SUPPORTING

SYNERGY

2021 ANNUAL REPORT

MTI Materials Technology Institute

VISION

A global network recognized as the preferred source of material technology solutions for industrial process companies.

MISSION

MTI maximizes member asset performance by providing global leadership in materials technology for industrial processing companies to improve safety, sustainability, reliability and profitability.

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SOLID **SYNERGY**

In 2021, MTI and its members felt the lingering effects of the global pandemic with some restrictions slowly lifting. Faced with the new challenge to run meetings and continue delivering benefits in a hybrid format, the MTI Board, staff and planning teams responded with a solid synergy to provide opportunities for member networking, learning and project development.

The same synergy could be felt among the members as they worked together virtually and in person on global project ideas and began work on six new projects, including the review of results, training content, literature and more, and together wrapped up 11 projects to help members save time and resources. This MTI method of collaboration has stood the test of time – nearly 45 years, in fact – maintaining a solid synergy throughout the organization to continue delivering industry solutions.

Thank you to the Board of Directors, TAC Leaders, Designated Representatives, TAC Representatives, Project Champions and all members for your participation to support SYNERGY at MTI!

MTI Materials Technology Institute

REPORT OF THE CHAIR
BOARD OF DIRECTORS

"MTI moved into what we hope is a post-pandemic world and a return to more of our "old" normal way of working"

Greetings and I hope this Annual Report finds you and your loved ones healthy and safe in these times, which continue to challenge our world. I am again pleased to present the Materials Technology Institute Annual Report for 2021 on behalf of your Board of Directors.

The MTI Board and MTI Staff worked diligently throughout 2021 as MTI moved into what we hope is a post-pandemic world and a return to more of our "old" normal way of working. I am indebted to both groups and want to thank them for their contributions and delivering value to MTI's Membership.

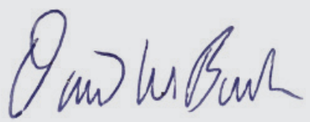
2021 saw a return to what I continue to believe is one of MTI's most important member benefits—face-to-face meetings. All three Technical Advisory Councils were able to hold at least one in-person meeting with AmeriTAC able to hold two. While attendance was not up to pre-pandemic levels, I was heartened to see members willing to come out and engage with their fellow members.

You will find more details in the Executive Director's report, but I wanted to include my own emphasis of three points. First, MTI is financially very sound. There are funds available to do more projects yet at the same time the Board has managed to keep member dues below the 2019 level. MTI staff deserves credit for continuing to control costs. Second, MTI continued to both complete projects (eight in 2021) and approve new projects (five in 2021), thus creating another key value delivery to Membership. Third, it is your participation and engagement that continues to drive MTI. Without your participation MTI projects and publications don't happen. I strongly urge all members to join at least one project of particular interest to your organization.

2021 resulted in a few staff changes. Executive Director Paul Whitcraft informed the Board of his intention to retire. A search committee of the Board was led by Board Vice Chair Deb McCauley. After a thorough search, Associate Director Heather Allain was recommended to the Board and the Board voted to hire Heather. I expect a large majority of our members are aware of Heather's accomplishments as an Associate Director. Her experience with MTI positions her well for future success and I'm confident that she will perform adeptly.

Dale Keeler was hired as an Associate Director to replace Pradip Khaladkar, who also retired in 2021. Many thanks to Pradip for his numerous contributions to MTI both as a member and as a Director. Additional Associate Director hirings were set in motion to fill the vacancy from Heather's move as well to replace Patrice Houlle who will retire in 2022. MTI is indebted to Patrice for his contributions to develop EuroTAC into the very active TAC it is today.

As I said in last year's report, I'm very thankful for the opportunity to serve the Membership. The collaborative Board you have elected does an outstanding job and makes the Chair role much easier. I am very optimistic that MTI can get back to our traditional schedule of face-to-face meetings and that I can greet as many of you as possible.



David Barber
Chair, MTI Board of Directors

BOARD OF DIRECTORS

David Barber
Chair
Dow

Bill Bieber
Webco Industries, Inc.

TP Cheng
AsiaTAC Chair
BOD Ex-Officio
ITRI

George Donald*
NOVA Chemicals

Anette Hansson
EuroTAC Chair
BOD Ex-Officio
Haldor Topsoe A/S

Dale Heffner
Electro Chemical Engineering & Manufacturing Company

Curtis Huddle
Eastman Chemical

Srini Kesavan
FMC Corporation

Debra McCauley
Vice Chair
Chemours

Jeremy Nelson
AmeriTAC Chair
BOD Ex-Officio
Koch Industries

Meghan Oaks
BASF

Maria Jose Landeira Oestergaard
Haldor Topsoe A/S

Andrew Rentsch
AmeriTAC Vice Chair
BOD Ex-Officio
Huntsman

Maurice Wadley
DuPont

Charles Young
Tricor Metals

Nina Young
Chevron Phillips Chemical Company

Members of the Board of Directors (BOD) function as the keepers of MTI's strategic objectives. They provide consistent, valuable input, while maintaining the MTI mission. BOD Members serve as non-biased leaders to help make decisions that balance the needs of member companies and representatives with those of the overall organization. Members of the Board of Directors represent the interest of all people serviced by MTI.

*Retired November 2021

LETTER FROM THE **EXECUTIVE DIRECTOR**

"MTI remains financially strong and showcases our core membership and staff stability that is critical to our future growth."

MTI enjoyed a productive and very successful year in 2021 despite the continued challenges of the pandemic. Each of our three Technical Advisory Councils managed at least one face-to-face meeting, although all three began the year with virtual meetings. Our members were able to complete some ongoing projects, initiate new projects and exchange ideas on many new project concepts. MTI remains financially strong and showcases our core membership and staff stability that is critical to our future growth.

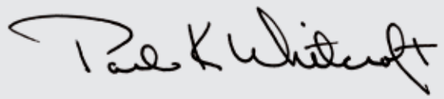
Using MTI's member resources to finance projects structured toward solving problems or developing information for the common good of the process industries was a fundamental reason for MTI's creation. 2021 saw several very significant projects reach their conclusion. The initial project on the NDE of High Temperature Hydrogen Attack began in 2017 and resulted in successfully defining the test parameters necessary to reliably detect hydrogen damage. Two additional follow-on projects will be completed in the first half of 2022. The results of these projects will facilitate the prediction of remaining life in process equipment.

The book on Reactive and Refractory Metals was also published. This was a five-year effort involving experts both outside of and within MTI. It offers invaluable guidance on the fabrication, use and repair of titanium, tantalum, niobium and zirconium process equipment.

All told, MTI members and staff completed eight projects in 2021. Work continues on the remaining active funded projects, of which five were newly funded in 2021 at a total of $314,000. At year end, there were more than six projects in the works for funding approval in 2022.

Through it all, MTI has remained financially strong. In recognition of the impact of the pandemic, the Board of Directors issued a 10% discount on the 2021 dues schedule. The members then authorized a 5% increase over the discounted 2021 dues for 2022, with the intent of partially returning to prior levels. However, in recognition of the lingering effects of COVID, the Board of Directors again discounted the approved dues by 2%. For 2023, dues have been increased by 3% over the discounted 2022 dues such that the actual dues for 2023 will be about 1% over those of 2019. We have been able to manage dues to these lower levels because of savings from fewer face-to-face meetings and the thoughtful management of administrative costs.

On a personal note, by the time this Annual Report is finalized, the leadership of MTI will have been placed in the very capable hands of Heather Allain. It was my pleasure to serve as your Executive Director for more than five years. I am very grateful to our members and particularly to the MTI staff for their support, innovation and determination to optimize the MTI experience for all members. I wish the very best to all of you.



