EVENT SUMMARY

U.S. Critical Minerals Standards Roundtable

WELCOME & SESSION OBJECTIVES

Fran Schrotter, Senior Vice President & COO of American National Standards Institute (ANSI) and Grant Bromhal, Senior Science Advisor of the Office of Resource Sustainability, Fossil Energy and Carbon Management in the U.S. Department of Energy (DoE) offered opening remarks.

OVERVIEW OF ISO ACTIVITIES

Attendees heard briefings about the drivers for formation, leadership, level of activity and engagement (overall and from the U.S.), work underway or expected, and near-term coordination opportunities related to the following ISO activities. Slides for each briefing are attached.

- ISO Strategic Advisory Group (SAG) on Critical Minerals – *John Bonevich (NIST)*
- TC 345 Materials for specialty technologies; TC 333 Lithium; and TC 298 Rare Earth – *John Bonevich (NIST)*
- PC 348 Sustainable raw materials; and JG 298/333 – *Anna Wendt (DOE) & Sallie Greenberg (Sallie Greenburg Consulting)*
- TC 82/SC 7 Sustainable mining and mine closure – *Kristi Disney Buckner (IRMA)*
- IWA 45:2024 Sustainable Critical Mineral Supply Chain – *Kristi Disney Buckner (IRMA)*

CHALLENGES AND OPPORTUNITIES DISCUSSION

Attendees participated in an open discussion to explore how U.S. stakeholders perceive the current structure and landscape of these activities and discussed potential actions to inform an effective U.S. strategy in support of international standards for critical minerals (CM). The following questions guided the discussion:

- What concerns exist regarding scoping of various activities?
- What steps could be taken to resolve concerns or maximize opportunities?
- What U.S. coordination would best support effective U.S. engagement in ISO activities?

Discussion was supplemented with Slido Q&A and polling. The following summary highlights individual contributions (and not yet evaluated for a level of consensus) to the live discussion and Slido contributions.

SUMMARY OF OVERALL CONCERNS & NEEDS

Concerns

1. *(ISO focused)* Limited representation and coordination of U.S. stakeholders (especially downstream stakeholders) in the U.S. TAGs to ISO
2. *(ISO focused)* No U.S. representation on the ISO Technical Management Board group (ISO/TMBG) *Critical Minerals Coordination Committee (CMCC).* The CMCC only includes those in related ISO committee leadership positions.
3. *(ISO focused)* U.S. positions are often out-voted in ISO process
4. *(ISO focused)* Technical and policy topics are mixed with human rights topics in ISO standards for critical minerals
5. *(ISO focused)* Lack of resources to participate in several ISO activities (resources are spread thin and missing key standards actions)

6. Lack of standards education (benefits of participation and effective participation)
7. Lack of U.S. policy position(s) and trade criteria to enable or call out standards
8. Several USG programs exist but lack coordination and tracking

Needs

A. *(ISO focused)* U.S.-focused coordination committee to share updates, develop strategies across related standards, and deepen engagement across stakeholders and rights holders (enabling coordination, transparency, prioritization, and participation)
B. *(ISO focused)* Increased connectivity to and awareness about U.S. allied nations perspectives of ISO activities
C. Standards education (benefits, participation, awareness of existing programs)
D. Industry overview or map of minerals to products/industry (defining industry needs from top-down)
E. U.S. standards strategy / Industry map that ties to various standards organization activities (ASTM, IRMA, ISO, RMA, SAE, etc.)
F. U.S. government interagency coordination group
G. U.S. policy to drive compliance / various compliance frameworks

SPECIFIC RESPONSES TO PROPOSED QUESTIONS

1. What concerns exist regarding scoping of various activities?

- Scoping is overly broad and unclear (scoping / rescoping is done too frequently). Scoping needs to be aligned to strategic goals, transparent and deliberate. Overlap between JWG6, ISO PC 348, TC 82/SC 7.
- Disagreement (among nations) on scoping PC 348 about what parts of the value chain need to be covered or whether they're sufficiently covered.
- Scoping includes topics (e.g., labor/indigenous rights) where key stakeholders are not represented and likely unaware of their existence.
- Social issues that are addresses do not follow/align with International Labour Organization (ILO) standards.
- Duplicative of existing standards like IRMA and Responsible Minerals Imitative (RMI) used for upstream, midstream, and chain of custody.
- Duplication creates confusion and distrust in the supply chain.
- U.S. participants are overwhelmed with the number of proposals coming from Chinese participants. It is difficult to take a leadership role when always in a reactive stance.

2. What steps could be taken to resolve concerns or maximize opportunities?

- Push ISO to uphold commitments to coherence with other international standards.
- Improve coordination, inclusivity, and global coalition-building.
- Treat standards as strategic infrastructure, not just as technical documents.
- Identify and use existing credible standards and initiatives where they exist.
- Reform ISO governance structure (impacted civil society, communities, Indigenous rights holders, workers, and upstream and downstream companies to have a vote and direct engagement).
- Funding / Support for engagement in mirror committees/technical advisory groups (e.g., outreach, onboarding, travel support).
- The USG initiatives began with the Energy Act of 2020 whereas China has been working on this for decades.
- Traceability is important. The DoE was given funding to convene discussions about the Tonko/Graves Critical Material Transparency and Reporting of Advanced Clean Energy (Critical Material TRACE) Act. Discussions should be revisited.
- Policies that drive compliance enable/support standards development (e.g., EU Battery Passport Uyghur Forced Labor Prevention Act (UFLPA)).

