

Poly Pipe Pty Ltd

PRODUCT APPRAISAL REPORT 08/12 Issue 3

Polyethylene (PE) Pipe

AS/NZS 4130:2009 Polyethylene (PE) pipes for pressure applications

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WATER SERVICES
ASSOCIATION OF AUSTRALIA

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Peer Reviewers

Name/Title	Organisation	Date
Expert Panel Members	Refer to Appendix E	1/4/2009
Grant Leslie, Product Appraisal Manager	WSAA	1/4/2009
Carl Radford, Product Appraisal Manager	WSAA	7/5/2012

Approvals

Name/Title	Signature	Date
Carl Radford, Product Appraisal Manager	<i>Carl Radford</i>	7/5/2012
Carl Radford, Product Appraisal Manager	<i>Carl Radford</i>	30/6/2014

Overview of WSAA

The Water Services Association of Australia (WSAA) is the peak body of the Australian urban water industry. Its members and associate members provide water and wastewater services to approximately 16 million Australians and to many of our largest industrial and commercial enterprises.

Urban water service providers have a critical role in ensuring that Australians have access to adequate and high quality water services. As Australia's population continues to grow, with most of this growth occurring in cities, that role becomes increasingly important.

WSAA's vision is for Australian urban water utilities to be valued as leaders in the innovative, sustainable and cost effective delivery of water services. WSAA strives to achieve this vision by promoting knowledge sharing, networking and cooperation amongst members. WSAA identifies emerging issues and develops industry-wide responses. WSAA is the national voice of the urban water industry, speaking to government, the broader water sector and the Australian community.

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1 EXECUTIVE SUMMARY

Issue 3 of this Product Appraisal Report replaces and updates PA 8/12 Issue 2 published in May 2012. Issue 3 of this report extends the range of polyethylene (PE) pipes sizes, manufactured by Poly Pipe Pty Ltd, to include DN 450, 500, 560, 630, 710 and 800 pipe sizes in pressure classes PN4, PN6.3, PN8, PN10, PN12.5, PN 16, PN 20 and PN 25 with a minimum required strength (MRS) class of 10 (PE100).

Issue 2 was published in May 2012, and included versions to resolve future work items identified in the previous version, it also incorporated the results of a success field trial and recognised Poly Pipe Pty Ltd StandardsMark Licence (System 5) product certification for their range of Polyethylene (PE) Pipe.

Poly Pipe Pty Ltd manufactures a range of StandardsMark certified plain wall PE pipes to comply with AS/NZS 4130:2009 – *Polyethylene (PE) pipes for pressure applications* for use in water supply, recycled water supply, and pressure sewerage systems.

Poly Pipe Pty Ltd PE pipe is now available in sizes DN 20 to 800 mm in Series 1 sizes. POLY PIPE PE pipe is available in pressure classes PN4, PN6.3, PN8, PN10, PN12.5, PN16, PN20 and PN25 with a minimum required strength (MRS) class of 10 (PE100). POLY PIPE PE pipe is supplied in coils up to 140 mm and straight lengths in all sizes.

POLY PIPE PE pipe is available in solid black, or black with blue, purple or white strips or jacketed (other stripe and jacket colours are available) for water supply reticulation networks, recycled water applications, and pressure sewerage applications.

POLY PIPE PE pipe is compatible with AS/NZS 4129 compliant fittings as appropriate with respect to the SDR rating.

PE pipe has been in use by the water industry for many years and PE is regarded as a mature product. When installed in the correct manner and operated within its stated capacity, PE pipe has proved to be a trouble free product. For information on quality installation processes refer to the WSAA Polyethylene Pipeline Code - WSA 01.

Poly Pipe Pty Ltd. has Quality Management certification to ISO 9001:2008.

Plastic pipeline systems are commonly designed on the basis of 50 year extrapolated material test data. For correctly manufactured and installed systems, the actual life cannot be predicted, but can reasonably be expected to be well in excess of 100 years before major rehabilitation is required. Pipe life expectancy can vary with the quality of installation workmanship, system operating conditions and other site-specific factors.

