



ASTM INTERNATIONAL
Additive Manufacturing Center of Excellence

Consortium for Materials Data and Standardization (CMDS)

Companies from across a broad range of industries need to develop extensive material datasets in order to confidently implement Additive Manufacturing into the design and production of future products. Complete datasets required for part design and production control can cost upwards of \$1M for one material dataset depending on the properties of interest. The CMDS brings together key organizations to standardize the requirements and best practices for materials data generation and creates shared high-pedigree “reference” datasets to greatly reduce the cost to each member organization.

To join, please contact **Richard Huff**
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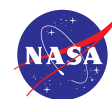
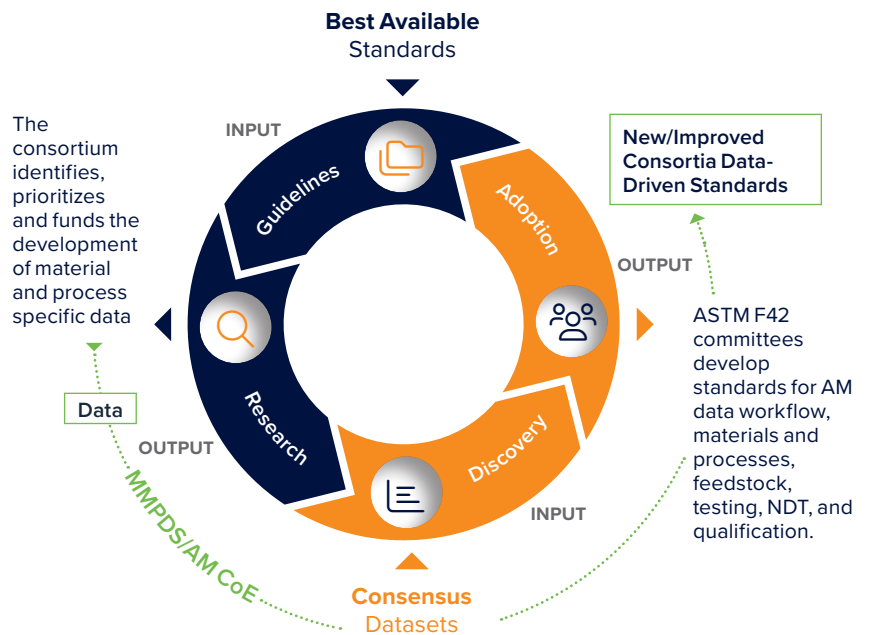
Industry Member Value

- Creating extensive materials and process datasets with a minimum target of 10:1 ROI for members
- Stay on the forefront of requirements and best practices for generating high-pedigree trusted data through interactions with ASTM and regulatory authorities
- Increasing number of AM materials/modalities projects each year as consortium grows
- Member only access to full material Process-Structure-Property database, establishing methods for determining data equivalency and developing physics based, probabilistic and AI models

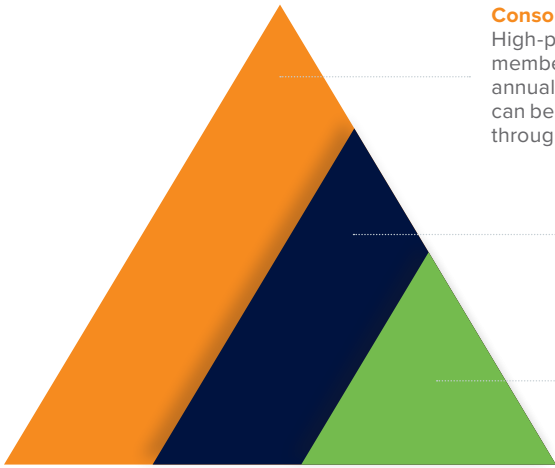
AM Community Value

- Accelerate development of new and improved industry standards using robust machine-agnostic data
- Identify Key Process Variables and quantify sources of variations
- Transfer lessons learned to standards to drive consistency of data generation throughout industry and academia
- Optimized data generation workflows for automation, from capture, ingestion, curation, and analysis to maximize learning at minimal costs
- Support improved real time Quality Assurance through probability of defect occurrence approaches based on consortium datasets

The ASTM CMDS works with the standards community to address the need for new and improved data-driven standards.



