Rocky Mountain AIChE News

May 2018 Volume 27 Number 2

May Section Meeting: Experiences While Investigating for the U.S. Chemical Safety and Hazard Investigation Board

AIChE is teaming up with American Society of Safety Engineers (ASSE) to present a "Dinner and Discover" with Manny Ehrlich of the U.S. Chemical Safety and Hazard Investigation Board (CSB). We are honored to have Manny Ehrlich, CSB Commissioner and Board Member fly in from Washington DC to present on his experiences while investigating for the CSB.

We are also pleased to congratulate the 2018 Colorado Science and Engineering Fair winners for the Rocky Mountain Section of AIChE who are invited to join us to display their poster and presentation at our May meeting.

May Section Meeting

Topic: Experiences While Investigating for the U.S. Chemical Safety and Hazard Investigation Board

Presenter: Manny Ehrlich, Commissioner and Board Member of CSB

Date: Tuesday, May 15

Time: 6:00 – Networking & Dinner
7:00 – Presentation

Location: C. B. & Potts
6575 South Greenwood Plaza Blvd

Menu: Southwestern Buffet including beef and chicken fajitas, beef enchiladas, served with sour cream, cheese, guacamole, flour tortillas, lettuce, tomatoes, jalapeños, seasonal rice and black beans. Chips and salsa. Soda, coffee, and tea.

Cost: (w RSVP)
$20 Members
$25 non-members
$10 Students / Unemployed

RSVP REQUIRED by Thursday, May 3 (early RSVPs are greatly appreciated!) You may RSVP via email at rockyaiche@yahoo.com indicating your name, phone number, and number of attendees and pay at the meeting. Or you may RSVP and pay online using PayPal on our meeting link.

*Add $5 for attending meeting without RSVP

What is the Chemical Safety and Hazard Investigation Board (CSB)?

The CSB is an independent federal agency charged with investigating chemical incidents. Headquartered in Washington, DC, the agency's board members are appointed by the President and confirmed by the Senate. The CSB conducts root cause investigations of chemical incidents at fixed facilities. Root causes are usually deficiencies in safety management systems, but can be any factor that would have prevented the accident if that factor had not occurred. The agency does not issue fines or citations, but does make recommendations to plants, regulatory agencies such as the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA), industry organizations, and labor groups. Congress designed the CSB to be non-regulatory and independent of other agencies so that its investigations might, where appropriate, review the effectiveness of regulations and regulatory enforcement.

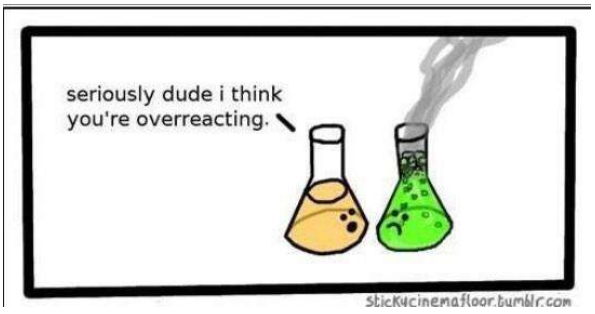
Manny Ehrlich Biography:

Manuel "Manny" Ehrlich was nominated by President Barack Obama to the U.S. Chemical Safety and Hazard Investigation Board in January of 2014 and confirmed by the Senate in December 2014. Prior to his appointment Mr. Ehrlich spent over 50 years in the chemical industry in a variety of positions. Most recently he served as a health, safety and environmental consultant to a broad range of companies across the country.

Mr. Ehrlich spent much of his career with BASF Corporation, one of the largest chemical companies in the world. During his time at BASF Mr. Ehrlich worked in a variety of roles, including plant management and eventually leading emergency response efforts across North America. In this capacity he responded to, managed and investigated numerous hazardous materials incidents in the U.S., Canada and Mexico.

Mr. Ehrlich served as the on-call chemist for the Chemical Transportation Emergency Response Center (also known as CHEMTREC) in the U.S., a 24-hour service that assists responders on the scene of chemical incidents. He also served as a member of the National Fire Protection Association's committee that develops competency standards for chemical emergency responders.

