



**PVC PIPES ARE TOUGHER  
THAN THEIR DUCTILE IRON  
COMPETITORS**  
IN EXTREME FIELD TESTING

Think Pipes.  
**Think PVC**  
Sustainability and performance



# SUPERIOR TOUGHNESS OF PVC PIPES PROVEN AGAIN

*New study uses triple Extreme field installation testing to demonstrate superior toughness and durability of PVC Pipes*

PVC-O has established an enviable reputation as a high performance, durable pipe material which is ideal for pressure pipe and water supply applications. It is light and easy to handle, but tough and resistant to damage

## Triple Field Installation testing

PVC (polyvinyl chloride) pipes and DI (ductile iron) pipes both offer the benefits of relatively high tensile strengths, burst pressures and crushing loads. However, our closer study of the two pipes shows the real toughness of PVC-O pipe.

To demonstrate the superior toughness of PVC-O Pipe, this new study used an installation

contractor to subject a length of 150mm diameter PN16 PVC-O pipe and PN35 ductile iron pipe to some extraordinary abuse.

Although pipes would not be subjected to this type of abuse during installation, these tests clearly illustrate the toughness of PVC-O compared to ductile iron pipe.

**One of the key benefits of bi-axially oriented PVC pipe, more commonly known as PVC-O, is the material's outstanding toughness and durability, which resists damage and provides decades of corrosion free service life.**

**Although this type of field testing is not likely to be included in the Australian Standards or WSAA pipeline codes, it clearly demonstrates the superior toughness, impact resistance and durability of PVC-O pipes.**



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**WATCH THE  
TESTING  
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## TEST ONE

### *Driven over by 20-tonne excavator Not Once, But Twice!*

Although the PVC pipe was severely creased and gouged by the excavator's tracks, it survived without penetration.

## TEST TWO

### *250kg Rock Dropped from height of 2.5metres*

The PVC pipe sustained only minor surface markings from the impact and had become slightly out of round at the point of impact, demonstrating the amazing resistance to damage that PVC-O has.

The Ductile Iron pipe suffered a gash approximately 100mm long by 10mm wide.

## TEST THREE

### *Pressure testing of the PVC-O pipe from tests one and two to identify any splits, tears or weaknesses*

The PVC-O pipe used in the above two tests was filled with water and pressure was applied whilst the pipe was monitored for leaks. As the handle was pumped, the pressure progressively increased expanding the pipe and returning it closer to its original circular shape until the pressure reached 1600 kilopascals, the working pressure rating for this PVC-O pipe.

The pipe did not burst and in fact no leakage was detected during the test. There was no need to pressure test the Ductile Iron pipe as it had already failed during the previous test.

*“Extreme Abuse tests  
demonstrated the amazing  
resistance to damage that  
PVC-O has”*



*“The Ductile Iron pipe split and failed where the  
PVC-O pipe sustained only minor damage”*



## PVC-O

# WELL PROVEN FOR EXCEPTIONAL STRENGTH, DUCTILITY AND HIGH IMPACT RESISTANCE

Although PVC-O pipes have been produced and used in Australia for 20 years, recent manufacturing technology advances have seen greater availability in the past few years. The orientation process imparts high strength at maximum material efficiency. It is the most eco-friendly pipe system in the world as it requires less energy to produce than conventional PVC-U and other pipe materials. It also uses less energy in service than all other pipe types.

Considering their relative low weight, PVC pipes are strong and durable. It stays strong through a range of temperatures, resulting in fewer burst pipes and other maintenance issues. The long lists of benefits of PVC-O pipes include:

- Exceptional Strength and Ductility
- High Impact Resistance
- Larger Bore offering greater hydraulic capacity
- Smooth Bore offering Low flow resistance
- Corrosion Resistant making it ideal for water infrastructure durability
- Guaranteed minimum stiffness of SN9,000 (DN100 - DN300), SN10,000 (DN375 - DN600)
- Light Weight offers savings in transport, installation and structural support
- Material & Energy efficient – 100% Recyclable
- Manufactured with significantly less embodied energy



## PVC-O IN A RANGE OF INDUSTRIES

PVC and DI pipes both offer the benefits of high strengths, burst pressures and crushing loads. However our closer look proves the superior toughness of PVC Pipes

**The superior toughness, ductility, larger bore, corrosion and chemical resistance offers of PVC-O pipe makes it ideal for a range of industries and applications.**

- Water supply reticulation and trunk mains
- Irrigation systems
- Recycled Water applications
- Slurry pipelines – mining waste
- Recycled water systems
- Pumped Effluent - Sewage, Industrial & waste water
- Potable water applications
- Pressure Sewer applications

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