

EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT THE AMS Metals Committees

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WELCOME

Welcome to the AMS Metals Committees. We are composed of 7 committees that create and maintain AMS specifications for metals and metals processes. The members on our committees come from OEMs, government agencies, producers, processors, suppliers, consulting firms, and others across the aerospace and defense industries.

This is a “quick start” guide to the Metals Committees so it does not cover everything. All of the details are in our official operating procedures called the Aerospace Materials Systems Group Organization and Operating Guide (or AMSGOOG because who doesn’t love acronyms?) at

<https://www.sae.org/servlets/works/committeeResources.do?resourceID=600210>

The AMS Metals Group is part of the Aerospace Materials Systems Group of SAE International. For detailed information go to <https://www.sae.org/servlets/works/> where you will find all about the Aerospace Materials Systems Group, the AMS Metals Committees, the Non-Metals Committees, the Additive Manufacturing Committee, and more.

Most of the work takes place inside a series of Committee Forum websites called SAE Standards Works with access restricted to registered committee members. Web forum basics and guidelines for members to access these committee forums are available from Maureen Lemankiewicz at SAE, Maureen.Lemankiewicz@sae.org.

The Aerospace Material Specification process depends on the high quality support we receive from our members. If you are not yet a member of the AMS Metals Group, please consider joining our team. The interchange of ideas, experience, and technology is essential to ensure that Aerospace Material Specifications continue to serve the needs of suppliers, users, and customers of these materials and processes. In addition, you may find a personal opportunity to grow your skills and learn from associating with our network of technical experts!

I hope you find this overview helpful and I look forward to hearing from you to make it even more useful.

Best Regards,

Ken Sabo

Chair, SAE - AMS Metals Committees

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HOW YOU CAN GET INVOLVED

The AMS process is dependent on active participation from materials users and suppliers. If you are a professional in the area of metals technology we invite you to get involved, review draft proposals, provide comments, and sponsor document ballots.

Comment on Ballots

All members of the AMS committee with jurisdiction for a specific document are encouraged to comment on ballots, including suppliers, processors, users, and anyone with technical expertise on the topic. Comments are reviewed, discussed, and resolved prior to publication of each AMS. See [Review of Ballots](#) for more details.

Sponsor Document Revisions and New Specifications

All members of the AMS Committees are encouraged to sponsor projects for revision of existing documents or for creation of new documents. We will help new members with the sponsorship process but it helps to first become active and get some experience in the AMS Metals Committees that you are interested in.

Attend Committee Meetings

All members of the AMS Metals Committees are invited to attend semi-annual meetings in the Spring and Fall to resolve technical issues, launch new projects, and conduct the other business of Committees B, D, E, F, and G. Special sessions are convened for Task Force activities or to share technical findings. The Aerospace Metals Engineering Committee (AMEC) and Aerospace Surface Enhancement Committee (ASEC) each meet separately. The meetings are a great opportunity to network with other metals professionals. Meeting schedules are posted in the public areas of the SAE Standards Works internet forums.

If you would like to become a member of the AMS Metals Committees, contact Maureen Lemankiewicz at the SAE office at Maureen.Lemankiewicz@sae.org and let her know the following:

1. Committee(s) you would like to join
 - B - Finishes, Processes, and Fluids
 - D - Nonferrous Alloys (Aluminum, Copper, & Magnesium)
 - E - Carbon and Low Alloy Steels and Specialty Steels and Alloys
 - F - Corrosion and Heat Resistant Alloys
 - G - Titanium, Beryllium and Refractory Materials
 - AMEC - Aerospace Metals Engineering Committee
 - ASEC - Aerospace Surface Enhancement Committee
2. Status and category of membership you believe is most accurate:

Memberships can be either Voting or Non-Voting status. Both Voting and Non-Voting members receive all communications. The difference is that Voting members are expected to review and vote every ballot, and to sponsor document review projects. Voting membership is limited to one per “engineering entity” (same company and specific location). Non-Voting Members have the option but not the obligation to comment on any ballot they wish. An important point is that **all comments are treated the same regardless of the membership status of the commenter.**

Voting Status Memberships:

- Member - User: is for representatives of companies that are primarily users of AMS documents
- Member - Producer: is for representatives of companies that primarily produce products covered by AMS documents
- Member - General Interest: is for anyone that does not fall into the User or Producer categories

Non-Voting Status Memberships:

- Liaison: Receives all communications including ballots, but not required to review and comment on every ballot.
- Mailing List: Receives meeting notices only.

