

# **DESTRUCTIVE TESTING**

**POLYETHYLENE BUTT-FUSION & ELECTRO-FUSION WELDING**



**TENSILE STRENGTH | PEEL DECOHESION | CRUSH DECOHESION**

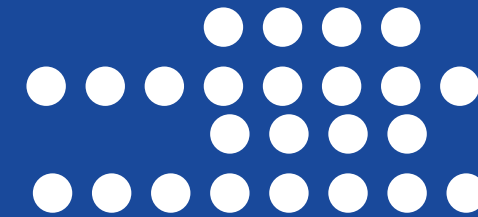
# IANZ ACCREDITED DESTRUCTIVE TESTING

ACCREDITED LABORATORY

Testing the strength of welded polyethylene joints, the quality of the weld is characterised by the nature of the test failure

**Ductile Failure:** Desired result, weld yields slowly and is accompanied by material deformation

**Brittle Failure:** Undesired result, weld yields with little or no material elongation



## TENSILE STRENGTH TEST Testing conducted as per ISO 13935:2001

OF A POLYETHYLENE BUTT WELD



TYPE A: (BLACK) WALL THICKNESS <25MM  
TYPE B: (BLUE) WALL THICKNESS ≥ 25MM

- Determines the strength and failure mode of butt-fused pipe.
- Suitable for joints with an outside diameter >90mm.
- Test pieces are cut from the pipe.
- Samples are subjected to a tensile strength at a constant speed.
- Force is applied to the elongation until complete failure.
- The surface of the failure is then analysed.



RESULT SAMPLES  
LEFT: BRITTLE FAILURE  
RIGHT: DUCTILE FAILURE

## PEEL DECOHESION TEST Testing conducted as per ISO 13954:1997

OF ELECTRO-FUSION JOINTS >90MM



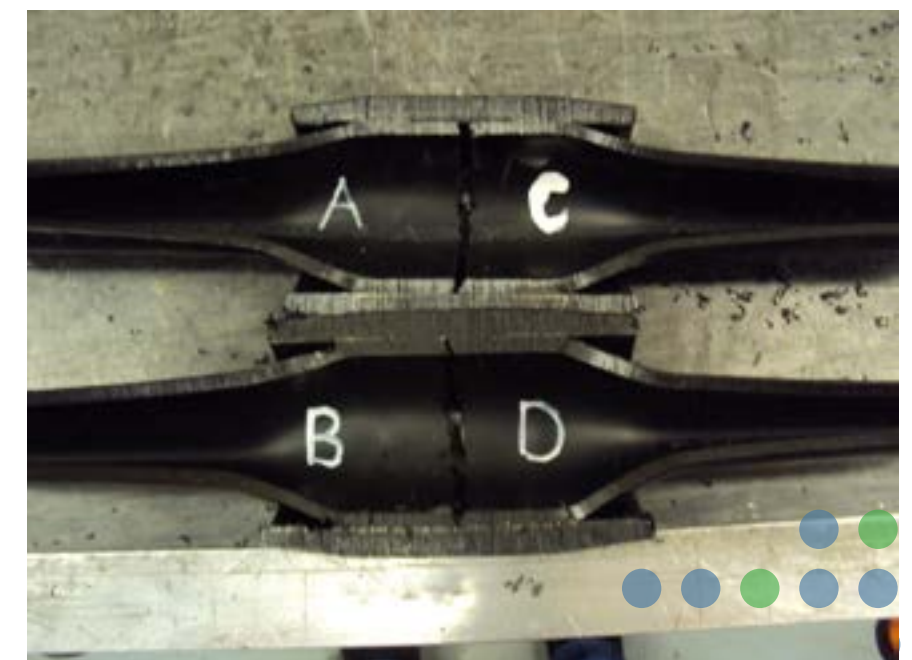
SAMPLE RESULTS:  
LEFT: DUCTILE FAILURE | RIGHT: BRITTLE FAILURE

- Determines the decohesive resistance of electro-fusion joints.
- Suitable for joints with a diameter of >90mm.
- The test piece is subjected to a tensile stress at a constant speed until there is a complete separation.
- Place of the failure is recorded and the type of the failure identified.

## CRUSH DECOHESION TEST Testing conducted as per ISO 13955:1997

OF ELECTRO-FUSION JOINTS 16MM - 225MM

- Determines the decohesive resistance of electro-fusion joints.
- Test pieces are extracted from the joint and subjected to a compression at a constant speed.
- The point of failure is recorded and the type of failure identified.



# QUALITY ASSURANCE

# IANZ

ACCREDITED LABORATORY

No. 1269

COMPLIES WITH THE REQUIREMENTS OF NZS ISO/IEC 17025:2005, AND IS AN ACCREDITED LABORATORY IN THE FIELD OF MECHANICAL TESTING.



Quality  
ISO 9001

No. 2542



## CONTACT US

### PLASTIC SYSTEMS

34 ARRENWAY DRIVE, NORTH SHORE CITY 0632  
P.O. BOX 100244 NORTH SHORE CITY 0745  
AUCKLAND, NEW ZEALAND

FREE PHONE: 0800 000 546  
FAX: +64 9 477 2328

### PLASTIC SYSTEMS

MT WELLINGTON BRANCH  
8A CLEMOW DRIVE, MT WELLINGTON 1060  
AUCKLAND, NEW ZEALAND

PHONE: +64 9 573 0030  
FAX: +64 9 579 0040

### PLASTIC SYSTEMS

CHRISTCHURCH BRANCH  
5 PARADYNE PLACE, SOCKBURN 8042  
CHRISTCHURCH, NEW ZEALAND

PHONE: +64 3 348 4087  
FAX: +64 3 343 0953