

# March 2022 Vol. 4

Author : PPN

## PPN- The Leading Source of Industry News on Polymer Pipes and Plastic Pipe Testing

*Global News on Plastic Piping and Fittings in Real Time*

---

NEWSMAKERS: \* Aliaxis \* Borouge \* ExcelPlas \* Failure Analysis \* GF Piping \* PEX Pipe Failures \* PE100 \* PPI \* PPN \* PP-R \* Protecta-Line® \* SAPPMA \* TWI

### INDUSTRY NEWS

#### **Webinar - Assessment of Welds in Polyethylene Pipes (5<sup>th</sup> April, 2022)**

<https://www.onestopndt.com/upcoming-webinars/assessment-of-welds-in-polyethylene-pipes>

#### **Aliaxis' Protecta-Line Barrier Pipe Installed in 10M Pound Project**

<https://www.watermagazine.co.uk/2022/03/25/10-million-welsh-water-infrastructure-investment-nearing-completion/>

#### **Borouge to IPO (Your Chance to Invest in a Share of this Polyolefin Behemoth)**

<https://www.reuters.com/business/energy/plastics-venture-borouge-meets-potential-ipo-investors-bankers-say-2022-03-22/>

#### **Development of New Hydro-Axial Tension Method for Whole Pipe Butt-Fusion Joint**

## **Tensile Test**

<https://www.sciencedirect.com/science/article/pii/S0142941822000782>

## **Strain Rate-Dependent Hyperbolic Constitutive Model for Tensile Behaviour of PE100 Pipe Material [PDF]**

<https://www.mdpi.com/2073-4360/14/7/1357/pdf>

## **New Advice on Storing HDPE Pipes from PPI**

<https://www.plasticpipe.org/EnergyPipingSystems/MunicipalAdvisoryBoard/Navigation/HDPE-Menu/Handling-Storage-Pages/StoringPE-Pipe.aspx>

## **Reducing Excessive Deformations of Buried HDPE Pipes Under Dynamic Loading Using Expanded Polystyrene (EPS) Geofom**

<https://udspace.udel.edu/handle/19716/30677>

## **Why Polybutylene Pipes Are a Problem !**

<https://www.punctualplumberdallas.com/blog/what-are-polybutylene-pipes-and-are-they-a-problem/>

## **Leak Before Break Fracture Assessment of Pressurized Unplasticized PVC Pipes with Axial Surface Cracks**

<https://www.sciencedirect.com/science/article/abs/pii/S0013794422001497>

## **The Key to Long-Lasting Plastic Pipes and Fittings**

<https://www.pipeliner.com.au/2022/03/25/the-key-to-long-lasting-plastic-pipes-and-fittings/>

## **Pre-insulated Plastic Piping in HVAC Systems Could Save 112mt of Fuel Annually**

<https://www.seatrade-cruise.com/shipbuilding-refurb-equipment/pre-insulated-plastic-piping-hvac-systems-could-save-112mt-fuel>

## **State-of-the-Art Review on Application of Spray-Applied Pipe Linings in Gravity Stormwater Conveyance Conduits**

[https://ascelibrary.org/doi/abs/10.1061/\(ASCE\)PS.1949-1204.0000651](https://ascelibrary.org/doi/abs/10.1061/(ASCE)PS.1949-1204.0000651)

## **South Africa Fails to Recognise Urgent Need for Plastic Piping for Protecting Water Resources**

<https://foranglers.co.za/water-week-south-africa-fails-to-recognise-urgent-need-for-protecting-water-resources/>

## **PLASTIC PIPE FAILURE ANALYSIS**

### **Failure Analysis of Plastic Pipes**

If you are looking for an expert witness for your case involving plastic pipe failure analysis, then you can't beat the team at ExcelPlas Consulting. Our team is setting a new standard for excellence in failure analysis of plastic articles but especially plastic pipe. For plastic pipe, this includes HDPE, PVC & CPVC pipe as well as other plastic piping systems like Hobas GRP pipe, PP-R Pipe, and spoolable composite pipe. When a plastic pipeline fails to perform as intended, our team can determine the root cause (chemical failure, oxidative failure, creep failure, overstress failure, fatigue failure, design failure, etc). We are experts in HDPE water pipe failures, CPVC sprinkler pipe failure, PVC pipe failure analysis and PP-R Oxidation/Degradation investigations.

