



# EXPERIMENTAL MECHANICS LABORATORY

## LABORATORY INFORMATION FACT SHEET

### CONTACT US:

Technology Transfer Office

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*Benét Laboratories' Fatigue and Fracture Branch provides expertise in materials development and characterization.*

### TECHNOLOGY/FACILITY DESCRIPTION:

The branch provides mechanical and thermal properties data and characterization, advanced computer modeling, and basic and applied materials research in the following areas:

- Fatigue and Fracture Mechanics (Experimental research, developing,

and testing to evaluate, predict, and enhance the fatigue & fracture response of armament materials)

- Deformation Mechanics (Elastic-plastic behavior of materials & high strain rate behavior of materials)

- Properties of Materials (Evaluation of the effects of temperature & environment on the mechanical & physical behavior of materials)

- Failure Analysis (Analysis of laboratory & field failures with emphasis on mechanics, environmental degradation, & metallurgy)



### EQUIPMENT AND EXPERTISE AVAILABLE:

- 100 kip load frame with 50,000 in-lbs torque and 30 ksi internal pressure capabilities
- 2-10 kip tension compression load frames
- 1-50 kip tension compression load frame

- High temperature test capabilities to +2000 °F and cold temperature capabilities to -65 °F
- Fully automated fatigue crack growth and fracture toughness control systems
- High rate data acquisition system
- Cost effective laboratory service simulation testing

- Analytical and FE predictive modeling capabilities
- Expertise in elastic/plastic analysis and autofrettage technology
- Development of novel test methods
- Environmentally assisted cracking testing
- Surface enhancement technologies