भारतीय मानक
Indian Standard

IS 2066 (Part 1) : 2024

अलौह स्क्रैप धातुओं और अवशेषों की कोडिंग और वर्गीकरण

भाग 1 एल्युमिनियम स्क्रैप

(पहला पुनरीक्षण)

Coding and Classification for Non-ferrous Scrap Metals and Residues

Part 1 Aluminium Scrap

(First Revision)

ICS 77.120.10

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November 2024 **Price Group 6**

Ores and Feed Stock for Aluminium Industry, its Metals/Alloys and Products Sectional Committee, MTD 07

FOREWORD

This Indian Standard (Part 1) (First Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Ores and Feed Stock for Aluminium Industry, its Metals/Alloys and Products Sectional Committee had been approved by the Metallurgical Engineering Division Council.

This standard was first published in 1962 and in this revised standard coding and classification of various types of non-ferrous scraps namely aluminium, copper, brass, bronze, nickel and zinc scrap was included. While reviewing the standard, in the light of experience gained during these years, the Committee decided to revise the standard and split the standard in various parts, each part for a specific nonferrous metal. Part 1 deals with coding and classification of aluminium scrap. The subsequent parts will deal with remaining nonferrous metal scraps.

The earlier standard covered only twelve type of aluminium and aluminium alloy scrap. This revision is aimed to cover every possible types of aluminium and aluminium alloy scrap and hence fifty varieties of scrap are covered in this revision.

With increasing aluminium consumption and India becoming the second largest aluminium producer in the world, the stress will be on raw materials to fulfil the domestic demand. In such a scenario, scrap utilization to the maximum possible extent will reduce the burden not only on raw material mining but also on energy consumption thereby mitigating carbon emissions. To adopt the philosophy of maximizing scrap-based aluminium production it was envisaged to build a robust and detailed scrap standard, which will be on par with all international practices.

The standard is in line with the classification for aluminium and aluminium alloys scrap published in the ISRI scrap specifications circular by the Institute of scrap recycling industries, Washington. This standard is envisioned to improve the quality of aluminium and aluminium alloys scrap and facilitate trade by removing ambiguity and confusion that might arise from individual interpretations of different grades of scrap and terminologies used in the secondary aluminium ecosystem. Parties to a transaction may specify particular variations or additions to these classification as are suited for their specific transactions. Any deviation from the classifications, however, should be mutually agreed to and so stipulated in writing by the parties to the transactions. Such variations should be within the overall scope of the classification in question.

This standard has been prepared to achieve sustainability developmental goal SDG 12: ‘Responsible consumption and production’ by maximizing the utilization of aluminium and aluminium alloy scraps which is very crucial for the circular economy in the aluminium sector in India.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is compiled with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value shall be the same as that of the specified value in this standard.

Indian Standard

CODING AND CLASSIFICATION FOR NON-FERROUS SCRAP METALS AND RESIDUES

PART 1 ALUMINIUM SCRAP

(First Revision)

1 SCOPE

This standard (Part 1) covers coding and classification of aluminium scrap.

2 REFERENCES

The standards given below contain provisions, which through reference in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on these standards are encouraged to investigate the possibility of applying the most recent edition of these standards:

IS No.	*Title*
IS 1387 : 1993	General requirement for the supply of metallurgical materials (*second revision*)
IS 5047	Glossary of terms relating to aluminium and aluminium alloys:
(Part 1) : 1986	Unwrought and wrought metals (*second revision*)
(Part 2) : 1979	Plant and operations, thermal treatment, control and testing, finishing

3 GENERAL CONDITIONS

General requirements relating to the supply of material shall conform to IS 1387.

4 TERMINOLOGY

For the purpose of this standard, the definitions as given in IS 5047 (Part 1) and IS 5047 (Part 2) and the following shall apply.

4.1 Baling — Hydraulically compaction process for aggregating loose scraps having high surface area and low density.

4.2 Briquetting — Compaction process of small/ light scraps depending on the type of materials.

4.3 Incineration — Scraps subjected to combustion for removal of organic/inorganic materials from surface.

4.4 Shearing — Cutting heavy pieces of aluminium scrap.

4.5 Shredding — Reduction of big size non-ferrous scrap into small pieces using hammer mills. Mostly automotive hulk and white goods are reduced in shredder.

5 CLASSIFICATION OF ALUMINIUM SCRAP

Heavier pieces of any size, length, and weight acceptable upon mutual agreement between buyer and seller.