This appraisal concludes that POLY PIPE PE100 pipe is 'fit for purpose' and is suitable for use in water supply reticulation networks, recycled water applications and pressure sewerage applications including vacuum sewerage.

1.2 Report Recommendation

It is recommended that WSAA members and associates, subject to any specific requirements of the member or associate, accept or authorise the POLY PIPE PE pipe as detailed in this report for use in water supply reticulation networks, recycled water applications, and pressure sewerage applications including vacuum systems. The recommendation is subject to the pipes being designed, installed, tested, commissioned and tapped in accordance with Poly Pipe Pty Ltd recommendations, appropriate WSAA Codes, Technical Notes and nominated Standards.

2 THE APPLICANT

2.1 The Supplier/Manufacturer

Poly Pipe Pty Ltd is an Australian company based in NSW manufacturing and supplying polyethylene pipes and related products for the Australian market.

Poly Pipe Pty Ltd head office and manufacturing site is based in Toronto, Hunter Valley region NSW facilities. Additional company and product information is available at: www.polypipeaustralia.com.au

3 THE PRODUCT

The POLY PIPE branded Series 1 Polyethylene (PE) Pipe is a certified product manufactured in Australia in compliance with AS/NZS 4130:2009 – *Polyethylene (PE) pipes for pressure applications*.

These products are based on black, fully compounded PE100 resin compliant to AS/NZS 4131:2010, and all jacket/stripe coloured resin will also be based on fully compounded PE100 resin and the final compound will be in compliance with AS/NZS 4130:2009 section 7.3 “Striping and jacket compounds”.

The POLY PIPE PE pipe is available in Black / Black with blue stripes or purple stripes or with coloured jackets (other stripe and jacket colours are available). The PE pipe is supplied in either straight lengths or coils.

The extensive range includes sizes from 25 to DN 800 mm in various PN's and SDR's. For details check with Poly Pipe Pty Ltd or the Certification Schedules.

4 SCOPE OF THE APPRAISAL

The Scope of this appraisal is as above in Section 3 and as listed on the Certification Schedules.

This Scope of this product appraisal applies to the Poly Pipe Pty Ltd PE pressure pipe manufactured to AS/NZS 4130:2009 Polyethylene (PE) pipes for pressure applications for use in water supply, recycled water supply and sewerage systems, incorporating the following attributes:

- Series 1
- Material Classification: PE100, PE 80 (available on request)
- Pressure Classes – PN4, PN 6.3, PN 8, PN 10, PN 12.5, PN 16, PN 20 and PN 25 (maximum working pressure at 20°C)
- Sizes - DN 20 to DN 800 as defined in AS/NZS 4130 Table 2
- Pipe Length – as specified by customer
- Coil Length (up to DN 140)

Pipe included in the Scope is also listed on the StandardsMark Schedule shown in Appendix B.

5 APPRAISAL CRITERIA

5.1 Quality Assurance Requirements

The WSAA product appraisal network accepts polyethylene pipe manufactured under cover of a third party certified quality management system complying with AS/NZS ISO 9001 and having ISO Type 5 production certification in accordance with AS/NZS 4130 by a JAS-ANZ accredited Certification Assessment Body (CAB) or by an equivalent international accreditation system recognised by JAS-ANZ.

5.2 Performance Requirements

The POLY PIPE PE pressure pipe has been appraised for compliance with AS/NZS 4130:2009 *Polyethylene (PE) pipes for pressure applications*.

Readers are also referred to the following WSAA “National Codes List”

- WSA 01-2004 Polyethylene Pipeline Code of Australia
- WSA 03-2011 Water Supply Code of Australia

Appraisal criteria is also determined by the WSAA Infrastructure Products and Materials Network and regularly reviewed to ensure that the criteria reflect the requirements of WSAA members. The following Product Specification is also relevant to this application.