3. **What U.S. coordination would best support effective U.S. engagement in ISO activities?**
   - **Coordination / Consolidation:** Push ISO to reference other international standards rather than create duplicative standards. Ensure coordination with other SDOs. Push for consolidation of ISO standards activities for sustainability.
   - **Funding**: Federal grants or travel stipends for SME participation in ISO technical committees.
   - **Outreach**: Improving outreach and onboarding, technical support, and travel support for stakeholders and rights holders to engage. Without funding and institutional backing, U.S. representation will continue to be inconsistent particularly in minerals. Emerging startups and research groups often cannot afford to engage. Engage U.S. civil society organizations.
   - **Education**: Support for standards education and training, especially for early-career engineers and scientists.
   - **Benefits**: Recognition or priority status for companies contributing to international standards that align with U.S. industrial policy.

4. **Would the U.S. benefit from a broader U.S. Standards Strategy for Critical Minerals (CMSS) standards development? Please provide some context.**
   - Without a CMSS, the U.S. risks perpetuating its raw material insecurity by failing to align technical, regulatory, and industrial actors.
   - A robust CMSS could catalyze domestic supply chains, improve environmental, social, and governance (ESG) performance, and protect national resilience.
   - A CMSS would provide a clear signal of leadership to global stakeholders.
   - A CMSS for the CM downstream would be beneficial.
   - It should start with a mapping of existing standards and consider promoting those existing standards for its own purchasing, etc. Strategic work should focus on engaging with existing credible programs and helping to address gaps. Any additional standards seem unnecessary.
   - The collection of stakeholders touches various pieces of the puzzle but may not see the full picture.

NEXT STEPS & CLOSING

Attendees indicted that continued discussions were necessary. ANSI staff will review and consider all the challenges and opportunities brought forth during Roundtable discussions and recommend next steps. ANSI will coordinate next steps with its counterparts at the U.S. Department of Energy.

STAFF CONTACTS:

Christine DeJong Bernat
Associate Director, Standards Facilitation
cbernat@ansi.org
202-236-7580 (m)

Jason Knopes
Senior Program Manager
jknopes@ansi.org
212-642-4886 (o)

Frances Schrotter
Senior Vice President and Chief Operating Officer
fschrotter@ansi.org
212-642-4934 (o)

JUNE 26TH PARTICIPANTS

FIRST NAME	LAST NAME	ORGANIZATION
Kerri	Abbott	Ford
Hillary	Amster	The Copper Mark
Victor	Ban	Office of the United States Trade Representative (USTR)
Megan	Barnhart	U.S. Department of Energy
Christine	Bernat	American National Standards Institute (ANSI)
John	Bonevich	National Institute of Standards and Technology (NIST)
Grant	Bromhal	U.S. Department of Energy
Kristi Disney	Bruckner	Initiative for Responsible Mining Assurance (IRMA)
Benjamin	Caire	Albemarle Corporation
Ellen	Carey	Circulor
Charita	Castro	Office of the United States Trade Representative (USTR)
Tina	Chen	U.S. Department of Energy
Henry	Cheung	American National Standards Institute (ANSI)
Sara	Desautels	American National Standards Institute (ANSI)
Natenna	Dobson	U.S. Department of Energy
Brian	Dye	U.S. Environmental Protection Agency
Brian	Engle	Amphenol / NAATBatt / SAE
Maggie	Gabos	Responsible Minerals Initiative
William	Gaieck	U.S. Department of Energy, EERE - AMMTO
Meg	Gingrich	United Steelworkers
Sallie	Greenberg	Sallie Greenberg Consulting
Jennifer	Hinton	Jervois Group
Chelsea	Hodgkins	Public Citizen
Lynne	Hood	U.S. Environmental Protection Agency
Richard	Juang	Ceres
Sarah	Katz	American National Standards Institute (ANSI)
Jason	Knopes	American National Standards Institute (ANSI)
Sarah	Kreitzer	OSMRE
Amy	Kreps	Office of the United States Trade Representative (USTR)
Robert	Kupper	Albemarle Corporation
Joe	Larsen	U.S. Department of the Interior, Bureau of Land Management
Laura	Lewis	Northeastern University
Jack	McCaslin	U.S. Department of Energy
Frank	Menchaca	Auzolan/LiBridge
Aaron	Mintzes	Earthworks
Elise	Owen	U.S. Environmental Protection Agency
Monique	Parker	Piedmont Lithium
Sophie	Quaglia	Steptoe
Maria	Ramos	Oxfam
Yblin	Roman Escobar	SIRGE Coalition
Shirley	Sam	U.S. Department of Energy, National Energy Technology Laboratory
Michael	Sanders	Avicenne Energy
Mary	Saunders	American National Standards Institute (ANSI)
Fran	Schrotter	American National Standards Institute (ANSI)
Meredith	Shaddix	American National Standards Institute (ANSI)
Carine	Steinway	U.S. Department of Energy, Vehicle Technologies Office
Joseph	Tretler	American National Standards Institute (ANSI)
Kathleen	Vello	U.S. Environmental Protection Agency
Anna	Wendt	U.S. Department of Energy, NETL
Miha	Zakotnik	Actolan

