.** of the agenda of 25th meeting However, no reply has been received. The inputs were received vide email dated 30th May 2022 placed below and were circulated on the same date to the members for their views/inputs.  Adobe Acrobat Document The committee in its 25th meeting after deliberations, requested, Dr I N Chakraborty, to incorporate the changes proposed , earlier circulated vide email dated 30-05-2022 in the standard placed at **Annexure 4** of the minutes of 25th meeting and submit the revised draft to the secretariat within one weeks' time. The draft so received will be sent in wide circulation for 1 month. If no comments are received the same would be sent for printing with the permission of Chairperson of MTD 15 technical committee	The committee after detailed deliberation decided to **reaffirm and revise the standard** as the standard is under due for review and currently under printing and further decided to formulate the new standard on DVM (Dry Vibratable mass) and requested Dr INC to share the DVD measurement procedure with Shri S D Majumdar of M/s IFGL Refractories Limited, Odisha who will draft the remaining test procedures including the sampling & test piece preparation and then discuss it jointly with Panel4 to prepare a finalized draft of the new test method procedure for DVM (Dry Vibratable Mixes) before the next committee meeting and further requested Dr INC to share the finalize draft document to the BIS Secretariat . The committee also requested the Member Secretary that on receipt of the draft that same shall be circulated among the members for the comments. The committee further held that the testing and validation part of the test method will be discussed also in the next committee meeting upon the receipt of the draft document/standard. **Action taken:** Decision taken on the review of the standard is to **Reaffirm and revise** the standard and also the standard has been published on 28 August 2023. Further with respect to the DVM (Dry Vibratable mass) Dr INC submitted the first draft enclosed below	The committee noted the information regarding the decision taken on the review of the standard to Reaffirm and revise the standard, also the committee noted the publication of the standard IS 10047 on 28 August 2023 given in Item 3, Annexure 2, Sl No 2 of the agenda of this meeting. Further with respect to the new standard on DVM (Dry Vibratable mass) the committee after deliberation requested member secretary to share the draft so prepared to Shri S D Majumdar and the members of panel 4 to have their views/comments/recommendations on the test method procedures incorporated in the standard which has been prepared by taking assistance from ISO 1927 Part 5 and Part 6 , IS 10047 and requested panel convener Dr. I. N. Chakraborty to submit the

		Action taken: Dr I. N. Chakraborty submitted the draft incorporating the necessary changes vide email dated 06 June 2022 submitted and the draft enclosed below.  IS 10047 Revised Version for Printing Further the drawings vide email dated 4 August 2022 of sand rammer and other were sought from Dr I. N Chakraborty and is enclosed below.  Re Document shared with you _IS Accordingly, the draft as per required format was drafted and is enclosed at **Appendix-3 of the agenda of 26th meeting .** The same was sent for wide circulation on 05 August 2022 inviting comments till 06-September 2022. Comments were received vide email dated 8 September 2022 from IFGL refractories and the same was circulated to members on 28 October 2022. On circulation of the comments, further comments were received vide email dated 28 October 2022 from Tata Steel.	incorporating the DVD measurement procedure vide email dated 22-June-2023 and Dr INC also shared the same with Shri S D Majumdar of M/s IFGL Refractories Limited, Odisha who were supposed to draft the remaining test procedure for dry vibratable masses.  Dry Vibratable Mass (DVM) Evaluation Pr  first emil from Dr INC.pdf Again, discussion was held with Dr INC and a second draft enclosed below was received vide email dated 25-June-2023  Dry Vibratable Mass (DVM) Evaluation Pr in which method of preparation of test pieces for determination of BD, CCS and PLC was given and test procedures were referred to IS 10047 and was shared again with Shri S D Majumdar of M/s IFGL Refractories Limited, Odisha who raised his concerns about the curing temperature of 250 for Bakelite and stated that they are using some other resin and users will not agree to 250 degrees curing temperature . However Dr. INC argued that, we can keep that open in the standard as agreement between buyer and	finalized draft to BIS/member secretary. The committee further decided to review the finalized draft to be submitted by the panel in the next committee meeting.

		Comments from IFGL and Tata steel.| One more change recommended by Member Secretary is that the definition of Refractory plastics a per ASTM C17 and ASTM C 673, ISO 1927-1.Also we need to mention what is excluded from the standard. RAMMING MASSES DRAFT MS prposed **Decision of the committee in its 26th meeting** The committee noted the information as given in **Annexure 2, Sl. No.8** of the Agenda of 26th meeting and after deliberation requested Dr I. N. Chakraborty to give his final views/recommendations on comments received from IFGL and Tata Steel on the draft enclosed at **Annexure-1 of the Agenda of the 26th meeting.** The committee further requested MS to send views/recommendations so received from Dr I. N. Chakraborty to the chairperson MTD15 for further reviewing and if approved would be sent for WC/printing as required. **Action taken** As requested by the committee to Dr INC of M/s Caldreys to giv his final views on the comment raised by IFGL and Tata steel. Dr. INC gave his final comments vide email dated 29 March 2023 and with respect to	supplier about the curing temperature of resin and may modify the clause 3.7 as follows: *"Since you are using a different resin, the curing temperature is expected to be different. So, instead of specifying any specific resin, we may make the following statements.* *Section 3.7* *"Thermo setting / hardening resin should be and the used"* *Method* *"For the product which does not contain any organic binder and / or any resin, add 1.5%, by weight, a thermo setting / hardening resin. For the products containing a resin or an organic hardener, carry out a preliminary test of release from the mould and cohesion of the test pieces. Add 1.5 % of thermo setting / hardening resin, if required.* *Once the resin mixed DVM is prepared, the procedure for the test piece preparation is as per IS 10047. Height aimed of the test piece after drying is 50-mm ∓ 2 mm. Subsequently, the DVM filled mould should be cured at the hardening temperature specified by the resin supplier for 2 hours. Remove the mould from the drying oven; cool it down to room temperature and subsequently remove the cured DVM from the mould."* *Should we specify the heat treatment temperatures for the measurement of other properties? We may*	

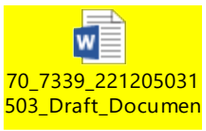
		comments from Tata steel the following was recommended: Dr INC FINAL Comments.pdf "While optimising the numbers of strokes to be used for sample preparation it was observed that 10 strokes from each end suffices. This is because by increasing the numbers of strokes, no measurable change in the specimen height was observed. This implied that for the specified load of the Sand Rammer, 10 strokes from each end are optimum. Increasing the number of strokes will not increase the test specimen bulk density (BD) and as an extension of the statement we may say that specimen apparent porosity (AP) will not be lowered." For the comments raised by IFGL regarding the sample preparation of Basic ramming masses/dry vibratable masses, it was recommended by Dr INC : "That the method of preparation of dry vibratable masses is entirely different and a new standard has to be developed for the same. " Accordingly, Dr. INC submitted the draft by modifying the scope and **excluding** the **dry vibratable masses** from the standard vide email dated 18 April 2023 and is enclosed at **Appendix-1** and the same was sent for approval to chairperson of the committee along with the final comments of Dr. INC. The chairperson of the committee vide email dated 26 April 2023 agreed with	*keep it open ended by saying "properties would be measured after curing the test specimens at the temperatures and duration agreed between the refractory maker and the buyer".* Further Communications are given in the below object: Email INC and Majumdar sir.pdf CALDE_MIX_SC_84_M16.pdf SILICA_MIX_4_B_10.pdf Based on all the observations, again the draft was modified by Member Secretary as per BIS format and taking assistance from ISO 1927-3, ISO 1927-5, ISO 1927-6, ISO 1927-8 and shared via WhatsApp on 7 August 2023 with Dr INC and the same is enclosed below. Dry Vibratable Mass (DVM) BY SAAQIB 2N Reply was received vide email dated 2 Sep 2023 giving his observations on the modified draft and is enclosed below. final mail dR INC.pdf Dry Vibratable Mass (DVM) BY SAAQIB 2N	

		the final comments made by Dr INC and accorded the approval for sending the draft enclosed at **Appendix-1** for printing. The approval of the chair is enclosed below. Also, the Panel 4 in its Ist meeting on 24th May 2023 also recommended the same. The recommendations of the Panel 4 on the formulation of new standard on DVM is enclosed at **Item 6.7.1, Page 28.** **Final Status:** The revised draft of IS 10047 has been sent for printing and is enclosed below.  F1MTD3811337_12052023_2.docx **The committee may please note.** **Further Actions Required:** 1) The standard is also due for review **at Item 6.5, Sl. No 15, Page No.22**. It is being recommended to **reaffirm and revise** the standard also. 2) The committee may also deliberate on formulation of the new standard for testing of **dry vibratable masses (DVM).** It is being recommended to form a panel for the same and nominate a project leader for the same who will submit an R&D proposal to BIS under Small R&D project for getting the funding for the same	However, it was requested over telephonic conversation to look again into the draft and the comments provided by BIS especially for PLC determination by matching the details given in IS 10047 and ISO 1927-6 and submit the final draft to BIS for circulation among the committee members. **However, the final draft is awaited.** It was further proposed that we may align our monolithic standards for test perice preparation with ISO 1927-5, and cover test methods in single standard like that of ISO 1927-6 and ISO 1927-8. We will not adopt them in totality but we can have copy their format. This action we can start in the next financial year.	

		under 2 lacs. (Please refer to the R&D guidelines given **at Item 11, Page 66**).		
3.	**Review of IS 1528 (Part 10) : 1974** Methods of sampling and physical tests for refractory materials Part 10 determination of size of refractory bricks First Revision & **IS 1528 (Part 11) :1993** Methods of sampling and physical tests for refractory materials Part 11 determination of warpage	The committee in its 25th meeting decided to allot the review to **Panel 4 on reviewing of Test Method standards** and requested them to review the standard in order to align our Indian standard with the current practices being followed by industry and simultaneously should be at par with international standards. The panel convener shall submit the final recommendations i:e whether to revise/reaffirm/ withdraw to the committee within 3 months' time period. **Action taken:** The panel 4 was requested to review the standard vide email dated 12 September 2022 and further reminder was sent vide email dated 31 October 2022 and 23 November 2022.However the reply is awaited **Meanwhile, The ARP was taken by member secretary which is enclosed below, was circulated to the members dated 05 December 2022, requesting for the comments till 24 December 2022.** Adobe Acrobat Document It was being proposed to withdraw this standard as measurement of external dimensions of bricks in which only length width and thickness methods of	The committee after detailed deliberation agreed with the recommendations of the panel and **decided to withdraw the standards** IS 1528 (Part 10) , (Part11) and **supersede them with IS 16051 (Part 1)** as the test procedures for measurement of dimensions in IS 1528 Part 10 mentions only the length width thickness measurement and IS 1528 Part 11 mentions only warpage measurement only that too for concave surfaces only. Also the formula and method for determination of warpage is very different from the internationally accepted methods such as ASTM C 134 and ISO 12678-1: 1996.The method in IS 1528 part 11 prescribes the determination of warpage by a dial gauge , rod and wooden platform apparatus and measures the dimensions at 3 points using dial gauge and calculating the warpage on the ratio between the average difference at the end points and at the midpoint divided by total length of diagonal. However, both ASTM and ISO measured the warpage using the simple wedge blocks and steel straight edge while the ISO standards adopted as Indian Standards as IS 16051(PART 1)/ISO 12678-1 mentions of dimensions (like size, out of squareness, taper differences, and warpage) and in addition part 2 mentions external defect measurement methods. **Action taken:**	The committee noted the information regarding the withdrawal of the both the standards which will be superseded by IS 16051 (Part 1) given in Item 3, Annexure 2, Sl No 3 of the agenda of this meeting.

		measurement is specified In contrast, ASTM as earlier stated mentions both squareness measurement and size measurement, taper differences methods using simple instruments like steel wedge blocks, steel straightedge, engineers square and the requirement of s surface table or plate. Also we have already adopted ISO 12678-1: 1996 and ISO 12678-2: 1996 as Indian standards which mention the measurement of dimensions (like size, out of squareness , taper differences and warpage) and in addition part 2 mentions external defect measurement methods. Hence as ISO being much more elaborated standards than our Indian Standards 1528 (Part 11) and Part10 and covering all the requirements of IS's . It is being proposed to withdraw the standards 1528(Part 11) and (Part 10) and supersede them with IS 16051 (Part 1)/ISO 12678 -1 : 1996**.** Further to add the dimensions of brick mentioned in IS 1526: 1960 Size and Shape for firebrick and IS 5479: 1969 Sizes and shape for fire bricks (300mm and higher) need to be withdrawn and revised by ISO 5019(6 parts) which covers the dimensions of refractory bricks such as Arch Bricks , rectangular bricks, rectangular checker bricks for regenerative furnaces, dome bricks for EAF, dimensions for skewbacks, dimensions of bricks for BOF and IS 5417 which is dimensions for bricks in rotary kilns. **Decision of the committee in its 26th meeting:** The committee after deliberations again requested **panel 4** to give their suggestions/recommendations before a period of 3 month time or next meeting to MS whichever is earlier.	As recommended by the committee in its previous meeting, the MTDC in its 30th meeting held on 14th September 2023 approved the withdrawal of the standards IS 1528 (Part 10) and (Part11) Accordingly, the standards would be withdrawn from portal and superseded by IS 16051(Part1).	

