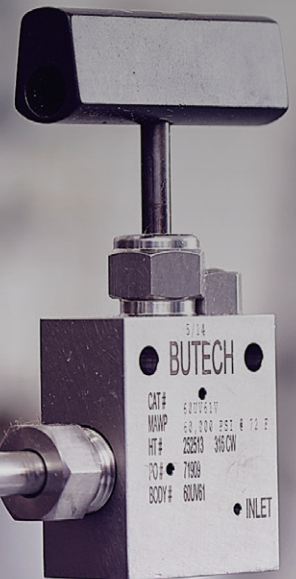


OUR ENGAGED
EXPERTS PROVIDE
INNOVATIVE SOLUTIONS
TO NON-METALLIC
MATERIAL CHALLENGES



HITCHIN



WHO WE ARE

Element is one of the world’s leading independent providers of materials and product qualification testing, inspection and certification services to the global Aerospace; Transportation & Industrials; Fire & Building Products; and Energy and Infrastructure sectors, where failure in service is simply not an option.

We exist to help our customers to make certain that the materials, products and systems that they make are safe, quality, compliant and ultimately fit for purpose, leveraging 200 years of testing experience and our global testing capabilities.

OVERVIEW

ELEMENT HITCHIN

Element Hitchin, formerly known as Materials Engineering Research Laboratory (MERL), has over 30 years experience in the testing and evaluation of elastomers, thermoplastics, composites and structural adhesives for applications in the Energy, Aerospace and Transportation industries.

The Engaged Experts located at Hitchin site possess significant experience in the initiation, execution and management of industry-specific sponsored projects and have been responsible for developing Guidelines, Standards and Reviews concerning non-metallic material performance in a range of critical applications.

This experience enables Element Hitchin to develop innovative solutions to materials related challenges. Examples include new testing and analysis methodologies, to obtain material performance data more closely related to service which, in turn, enables the service life of components and structures to be forecast with increased levels of confidence.

OUR SERVICES

- The range of services available at Element Hitchin include:
- Fluid Exposure: oils, brines, H₂S, treatment chemicals; single phase, multi-phase; for compatibility and durability determination
 - Qualification Testing: NORSOK, API, ISO, NACE, custom procedures, low temperature sealing
 - HPHT: permeation, RGD resistance, functional, burst, long term exposures
 - Mechanical Testing: creep, uniaxial tension & compression, fatigue, stress relaxation, multi-axial bending
 - Life Prediction: fatigue, fracture, creep, chemical ageing
 - Technical Audits and Inspections: third party audits, production inspection, design reviews, expert witness
 - Consultancy: materials review and selection, failure analysis, test programme and procedure development



TEST FACILITIES

A wide range of non-metallic test facilities are available and these can be configured to accommodate both standard and custom requirements.

MECHANICAL

- Element Hitchin can offer both routine and bespoke mechanical testing. Utilising a wide range of test frames, Element Hitchin can provide both UKAS accredited testing and bespoke test programs.
- | | |
|-------------------------------|---|
| • Static (loads up to 250kN) | • Pipe burst testing |
| • Dynamic characterisation | • Bespoke structural test frames |
| • Creep/stress rupture | • Fatigue delamination characterisation |
| • Stress relaxation | • Temperature chambers for tests from -70 °C to +250 °C |
| • Fatigue (loads up to 400kN) | |
| • Fracture testing | |
| • Multi-axial test frames | |



THERMO-MECHANICAL

- Because of the nature of polymers, their response to service conditions can be subtle but have considerable impact on functionality. So Element has a suite of analytical instruments to compliment mechanical and fluid exposure testing which can reveal changes to many useful properties.
- DMA
 - DSC
 - TMA
 - TGA
 - Thermal conductivity
 - Seal rigs - cyclic temperature, cyclic pressure



FLUID EXPOSURE

- World class LP/HP/LT/HT fluid exposure testing capability and capacity. With over 130 test stations, distributed across sweet, sour and bespoke laboratories, Element are well placed to service all industries.
- Pressure cells: to 1200 bar
 - Temperatures: -70 °C to +315 °C
 - Permeation cells: Hydrocarbons, CO₂, H₂S, H₂, liquids

CUSTOM

- Service replication
- Sapphire Window Cells - for direct viewing of material in pressurised gas
- Corporate standards
- Fixture design, fabrication; DAQ software; machine control





MATERIALS QUALIFICATION TESTING

- NORSOK: M-710 fluid ageing and RGD, Sealing materials, PTFE, PAEK, FKM, HNBR, FEP, FFKM, others
- ISO 23936, parts 1 & 2
- ISO 13628 - Hose pressure cycling
- ISO 10423 - Drilling and production equipment: wellhead and Christmas tree equipment
- ISO 8308 - Transmission of liquids through hose and tubing walls
- ISO 12736 Wet Thermal Insulation Coatings
- Coating material qualification testing (mechanical, physical, chemical) and full SST capability
- API 15S - Qualification of Spoolable Reinforced Plastic Line Pipe
- Bespoke and corporate procedures
- And more... please contact Element

API 15S PIPE TESTING

Full material and pipe test requirements available.

- Regression Analysis
 - Burst
 - Bending
 - Minimum/maximum and temperature cycling
 - End fitting
 - Loading
 - RGD
 - Impact
 - Thermal expansion
 - Hydrotesting
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www.element.com