5.1 Tablet: Clean Aluminium Lithographic Sheets

This consist of 1000 series and 3000 series alloys, to be free of paper, plastic, excessively inked sheets and any other contaminants. Minimum size of 8 cm in any direction.

5.2 Tabloid: New, Clean Aluminium Lithographic Sheets

This consist of 1000 series and/or 3000 series alloys, uncoated, unpainted, to be free of paper, plastic, ink and any other contaminants. Minimum size of 8 cm in any direction.

5.3 Taboo: Mixed Low Copper Aluminium Clippings and Solids

This shall consist of new, clean, uncoated and unpainted low copper aluminium scrap of two or more alloys with a minimum thickness of 0.38 mm and to be free of 2000 series and 7000 series, hair wire, wire screen, punchings less 1.25 cm diameter, dirt, and other non-metallic items. Grease and oil not to total more than 1 percent. Variations to this

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classification should be agreed based on mutual agreement between the buyer and seller.

5.4 Taint/Tab or: Clean Mixed Old Alloy Sheet Aluminium

This shall consist of clean old alloy aluminium sheet of two or more alloys, free of foil, venetian blinds, castings, hair wire, screen wire, food or beverage containers, radiator shells, airplane sheet, bottle caps, plastic, dirt and other non-metallic items. Oil and grease not to total more than 1 percent. Up to 10 percent tale permitted.

5.5 Take: New Aluminium can Stock

This shall consist of new low copper aluminium can stock and clippings, clean, lithographed or not lithographed and coated with clear lacquer but free of lids with sealers, iron, dirt and other foreign contamination. Oil not to exceed 1 percent.

5.6 Talc: Post Consumer Aluminium can Scrap

This shall consist of old aluminium food and/or beverage cans. The material is to be free of other scrap metals, foil, tin cans, plastic bottles, paper, glass and other non-metallic items. Variations to this classification should be agreed based on mutual agreement between the buyer and seller.

5.7 Talcred: Shredded Aluminium Used Beverage can (UBC) Scrap

This shall have a density of 193 kg/m^3 to 273 kg/m^3. Material should contain maximum 5 percent fines less than 6.35 mm. Must be magnetically separated material and free of steel, lead, bottle caps, plastic cans and other plastics, glass, wood, dirt, grease, trash and other foreign substances, any free lead is basis for rejection. Any and all aluminium items, other than used beverage cans are not acceptable. Variations to this classification should be agreed based on mutual agreement between the buyer and seller.

5.8 Taldack: Densified Aluminium Used Beverage can (UBC) Scrap

This shall have a biscuit density of 562 kg/m^3 to 802 kg/m^3. Each biscuit not to exceed 27.2 kg. Nominal biscuit size range from 25.4 cm × 33 cm × 26 cm to 50.8 cm × 15.9 cm × 22.9 cm shall have banding slots in both directions to facilitate bundle banding. All biscuits comprising a bundle must be of uniform size. Size bundle range dimensions acceptable are 104 cm to 112 cm to 137 cm × 137 cm to 142 cm to high. The only acceptable tying method shall be as follows: Using minimum 1.6 cm wide by 0.05 cm thick steel straps, the bundles are to be banded with one vertical band per row and a minimum of two firth (horizontal) bands per bundle. Use of skids and support sheets of any material is not acceptable. Must be magnetically separated material and free of steel, lead, bottle caps, plastic cans and other plastic glass, wood, dirt, grease, trash, and other foreign substances. Any free lead is basis for rejection. Any and all aluminium items, other than used beverage cans are not acceptable. Items not covered in the specifications, including moisture, and any variations to this classification should be agreed based on mutual agreement between the buyer and seller.

5.9 Taldon: Baled Aluminium Used Beverage can (UBC) Scrap

This shall have a minimum density of 225 kg/m^3 and a maximum density of 273 kg/m^3 for unflattened UBC and 353 kg/m^3 for flattened UBC size minimum 0.85 m^3, with bale range dimensions of 61 cm to 132 cm by 76 cm to 132 cm by 102 cm to 213 cm. The only acceptable tying method shall be as follows four to six 1.6 cm × 5 mm steel bands or six to ten, 13 gauge steel wires (aluminium bands or wires are acceptable in equivalent strength and number). Use of skids and support sheets of any material is not acceptable. Must be magnetically separated material and free of steel, lead, bottle caps, plastic cans and other plastic, glass, wood, dirt, grease, trash, and other foreign substances. Any free lead is basis for rejection. Any and all aluminium items, other than used beverage cans, are not acceptable. Variations to this classification should be agreed based on mutual agreement between the buyer and seller.