Once SAE approves committee membership, SAE issues "User ID" and "password" for access to Standards Works.

The Aerospace Material Specification document process depends on the high quality support we receive from our members. Thank you in advance for your contribution of time and talent.

HOW ELSE YOU CAN GET INVOLVED

Maintaining quality documents requires the technical skill, sound judgment, and hard work of each member. In addition to reviewing 28 Day Ballots and 14 Day Affirmations, your expertise is needed to sponsor review of existing AMS documents to ensure continued accuracy. All active documents are required to be reviewed every 5 years. Please consider lending your talents to this activity by volunteering to sponsor Five Year Review of several documents each year.

REVIEW OF BALLOTS

One of the most important way of becoming involved is that of reviewing ballots and providing your comments. This is how our documents get better!

WHO CAN COMMENT

All members of the AMS committee with knowledge of the specific document are encouraged to comment regardless of their voting or non-voting status. All technical comments are required to be addressed in the same way whether from voting or non-voting members. See the page on [how you can get involved](#) for how to join.

HOW TO RESPOND

Ballots are posted to the SAE Standards Works internet forum for review and comment. Each time a ballot is posted an email notification containing a link to the ballot is sent to each committee member.

- **28-Day Ballots** contain proposals for new AMS or revisions to existing AMS that are circulated to committee members. Members have 28 calendar days to respond. Comments from all members are equally valued, but *non-voting status members* are not required to respond to ballots outside their area of expertise.
- **28-Day Limited Scope Ballots** are a type of 28-Day ballot where the review and commenting is limited in scope to only the changes being made. These are often used when a sponsor desires to keep a document progressing in between meetings and a technical change is required to address a comment. This ballot is also used to correct a specific error in an existing document.
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- **14-Day Affirmation Ballots** document the decisions previously approved during a meeting by committee voice vote. These Affirmation Ballots do not require a reply except to disapprove the change.

VOTE COUNT

Each voting status member is expected to respond to every 28-Day Ballot. A balloted document cannot proceed for additional committee action unless a majority of the voting members on the committee respond to the ballot by selecting one of the following radio buttons:

- Approve - Document is acceptable for publication after consideration of any "I" issues.
- Waive - The reviewer does not understand enough about the material/process to make any type of assessment. If you know something about the material/process and have read the document, you are asked to vote Approve or Disapprove.
- Disapprove - Document is not acceptable because of technical problems. Disapprovals **must** be accompanied by "T" comments and suggested wording that would make the document acceptable.

COMMENTS TO BALLOTS

Go to the SAE Standards Works ballot page linked from the notification email you received or directly from Standards Works under the "My Tasks" panel. Select the radio button that indicates the type of comment and type the paragraph number and comment before pressing the **Submit Vote** button.

Comment Types:

- **"T" = Technical** - A technical error, missing requirement, or improper requirement that needs action by the committee and further balloting for implementation. Technical comments must **always** be accompanied by the reason for the comments and a suggested improvement that would resolve the action to your satisfaction. **A Technical Comment by any member acts as a disapproval of the document until that comment is resolved by the committee.**
- **"I" = Informational** - A non-technical correction is required or suggested. These comments may be accepted by sponsor or referred to the Editorial Consultant for action.

HOW A SPECIFICATION GETS REVISED

All specifications are reviewed on a five year basis. With over 2000 AMS documents in the AMS Metals Committees, we typically tackle about 400 per year, or 200 per biannual meeting cycle. If a need for technical change is identified prior to a Five Year Review, or if anyone reports a problem or concern with a specification (regardless of the amount of time since the last revision), the Chairperson of the applicable committee can authorize a project to revise an AMS.

Due to the large number of documents involved, **the revision process for the Metals Committees is different than SAE's baseline process.** We have Editorial Consultants that are employed by SAE and help make sure the documents are maintained consistently. They also initiate ballots in Standards Works, which is often done by the sponsor in other SAE Committees.

