American Welding Society®
LAKESHORE SECTION

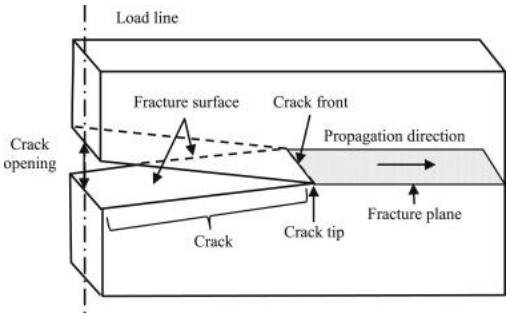
AWS Lakeshore Section Presentation

Dr. Thomas Siewert:

Crack Tip Opening Angle Test:

Measuring Tendency Toward Rapid Crack Propagation

September 22, 2022



The tendency for crack propagation in steel plate is most commonly measured with a Charpy impact test. Unfortunately, this doesn't represent the restraint present in many structures, and so the data is difficult to scale to large structures such as pipelines. Full-scale crack propagation tests on pressurized pipelines provide the most accurate data on pipeline response to corrosion or overpressure events, but can cost upwards of $1 million. The Crack Tip Opening Angle test (CTOA) was designed as an intermediate scale test to provide more data than a Charpy test, but still at reasonable cost. This presentation will show how this test can duplicate the failures found in actual pipeline ruptures.

Dr. Tom Siewert is a widely-known leader in the fields of structural materials, welding, materials reliability, and non-destructive evaluation. After earning his PhD from The University of Wisconsin (Madison) in 1976, Dr. Siewert was manager of welding filler metal R&D for Alloy Rods (now ESAB). From 1984 to 2010, he was employed by the National Institute of Standards and Technology (NIST) as a leader in the fields of structural materials and welding. In 2002, Dr. Siewert was part of the NIST team responsible for investigating the possible modes of failure involved in the WTC collapse.

Social: 5:00 to 6:00 PM
Presentation: 6:00 PM
Dinner: 7:00 PM
Cost: $25.00 *(Credit Cards Accepted)*
Menu: Family Style Chicken

Location: **Suster's Arcade**
117 N Wall St
Denmark, WI 54208

Please RSVP no later than Monday, September 19, 2022 to:
Feel free to e-mail your reservation to: Josh.Baldwin@Linde.com