- WSA PS 207 – Polyethylene Pipe (PE) Pipes for Pressure Applications – Water Supply and Sewerage
- WSA PS 215 – Polyethylene Pipe (PE) Property Service Pipes (PE) Pipes for Pressure Applications – Water Supply

A copy of the above Product Specification can be found in Appendix D or downloaded from the WSAA website.

6 COMPLIANCE WITH APPRAISAL CRITERIA

6.1 Compliance with Quality Assurance Requirements

Poly Pipe Pty Ltd holds an ISO 9001:2008 quality management system licence for the manufacture, storage, distribution and marketing of extruded polyethylene pipes at its manufacturing facility in Toronto, NSW.

A copy of Poly Pipe Pty Ltd Certificate of Registration to ISO 9001:2008, issued by SAI Global Ltd, Certificate No. QEC24573 is attached to Appendix B, alternatively it can be downloaded from the SAI Global website.

6.2 Compliance with Product Certification Requirements

Poly Pipe Pty Ltd PE pipe manufactured at Toronto, NSW is StandardsMark product certified (System 5) by SAI Global to AS/NZS 4130:2009.

A copy of Poly Pipe Pty Ltd StandardsMark licence to AS/NZS 4130:2009, issued by SAI Global Ltd, Licence No. SMKP214827 is attached to Appendix B, alternatively it can be downloaded from the SAI Global website.

StandardsMark certification provides on-going assurance that the product is manufactured and tested to comply with AS/NZS 4130:2009 and any amendments and revisions issued while the licence is current.

6.3 Compliance with Performance Requirements

6.3.1 Polyethylene (PE) compounds

Poly Pipe Pty Ltd manufacturers PE pipe using polyethylene compound PE100 in accordance with the requirements of AS/NZS 4130:2009. These compounds are manufactured and supplied by Companies qualified by PIPA and registered on PIPA POP004 list.

The HDPE based striping or jacketing/co-extruded compound used for identification purposes in polyethylene pipe production also conforms to the current AS/NZS 4131 standard.

The compounds used by Poly Pipe Pty Ltd have been evaluated by the PIPA Polyolefin Technical Committee as complying resins suitable for use in PE pressure pipe manufactured to AS/NZS 4130. These compounds are manufactured and supplied by Companies qualified by PIPA and registered on PIPA POP004 list.

6.3.2 Testing of pipes

The type test results and ongoing production testing confirm the pipe meets the requirements of AS/NZS 4130:2009. This is verified by the StandardsMark Certification Licence. Poly Pipe Pty Ltd have provided testing results which have been primarily conducted at the VIPAC Plumbing Products Laboratory (NATA accredited) and copies of test reports are available upon request from the WSAA Product Appraisal Manager. Batch release testing is done in-house on appropriate specialist testing equipment.

Dimensional and physical testing was performed by VIPAC Plumbing Products Laboratory, as shown in Table 1.1. These test reports were based on a product sample supplied from the Toronto, NSW facility.

The testing to AS/NZS 4020:2005 was performed by: AMS Laboratories. Both VIPAC Plumbing Products Laboratory and AMS Laboratories are NATA accredited laboratories.

AS/NZS 4130:2009 calls up a range of performance tests which include the following:

Table 1 Poly Pipe Pty Ltd Polyethylene pipe manufacturing site at Toronto, NSW

Requirement	Clause	Requirement	Result	Pipe Size
Dimensional Measurements	9.1 - 9.5	Geometrical characteristics for length, outside & inside diameter, wall thickness, out-of-roundness	Conforms	See Note 1
Effect on water	9.6	Comply with AS/NZS 4020	Conforms	See Clause 6.3.3
Resistance to internal pressure at 80°C.	10.1	Withstand 5.4MPa hydrostatic pressure at 80°C for 165h	Conforms	See Note 1
Resistance to internal pressure at 80°C.	10.1	Withstand 5.0MPa hydrostatic pressure at 80°C for 1000h	Conforms	See Note 1
Reversion	10.2	≤ 3% when tested at 110°C	Conforms	See Note 1
Thermal stability	10.3	oxidation induction time ≥ 20 min at 200°C.	Conforms	See Note 2
Slow crack growth resistance PE100 SDR11	10.4	≥500 Hours when tested at 920kPa Pressure	Conforms	See Note 1