U.S. Critical Minerals Standards Roundtable

June 25, 2025 | 1:00 – 4:00 pm EST

American National Standards Institute

Agenda

TIME	TOPIC AND SPEAKER
1:00 – 1:20 pm	**Welcome & Session Objectives** - Fran Schrotter, ANSI Senior Vice President & COO - Grant Bromhal, DOE Senior Science Advisor, Office of Resource Sustainability, Fossil Energy and Carbon Management
1:20 – 2:30 pm	**Overview of ISO Activities –** *Christine Bernat (ANSI)* *Briefings include drivers for formation, leadership, level of activity and engagement (overall and from the U.S.), work underway or expected, and near-term coordination opportunities.* - ISO Strategic Advisory Group (SAG) on Critical Minerals – John Bonevich (NIST) - TC 345 Materials for specialty technologies; TC 333 Lithium; and TC 298 Rare Earth – John Bonevich (NIST) - PC 348 Sustainable raw materials; and JG 298/333 – Anna Wendt (DOE) & Sallie Greenberg (Sallie Greenberg Consulting) - TC 82/SC 7 Sustainable mining and mine closure – Kristi Disney Buckner (IRMA) - IWA 45:2024 Sustainable Critical Mineral Supply Chain – Kristi Disney Buckner (IRMA)
2:30 – 3:45 pm	**Challenges and Opportunities Discussion –** All *An open discussion to highlight how U.S. stakeholders perceive the current structure and landscape of these activities and discuss potential actions to inform an effective U.S. strategy in support of international standards for critical minerals.* - What concerns exist regarding scoping of various activities? - What steps could be taken to resolve concerns or maximize opportunities? - What U.S. coordination would best support effective U.S. engagement in ISO activities?
3:45 – 4:00 pm	**Next Steps & Closing –** *Christine Bernat (ANSI)*

Opening Remarks

Fran Schrotter, Senior Vice President & COO
American National Standards Institute

Opening Remarks

Grant Bromhal, Senior Science Advisor
Office of Resource Sustainability, Fossil Energy and Carbon Management
U.S. Department of Energy

Overview of ISO Activities

1:20 – 2:30 pm

Overview of ISO Activities

Briefings include drivers for formation, leadership, level of activity and engagement (overall and from the U.S.), work underway or expected, and near-term coordination opportunities.

ISO Strategic Advisory Group (SAG) on Critical Minerals	John Bonevich (NIST)
TC 345 Materials for specialty technologies; TC 333 Lithium; and TC 298 Rare Earth	John Bonevich (NIST)
PC 348 Sustainable raw materials; and JG 298/333	Anna Wendt (DOE) Sallie Greenberg (Sallie Greenberg Consulting)
TC 82/SC 7 Sustainable mining and mine closure	Kristi Disney Buckner (IRMA)
IWA 45:2024 Sustainable Critical Mineral Supply Chain	Kristi Disney Buckner (IRMA)

ISO Strategic Advisory Group (SAG) on Critical Minerals; TC 345 Materials for specialty technologies; TC 333 Lithium; and TC 298 Rare Earth

John Bonevich

Deputy Chief, Materials Science and Engineering Division

National Institute of Standards and Technology (NIST)

U.S. Engagement with ISO Technical Committees on Critical Materials

Presented by: John Bonevich (U.S. Chair)

June 25, 2025

ISO/TMB – Strategic Advisory Group

Proposer: SA (Australia)

Convenors: Ms Karen Batt and Mr Stephen Collocott

Members: Australia (SA), Canada (SCC), Chile (INN), China (SAC), France (AFNOR), Finland (SIS), Germany (DIN), Italy (UNI), IEC, Tanzania (TBS), United Kingdom (BSI), United States (ANSI)

Definition: A critical mineral is defined as an essential mineral or mineral-based resource necessary for a particular economic activity, whose supply is deemed to be at risk and whose absence would have detrimental consequences to a commercial entity and to the economic, environmental, security and social well-being of a country, common economic region or specific region.

NOTE: In this definition, 'mineral' includes metallic and non-metallic elements which in many cases are compounds or alloys**.**

Mission:

- **Set of parameters for the classification of critical minerals for the purposes of the SAG's work**
- **An analysis to identify standards; synergies in the current work of existing ISO technical committees; gaps in current standardization**
- **Recommendation of a structure to undertake the development of standards relevant to the critical minerals sector.**
- **A priority list of any new work to be undertaken in the short term that should be progressed as an immediate priority**

ISO TMB – CM Strategic Advisory Group

Recommendations: June 2023

01	**Priority List for critical minerals** Cobalt, graphite and antimony	05	**Sustainability – existing work** ISO/TC 298 and ISO/TC 333 to formalize work as a Joint Working Group – already underway
02	**New TC for critical minerals for basic and chemical analysis** An incubator for priority CM standardization	06	**Collaboration on sustainability** IWA 45 to detail existing guidelines/frameworks for critical mineral supply chains
03	**Establish a Critical Minerals Coordination Committee** Reports to ISO TMB	07	**Overarching guidance** Detail the role standards play for critical minerals supply chains and where to find information
04	**Traceability** New TC (see 02) to provide a model traceability framework		

ISO/TC 298 Rare earth

Secretariat: SAC (China)

Committee Manager: Mr Guanyu Song

Chairperson (until end 2027): Mr Haifeng Liu

Scope: Standardization in the field of rare earth mining, concentration, extraction, separation and conversion to useful rare earth compounds/materials (including oxides, salts, metals, master alloys, etc.) which are key inputs to manufacturing and further production process in a safe and environmentally sustainable manner.