Paul Whitcraft
Executive Director

MTI DIRECTORS AND STAFF

Heather Allain
Associate Director

Robert Freed
Associate Director

Patrice Houlle
Associate Director, Europe

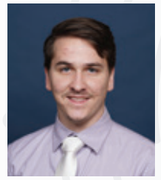
Dale Keeler
Associate Director

Byron Keelin
Director of Operations

Pradip Khaladkar*
Associate Director

Paul Liu
Associate Director, Asia

Christine Matthes
Accounting & Project Controller



Daniel Rasmussen
Membership Communications & Marketing Manager

Kirk Richardson
Director of Marketing & Sales

Lindsey Skinner
Director of Communications

Paul Whitcraft
Executive Director

MTI FELLOWS

Steve Springer – 2021
Robert Sinko – 2020
Gary Whittaker – 2016
Gene Liening – 2016
Emory Ford – 2015
Pradip Khaladkar – 2014
James M. Macki – 2011
William C. Fort III – 2010
W.B.A. (Sandy) Sharp – 2006
Robert A. McTamaney – 2006
Greg Kobrin – 2005
George Elder – 2004
Warren Pollock – 2004
Robert Puyear – 2002
Sheldon Dean – 2001
Paul Dillon – 2001
Galen Hodge – 2001
Bert Krisher – 2001

*Retired December 2021

MEMBER **BENEFITS**

For nearly 45 years, MTI and its members have pooled together time and expertise to create a wealth of critical industry information. In addition to the primary benefit of projects, becoming a member gives your company access to decades of research, instant access to industry experts, and recent reports and findings that can be applied to some of today's most pressing processing industry challenges.

TECHNICAL COMMUNITY

The MTI Technical Forum serves as a one-stop shop for immediate expert analysis. It is largely looked upon as one of the most essential member benefits. Our engaged community offers rapid and reliable solutions to crucial questions in real-time. Tapping into some of the greatest minds in the world in their respective niches gives your company the unique opportunity to connect with the processing industries' best. Decades of Forum posts and responses are also archived and available to search in the Forum community, allowing members access to decades of critical information. This benefit alone can provide substantial value and make it well worth becoming an MTI member.

COMMUNITY CONNECTIONS

The ability to reach multiple experts on a wide range of technical subjects and to quickly receive trusted information is often looked upon as a primary member benefit. MTI's community-based website is equipped with the technical Forum, project team communities, online Mentor Match program and a searchable MTI directory, which allows access to a global network of knowledgeable materials technologists and facilitates rapid communication. Among our ranks are some of the world's foremost leaders in the realm of materials science as it applies to the process industries.

EDUCATION OFFERINGS

Beyond our numerous online community benefits, MTI provides ample opportunities for members to network and engage in virtual and face-to-face events geared toward finding solutions to today's industry challenges. Thousands of knowledgeable members and subject matter experts have attended our niche roundtables, global TAC meetings, educational training sessions and webinars, seminars and facility tours. These professional development solutions are often custom designed for members and focused on specific industry challenges and topics.

ONLINE TECHNICAL RESOURCES

The MTI website and Technical Resource Library includes extensive, dependable knowledge in the form of books, technical bulletins, reports, presentations, webinars on-demand and recorded training videos. The expanding archive of technical information is included with MTI membership. Books are made available to members 18 months before the general public, keeping members up-to-date and ahead of the curve. The vast MTI Library also has comprehensive search capabilities, giving members quick access to topics such as materials selection and stability, aging plant maintenance, corrosion, exciting new inspection methodologies and much more!

2021 AT A GLANCE

TECHNICAL COMMUNITY

POSTS & REPLIES: **633**

- 114 Posts
- 519 Replies
- Topic with Most Replies: Mechanical Leak Clamp Philosophy – 43
- 87 Posts received more than 2 replies
- 34 Member Companies posted seeking solutions and guidance

COMMUNITY CONNECTIONS

9 Resource Communities
27 Potential Project Teams
8 Project Development Committees
14 Funded Project Teams
1784 Members in the MTI Global Network

EDUCATIONAL OFFERINGS

120+ Hours of Technical Content/Training
3 Virtual TAC Meetings
4 Hybrid TAC Meetings
2 Roundtables – Virtual and Hybrid
4 Technical Webinars
2 In Person Training Seminars
1186 Attendees

TECHNICAL RESOURCES

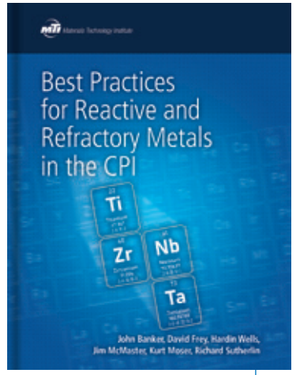
- Search **800+** documents in the Technical Resource Library upgraded in 2021
- Discover **19** Technical Webinars on-demand
- Access **20+** publications in the member bookstore available as Print on Demand

MTI's founders designed the organization to multiply their return on investment by sharing the cost of non-proprietary research projects. That time-tested formula continues to work today with synergy, as members not only help fund these important activities but actively contribute to their success as Project Team participants. In 2021, MTI funded five projects, wrapped up eight projects globally and continued collaboration on more than 15 active projects, all which will generate answers to help solve some of today's toughest materials engineering challenges.

SYNERGY LEADS TO SUCCESS

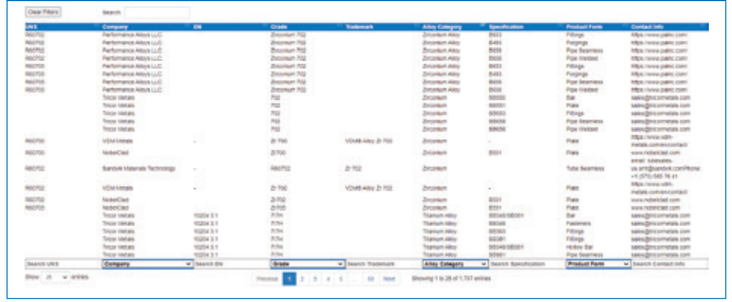
Project Development and Completion Keep MTI Moving Forward

Of the projects concluding, after several years of ongoing work, Best Practices for Reactive and Refractory Metals in the CPI is possibly the most notable. According to Project Co-Champion, Hardin Wells (Albemarle), this book is capturing an incredible range of experiential and even anecdotal information related to the use of reactive metals, which ranges from materials selection to equipment specification, design, sourcing, and fabrication, as well as inspection, quality controls, and failure analysis. Thanks to the diligent efforts of the Project Champions and staff, the book is now complete and available in the bookstore as well as the MTI online Technical Resource Library.



Another new resource has been provided as a result of the Who Makes What 2 Project to create a database of available alloys in various product forms. According to Co-Champions Karen Picker (Sandvik) and Bill Bieber (Webco), the final deliverable is a simple database that was developed as a tool for producers to find the production capability and availability of many different alloys produced by MTI supplier member companies. The database is searchable and will be maintained by MTI staff. The data should help in sourcing required products primarily by product form, alloy, or UNS number. The project team expects it should benefit producer members and their purchasing departments as well as help train younger engineers, while supplier members benefit by listing what they can supply.

WHO MAKES WHAT DATABASE



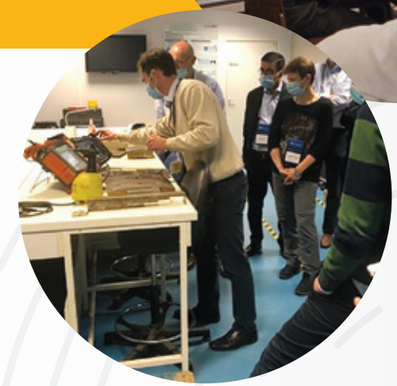
Several other projects concluded with final reports and required further research (see pages 23-25 for details). These are being followed up with additional phases and created as new projects, which will undoubtedly develop with the same synergy as the successful projects developed and completed in 2021.

PARTICIPATION AND NETWORKING AT THE HEART OF MTI

Members are always encouraged to join in at MTI. The limitations at the beginning of the year were slowly lifted due to the lingering effects of COVID, but that didn't prevent the spark of synergy among members around project work, training sessions, meetings and making connections virtually before moving to a hybrid format. Members attended, shared knowledge, networked and worked together to keep the organization moving forward.

MTI supported members with more opportunities to learn and engage through TACs, Roundtables, Webinars and Training Programs. In total, nearly 1200 individuals participated online or attended 15 different event offerings.