		Action taken: The panel 4 on test methods in it Ist panel meeting held on meeting on 24th May 2023 on recommended to withdraw this standard as we have already adopted ISO 12678-1: 1996 and ISO 12678-2: 1996 as Indian standards IS 16051(PART 1) and IS 16051(PART 2) respectively which mention the measurement of dimensions (like size, out of squareness , taper differences and warpage) and in addition part 2 mentions external defect measurement methods which is much more elaborated standards than our Indian Standards 1528 (Part 11) and Part10 and covering all the requirements of IS's. Hence should be withdrawn and superseded by IS 16051 (Part1). **Final Status:** The panel 4 on test methods recommended to withdraw IS 1528 (Part 10 & Part11) and supersede them with IS 16051 (Part 1)		
4.	**Revision of IS 1528 (Part 20) : 1993/ ISO 5013:1985** Methods of sampling and physical tests for refractory materials - Part 20 determination of	The committee in its 25th meeting decided to allot the review to **Panel 4 on reviewing of Test Method standards** and requested them to review the standard in order to align our Indian standard with the current practices being followed by industry and simultaneously should be at par with international standards. The panel convener shall submit the final recommendations i:e	The committee noted the information given in Item 3, Annexure2, Sl No. 11 of the agenda of 27th meeting. **Action taken:** The revised standard was published in August 2023.	The committee noted the information regarding the publication of the standard IS 1528 (part 20) on August 2023 given in Item 3, Annexure 2, Sl No 4 of the agenda of this meeting.

	modulus of rupture at elevated	whether to revise/reaffirm/ withdraw to the committee within 3 months' time period. **Action taken:** The **panel 4** was requested to review the standard vide email dated 12 September 2022 and further reminder was sent vide email dated 31 October 2022 and 23 November 2022.**However the reply was awaited**. Meanwhile, the ARP was taken by member secretary which is enclosed below, was circulated to the members dated 05 December 2022, requesting for the **comments till 24 December 2022.**  And It is being recommended that since ISO 5013 is also not revised, no technical change is required in the standard. However, to correct the editorial mistake of correcting the IS No. , in order to make clarity between IS 1528 (part 15) which is for Determination of bulk density and apparent porosity , true porosity of dense shaped refractory materials and Part 20 which is for Modulus of rupture at elevated temperature .The new national foreword which is prepared is attached below  		

		Decision of the committee in its 26th meeting The committee in its 26th meeting after detailed deliberation decided that draft is having only editorial changes and requested MS to send it for wide circulation for a period of one month. In case no comments are received or comments received are editorial in nature , the draft shall be finalized and sent for printing with the permission of the chairperson,MTD15 **Action taken:** The draft National foreword enclosed was sent in wide circulation on 3rd March 2023 for a period of 1 month for invitation of comments from the Public till 6th April 2023.  WC1528(part20)(1).pdf However, no comments were received on the wide circulated National Foreword. Accordingly, as decided by the committee in its 26th meeting the Chairperson approval was obtained vide email dated 22 May 2023 for finalization and publication of the revised draft.  Chairperson approval.pdf		

		Subsequently, upon receipt of the approval, the revised draft of IS 1528 (Part20) was sent for printing. **Final status :** Under Printing		
5.	**Revision of IS 1526 : 1960** Sizes and shapes for firebricks 230 mm Series **& IS 5495 :1969** Sizes and shapes for firebricks (300 mm And Higher Sizes	The committee decided to allot the review to **Panel 4 on reviewing of Test method standards** and requested them to review the standard in order to align our Indian standard with the current practices being followed by industry and simultaneously should be at par with international standards. The panel convener shall submit the final recommendations i:e whether to revise/reaffirm/ withdraw to the committee within 3 months' time period. **Action taken:** The panel 4 was requested to review the standard vide email dated 16 June 2022 and further reminder was sent vide email dated 23 August 2022 and 23 November 2022. The Panel Convener Dr Sukumar Adak replied vide email dated 23 November 2022 that he is already working on it and will revert back due course of time. However further reply was awaited. Further it is to inform to the committee that for dimensions of brick mentioned in IS 1526: 1960 Size and Shape for firebrick and IS 5479: 1969 Sizes and	The committee after deliberation agreed with the recommendations of the panel and decided to withdraw the standard and **adopt the following 6 parts of ISO 5019 in totality** under dual numbering system with different IS Number as the ISO 5019 series covers much wider range of bricks : ISO 5019-1:1984 Refractory bricks — Dimensions — Part 1: Rectangular bricks ISO 5019-2:1984 Refractory bricks — Dimensions — Part 2: Arch bricks ISO 5019-3:1984 Refractory bricks — Dimensions — Part 3: Rectangular checker bricks for regenerative furnaces ISO 5019-4:1988 Refractory bricks — Dimensions — Part 4: Dome bricks for electric arc furnace roofs ISO 5019-5:1984 Refractory bricks — Dimensions — Part 5: Skewbacks. ISO 5019-6:2005	The committee after deliberation agreed with the recommendation of the panel 5 to adopt all the 6 parts of ISO 5019.Further the committee deliberated that in future it can be taken up as R & D project for its revision to include the refractory bricks of different sizes (higher sizes) as per our industrial requirements.

		shape for fire bricks (300mm and higher) there exists ISO standards on similar subject ISO 5019(6 parts) which covers the dimensions of refractory bricks such as Arch Bricks , rectangular bricks, rectangular checker bricks for regenerative furnaces, dome bricks for EAF, dimensions for skewbacks, dimensions of bricks for BOF and ISO 5417 which is dimensions for bricks in rotary kilns. **Decision of the committee in its 26th meeting** The committee after deliberations in its 26th meeting requested **Panel 4 on test method stanadrds** to give their view/recommendations till 01 March 2023 on feasibility of adoption of ISO standards and harmonizing the existing Indian standards on dimension of refractory bricks. **Action taken:** The panel 4 on test methods in it Ist panel meeting held on meeting on 24th May 2023, after detailed deliberation recommended to withdraw IS 5495 and IS 1526 and adopt ISO 5019 (part1 to Part 6) in totality and issue a different/New IS Number which will supersede IS 5495 and IS 1526.	Refractory bricks — Dimensions — Part 6: Basic bricks for oxygen steel-making converters **Action taken:-** As recommended by the committee in its previous meeting, the MTDC in its 30th meeting held on 14th September 2023 approved the withdrawal of the standard. Accordingly, the standards will be withdrawn from portal. However, some of the brick dimensions mentioned in IS 5479 are not covered in the ISO parts. It was being proposed to conduct an R&D project for identification of brick dimensions being used in various furnaces across India. And if the sectional committee feels that no R&D is required , the brick dimensions mentioned in the ISO standards are used and require no R&D, then we can go ahead with the wide circulation of these 6 drafts and withdrawal of IS 1526 and IS 5479.	
6.	**Revision of IS 2042 : 2006** Insulating Bricks - Specification **& IS 12951 Mica Insulating**	The Committee in its 24th meeting after detailed deliberation decided to agree with the recommendation of the Panel and decided to adopt ISO 2245 : 2006 as an	The committee after deliberation decided not to have separate standards for product specification and classification as the product specification is not relevant in today's context and most of the	The committee noted the decision taken by the special meeting held on 14 November 2023 in hybrid mode to initiate the small R&D

	bricks for high temperature applications **&Adoption of ISO 2245: 2006** Shaped insulating refractory products — Classification **(MTD/15/15892)**	Identical Standard to bring Indian Standard in line with the international practices. The committee further decided to send the draft Indian Standard for wide circulation for a period one month. If no comments are received or comments received are editorial in nature then the draft document will be sent for printing with the permission of the chairman. The matter was put forward to HMTD for approval for wide circulation of the revision of standard IS 2042 : 2006 by adopting ISO 2245 : 2006. However comments were received as below: "The proposed ISO 2245 (2006 version) standrad is not exact replacement to the existing Indian standrad, IS 2042:2006. Hence, it is requested to the TC to reconsider its decision for replacing IS 2042:2006 standrad with ISO 2245 standard. Instead, IS 2042 can be revised by incorporating the additional requirements given, if any, in ISO 2245" Also DPIIT is desirous of having product standards on Refractory bricks and carbon bricks. The conversion of product standard to classification standard is not amenable for product certification by BIS which is against the interest of DPIIT. In order to take care of the perspective of users on this standard, the view point of users is a must. Hence the panel may be reconstituted by incorporating the users and associations like BHEL, AIIFA etc. into the panel.	International Organizations have only classification and test method standards and further decided to not to adopt ISO 2245 in totality and further requested **panel 3** to formulate an indigenous/own separate standard for classification only, for insulating bricks instead of formulating a product standard , and classify the insulating bricks based of critical parameters relevant in the Indian industry and classify insulating bricks accordingly and further decided that the decision regarding the withdrawal of the product specifications for insulating bricks namely IS 2042 : 2006 and IS 12951:2006 will be discussed in the next committee meeting after the revised draft on classification of Insulating bricks will be submitted by the panel 3 . The committee further requested to the members of Panel 3 namely Shri Saran Khemka of M/s Achint Chemicals (Manufacturer of Refractories & Monolithics), Bhilwara and Shri Bishwaroop Sarkar of M/s Engineers India Limited, New Delhi to lead the project and complete the same before 20th August 2023 by submitting a new draft document on classification of Insulating bricks. The committee further requested the above members that if they want to register the same under small R&D project, the TOR (Terms of reference) of the R&D project enlisting the scope and methodology and the estimated cost may be submitted to BIS in order to get the funding under small R&D projects which involves costs for literature survey, empirical data collection etc. up to 10 lacks. **Action taken:**	project to develop an indigenous standard on classification of refractory insulating bricks and Terms of reference of the project given in Item 3, Annexure 2, Sl No 6 of the agenda of this meeting. Further the committee formally approved the minutes of the above mentioned special meeting and requested Shri Saran Khemka of M/s Achint Chemicals (Manufacturer of Refractories & Monolithics), Bhilwara and Shri Bishwaroop Sarkar of M/s Engineers India Limited, New Delhi to make the bid for the same.

		Decisions in 25th meeting: The Committee after detailed deliberation in its 25th meeting decided to constitute Panel 3 to draft the revised specification standard by incorporating the additional requirements given in ISO 2245 and other international standards in our Indian standard and making other necessary changes (like including in the standard, clauses for classification and grades of magnesia carbon bricks, technical requirements, test methods, packaging, marking) and submit the draft standard within 1month's time. The composition of the Panel 3 Constituted for this purpose is given below: Dr I N Chakraborty, (Convener) Shri Prasenjit Saha, M/s EIL Dr. Ranjan Dey Shri Saran Khemka Shri S. N. Su **Actions Taken:** The **panel 3** was requested vide email dated 12-September -2022 to submit the revised draft on IS 2042 . However, no reply was received. Further it is proposed to drop the earlier Doc. No. **(MTD/15/15892)** in which the ISO 2245: 2006 adoption was recommended and sent for wide	It was decided by the committee in its previous meeting that Panel 3 headed by Shri Saran Khemka of M/s Achint Chemicals (Manufacturer of Refractories & Monolithics), Bhilwara and Shri Bishwaroop Sarkar of M/s Engineers India Limited, New Delhi will develop an indigenous standard on classification of refractory insulating bricks. However, during the special meeting held on 14 November 2023 in hybrid mode decided to initiate the small R&D project for the same and approved the below Terms of reference of the project for circulation on BIS portal for invitation of Bids from interested parties. The ToR and the minutes of special meeting are enclosed below. Also, the minutes were circulated to members on 11 January 2024 inviting their comments till 17-04-2023. It was further proposed to formally approve the minutes of the Special meeting held on 14-Nov-2023.  Minutes of special meeting.docx  PROJECT FOR R&D INSULATING **Remarks/proposals by member secretary:** The committee may please note and approve the minutes of special meeting. And in case any further comments on ToR are there the same may be put forward. Further it was requested to Shri Saran Khemka of M/s Achint Chemicals (Manufacturer of Refractories & Monolithics), Bhilwara and Shri Bishwaroop Sarkar of M/s Engineers India Limited, New Delhi to make the bid for the same.	

		circulation. Since both IS 2042 and IS 2245 have different scopes. **Decision of the committee in its 26th meeting** The committee after deliberations requested the panel 3 to give their suggestions/recommendations on formulating a classification standard or a revised specification by modifying the ISO document ISO 2245:2006 and suggest a way forward. The committee further decided to drop the earlier document number since both the IS 2042 and IS 2245 have different scopes, one being classification and the other being a product specification. **Actions Taken:** As decided by the committee, the document number (MTD/15/15892) was dropped and a new number will be assigned once the draft will be sent for P-Circulation. **A first combined meeting between Panel 3 and Panel 5** was held on 02-June 2023 and the minutes of which are enclosed below.  Minutes 1st combinedMTD15 pa The panel after deliberation recommended to formulate new standard on classification and **adopt ISO 2245 in total** and **with respect to the revision of IS 2042** , Mr. Saran Khemka of M/s Achint Chemicals (Manufacturer of Refractories & Monolithics),		

		Bhilwara and Mr Bishwaroop Sarkar of M/s Engineers India Limited, New Delhi informed the panel that usage of IS 2042 is now a days become limited to SAIL or PSU's only also many purchasers quote orders referring to some **standard manufacturers specification** or private company's specification **standard (for example Skamol and thermal ceramics specification standard)** and different international specification standard which makes it difficult for manufacturers to comply, **so we should have Indian standard on specification which specifies at least basic specification** (for different groups which are mentioned in ISO classification standard). Also to keep the specification standard open so that orders shall be quoted as agreed between purchaser and supplier. **Both EIL and Achint chemicals agreed to submit the revised draft of IS 2042 merging both IS 2042 and IS 12951,** and including the grades in standard by considering the purchaser's demand data and manufacturers supply data to member secretary before 3 months' time **by 20th August 2023**. The draft submitted will be discussed further in the next panel meeting. **Subsequently panel also recommended to follow** the **same prototype** for other product standard i.e to adopt ISO with reference to classification and accordingly revise our Indian standard on product specification where ever product specification I also required **Final recommendations:**		

		1) The panel recommended to adopt ISO 2245 in total as a separate standard for classification 2) Revise IS 2042 & IS 12951 into a single standard and will submit the revised draft by 20th August 2023 3) Follow the prototype in all other product standards wherever product specification is required, otherwise go for classification only.		
7.	**MTD 15 (5312)** Revision of IS 1749:2005 Burnt Magnesite Refractories Specification(Third Revision) **MTD/15/05312**	**The committee in its 18th** meeting held on 06th March 2012 requested **Shri Atanu Pal, Tata Steel Ltd.** to examine the standard IS 1749 : 2005 and give the views within 2 month time. The panel meeting of MTD/15/Panel 1 held on 30th May 2013 under the convener ship of Dr. Sukumar Adak and other members considered the revised draft provided by **Shri Atanu Pal, Tata Steel Ltd.** and decided to recommend to the Technical committee to approve the draft without any further modifications and the same was approved by the **Technical Committee in its 19th** meeting held on 30th May 2013 for Wide Circulation of the draft submitted  Draft submitted by tata steel.docx **The document Doc:MTD15(5312)W enclosed below was** **sent for wide circulation on 31st July 2015** inviting comments till 14-09-2015.	The committee after detailed deliberation r**equested panel 2 Convener Shri S. K. Subudhi** to submit the revised draft by modifying the values as per current practices, and provide supporting document for the values incorporated in the standard before August 2023.The committee further decided that draft document so received shall be circulated to the members for 21 days. In case no comments are received, or the comments received are editorial in nature the draft document shall be sent in wide circulation for a period of two months with the concurrence of the chairperson of MTD 15 Technical Committee in next committee meeting. Further the committee requested the panel 2 to suggest the classification of the product specification also i;e under which category of classification the product will fit into. **Action taken:** Accordingly as per the decision of the committee Convener Shri S. K. Subudhi was requested vide mail (enclosed below) dated 18-12-2023 to submit the	Shri S K Subudhi sir mentoned that companies like TATA Steel,JSW,TRL,KHC and KESHAV etc are not mentioning any hydration test requirements in their own specification in the puchasing order. Also there will be different requirement for different industrries for the the specification pertaining to hydration test,hence it should not be fixed .As there is no change/modifications (or addition of specification pertaining to hydration test)in the specifications of the refractories given in the standard, the committee after deliberation decided that there is no sense of revising the standard without having any change in the