Note 1: Unless otherwise shown tests were performed on DN 110 SDR 11. PN16 PE 100 Polyethylene Pipe in accordance with AS/NZS 4130:2003.

Note 2: Analysis for thermal stability was conducted using DN 40 SDR 11. PN16 PE 100 Polyethylene Pipe in accordance with AS/NZS 4130:2003.

Poly Pipe Pty Ltd perform in-house testing for product dimension, pressure performance, reversion and oxidation induction time (OIT), in accordance with Table A1 AS/NZS 4130:2009.

6.3.3 Suitability for contact with drinking water

Poly Pipe Pty PE Pipe; has been tested in accordance to AS/NZS 4020:2005 - Testing of products for use in contact with drinking water for:

- Taste of Water Extract, Appendix C
- Appearance of Water Extract, Appendix D
- Growth of Aquatic Micro-organisms, Appendix E

- Cytotoxic Activity of Water Extract, Appendix F
- Mutagenic Activity of Water Extract, Appendix C
- Extraction of Metals, Appendix H

Poly Pipe Pty Ltd has been tested submitted a Test Report No. 1306737 from the NATA Accredited AMS Laboratories Pty Ltd for sample of product produced from the Toronto plant, NSW (20 mm PE100 PN16 (SDR 11), black) to demonstrate compliance with AS/NZS 4020:2005.

Based on the completion and evaluation of all test results AMS Laboratories Pty Ltd has confirmed the products fully comply with the test requirements of AS/NZS 4020:2005.

6.3.4 Colour coding

Poly Pipe Pty Ltd PE pressure pipe complies with the colour coding scheme stipulated in AS/NZS 4130:2009, i.e:

Solid black pipe with light blue stripes/sheathing for Series 1 for water supply reticulation networks no darker than RAL 5012;

Solid black pipe with purple stripes/sheathing for Series 1 for recycled water applications no lighter than RAL 310 70 15 nor darker than RAL 330 40 40;

Solid black pipe with cream stripes/sheathing for Series 1 for pressure sewerage applications no lighter than RAL 080 90 20 nor darker than RAL 075 80 20.

7 FITTING INSTRUCTIONS, TRAINING AND INSTALLATION

PE pressure pipe has been a commonly used product in the urban water industry for many years. Poly Pipe Pty Ltd PE pressure pipe are compatible with fittings manufactured as per AS/NZS 4129:2008 *Fittings for Polyethylene Pipes for Pressure Applications*.

For specific PE pressure pipelines and PE gravity pipelines details refer to the WSAA Polyethylene Pipeline Code - WSA 01 available at the WSAA web site www.wsaa.asn.au or AS/NZS 2033:2008 *Installation of polyethylene pipe systems*.

For specification for PE pressure pipelines and PE gravity pipelines refer to the WSAA Polyethylene Pipeline Code - WSA 01 available at the WSAA web site www.wsaa.asn.au. Electrofusion welding and butt fusion may be used for joining pipe-to-pipe or fitting-to-pipe. All welding shall be performed by welders who have successfully completed training by a Registered Training Organisation, endorsed by the Plastics Industry Pipe Association for the relevant welding method(s).

The Plastics Industry Pipe Association provides technical guidelines for electrofusion welding in the following documents.

- POP001 Electrofusion Jointing of Pipe and fittings for Pressure Applications
- POP003 Butt Fusion Jointing of PE Pipes and Fittings – Recommended Parameters.