TAC MEETINGS



AmeriTAC 134
ADDITIVE MANUFACTURING ROUNDTABLE
- Virtual
- February 22-24
- 56 Member Companies Participated

AmeriTAC 135
KNOWLEDGE ROUNDTABLE
- Hybrid | Louisville, KY
- June 21-23
- 42 In-person Attendees
- 52 Virtual Attendees
- 47 Member Companies Participated

AmeriTAC 136
- Hybrid | Atlanta, GA
- October 25-27
- 57 In-person Attendees
- 52 Virtual Attendees
- 47 Member Companies Participated

AsiaTAC Spring 2021
- Virtual
- April 7-8
- 32 Member Companies Participated
- 100 Registrants

AsiaTAC Fall 2021
- Hybrid | Shanghai, China
- November 10-11
- 11 Member Companies Participated
- 23 In-person Attendees
- 16 Virtual Attendees

EuroTAC Spring 2021
- Virtual
- 79 Registrants
- May 18-19
- 32 Member Companies Participated

EuroTAC Fall 2021
NON-DESTRUCTIVE EVALUATION SEMINAR
- Hybrid | Villepinte, France
- October 12-14
- 20 In-person Attendees

Dual Laminate Training
- In-person | Baton Rouge, LA
- November 9-10
- 66 Attendees

WEBINARS

333

TOTAL WEBINAR ATTENDANCE

Webinars are recorded for on-demand use. Visit www.mti-global.org > Resources for more information.

Polymer Based Materials for Chemical Handling Past, Present and Future
DATE: APRIL 16
Instructor: Pradip Khaladkar, MTI Fellow
75 Attendees

Optimized Heat Treatment to Improve Cold Toughness
DATE: MAY 25
Instructor: Shane Turcott - P.Eng., M.A.Sc.
56 Attendees

Ultrasonic Array Techniques for Detection, Characterization and Sizing of High Temperature Hydrogen Attack
DATE: SEPTEMBER 9
Instructor: Dr. Mark Lozev, Becht
105 Attendees

Effective Use of Duplex Stainless Steel in Storage Tanks and Pressure Vessels
DATE: DECEMBER 14
Instructor: Claes Tigerstrand, Outokumpu
97 Attendees

TECHNICAL ADVISORY COUNCIL (TAC) REPRESENTATIVES

The Technical Advisory Councils – AmeriTAC, AsiaTAC and EuroTAC – are comprised of one representative from each member company. TAC Representatives are responsible for the distribution of MTI information and products and provide representation at regional TAC meetings. TAC meetings are organized and conducted by chairs and vice chairs elected from each region.

TAC LEADERSHIP

AmeriTAC
Jeremy Nelson, Chair
Koch Industries, Inc.

Andrew Rentsch, Vice Chair
Huntsman

AsiaTAC
Tzu-Ping Cheng, Chair
ITRI

Alex Chen, Co-Vice Chair
Dow

Masao Nakahara, Co-Vice Chair
Asahi Kasei Corporation

EuroTAC
Anette Hansson, Chair
Haldor Topsoe A/S

Lars Rose, Vice Chair
DuPont

TAC Reps by Company

Advansix
Tiffany New-Courtney [1,2,3]
Senior Reliability Engineer

Air Liquide
Jader Furtado [1]
R & D International Expert – Physical Metallurgy

Chen Ren [2]
R & D International Expert – Physical Metallurgy

Sophie Wastiaux [3]
Asset Integrity Management

Air Products and Chemicals, Inc.
Minfa Lin [1,3]
Senior Principal Research Engineer

Ryan Yang [2]
Materials Engineer, Asia

Albemarle
Shantie Kapoerchan [3]
Reliability & Inspection Engineer

Hardin Wells [1,2]
Fellow – Mechanical Tech Service

ARKEMA
Carlos Alvarado [1]
Corrosion Principal Materials and Reliability Specialist

Renaud Veslin [3]
Material and Corrosion Referent

Asahi Kasei Corporation
Masao Nakahara [1,2,3]
Senior Reserarcher, Plant Engineering Center

Ascend Performance Materials
William Paden [3]
Principal Corrosion & Materials Engineering Specialist

Xiaowei Ren [1,2]
Materials and Corrosion Engineer

BASF Corporation
Natalie Gelder [3]
Materials Engineer Technical Inspection & Materials Engineering & Maintenance

Ben McCurry [1]
Materials & Inspection Engineer

Guangbin Rao [2]
Materials Engineer

Becht
Jeremy Staats [1,2,3]
Assistant Manager – Refining Corrosion and Materials Engineer

BP
Thomas Eason [1,2]
Inspection Manager

Frederic Tabaud [3]
Principal Engineer Materials and Corrosion

Chemours
Jay Schickling [1,2,3]
Principal Consultant – Ceramics and Refractories

Chevron Corporation
Maricela Johnson [1,2,3]
Materials Engineer

Chevron Phillips Chemical Company
Nina Young [1,2,3]
Sr. Corrosion & Materials Engineer

ConocoPhillips
Kelly Puzak [1,2,3]
Welding / Metallurgical Engineer

Corrosion Materials
Jacob Rodriguez [1,2,3]
Technical Sales Engineer, Metallurgist

Corteva Inc.
Ajit Mishra [1,2,3]
Materials Engineering Consultant

Dow
Alex Chen [2]
Senior Reliability Manager

Marc Cook [1]
Materials Specialist

Evelyn Dayss [3]
Materials Engineer

TAC **REPRESENTATIVES** CONTINUED

DuPont Company
Lars Rose [3]
Maintenance Manager
Maurice Wadley [1,2]
Materials Engineer

Eastman Chemical Company
David Cole [1]
Materials Engineer
Will Hoskins [2,3]
Materials Engineer

Electro Chemical Co. – Superior Dual Laminates
Dale Heffner [1,2,3]
Vice President

Enerfab
Kelly Wyrough [1,2,3]
Technical Sales

Equity Engineering Group, Inc.
Kenneth Kirkham [1,2,3]
Principal Engineer

ExxonMobil Research and Engineering Company
Ser-Hor Chong [2]
Materials Engineer
John Houben [3]
Discipline Team Leader; Fabrication, Welding, Surface Engineering
Ivan Morales [1]
Discipline Technology Lead - Materials

Fluor
Cathleen Shargay [1,2,3]
Materials and Welding Engineer

FMC Corporation
Srini Kesavan [1,2,3]
Principal Engineer – Materials

Haldor Topsoe A/S
Maria Jose Landeira Oestergaard [1,2]
Senior Manager – Mechanical Department
Anette Hansson [3]
Materials Specialist

Haynes International Inc.
Dior Chen [2]
Sales Engineer
Vinay Deodeshmukh [1]
Senior Staff Engineer
Klaus Ohla [3]
Marketing

Huntsman Corporation
Maarten Langbroek [3]
Materials Technology Engineer
Andrew Rentsch [1,2]
Materials Engineer

Industeel–ArcelorMittal
John Grocki [1]
Materials Consultant
Sandra Le Manchet [2,3]
Corrosion Resistant Alloys – R&D and Marketing

ITRI
Tzu-Ping Cheng [1,2,3]
Technical Director

Koch Industries, Inc.
Jeremy Nelson [1,2]
Fixed Equipment Engineer
Thierry Uilenburg [3]
Materials Engineer

Linde
James White [1,2,3]
Associate Director

LyondellBassell
Yingzi Chen [1,2]
Principal Materials and Corrosion Engieer
Christoph Hantsch [3]
Mechanical Engineer/EWE

MISTRAS Group [1,2,3]
Jim McVay
Principal Advisor – Mechanical Integrity, Metallurgy & Corrosion

Neotiss
Mathieu Lheureux [3]
Technical Sales Manager
Wendy McGowan [1,2]
Senior Manager, Business Development

New Castle Stainless Plate, LLC
Tony Palermo [1,2,3]
Regional Manager

Nickel Institute
Gary Coates [1]
Technical Manager
Philip Song [2]
Manager China
Benoit Van Hecke [3]
Market Development Manager

NobelClad
Young Shin Choi [2]
Sales Manager
Olivier Sarrat [3]
Business Development
Edgar Vidal [1]
VP of Marketing & Business Development

NORAM
David Clift [1,2,3]
Senior Project Engineer

Nouryon
Ed Naylor [1]
Senior Materials Engineering Associate
Jan Van de Wetering [3]
Expertise Head – Corrosion Engineering
Wei Zhang [2]
Leader of Quality Inspection

NOVA Chemicals
George Donald [1,2,3]
Metallurgist

Outokumpu, Inc.
Rodrigo Faveret Signorelli [1,3]
Technical Manager
Chang-Ching Sun [2]
Market Development Director / BA

P.A., Inc.
Otis Galloway [1,2,3]
President

Pfaudler, Inc.
Lisa Desai [1,2,3]
Director of Technology Sales, Americas

Plymouth Tube Co.
John Woodward [1,2,3]
Power-Process-Market and Technical Development