AMS rules prohibit downgrading a specification during the revision process. This means that properties (i.e., tensile strength, fracture toughness, etc.) can not be lessened, thereby protecting users who have already designed product relying on the original material or process properties. Changes that create upgrades that impose a significant availability or cost penalty to existing users are also prohibited. In such a case, a new specification would be created with other (lower) properties. Depending on the circumstances, the original document could remain active, stabilized or cancelled.

Summary of the specification revision process

Anyone can request revision of an existing AMS by providing written justification to the Chairperson of the committee with jurisdiction (listed on the final page of each document). However, most revisions begin with the Five Year Review Process. Committee Chairperson authorizes the project and committee members volunteer to sponsor, Editorial Consultant initiate the project.

1. For five year reviews the Editorial Consultant will fill out the New Project Request Form. Can't leave out the acronyms all the time so when a New Project Request Form (NPR) is accepted by SAE it creates a Work in Progress (WIP) entry for the document on Standards Works. For changes to documents outside the Five Year Review, the sponsor should contact the Editorial Consultant to initiate the New Project Record. Editorial Consultant forwards the Sponsor an MS Word draft copy of the document to use for making changes. Prior to this, SAE will have furnished the Editorial Consultant with an MS Word file of the document. The Editorial Consultant will have already edited this document with any previously accepted editorial changes deemed applicable.
2. Sponsor reviews the document for technical accuracy, contacting other producers and users as required. Technical errors/updates, missing requirements, and improper requirements are examples of technical changes requiring ballot and action by the committee. Sponsor shall type these changes into the MS Word file with the Track Changes function turned on. Do not turn off Track Changes, change the font style or use manual editing by adding underlines or strikethroughs. Track Changes will add these marks automatically.
3. Sponsor is required to prepare a [Change Summary](#) form to acquaint reviewers with the revision, including justification for each proposed technical change and notation of which committee(s) should receive a ballot. When filling this form out remember that the committee is made up of a diverse group with different backgrounds. Extra time spent here to explain a rationale for each technical change goes a long way to avoiding "T" comments that can really slow a ballot's progress. The change summary is included with the draft document in the ballot.
4. When changes to material property requirements are being made (for example, an increase in thickness range), a copy of the **AMS Specification Analysis Summary** must also be submitted by the sponsor when applicable, to show support of any proposed mechanical properties. For property changes to aluminum alloys only, also include conformation that temper registration from the Aluminum Association has been completed.

5. Sponsor forwards the **Change Summary** from and the **Draft Specification** to the Editorial Consultant who performs a final check before balloting to the applicable committee(s). The Editorial Consultant may respond back to the sponsor with suggestions and questions regarding the draft.
6. Once finished with editing, the Editorial Consultant uploads both files to the SAE Standards Works webpage for the applicable Work in Progress (WIP).
7. SAE posts the ballot, notifying applicable committee(s) via email containing a URL link to the Standards Works entry for the Ballot. Each **voting status member** is expected to respond; all other members are invited to comment.
8. Committee members post their comments on Standard Works.
9. Sponsors will find it beneficial respond to the comments in Standards Works while the ballot is open so the commenter and other committee members can also benefit. This can allow the document to move forward in between meetings if agreement can be obtained between the Sponsor and Commenters. Please ignore the “Mark Comment as Addressed” button, it is not used by the Metals Committees.
10. Ballot period concludes. A **Summary of Replies** and **Vote Tally** are available at the Standards Works entry.
11. Sponsor works to gather any additional approval votes and resolve any remaining “T” comments – before the next meeting. When a technical change is required in the resolution of a comment a 28 Day Limited Scope Ballot can be initiated with approval from the Committee Chairperson. The editorial consultant should be contacted to initiate this.
12. Sponsor leads resolution of technical “T” comments by discussion and voice vote of members at the semi-annual (Spring and Fall) committee meetings. T comments can also be resolved during balloting (see step 9) or by emails with the commenters in between meetings (see step 11). Informational “I” comments are settled by the Editorial Consultant, with the Sponsor encouraged to provide written guidance to the EC.
13. Editorial Consultants prepare and ballot the technical changes approved at the Committee meeting to applicable committee(s) via 14-Day Affirmation ballots. Extensive changes require a subsequent 28-Day rebalot, this draft to be prepared from previously balloted MS Word file with Track Changes remaining ON.
14. Editorial Consultant prepares the document for balloting to Aerospace Council.
15. SAE Aerospace Council and the document sponsor review and approve the final document prior to publication.
16. SAE publishes the revised AMS document.