- **ISO/TC 298 & 333/JWG 6 –** Sustainability
- **ISO/TC 298/WG 2 –** Elements recycling
- **ISO/TC 298/WG 3 –** Traceability, Packaging and Labeling
- **ISO/TC 298/WG 4 –** Testing and Analysis
- **ISO/TC 298/WG 7 –** Product specification

ISO/TC 298 Membership

Participating

Australia	SA
Canada	SCC
Chile	INN
China	SAC
Denmark	DS
Finland	SFS
France	AFNOR
Germany	DIN
India	BIS
Italy	UNI
Japan	JISC
Korea, Republic of	KATS
Malaysia	DSM
Netherlands	NEN
Norway	SN
Russian Federation	GOST R
Spain	UNE
Sweden	SIS
United Kingdom	BSI
United States	ANSI

Observer

Argentina	IRAM
Armenia	ARMSTANDARD
Austria	ASI
Brazil	ABNT
Cuba	NC
Czech Republic	UNMZ
Egypt	EOS
Iran, Islamic Republic of	INSO
Mexico	DGN
Pakistan	PSQCA
Poland	PKN
Portugal	IPQ
Romania	ASRO
Saudi Arabia	SASO
South Africa	SABS
Tanzania, United Republic of	TBS
Uzbekistan	O'ZTTSA
Viet Nam	STAMEQ

ISO/TC 298 Rare earth

Published Standards (12)	Stage	ICS
ISO 22444-1:2020 Rare earth — Vocabulary — Part 1: Minerals, oxides and other compounds	60.60	•01.040.13 •13.030.30
ISO 22444-2:2020 Rare earth — Vocabulary — Part 2: Metals and their alloys	60.60	•01.040.13 •13.030.30
ISO 22450:2020 Recycling of rare earth elements — Requirements for providing information on industrial waste and end-of-life products	60.60	•13.030.30 •13.030.50
ISO/TS 22451:2021 Recycling of rare earth elements — Methods for the measurement of rare earth elements in industrial waste and end-of-life products	90.93	•13.030.30 •13.030.50
ISO 22453:2021 Exchange of information on rare earth elements in industrial wastes and end-of-life cycled products	60.60	•13.030.30 •13.030.50
ISO 22927:2021 Rare earth — Packaging and labelling	60.60	•13.030.30
ISO 22928-1:2024 Rare earth — Analysis by wavelength dispersive x-ray fluorescence spectrometry (WD-XRFS) — Part 1: Determination of composition of rare earth magnet scrap using standardless XRF commercial packages	60.60	•29.030 •13.030.30 •13.030.50
ISO 23596:2023 Rare earth — Determination of rare earth content in individual rare earth metals and their compounds — Gravimetric method	60.60	•77.040.30
ISO 23597:2023 Rare earth — Determination of rare earth content in individual rare earth metals and their oxides — Titration method	60.60	•77.040.30
ISO 23664:2021 Traceability of rare earths in the supply chain from mine to separated products	60.60	•73.020
ISO 24181-1:2024 Rare earth — Determination of non-rare earth impurities in individual rare earth metals and their oxides — ICP-AES — Part 1: Analysis of Al, Ca, Mg, Fe and Si	60.60	•13.030.30
ISO 24544:2024 Rare earth — Recyclable Neodymium iron boron (NdFeB) resources — Classification, general requirements and acceptance conditions	60.60	•13.030.30 •13.030.50

ISO/TC 298 Rare earth

Standards under development (8)	Stage	ICS
ISO/FDIS 5976 Rare earth — Determination of loss on ignition in rare earth products — Gravimetric method	50.00	•77.120.99
ISO/FDIS 17887 Traceability of rare earths in the supply chain from separated products to permanent magnets	50.20	•03.100.10 •73.060.99 •77.120.99
ISO/WD 19456 Determination of rare earth impurity contents in individual rare earth metals and their oxides — Inductively coupled plasma mass spectrometry Part 1: Determination of rare earth impurity contents in individual La, Ce, Pr, Nd, Sm metals and their oxides	20.99	
ISO/AWI 24457 Specifications for recycling of neodymium iron boron sintered permanent magnets	20.00	
ISO/AWI 24468 Praseodymium-neodymium metal	20.00	
ISO/FDIS 24548 Rare earth — Determination of moisture content in rare earth products — Gravimetric method	50.00	•77.040.30
ISO/AWI 24961 Rare earths and lithium sustainability across the value chain : concentration, extraction, separation, conversion, recycling and reuse	20.00	
ISO/AWI 25191 Rare Earth - Guidance for data collection and validation for the calculation of carbon footprint	20.00	

ISO/TC 298 Rare earth Engagement Needs

- Increase US industry participation
  - Upstream / extraction / pre-cursors
  - Midstream / manufacturing
  - Downstream / recycling, reuse
- Separation / Processing
  - US developing these capabilities
- Labeling / Tracking
  - Classification schema

ISO/TC 333 Lithium

Secretariat: SAC (China)

Committee Manager: Ms Yan Cui

Chairperson (until end 2025): Mr Jiangfeng Zhang

Scope: Standardization in the field of lithium mining, concentration, extraction, separation and conversion to useful lithium compounds/materials (including oxides, salts, metals, master alloys, lithium-ion battery materials, etc.) The work program includes terminology, technical conditions of delivery to overcome transport difficulties, unified testing and analysis methods to improve the general quality of lithium products.