RathGibson
Jim Baumann [1,2,3]
Director – CPI Sales

RL Industries
Brian Linnemann [1,2,3]
VP Operations

Rolled Alloys
Marc Glasser [1,2,3]
Director of Metallurgical Services

SABIC
Abdulmohsin Alsahli [1,2,3]
Engineer

Sandvik Materials Technology
Vikram Pandit [2]
Technical Marketing Manager
Marcelo Senatore [1,3]
Technical Marketing Manager

Schmidt+Clemens GmbH+Co KG
Dietlinde Jakobi, Dr. [1,2,3]
General Manager – Research & Development Services Centrifugal Casting Division

Shell
Jorge Penso [1,2]
Senior Inspection and Integrity Engineer
Jan Vonk [3]
Senior Materials & Corrosion Engineer

Sitech Services
Peter Janssen [1,2,3]
Corrosion & Materials Engineer

Stress Engineering Services
Derrick Rogers [1,2,3]
Business Development Leader

Syncrude Canada Ltd.
Michael Anderson [1,2,3]
Area Leader – Reliability & Performance Improvement

TITAN Metal Fabricators
Larry Haubner [1,3]
Vice President of Sales and Marketing
Sanghyuk Lee [2]
General Manager

Titanium Fabrication Corp.
Greg Dunn [1,2,3]
Vice President, Sales & Marketing

Tricor Metals
Charles Young [1,2,3]
Business Development Manager / Metallurgist

VDM Metals International GmbH
Helena Alves [2]
Area Leader – Reliability & Performance Improvement
Bao Jun Li [2]
Managing Director, China
Sereibot Yem [1]
Senior Applications Engineer

Victaulic
Daniel Christian [3]
Director – Power Market Sales Europe – Middle East – India
J Michael Griffin [1]
Director Engineering, Materials Technology
Shuo Peng [2]
Manager, Asia R & D Center

Ward Vessel and Exchanger
Adam Renstrom [1,2,3]
Regional Sales Manager

Webco Industries, Inc.
Bill Bieber [3]
Director Business Development
Yong-Joo Kim [1,2]
Vice President Process & Product Innovation

Yara International
Lin Dring [1,2,3]
Principal Materials Engineer

(1) **AmeriTAC** (2) **AsiaTAC** (3) **EuroTAC**

DESIGNATED REPRESENTATIVES

Designated Representatives (DRs) function at the official member company delegate in matters of organizational voting and dues, and serve as the primary contact at the member company.

Abdulmohsin Alsahli
SABIC
Engineer

Helena Alves
VDM Metals International GmbH
Senior Vice President Research & Development

Michael Anderson
Syncrude Canada Ltd
Area Leader – Reliability & Performance Improvement

David Barber
Dow
Engineering & Maintenance Principal, Materials Engineering Discipline Global Improvement Leader

Troy Bartley
Titanium Fabrication Corp
Technical Sales

Jim Baumann
RathGibson
Director – CPI Sales

Bill Bieber
Webco Industries, Inc.
Director Business Development

Holly Both
Plymouth Tube Co
VP Marketing

Yingzi (Julie) Chen
LyondellBasell
Principal Materials and Corrosion Engineer

Tzu-Ping Cheng
ITRI
Technical Director

David Clift
NORAM
Senior Project Engineer

Gary Coates
Nickel Institute
Technical Manager

Vinay Deodeshmukh
Haynes International Inc.
Senior Staff Engineer

Lisa Desai
Pfaudler, Inc.
Director of Technology Sales, Americas

Lin Dring
Yara International
Principal Materials Engineer

George Donald
NOVA Chemicals Corporation
Metallurgist

Thomas Eason
BP
Inspection Manager

Jader Furtado
Air Liquide
R&D International Expert – Physical Metallurgy

Otis Galloway
P.A., Inc.
President

Marc Glasser
Rolled Alloys
Director of Metallurgical Services

J. Michael Griffin
Victaulic
Director Engineering, Materials Technology

Larry Haubner
TITAN Metal Fabricators
Vice President of Sales and Marketing

Dale Heffner
Electro Chemical Co. – Superior Dual Laminates
Vice President

John Houben
ExxonMobil Research and Engineering Company
Discipline Team Leader; Fabrication, Welding, Surface Engineering

Curtis Huddle
Eastman Chemical
Metallurgist/Materials Engineer

Dietlinde Jakobi
Schmidt+Clemens GmbH+Co KG
General Manager – Research & Development Services Centrifugal Casting Division

Peter Janssen
Sitech Services
Corrosion & Materials Engineer

Maricela Johnson
Chevron Corporation
Materials Engineer

Srini Kesavan
FMC Corporation
Principal Engineer – Materials

Kenneth Kirkham
The Equity Engineering Group, Inc.
Principal Engineer

Sandra Le Manchet
Industeel–ArcelorMittal
Manager of Corrosion Resistant Alloys R&D Department

Minfa Lin
Air Products and Chemicals, Inc.
Senior Principal Research Engineer

Brian Linnemann
RL Industries
VP Operations

Debra McCauley
Chemours
Materials Principal Consultant

Wendy McGowan
Neotiss
Senior Manager, Business Development

Jim McVay
MISTRAS Group
Principal Advisor – Mechanical Integrity, Metallurgy & Corrosion

Masao Nakahara
Asahi Kasei Corporation
Senior Reserarcher, Plant Engineering Center

Ed Naylor
Nouryon
Senior Materials Engineering Associate

Jeremy Nelson
Koch Industries, Inc.
Fixed Equipment Engineer

Tiffany New-Courtney
AdvanSix
Senior Reliability Engineer

Meghan Oaks
BASF Corporation
Materials Engineer

Maria Jose Landeira Oestergaard
Haldor Topsoe A/S
Senior Manager – Mechanical Department

Andrew Olander
Corteva Inc.
Materials Engineer

William Paden
Ascend Performance Materials
Principle Corrosion & Materials Engineering Specialist

Tony Palermo
New Castle Stainless Plate, LLC
Regional Manager

Jorge Penso
Shell
Senior Inspection and Integrity Engineer

Kelly Puzak
ConocoPhillips
Welding/Metallurgical Engineer

Adam Renstrom
Ward Vessel and Exchanger
Regional Sales Manager

Andrew Rentsch
Huntsman Corporation
Materials Engineer

Jacob Rodriguez
Corrosion Materials
Technical Sales Engineer, Metallurgist

Marcelo Senatore
Sandvik Materials Technology
Technical Marketing Manager

Cathleen Shargay
Fluor
Materials and Welding Engineer

Rodrigo Faveret Signorelli
Outokumpu, Inc.
Technical Manager

Arun Sreeranganathan
Stress Engineering Services
Senior Associate

Jeremy Staats
Becht
Assistant Manager – Refining Corrosion and Materials Engineer

Renaud Veslin
ARKEMA
Material and Corrosion Referent

Edgar Vidal
NobelClad
VP of Marketing & Business Development

Maurice Wadley
DuPont Company
Materials Engineer

Hardin Wells
Albemarle
Fellow – Mechanical Tech Service

James White
Linde
Associate Director

Kelly Wyrough
Enerfab
Technical Sales

Charles Young
Tricor Metals
Business Development Manager / Metallurgist

Nina Young
Chevron Phillips Chemical Company
Sr. Corrosion & Materials Engineer

MEMBER **COMPANIES**

AdvanSix
Air Liquide
Air Products
Albemarle
Arkema
AsahiKASEI
Ascend Performance Materials
BASF We create chemistry
Becht Good. Better. Becht.
bp
Chemours
Chevron
Chevron Phillips Chemical Performance by design. Caring by choice.
ConocoPhillips
Corrosion Materials
Corteva agriscience
Dow
DuPont
Eastman
Electro Chemical
enerfab Excellence through execution
E2G The Equity Engineering Group, Inc.
ExxonMobil Research and Engineering
Fluor
FMC
Haldor Topsoe Catalysing your business
Haynes International
Huntsman Enriching lives through innovation
Industeel
工業技術研究院 Industrial Technology Research Institute
Koch
Linde
lyondellbasell
Mistras
Neotiss High Performance Tube
New Castle Stainless Plate, LLC
Nickel Institute knowledge for a brighter future
NobelClad
Noram
Nouryon
Nova Chemicals
Outokumpu
PAI
Pfaudler Defining the standard
Plymouth Tube Co. USA
RathGibson
RL Industries
Rolled Alloys
Sabic
Sandvik
Schmidt+Clemens
Shell
Sitech Services
Stress Engineering Services Inc.
Syncrude Securing Canada's Energy Future
Titan Metal Fabricators
Titanium Fabrication Corporation
Tricor
VDM Metals
Victaulic
Ward Vessel & Exchanger
Webco Industries
Yara