Mr. Ehrlich has a B.S. in Chemistry from Drexel Institute of Technology, completed graduate studies in chemistry from Temple University and St. Joseph's College, completed graduate studies in chemical engineering from New York University and received an Ed.M. and M.A. in Counseling Psychology for Business and Industry from Columbia University.



Like our Facebook page to be notified of meeting information:
RockyMountainAIChE

2018 COLORADO STATE SCIENCE FAIR WINNERS for the ROCKY MOUNTAIN SECTION – AMERICAN INSTITUTE OF CHEMICAL ENGINEERS

The 63rd Annual Colorado Science and Engineering Fair has come to an end. Your Science Fair Judging Team of Michal Mutnan, Doug Brown, and Rebecca Spearot are proud to announce the following 2018 winners. They are (synopsis provided by the Colorado State Science Fair):

SENIOR HIGH DIVISION - 1st Place

Project Title: How Magnesium Almost Lost World War Two: Environmental Effects on Magnesium
Individual/Team Leader's Name: Logan Klein
School & City: Yuma High School, Yuma
Sponsor's Name: Amy Melby
Category: Chemistry & Biochemistry

Abstract— A magnesium alloy was used in the construction of the Boeing B-29 crankcase during World War Two. The development and subsequent combat deployment of the B-29 showed that the magnesium crankcase was prone to fires. Magnesium has been known to corrode with prolonged exposure to heat, humidity, and saltwater. The environmental conditions in the Northern Mariana Islands included a yearly average temperature of 28.9°C (84°F), and an average humidity of 79%. Due to its oceanic location, exposure to salt from the ocean was also highly likely.

The research question investigated was: Could the environmental conditions in the Pacific Theater have led to deterioration of the magnesium crankcase on B-29s in World War Two? It was hypothesized if magnesium strips were exposed to salt humidity, corrosion would be apparent in both direct observations and in a strength test. To test the hypothesis, strips of magnesium ribbon were exposed to salt water humidity in a salt chamber for 24, 48, 72, and 96 hours. After removing the magnesium ribbon from the chamber, the magnesium strips were examined for changes in appearance and were subjected to a strength test. After the research was concluded, it was found that a general decrease in the strength of the magnesium strips occurred with prolonged exposure to the salt water humidity conditions; therefore, leading the researcher to accept the hypothesis. Magnesium strips were also analyzed by microscope (before and after exposure to the salt chamber); however, there was no conclusive evidence of corrosion from direct observation.

SENIOR HIGH DIVISION - 2nd Place

Project Title: Roots For The Road
Individual/Team Leader's Name: Emma Stone
2nd Member's Name: Reiley Leake
School & City: Brush High School, Brush
Sponsor's Name: David Miner
Category: Environmental Science

Abstract— Our project tested the theory that cattail roots could produce a sufficient amount of ethanol to be considered a viable supplement in the production of ethanol used as a clean burning fuel additive. We decided to compare the ethanol production of cattail roots to corn, the most commonly used product for ethanol production, and sugar beets, a product that has been considered as a supplement to corn. We tested our theory by using the same procedure to make ethanol from cattail roots, sugar beets and corn. For the first test we filled a container with 125 mg of distilled water. Then we added 1 gram of yeast. Next, we added 1 gram of dried and ground cattail roots to the mixture. Three probes measuring C02, temperature, and ethanol were attached through the top of a sealed container. A lab quest device took measurements through the probes every ten minutes for twenty-four hours. This same procedure was repeated with ground and dried sugar beets and field corn. We analyzed the data and found that our hypothesis was incorrect. Cattail roots and sugar beets both produced a significantly greater amount of ethanol than corn. We feel that cattails should be considered for use to produce clean burning ethanol. This would allow more corn, the material currently in use to produce ethanol, to be used for food and for production of many other essential products in our economy including medicines, plastics and textiles.