The total cycle time to revise an existing AMS can run as short as 3 months or as long as several years, depending on the issues to be resolved, the priority established by the committee, and the efficiency of the sponsor to anticipate problems and resolve concerns while following the above process steps.

**AEROSPACE MATERIAL SPECIFICATION
CHANGE SUMMARY FORM**

Date of This draft:		Editorial Consultant:	
Document No.:		Proposed Rev Letter:	
Title:			
Sponsor:		Phone:	
		Email:	

Description of Change:

	The proposed changes are editorial in nature and are not intended to alter the technical requirements of this specification.
	Changes have been made to the following technical requirements of this specification for the reason(s) cited:
	This is an editorial consultant reviewed document. Please thoroughly review.

For Action (check all applicable)						
B	D	E	F	G	AMEC	
For Information (check as applicable)						
B	D	E	F	G	AMEC	
Special Distribution Information: Sponsors indicate and attached a <i>For Information List</i>						

HOW A NEW SPECIFICATION GETS STARTED

New specifications begin when a need is identified by producers, users, or anyone in the aerospace or defense industry. Emerging materials and processes are best handled by company internal specifications because this provides the flexibility to tailor requirements and testing to meet the needs of each unique application. It is typically during this period that a producer's key processing parameters become firmly established and a sufficient volume of material is produced to statistically assess the key characteristics and properties of the emerging material. For these reasons, a new AMS is not created until the following are established:

- A minimum of 2 aerospace/defense users indicate they would use the new AMS.
- Material property acceptance limits (S basis values) are statistically established, based on a minimum of 30 data points representing at least 3 heats [casts, melts] of material. Data from multiple producers is preferred. Specific requirements are in two documents linked to each Committee's Standards Works page [Determination of Properties for AMS Metals Specifications](#) and [SAE AMS Metals Data Submission Guidelines](#)
- For aluminum only - Alloy and temper registration through the Aluminum Association must also be completed
- Concurrence from the Chairperson of the specific committee of jurisdiction (AMS Committee B, D, E, F, or G)

Summary of the specification creation process

1. Committee Chairperson validates the need for the specification and the maturity of material/process.
2. Chairperson authorizes project
3. Editorial Consultant initiates a **New Project Request Form** on the SAE Standards Works page of the Committee having jurisdiction for the document.
4. Sponsor works with the Editorial Consultant to determine closest applicable model specification to use as starting template. Editorial Consultant requests from SAE an MS Word copy of that document, edited with any previously accepted changes deemed applicable and sends it to the sponsor.
5. Sponsor drafts the new specification. MS Word Track Changes is to be left on while making all changes. The draft is submitted to the Editorial Consultant who will most likely respond with suggestions and questions. Once the Sponsor and EC are in agreement, the Editorial Consultant will prepare the document for balloting by "Accept All Changes", such that the **new document draft** does not contain any strike-thru deletions or underscore additions. The EC adds the committee draft number that will temporarily identify the new document during balloting.
6. Sponsor prepares and sends to the Editorial Consultant a [New Document Summary](#) form which includes justification for the new AMS, identifies at least 2 aerospace users, notes the status of mechanical property substantiation with Battelle, and states which model specification was used as a template.
7. A copy of the **AMS Specification Analysis Summary** must also be submitted by the sponsor when applicable, to show support of any proposed mechanical properties. For aluminum alloys only, also include conformation that temper registration from the Aluminum Association has been completed.
8. Editorial Consultant uploads both the draft and the summary to the SAE Standards Works webpage for the applicable Work in Progress.
9. SAE posts the ballot, notifying applicable committee(s) via email containing a URL link to the Standards Works entry for the 28-Day Ballot. Each **voting status member** is expected to respond; all other members are invited to comment.

The balance of the process is the same as for revised documents.

The total cycle time to create a new AMS document can run as short as 6 months or as long as several years, depending on the maturity of the material/process, the issues to be resolved, the priority established by the committee, and the efficiency of the sponsor to anticipate problems and resolve concerns while following the above process steps.