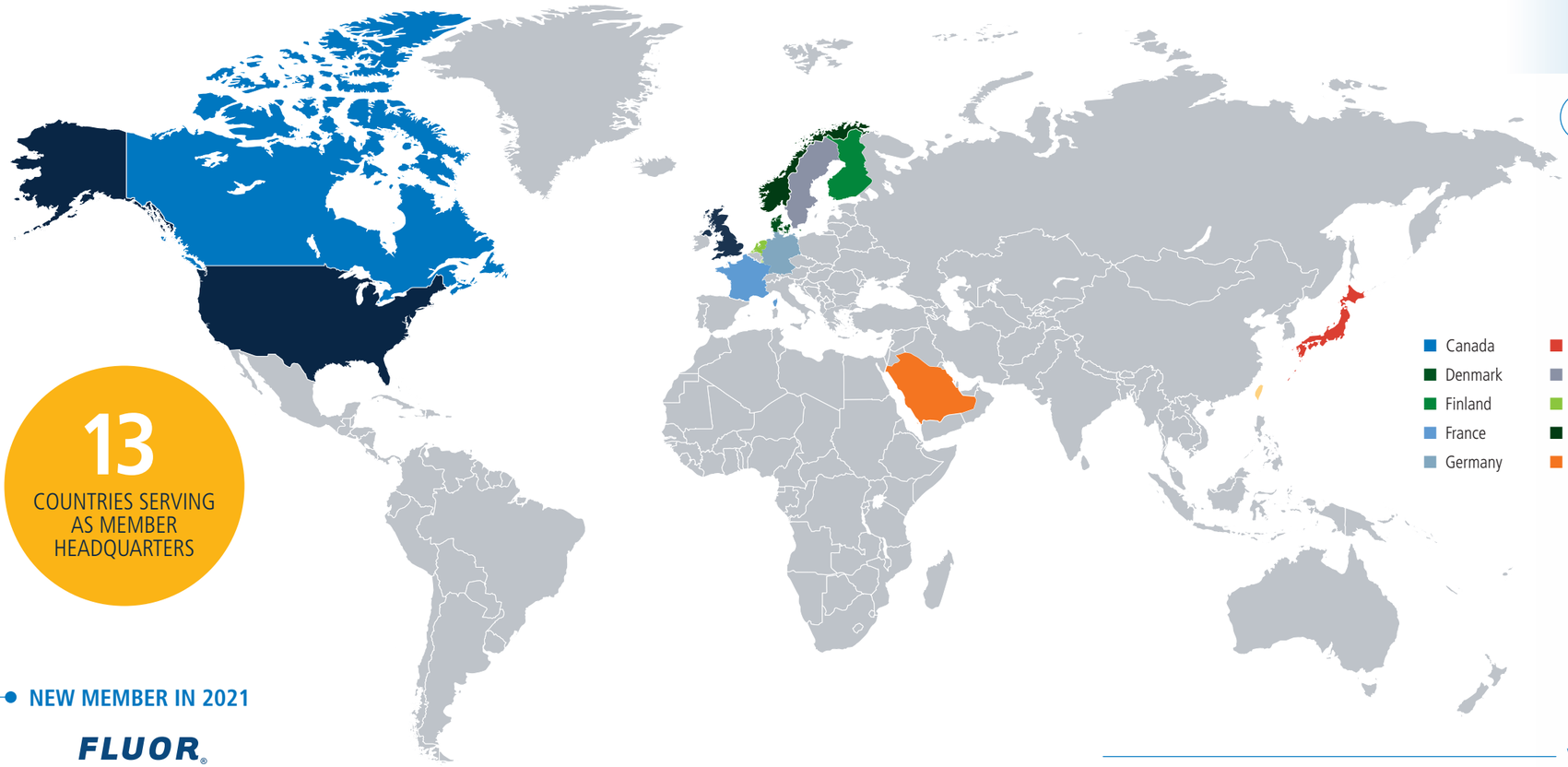
* Member companies as of 12/31/2020

GLOBAL SYNERGY
2021 MEMBERSHIP

TOTAL MEMBERS **1798**

MEMBER COMPANIES **63**

30 PRODUCERS **31** SUPPLIERS **2** ORGANIZATIONS



13
COUNTRIES SERVING AS MEMBER HEADQUARTERS

NEW MEMBER IN 2021

FLUOR

MEMBERSHIP ANNIVERSARIES IN 2021

40 YEARS

ALBEMARLE

20 YEARS

ConocoPhillips
CORROSION MATERIALS
HALDOR TOPSOE
CATALYSING YOUR BUSINESS
NobelClad
Schmidt+Clemens

10 YEARS

ASCEND PERFORMANCE MATERIALS
KOCH

5 YEARS

NEOTISS
HIGH PERFORMANCE TUBE
New Castle Stainless Plate, LLC
WARD

2 SCHOLARSHIPS AWARDED

Camryn William
University of Alberta

Owen Murdoch
Ohio State University

VALUE AWARDS

Global Value Champion
Chemours, Enerfab, and Nouryon

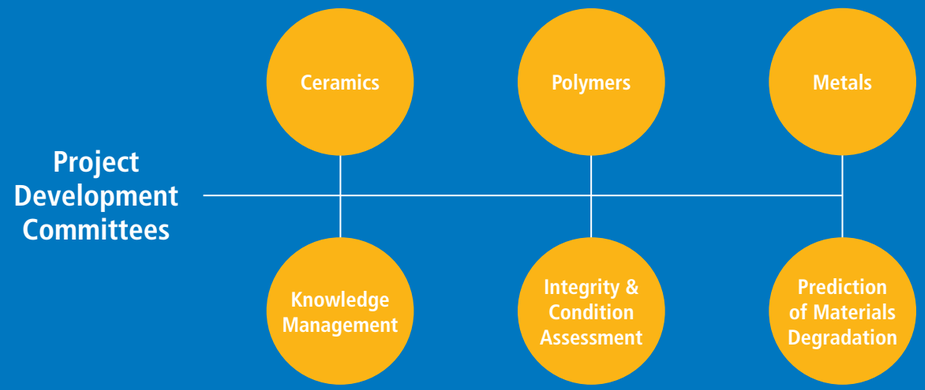
Value Award
Wendy McGowan (Neotiss) and Hardin Wells (Albemarle)

Value Award
Tricor Metals

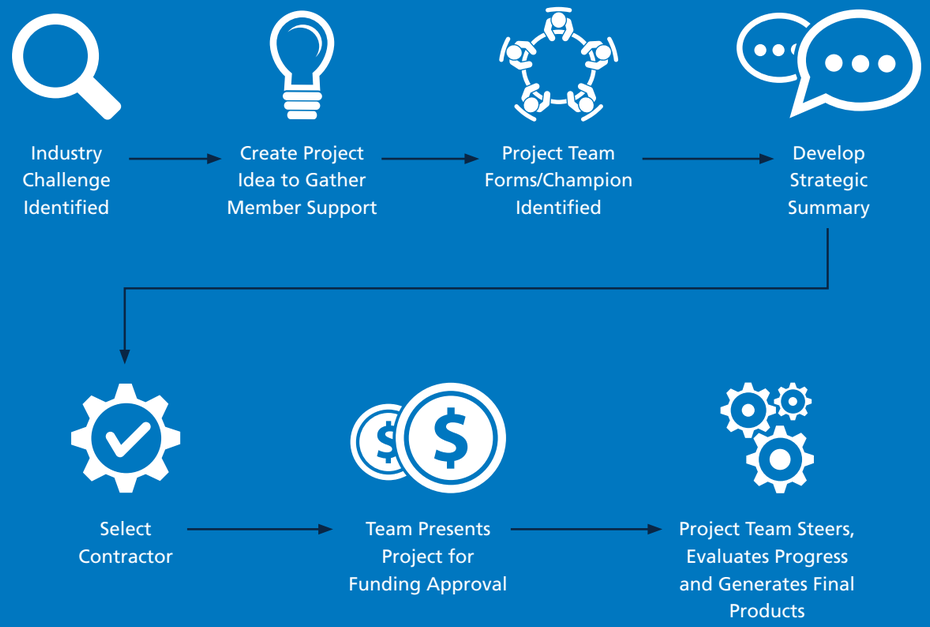
Not Pictured: **Value Award** – *Lars Rose (DuPont)*

PROJECT **COLLABORATION**

Our member-driven projects are a key benefit of MTI membership. MTI's expert technical community provides member companies with opportunities to combine resources, leverage higher funding, utilize the power of networking and access a more diverse knowledge pool to solve critical industry challenges. The research conducted is a collaborative process, typically vetted through MTI's six Project Development Committees (PDCs), working toward generating strategic project ideas to benefit members and the industry.