		MTD 15 (5312).docx The comments were received from Shri S K Subudhi of M/s TRL Korosaki Refractories limited which are placed below. Comments on MTD 15 (5312).docx **The committee in its 20th meeting** held on 08th December 2015 advised Shri S K Subudhi of M/s TRL Korosaki Refractories limited and Shri Atanu Ranjan Pal of M/s Tata Steel Limited to prepare a modified draft on the subject keeping in view the comments of Shri S K Subudhi. However no draft was submitted. **The committee in its 21st meeting** held on 30th March 2017 requested Shri Goutam Ghosh of M/s Tata Steel Ltd., Jamshedpur to convene a meeting of users and suppliers of the material and give his recommendations to the Chairman as well as the Member Secretary by 31st May 2017.However, the recommendations were **awaited till 22nd meeting** held on 20-08-2019. **The committee in its 23rd meeting held** on 11-02-2021. The Committee detailed deliberation decided to drop the document and again request Shri Goutam Ghosh to provide the revised draft for Wide circulation after consulting stakeholder. The committee further decided that if no comments are received or comments received are editorial in nature then the draft document	revised draft along with the supporting documents and further to suggest the classification of the product specification under which category the product will fit into. **Email to panel.pdf** The email was received from Shri S K Subudhi on 18th Jnauary 2024 in which two documents , one pertaining to carbon bricks and other giving specificationdetails of various industries on burnt magnesite refractories. Email Mr subudhi.pdf Classification of dense shaped Carbc Lime Kiln spec for BIS (2).XLSX	specification and decided drop the standard from revision and wait for the recommendation of panel 5 on product standard for its withdrawal/archiving/reaffirmation.

		will be sent in printing with the permission of the chairman. The Committee in its 24th meeting after detailed deliberation agreed to the proposal of the Panel 1. (Shri S K Subudhi, (Convenor) 2. Dr A K Pattnaik 3. Dr Arup Ghosh 4. Dr Sukumar Adak 5. Shri Gautam Ghosh) to go for classification of the product and requested Shri Shri S K Subudhi of the Panel to provide the Draft revision of Burnt Magnesite Refractory within a month. The Committee further decided to send the Draft Standard in Wide circulation for two months. The Committee further decided that if no comments are received or comments received are editorial in nature then the same will be sent in printing with the permission of the Chairman, MTD 15. The committee also decided to follow this prototype in all other different product standards of refractories as refractories are not "One size fits all" type of material and it varies depending upon the operating conditions and application in the kilns/ furnaces/ ladle/ converter. The "Optimum properties" required in the bricks in the given application may not match the properties defined in a given product standards. Hence the Committee decided to request the Panel on Harmonization of Indian standards with ISO standards with following reconstituted composition to give their recommendation within a month:		

		a) Shri Sukumar Adak (Convenor) b) Shri SK Subudhi c) Shri H S Tripathi d) Dr N K Patnaik e) Shri Arup Ghosh f) Dr I N Chakraborty The comments from Shri Gautam Ghosh of M/s Tata Steel is given below  Comemnts of gautam ghosh.pdf The committee in its 25th meeting held on 2nd June, 2022 has noted that PSU's like BHEL etc are procuring as per this standard and in order to take care of the perspective of the users on this intended revision of standard. A need is felt to reconstitute the panel by inducting users and associations into the panel and taking a collective decision. The committee after deliberation decided to constitute Panel 2 to draft the revised standard specification standard and submit the same to the secretariat within 1 month time as discussed in the meeting. The composition of the Panel 2 Constituted for this purpose is given below : **a)** Shri S K Subudhi (Convener)		

		b) Shri Amit Roy (M./s Bhilai steel Plant) **c)** Dr M K Mishra (M/s RHI Magnesita) **d)** Dr A K Patnaik (M/s OCL, Dalmia) **e)** Dr Prema Ranjan Raut(M/s DISIR) **f)** Dr H S Tripathi (M/s CGCRI, CSIR) **1st panel meeting:** The panel meeting of Panel 2 was conducted on 21st October 2022 and the minutes of which are enclosed below.  9223_271020221039 31_0(1).docx Since no conclusion was drawn during this panel meeting, the panel requested Dr N K Mishra of RHI Magnesita to draft a revised product specification/classification and submit the same within 3 weeks' time till 10th Nov 2022.However, no reply received.  DRAFT IS 1749.docx **Decision of the committee in its 26th meeting** The committee in its 26th meeting after detailed deliberations requested **Panel 2 Convenor Shri S. K. Subudhi** to submit the revised draft to the BIS		

		Secretariat till 10th February 2023. The committee further requested MS that on the receipt of the revised draft the same shall be sent in P circulation for a period of one month. In case no comments are received or comments received are editorial in nature the same shall be sent for wide circulation for a period of one month, with the permission of the chairperson, MTD15. The committee further decided to drop the earlier document number **MTD 15 (5312),** and upon receipt of the revised draft the new document number shall be issued. Action Taken: As decided by the committee, the document number MTD15(5312) was dropped and a new number will be assigned once the draft will be sent for P-Circulation **2st panel meeting:** The panel in its 2nd meeting held on 13th March 2023, after detailed discussion on hydration test method, Panel has decided to incorporate the test method on hydration in the standard and will submit the revised draft by 20th April 2023. The draft from Dr A.K Pattanaik of M/s Dalmia OCL Limited and Dr S.K Subudhi received vide mail dated on 5th April, 2023 and 7th May, 2023 respectively, which is attached below..		

		DRAFT IS 1749.docx The minutes of the second panel meeting is enclosed below: MOM of panel-2 meeting held on 11. 2nd panel meeting.pdf However, the justifications/factual data/R&D for the values proposed and the grades added is awaited from the Panel convener, Shri SK Subudhi and the same was sought vide mail dated 15th May 2023. **3rd Panel Meeting:** **The panel held its 3rd meeting on 25th May 2023 via WebEx , where** the panel requested Shri S K Subudhi Jee to provide different customer requirement specifications/justifications to support the test values proposed in the standard to member secretary by 1st week of June. **However, no reply was received.** The minutes of the 3rd panel meeting is enclosed below: 3rd panel meeting minutes.docx		

8.	**Formulation of new standard on Carbon Bricks -Classification**	The committee in its 24th meeting deliberated on the proposal received from JS (DPIIT) for formulation of Product standard on the Carbon Bricks and decided that the decided to formulate the Panel on Carbon Brick with the following composition to give their recommendation on the given subject to the Sectional Committee: a) Shri S K Subudhi, (Convenor) b) Dr A K Pattnaik c) Dr Arup Ghosh d) Dr Sukumar Adak e) Shri Gautam Ghosh The Panel convener Shri S K Subudhi of M/s TRL Krosaki Refractories Limited was requested to submit the recommendation vide email dated 9-05-2022. However, the recommendations were awaited. The recommendations received from Dr Sukumar Adak are placed below: 'We recommend only classifying the Carbon Bricks as per ISO 10081 : Part 1 and ISO 10081 : Part 2'  Adobe Acrobat Document The committee in its 25th meeting held on 2nd June, 2022 noted the decision of panel on Carbon Brick which recommended only classifying the Carbon Bricks as per	The committee after detailed deliberation **requested the Panel-2 Convener** to submit the revised draft before September 2023 along with the supporting documents/ sources/ international standards/journals/Mill test certificate from which the data was put in the standards for each clause in the draft document itself. The Committee further requested Member Secretary that on the receipt of the draft circulate it to committee members for further suggestions/inputs/recommendations for a period of 21 days. In case no comments are received/ comments received are editorial in nature, the draft document shall be sent for wide circulation for a period of two month with the concurrence of the chairperson of MTD15 Technical Committee. **Action taken:** Accordingly as per the decision of the committee panel 2 convenor Shri S K Subudhi was requested vide mail (enclosed below)dated 18-12-2023 to submit the revised draft along with the supporting documents,  Email to panel.pdf The draft recived from Shri S K Subudhi vide email dared 18 Jan 2024 is enclosed below:	The committee in its meeting after deliberation requested panel 4 to deliberate on the revised draft received (which is identical to ISO 10081-3 expect the percentage of residual carbon in basic dense shaped refractory products which is 7%-50% in ISO and 5% -50% in the revived draft) from Shri S K Subudhi like which chemical analysis method to be referred in the standard etc. and come up with the recommendations/suggestions/final revised draft. The recommendation/revised draft submitted by the panel will further be circulated among the members for their views/comments and will be discussed in the next committee meeting. The committee further deliberated that similar to that of different parts of ISO Standard 10081 for Classification of dense shaped refractory products this standard should be Part 1 for Basic products containing from 5 % to 50 % residual carbon, Part 2 for containing less than 5 % residual carbon and Part 3 for Special products i.e. for dense shaped refractory products of special composition like oxide

		ISO and after detailed deliberations decided to constitute Panel 2 to draft the new specification standard and submit the same to the secretariat within 1 month time as discussed in the meeting. The composition of the Panel 2 Constituted for this purpose is given below: Shri S K Subudhi (Convener) Shri Amit Roy (M./s Bhilai steel Plant) Dr. M K Mishra (M/s RHI Magnesita) Dr. A K Patnaik (M/s OCL , Dalmia) Dr. Prema Ranjan Raut(M/s DISIR) Dr. H S Tripathi (M/s CGCRI, CSIR) **Actions taken :** The 1st panel meeting of Panel 2 was conducted on 21st October 2022 and the minutes of which are enclosed below. 9223_271020221039 31_0(1).docx The panel requested Dr N K Mishra to draft a product specification on carbon bricks on the basis of GB/T 22589 : 2017 and after consultation with other members and relevant stakeholders and submit the same within 3 weeks' time till 10th Nov 2022. However, no reply was received.	Classification of dense shaped Carbc	and non-oxide products, non-oxide silicon carbide or carbon-based products etc. The other parts shall be developed after the finalization of first part by the panel.

		Decision of the committee in its 26th meeting The committee in its 26th meeting detailed deliberations requested Panel 2 Convenor Shri S K Subudhi to submit the revised draft to the BIS Secretariat till 10th February 2023. The committee further requested MS that on the receipt of the revised draft the same shall be sent in P circulation for a period of one month. In case no comments are received or comments received are editorial in nature the same shall be sent for wide circulation for a period of one month, with the permission of the chairperson, MTD15. In case no comments are received or comments received are editorial in nature , the draft shall be finalized and sent for printing with the permission of the chairperson,MTD15 Action Taken: **2st panel meeting:** The panel in its 2nd meeting held on 13th March 2023 , after detailed discussion recommended to formulate a new **classification standard** according to ISO-10081(Part3) with addition of new category Carbon bricks with 5-7% carbon content and will submit the draft by 30th April 2023.However, the draft was awaited. The minutes of the second panel meeting is enclosed below:		

		MOM of panel-2 meeting held on 11. 2nd panel meeting.pdf **3rd panel meeting :** **The panel held its 3rd panel meeting on 25th May 2023 and requested the member secretary to share the ISO 10081 part 2, Part3 and Part4 documents.** **The panel further decided** to submit the modified draft by including the new category of 5-7 % carbon category (ISO which mentions only more than 7 percent carbon) and other categories based on ISO 10081-4 and ISO 10081-3 for carbon bricks to Member Secretary by 15th June 2023. The minutes of the 3rd panel meeting is enclosed below: 3rd panel meeting minutes.docx Accordingly the required, documents were shared. However, no draft document was received.		

ITEM 4 LIST OF INDIAN STANDARDS OF MTD-15

4.1. The committee noted the updated list of Indian standards formulated by MTD-15 given in Item **4.1** of the agenda of this meeting.

ITEM 5 COMMENTS ON PUBLISHED STANDARDS

5.1. The committee after deliberation on the information given in Item **5.1** of the agenda of this meeting and decided as follows;

Sl No.	IS No	Title	Date of comments	Details of commenting person	Details of comments /Suggestions	Proposed Change/ Modified Wordings	Decision of the committee in its previous meeting	Decision of the committee in this meeting
1.	IS 7199 : 2008 (Discussed in due for review)	Blast furnace stove refractories - Specification (First Revision)	26-01-2023	Shri Vipul Bohara	Clause 7,paragraph 1, Physical Properties- Test method not specified- IS 1528 may be referred.	IS 1528 may be referred for testing of Physical Properties	The committee after deliberation decided to wait for the recommendations of the panel 5 on the formulation of classification standards and based on the recommendations of the panel, the decision to withdraw or to revise with respect to specification standard will be accordingly taken in next committee meeting. **Action taken/Remarks** Accordingly, as per the decision of the committee the	The committee decided to discuss it in the next committee meeting after receiving the recommendation /inputs related to withdraw/archive/revision of the product standards from the panel 5.

							panel 5 was requested via mail dated 19-12-2023 to review all the product specification standard and give their recommendation on which product standards need to be withdrawn immediately which is no longer relevant in the present context of refractories and for which of the product standards we need to formulate vertical classification standards. However no reply was received.	