ISO/TC 333/AHG 1 – Analysis methods	ISO/TC 333/WG 4 – Analysis for lithium electrolyte
ISO/TC 333/AHG 2 – Carbon footprint for lithium product	ISO/TC 333/WG 6 – Analysis for lithium cathode materials
ISO/TC 333/WG 1 – Lithium vocabulary	ISO/TC 333/WG 7 – Analysis for lithium chloride
ISO/TC 333/WG 2 – Chemical analysis for lithium hydroxide	ISO/TC 333/WG 8 – Chemical analysis for lithium mineral
ISO/TC 333/WG 3 – Chemical analysis for lithium carbonate	ISO/TC 298/JWG 6 – Sustainability

ISO/TC 333 Membership

Participating

Australia	SA
Canada	SCC
Chile	INN
China	SAC
Denmark	DS
Finland	SFS
France	AFNOR
Germany	DIN
India	BIS
Italy	UNI
Japan	JISC
Korea, Republic of	KATS
Malaysia	DSM
Netherlands	NEN
Norway	SN
Russian Federation	GOST R
Spain	UNE
Sweden	SIS
United Kingdom	BSI
United States	ANSI

Observer

Argentina	IRAM
Armenia	ARMSTANDARD
Austria	ASI
Brazil	ABNT
Cuba	NC
Czech Republic	UNMZ
Egypt	EOS
Iran, Islamic Republic of	INSO
Mexico	DGN
Pakistan	PSQCA
Poland	PKN
Portugal	IPQ
Romania	ASRO
Saudi Arabia	SASO
South Africa	SABS
Tanzania, United Republic of	TBS
Uzbekistan	O'ZTTSA
Viet Nam	STAMEQ

ISO/TC 333 Lithium

Standards under development (17)	Stage	ICS
ISO/FDIS 7819 Lithium — Vocabulary	50.00	•01.040.77 •77.120.99
ISO/CD 10655 Methods for analysis of lithium hexafluorophosphate — Determination of metal ions content by Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES).	30.00	
ISO/WD 10662 Determination of main content of lithium carbonate-Potentiometric titration	20.60	
ISO/AWI 11045-1 Methods for chemical analysis of lithium salts — Part 1: Quantitative determination of lithium hydroxide and lithium carbonate content in lithium hydroxide monohydrate — Potentiometric titration method	20.00	
ISO/WD 11757 Lithium carbonate - Determination of elemental impurities by ICP-OES	20.60	
ISO/WD 12380 Lithium carbonate - Determination of insoluble particles in acid by gravimetry	20.60	
ISO/WD 12386 Lithium carbonate - Determination of metallic magnetic impurities by ICP-OES	20.60	
ISO/WD 12403 Lithium carbonate — determination of chloride content by potentiometry	20.60	
ISO/CD 12467-1 Chemical analysis of lithium composite oxides — Part 1: Determination of main components by inductively coupled plasma optical emission spectrometry	30.60	
ISO/CD 12467-2 Chemical analysis of lithium composite oxides — Part 2: Determination of trace elemental impurities by inductively coupled plasma optical emission spectrometry	30.60	
ISO/CD 12467-3 Chemical analysis of lithium composite oxides — Part 3: Determination of lithium carbonate and lithium hydroxide contents	30.20	
ISO/WD 16398 Lithium chloride — Determination of impurities — ICP-OES method	20.60	
ISO/AWI 16423 Lithium hydroxide monohydrate — Determination of impurities — ICP-OES method	20.00	
ISO/AWI 24991 Methods for chemical analysis of lithium concentrates- Determination of lithium oxide content — Flame atomic absorption spectrometry	20.00	
ISO/WD 24992 Methods for analysis of lithium hexafluorophosphate — Determination of anions content by Ion Chromatography (IC)	20.60	
ISO/AWI 25691 Methods for chemical analysis of lithium mineral-- Determination of Lithium and other elements by ICP-OES	20.00	
ISO/AWI 25692 Chemical analysis of lithium composite oxides --Determination of anion contents by ion chromatography	20.00	

ISO/TC 333 Lithium Engagement Needs

- Increase US industry participation
  - Upstream / extraction / pre-cursors
  - Midstream / manufacturing
  - Downstream / recycling, reuse

- Traceability / Labeling
  - Classification schema

ISO/TC 345 Materials for specialty technologies

Secretariat: AFNOR (France)

Committee Manager: Mme Donia Benider

Chairperson (until end 2029): M Grégoire Jean

Scope: Standardization in the field of specialty metals, minerals and materials from primary and secondary sources used for specialty technologies (e.g., emerging technologies, renewable energy). It includes: terminology, classification, sampling, testing and chemical analysis methods, traceability, packaging and labelling. A list of specialty metals and minerals is included as follows: antimony, beryllium, cobalt, chromium, graphite, niobium, platinum group metals, tantalum, vanadium, zirconium.

Excluded: Finished consumer products; Sustainability issues; Mining, already covered by ISO/TC 82 “Mining”; Metals and minerals already covered by existing ISO technical committees: ISO/TC 18 “Zinc and zinc alloys”, ISO/TC 20/SC 18 “Materials” (under ISO/TC 20 “Aircraft and space vehicles”), ISO/TC 26 “Copper and copper alloys”, ISO/TC 79 “Light metals” (aluminum, titanium, magnesium), ISO/TC 132 “Ferroalloys” (manganese, chrome in ferroalloys), ISO/TC 155 “Nickel and nickel alloys”, ISO/TC 183 “Copper, lead, zinc and nickel ores and concentrates”, ISO/TC 229 “Nanotechnologies”, ISO/TC 298 “Rare earth”, ISO/TC 333 “Lithium”.