PROJECT **PROCESS**



2021 PROJECTS **OVERVIEW**

5
FUNDED PROJECTS

8
COMPLETED PROJECTS

$314K
APPROVED FUNDING

978
PROJECT TEAM MEMBERS[2]

33
PROJECT CHAMPIONS[1]

1) Some members may serve as the champion for more than one project.

2) Members are counted per each project team signed up to participate in.

POTENTIAL PROJECTS

When project ideas are developed and a Champion(s) has volunteered to lead the team, these projects typically move out of the Project Development Committees (PDCs) and are designated as Potential Projects. The end goal is for the projects to be presented and approved for funding to develop products and/or resources that will benefit MTI members. For details about each of the current Potential Projects provided here, please visit www.mti-global.org/communities.

Project #369
Business Cases for Knowledge Management Continuous Improvement
Champions: Jay Schickling, Chemours; Chuck Young, Tricor

Project #375
Remaining Life Evaluation of Aged Alloy 20Cr32Ni Components
Champions: Jeremy Nelson, Koch Industries; Jose Ramirez, Air Products & Chemicals, Inc.

Project #376
Characterization of Aged Stainless Steel
Champions: Paisley Cameron, Becht; Gary Coates, Nickel Institute

Project #377
Ceramic Fundamentals for Industrial Use
Champion: Jay Schickling, Chemours

Project #378
SRC Phase 2 Identification of preconditions able to avoid SRC without PWHT
Champions: Anette Hansson, Haldor Topsoe A/S; Olivier Durst, Air Liquide

Project #379
PSA Integrity Testing Program
Champion: Jader Furtado, Air Liquide

Project #382
Composite Repair Surface Preparation Study
Champions: Enxhi Marika, Chemours; Dale Heffner, Electro Chemical

Project #383
Lithium Halide Corrosion Testing
Champions: Luiza Esteves, Sandvik; David Cole, Eastman

Project #384
Tube to Tubesheet Joint Factors for Sealing
Champions: Isaac O'Brien, Equity Engineering; Karen Picker, Sandvik

Project #385
MTI Knowledge Roundtable: Renewable Diesel
Champions: Karen Picker, Sandvik; Nate Sutton, Equity Engineering

Project #386
Metal Additive Manufacturing Qualification for ASME BPVC
Champion: Andrew Rentsch, Huntsman

Project #388
Dual Laminate Training in Europe
Champions: Debra McCauley, Chemours; Renaud Veslin, Arkema; Hardin Wells, Albemarle

Project #389
MTI Podcasts
Champion: Isaac O'Brien, Equity Engineering

Project #390
HTHA Atlas of NDE Images and Corresponding Microstructures
Champion: Nina Young, Chevron Phillips Chemical Company

Project #391
Duplex Stainless Steel Welds at Elevated Temperatures
Champions: Anette Hansson, Haldor Topsoe A/S; Jennifer Larimore, Chemours;John Houben, ExxonMobil

FUNDED PROJECTS

Project #354
Dual Laminate Training Course (Previously funded project – additional request)

Champion: *Deb McCauley, Chemours*
Amount Funded: *$15,000*

Funding increase for producing professional video(s) from the Dual Laminate training.

Project #357
Corrosion of Bio Oils

Champions: *Nate Sutton, Equity Engineering; Maricela Johnson, Chevron*
Amount Funded: *$100,000*

Obtain high-temperature FFA corrosion rate data for representative engineering alloys (common materials in existing hydrotreaters and candidate materials for new equipment in renewable units) at the process conditions of primary interest to bio-oil Hydroprocessing, considering common renewable feedstocks. This will be pursued through literature review and testing/experimental work.

Project #358
High Temperature Low Chloride Pitting, Crevice Corrosion and SCC

Champions: *Rodrigo Signorelli, Outokumpu; Björn Helmersson, Outokumpu*
Amount Funded: *$108,000*

The project proposes an investigation of stainless steels corrosion resistance to Pitting, Crevice and SCC resistance in temperatures above 90°C (194°F) and low chloride amounts. The aim is to complete the existing engineering diagrams.

Project #368
Best Practices for Working with SMEs

Champions: *Robert Sinko, MTI Fellow/Becht; Pat McSharar, DuPont*
Amount Funded: *$85,000*

Develop a Knowledge Management Module to include: Templates for info gathering (up to 100, as directed by Project Team); templates for assessing and stratifying info; structures on setting up meetings with SMEs; survey on Knowledge Management technologies and software; Risk Management Strategy for crisis aversion and/or response; contractor presentation to members and final report at AmeriTAC.

Project #373
Refractory Ceramic Fiber Training

Champion: *Jay Schickling, Chemours*
Amount Funded: *$6,000*

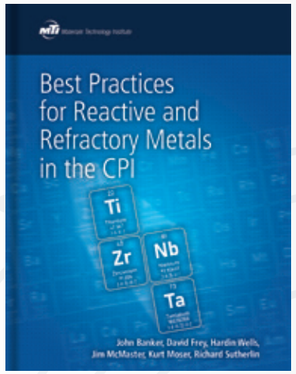
Coming out of the Ceramics PDC, this team will host a one-day training seminar on Refractory Ceramic Fibers. The training will cover different types of RCFs, installation and selection techniques, health and safety implications, failure mechanisms, rigidizers, use behind refractory, and alternative materials.

COMPLETED PROJECTS

Project #256
Best Practices for Reactive and Refractory Metals

Champions: *Wendy McGowen, Neotiss; Hardin Wells, Albemarle*

Compared to other materials technologies, there has long been a significant deficit in terms of best practices and lessons learned in the public domain, relative to the use of reactive and refractory metals in Chemical Process Industry (CPI) applications. This compendium is an unprecedented compilation of industry best practices as it relates to raw materials manufacturing, materials selection, design, construction, and repair of reactive and refractory metals for equipment and piping in the Chemical Process Industries. The content includes many of the unique design challenges that these materials present, along with fabrication and quality-control nuances, limited supply chain/sourcing avenues, unusual ownership considerations, and cost-effective use of these materials and more. In fact, more than 250 years of subject matter expertise and anecdotal lessons learned have been brought to bear on this subject and captured within this publication. The book is available in the member bookstore and Technical Resource Library.



Project #291
Stress Relaxation Mitigation Strategy

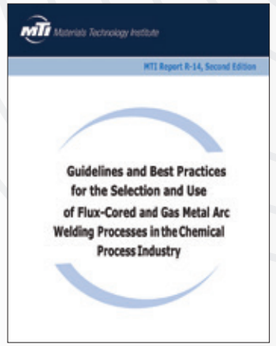
Champions: *Anette Hansson, Haldor Topsoe A/S; Olivier Durst, Air Liquide*

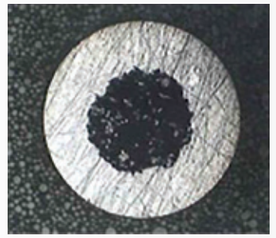
The project aimed at qualifying the bending test method for the evaluation of stress relaxation cracking of welded joints. Two materials, 800h and 347H, were employed in the screening. While from 800H two workshop welds (an unrestraint and a fully restraint) were prepared, the 347H specimens were extracted from a feed pipe weld, which prematurely failed in service. The 800H materials selected turned out to be less sensitive to SRC, because of moderate Al+Ti contents (0.63 % and 0.57 %), while the 347H welds extracted from the feed pipe prove to be highly susceptible to SRC. The testing parameters featured variations in temperature (600, 650 °C), loading geometry (3- and 4-point bending), loading strain, relaxation time, specimen predeformation and pre-aging. For the assessment of the experimental results, three microstructural damage classes (class 1: pass, classes 2 and 3: fail) apart from macroscopic cracking were defined. The final project report is available in the Technical Resource Library by visiting www.mti-global.org and navigating to Resources.

