



**DANIEL J. BENAC, P.E., CFEI**  
**Senior Principal Engineer**  
**BAKER ENGINEERING AND RISK CONSULTANTS, INC.**

**Education:**

**B.S. Metallurgical Engineering, University of Illinois**

**Areas of Practice:**

Dan Benac works at BakerRisk's San Antonio office in the Materials Engineering Group. As a registered professional metallurgical engineer in Texas, Mr. Benac is a specialist in structural integrity and material issues, failure analysis of plant equipment, materials evaluations, and materials selection for designs. He has over 35 years of experience investigating and solving structural integrity problems for plant equipment.

**Experience:**

- Mr. Benac has conducted hundreds of in-depth investigations and analyses of service failures and mishaps for a variety of structures for the nuclear, refining, petrochemical, and fossil-power industries. He investigates equipment such as pipelines, rotor shafts, valves, pumps, diesel-engine components, heat exchangers, reactor vessels, piping, and compressor and turbine blades and disks.
- Mr. Benac has been a principle investigator in explosions that have occurred with pipelines, piping, boilers and pressure vessels. For the transportation industry, he has the unique distinction of having conducted investigations of exploded compressed natural gas (CNG) composite-wrapped cylinders used on buses, trucks, and airline ground equipment. He has also participated as team lead in assessing structural integrity concerns of equipment and vessels and conducting root cause analyses.
- Mr. Benac has characterized steel, titanium, aluminum alloys, nickel-based alloys, and polymer composites. As a material design engineer, he was the lead engineer for the selection of metallic materials and processes for the design of an advanced aircraft. He was involved in a two-year study evaluating steel I-beams used for earthquake applications. In addition, he was responsible for specifying the materials of construction for a North Sea unit on an offshore platform that removed hydrogen sulfide from produced crude oil.
- Mr. Benac is involved with life assessment concerns for heat-damaged structures, elevated-temperature exposure, and fatigue of rotating equipment. He has edited an ASM handbook article on life assessment of structural components, ASM International's failure analysis training courses for Elevated-Temperature Failures and Pressure Vessel Failures, and an on-line course for Understanding the Basics of Corrosion.
- Mr. Benac was the principal investigator on failure investigations and structural integrity issues related to F-16, F-111, T-38, T-37, and C-5 aircrafts. He was the principal investigator of mishaps and failures of components and equipment such as wingskins, landing gears, and actuator systems.
- Mr. Benac conducts training courses to increase equipment reliability. He has conducted training and tutorial lectures that include: 1) Preventing Brittle Failure of Materials, 2) Determination of Root Cause for Failure, 3) Understanding Fatigue Behavior, and 4) Understanding and Controlling Corrosion. He edited ASM International's failure analysis training courses for Elevated-Temperature Failures and Pressure Vessel Failures.
- Mr. Benac has co-authored thirty-nine peer-reviewed technical papers related to equipment reliability

**Professional Chronology:**

Engineer, Texaco, Inc., 1978-82; Student, Dallas Theological Seminary, 1982-1984; General Dynamics Forth Worth Division (Senior Engineer, 1985-88; Engineering Specialist, 1988-92); Southwest Research Institute, Senior Research Engineer, 1992-1998; Bryant-Lee Associates, Staff Engineer, 1998 to 2005, Baker Engineering and Risk Consultants, Inc., Senior Principal Engineer 2005 to present.

**Professional Registrations/Certifications**

Registered Professional Engineer (Texas), NAFI Certified Fire and Explosion Investigator (CFEI).

**Professional Memberships:**

ASM International Failure Analysis Committee, NACE (National Association of Corrosion Engineers), ASTM (American Society of Testing Materials).

**Committee Memberships:**

ASM International Failure Analysis Committee; Editor Review Board for Journal of Failure Analysis and Prevention