2.	IS 4814 : 1980	Specification for chemically - Bonded magnesite - Chrome refractories for general purposes - (First Revision)	26-01-2023	Shri Vipul Bohara	Clause 4,paragraph 1, Test method not specified for Chemical Composition (Cr2O3 & MgO), Appendix A of IS 4737 may be referred.	Appendix A of IS 4737 may be referred.	The committee after detailed deliberation decided to discuss it in the next committee meeting after the recommendations of the panel 5 are received on classifying all the product standards.	-----DO-----
3.	IS 4565: 1968	Specification for fireclay stoppers	26-01-2023	Shri Vipul Bohara	Clause 8,paragraph 1, Spalling Resistance- IS 1528 (Part 3) : 2010 may be referred (as referred in IS 3304:2005, IS 3305:2005, IS 8:1994 & IS 483:1972	Clause 8 Spalling Resistance - IS 1528 (Part 3) : 2010 may be referred.	---------DO---------	------DO------

4.	IS 3304 : 2005	Burnt magnesite - Chrome refractories for general purposes - Specification (First Revision)	26-01-2023	Shri Vipul Bohara	Clause 6 ,paragraph 1, Test method is not specified for Chemical Composition (Cr2O3, MgO).	Appendix A of IS 4737 may be referred	-------DO--------	------DO-----
5.	IS 3305 : 2005	Burnt chrome - Magnesite refractories for general purposes - Specification (First Revision)	26-01-2023	Shri Vipul Bohara	Clause 6,paragraph 1, Test method not specified for Chemical Composition (Cr2O3, MgO).	Appendix A of IS 4737 may be referred.	-------DO--------	-----DO-----

ITEM 6 REVIEW OF INDIAN STANDARDS

6.1. The committee noted the information as given in Item **6.1 to 6.4** of the agenda of this meeting and after detailed deliberations on Item **6.5** which is due for review this year decided as follows:

Sl. No.	IS no.	Last date of due for review	Remarks of member secretary and Decision of the committee in previous meeting	Action taken	Decision of the committee in this meeting

<table>
<tr>
<td>1.</td>
<td>IS 16051 (Part 1) : 2013/

ISO 12678-1:1996

Refractory products - Measurement of dimensions and external defects of refractory bricks: Part 1 dimensions and conformity to drawings</td>
<td>March, 2024</td>
<td>Remarks :

The standard is an ISO adoption, and it was last reviewed by ISO in 2022 and reaffirmed by ISO for a a period of further 5 years will become due for review in 2027 in ISO again and India (BIS) had voted confirm at the balloting stage on 13-06-2022 and it was proposed to reaffirm the standard in its current form in BIS.

The panel further recommended to make it part of IS 1528 series in future during their revision.

Decision of the committee in its 27th meeting:

The committee after deliberation decided to reaffirm the standard in the current form.</td>
<td>Decision taken on the review of the standard on the BIS portal opted to reaffirm the standard.</td>
<td>The committee noted the information regarding the decision taken on the review of the standard given in Item 6.5, Sl No. 1 of the agenda of this meeting.</td>
</tr>
<tr>
<td>2.</td>
<td>IS 16051 (Part 2) : 2013 ISO 12678-2:1996

Refractory mortars: Part 1 determination of consistency using the penetrating cone method</td>
<td>March, 2024</td>
<td>----------do----------</td>
<td>----------do----------</td>
<td>The committee noted the information regarding the decision taken on the review of the standard given in Item 6.5, Sl No. 2 of the agenda of this meeting.</td>
</tr>
<tr>
<td>3.</td>
<td>IS 16052 (Part 1) : 2013 ISO 13765-1:2004

(Was due for review in ISO also)

Refractory mortars: Part 1 determination of consistency using the penetrating cone method</td>
<td>March, 2024</td>
<td>Remarks :

The standard is an identical adoption of ISO and this part and other parts was last reviewed by ISO in 2018 and India (BIS) had voted confirm and all parts of ISO 13765 (Part 1 to 6 except part 7) are due for SR (Systematic Review in ISO as well currently. The questions are as follows:

Q:

<table><tr><td>Possible options</td><td>Recommendations</td></tr></table></td>
<td>Decision taken on the review of the standard on the BIS portal opted to reaffirm the standard. Also as per decision of the committee in its previous meeting, the vote casted as Confirmed in the ISO Ballot and nominated Shri S.K. Subudhi of M/s TRL Krosaki Refractories Limited, Belpahar as an expert to ISO in case ISO decides to revise the standard.</td>
<td>The committee noted the information regarding the decision taken on the review of the standard given in Item 6.5, Sl No. 3 of the agenda of this meeting.</td>
</tr>
</table>

				Recommended action	1.Withdraw * 2.Revise/Amend * 3.Confirm 4.Abstain due to lack of consensus 5.Abstain due to lack of national expert input			
				Has this International Standard been adopted or is it intended to be adopted in the future as a national standard or other publication?	Yes * No			
				If this International Standard has not been nationally adopted, is it applied or used in	Yes * No			

				your country without national adoption or are products/ processes/services used in your country based on this standard ?				
				Is this International Standard, or its national adoption, referenced in regulations in your country?	Yes * No			
				If the committee decides to revise or amend, do you propose an expert	Yes (name(s) and proposed role(s): expert or project leader) * No			

and/or project leader for the development of that project?	

Further, the panel 4 on test method standards has also reviewed all the test method standards vis a vis ISO standards and recommended in its meeting held on 24th May 2023 certain new adoptions, harmonization and areas where harmonization was difficult because of complex test methods and costly instruments the panel recommended indigenous standards to stay as IS.

The panel had even recommended to adopt the other part of ISO 13765 (Part7 Refractory Mortars - Parts 7 Determination of Permanent Change in Dimension on Heating) as another part in Indian Standard IS 16052 and harmonize IS 13185(Method Of Test For Determination Of Drying Shrinkage Of Refractory Mortars) further recommended to **withdraw IS 11452** as we have adopted the remaining 6 parts of ISO 13765 which covers all the aspects on testing for mortars and the IS 11452(Air Setting Mortar Testing) has no relevance.

Based on the recommendations of the panel 4, it was proposed to vote for all the SR ballots on ISO 13765 (Part 1 to 6) as **CONFIRM** and **nominate experts** in ISO, in case ISO decides to revise the standards, so that India's view will be taken care of and further **reaffirm** our Indian Standards in IS 16052 (Part 1 to Part 3) series.

Decision of the committee in its 27th meeting:

			The committee after deliberation decided to **Reaffirm the standard** and cast vote as **Confirmed** in ISO Ballot and nominated Shri S.K. Subudhi of M/s TRL Krosaki Refractories Limited, Belpahar as an expert to ISO in case ISO decides to revise the standard.		
4.	IS 16052 (Part 2) : 2013 ISO 13765-2:2004 (Was due for review in ISO also) Refractory mortars: Part 2 determination of consistency using the reciprocating flow table method	March, 2024	----------do----------	--------do--------	The committee noted the information regarding the decision taken on the review of the standard given in Item 6.5, Sl No. 4 of the agenda of this meeting.
5.	IS 16052 (Part 3) : 2013 ISO 13765-3:2004 (Due for review in ISO also) Refractory mortars: Part 3 determination of joint stability	March, 2024	----------do----------	---------do--------	The committee noted the information regarding the decision taken on the review of the standard given in Item 6.5, Sl No. 5 of the agenda of this meeting.
6.	IS 1528 (Part 17) : 2012/ ISO 8895:2004 (Due for review in ISO) Methods of sampling and physical tests for refractory materials: Part 17 shaped insulating refractory products - Determination of cold crushing strength (First Revision)	March, 2024	**Remarks** : The standard is an identical adoption of ISO 8895 and was last reviewed by ISO in 2018 and India (BIS) had voted **CONFIRM in 2018** and now is due for SR (Systematic Review) in ISO as well currently. Further, the panel 4 on test method recommended to continue with the current position of the standard. **Based on the recommendations** of the panel 4, it was proposed to vote for the SR ballots on ISO 8895 as **CONFIRMED** and **nominate experts** in ISO, in case ISO	Decision taken on the review of the standard on the BIS portal opted to **reaffirm the standard**. Also as per decision of the committee in its previous meeting, the vote casted as **Confirmed** in the ISO Ballot and further nominated Shri S.K. Subudhi of M/s TRL Krosaki Refractories Limited, Belpahar as an expert to ISO in case ISO decides to revise the standard.	The committee noted the information regarding the decision taken on the review of the standard given in Item 6.5, Sl No. 6 of the agenda of this meeting.

			decides to revise the standards, so that India's view will be taken care of and **reaffirm** our Indian Standard IS 1528(Part17) as it is. **Decision of the committee in its 27th meeting:** The committee after deliberation decided to **Reaffirm** the standard and cast vote as **confirmed** in ISO Ballot and further nominated Shri S.K. Subudhi of M/s TRL Krosaki Refractories Limited, Belpahar as an expert to ISO in case ISO decides to revise the standard.		
7.	IS 1528 (Part 18) : 1993/ ISO 3187:1989 (Due for review in ISO) Methods of sampling and physical tests for refractory materials: Part 18 determination of creep in compression	March, 2024	**Remarks** : The standard is an identical adoption of ISO 3187 and was last reviewed by ISO in 2018 and India (BIS) had voted **CONFIRM in 2018** and now is due for SR (Systematic Review) in ISO as well currently. Further, the panel 4 on test method recommended to continue with the current position of the standard. **Based on the recommendations** of the panel 4, it was proposed to vote for the SR ballot on ISO 3817 as **CONFIRMED** and **nominate experts** in ISO, in case ISO decides to revise the standards, so that India's view will be taken care of and **reaffirm** our Indian Standard IS 1528 (Part18) as it is. **Decision of the committee in its 27th meeting:** The committee after deliberation decided to **Reaffirm** the standard and cast vote as **confirmed** in ISO Ballot and further decided to nominate Dr Sukumar Adak of M/s Mahakoshal Refractories Private Limited, Katni as an expert to ISO in case ISO decides to revise the standard.	Decision taken on the review of the standard on the BIS portal opted to **reaffirm the standard**. Also as per decision of the committee in its previous meeting, vote casted as **Confirmed** in the ISO Ballot and further nominate Dr Sukumar Adak of M/s Mahakoshal Refractories Private Limited, Katni as an expert to ISO in case ISO decides to revise the standard.	The committee noted the information regarding the decision taken on the review of the standard given in Item 6.5, Sl No. 7 of the agenda of this meeting.

8.	IS 1528 (Part 20) : 1993/ ISO 5013:1985 (Due for review in ISO) Methods of sampling and physical tests for refractory materials - Part 20 : determination of modulus of rupture at elevated temperature	March, 2024	**Remarks** : The standard is an identical adoption of ISO 5013 and was last reviewed by ISO in 2018 and India (BIS) had voted **CONFIRM in 2018** and now is due for SR (Systematic Review) in ISO as well currently. Further, the committee in its previous meeting decided that there are no technical changes in the standard and decided to do the editorial changes to correct the IS No. which was advertently mentioned as IS 1528 (Part15) . **Hence**, it was proposed to vote for the SR ballot on ISO 5013 as **CONFIRMED** and **nominate experts** in ISO, in case ISO decides to revise the standards and **reaffirm & revise** our Indian Standard as the standard IS 1528 (Part20) as currently in printing stage. **Decision of the committee in its 27th meeting:** The committee after deliberation decided to **Reaffirm & revise** the standard as IS 1528 (Part 20) is under printing and cast vote as **Confirmed** in ISO Ballot and further nominated Dr Sukumar Adak of M/s Mahakoshal Refractories Private Limited, Katni as an expert to ISO in case ISO decides to revise the standard.	Decision taken on the review of the standard on the BIS portal opted to **Reaffirm & revise** the standard. Also as per decision of the committee in its previous meeting, vote casted as **Confirmed** in the ISO Ballot and further nominated Dr Sukumar Adak of M/s Mahakoshal Refractories Private Limited, Katni as an expert to ISO in case ISO decides to revise the standard. Further it to inform to the committee that the new revision of this standard was gazette on 4-09-2023.	The committee noted the information regarding the decision taken on the review of the standard and publication of the revision of IS 1528 (Part 20) given in Item 6.5, Sl No. 8 of the agenda of this meeting.
9.	IS 1528 (Part 2) : 2011 Methods of sampling and physical tests for refractory materials: Part 2 determination of refractoriness under load (Second Revision)	March, 2024	**Remarks** : The panel 4 on test method standards in its meeting held on 24th May 2023 reviewed the standard vis-a-vis ISO 1893 “Refractory products — Determination of refractoriness under load — Differential method with rising temperature” and **recommended to continue with the IS** as it is and **not to harmonize it with ISO standard as ISO prescribes Netzsch type equipment**, which is not available with majority of the refractory makers. Manually operated	**1.** Decision taken on the review of the standard on the BIS portal opted to **reaffirm the standard**. **2.** The committee had decided to stay with current IS 1528 (Part 2) and not to harmonize with ISO 1893 and further decided to separately adopt ISO 1893“Refractory products — Determination of refractoriness under load —	The committee in its meeting after deliberation decided to revise this standard and simultaneously also to adopt ISO 1893 separately. The committee further requested panel 4 to review this standard and submit the revised draft by doing required editorial/technical changes to the member secretary.

			machines are more prevalent. **We should continue with the current IS standard.** **The panel further recommended to adopt ISO 1893 as a separate standard in IS 1528 series**. The ISO is not currently due for SR (Systematic Review) as the ISO has previously reaffirmed the standard 2021. **Based on the recommendations** of the panel 4, it was proposed to and **reaffirm our Indian** Standard as it is and **adopt ISO 1893** as a separate standard in IS 1528 series. **Decision of the committee in its 27th meeting:** The committee after deliberation decided to **Reaffirm** the standard and further decided to **adopt ISO 1893 : 2007** as a separate standard under IS 1528 series under dual numbering system. The committee further requested the member secretary to prepare the national foreword for the adoption of ISO 1893: 2007 and send the same for wide circulation for the period of 2 months. In case no comments are received/comments received are editorial in nature, the wide circulated draft document shall be sent for printing with the permission of the chairperson of the MTD 15 Technical Committee.	Differential method with rising temperature" However, it is to convey to the committee if the equipment is not readily available with majority of the refractory manufacturers, then what is the need of adopting it. It was being proposed to drop the subject of adoption of ISO 1893.	[Also see the detailed discussion in Item 6.2.1, Sl No 5 of this minutes]
10.	IS 1528 (Part 10) : 1974 (Was discussed in ATR) Methods of sampling and physical tests for refractory materials: Part 10 determination of size of refractory bricks (First Revision)	March, 2024	**Remarks** : The panel 4 on test method standards in its meeting on 24th May 2023 recommended to **withdraw the IS 1528 (Part 10) and (Part 11)** standard as these methods are already covered in IS 16051(Part 1) which is an adoption of ISO 12678-1 . Hence the panel has recommended to withdraw IS 1528 (Part 10) and (Part 11) and further recommended that IS 16051 (Part 1) will supersede both the standards.	As per the recommendations of the committee in its previous meeting the **withdrawal of IS 1528 (Part 10) and (Part 11)** had also been approved in the 30th meeting of MTDC held on 14th September 2023. Accordingly, the standard would be withdrawn and superseded with IS 16051(Part1).	The committee noted the information regarding the withdrawal of the standards given in Item 6.5, Sl No. 10 of the agenda of this meeting and requested member secretary to get the standards **IS 1528 (Part 10) and (Part 11) withdrawn from the portal also and get superseded by IS 16051 (Part 1).**

