

San Francisco, CA  
October 21, 2009

## Project Updates

### Polymeric Material Repair Guide Projects

**Completed (165-05 & 166-05)** MTI has completed two projects dealing with the repair of equipment containing polymeric materials. One of the manuals deals with repair of FRP equipment, while the other deals with various types of equipment lined with elastomeric and polymeric materials. The FRP manual was completed by Dale Keeler of The Dow Chemical Company, who undertook this project on his own initiative and on his own time. The other was done by Harold Clem of Becht Engineering. Both reports are now available in the "Download" section of the "Members Only" part of the MTI website.

### Study of Hydride Formation in Titanium is

**Underway (194-09)** A new approach to determining susceptibility of unalloyed titanium has begun. MTI has hired G2MT Technology to evaluate the available literature and to use the thermodynamic and kinetic analysis of hydride formation combined with the "real-world" case histories to better understand the conditions under which hydriding can occur. The contractor will also then use this information to recommend a lab test that can be used to determine if equipment will suffer hydriding in a given environment. This program should be completed in the first quarter of 2010.

### Optimization of Cost of Chemical Plant

**Equipment (193-09)** The project team on Optimization of Cost of Materials for Construction has scheduled a 1 day meeting to be held after the Stainless Steel World meeting in October 2010. We are looking for volunteers that would be willing to review papers submitted and serve on the Steering Committee for this 1 day session. If interested, please contact Gary Whittaker ([garywhit@eastman.com](mailto:garywhit@eastman.com)) or Galen Hodge ([ghodge@mtii-global.org](mailto:ghodge@mtii-global.org)).

## MTI Meeting Statistics:

- ❖ **Total Attendance** – 66
- ❖ **Member Companies Represented** – 29
- ❖ **Potential Members** – 1  
Sumitomo Metal USA, Inc. / Satoshi (Toshi) Matsumoto

**ASSET** is no longer an active project, but we recently had a teleconference of a group that has been using the program. It was noted that for Sulfidation and Sulfidation/Oxidation that the program does not contain a lot of data for the 5Cr and 9Cr steels, which are standard materials of construction in the refinery industry. We are interested in knowing if there are members of MTI that would be interested in developing an additional contract to develop data on these alloys in those environments. If you would be interested in taking part in a conference call to discuss this topic, please contact Mike Anderson at Syncrude ([anderson.michael@syncrude.com](mailto:anderson.michael@syncrude.com)) or Galen Hodge ([ghodge@mti-global.org](mailto:ghodge@mti-global.org)).

## Upcoming MTI Meetings

- ❖ **AmeriTAC 101** – February 22-25, 2010 – Trade Winds, St. Pete Beach, FL
- ❖ **EuroTAC 2010** – March 29-30 – Frankfurt, Germany
- ❖ **Training GLS / FRP** – March 2010 – Shanghai, China
- ❖ **AmeriTAC 102** – June 2010 – TBD
- ❖ **AsiaTAC 2010** – September 2010 – Shanghai, China
- ❖ **AmeriTAC 103** – October 2010 - TBD

## 100 TAC Meetings

The site of today's 100<sup>th</sup> TAC Meeting was chosen to honor MTI's 1st TAC Meeting, which was held on a Sunday afternoon, March 13, 1977, in San Francisco, CA. The actual meeting venue was not recorded in the minutes and is not known. Attendees present at the 1<sup>st</sup> TAC Meeting were from the following companies: Air Products, Allied Chemical, BASF, CARTECH, Cities Service, Climax Moly, Dow Chemical, DuPont, El Paso Products, Exxon Chemical, Huntington Alloys, ICI United States, INCO, Jessop Steel, Kaiser Aluminum, Monsanto, Olin Chemicals, Sandvik, The Pace Companies, and Union Carbide. A list of the meeting venues and locations of MTI's first 100 TAC meetings is available at the MTI registration table.





