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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 * CSIRO * DuroMaxx® * ExcelPlas * Failure Analysis * IPLEX * PE100+ Association * PEX Pipe Failures * Plastic Pipe Institute * PPI * PPN * ProPEX® * SRPE Pipe * Uponor * Vinidex * WHO * World Health Organization

INDUSTRY NEWS

World Health Organization (WHO) Publishes Report on Potential Human Health Implications of Microplastics
https://cloud.excelplas.com/s/TOCBUG0irRohY7T

New Zealand Ministry supporting Aliaxis investment of €7M in Plastic Recycling
https://aliaxis.com/new-zealand-ministry-supporting-aliaxis-investment-of-e7m-in-plastic-recycling/

Fire Resistance of Various Plastic Pipes Protected by Fire Collars (Declassified CSIRO Report) [PDF]
https://cdn.snapcollars.com.au/wp-content/uploads/2022/09/FCO3407.pdf

Iplex Building Townsville's Haughton Pipeline Project with PE100 Piping
https://www.pipeliner.com.au/iplex-building-townsvilles-haughton-pipeline-project/

Introducing the New Uponor ProPEX® Connection System (Video)
https://www.youtube.com/watch?v=XntKp_WyEKE

PVC Microplastics Found to Leach Phthalates into the Aquatic Environment over Decades
https://pubs.acs.org/doi/10.1021/acs.est.2c05108

Vinidex Seeking QC Technician for Pipe Extrusion
https://au.linkedin.com/jobs/view/quality-control-technician-at-vinidex-3295307495

Water Hammer in Steel–Plastic Pipes Connected in Series
https://www.mdpi.com/2073-4441/14/19/3107/pdf?version=1664702187

Predicting Failure of Rupture of HDPE Gas Pipelines Using Fuzzy TOPSIS Models
https://www.sciencedirect.com/science/article/abs/pii/S095965262203904X

Introducing DuroMaxx® Steel Reinforced Polyethylene (SRPE) Pipe
Contech DuroMaxx SRPE Pipe combines the strength of steel with the durability of HDPE while being lightweight and providing a smooth polyethylene waterway.
https://www.conteches.com/pipe/steel-reinforced-polyethylene-pipe/duromaxx-pipe

PEX PIPE FAILURE

Investigation of Long-Term Rupture Pressure in PEX-AL-PEX Composite Pipes
https://m.x-mol.com/paper/1570165197602263040

Study on the Tensile Properties of Reinforced Thermoplastic Pipes Under Different Internal Pressures and Temperatures
https://m.x-mol.com/paper/1574896900541833216

MICROPLASTICS

Microplastics, Their Toxic Effects on Living Organisms in Soil Biota and Their Fate: An Appraisal
https://link.springer.com/chapter/10.1007/978-3-031-09270-1_17

In vitro Gut Models Reveal How PE Microplastics Affect the GI Tract
https://www.news-medical.net/news/20220926/In-vitroc2a0gut-models-reveal-how-microplastics-affect-the-GI-tract.aspx

Spectroscopy Reveals a High Abundance of Microplastics in Human Placenta
https://www.news-medical.net/news/20220927/Spectroscopy-reveals-a-high-abundance-of-microplastics-in-human-placenta.aspx

Microplastics: Global Occurrence, Impact, Characteristics and Sorting
https://www.frontiersin.org/articles/10.3389/fmars.2022.893641/full

PVC Microplastics Found to Leach Phthalates into the Aquatic Environment over Decades
https://pubs.acs.org/doi/10.1021/acs.est.2c05108

FAILURE ANALYSIS

HDPE PIPE JOINT FAILURE EXPERTS

The failure of electrofusion or butt fusion joints in polyethylene gas pipework can be due to several factors including incorrect alignment, contamination, incorrect temperature or the duration of joint fusion.
If a joint failure occurs, investigations are important to help identify modifications to procedures or training that can help you minimise the occurrence of future failure. This is where we can help.
We provide a detailed PE joint failure investigation service which typically include:

- Digital inspection of the received sample, including dimension measurements of sizes and ovality
- Segmenting the joint for visual and microscopic investigation
- Elemental analysis of any contamination found in the joint
- Peel decohesion testing

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

Plastic Pipeline Expert Witness
If you require expert witness or legal consulting assistance in pipeline failure analysis, plastic pipeline joining methods, plastic piping welding, or associated technical areas please contact us.
https://www.excelplas.com/contact-us/

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 finished pipes and fittings.
https://www.excelplas.com/contact-us/

How to Prevent Failures in Plastic Pipe Welding
A properly made Electrofusion joint should last as long as if not longer than the service life of the PE pipe it joins (50+ years) and be as strong as the pipe material itself. However, electrofusion joints are notoriously unreliable with some reports suggesting that up to 20% will

fail before their expected service life.
Many quality control regimes on PE pipe installations are limited to pass a pressure test on the main itself only. This form of testing omits the service connections (branch saddles and tapping tees) which remain untapped until the pressure test is completed. Also, this form of testing will only identify overly brittle joints caused by excessive contamination, misalignment and under/overheating but miss partially brittle or strong brittle joints which are more likely to fail later on in service. To achieve at least a 50 year service life all of the joints on the pipeline must remain fully ductile. Furthermore, there is no quality control procedure beyond visual inspection which will satisfactorily test service connections and prevent failures in plastic pipe welding.
ExcelPlas have been developing a new Non-Destructive Testing method for Electrofusion joints and service connections. Due to its low cost and simplicity it can be used cost effectively on all electrofusion joints and service connections on a pipeline to check for misalignment and poor fusion caused by contamination or under/overheating. If used as a standard form of quality control by a contractor it can ensure that joints are suitably welded to last the expected service life and provide a recorded form of quality control to pass on to the owner/operator of the asset.
Furthermore, ExcelPlas are experts in failure analysis of failures in plastic pipe welding, with a large number of case studies both for expert witness cases, and smaller scale work to uncover material or operational errors which have led to the failures. Our ISO accredited testing laboratory can handle destructive testing of electrofusion and butt fused welds of any size (we have tested joints over 630mm in size), in addition to a host of analytical tests such as DSC, FTIR, TGA, SEM-EDAX to get to the root cause of the failures in plastic pipe welding.
https://www.excelplas.com/

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 buttweld 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

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
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