			It was proposed to withdraw IS 1528 (Part 10) and (Part11) and supersede them with IS 16051 (Part 1)/ISO 12678-1. **Decision of the committee in its 27th meeting:** The committee after deliberation decided to **withdraw the IS 1528 (Part 10) and (Part 11)**. The committee further decided that IS 16051 (Part 1) will supersede both the standards.		[Also see the detailed explanation of withdrawal in Item 3 ATR, Annexure-2, Sl No 3]
11.	IS 1528 (Part 14) : 1974 Methods of sampling and physical tests for refractory materials: Part 14 determination of sieve analysis (First Revision)	March, 2024	**Remarks** : The panel 4 on test method standards in its meeting on 24th May 2023 recommended that the standard is based on ASTM C92 Standard Test Methods for Sieve Analysis and Water Content of Refractory Materials and also the panel deliberated on the withdrawal of the standard as already ISO 13765-5 : 2004, which is for sieve analysis of mortar exits. The panel recommended to continue the standard as the method is used for other refractory materials than mortars also as in formed by Subudhi Ji vide email dated 21 May 2023 and during the panel meeting. subdhi ji comments.pdf The Panel4 finally recommended to retain the standard and revise it by aligning the scope and title with ASTM C92 and including determination of water content in the scope and title and by doing other technical/editorial changes.	Decision taken on the review of the standard on the BIS portal opted to **Reaffirm & revise the standard.** Further Shri S. K. Subudhi (Panel 4 Convener) was requested to submit the revised draft by aligning the scope and title with ASTM C92 and including determination of water content in the scope and title and by doing other technical/editorial changes via mail dated 18-12-2023, However the revised draft was awaited.	The committee noted the information given in Item 6.5, Sl No. 11 of the agenda of this meeting and after deliberation again requested to Panel 4 Convener Shri S. K. Subudhi ji to submit the revised draft to the member secretary by doing the required editorial changes (to include castables also) before 1 week of circulation of minutes to the member secretary. [Also see the detailed discussion in Item 6.2.2 Sl .no 2 of the minutes of this meeting].

			The panel requested **Subudhi Ji of M/s TRL Korosaki to submi**t the revised draft. **Based on the recommendations** of the Panel 4, It was proposed to and **reaffirm & revise** our Indian Standard and requested to Panel 4 on test method standards to submit the revised draft. **Decision of the committee in its 27th meeting:** The committee after deliberation decided to **reaffirm & revise** our Indian Standard and requested Shri S. K. Subudhi to submit the revised draft by doing the technical/editorial changes by taking the assistance from ASTM C92 and other relevant documents to the member secretary within 1 month of the circulation of the minutes. The Committee further decided that on receipt of the draft, the same shall be sent for wide circulation for a period of 2 months. In case no comments are received on the wide circulated draft document or the comments received are editorial in nature, the draft shall be finalized and sent for printing with the concurrence of the chairperson of MTD 15 Technical Committee.		
12.	IS 15895 : 2018 High alumina refractory cement - Specification (First Revision)	May, 2023	**Remarks** : It was proposed to reaffirm the standard. **Decision of the committee in its 27th meeting:** The committee after deliberation decided to **reaffirm the standard**.	Decision taken on the review of the standard on the BIS portal opted to **reaffirm the standard**.	The committee noted the information regarding the decision taken on the review to **reaffirm the standard** given in Item 6.5, Sl No. 12 of the agenda of this meeting.
13.	IS 16918 : 2018	August, 2023	**Remarks** :	As per the decision of the committee in its previous meeting, on transfer of standard to MTD 34 TC , the	The committee noted the information regarding the

	Methods for chemical analysis of chrome – Magnesite and magnesite – Chrome refractories		It was proposed **to transfer the standard t**o the MTD 34 Chemical testing standard as belonging to the chemical testing. It is further requested to the members to voluntarily propose their names for the MTD34 TC also, so that the chemical analysis standards for refractories are also reviewed and revised as per current practices. **Decision of the committee in its 27th meeting:** The committee after deliberation **decided to transfer the standard for reviewing to the MTD 34 Technical** Committee on chemical testing. The committee further recommended Dr Sukumar Adak of M/s **Mahakoshal Refractories Pvt Lld, Katni** and **Shri S. K. Subudhi of M/s TRL Korosaki Refractories Ltd, Jharsuguda** as the member/expert to MTD 34 Technical committee and committee further requested the member secretary to communicate the same to MTD34 technical committee for necessary actions at their end.	same was approved by MTDC in its 30th meeting held on 14-Sep-2023 and the same will be transferred on portal also. Further, also with respect to the expert, Dr Sukumar Adak of M/s **Mahakoshal Refractories Pvt Lld, Katni** and **Shri S. K. Subudhi of M/s TRL Korosaki Refractories Ltd, Jharsuguda** were recommended to MTD 34.	transfer of standard related to chemical analysis IS 16918 : 2018 "Methods for chemical analysis of chrome – Magnesite and magnesite – Chrome refractories" to its relevant committee MTD 34 TC given in Item 6.5, Sl No. 13 of the agenda of this meeting. The committee further requested Dr Sukumar Adak of M/s **Mahakoshal Refractories Pvt Lld, Katni** and **Shri S. K. Subudhi of M/s TRL Korosaki Refractories Ltd, Jharsuguda to approach the MTD 34** committee and send them co-option request via BIS Portal.
14.	IS 17107 : 2019 (Discussed in ATR) Method for determination of thermal conductivity of dense as well as insulating fired refractories, refractory monolithics and precast prefired (PCPF) shapes	March, 2024	**Remarks** : The panel 4 on test methods standards while reviewing the standard the standard and need for its continuance although we already have standards for thermal conductivity determination by IS 1528 (Part 16)/ISO 8894-2 and (Part 21)/ISO 8894-1 which describe hot-wire (parallel) method and Hot-wire methods (cross-array and resistance thermometer) respectively for the determination of the thermal conductivity. The panel after deliberation recommended that this IS 17107 is a different technique than IS Part 16 and Part 21 and widely used in India and the instrument for Part 16 and Part 21 is not widely available in India. Hence the IS should stay as it is. The panel further recommended to bring it in IS 1528 series while **during revision in the future.**	Decision taken on the review of the standard on the BIS portal opted to **reaffirm and amend** the standard. The amendment had also been published.	The committee noted the information regarding the decision taken on the review to **reaffirm the standard** given in Item 6.5, Sl No. 14 of the agenda of this meeting. [Also see the detailed discussion regarding the issue of amendment to the standard in Item 3 ATR, Annexure-2 , Sl No 1 of this minutes]

			Since the amendment of the standard was under publication, it was proposed to reaffirm and Amend the standard. **Decision of the committee in its 27th meeting:** The committee after deliberation decided to **reaffirm and amend** the standard as the amendment is under publication.		
15.	IS 10047 : 1981 (Was Discussed in ATR) Methods of testing refractory ramming masses	March, 2024	**Remarks** : Since the standard is already under publication it was proposed to **reaffirm and revise the standard**. The panel further **recommended to formulate a new standard** on testing dry vibratable masses which requires completely different sample preparation methods. **Decision of the committee in its 27th meeting:** The committee after deliberation decided to **reaffirm and revise** the standard as the standard is currently under the printing stage.	Decision taken on the review of the standard on the BIS portal opted to **reaffirm and revise** the standard. Further it was to inform to the committee that the new revision of this standard was gazetted on 6-09-2023.	The committee noted the information regarding the decision taken on the review to **reaffirm and revise the standard** and the publication of the revised version of this standard given in Item 6.5, Sl No. 15 of the agenda of this meeting. [Also see the detailed explanation of revision of the standard given in Item 3 ATR, Annexure-2, Sl No 2 of this minutes]
16.	IS 11321 : 1985 Specification for graphite for graphite crucibles	March, 2024	**Remarks** : It was proposed to archive the standard. Further, suggestion and recommendations were invited from the members whether to archive/withdraw/reaffirm &revise. **Decision of the committee in its 27th meeting:** The committee after thorough deliberation, they concluded that the standard falls outside the expertise and scope of the	As per the decision of the committee the standard has been **reaffirmed & archived via BIS portal.**	The committee noted the information regarding the decision taken on the review to **reaffirm and archive** the standard given in Item 6.5, Sl No. 16 of the agenda of this meeting.

			MTD 15 Technical Committee, and therefore, the members will be unable to provide comments on it. They have requested the member secretary to transfer the standard to the appropriate technical committee, possibly the foundry sectional committee, as the subject matter may be more relevant in that context. Since the standard was scheduled for review this year, the committee further decided to archive it until the relevant Technical Committee is identified. The identified committee will then conduct a comprehensive review. Additionally, the committee resolved that if no relevant Technical Committee is found, the standard shall be withdrawn		
17.	IS 1748 : 1981 Sizes of graphite crucibles (First Revision)	March, 2024	----------do----------	----------do----------	The committee noted the information regarding the decision taken on the review to **reaffirm and archive** the standard given in Item 6.5, Sl No. 17 of the agenda of this meeting.
18.	IS 7199 : 2008 Blast furnace stove refractories - Specification (First Revision)	March, 2024	**Remarks** : Members were requested to give their inputs whether to revise/withdraw/archive the standard. It was proposed to **reaffirm and revise** the standard as being post 2000 product standard and test methods of IS 1528 series not referred in the standard for physical tests. We have also received comments on the standard to give reference to various parts of IS 1528 for physical methods which is not given in the standard. Recommendations/inputs were desired from members of Technical Committee whether to **revise/withdraw/archive/reaffirm** the standard. **Decision of the committee in its 27th meeting:**	Recommendations are awaited from panel. It was being proposed to reaffirm and archive the standard if it is not used by the industry.	As the industry like Mecon are still using the specification mentioned in the standard IS 7199, Hence the committee after deliberation decided to reaffirm the standard for time being and take it up for revision at the latter stage after the recommendation of Panel 5 on product standards will be obtained.

			The committee after careful consideration, they had decided to await for the recommendations from Panel 5 on the formulation of classification standards and withdrawal of stanadrds. Based on the recommendations provided by the Panel 5, the committee will make its decision in the subsequent committee meeting.		

6.2 The committee noted the information as given in Item **6.6** to **6.7** on review of pre 2000 test methods standards of the agenda of this meeting and after detailed deliberations on Item **6.7.1** decided as follows**;**

Sl No.	IS	ISO Title	Recommendations of the panel 4 after reviewing test method standards and Decision of the committee in its previous meeting	Decision of the committee in this meeting
6.2.1 Stay With IS :				
1.	**IS 1528 (Part 3) : 2010** Determination Of Spalling Resistance	**ISO 21736 : 2020** **Refractories - Test Methods for Thermal Shock Resistance**	ISO tries to be more quantitative but the procedure is difficult to comprehend, especially the one related to “Grid”. The panel after deliberation recommended to stay with IS. **Decision of the committee in its previous meeting :-** The committee in its previous (27th) meeting after deliberation decided to stay with the IS and not to harmonize with ISO standard.	The committee noted the information given in **Item No 6.2.1 Sl No 1** of the agenda of this meeting.
2.	**IS 1528 (Part 4) : 2012** DETERMINATION OF COLD	**ISO 10059-1:1992** **Dense, shaped refractory**	IS 1528 (Part 4) covers both the ISO procedures. Additionally, experimental procedure (loading rate	The committee noted the information given in **Item No**

	CRUSHING STRENGTH OF DENSE SHAPED REFRACTORIES PRODUCTS	**products — Determination of cold compressive strength — Part 1: Referee test without packing** **ISO 10059-2:2003** **Dense, shaped refractory products — Determination of cold compressive strength — Part 2: Test with packing**	etc. are the same in IS and ISO standards. IS should be retained since no separate standard to be used for packing. The panel after deliberation recommended to stay with IS. **Decision of the committee in its previous meeting :-** The committee in its previous (27th) meeting after deliberation decided to stay with the IS and not to harmonize with ISO standard.	**6.2.1 Sl No 2** of the agenda of this meeting.
3.	**IS 1528 (Part 6) : 2010** Determination Of Permanent Linear Change After Reheating For Shaped Insulating And Dense Refractories	**ISO 2477:2005** **Shaped insulating refractory products — Determination of permanent change in dimensions on heating** **ISO 2478:1987** **Dense shaped refractory products — Determination of permanent change in dimensions on heating**	The panel after deliberation recommended to stay with IS. Assistance has already been derived from ISO 2477 and ISO 2478. **Decision of the committee in its previous meeting :-** The committee in its previous (27th) meeting after deliberation decided to stay with the IS and not to harmonize with ISO standard.	The committee noted the information given in **Item No 6.2.1 Sl No 3** of the agenda of this meeting.
4.	**IS 1528 (Part 1) : 2010** Determination Of Pce Or Softening Point	**ISO 528:1983** **Refractory products — Determination of pyrometric cone equivalent**	The panel after deliberation recommended that Orton cones are used predominantly in Indian industry, but ISO recommends only ISO Cones. Hence stay with IS.	The committee noted the information given in **Item No 6.2.1 Sl No 4** of the agenda of this meeting.

		(refractoriness)	**Decision of the committee in its previous meeting :-** The committee in its previous (27th) meeting after deliberation decided to stay with the IS and not to harmonize with ISO standard.	
5.	**IS 1528 (Part 2) : 2011** Determination Of Refractoriness Under Load	**ISO 1893:2007** **Refractory products — Determination of refractoriness under load — Differential method with rising temperature**	The panel after deliberation recommended that ISO method is different, and the equipment's are not readily available in India**. Hence adopt ISO 1893 as a sep**arate standard in IS 1528 series and retain IS 1528 (Part2). **Decision of the committee in its previous meeting :-** The committee in its previous (27th) meeting after deliberation decided to stay with the IS and not to harmonize with ISO standard.	The committee noted the information given in **Item No 6.2.1 Sl No 5** of the agenda of this meeting and upon deliberation noted the point raised by CCRT Labs that the test procedures are different in the IS 1528(Part 2 and ISO 1893 standards. According to IS 1528(Part 2), temperature at different locations of the sample is identify/measured by using optical pyrometer the accuracy of which depends on the eye sight of the observer and the deformation is measured by dial gauge based system while the standard ISO 1893 is based on the differential method i.e. by using creep equipment to determine the refractoriness. Further the method specified in

				the IS 1528(Part 2) could be modified by replacing optical pyrometer by thermocouples which can be place at different locations of the sample to measure the exact temperature and dial gauge system should be replaced by other appaartus which are able to measure even 0.5 micron deformation at different temperature which will be much accurate than dial gauge measurement. Also as the creep equipment is not readily availaible in small/ medium scale industries to test as per ISO 1893.Hence the committee after deliberation decided to adopt ISO 1893 : 2007 and keep both the standards for time being and take up the revision of IS 1528 (Part 2) : 2011. Further the committee allocated the revision of IS 1528 (Part 2) task to Panel 4 (Panel for the review of pre 2000 test method standard) and requested to submit the revised draft to the member secretary which will be discussed in the next committee meeting.

