



*Chisholm*

**POLYMER  
TESTING  
SERVICES**



**1300 244 746 [chisholm.edu.au](http://chisholm.edu.au)**

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# POLYMER TESTING LABORATORY

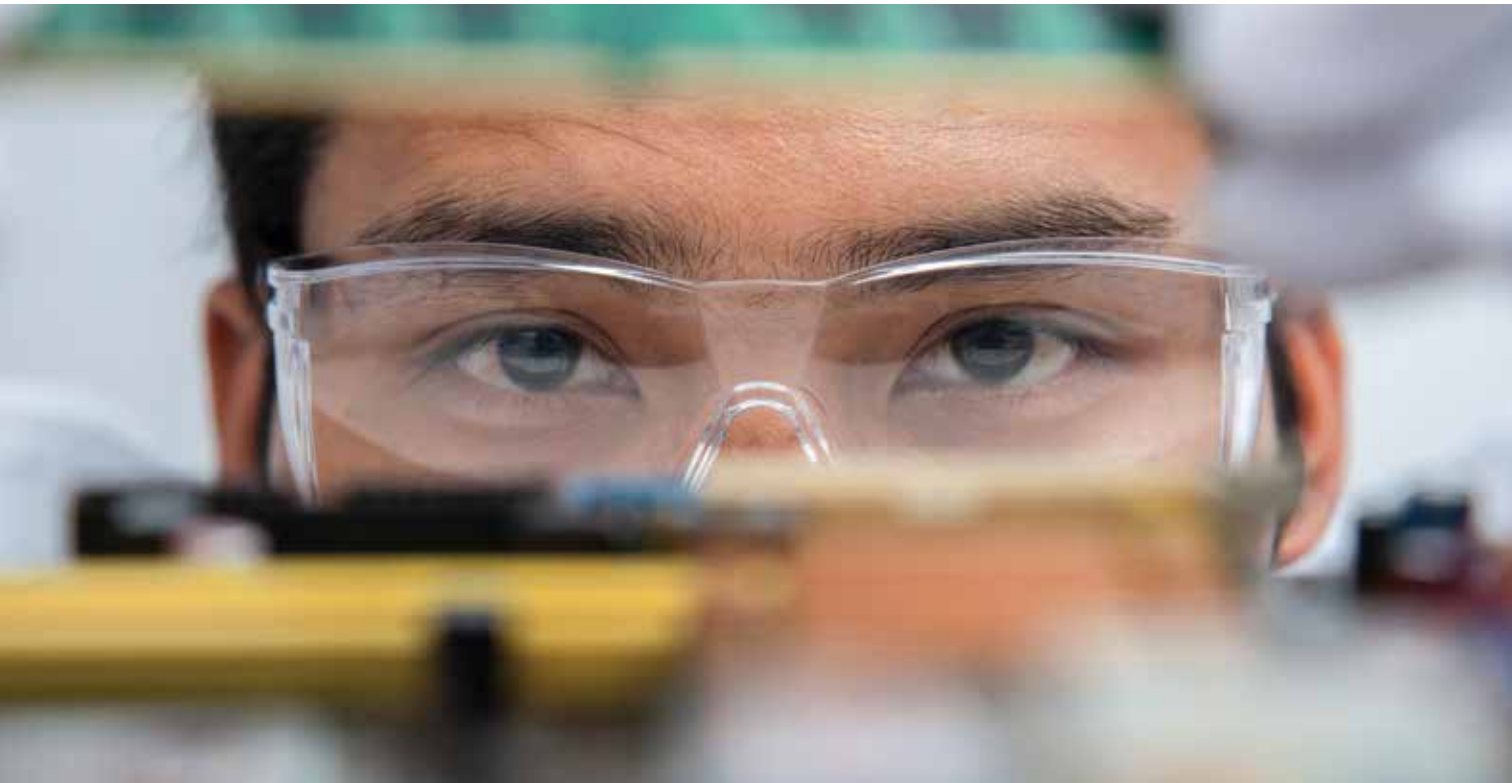
NATA Accreditation No. 10064

**Chisholm's Polymer Testing Laboratory provides a wide range of testing and analysis services to industries where polymers and plastics are used.**

The Polymer Testing Laboratory is accredited by the National Association of Testing Authorities (NATA) and complies with the requirements of ISO/IEC 17025:2017 'General requirements for the competence of testing and calibration laboratories'.

The Polymer Testing Laboratory is run by highly qualified personnel who are experienced in industry and understand the need for work to be carried out discretely. All requirements are handled professionally, in complete confidence and where necessary, a confidentiality agreement can be entered into.

The laboratory is equipped with a wide range of equipment including two Shimadzu universal (tensile) testing machines, Ceast pendulum impact tester, falling dart film impact tester, Differential Scanning Calorimeter, FTIR, QUV weathering machine, Ceast VICAT/HDT, MFI, hardness testers, microscopes and profile projector. The lab also has a pilot polymer processing Brabender Plasti-corder extruder.