- ISO/TC 345/AHG 1 - Platinum group metals
- ISO/TC 345/AHG 2 - Other metals/minerals

ISO/TC 345 Membership

Participating

Australia	SA
Canada	SCC
China	SAC
Colombia	ICONTEC
Denmark	DS
Finland	SFS
France	AFNOR
Germany	DIN
Italy	UNI
Japan	JISC
Netherlands	NEN
Nigeria	SON
Panama	DGNTI
Russian Federation	GOST R
United Kingdom	BSI
United States	ANSI

Observer

Argentina	IRAM
Austria	ASI
Brazil	ABNT
Bulgaria	BDS
Côte d'Ivoire	CODINORM
Egypt	EOS
Indonesia	BSN
Iraq	COSQC
Ireland	NSAI
Norway	SN
Poland	PKN
Spain	UNE
Sweden	SIS
Switzerland	SNV
Thailand	TISI
Uzbekistan	O'ZTTSA

ISO/TC 345 Structure

Secretariat: AFNOR (France)

Committee Manager: Mme Donia Benider

Chairperson (until end 2029): M Grégoire Jean

- **ISO/TC 345/AHG 1** – Platinum group metals
- **ISO/TC 345/AHG 2** – Other metals/minerals

AHG 1 - Platinum group metals:
platinum, palladium, osmium, iridium, ruthenium and rhodium

Resolution/Decision: N028

Scope:

- to discuss the Chinese proposals introduced during the meeting regarding terminology, recycling and analysis and the potential overlap with ISO/DIS 19376-1 “Jewellery and precious metals – Vocabulary – Part 1: Precious metals and units”

- Chinese Convenorship
- Convenor: XIANG Lei Mr
  - Term: 2025-02-01 – 2027-12-31

AHG 2 - Other metals/minerals,
especially cobalt and antimony

Resolution/Decision: N027

Scope:

- focus on gathering the requirements and needs involving other metals/minerals that would be similar to the ones highlighted by the Chinese proposals on Cobalt and Antimony, in particular measurements of majors and traces elements in metal and mineral compounds (ores, powders, ingots etc.).

Chinese Convenorship

Convenor: Lin Ruoxu Mr

- Term: 2025-02-01 – 2027-12-31

Current New Work Item Ballots (1 of 4)

Title:

- Test methods for graphite material – Determination of graphitization

Scope:

- This document specifies the terms and definitions, principles, test procedures, precision, and test reports of the method for determining the degree of graphitization of graphite materials. This document is applicable for determining the degree of graphitization of graphite materials using X-ray diffraction (XRD).

Proposing country: SAC (China)
Project leader: Hu Shuwan

Ballots due by TC 345 member: June 16
First proposed meeting: July 13

Current New Work Item Ballots (2 of 4)

Title:

- Test methods for graphite material – Determination of carbon content

Scope:

- The document specifies a test method for analyzing the carbon content of graphite ore and its products. This document applies to natural graphite ore and its products.

Proposing country: SAC (China)

Project leader: Hou Libing

Ballots due by TC 345 member: June 16

First proposed meeting: July 13

Current New Work Item Ballots (3 of 4)

Title:

- Test methods for graphite material – Determination of trace metal element content

Scope:

- This document specifies the principle, test procedure, precision and test report of the method for the determination of trace metal element content in graphite materials. This document applies to the testing of trace metals (e.g., nickel, cobalt, iron, copper, zinc, manganese and chromium) in graphite materials.

Proposing country: SAC (China)

Project leader: Hu Shuwan

Ballots due by TC 345 member: June 16

First proposed meeting: July 13

Current New Work Item Ballots (4 of 4)

Title:

- N40: Revisions to Strategic business plan

Scope:

- Strategic business plan defines the scope of work for the TC and how the TC will conduct business/develop new standards.

Ballots due by TC 345 member: July 17

Next TC meeting: September 4

ISO/TC 345 Materials for specialty technologies

Engagement Needs

- US industry participation
  - Upstream / extraction / pre-cursors
  - Midstream / manufacturing
  - Downstream / recycling, reuse
- Testing methods
- Traceability / Labeling / Packaging
  - Vocabulary
  - Classification schema

US Engagement with ISO/TC 298, 333, 345

Coordination Opportunities

- Structure of ISO TCs highly aligned
  - Characterization/Testing methods – best practices
  - Traceability/Labeling/Packaging – digital passports
  - Product specifications
- US perspectives
  - Lead, rather than react
- Liaisons can embrace influential roles

Contact Information

John Bonevich

Deputy Chief, Materials Science
and Engineering Division
john.bonevich@nist.gov

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PC 348 Sustainable raw materials; and JG 298/333

Anna Wendt

Research Physical Scientist

U.S. Department of Energy (DoE)

Sallie Greenberg

Principal Owner

Sallie Greenberg Consulting

ISO/PC 348 Sustainable Raw Materials

Presented by: Sallie Greenberg, Sallie Greenberg Consulting

Anna Wendt, DOE National Energy Technology Laboratory

June 25, 2025

Activity Overview

ISO/Project Committee (PC) 348 Sustainable Raw Materials

Secretariat: DIN (Germany)
Chairperson: Dr Michael Haschke*

- Original Scope:
  - "This document specifies criteria for sustainable raw materials along industry best practices and is intended to be used for mineral-, raw iron- and non-iron-metals. It is applicable to the ***full value chain of all raw materials***, from extraction (mining) to processing, to refining, to final product manufacturing, thereby including the full upstream and downstream value chain. It does not apply to the mine closure and/or mine reclamation stage activities as these stages are not considered integral parts of the value chain."
- Project Committee established 2023
  - Concern about overlap with the International Workshop Agreement on Sustainable Critical Mineral Supply Chains (IWA 45) proposed by Standards Australia
- ISO's Technical Management Board (TMB) requested the PC wait to start its work until after the IWA45 report was published so the PC could integrate insights.
- Recommendation from IWA 45
  - "many existing sustainability frameworks … in the upstream and midstream supply chains and the IWA 45 determines that the creation of a new ISO standard in these supply chains is not required."
  - Identified gaps in existing frameworks for the downstream, including circularity, traceability and labelling criteria