6.	IS 10047 Method of Testing Refractory Ramming Masses (Discussed in ATR & DFR also)	**ISO 1927 (series)(monolithics refractories)**	The panel after deliberation recommended to continue with revised version of Indian standard. Also, **we need to have a separate standard** for dry vibratable mass as the procedure is entirely different for sample preparation. **Decision of the committee in its previous meeting :-** The committee in its previous (27th) meeting after detailed deliberation decided to stay with the current IS as the smaller Industries may not be having the capacity to test the materials as per the ISO standards considering the cost factors, equipment's involved etc. The second thing which makes it difficult to adopt is the sampling procedure given in ISO 1927 series, the Interim chairperson added , the ISO procedure is too statistical and difficult to adopt in India's context. The Interim chairperson Dr. INC informed to the committee that the DVM needs a totally different test piece preparation procedure and in India it is called Silica ramming mass but technically and as per the definitions given in IS 4041 it is called dry vibratable mass.	The committee noted the information about the gazetting of the revised version of this standard on 6-09-2023. [Also see the detailed explanation of revision of the standard in Item 3 ATR, Annexure-2, Sl No 2 of this minutes]
7.	**IS 10570 : 2011** Methods of testing refractory castables	**ISO 1927 (series)**	The panel after deliberation recommended to Stay with IS 10570 as Indian standards covers the test procedures for different monolithic products such as castables, ramming masses in separate standards while ISO has a single series of ISO 1927 which covers all the aspects of monolithic testing excluding the mortars.	The committee noted the information regarding not to adopt ISO standard and stay with the current standard given in **Item No 6.2.1 Sl No 7** of the agenda of this meeting.

			Decision of the committee in its previous (27th)meeting :- The committee after detailed deliberation decided to stay with the current IS as the smaller Industries may not be having the capacity to test the materials as per the ISO standards considering the cost factors, equipment's involved etc.	
8.	IS 17107 : 2019 TC by Calorimetric Method (Discussed in ATR & DFR also)	**IS 1528 (Part 16)/ISO 8894-2 and (Part 21)/ISO 8894-1**	The panel 4 on test methods standards while reviewing the standard the standard and need for its continuance although we already have standards for thermal conductivity determination by IS 1528 (Part 16)/ISO 8894-2 and (Part 21)/ISO 8894-1 which describe hot-wire (parallel) method and Hot-wire methods (cross-array and resistance thermometer) respectively for the determination of the thermal conductivity. The panel after deliberation recommended that this **IS 17107** is a different technique than **IS 1528 Part 16 and Part 21** and widely used in India and the instrument for **Part 16 and Part 21** is not widely available in India. Hence the IS should stay as it is. The panel further recommended to bring it in IS 1528 series while **during revision in the future**. Hence Stick to IS.	The committee noted the information given in **Item No 6.2.1 Sl No 8** of the agenda of this meeting. [Also see the detailed discussion regarding the issue of amendment in Item 3 ATR, Annexure-2 , Sl No 1 of this minutes]
6.2.2 Stick to IS and revise:				

1.	**IS 1528 (Part 7) : 2010** METHODS OF SAMPLING AND PHYSICAL TESTS FOR REFRACTORY MATERIALS	**ISO 1927-2:2012** **Monolithic (unshaped) refractory products — Part 2: Sampling for testing** **ISO 5022:1979** **Shaped refractory products — Sampling and acceptance testing** **ISO 8656-1:1988 - Sampling scheme**	The panel after deliberations recommended to **Revise IS 1528 (Part 7)** to make it more logical/scientific in nature and further recommended not to adopt ISO which is much complex and stastical in nature and difficult for the Indian industry to comply. **Decision of the committee in its previous meeting :-** The committee in its previous (27th) meeting after deliberation decided to not to adopt ISO 5022, ISO 1927-2 and ISO 8565 for sampling as being too statistical and difficult to comply for Indian Industry and further requested panel 4 on test methods to submit the revise draft by doing the required technical changes (such as incorporating procedure for sampling and lot sizes for raw materials , including the sampling procedures for castables etc. which are not clearly present in the IS 1528 Part 7) to make the standard more logical and self-explanatory to the Member secretary before the next committee meeting. The committee further requested Member secretary that on the receipt of the revised draft , the same draft shall be sent for Wide Circulation for a period of two months. In case no comments are received/ comments received are editorial in nature, the draft shall be finalized and sent for printing with the permission of the chairperson of MTD 15 Technical Committee. **Action Taken:-** As per the decision of the committee in its previous	The committee after detailed deliberation again requested Panel 4 to submit the revised draft by doing the required technical/editorial changes as discussed in the previous meetings before the next committee meeting.

			meeting the panel 4 were requested via mail (enclosed below) dated 18-12-2023 to submit the revise draft by doing the required technical/editorial changes as discussed in the committee meeting. However, the revised draft was awaited.  Emailnn.pdf	
2.	**1528 (Part XIV) – 1974** DETERMINATION OF SIEVE ANALYSIS **(Discussed in DFR also)**	**ASTM C92 & ISO 13765-5**	The panel recommended to continue the standard IS 1528 (Part 14) as the method is used for other refractory materials than mortars also as in formed by Subdudhi Ji vide email dated 21 May2023 and during the panel meeting.  subdhi ji comments.pdf . The panel finally recommended to retain the standard and revise it by aligning the scope and title with ASTM C92 and including determination of water content in the scope and title and by doing other technical/editorial changes. The **panel requested Subudhi Jee to submit the revised draft.** **Decision of the committee in its previous meeting :-** The committee in its previous (27th) meeting after deliberation requested panel 4 to submit the revised	Shri S. K. Subudhi sir mentioned that this standard and ASTM C92 are technically identical, accordingly the committee after deliberation requested Panel 4 convener to submit the revised draft by doing only the required editorial changes and technical changes (if required) like mentioning of determination of water content in scope and title etc within 1 week to member secretary. The committee further deliberated that the draft so received shall be sent for Wide circulation for a period of 1 month after due approval from chairperson.

			draft by aligning the scope and title with ASTM C92-95 'Standard Test Methods for Sieve Analysis and Water Content of Refractory Materials' and including determination of water content in the scope and title and by doing other technical/editorial changes. The committee further requested Member secretary that on the receipt of the revised draft, the same draft shall be sent for Wide Circulation for a period of two months. In case no comments are received/ comments received are editorial in nature, the draft shall be finalized and sent for printing with the permission of the chairperson of MTD 15 Technical Committee. **Action Taken:-** As per the decision of the committee in its previous meeting, the panel 4 was requested via mail (enclosed below) dated 18-12-2023 to submit the revise draft by doing the required technical/editorial changes as discussed in the meeting, however the revised draft was awaited.  EmailNn.pdf	
6.2.3 Withdrawal of IS and harmonization with ISO:				
1.	**IS 13185** METHOD OF TEST FOR DETERMINATION OF DRYING	**ISO 13765-7:2021** **Refractory mortars — Part 7: Determination of permanent**	The panel after deliberation **recommended to adopt ISO 13765-7** as another part of IS 16051 series as part 7 because the ISO 13765-7 standard covers Drying as well as high temperature	Since no comments were received on the wide circulated draft, the committee in its meeting after deliberation

	SHRINKAGE OF REFRACTORY MORTARS	**change in dimensions on heating**	Shrinkage and further recommended to withdraw IS 13185. **Decision of the committee in its previous meeting :-** The committee in its previous (27th) meeting after detailed deliberation decided to adopt ISO 13765-7 : 2021 as part 7 in the IS 16051 series under dual numbering system in order to bring all the mortar testing standard in one single series and further decided to withdraw IS 13185 as ISO 13765-7 is more detailed standard and covers high temperature shrinkage testing in addition to drying shrinkage. The committee further requested the member secretary to prepare the national foreword for the adoption of ISO 13765-7 : 2021 and send the same for wide circulation for the period of 2 months. In case no comments are received/comments received are editorial in nature, the draft document shall be finalized and sent for printing with the permission of the chairperson of the MTD 15 Technical Committee. **Action taken:-** Accordingly, as per the decision of the committee the National Foreword for adoption of ISO 13765-7 was prepared by member secretary and was sent for wide circulation bearing document number MTD 15 (23720) on 06-10-2023 inviting comments till 7-12-2023, However no comments were received.	decided to finalize the draft and send it for printing. Further the committee noted the information regarding the approval of MTDC in its 30th meeting for the withdrawal of IS 13185 given in Item No 6.2.3 Sl No 1 of the agenda of this meeting.

2.	**IS 11452** Air Setting Mortar Testing	**ISO 13765-1:2004** **Refractory mortars — Part 1: Determination of consistency using the penetrating cone method**	The panel after deliberation recommended that there is no relevance for this standard. Hence withdraw it. Further the panel requested Shri Subudhi Jee to give the inputs on the part of IS 16052/ISO13765 which are going to supersede IS 11452. The recommendations of Shri Subudhi Jee received vide email dated June 18, 2023 and it is being recommended to withdraw IS 11452 and supersede it with IS 16052 (Part4 &Part5) and ISO 13765-7.	The committee noted the information about the approval of MTDC for the withdrawal of this standard given in Item No 6.2.3 Sl No 2.of the agenda of this meeting.
		ISO 13765-2:2004 **Refractory mortars — Part 2: Determination of consistency using the reciprocating flow table method** **ISO 13765-3:2004** **Refractory mortars — Part 3: Determination of joint stability** **ISO 13765-4:2004** **Refractory mortars — Part 4: Determination of flexural bonding strength**		
		ISO 13765-5:2004 **Refractory mortars — Part 5: Determination of grain size distribution (sieve analysis)**		

		ISO 13765-6:2004 **Refractory mortars — Part 6: Determination of moisture content of ready-mixed mortars**	Email https://email.gov.in/h/print **Email** **MTDFIFTEEN Metallurgical E** **RE: Regarding the task assigned in the panel meeting of MTD 15 panel 3 and panel 5.** **From :** subudhi@trlkrosaki.com Sun, **Subject :** RE: Regarding the task assigned in the panel meeting of MTD 15 panel 3 and panel 5. **To :** MTDFIFTEEN Metallurgical Engineering Department <mtd15@bis.gov.in> **Cc :** indra chakraborty <indra.chakraborty@external.calderys.com>, KALLOL PAUL <kkpaul@bis.gov.in>, akc11054@gmail.com, akc@bmaind.com Dear Saaqib Ji, Pls find the data for IS 11452 and ISO 13765 / IS 16052. We feel IS 11452 can be revoked. Regards, S. K. Subudhi General Manager (QA, QC, Central Lab &TQM) **TRL KROSAKI REFRACTORIES LIMITED** CIN : U26921OR1958PLC000349 P.O.:Belpahar Dist.:Jharsuguda 768218 Odisha India **P** +91 6645 258693 **M** +91 8455868024 **E** subudhi@trlkrosaki.com **W** https://www.trlkrosaki.com **Follow us on** GOLDEN PEACOCK AWARDS Corporate Social Responsibility 1 of 3
		ISO 13765-7:2021 **Refractory mortars — Part 7: Determination of permanent change in dimensions on heating**	

			IS 11452 & IS 16052(3).xlsx **Decision of the committee in its previous (27th) meeting :-** The committee in its previous (27th) meeting after deliberation agreed to the views of the panel that ISO 13765 (issued in 7 parts) adopted as IS 16052 (except part7 which is under adoption above)) under dual numbering system, is a very detailed standard on refractory mortars testing and further agreed to the view that consistency measurement method which is vital requirement for mortars is not given in IS 11452 , also the test methods for joint stability and moisture content are also not mentioned in IS 11452 but are mentioned in IS 16052/ISO 13765 (Part 1 , 2, 3 &6) respectively. The committee further held that the test methods for sieve analysis, bond strength, drying and firing shrinkage, refractoriness, chemical analysis are mentioned in IS 11452 which are also covered in IS16052/ISO 13765 (Part 5), Part 4, ISO 13765- 7, IS 1527, IS 1528 (Part1) respectively. **Final decision of the committee:** The **committee finally decided to withdraw IS 11452 and supersede it with IS 16052 (Part4) for bond strength, (Part5) for sieve analysis and ISO 13765-7** for drying and firing shrinkage.	