Project #300
Upgrade of FCAW & GMAW MTI Report R-14

Champion: *Jeremy Nelson, Koch Industries*

Flux-cored arc welding (FCAW) and gas metal arc welding (GMAW) techniques are increasingly used for fabrication of process equipment. MTI's best practice guideline was published in 2004, and since then, the industry has advanced the usage and understanding of best practices. New FCAW products for joining alloys such as duplex stainless steels have become available. Additionally, industry has developed information on FCAW and GMAW parameters on impact toughness and corrosion resistance of welds in process equipment. These data have been incorporated into the revised document, not as exhaustive references but rather as illustrative case studies. The final project report is available in the Technical Resource Library by visiting www.mti-global.org and navigating to Resources.





Cross Section of Seamless FCAW Electrode

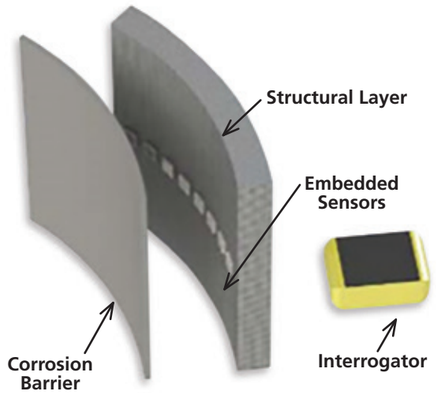
COMPLETED PROJECTS

CONTINUED

Project #334
RFID Sensor Patent

Champion: *Robert Sinko, MTI Fellow/Becht*

MTI Project 253 investigated the possible use of RFID sensors to identify the deterioration of the corrosion barriers in FRP structures. This study prompted the filing of a provisional patent—project 334—for the application of this technology to monitor the integrity of the corrosion barrier in FRP structures. Notice of final patent approval was received in February 2021.



Project #349
Who Makes What 2

Champions: *Karen Picker, Sandvik; Bill Bieber, Webco Industries*

This project developed an improved online resource with information on available alloys in different product forms associated with available suppliers around the globe. This resource allows MTI members to find appropriate suppliers for stationary products, such as fittings, tube, pipe and plate. Members can access the database after logging in at www.mti-global.org and navigating to the Resources menu.

Project #353
PSA Structural Integrity – Phase I

Champion: *Jader Furtado, Air Liquide*

Results from the literature review related to fatigue crack initiation and propagation from notches are summarized in two separate sections. The first section highlights models for determining the number of stress cycles for crack initiation as well as approaches for quantifying the driving forces (strain range and mean stress) at notches that serve as inputs to the models. The ensuing section on crack propagation from notches is organized similarly, i.e. it presents fracture mechanics-based fatigue models and methods for estimating the driving forces (stress-intensity factor ranges) at notches. The final report is available in the technical resource library.

Project #354
Dual Laminate Training Course

Champion: *Debra McCauley, Chemours*

The objective of the Dual Laminate Training Course was to provide follow up training to the previous FRP trainings MTI offered. The intention is to educate members, non-members, and third-party inspection resources. The information presented in this unique training course was a compilation of a very broad body of knowledge in one training package not found anywhere else. It is important to recognize that this knowledge would otherwise have to be acquired from many years of actual inspection work, trial and error. The training took place November 2021 in Baton Rouge, Louisiana, with 66 total in attendance. With the course materials developed, MTI will look at providing the training in other locations globally.

Project #356
Fracture Toughness & Weldability of High Temperature Alloys

Champions: *Jeremy Nelson, Koch Industries;*
Jose Ramirez, Air Products and Chemicals

Industrial users are interested in improved approaches for remaining-life predictions of the plant equipment made with high-temperature alloys. Cast Alloy 20Cr32Ni1Nb is of particular interest for this current project. Specifically, there is a strong interest in using high-temperature and low-temperature fracture toughness testing to develop data needed for use in fitness-for-service (FFS) calculations for Steam Methane Reformer (SMR) outlet manifolds. The objective of this project was to conduct a thorough literature review to determine the feasibility of high-temperature fracture toughness testing options capable of generating data needed for plant equipment FFS calculations and predictions of remaining life (RL). The final project report is available in the Technical Resource Library by visiting www.mti-global.org and navigating to Resources.

CLOSED PROJECTS

Occasionally, MTI closes projects when there is not enough member support or data for a project to move from the potential to funded phase. The explanation for each closed project is documented here.

Project #360 — Loading Breakaway Systems

There was not enough information and support for a full project on this subject. As a result, the project team developed of a Technical Awareness Bulletin that will be reviewed and published by the TAC Bulletins Committee.

Project #361 — Lined Pipe Retorque II

This was a follow-up to Project #278 Lined Pipe Retorque; however, the champion and team determined the results from the initial project were inconclusive and did not continue with work on the second phase.

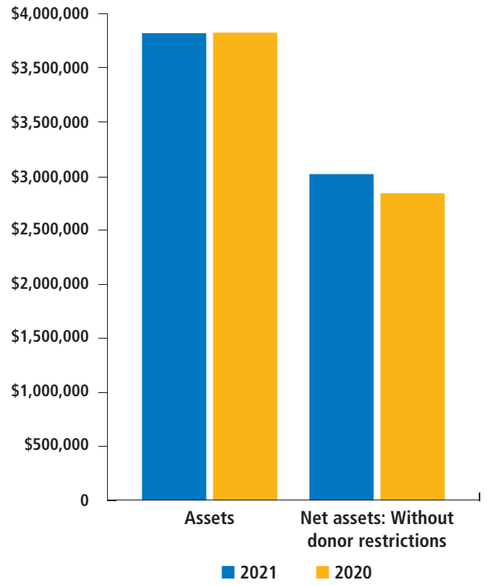
FINANCIAL **STATEMENTS**

Years Ended December 31, 2021 and 2020

The 2021 MTI Annual Report—Supporting Synergy—demonstrates the wise investments and commitment by the MTI leadership, members and volunteers, who have guided and contributed to the organization's ongoing success. Although our members are faced with many challenges in the industry, MTI is prepared to continue offering opportunities, with sensible oversight, so that our members will benefit from membership.

The financial graphs listed in this annual report demonstrate the side-by-side comparison of 2021 and 2020 Statement of Financial Position, our Statement of Activities and the Statement of Cash Flow. As the association moves forward in 2022, MTI thanks all of the members, leaders and staff who have helped MTI grow and maintain its financial stability. MTI is firmly positioned, financially and strategically, as we continue to provide training, resources, networking and other benefits for our members. (A more detailed report of the Fiscal Year 2021 audit is available upon request.)

