

# SAE International – Products to Support Trade and Industry (Metals Sector)



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# Overview

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- Today's presentation will discuss various metals-related standards and standards support materials in both the SAE's Aerospace and Ground Vehicle portfolio.



# SAE Aerospace Standards

The SAE AMS Metals Group is comprised of six committees dedicated to creating and maintaining more than **2300** AMS specifications covering metals and metals processes. Five of those committees are categorized by commodity and are dedicated to maintaining specifications. These include:

- **AMS-B Finishes, Processes, & Fluids**
- **AMS-D Nonferrous Alloys (Aluminum, Magnesium, & Copper)**
- **AMS-E Carbon & Low Alloy Steels, Specialty Steels & Alloys**
- **AMS-F Corrosion & Heat Resistant Alloys**
- **AMS-G Titanium, Beryllium & Refractory Materials**

The sixth committee, called the **Aerospace Metals Engineering Committee (AMEC)**, is charged with addressing leading-edge technical issues in the aerospace metals industry.

Participants in the SAE AMS Metals Group:

- OEMs
- suppliers
- processors
- consulting firms
- government

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## SAE Ground Vehicle Standards – Metals Technical Executive Committee (MTEC)

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### Scope

The Metals Technical Executive Committee (MTEC) operates by maintaining four groups: Wrought Products, Cast & Sintered Products, Properties & Processes and Test Procedures. These Groups oversee committees and standards to establish uniform testing and performance procedures that:

- establish a common language for the industry to review materials and processes through standards
- are reviewed and updated on a regular 5-year basis with coordination to other industry specifications, which creates a common interface for discussions

The MTEC shall report to the Materials Processes and Parts Council (MPPC) on a biannual basis.

The subcommittees formed under the committee's direction include:

- **Carbon and Alloy Steels Committee**
- **Metals Test Procedures Committee**
- **Automotive Iron and Steel Castings Committee**
- **Sheet and Strip Steel Committee (J2340 Task Force)**
- **Elevated Temperature Properties of Ferrous Metals Committee**



# SAE Ground Vehicle Standards

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- MTEC:  
<http://www.sae.org/servlets/works/documentHome.do?comtID=TEMMTC>
- Carbon and Alloy Steels Committee:  
<http://www.sae.org/servlets/works/documentHome.do?comtID=TEMMTC1>
- Metals Test Procedures Committee:  
<http://www.sae.org/servlets/works/documentHome.do?comtID=TEMMTC3>
- Automotive Iron and Steel Castings Committee:  
<http://www.sae.org/servlets/works/documentHome.do?comtID=TEMMTC9>
- Sheet and Strip Steel Committee:  
<http://www.sae.org/servlets/works/documentHome.do?comtID=TEMMTC32>
- Elev Temp Prop of Ferrous Metals Committee:  
<http://www.sae.org/servlets/works/documentHome.do?comtID=TEMMTC35>



# Special Compilations

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- SAE Aerospace Standards
  - Special Compilations are all custom-built for the customer
- SAE Ground Vehicle Standards
  - HS-30 – A compilation of 80 (Ground Vehicle-related) standards relating to specifications, testing, and defining ferrous materials.



# Interpretations and Manuals

## **SAE co-publishes the Unified Number System (UNS ) Handbook and Database with ASTM.**

- Provides a means of correlating many internationally used metal and alloy numbering systems administered by societies, trade associations, and those individual users and producers of metals and alloys. It provides the uniformity necessary for efficient indexing, record keeping, data storage and retrieval, and cross-referencing.

The **Unified Numbering System on the Web** provides convenient online access to more than 5,000 designations in an international identification system for metals and alloys.

- For each UNS, descriptions, chemical compositions, and cross reference specifications are provided. UNS on the Web also contains thousands of common trade names from both U.S. and non-U.S. sources. To keep you current, UNS on the Web will be updated with any new or revised data.
- The web subscription also includes an enhanced search function, offering users the ability to search by UNS number, Description ,Common trade names and alloy designations, cross-reference organization, Cross-reference specifications, chemical composition
- Cross-references include specifications from these organizations: AA (Aluminum Association) Numbers, ACI (Steel Founders of America) Numbers, AISI (American Iron and Steel Institute), AMS (SAE Aerospace Materials Specifications) Numbers, ASME (American Society of Mechanical Engineers) Numbers, ASTM (American Society for Testing & Materials) Numbers, AWS (American Welding Society) Numbers, QQ (Federal Specification Numbers), MILS (Military Specification Numbers), SAE (SAE International) "J" Numbers



# Research Papers

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- SAE publishes several metals-related Aerospace Information reports (AIRs) including:
  - AIR4394 Vacuum Investment Cast PH13-8mo Corrosion Resistant Steel—Issued July 1, 1991.
  - AIR4127 Steel: Chemical Composition and Hardenability—Issued November 19, 2007.
  - AIR4279 Heat Up Time—Issued May 1, 1995.
  - AIR4498 Aus-Bay Quenching of 300m Steel—Issued April 1, 1993.
  - AIR5065 Influence of Grain Flow on Bolt Integrity—Issued August 1, 1999.



# Translations

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- SAE has translated two (2) metals-related AMS documents into Russian:
  - ARP982C Minimizing Stress-Corrosion Cracking in Wrought Titanium Alloy Products (SAE AMS-G Titanium and Refractory Metals)
  - ARP1110A Minimizing Stress Corrosion Cracking in Wrought Forms of Steels and Corrosion Resistant Steels and Alloys (SAE AMS E Carbon and Low Alloy Steels)




# Training Courses

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 Metal Corrosion and Its Prevention

 Metal Forming

 Aluminum by Choice, Manufacturing  
by Design: The Evolving World of  
Aerospace Aluminum  
Telephone/Webcast



# Questions?

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- Thank you for your attention!