## Life Cycle Management of Pressure Equipment:

MTI was invited to an ASME Workshop that was held in Houston last March. The topic was Life Cycle Management of Pressure Equipment. The results of that workshop have been published as document "[PTB-2 - 2009 Guide to Life Cycle Management of Pressure Equipment Integrity](#)" by ASME, and the document is available for sale on the website, <http://catalog.asme.org/home.cfm?Category=CS&ProductType=BKS&OrderBy=ProductYear>. The website says that it is currently unavailable, but it can be ordered. ASME is planning an update for next year that will expand the document to include MTI publications as well as those from organizations outside of North America.

## Vintage News Article: Carbide News –

**October 1944:** An article on the Metals Division of Union Carbide and Carbon Corporation, titled "Alloys & Metals for Industry," is available at the MTI registration table. This article includes Haynes Stellite and was originally featured in the October 1944 issue of the "Carbide News."

## MTI Publications



**Special MTI Member Prices** (plus shipping) are available only until **October 31<sup>st</sup>** for the following MTI publications:

- Guidance for Plant Personnel in Gathering Data & Samples for Materials Failure Analysis – \$15
- User's Guide for Evaluating New Polymer Systems – \$15
- Repair & Damage Assessment of Glass-Lined Equipment – \$20

**Place your order now!**

To order MTI publications, click on the Store tab of the MTI website ([www.mti-global.org](http://www.mti-global.org)). Be sure to place your order from the MTI Member Order Area to receive this special pricing. The regular MTI member discount of up to 75% off the list price applies to all other MTI products.

**Call for Papers – MS&T 2010:** NACE International will co-sponsor the Materials Science & Technology 2010 Conference & Exhibition, scheduled October 17-21, 2010 in Houston, TX. MS&T annual conferences are hosted by 4 leading materials societies: ACerS, AIST, ASM & TMS. This partnership brings together scientists, engineers, students and suppliers to discuss current research and applications, and to shape the future of materials science and technology. The deadline to submit an abstract is March 15. Visit [www.matscitech.org](http://www.matscitech.org) and follow instructions for submission, or visit [www.nace.org](http://www.nace.org) for more information.



## Engineer's Diet

We all know that it takes 1 calorie to heat 1 gram of water 1 degree Celsius. Translated into meaningful terms, this means that if you eat a very cold dessert (generally consisting of water in large part), the natural processes which raise the consumed dessert to body temperature during the digestive cycle literally sucks the calories out of the only available source, your body fat. For example, a dessert served and eaten near 0 degrees C (32.2 deg F) will in a short time be raised to the normal body temperature of 37 degrees C (98.6 deg F). For each gram of dessert eaten, that process takes approximately 37 calories as stated above. The average dessert portion is 6 oz, or 168 grams. Therefore, by operation of thermodynamic law, 6,216 calories (1 cal/gm/deg x 37 deg x 168 gms) are extracted from body fat as the dessert's temperature is normalized. Allowing for the 1, 200 latent calories in the dessert, the net calorie loss is approximately 5,000 calories. Obviously, the more cold dessert you eat, the better off you are and the faster you will lose weight, if that is your goal.

This process works equally well when drinking very cold beer in frosted glasses. Each ounce of beer contains 16 latent calories, but extracts 1,036 calories (6,216 cal per 6 oz portion) in the temperature normalizing process. Thus the net calorie loss per ounce of beer is 1,020 calories. It doesn't take a rocket scientist to calculate that 12,240 calories (12 oz x 1,020 cal/oz) are extracted from the body in the process of drinking a can of beer. Frozen desserts, e.g., ice cream, are even more beneficial, since it takes 83 cal/gm to melt them (i.e., raise them to 0 deg C) and an additional 37 cal/gm to further raise them to body temperature. The results here are really remarkable, and it beats running hands down.

Unfortunately, for those who eat pizza as an excuse to drink beer, pizza (loaded with latent calories and served above body temperature) induces an opposite effect. But, thankfully, as the astute reader should have already reasoned, the obvious solution is to drink a lot of beer with pizza, and follow up immediately with large bowls of ice cream.

We should all be thin very soon if we adhere religiously to this cold pizza, cold beer, and ice cream diet.