AEROSPACE MATERIAL SPECIFICATION NEW DOCUMENT SUMMARY FORM

Date of This draft:		Editorial Consultant Name:	
Document No.			
Title:			
Common Name for this Material/Process			
Sponsor Name:		Phone:	Email:

Summary of New Specification:	
X	This ballot proposes a new specification
<p>Name of Chairperson authorizing this project:</p> <p>Date of authorization by Committee/Chair:</p> <p>Model Specification used as template to produce this draft:</p> <p>List at least 2 aerospace users of this material/process who support creating this new specification:</p> <p style="margin-left: 40px;">1)</p> <p style="margin-left: 40px;">2)</p> <p>Status of data submittal and property substantiation by Battelle:</p> <p>Justify the need for this new AMS:</p>	

For Action (*mark only one*)

B	D	E	F	G	AMEC
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For Information (*mark as applicable*)

B	D	E	F	G	AMEC
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AMS Document Categories

The document status categories have changed in the last few years. The Non-Current status can no longer be used and is being replaced with Stabilized. Also, documents can only be cancelled in extraordinary circumstances such as a safety issue. Most of the time documents will be Stabilized instead of cancelled. These and other categories are reproduced from the Aerospace Materials Systems Group Organization and Operating Guide below for convenience.

“ISSUED” indicates those specifications that have been published for the first time and have not yet been revised.

“REVISED” indicates those specifications that are active and have been updated and re-published.

“REAFFIRMED” indicates those specifications that have been reviewed by the Technical Committee and deemed to be current with no need for immediate revision.

“STABILIZED” indicates those specifications that have been frozen at the last active revision level. Stabilized status may be given because the specification content is not expected to change in the foreseeable future, the committee no longer has the expertise, no users can be found, or the using community is moving towards newer technology. See the Aerospace Council Organization and Operating Procedures for a full description of the Stabilized Status. Stabilized specifications require no further review however they may be revised and returned to active status if required.

“CANCELLED” specifications are those that are deemed “not fit for use’ due to a clear safety issue or when its technical requirements are totally superseded by another document. Cancellation should be rare. When a committee determines a need for Cancellation the Chair of the committee must alert the Chair of the Aerospace Council for determination of the appropriateness of the Cancellation prior to the start of the Committee ballot.

AMS Metals Committee Leadership (Spring 2019)

AMS Metals Coordinating Committee

Chair – Ken Sabo, Lockheed Martin Marietta, GA
Past Chair Recent – Kevin Groeneveld
Past Chair Old - Bob Steffen, Raytheon Precision Manufacturing
MMPDS Liaison – Jana Rubadue, Battelle

AMS-B “Finishes, Processes, and Fluids”

Chair – Colister Dickson, Lockheed Martin, Ft Worth TX
Secretary – Brian Streich, Honeywell
Editorial Consultant – Kevin Groeneveld

AMS-D “NonFerrous Alloys” (Aluminum, Magnesium, Copper)

Chair – Allison Warren, Boeing
Secretary – Katrina Boos, USAF
Editorial Consultant – Dennis Evans

AMS-E “Carbon and Alloy Steels”

Chair – Jacque Bader Rolls-Royce Corp.
Secretary – Kevin Rankin, UTAS (will be open starting Spring 2020)
Editorial Consultant – Ron Hahn

AMS-F “Corrosion and Heat Resisting Steels & Alloys (incl. Ni & Co Alloys)

Chair – Rob Riccio, Rolled Alloys
Secretary – Position currently open
Editorial Consultant – Dennis Evans

AMS-G “Titanium, Beryllium, and Refractory Alloys”

Chair – Jeff Calcaterra, USAF (will change to Kevin Rankin, UTAS starting Spring 2020)
Secretary – Michael Parzuchowski, SpaceX
Editorial Consultant – Ron Hahn

AMEC “Aerospace Metals Engineering Committee”

Chair – Lee Gearhart, Moog
Secretary – Kevin Groeneveld
Editorial Consultant – Kevin Groeneveld

SAE Support Staff

AMS Staff Representative - Maureen Lemankiewicz Maureen.Lemankiewicz@sae.org