<https://www.excelplas.com/wp-content/uploads/2020/01/Excelplas-A4-Brochure-4pp-Plastic-Pipe-Testing-NTs.pdf>

### **ExcelPlas Investigating Poly Pipe Failures**

Through failure analysis & forensic chemistry, we help clients improve product performance, increase profits, & resolve product liability claims with plastic pipes and fittings.

We are dedicated to unmatched excellence in failure analysis, investigative chemistry, material testing, and expert witnessing for plastics, polymers and composites.

With over 25 years of investigative experience, the staff at ExcelPlas are uniquely positioned to help clients resolve the most challenging performance and processing issues related to materials and plastic pipes and fittings.

<https://www.excelplas.com/contact-us/>

## **Cautionary Warning: Some PEX Piping is Prone to Development of Cracks Due to Early Oxidation**

ExcelPlas Labs have developed a three-step testing program to detect early failure of **PEX** pipe and their expected service lifetime.

The 3 Step Testing is based on:

- Oxidative Induction Time (OIT) testing to determine the residual level of oxidative stability (i.e. thermal stability)
- Quantitative Additive Analysis (QAA) to determine the type and level of protective antioxidants and stabilizer present.
- Scanning Microscopy on inner surface after bend back to image developing microcracks

Samples of **PEX** pipe just 10 cm long are needed for the analysis. 7 Day turnaround on test reports.

<https://www.excelplas.com/wp-content/uploads/2020/01/Excelplas-A4-Brochure-4pp-Plastic-Pipe-Testing-NTs.pdf>

MORE POLY PIPE NEWS

**PPN the Digital News Platform for Communicating to the Global Plastic Pipe Industry**

Send Us Your News!!! PPN Publishes weekly.

<https://www.youtube.com/watch?v=eUKxWbOZY10>

---

### **ExcelPlas Labs Pipe Failure Investigations**

ExcelPlas Labs have created a new benchmark in failure analysis of HDPE, PP-R, PB and PEX pipes in addition to PVC & CPVC pipes as well as composite GRP and GRE pipes. When a plastic pipeline fails to perform as intended, our team can determine the root cause of failure (e.g. oxidative failure, chemical failure, creep failure, over-stress failure, fatigue failure, design failure, etc). ExcelPlas are experienced with all plastic piping failure modes and mechanisms including Slow Crack Growth (SCG) Rapid Crack Propagation (RCP), Environmental Stress Crack Resistance (ESCR), Oxidative Stress Cracking (OSC), cyclic fatigue, manufacturing defects, and polymer material problems.

<http://www.excelplas.com/>

### **ExcelPlas Strain Hardening Test (SHT) for HDPE Pipes**

The SHT in accordance with ISO 18488 is a relatively new, but excellent way to obtain a rapid indication of the Stress Crack Growth (SCG) resistance of your piping material. This tensile test performed at 80°C has become in just a few years the new standard for Batch Release Testing (BRT). And not without reason. The test requires only a very small amount of material, the results are very reliable with a very low inter-laboratory scatter and the results are available within a few days, regardless of the PE grade. The SHT is usually performed on resin material but it can also be performed on samples taken directly from pipes or sheets. As accredited lab, EXCELPLAS is happy to discuss the possibilities with you, whether it is for BRT, benchmarking, quality control of your (high performing) PE grade or for polymer compliance/ validation.

<http://www.excelplas.com/>

### **Australia's Plastic Pipe Testing Laboratory**

ExcelPlas Laboratories provides a comprehensive plastic pipe joint testing service and is equipped with a state-of-the-art laboratory to test a range of polymer materials including polyethylene and polypropylene. ExcelPlas can carry out testing on plastic tube and pipe ranging in wall thickness from 3mm to 1200mm. ExcelPlas Laboratories provide a comprehensive service to Industrial & commercial companies, environmental consultants, Government bodies, and local Authority customers throughout Australia and Asia. All testing is carried and out in accordance with ASTM, ISO & WIS methods and is fully accredited to ISO 17025 by NATA.