			As recommended by the committee in its 27th meeting, the MTDC in its 30th meeting held on 14th September 2023 approved the withdrawal of the standard and will be superseded by IS 16052 (Part4) for bond strength, (Part5) for sieve analysis and ISO 13765-7 for drying and firing shrinkage. Further for refractoriness determination, it shall be done by IS 1528 (Part1) and chemical analysis done as per IS 1527.	
6.2.4 WITHDRAWAL:				
1.	**IS 9929** :**1981** Life Determination of Graphite Crucible	**NIL**	The panel after deliberation recommended to archive/withdraw it as it is not relevant in the context of refractory. **Decision of the committee in its previous (27th) meeting :-** After thorough deliberation, the MTD 15 Technical Committee concluded that the standard falls outside the expertise and scope of the MTD 15 Technical Committee, and therefore, the members will be unable to provide comments on it. They have requested the member secretary to transfer the standard to the appropriate technical committee, possibly the foundry sectional committee, as the subject matter may be more relevant in that context. Additionally, the committee resolved that if no relevant Technical Committee is found, the	The committee noted the information regarding the transfer of this standard to MTD 14 given in Item No 6.2.4 Sl No 1.of the agenda of this meeting.

			standard shall be archived. The same has been approved by MTDC in its 30th meeting held on 14 Sep 2023 to transfer the standard to MTD 14.	
2.	**IS 13173:1991** CLAY BONDED GRAPHITE CRUCIBLES AND CARBON BONDED SILICON CARBIDE CRUCIBLES –HANDLING AND USAGE	**NIL**	The panel after deliberation recommended to archive/withdraw it as it is not relevant in the context of refractory. **Decision of the committee in its previous (27th) meeting :-** After thorough deliberation, the MTD 15 Technical Committee concluded that the standard falls outside the expertise and scope of the MTD 15 Technical Committee, and therefore, the members will be unable to provide comments on it. They have requested the member secretary to transfer the standard to the appropriate technical committee, possibly the foundry sectional committee, as the subject matter may be more relevant in that context. Additionally, the committee resolved that if no relevant Technical Committee is found, the standard shall be archived. The same has been approved by MTDC in its 30th meeting held on 14 Sep 2023 to transfer the standard to MTD 14.	The committee noted the information regarding the transfer of this standard to MTD 14 given in Item No 6.2.4 Sl No 2.of the agenda of this meeting.
3.	**IS 14447 : 1997** REFRACTORIES FOR USE IN FOUNDRY INDUSTRY -	**NIL**	The panel after deliberation recommended to withdraw it as it is too generic and not relevant in today's context.	The committee noted that the standard has been archived given in Item No 6.2.4 Sl No

	RECOMMENDATIONS		**Decision of the committee in its previous (27th) meeting :-** After careful and detailed deliberation, the committee has made the decision to archive the standard. The rationale behind this decision is that the standard is considered too generic in nature and no longer relevant in the industry, especially in the present times. As recommended by the committee in its previous meeting, the MTDC in its 30th meeting held on 14th September 2023 approved the archiving of the standard.	3.of the agenda of this meeting.
6.2.5 NEW ADOPTIONS RECOMMENDED:				
1.	**New standard**	ISO 5417: 1986 Refractory bricks for use in rotary kilns — Dimensions	The panel after deliberation recommended to adopt ISO as a separate/New standard. **Decision of the committee in its previous (27th) meeting :-** The committee after deliberation agreed with the recommendations of the panel to adopt ISO 5417 :1986 as a new standard under dual numbering system . The committee further requested the member secretary to prepare the national foreword for the adoption of ISO 5417: 1986 and send the same for wide circulation for the period of 2 months. In case no comments are received/comments received are editorial in nature, the draft document shall be finalized and sent for printing with the permission of the chairperson of	As no comments were received on the wide circulated draft till the last date to comment, the committee in its meeting after deliberation decided to finalize the draft and send it for printing.

			the MTD 15 Technical Committee. **Action taken:-** Accordingly, as per the decision of the committee in its previous meeting, the National Foreword for the adoption of ISO 5417 :1986 was prepared by member secretary and was sent for wide circulation bearing document number MTD 15 (23738) on 10-10-2023 inviting comments till 11-12-2023, However no comments were received till the last date to comment.	
2.	**New standard**	ISO 9205: 1988 Rotary Kiln Brick Hot Face Marking	The panel after deliberation recommended to adopt it as a separate standard. **Decision of the committee in its previous (27th) meeting :-** The committee after deliberation agreed with the recommendations of the panel to adopt ISO 9205:1988 as a new standard under dual numbering system. The committee further requested the member secretary to prepare the national foreword for the adoption of ISO 9205: 1988 and send the same for wide circulation for the period of 2 months. In case no comments are received/comments received are editorial in nature, the draft document shall be finalized and sent for printing with the permission of the chairperson of the MTD 15 Technical Committee. **Action taken:-**	----------DO----------

			Accordingly, as per the decision of the committee in its previous meeting, the National Foreword for adoption of ISO 9205: 1988 is prepared by member secretary and was sent for wide circulation bearing document number MTD 15 (23734) on 10-10-2023 inviting comments till 11-12-2023, However no comments were received till the last date to comment.	
3.	**New Standard**	ISO 18886 : 2016 Gunning Material Test Piece Preparation by Wet Gunning Technique	The panel after deliberation recommended to adopt it. **Decision of the committee in its previous (27th) meeting :-** The committee after deliberation agreed with the recommendations of the panel to adopt ISO 18886 : 2016 as a new standard under dual numbering system with different IS number. The committee further requested the member secretary to prepare the national foreword for the adoption of ISO 18886 : 2016 1986 and send the same for wide circulation for the period of 2 months. In case no comments are received/comments received are editorial in nature, the draft document shall be finalized and sent for printing with the permission of the chairperson of the MTD 15 Technical Committee. **Action taken:-** Accordingly as per the decision of the committee in its previous meeting, the National Foreword for	----------DO----------

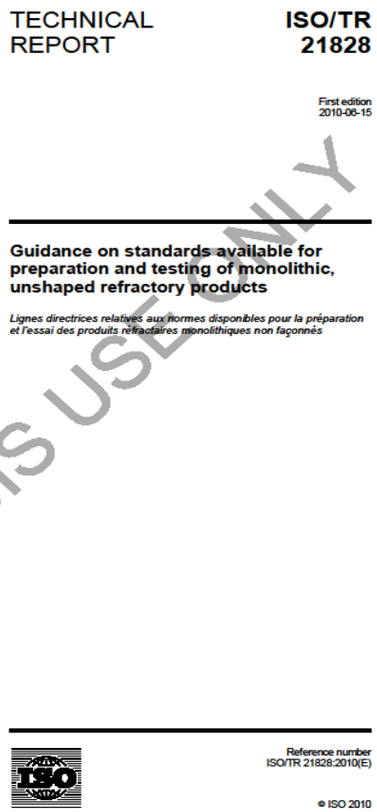
			adoption of ISO 18886 : 2016 is prepared by member secretary and was sent for wide circulation bearing document number MTD 15 (23765) on 12-10-2023 inviting comments till 13-12-2023, However no comments were received till the last date to comment.	
4.	**New Standard**	ISO 20182: 2008 Gunning Material Test Piece Preparation by pneumatic - Nozzle Mixing Type Gun	The panel after deliberation recommended to adopt it. **Decision of the committee in its previous (27th) meeting :-** The committee after deliberation agreed with the recommendations of the panel to adopt ISO 20182: 2008 as a new standard under dual numbering system with different IS number. The committee further requested the member secretary to prepare the national foreword for the adoption of ISO 20182: 2008 and send the same for wide circulation for the period of 2 months. In case no comments are received/comments received are editorial in nature, the draft document shall be finalized and sent for printing with the permission of the chairperson of the MTD 15 Technical Committee. **Action taken:-** Accordingly, as per the decision of the committee the National Foreword for adoption was prepared by member secretary and was sent for wide circulation bearing document number MTD 15 (23766) on 12-10-2023 inviting comments till 13-12-2023. However, no comments were received.	----------DO----------

5.	**IS 1528 series**	ISO 8890: 1988 Dense shaped refractory products — Determination of resistance to sulfuric acid	The panel after deliberation recommended to adopt it as a separate standard in IS 1528 series. **Decision of the committee in its previous (27th) meeting :-** The committee after deliberation agreed with the recommendations of the panel to adopt ISO 8890 : 1988 as a new standard under dual numbering system in the IS 1528 series. The committee further requested the member secretary to prepare the national foreword for the adoption of ISO 8890: 1988 and send the same for wide circulation for the period of 2 months. In case no comments are received/comments received are editorial in nature, the draft document shall be finalized and sent for printing with the permission of the chairperson of the MTD 15 Technical Committee. **Action taken:-** Accordingly, as per the decision of the committee the National Foreword for adoption was prepared by member secretary and was sent for wide circulation bearing document number MTD 15 (23809) on 18-10-2023 inviting comments till 19-12-2023. However, no comments were received.	----------DO----------
6.	**IS 1528 series**	ISO 22685: 2021 Determination of compressive strength at	The panel after deliberation recommended to adopt it as a separate standard in IS 1528 series.	

		elevated temperature.	**Decision of the committee in its previous (27th) meeting :-** The committee after deliberation agreed with the recommendations of the panel to adopt ISO 22685: 2021 as a new standard under dual numbering system in the IS 1528 series. The committee further requested the member secretary to prepare the national foreword for the adoption of ISO 22685: 2021 and send the same for wide circulation for the period of 2 months. In case no comments are received/comments received are editorial in nature, the draft document shall be finalized and sent for printing with the permission of the chairperson of the MTD 15 Technical Committee. **Action taken:-** Accordingly, as per the decision of the committee the National Foreword for adoption was prepared by member secretary and was sent for wide circulation bearing document number MTD 15 (23834) on 18-10-2023 inviting comments till 19-12-2023. However, no comments were received.	----------DO---------
7.	**New Standard**	ISO 12680-1 : 2005 Methods of test for refractory products — Part 1: Determination of dynamic Young's modulus (MOE) by impulse excitation of vibration	The panel after deliberation recommended to adopt it as a separate standard in IS 1528 series. **Decision of the committee in its previous (27th) meeting :-** The committee after deliberation agreed with the recommendations of the panel to adopt ISO 12680-1 : 2005 as a new standard under dual numbering system with different IS number as allotting the IS	----------DO----------

			number under IS 1528 will create confusion when other parts of the standard will get published. The committee further requested the member secretary to prepare the national foreword for the adoption of ISO 12680-1 : 2005 and send the same for wide circulation for the period of 2 months. In case no comments are received/comments received are editorial in nature, the draft document shall be finalized and sent for printing with the permission of the chairperson of the MTD 15 Technical Committee. **Action taken:-** Accordingly, as per the decision of the committee the National Foreword for adoption was prepared by member secretary and was sent for wide circulation bearing document number MTD 15 (23810) on 17-10-2023 inviting comments till 19-12-2023. However, no comments were received.	
8.	**New Standard**	ISO 22605: 2020 Determination of dynamic Young's modulus(MOE) at elevated temperatures by impulse excitation of Vibration	The panel after deliberation recommended to adopt it as a separate standard in IS 1528 series. **Decision of the committee in its previous (27th) meeting :-** The committee after deliberation agreed with the recommendations of the panel to adopt ISO 22605: 2020 as a new standard under dual numbering system with different IS number than 1528. The committee further requested the member secretary to prepare the national foreword for the adoption of ISO 22605: 2020 and send the same for wide circulation for the period of 2 months. In case no	---------DO---------

			comments are received/comments received are editorial in nature, the draft document shall be finalized and sent for printing with the permission of the chairperson of the MTD 15 Technical Committee. **Action taken:-** Accordingly, as per the decision of the committee the National Foreword for adoption was prepared by member secretary and was sent for wide circulation bearing document number MTD 15 (23822) on 18-10-2023 inviting comments till 17-12-2023. However, no comments were received till last date.	
6.2.6 PROPOSALS FOR NEW INDIGENOUS STANDARDS:				
1.	The panel 4 after deliberation recommended to formulate an indigenous guidance standard on the basis of ISO/TR21828: 2010, which gives guidance on the International Standards and national standards which apply to the testing of unshaped refractory materials, including, but not limited to, sampling, forming, obtaining test specimens or pieces and physical testing.			The committee in its meeting after deliberation decided to discuss it in the next committee meeting.



TECHNICAL REPORT

ISO/TR 21828

First edition
2010-06-15

Guidance on standards available for preparation and testing of monolithic, unshaped refractory products

Lignes directrices relatives aux normes disponibles pour la préparation et l'essai des produits réfractaires monolithiques non façonnés

Reference number
ISO/TR 21828:2010(E)

Decision of the committee in its previous (27th) meeting :-

The committee after deliberation requested Panel 4 Convener Shri S. K. Subudhi to modify the ISO/TR21828:2010 document by including the information on Indian standards also and submit the revised draft before November 2023 and the draft submitted will be discussed in the next committee meeting .The committee further decided that the draft finalized will be proposed at ISO for the revision of existing ISO document.

6.3 The committee noted the information given in Item **6.7.2** on review of pre 2000 product standards of the agenda of this meeting and after detailed deliberations decided as follows**:**

Details of decision taken on product specification Standards:					
Sl. No.	**Indian Standard Designation**	**Background/Decision of the committee in its previous meetings**	**Action taken**	**Decision of the Committee in its previous meeting.**	**Decision of the committee in this meeting**
1.	IS 4565: 1968 Specification for fireclay stoppers (Phase 3)	Already allocated to BIS Officer on 18-10-2021 and submitted the ARP on 07 March 2022 and It is recommended to withdraw the standard as the Specification for Fire-Clay Stoppers is outdated in terms of present industry practice after the due process for the same by the MTD 15 Refractories Sectional Committee. Also, even for the small sections of ingot casting which is still carried out worldwide for special applications, direct bottom filling technique is rarely used. In the case of the bottom pouring method, steel is not cast into moulds directly, but via the sprue and runners system, and then it rises evenly in all ingot moulds simultaneously. So, even for bottom filling applications, the use of stoppers is extremely limited (due to the use of sprues and runner systems etc). The review and recommendations attached below were circulated to members Via BIS Portal on May 12, 2022 for their comments. However, no reply was received Adobe Acrobat Document The committee after detailed deliberation in its 25th meeting held on 02 June 2022 decided **that Panel 5** will review the recommendations submitted by BIS Officer and submit their final views/comments on the standard within 3 months' time period. The committee further requested the panel to relook at the standard and review it again as the	Recommendations received vide email dated 18 June 2023 given below. It was being recommended by the panel 5 to archive the standard. 20230618 Recomendation of F	The committee after detailed deliberation noted the fact that since the product standards have become irrelevant in today's context of refractories as the refractories are not one size fits all product and varies according to different customer requirements. The committee also held that most Development Organizations like ISO, ASTM, GB/T are having classification and test method standards only, for refractories. The **committee finally decided to withdraw the standards listed in Sl No. 1 to Sl No.6** as withdrawing the standard won't pose any issues also because the standard is not referred in any other products standards in BIS. **Action taken:-** The recommendation of the committee for the withdrawal of the standards has been put up to the MTDC for its approval.	The committee noted the information given in Item 6.7.2,Sl No 1 of the agenda of this meeting regarding the proposal for the withdrawal of the product standards listed from SL No 1 to SL No 6 to MTDC for its approval.