5.10 Taldork: Briquetued Aluminium Used Beverage can (UBC) Scrap

This shall have a briquette density of 800 kg/m^3 minimum. Nominal briquette size shall range from 30.5 cm × 61 cm in uniform profile with a variable length of 20.3 cm minimum and 122 cm maximum. Briquettes shall be bundled or stacked on skids and secured with a minimum of one vertical band per row and a minimum of one girth band per horizontal layer. Briquettes not to overhang pallet. Total package height shall be 122 cm maximum. Banding shall be at least 1.6 cm wide by 5 mm thick steel strapping or equivalent strength. The weight of any bundle shall not exceed 1.814 MT. Material must be magnetically separated and free of steel, plastic, glass, dirt and all other foreign substances. Any and all aluminium items other than UBC are unacceptable. Any free lead is basis for rejection. Items not covered in the classification, including moisture and variations to this classification should be agreed based on mutual agreement between the

buyer and seller.

5.11 Tale: Painted Siding

This shall consist of clean, low copper aluminium siding scrap, painted one or two sides, free of plastic coating, iron, dirt, corrosion, fiber, foam, or fiberglass backing or other non- metallic items.

5.12 Talk: Aluminium Copper Radiators

This shall consist of clean aluminium and copper radiators, and/or aluminium fins on copper tubing, free of brass tubing, iron and other foreign contamination.

5.13 Tall: E. C. Aluminium Chops and Straws

This shall consist of clean, 1350 and/or 1050 alloy, E.C. aluminium, chops or straws, free of straws, free of screening, hair-wire, iron, copper, insulation and other non-metallic items. Must be free of minus 20 mesh material. Must contain 99.45 percent aluminium content.

5.14 Tally: All Aluminium Radiators from Automobiles

This shall consist of clean aluminium radiators and /or condensers. Should be free of all other types of radiators. All contaminants including iron, plastic, and foam not to exceed 1 percent of weight. Any deviation to this classification, including oxidation and aluminium content should be agreed based on mutual agreement between the buyer and seller.

5.15 Talon: E. C. Aluminium Wire and Cable

This shall consist of new, clean, 1350 and/or 1050. E.C. aluminium wire or cable free from hair wire. ACSR wire screen, tape, iron, insulation and other non-metallic items. Must contain 99.45 percent aluminium content.

5.16 Tank: Aluminium Chops and Straws

This shall consist of clean aluminium, chops or straws, free of screening, hair-wire, iron, copper, insulation and other non-metallic items. Must be free of minus 20 mesh material. Must contain 99 percent aluminium content.

5.17 Tann: New Mixed Aluminium Wire and Cable

This shall consist of new, clean, unalloyed aluminium wire or cable which may contain up to 10 percent 6000 series wire and cable free from hair wire, wire screen, iron, insulation and other non-metallic items.

5.18 Tarry A: Clean Aluminium Pistons

This shall consist of clean aluminium pistons to be free from struts, bushing, shafts, iron rings and non-metallic items, oil and grease not to exceed 2 percent.

5.19 Tarry B: Clean Aluminium Pistons with Struts

This shall consist of clean whole aluminium pistons with struts. Material is to be free from bushings, shafts, iron and non-metallic item. Oil and grease not to exceed 2 percent.

5.20 Tarry C: Irony Aluminium Pistons

This shall consist of aluminium pistons with non-aluminium attachments to be sold on recovery basis or by special arrangement between buyer and seller.

5.21 Tassel: Old Mixed Aluminium Wire and Cable

This shall consist of old, unalloyed aluminium wire and cable which may contain up to 10 percent 6000 series wire and cable with not over 1 percent free oxide or dirt and free from hair wire, wire screen, iron, insulation and other non-metallic items.

5.22 Taste: Old Pure Aluminium Wire and Cable

This shall consist of old, unalloyed aluminium wire and cable containing not over 1 percent free oxide or dirt and free from hair wire, wire screen, iron, insulation and other non metallic items.

5.23 Tata: New Production Aluminium Extrusions

This shall consist of one alloy (typically 6063). Material may contain butt ends from the extrusion process but must be free of any foreign contamination. Anodized material is acceptable. Painted material or alloys other than 6063 must be agreed upon by buyer and seller.