- Butt Fusion Weld Testing
- Weld Testing
- Testing of Electro-fusion Welds
- Tear on saddle joints
- Crush De-cohesion of Electro-fusion welds
- Polymer & Plastics Identification
- Chemical & Thermal Testing
- Site Audits

<http://www.excelplas.com/>

### **ExcelPlas - the Australian Pipes & Fittings Testing Laboratory**

- Accredited to ISO 17025 by the National Association of Testing Authorities (NATA)

Australia, and is Australia's largest laboratory dedicated for the testing of plastic pipes and fittings to various Standards which include Australian, European and International Standards.

- The staff employed at the laboratory have a combined experience of more than 85 years within the plastics industry specifically with manufacturing, quality control and the research and development of plastic piping systems including HDPE, PEX, PP-R, PVC, U-PVC, M-PVC, O-PVC, ABS, GRP, GRE and PB.
- Services provided include conformance testing, compliance testing, batch release testing, root cause analysis for field failures and non-destructive testing of samples.
- <http://www.excelplas.com/>

### **ExcelPlas Lab Specialising in HDPE Pipe Condition Monitoring, Failure Analysis and Testing**

In the event of a HDPE butt weld or electrofusion weld failing during initial testing, or in service, we can conduct investigations to assist in identifying the root cause of the failure.

This service also extends to the premature failure of the pipe or fitting itself.

<http://www.excelplas.com/plastic-pipes>

### **ExcelPlas Pipe Testing is a Leader in the Field of Polyethylene (PE) and High-Density Polyethylene (HDPE) Testing**

ExcelPlas is accredited with the National Association of Testing Authorities (NATA) for butt weld tests, bend and tensile tests, peel decohesion tests on electro fusion sockets and failure mode determination

<http://www.polypipetesting.com.au/butt-fusion-welds/>

### **New UHMWPE Pipe for Tailing Offers Greater Than 4X the Abrasion Resistance of PE100 (Australia wide)**

<http://slurrypipes.com.au/>

### **ExcelPlas Poly Pipe Weld Inspection Lists Top 7 Causes of Weld Failure:**

- Lack of scraping
- Inaccurate scraping
- Contamination from dirt, water, oil or clays
- Lack of Paralell-ness of fusion faces
- Misalignment of surfaces

- Time, temperature and pressure deviations
- Not adhering to cool times

We have extensive experience in inspection of poly pipe welds for assuring welded joint quality. Direct Poly Pipe Inspection ensures that operators are following the proven welding procedure; this reduces the occurrences of operational errors which lead to defects such as inclusions, lack of fusion (LoF), porosity and misalignment.

More information, contact [john@excelplas.com](mailto:john@excelplas.com)

### **Get Your HDPE Pipe Products or Services Noticed – Advertise in Poly Pipe News (PPN) Australia**

<https://www.polypipenews.com.au/advertise/>

### **This Newsletter is brought to you by Excelplas Labs, Australia's Largest group of Poly Pipe Testing Labs.**

Pipe Poly News (PPN) is now Australia's most current and comprehensive source of news on Polyethylene pipes and Poly Pipe Welding;

Poly Pipe News is now sent to over 4500 Poly Pipe Industry Members every week.

Any news requests should be sent to [john@excelplas.com](mailto:john@excelplas.com)

To subscribe, visit <https://www.polypipenews.com.au/subscribe/>

2022 Copyright ExcelPlas Labs

PPN is owned and operated by ExcelPlas Pty Ltd. By subscribing to PPN you agree to receiving regular PPN newsletters as well as the PPN platform using your email contact details to enhance the performance and functionality of PPN and its analytics reports. These email contact details allow PPN to track page views and create more targeted and relevant content. PPN provides an unsubscribe link on the bottom of each PPN newsletter.