POP001 contains recommendations for equipment required, for jointing, maintenance, servicing and calibration procedures, records to be kept and the training program to be respected to produce good fusion joints in polyethylene pipes.

POP003 is a guide to the butt fusion of polyethylene pipe using AS/NZS 4130 material as a basis, recommending the butt fusion procedures and parameters as specified in ISO 21307.

Copies of these documents can be downloaded from the PIPA website www.pipa.com.au.

8 PRODUCT MARKING

Poly Pipe Pty Ltd PE pipe has the following marking:

Company Name / trademark	POLYPIPE
Product Code	S1
Nominal Size	DN XX
Material Class	PE100 or PE 80B
Product Type	PN and SDR
Date of manufacture	yy/mm/dd
Australian Standard No.	AS/NZS 4130
Place of manufacture	Code "TOR"
CAB's ISO Type 5 'Mark'	Logo

Special Application information: e.g. RECYCLED WATER - DO NOT DRINK or SEWAGE

Typical marking for Series 1 pipe is:

POLYPIPE TOR S1 DN 110 PN 16 SDR 11 PE 100 BLUESTRIPE AS/NZS 4130 080320
15:23 L3 12 METRE

9 PACKAGING AND TRANSPORTATION

Poly Pipe PE pipe can be supplied in coils or lengths as detailed in Table 1 below:

Table 1 Straight and coil lengths of Poly Pipe

Size	Coil lengths	Straight lengths
DN 20PE – DN 63PE	50, 100, 150, 200 up to 800	6 or 12
DN 75PE – DN 90PE	100, 200	6 or 12
DN 90PE – DN 125PE	50, 100	6 or 12
DN 125PE – DN 800PE	-	12, 15 up to 20

The method of packaging and transport of PE pipes is size dependent. Smaller sizes are in bound packs of straight pipes and in some cases coils for longer lengths while larger sizes of straight lengths use bearers, which are held in place with side supports and metal straps. When quantities less than a full pack are required, pipes are strapped in bundles to minimise damage.

The Plastics Industry Pipe Association also provides technical guidelines for Packaging, Handling and storage of Polyethylene pipe and fittings in POP005 Packaging, Handling, and Storage of Polyethylene Pipes and Fittings.

Copies of these documents can be downloaded from the PIPA website www.pipa.com.au.

10 PRODUCT WARRANTY

The products are covered by the normal commercial and legal requirements of the Competition and Consumer Act 2010, which covers manufacture to the relevant Standard. Details of Poly Pipe Pty warranty is included in their terms and conditions of sale.

11 WATER AGENCY EXPERIENCE WITH THE PRODUCT OR FIELD TESTING REPORT

Polyethylene pipe has been in use by the Australian water industry for many years and is regarded as a mature product. When installed in the correct manner and operated within its stated capacity PE pipe has proved to be a trouble-free product. Where problems have occurred, they have been associated with the quality of jointing and attachments.

Pipe jointing by butt and electrofusion welding is usually reliable when the installation is carried out by qualified and experienced welders. Correctly designed and installed,

electrofusion welded PE pipelines should be trouble free for their anticipated life expectancy.

All jointing processes, irrespective of material, can fail if not undertaken properly in accordance with specified welding procedures by trained and experienced welders.

Mechanical fittings such as compression fittings and tapping bands rely on interface pressure being maintained between the elastomeric seal and the PE pipe surface to maintain a sealed connection. Mechanical fittings are normally used on PE pipe \leq DN 90. Mechanical fittings are also normally used for repair or changes to the pipeline as the pipe surface preparation requirements are less stringent. Mechanical fittings have a very good reputation for providing trouble free performance.

For information on quality installation processes refer to the WSAA Polyethylene Pipeline Code - WSA 01.

A supervised and inspected installation field trial of a POLY PIPE DN 225 PE PN16 (SDR 11) PE100 PE pipe has been successfully completed. A field trail report, prepared by Hunter Water is available for WSAA Members to download from the Infrastructure Products and Materials Network.