Activity Overview Continued

- PC 348 held its first plenary meeting in October 2024
  - Results and Recommendations from IWA 45 presented
  - No need to finalize a strategic business plan
  - Revised title and scope to focus on development of downstream criteria
  - Ad hoc group was established to resolve comments from the CIB scope and to report back to the committee
- Ad hoc group met 4 times from January to May
  - Reopened discussion on whether focus should be on whole supply chain
  - No clear consensus on scope and no resolution
  - AHG decided not to give a recommendation to ISO/PC 348 and instead wrote a statement of facts
- May 2025 Plenary
  - No consensus agreed upon on scope, decision made to draft alternative proposal

Next Steps

- US technical advisory group continues to support the recommendations from IWA 45 to focus on downstream aspect of supply chain
  - One of the major challenges is no consensus on definition of downstream, or full value chain
- Draft Proposal being developed that is consolidating views and integrating the comments from the discussions of the 2nd Plenary, in order to submit a revised proposal to PC 348 (tentative June 2025)
- Recruit additional members

Contact Information

Sallie Greenberg
sallie@thesallieg.com

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TC 82/SC 7 Sustainable mining and mine closure

Kristi Disney Buckner

Law and Policy Director

Initiative for Responsible Mining Assurance (IRMA)

ISO/TC 82/SC 7
Sustainable Mining and Mine Closure

Presented by Kristi Disney Bruckner, Initiative for Responsible Mining Assurance (IRMA)

June 25, 2025

MISSION OF ISO/TC 82/SC 7

To develop International Standards and complementary documents, which when applied, will prevent and mitigate long term mining impacts and create environmental and socio-economic value through the mine closure and reclamation management process.

Activity Overview

- Secretariat: Korean Agency for Technology and Standards
- Created in 2013, first meeting in 2014
- Scope includes standardization of environmental, social and governance aspects of mining to:
  - minimize the negative impacts from mining through its life cycle and transition to post-mining land use,
  - take action to combat climate change and its impacts,
  - develop sustainable benefits and opportunities for local and regional communities,
  - respect community cultural connections to places,
  - adopt a long-term view that ensures inter-generational equity,
  - embrace opportunities for innovation by adopting the principles of the circular economy,
  - enhance transparency of mining practices.
- Excluded from scope:
  - Occupational health and safety aspects related to workplace activities, covered by ISO/TC 283
  - Risk management guidance, provided in ISO 31000
  - Industrial wastewater treatment and reuse, covered by ISO/TC 282/SC4
  - Machinery

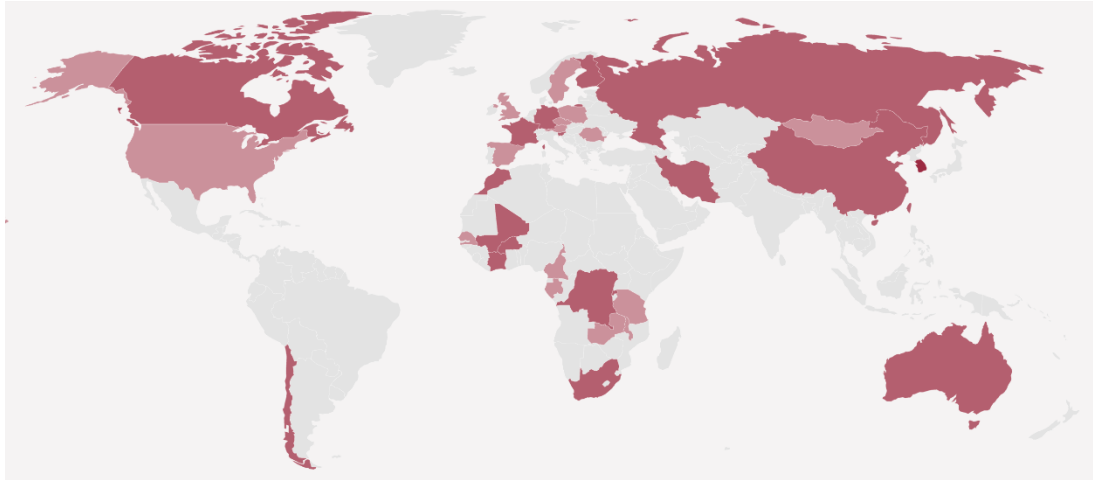
Current Members & Observers

Participating Members:

- Australia
- Burkina Faso
- Canada
- Chile
- China
- Congo, The Democratic Republic of the
- Côte d'Ivoire
- Finland
- France
- Germany
- Iran, Islamic Republic of
- Korea, Republic of
- Mali
- Morocco
- Russian Federation
- Rwanda
- Slovenia
- South Africa

Observing Members:

- Austria
- Cameroon
- Czech Republic
- Gabon
- Malawi
- Mongolia
- Poland
- Romania
- Senegal
- Spain
- Sweden
- Tanzania, Republic of
- United Kingdom
- United States
- Zambia



Liaisons:

- Environmental Coalition on Standards (ECOS)
- European Federation of Geologists (EFG)
- International Council on Mining and Metals (ICMM)
- Initiative for Responsible Mining Assurance (IRMA)
- United Nations Industrial Development Organizations (UNIDO)