		BIS Officers not being technical experts in the area have submitted only the editorial changes needed in the standard. **Action taken:** The **panel 5** was requested to review the standard vide email dated 16 June 2022 and further reminder was sent vide email dated 23 August 2022 and 23 November 2022. The Panel Convener Dr Sukumar Adak replied vide email dated 23 November 2022 that he is already working on it and will revert back due course of time. **However further reply is awaited.** The committee after deliberations in its 26th meeting again requested **Panel 5** to give their views/recommendations till 01 March 2023 on whether to revise/withdraw the standard.			
2.	IS 8977: 1978 Specification for clay bonded graphite crucibles (phase 2)	Already allocated to BIS Officer on 17-09-2021 and submitted the ARP on 18 Sep 2021 and it has been recommended by the officer that, although the Graphite crucibles are widely used in fuel fired, electric, and induction furnaces or as a method for transferring and moving molten metals. However, this standard is not used/referred by the manufacturers for providing details of the clay bonded graphite crucibles. It is recommended to withdraw the standard after the due process for the same by the MTD 15 (Refractories Sectional Committee The review and recommendations attached below were circulated to members via BIS Portal on 11th November 2021 for their comments . However, no reply was received. WD IS 8977 (1).docx The committee after detailed deliberation in its 25th meeting decided held on 02 June 2022 **that Panel 5** will review the recommendations submitted by BIS Officer and submit their final views/comments on the standard within 3 months' time period. The committee further requested the panel to relook at the standard and review it again as the	**----------DO----------**	**----------DO----------**	**----------DO----------**

		BIS Officers not being technical experts in the area have submitted only the editorial changes needed in the standard. **Action taken:** The **panel 5** was requested to review the standard vide email dated 16 June 2022 and further reminder was sent vide email dated 23 August 2022 and 23 November 2022. The Panel Convener Dr Sukumar Adak replied vide email dated 23 November 2022 that he is already working on it and will revert back due course of time. **However further reply is awaited.** The committee after deliberations in its 26th meeting again requested **Panel 5** give their views/recommendations till 01 March 2023 on whether to revise/withdraw the standard.			
3.	IS 6728 : 1972 Specification for recuperator tubes tiles and collars for soaking pits in steel plants (Phase 4)	Allocated to BIS Officer on 17-05-2022 and was the ARP was submitted 01 August 2022 on it has been recommended by the officer that no major changes are required in the standard, except for some editorial changes like, incorporation of Revised version of referred standards ,BIS act details, Marking clauses . It was recommended to revise the standard after the due process for the same by the MTD 15 (Refractories Sectional Committee, The review and recommendations attached below were circulated to members Via BIS Portal on 27 December 2022 for their comments till 14 -01-2023.  70_13591_22080103 4545_ARP_Report(2). The committee after detailed deliberation in its 25th meeting decided held on 02 June 2022 **that Panel 5** will review the recommendations submitted by BIS Officer and submit their final views/comments on the standard within 3 months' time period. The committee further requested the panel to relook at the standard and review it again as the	----------DO ---------- --	----------**DO**----------	----------**DO**----------

		BIS Officers not being technical experts in the area have submitted only the editorial changes needed in the standard. **Action taken:** The **panel 5** was requested to review the standard vide email dated 16 June 2022 and further reminder was sent vide email dated 23 August 2022 and 23 November 2022. The Panel Convener Dr Sukumar Adak replied vide email dated 23 November 2022 that he is already working on it and will revert back due course of time. **However further reply is awaited.** The committee after deliberations in its 26th meeting again requested **Panel 5** give their views/recommendations till 01 March 2023 on whether to revise/withdraw the standard			
4.	IS 8966 : 1978 Specification for magnesite nozzles (Phase 4)	Allocated to BIS Officer on 17-May-2022 and submitted on 17 Oct 2022 and it has been recommended by the officer that no major changes are required in the standard, except for some editorial changes like, incorporation of Revised version of referred standards ,BIS act details, Marking clauses . It is recommended to revise the standard after the due process for the same by the MTD 15 (Refractories Sectional Committee The review and recommendations attached below were circulated to members Via BIS Portal on 27 December 2022 for their comments till 14 -01-2023.  70_16178_22101703 3948_ARP_Report(3). The committee after detailed deliberation in its 25th meeting decided held on 02 June 2022 **that Panel 5** will review the recommendations submitted by BIS Officer and submit their final views/comments on the standard within 3 months' time period. The committee further requested the panel to relook at the standard and review it again as the	--------DO--------	----------**DO**----------	----------**DO**----------

		BIS Officers not being technical experts in the area have submitted only the editorial changes needed in the standard. **Action taken:** The **panel 5** was requested to review the standard vide email dated 16 June 2022 and further reminder was sent vide email dated 23 August 2022 and 23 November 2022. The Panel Convener Dr Sukumar Adak replied vide email dated 23 November 2022 that he is already working on it and will revert back due course of time. **However further reply is awaited.** The committee after deliberations in its 26th meeting again requested **Panel 5** give their views/recommendations till 01 March 2023 on whether to revise/withdraw the standard			
5.	IS 4564 : 1968 Specification for fireclay nozzles (Phase 3)	Already allocated to BIS Officer on 18-10-2021 and submitted on 12 May 2022 and it has been recommended by the officer and it has been recommended by the officer that no major changes are required in the standard, except for some editorial changes like, incorporation of Revised version of referred standards ,BIS act details, Marking clauses . It is recommended to revise the standard after the due process for the same by the MTD 15 (Refractories Sectional Committee The review and recommendations attached below were circulated to members Via BIS Portal on May 12, 2022 for their comments. However, no reply was received.  70_22031016469076 60_ARP_Report (1).d The committee after detailed deliberation in its 25th meeting decided held on 02 June 2022 **that Panel 5** will review the recommendations submitted by BIS Officer and submit their final views/comments on the standard within 3 months' time period. The committee further requested the panel to relook at the standard and review it again as the	--------DO--------	----------DO----------	----------**DO**---------

		BIS Officers not being technical experts in the area have submitted only the editorial changes needed in the standard. **Action taken:** The **panel 5** was requested to review the standard vide email dated 16 June 2022 and further reminder was sent vide email dated 23 August 2022 and 23 November 2022. The Panel Convener Dr Sukumar Adak replied vide email dated 23 November 2022 that he is already working on it and will revert back due course of time. **However further reply is awaited.** The committee after deliberations in its 26th meeting again requested **Panel 5** give their views/recommendations till 01 March 2023 on whether to revise/withdraw the standard			
6.	IS 1523 :1972 Specification for bottom - Pouring refractories for steel plants First Revision (Phase 3)	Already allocated to BIS Officer on 18-10-2021 and submitted ARP on 20 Jan 2022and it has been recommended by the officer and it has been recommended by the officer that no major changes are required in the standard, except for some editorial changes like, incorporation of Revised version of referred standards ,BIS act details, Marking clauses . It is recommended to revise the standard after the due process for the same by the MTD 15 (Refractories Sectional Committee The review and recommendations attached below were circulated to members Via BIS Portal on May 12, 2022 for their comments. However, no reply was received.  70_22012416430105 95_Draft_Document	--------DO--------	----------**DO**----------	----------**DO**----------

		The committee after detailed deliberation in its 25th meeting decided held on 02 June 2022 **that Panel 5** will review the recommendations submitted by BIS Officer and submit their final views/comments on the standard within 3 months' time period. The committee further requested the panel to relook at the standard and review it again as the BIS Officers not being technical experts in the area have submitted only the editorial changes needed in the standard. **Action taken:** The **panel 5** was requested to review the standard vide email dated 16 June 2022 and further reminder was sent vide email dated 23 August 2022 and 23 November 2022. The Panel Convener Dr Sukumar Adak replied vide email dated 23 November 2022 that he is already working on it and will revert back due course of time. **However further reply is awaited..** The committee after deliberations in its 26th meeting again requested **Panel 5** give their views/recommendations till 01 March 2023 on whether to revise/withdraw the standard			
7.	IS 9010 :1978 Specification for super heat duty fireclay refractories (Phase 2)	Already allocated to BIS Officer on 29-04-2021 and submitted the ARP on 24-Sep-2021 it has been recommended by the officer that no major changes are required in the standard, except for some editorial changes like, incorporation of Revised version of referred standards, BIS act details, Marking clauses. Standard may be revised after the due process for the same by the MTD 15 (Refractories Sectional Committee The review and recommendations attached below were circulated to members via BIS Portal on 11th November 2021 for their comments. 9010 (1).docx 321415921_9010.wordfile VB sir (1).docx	Recommendations received vide email dated June 18 2023. It is being **recommended to archive** the standard. 20230618 Recomendation of F However, since as discussed in the previous meeting that the standards like IS 6 and IS 8 are still being	The committee while deliberating on the subject of product standards and classification standards held that out of the 48 Product Standard ,most of them have become irrelevant in the present context of refractory industry as per the reasons cited above and committee in principle agreed for formulation of new classification of the products and withdrawal of the product standard once the classification standard gets published and after deliberation requested **panel 5** to review all the remaining **42** product standards and submit the recommendations on which product standards need to be withdrawn	The committee in its meeting after deliberation requested **panel 5** to review all the remaining 42 product standards and recommend: Worksheet in C Users HP Desktop M 1. Which product standard needs to be withdrawn immediately which are no longer relevant to our current industrial requirements? 2. Which classification standards needs to be formulated and the

		The committee after detailed deliberation in its 25th meeting decided held on 02 June 2022 **that Panel 5** will review the recommendations submitted by BIS Officer and submit their final views/comments on the standard within 3 months' time period. The committee further requested the panel to relook at the standard and review it again as the BIS Officers not being technical experts in the area have submitted only the editorial changes needed in the standard. **Action taken:** The **panel 5** was requested to review the standard vide email dated 16 June 2022 and further reminder was sent vide email dated 23 August 2022 and 23 November 2022. The Panel Convener Dr Sukumar Adak replied vide email dated 23 November 2022 that he is already working on it and will revert in due course of time. **However, no reply was received.** The committee after deliberations in its 26th meeting again requested **Panel 5** give their views/recommendations till 01 March 2023 on whether to revise/withdraw the standard.	used in the industry and also IS 9010 is another member in such series. It is **proposed to revise the standard** along with another products in series of fireclay refractories namely IS 6, IS 8 which are for Moderate Heat Duty Fireclay and High Heat duty fireclay refractories. Further, the standard is being referred in IS 9977 : 1998 Design and construction of box type forging furnaces - Guidelines (First Revision) . It is further **being proposed to nominate a project leader in the panel and register it as a small project under BIS Funds** who will submit a proposal for the small R&D project and revise these 3 standards.	immediately that is where no classification standard is required and for which of the product standards we need to formulate vertical classification standards and submit the list of those product standards along with the respective classification group name against each group of standards before the next committee meeting. The committee further requested the panel to try to parallelly draft the classification standards before November 2023 and further held that once the classification standards get published we will withdraw their respective product specifications. The committee also requested Member secretary to share the list of all such product standards with the panel. **Action taken:-** It was **proposed to archive the standard** as the fire clay refractories are being used in the industry along with other standards IS 6 and IS 8 and can be taken into revision after the panel above gives the priority of works on product standards to be reviewed in the subsequent year.	relevant product standards which can be withdrawn after publication of classification stanadrds? Also provide the relevant details of international standards of those classifications. 3. Which product standards needs to be archived as of now and take it up for revision at the latter stage. 4. Prioritize the product standards which requires the revision first. 5. Which product standards require no change and has to be kept as it is? Before 15 days from the circulation of the minutes of this meeting.

ITEM 7 NEW SUBJECTS FOR STANDARDIZATION

7.1. The committee noted the information given in Item **7.1 to 7.5** of the Agenda of this meeting.

7.2. The committee noted the information given in Item **7.6 Sl No. 1,2 and 3** of the agenda of this meeting and the decision taken with respect to the **formulation of new standard on dry vibratable masses** is given in **Item no 3 Sl No. 2** of this minutes of the meeting, the decision with respect to the formulation of new indigenous standard to be formulated on the basis of ISO/TR 21828 and **formulation of** new standard on silica ramming mass will we taken/discussed in the next committee meeting.

ITEM 8 WTO-TBT ENQUIRY POINT

8.1. The committee noted the information given in Item **8.1 to 8.6** of the agenda of this meeting.

ITEM 9 INTERNATIONAL ACTIVITIES

9.1 The committee noted the information given in Item **9.1 to 9.3** of the agenda and after detailed deliberation requested the members to actively give their comments on all ISO documents formally circulated for voting within the technical committee and on draft documents at different stages. Further the committee requested members to actively participate in the ISO meeting to also have India's point of view at ISO, So that whatsoever the standard formulate at ISO shall have contents as per our current industrial requirements.

ITEM 10 IMPLEMENTATION OF INDIAN STANDARDS

10.1 The committee noted the information given in Item **10** of the agenda of this meeting.

ITEM 11 R&D PROJECTS FOR ESTABLISHMENT/REVISION OF INDIAN STANDARDS

11.1 The Committee noted the information given in Item **11** of the Agenda of this meeting.

ITEM 12 LATEST INITIATIVES TAKEN BY BIS

12.1 The Committee noted the information given in item **12.1 to 12.6** of the agenda of this meeting.

12.2 The Committee has noted the rolling annual action plan presented by the member secretary during the meeting, as outlined in item **12.7.1** of the agenda of this meeting.

12.3 The Committee noted the Tentative Annual Calendar of Technical committee meetings given in item **12.7.2** of the agenda of this meeting and after deliberation decided to hold next meeting via physical mode in April 2024 which will be composed of half day seminar and half day committee meeting, the final date and venue will be fixed after consultation with MTD 15 committee chairperson and its respective members.

12.4 The Committee noted the information given in item **12.7.3** of the agenda of this meeting after deliberation requested committee members to provide the details of National and International events to be participated and Scientific Journals/Magazines to be subscribed which would be beneficial for standardization, getting information of stakeholders, new subjects /areas for standardization.

12.5 The Committee noted the guidelines issued by BIS for the Effective Implementation of the Process Reforms for Strengthening of the Standardization Ecosystem in the Country given in item **12.7.4** of the agenda of this meeting.

ITEM 13 TASKS ASSIGNED TO TECHNICAL COMMITTEES BY BIS

13.1 The committee noted the information given in Item **13.1** of the agenda of this meeting and after deliberation requested committee members to come forward to actively participate in casting vote in the ISO ballot of the document at different stages and in the upcoming meetings of the ISO to have effective implementation of India's point of view.

ITEM 14 ANY OTHER BUSINESS

14.1 The committee noted the information given in Item **14** of the agenda of this meeting and after deliberation decided that as the number of organization in the technical committee is limited ,therefore committee requested members to give inputs of the details of organization/members of different stakeholders in the Google sheet (the link of which is given below) for creating database of mailing list for the identification of experts/sharing of the documents like WC document/get their comments on WC documents/contributing in standardisation/get their expertise/outreach our activities etc though mailing list.

https://docs.google.com/spreadsheets/d/1YrojUje7EluAbKFDw-qOT4XJHqWOiJbrPMSfhCFr0o8/edit?usp=sharing