12 SUMMARY

The appraisal concludes that:

The Poly Pipe Pty Ltd Series 1 Polyethylene (PE) Pipe is 'fit for purpose' and suitable for use in water supply and sewer pressure and vacuum systems.

The certified quality management status of the manufacturer and Poly Pipe Pty Ltd plus the product certification of the PE pipe manufacturers has been addressed to the satisfaction of WSAA Appraisal Network.

13 LIFE EXPECTANCY

Based on the documented conformance to the nominated standards and the industry material operational experience, PE pipe has been rated 'A' – Life expectancy in excess of 100 years before major rehabilitation. This rating is only a general guide to life expectancy and may increase or decrease as a result of the quality of installation, system operating conditions, operating environment and other geographical and site specific factors. Using modern rehabilitation techniques, pipeline systems can be successfully maintained and operated indefinitely provided the pipe and other structures do not collapse.

14 REPORT RECOMMENDATION

It is recommended that WSAA members and associates, subject to any specific requirements of the member or associate, accept or authorise the Poly Pipe Pty Ltd PE pipe as detailed in this report for use in water supply and sewer pressure and vacuum systems provided quality installation processes are followed as specified in the WSAA Codes, Technical Notes and nominated Standards

15 DISCLAIMER

This Product Appraisal Report (Report) is issued by the Water Services Association of Australia Limited on the understanding that:

This Report applies to the product(s) as submitted. Any changes to the product(s) either minor or major shall void this Report.

To maintain the recommendations of this Report any such changes shall be detailed and notified to the Product Appraisal Manager for consideration and review of the Report and appropriate action. Appraisals and their recommendations will be the subject of continuous review dependent upon the satisfactory performance of products.

WSAA reserves the right to undertake random audits of product manufacture and installation. Where products fail to maintain appraised performance requirements the appraisal and its recommendations may be modified and reissued. Appraisal reports will be reviewed and reissued at regular intervals not exceeding five (5) years.

The following information explains a number of very important limits on your ability to rely on the information in this Report. Please read it carefully and take it into account when considering the contents of this Report.

Any enquiries regarding this report should be directed to the Program Manager, Carl Radford, Phone: 03 9606 0713 email carl.radford@wsaa.asn.au.

15.1 Issue of Report

This Report has been published and/or prepared by the Water Services Association of Australia Limited and nominated Project Manager and peer group of technical specialists (the Publishers).

The Report has been prepared for use within Australia only by technical specialists that have expertise in the function of products such as those appraised in the Report (the Recipients).

By accepting this Report, the Recipient acknowledges and represents to the Publisher(s) and each person involved in the preparation of the Report that the Recipient has understood and accepted the terms of this Disclaimer.

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APPENDIX A – TECHNICAL MANUAL

Refer to Poly Pipe Pty Ltd for a Technical Manual and other technical information.

POLY PIPE

Water & Civil Systems





Benefits of Poly Pipe

- Long lengths
- Cost effectiveness
- Easy of installation
- Flexibility & resilience
- Chemical resistance
- Corrosion resistance
- Abrasion resistance
- High flow capacity
- Weathering resistance
- Durability
- High impact resistance

About Poly Pipe Pty Ltd

Located in the Hunter Valley, NSW, Australia, Poly Pipe Pty Ltd (Poly Pipe) has an ultra modern extrusion, high tech manufacturing facility.

It supplies Polyethylene (PE) pipe and related products that comply with all relevant Australian statutory and regulatory requirements.

In addition Poly Pipe adheres and advances safe work practices, effective environmental policies and quality practices in everything that it does.

As a member of a worldwide technology group with Australia-wide manufacturing facilities, Poly Pipe was established on the knowledge, experience, and reputation of its associated companies, some of which include Pipemakers and Metroll.

Its national and international customers are found in the mining, rural and irrigation, water and civil, telecommunication, sewerage and drainage industries.