5.24 Toto: Aluminium Extrusions “10/10”

Material to consist of new production and old/used 6063 extrusions that may contain up to (but not exceed) 10 percent painted extrusions and 10 percent 6061 alloy extrusions. Must not contain other alloys of aluminium. Material should be free of zinc corners, iron attachments, felt, plastic, paper, cardboard, thermos break, and dirt and other contaminants.

5.25 Tutu: Aluminium Extrusion Dealer Grade

This shall consist of old extruded aluminium of one alloy, typically alloy 6063, 6061 or 7075. Material must be free of iron, thermos break, saw chips, zinc corners, dirt, paper, cardboard and other foreign contamination. Percentages of paint or other alloy to be agreed upon by buyer and seller.

5.26 Tease: Aluminium Wire and Cable

This shall consist of new, clean, aluminium wire or cable free from hair wire, ACSR, wire screen, iron, insulation and other non-metallic items, must contain 99 percent aluminium content.

5.27 Tease: Turnings

This shall consist of aluminium borings and turnings of one specified alloy. Material should be free of oxidation, dirt free iron, stainless steel, magnesium, oil, flammable liquids, moisture and other non-metallic items. Fines should not exceed 3 percent through an 841 microns screen.

5.28 Telic: Mixed Aluminium Boring and Turnings

This shall consist of clean, uncorroded aluminium borings and turnings of two or more alloys and subject to deductions for fines in excess of 3 percent through a 20 mesh screen and dirt free iron, oil, moisture and all other non-metallic items, Material containing iron in excess of 10 percent and/or free magnesium or stainless steel or containing highly flammable cutting compounds will not constitute good delivery. To avoid dispute, material should be sold on basis of definite maximum zinc, tin and magnesium content.

5.29 Tense: Mixed Aluminium Castings

This shall consist of all clean aluminium castings which may contain auto and airplane castings but no ingots and to be free of iron, brass, dirt and other non-metallic items. Oil and grease not to total more than 2 percent.

5.30 Tepid: Aircraft Sheet Aluminium

This should be sold on recovery basis or by special arrangements with purchaser.

5.31 Terse: New Aluminium Foil

This shall consist of clean, new, pure, uncoated 1000 series and/or 3000 series and/or 8000 series alloy aluminium foil, free from anodized foil, radar foil and chaff, paper, plastics and any other non-metallic item. Hydraulically briquetted material and other alloys by agreement between buyer and seller.

5.32 Tesla: Post Consumer Aluminium Foil

This shall consist of baled old household aluminium foil and formed foil containers of uncoated 1000 series, 3000 series and 8000 series aluminium alloy. Material may be anodized and contain a maximum of 5 percent organic residue. Material must be free from radar chaff foil, chemically etched foil, laminated foils, iron, and paper, plastic and other non-metallic contaminants.

5.33 Tetra: New Coated Aluminium Foil

This shall consist of new aluminium foil coated or laminated with ink, lacquers, paper, or plastic. Material shall be clean, dry, free of loose plastic, PVC and other non-metallic items. This foil is sold on a metal content basis or by sample as agreed between buyer and seller.

5.34 Thigh: Aluminium Grindings

This should be sold on recovery basis or by special arrangements with purchaser.

5.35 Thirl: Aluminium Drosses, Spatters, Spillings Skimmings and Sweepings

This should be sold on recovery basis or by special arrangement with purchaser.

5.36 Thorn: Aluminium Breakage

This shall consist of aluminium with miscellaneous contaminants like iron, dirt, plastic and other types of contaminants. Material can either be sold based on aluminium recovery or content as agree upon by buyer and seller. Must contain a minimum of 33 percent aluminium unless otherwise agreed upon by buyer and seller.

5.37 Throb: Sweated Aluminium

This shall consist of aluminium scrap which has been sweated or melted into a form or shape such as an ingot, sow or slab for convenience in shipping, to be free from corrosion, dross or any non aluminium inclusions should be sold subject to sample or analysis.

5.38 Tooth: Segregated New Aluminium Alloy Clippings and Solids

This shall consist of new, clean, uncoated and unpainted aluminium scrap of one specified aluminium alloy with a minimum thickness of 0.38 mm and to be free of hair wire, wire screen,

dirt and other non-metallic items. Oil and grease not to total more than 1 percent. Also free from punching less than 1.27 cm in size.