## SERVICES OFFERED

- **Test specimen preparation** from raw material or products via granulation, compression moulding, injection moulding, machining and milling.
- **Material testing and evaluation;** tension/strength, compression/bend testing, tear, puncture testing, thermal testing, chemical testing.
- **Product testing and evaluation;** tension/strength, compression/bend test, tear, puncture testing, thermal testing, chemical testing.
- **Competitive product analysis/testing;** Mechanical, thermal, chemical testing, identification.
- **Identification and analysis of materials;** Differential Scanning Calorimetry (DSC) and Fourier Transfer Infra-red Spectroscopy (FTIR).
- **Flow behaviour** of materials such as melt flow rate by Melt Flow Indexer, shear rate vs viscosity of materials by Monsanto Capillary Rheometer, and shear rate vs viscosity and torque and temperature by Brabender Plasticorder.

All testing and analysis of products and materials is to specifications using Australian Standards, American Society for Testing and Materials (ASTM) Standards and International Organization for Standardization (ISO) Standards. Other test methods may be available on application.

**THE POLYMER TESTING LABORATORY IS RUN BY HIGHLY QUALIFIED PERSONNEL WHO ARE EXPERIENCED IN INDUSTRY AND UNDERSTAND THE NEED FOR WORK TO BE CARRIED OUT DISCRETELY.**

## Chisholm Polymer Testing Laboratory Equipment

- Shimadzu AG-IS 10kN Tensile Testing Machine
- Shimadzu 20kN Tensile Testing Machine
- Ceast Pendulum Impact Tester for Izod, Charpy and Tensile Impact Testing
- Falling Dart Film Impact Tester
- Shore A and D Hardness Testers
- Barcol Hardness Tester
- Rockwell Hardness Tester
- Elmendorf Tear Tester
- Vicat/ Heat Deflection Temperature Tester
- Gardner Hazemeter/ Glossmeter
- Abbe Refractometer
- FMVSS 302 Flammability Tester
- AS/NZS 60685.2.10 Glow-wire Tester
- Melt Flow Rate Apparatus
- Monsanto Automatic Capillary Rheometer
- Brabender Plasticorder PL2000-6 with torque rheometer, mixing head heat stability apparatus, single screw and twin screw laboratory scale compounding, laboratory scale blown film line, laboratory scale tube extrusion
- Shimadzu FTIR
- Mettler DSC1 Differential Scanning Calorimetry
- Muffle Furnaces
- Fan forced ovens and vacuum ovens
- Brabender C-Aquameter Moisture Analyser
- Light Polariser
- Brookfield Viscometer
- ICI Instrumented Impact Tester
- QUV Accelerated Weathering Apparatus/Spray
- Wiley Mill
- Physical Test Specimen Injection Moulding Tools

# NATA ACCREDITED TEST PROCEDURES



## Tension Tests

- Tensile strength to AS 1145.1, AS 1145.2, ISO 527-1, ISO 527-2, ASTM D638M and ASTM D638
- Tensile tests on external cable sheathing to AS1660.2.1
- Tensile test on plastic pipe butt welds to BS EN 12814-2

## Impact Tests

- Izod impact strength to ASTM D256 Methods A and E

## Thermal Evaluation

- Heat deflection temperature to ASTM D648 Method A
- Thermal transition points of polymers to ATSM D3418
- VICAT softening point to AS1368, AS1462.5, ISO 2507-1 and ASTM D1525 ISO306
- Oxidation induction time (OIT) ISO11357-6

## Bend Tests

- Flexural modulus to ASTM D790, ISO178

## Flow Properties

- Melt flow rate to ASTM D1238, ISO 1133

## Other Tests

- Shear and peel strength tests on geomembrane polymeric sheet to ASTM D4437-1999

## Plastic Films

- Tensile strength of polymer film to ASTM D882
- Falling dart impact to AS 1326-1972
- Shear & peel tests on geomembrane seams using thermo fusion methods to ASTM D 6392

## Pipe and Related Products

- Degree of cross-linking by determination of gel content to AS 2492 and ISO10147



# POLYMER TESTING SERVICES

## Procedures and Standards

### Testing Procedure Method Identification

### Standard Test Procedure Reference

### Adhesive Testing

Adhesive Tape testing	AS 1635
Coating Adhesion Strength	AS 1441.5
Low Speed Release Force	FINAT No. 3
Peel Adhesion	FINAT No. 1
Peel Cling	ASTM D 5458
Pressure Sensitive Adhesive-Coated Tapes used for Electrical and Electronic Applications	ASTM D 1000-04

### Hardness Testing

Barcol Hardness	ASTM D 2583
Shore A Hardness	ASTM D 2240
Shore D Hardness	ASTM D 2240
Rockwell Hardness of Plastics	ASTM D 785