5 Published Standards

ISO 20305:2020
Mine closure and reclamation — Vocabulary

ISO 21795-1:2021
Mine closure and reclamation planning — Part 1: Requirements

ISO 21795-2:2021
Mine closure and reclamation planning — Part 2: Guidance

ISO 24419-1:2023
Mine closure and reclamation – Managing mining legacies — Part 1: Requirements and recommendations

ISO/TR 24419-2:2023
Mine closure and reclamation – Managing mining legacies — Part 2: Case studies and bibliography

Standards Under Development

ISO/AWI 8238

Mine closure and reclamation — Social aspects

ISO/DIS 20305

Mine closure and reclamation — Vocabulary

Contact Information

Kristi Disney Bruckner

Law & Policy Director

Initiative for Responsible Mining Assurance

kdisney@responsiblemining.net

https://responsiblemining.net/

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IWA 45:2024 Sustainable Critical Mineral Supply Chain

Kristi Disney Buckner

Law and Policy Director

Initiative for Responsible Mining Assurance (IRMA)

ISO International Workshop Agreement (IWA) 45 Sustainable Critical Minerals Supply Chains

Presented by Kristi Disney Bruckner, Initiative for Responsible Mining Assurance (IRMA)

June 25, 2025

IWA 45 Overview

- Purpose:
  - to support the understanding of the range of sustainability tools available relevant to “sustainable critical minerals supply chains”
  - to address issues in the supply chain and find ways to improve and support sustainability outcomes
- Hosted by Standards Australia

Activity Structure & Engagement

- Included a series of 3 workshops in 2024
  - In-person workshop Feb. 15-16, 2024 in Tokyo, Japan
  - Hybrid workshop April 16-17, 2024 in New York City, USA and virtual
  - Online workshop May 15, 2024
- Meeting summary reports available at https://www.standards.org.au
- Final report available for a fee at https://www.iso.org/standard/87927.html

IWA 45 Report

- Covers the scope of governance, assurance processes and other factors related to identified “sustainability tools” for “critical mineral supply chains.”
- IWA participants concluded that, “while standards and frameworks have a vital role to play in ensuring a sustainable critical mineral supply chain, **it is important to avoid developing new ISO standards that duplicate or conflict with existing sustainability standards**.”
- “The IWA participants found **no market need for another standard in the upstream or midstream segments of the minerals and metals sector.** Instead, future ISO work is needed to explore the gaps that exist within the downstream standards landscape and how to best address them.”
- **Did not assess the effectiveness of existing standards or frameworks** in improving the sustainability performance of their users or how performance was assessed.

IWA 45 Report, cont.

"Above all, it is vital to engage with developing countries, Indigenous peoples and communities impacted by mining, to encourage more stakeholders to participate in developing international sustainability standards, to promote equal, shared governance and decision-making with rights holders and civil society organizations, while boosting training and capacity for vulnerable populations."

IWA 45 Report References to Existing ISO Standards

- ISO 14001, Environmental management systems
- ISO 14002-2, Environmental management systems — Guidelines for using ISO 14001 to address environmental aspects and conditions within an environmental topic area — Part 2: Water
- ISO 14002-4, Environmental management systems — Guidelines for using ISO 14001 to address environmental aspects and conditions within an environmental topic area — Part 4: Resources and waste
- ISO 14046, Environmental management — water footprint – principles, requirements and guidelines
- ISO 26000, Guidance on social responsibility
- ISO 3740, Acoustics — determination of sound power levels of noise sources – guidelines for the use of basic standards
- ISO 45001, Occupational health and safety management systems — requirements with guidance for use
- ISO 21795-1, Mine closure and reclamation planning — Part 1: Requirements
- ISO 21795-2, Mine closure and reclamation planning — Part 2: Guidance
- ISO 26000, Guidance on social responsibility
- ISO 37000, Governance of organizations — Guidance
- ISO 37101, Sustainable development in communities — Management system for sustainable development — Requirements with guidance for use
- ISO 45001, Occupational health and safety management systems — Requirements with guidance for use
- ISO 53800, Guidelines for the promotion and implementation of gender equality and women's empowerment

ISO IWA 45 Participation by Country

- Australia
- Austria
- Belgium
- Brazil
- Canada
- Chile
- China
- Democratic Republic of Congo
- Finland
- France
- Germany
- Haiti
- India
- Italy
- Japan
- Morocco
- Norway
- Republic of Korea
- Russia
- Saudi Arabia
- Singapore
- Spain
- Sweden
- Switzerland
- Uganda
- United Kingdom
- United States

Contact Information

Kristi Disney Bruckner

Law & Policy Director

Initiative for Responsible Mining Assurance

kdisney@responsiblemining.net

https://responsiblemining.net/

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Challenges and Opportunities Discussion

2:30 – 3:45 pm

Challenges and Opportunities Discussion

An open discussion to highlight how U.S. stakeholders perceive the current structure and landscape of these activities and discuss potential actions to inform an effective U.S. strategy in support of international standards for critical minerals.

- What concerns exist regarding scoping of various activities?
- What steps could be taken to resolve concerns or maximize opportunities?
- What U.S. coordination would best support effective U.S. engagement in ISO activities?

Next Steps

3:45 – 4:00 pm

Contact Information

CHRISTINE DeJONG BERNAT
Associate Director,
Standards Facilitation

+1.202.236.7580
cbernat@ansi.org

scan to add phone contact

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