Building and Maintaining Database for Member Use



Consortium Endorsed Database

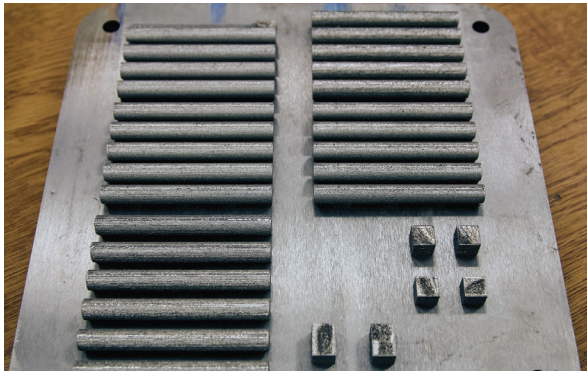
High-pedigree AM materials database with consortium member-only access. Data will be created through either annual consortium member selected projects, or existing data can be submitted and evaluated against the requirements set through consensus to assign the pedigree before including.

Dataset Consensus

At the core of the ASTM CMDS is the drive to create quality datasets and establish requirements for inclusion in the consortium database and ASTM standards. ASTM CoE will use existing links to relevant bodies such as MMPDS and CMH-17.

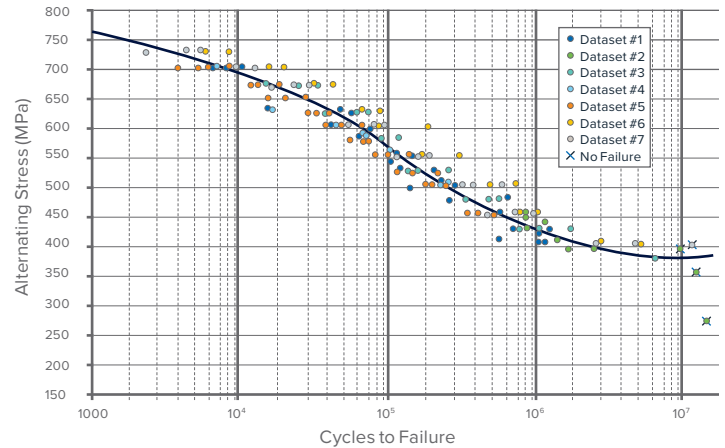
Fundamentals

The ASTM CMDS will leverage existing standards, develop best-practices and create guidelines for AM data creation, analysis and management. The Consortium will allow the sharing of lessons learned, and link closely with Academia, Industry, and Authorities.



Consortium Member Activities

Each year, consortia members select and execute materials and process data generation projects. Process-Structure-Property relationships, defect probabilities and allowables, and application specific design properties (e.g. static, cyclic, thermal) are determined. While research output inform new AM standards development through F42 committees, members retain exclusive use of the full datasets to support their business.



Activities

In addition to ongoing projects, the consortium hosts member meetings twice a year. (Meetings may be set in conjunction with ASTM meetings) Members are also encouraged to participate in work groups to provide guidance and direction during the execution of projects.

The ASTM CMDS is an extension of the ASTM Additive Manufacturing Center of Excellence (AM CoE), which brings together industry, government, and academia to coordinate R&D that supports AM standards development, related education training, and more.

Five Reasons to Join the ASTM CMDS

1

Leverage R&D and material dataset creation expertise from the AM CoE and a large member base representing the entire AM value stream.

2

Unique, first of its kind direct relationship between standard development, industry, academia, government and research organizations.

3

Close collaboration with MMPDS (MoU with ASTM), CMH-17, NIST and other international influencing agencies which provide guidance on material data generation requirements and data reduction methods to the consortium.

4

Opportunity for direct access and to influence ASTM and other external funded research programs focused on developing materials data and knowledge that will influence future industry standards and requirements from various regulatory agencies.

5

Ability to positively impact your supply chain through data-driven AM standards while preserving a unique role for your organization.

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