Statements of Financial Position
For the Years Ended December 31, 2021 and 2020

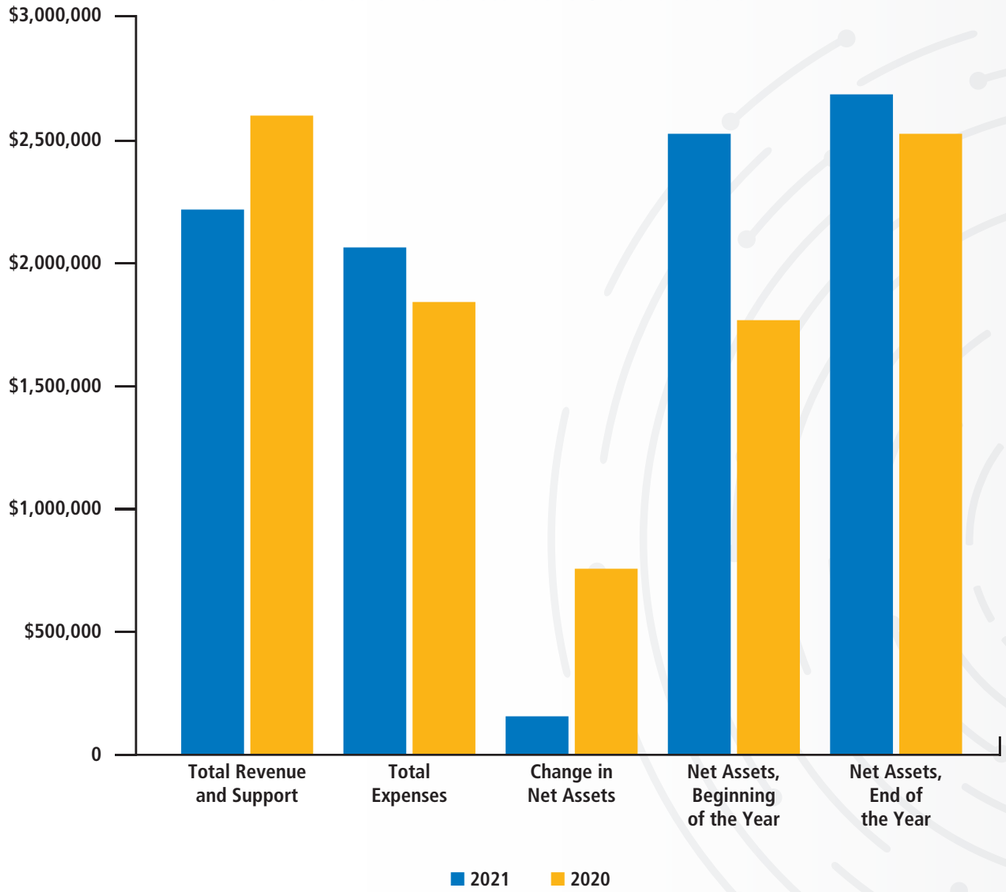


	2021	2020
Assets	$3,834,705	$3,839,299
Liabilities	$1,156,295	$981,818
Net assets: Without donor restrictions	$2,678,410	$2,521,056
Total Liabilities and Net Assets	$3,384,705	$3,502,874

Statement of Cash Flows
For the Years Ended December 31, 2021 and 2020

	2021	2020
Cash flows from operating activities:		
Change in net assets	$157,354	$754,965
Adjustments to reconcile change in net assets to net cash provided by operating activities:		
Depreciation	14,089	13,206
Investment (income) loss, net of fees	71,002	(70,647)
Changes in operating assets and liabilities:		
Decrease in assets:		
Accounts receivable	—	4,773
Accrued interest receivable	1,497	(2,153)
Prepaid expenses and deposits	(16,115)	4,568
Increase (decrease) in liabilities:		
Accounts payable	79,530	80,987
Accrued payroll	—	(7,164)
Accrued paid time off	—	4,246
Other accrued expenses	(7,110)	8,726
Deferred revenue	102,057	(86,434)
Net cash provided by operating activities	402,304	705,073
Cash flows from investing activities:		
Proceeds from redemption of certificates of deposit	1,075,000	709,793
Purchases of certificates of deposit	(1,292,041)	(1,150,000)
Purchases of property and equipment	(9,495)	(2,341)
Net cash used in investing activities	(226,536)	(442,548)
Net increase in cash and cash equivalents	175,768	262,525
Cash and cash equivalents, beginning of the year	656,185	393,660
Cash and cash equivalents, end of year	$831,953	$656,185

Statements of Activities and Change in Net Assets
For the Years Ended December 31, 2021 and 2020



	2021	2020
Total Revenue and Support	$2,149,355	$ 2,591,315
Total Program Services	1,555,411	1,375,015
Total Functional Expenses	2,057,676	1,836,350
Change in net assets	157,354	754,965
Net assets, beginning of the year	2,521,056	1,766,091
Net assets, end of the year	$2,678,410	$2,521,056

FINANCIAL **STATEMENTS**

Schedule of Functional Expenses
For the Years Ended December 2021 and 2020

	Program Services				Supporting Services		Total	
	Projects 2021	Projects 2020	Meetings 2021	Meetings 2020	General and Administrative 2021	General and Administrative 2020	2021	2020
Wages and Benefits	$429,531	$395,543	$293,072	$252,950	$188,103	$188,813	$903,706	$837,306
Contractors	352,875	352,424	—	—	—	—	352,875	352,424
Marketing	5,050	—	52,976	34,611	47,181	21,858	105,207	56,469
Food and beverage	5,747	67,151	67,285	2,273	1,617	2,635	74,649	72,059
Payroll taxes	30,684	28,203	20,936	18,036	12,937	13,463	64,557	59,702
Employee benefits	24,635	9,227	18,001	18,454	19,953	33,831	62,589	61,512
Travel	4,390	—	48,321	11,542	1,088	2,477	53,899	14,019
Audio and visual	24,075	12,310	24,075	18,214	—	—	48,150	30,524
Rent and utilities	16,496	12,848	11,547	12,848	15,946	15,419	48,989	41,115
Communications	6,772	1,481	6,772	1,481	30,255	36,065	43,799	39,027
Other Project Expense	43,061	36,705	—	—	—	—	43,061	36,705
Sofware	3,453	3,717	3,453	3,717	36,114	32,541	43,020	39,975
Professional services	—	6,824	—	—	40,759	20,940	40,759	27,764
Website	10,292	12,167	10,292	12,167	10,291	12,166	30,875	36,500
Magazine	3,033	2,132	3,032	2,132	24,259	17,057	30,324	21,321
Office Expenses	—	—	—	—	29,841	30,488	29,841	30,488
Payroll Expenses	8,209	8,580	5,601	5,487	3,461	4,096	17,271	18,163
Depreciation	—	—	—	—	14,089	13,206	14,089	13,206
Editing	12,570	9,388	—	—	—	—	12,570	9,388
Insurance	3,742	3,692	3,742	3,692	3,743	3,693	11,227	11,077
Dues and subscriptions	—	—	—	—	9,721	5,045	9,721	5,045
Miscellaneous expenses	—	—	—	—	8,856	5,776	8,856	5,776
Publishing	690	8,732	—	—	6,344	—	7,034	8,732
Postage	—	—	—	—	4,614	1,716	4,614	1,716
Speakers	306	1,837	307	1,836	—	—	613	3,673
Meeting Supplies	—	—	288	228	—	—	288	228
Printing expenses	—	—	—	—	93	50	93	50
Literature Search	—	2,500	—	—	—	—	—	2,500
Training Expenses	—	—	—	(114)	—	—	—	(114)
Totals	$985,611	$975,461	$569,800	$399,554	$502,265	$461,335	$2,057,676	$1,836,350

SCHEDULE OF ANNUAL MEMBERSHIP DUES FOR 2023

Sales $US Billions	2023 Dues
< 0.4	$19,000
0.4 < 0.8	$24,050
0.8 < 1.5	$29,140
1.5 < 3.0	$34,520
3.0 < 6.0	$39,730
6.0 < 12.0	$44,665
12.0 < 25.0	$49,920
25.0 < 50.0	$55,130
50.0 < 100.0	$60,230
100.0 < 200.0	$65,490
200.0 < 400.0	$70,750
400.0 < 800.0	$78,815
800.0 < 1,500.0	$81,060

BASIS FOR ASSESSING COMPANY'S MEMBERSHIP DUES

Dues for membership are determined from the dues schedule published in the Annual Report. Dues are based on the total sales of all divisions of the member company for the most recently audited fiscal year at the time of invoicing. For organizations that do not publish audited sales figures, such as privately held corporations and state-owned-enterprises, the total sales must be certified by an officer. Membership dues for associations and other organizations, which do not have revenue from sales, will be considered by the Board of Directors on a case-by-case basis. The Board of Directors may make exceptions to this policy based on the discretion of the board.

ABOUT MATERIALS TECHNOLOGY INSTITUTE

The Materials Technology Institute, founded in 1977, is a unique, not–for–profit technology development organization representing private industry. It sponsors projects focused on both developing new technology and transferring existing knowledge to day–to–day practice. Practical, generic, nonproprietary studies are conducted on the selection, design, fabrication, testing, inspection, and performance of materials of construction used in the process industries. The scope of work includes evaluation of metallic and non-metallic materials, optimum design applications, fitness–for–service, mechanical integrity and life cycle determinations, and economic factors affecting performance of vessels, tanks, piping and other components.

Through membership and networking within MTI, companies can access solutions to nonproprietary problems of major concern to the process industries. Members can capitalize on the extensive expertise of member company representatives, leverage their technology investment by participating in the direction and results of MTI projects, and utilize MTI's books, reports, software and video training programs immediately as needed. Benefits to member companies are increased plant integrity, reliability and profitability.

MTI Materials Technology Institute

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