5.39 Tough: Mixed New Aluminium Alloy Clippings and Solids

This shall consist of new, clean, uncoated and unpainted aluminium scrap of two or more alloys with a minimum thickness of 0.38 mm and to be free of hair wire, wire screen, dirt and other non-metallic items. Oil and grease not to total more than 1 percent. Also free from punchings less than 1.27 cm in size.

5.40 Tread :Segregated New Aluminium Castings, Forgings and Extrusions

This shall consist of new, clean, uncoated aluminium castings, forging and extrusions of one specified alloy only and to be free from sawings, stainless steel, zinc, iron, dirt, oil, grease and other non-metallic items.

5.41 Troma: Aluminium Auto or Truck Wheels

This shall consist of clean, single-piece, unplated aluminium wheels of a single specified alloy, free of all inserts, steel, wheel weights, valve stems, tires, grease and oil and other non-metallic items. Variations to this classification should be agreed based on mutual agreement between the buyer and seller.

5.42 Trump: Aluminium Auto Castings

This shall consist of all clean automobile aluminium castings of sufficient size to be readily identified and to be free from iron, dirt, brass, bushings and non-metallic items. Oil and grease not to total more than 2 percent.

5.43 Trill: Aluminium Conductor Steel Reinforced Wire (ACSR)

Aluminium conductor steel reinforced (ACSR) wire is a combination of steel and aluminium wire, of various configurations with the expected aluminium recovery agreed upon by the buyer and the seller. Material to be free of other wires and cables unless mutually agreed upon.

5.44 Twang: Insulated Aluminium Wire (IAW)

Insulated aluminium wire, which may or may not contain other wires of metal shielding, with the expected aluminium recovery agreed upon by the buyer and the seller. The material to be free of other wire and cables unless mutually agreed upon.

5.45 Twirl Fragmentizer Aircraft Aluminium Scrap (2000 and 7000 series)

The material as received must be dry and not to contain more than 2 percent free zinc, 1 percent maximum free magnesium and 1.5 percent maximum free iron and stainless with a maximum of 2 percent analytical iron not to contain more than a total 5 percent maximum of non-metallics, of which no more than 1 percent shall be rubber and plastics. To be free of excessively oxidized material. Variations to this classification should be agreed based on mutual agreement between the buyer and seller.

5.46 Twist: Aluminium Airplane Castings

This shall consist of clean aluminium castings from airplanes and to be free from iron, dirt, brass, bushings and non-metallic items. Oil and grease not to total more than 2 percent.

5.47 Twitch: Floated Fragmentizer Aluminium Scrap (From Automobile Shredders)

This derived from wet or dry media separation device, the material must be dry and not contain more than 1 percent maximum free zinc, 1 percent maximum free magnesium, and 1 percent maximum of analytical iron. Not to contain more than a total 2 percent maximum of non- metallics, of which no more than 1 percent shall be rubber and plastic. To be free of excessively oxidized material air bag canisters or any sealed or pressurized items. Variations to this classification should be agreed based on mutual agreement between the buyer and seller.

5.48 Tweak Fragmetizer Aluminium Scrap (from Automobile Shredders)

This derived from either mechanical or hand separation, the material must be dry and not contain more than 4 percent maximum free zinc, 1 percent maximum free magnesium, and 1.5 percent maximum of analytical iron not to contain more than a total 5 percent maximum of non-metallics of which no more than 1 percent shall be rubber and plastics. To be free of excessively oxidized material air bag canisters or any sealed or pressurized items. Variations to this classification should be agreed based on mutual agreement between the buyer and seller.

5.49 Twire Burnt Fragmentizer Aluminium Scrap (from Automobile Shredders)

Incinerated or burned material must be dry and not Contain more than X percent (percent to be agreed

upon by buyer and seller) ash from incineration 4 percent maximum free zinc, 1 percent maximum free magnesium and 1.5 percent maximum of analytical iron, not to contain more than a total 5 percent maximum of non-metallics of which non-more than 1 percent shall be rubber and plastics. To be free of excessively oxidized material air bag canister, or any sealed pressurized items. Variations to this classification should be agreed based on mutual agreement between the buyer and seller.

