

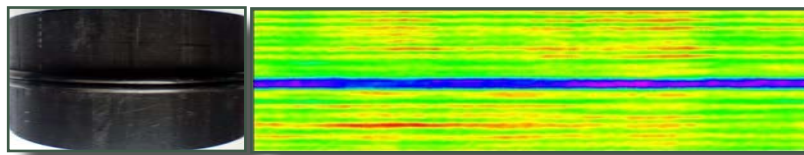


Materials Evaluation Services

Reduce or Eliminate Expensive Material Failures

For three decades Spectrum has saved clients from considerable potential losses by providing efficient, high quality materials evaluation services. We work with you to:

- ✓ Develop inspection and installation procedures for every material and application
- ✓ Specify tubular materials exactly suited for soil, environment and liquid transport requirements
- ✓ Resolve field installation problems
- ✓ Create material systems that meet developing liquid transport challenges
- ✓ Identify potential liability issues by evaluating new material systems prior to market introduction
- ✓ Provide on-site inspection of giant heavy hauler oil sands truck tires
- ✓ Develop on-going QA/QC programs
- ✓ Provide technical component and application consulting and support



Polymeric Materials (Non-Metallics)

HDPE Testing Services Available:

- ◆ Procedure Qualifications
- ◆ Bonder / Fuser Qualifications
- ◆ In-Process / Field Testing
- ◆ Non-Destructive Evaluation
- ◆ Mechanical testing of HDPE butt fusion and electrofusion welds
- ◆ On-site QA/QC during line installations



HDPE Tests Performed:

- ◆ Visual inspection
- ◆ Bend
- ◆ Impact
- ◆ Torque
- ◆ Peel
- ◆ Tensile
- ◆ Evisive Scan NDE

Spectrum Materials Evaluation Services — Metallics

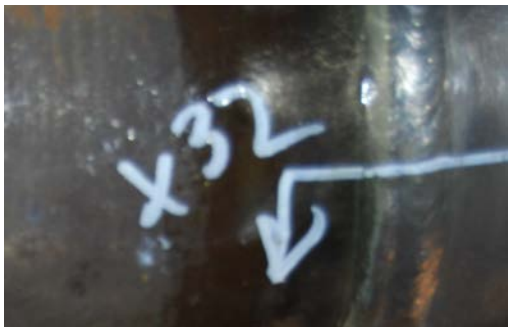


Welding Consultation Services

- ◆ Welding procedure and welder qualifications to ASME, API, CSA and AWS codes and standards
- ◆ Design, testing and documentation
- ◆ Welding procedure specification (WPS) and welding procedure data sheets (WPDS) required for certification
- ◆ Quality manuals and quality programs
- ◆ Design and Documentation of Welding Procedures
 - ◇ Pressure vessels and piping
 - ◇ Pipelines
 - ◇ Structures
 - ◇ Industrial and heavy equipment

Metallic Evaluation Services

- ◆ Determination of test requirements
- ◆ Preparation of test procedures and specifications
- ◆ Witnessing of sample preparation
- ◆ Qualification testing



Tests Performed

- ◆ Tensile
- ◆ Compressive
- ◆ Charpy impact
- ◆ Micro and macro hardness
 - ◇ Brinnell
 - ◇ Vickers
 - ◇ Rockwell
 - ◇ Knoop
- ◆ Chemical analysis
- ◆ Metallography
- ◆ Elevated temperature
- ◆ Shear strength
- ◆ Wear
- ◆ Customized testing programs

Contact Spectrum

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