JUNIOR HIGH DIVISION - 1st Place

Project Title: Help for Hurricane Victims: Creating Fresh Water Using Solar Power
Individual/Team Leader's Name: Liliana Petrecca
School & City: Webber Middle School, Fort Collins
Sponsor's Name: Eva Petrecca
Category: Energy

Abstract— This project was designed to find a more efficient way to evaporate water because solar-powered desalination is not very efficient. Different colored materials were tested in absorbing sunlight to desalinate water. It was expected that black (B) would absorb more sunlight than metallic silver (A) or colorless (C) because the dark particles that made up the black paint were expected to attract the radiation from the sun more quickly than the other two materials. To perform the experiment, three desalination setups were created using plastic storage tubs, straws, funnels, cups, and plastic wrap. The design was made so the salt water in the tub would evaporate onto plastic wrap covering it and fall into a funnel, through a straw, and into a collection cup. They were left near a sunny window to absorb the sun's radiation and desalinate the water for nine days.

At the end of the nine days, the amount of water in each collection cup was measured. At the end of the experiment, the hypothesis was accepted; setup (B) did collect the most fresh water. Setup (A) collected 13.59 grams of water, setup (B) collected 38.84 grams, and setup (C) collected 25.31 grams. The purpose of the project was to find a more efficient way to evaporate salt water, so victims of all the recent hurricanes can desalinate seawater and obtain fresh water faster. It is possible that the results of this project can somehow help increase the efficiency of solar powered water desalination.

JUNIOR HIGH DIVISION - 2nd Place

Project Title: Veggie Tale
Individual/Team Leader's Name: Kooper Grinstead
School & City: Rocky Ford Jr/Sr High School, Rocky Ford
Sponsor's Name: Melany Lucero
Category: Physics

Abstract— My mom refuses to feed my sister and I canned vegetables; she is convinced that they "just aren't the same" as frozen veggies, so I wanted to see if I could prove her wrong. My mom works, and doesn't often have a lot of time to get dinner ready, and I know that when she cooks frozen veggies it takes longer than it would if she were just heating up a can of the same thing. I tested frozen peas versus canned peas to see which contained more stored energy. I did this by making my own calorimeter to burn the food in and check temperature change between the frozen pea and the canned pea. I hypothesized that the canned peas would have more stored energy, but after completing three separate trials, my data told me that the frozen vegetables contain more stored energy than the canned vegetables. This information was very important to me, not only because I had to tell my mom she was right, but because I can pass along my findings to others, and hope that they will make the switch from canned to frozen.

The project "Roots for the Road" 2ND PLACE IN THE SENIOR DIVISION, will also be featured at the National Science Fair held at Pittsburg, PA in May.

Congratulations to all the winners.

All are invited to attend our May meeting.

Pictures of the winners will be available soon.

Send your email address to mmoes@ekiconsult.com to receive this newsletter electronically!

Like our Facebook page to be notified of meeting information: RockyMountainAIChE

AIChE Meetings

2018

May 3	AIChE Virtual Career Fair
May 5-6	Fifth International Mammalian Synthetic Biology Workshop (mSBW 5.0) Martin Conference Center at Harvard Medical School Boston, MA
June 3-7	2018 Synthetic Biology: Engineering, Evolution & Design (SEED) JW Marriott Scottsdale Camelback Inn Resort & Spa, Scottsdale, AZ
June 5-7	2018 Process Development Symposium Hamburger University at McDonald's Campus, Oak Brook, IL

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The objectives of AIChE are to advance chemical engineering in theory and practice, to maintain a high professional standard among its members, and to serve society, particularly where chemical, engineering can contribute to the public interest.
AIChE Rocky Mountain is a public non-profit 501(c)(3) organizations and thus any and all donations are tax deductible.

Rocky Mountain AIChE News
Publication Schedule
September 2018 issue
Articles due Wednesday, September 5
Publish on Friday, September 7
Meeting on Tuesday, September 18

MEETING SCHEDULE

The Rocky Mountain District of AIChE generally meets the third Tuesday of every month, September through November and January through May.