Testing Procedure Method Identification	Standard Test Procedure Reference
<b>Tension Testing</b>	
Breaking Force and Extension	AS 2001.2.3
Breaking Strength of Coated Fabrics	ASTM D 751
Geomembrane Testing (Shear & Peel Testing)	ASTM D 4437 ASTM D 6398
Plastics Pipe Butt Weld Strength	MIWA
Tensile Properties of Plastic Sheeting	ASTM D 882
Tensile Properties of Plastics	ASTM D 638M ASTM D 638 ISO 527
Tensile properties of vulcanised thermoset rubbers and thermoplastic elastom	ASTM D412
Tensile tests on cable	AS 1660.2.1
<b>Impact Testing</b>	
Charpy Impact Strength	ISO 179
Falling Aggregate Impact	CSIRO Method
Impact Resistance of Plastics	ASTM D 256 ISO 180
Impact Resistance of Polyethylene Film	ASTM D 1709 AS/NZS 4347.6
Impact Strength	ASTM D 3029
Penetration Test of Polymeric Cable Protection Covers	AS4702: 2000 Clause 8.2
<b>Tear Testing</b>	
Initial Tear Resistance	ASTM D 1004
Tear Resistance of Woven Fabrics	AS 2001.2.10
Tear Resistance	ASTM D 1938
Tear Strength of Reinforced Geomembranes	ASTM D 5884

Testing Procedure Method Identification	Standard Test Procedure Reference
<b>Puncture Testing</b>	
Bursting Force of Textile Fabrics	AS 2001.2.19
Puncture Resistance	ASTM D 4649 (M)
Puncture Resistance of Geomembranes	ASTM D 4833
Resistance to Penetration	AS 4031 Appendix C
Resistance to Puncture	ASTM E 154
<b>Bend/Compression Testing</b>	
Compression Resistance of Fibreboard Boxes	AS 1301.800S
Flexural Properties of Plastics	ASTM D 790 ISO 178
Heat Deflection Temperature	ASTM D 648/ISO 75
Initial Ring Stiffness of Glass Filament Reinforced Plastic Pipes	AS 3572.10
Pipe Stiffness	AS 1462.22
Ring Flexibility	AS 1462.23
Thermoplastic Pipes Determination of Ring Stiffness	ISO 9969
<b>Flammability Testing</b>	
Flammability	UL94 Mitsubishi ES-X60410 TSM0500G FMV SS302
Glow Wire Flammability	AS/NZS 60685.2.10

Testing Procedure Method Identification	Standard Test Procedure Reference
<b>Thermal Testing</b>	
Melt Flow Rates of Thermoplastics	ASTM D 1238/ ISO 1133 AS/NZS 1660.2.4
Gel Time and Peak Exothermic Temperature	ASTM D 2471
Oxygen Induction Time	ASTM D 3895 AS 1049
Oxygen Induction Time	ISO 11357-6 ASTM D3895
Rheological Properties	ASTM D 3835
Thermal Properties (Melting Point, Glass Transition Temperature)	ASTM D 3418
Heat Deflection Temperature	ASTM D 648/ISO 75
Vicat Softening Temperature of Plastics	AS1462.5 AS1368 ISO 2507-1 ASTM D 1525 ISO 306
<b>Chemical Testing</b>	
AEX Gel Molar Fraction	TYCAB Method
AVX Gel Molar fraction	TYCAB Method
Degree of Cross-linking of PE-X Pipes	AS 2492 -2007 (ISO 10147)
Degree of Cross-linking on Polyethylene	ASTM D 2765
Environmental Stress Cracking Resistance	AS 2698 Appendix D
Environmental Stress Cracking Resistance	ASTM D 1693 AS1660.2.4
Plasticiser Content of PVC Compounds	ASTM D 2124 .8.2
Surface Tension	ASTM D 2578

Testing Procedure Method Identification	Standard Test Procedure Reference
<b>Other Tests</b>	
Agglomerate and Particle Size	AS/NZS 1462.28
Pigment Dispersion	AS/NZS 1462.28
Carbon Black Content of PE Compounds	ASTM D 4218
Carbon Fibre Content	ESPRC Method
Filler Content	ASTM D 5630
Glass Fibre Content	ASTM D 2584
Co-efficient of Friction	ASTM D 1894
Dimensional Stability	ASTM D 1204
Shrinkage from Mould Dimensions of Thermoplastics	ASTM D 955
Shrinkage of Polypropylene Ribbon	Pirrelli Standard
Fusion of PVC Compounds	ASTM D 2538
Gloss	ASTM D 2457
Haze and Luminous Transmittance	ASTM D 1003
Moisture Content	Brabender Method
Volatile Loss from Plastics	ASTM D 1203
FTIR - Fourier Transfer Infrared Analysis of polymers	–
Sharps Container Testing	AS 4261
Specific Gravity and Density of Plastics	ASTM D 792 ISO 1183
Viscosity of Epoxy Resins (Brookfield)	ASTM D 2393
Volatility	AS 2324
Water Vapour Transmission Rate	ASTM E 96

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Contact us for further information or a full list  
of our services and equipment.

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NATA Scope of Accreditation no. 10064  
[www.nata.com.au/accredited-facility](http://www.nata.com.au/accredited-facility)



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