5.50 Zorba: Shredded Nonferrous Scrap (Predominantly Aluminium)

This shall be made up of a combination of the nonferrous metals: aluminium, copper, lead, magnesium, stainless steel, nickel, tin, and zinc, in elemental or alloyed solid form. The percentage of each metal within the nonferrous concentrate shall be subject to agreement between buyer and seller. Material generated by eddy current, air separation, flotation screening, other segregation technique(s), or a combination thereof. Shall have passed one or more magnets to reduce or eliminate free iron and/or large iron attachments. Shall be free of radioactive material, dross, or ash. Material to be bought/sold under this guideline shall be identified as zorba with a number to follow indicating the estimated percentage nonferrous metal content of the material (for example "zorba 90" means the material contains approximately 90 percent nonferrous metal content). May also be screened to permit description by specific size ranges.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Ores and Feed Stock for Aluminium Industry, its Metals/Alloys and Products Sectional Committee, MTD 07

Organization	*Representative(s)*
CSIR - Institute of Minerals and Materials Technology, Bhubaneswar	DR KALI SANJAY **(*Chairperson*)**
Aeronautical Development Establishment, Bengaluru	SHRI G. S. RAVINDRA SHRI T. MOHAN REDDY (*Alternate*)
Aluminium Association of India, Bengaluru	SHRI ANIL MATHEW SHRI T. VIMAL RAJ (*Alternate*)
Aluminium Secondary Manufacturers Association, New Delhi	SHRI NAVEEN PANT SHRI PRAVEEN DIXIT (*Alternate*)
Bharat Aluminium Company Limited, New Delhi	MS ANJALI PAWAR SHRI JITENDRA KUMAR VERMA (*Alternate*)
CSIR - Advanced Materials and Processes Research Institute, Bhopal	DR D. P. MONDAL
CSIR - National Metallurgical Laboratory, Jamshedpur	DR KANAI SAHOO DR V. C. SRIVASTAVA (*Alternate*)
Century Extrusions Limited, Kolkata	SHRI V. JHUNJHUNWALA SHRI SANJAY SINGH SEHRAWAT (*Alternate*)
Century Metal Recycling Limited, Faridabad	SHRI MOHAN AGARWAL
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Defence Research and Development Establishment, CEMILAC, Bengaluru	DR SHIRISH KALE DR T. RAM PRABHU (*Alternate*)
Defence Research and Development Laboratory, Ministry of Defence, Hyderabad	DR G. RAJA SINGH DR N. A. ARUN (*Alternate*)
Directorate General Quality Assurance, New Delhi	SHRI K. SAHA SHRI AJAY KUMAR (*Alternate*)
Hindalco Industries Limited, Mumbai	SHRI RAJAN KUMAR SUR CHAUDHURY SHRI TUSHAR PANDA (*Alternate*)
Hindustan Aeronautics Limited, Bengaluru	SHRI R. R. BHAT
Indian Space Research Organization, Bengaluru	DR S. K. GHOSH
Jawaharlal Nehru Aluminium Research Development and Design Centre, Nagpur	DR ANUPAM AGHINOTRI SHRI R. N. CHAUHAN (*Alternate*)
Jindal Aluminium Limited, Bengaluru	SHRI O. K. SHARMA SHRI P. DEVARAJ (*Alternate*)
Material Recycling Association of India (MRAI), Mumbai	SHRI DHAWAL SHAH SHRI JAYANT JAIN (*Alternate*)

Organization	*Representative(s)*
National Aluminium Company Limited, Bhubaneswar	SHRI S. NANDA
National Test House, Kolkata	DR NISHI SRIVASTAVA SHRI BUDDH PRAKASH (*Alternate*)
Shri Ram Institute for Industrial Research, Delhi	SHRI P. K. KAICHER SHRI B. GOVINDAN NAIR (*Alternate*)
Vedanta Limited, Mumbai	SHRI VIVEK SAXENA SHRI RAM SANDIPAM (*Alternate*)
BIS Directorate General	SHRI SANJIV MAINI, SCIENTIST 'F'/SENIOR DIRECTOR AND HEAD (METALLURGICAL ENGINEERING) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary
SHRI ASHISH PRABHAKAR WAKLE
SCIENTIST 'C'/DEPUTY DIRECTOR
(METALLURGICAL ENGINEERING), BIS

Panel for the Revision IS 2066 Coding and Classification for Non-Ferrous Scrap Metals and Residues

Part 1 Aluminium Scrap

Organization	*Representative(s)*
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Aluminium Secondary Manufacturers Association, New Delhi	SHRI ANIL AGARWAL
Century Extrusions Limited, Kolkata	SHRI V. JHUNJHUNWALA
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Amendments Issued Since Publication

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