Industry Applications

- Telecommunications
- Electrical
- Mining
- Water
- Gas
- Air
- Irrigation
- Sewerage & Drainage
- Civil Applications

Features

- Material Grade: PE 100
- Coils: Max pipe diameter can be coiled 140 mm
- Standard length from 12m
- Colour Jacket: White, blue, purple, cream
- Colour Stripe: Blue, purple, cream

Product Information

Polyethylene (PE) pipe is used for numerous water and civil applications including domestic water supply, drainage of major roads and highways, agricultural drainage and sports oval drainage, race tracks, golf courses, parks and gardens.

Pipe is manufactured under AS/NZS 4130 from PE that complies with AS/NZS 4131. PE Standards and WaterMark licensed to AS/NZS 4130 by SAI Global.

It is an easy to install system that is strong, flexible and corrosion resistant.

PE pipe can be joined using compression fittings, electrofusion systems or butt-welding.



Pressure Unit Conversion

PN	kPa	m	bar	psi
4.0	400	40	4.0	58
6.3	630	63	6.3	90
8.0	800	80	8.0	116
10.0	1000	100	10.0	145
12.5	1250	125	12.5	181
16.0	1600	160	16.0	229
20.0	2000	200	20.0	290

Support Distances PE100

Size (mm)	PN 6.3	PN 8	PN 10	PN 12.5	PN 16	PN 20
20	0.5	0.5	0.6	0.6	0.6	0.7
25	0.5	0.6	0.7	0.7	0.7	0.8
32	0.6	0.7	0.8	0.8	0.9	0.9
40	0.7	0.9	0.9	1.0	1.0	1.1
50	0.9	1.0	1.0	1.1	1.2	1.2
63	1.0	1.2	1.2	1.3	1.4	1.4
75	1.1	1.3	1.4	1.5	1.5	1.6
90	1.3	1.5	1.6	1.7	1.7	1.8
110	1.5	1.7	1.8	1.9	2.0	2.1
125	1.6	1.8	2.0	2.1	2.2	2.3
140	1.7	2.0	2.1	2.2	2.4	2.5
160	1.9	2.2	2.3	2.5	2.6	2.7
200	2.2	2.5	2.7	2.9	3.0	3.2

Pipe Capacity of Poly Pipe Trucks-PE100

Pipe Outside Diameter (mm)	No. of Pipes
63 (100m)	35
75 (100m)	25
90 (100m)	24
110 (100m)	20
110	300
125	224
140	195
160	132
180	120
200	100
225	81
250	64
280	56
315	42
355	42
400	30
450	25
500	20
560	15
630	12
710	9
800	6

Guide Only: Weight restrictions may apply. Maximum weight for all trailers is 19T. Special trailers may carry more. Contact the Poly Pipe sales office for clarification.

Metric Standard Dimensions to AS/NZ 4130:2009

Nom Size	PN Rating	SDR Rating	OD Min (mm)	OD Max (mm)	Ovality	Min Wall (mm)	Max Wall (mm)	Kgs / m	STD Length (m)
32mm PN6.3	6.3	26	32.00	32.30	0.60	1.60	1.90	0.16	200.00
40mm PN6.3	6.3	26	40.00	40.40	0.80	1.60	1.90	0.20	150.00
50mm PN6.3	6.3	26	50.00	50.50	1.00	2.00	2.30	0.31	150.00
63mm PN6.3	6.3	26	63.00	63.60	1.20	2.40	2.80	0.48	100.00
75mm PN6.3	6.3	26	75.00	75.70	1.50	2.90	3.30	0.67	12.00
90mm PN6.3	6.3	26	90.00	90.90	1.80	3.50	4.00	0.98	12.00
110mm PN6.3	6.3	26	110.00	111.00	2.20	4.30	4.90	1.47	12.00
125mm PN6.3	6.3	26	125.00	126.20	2.50	4.80	5.40	1.85	12.00
140mm PN6.3	6.3	26	140.00	141.30	2.80	5.40	6.10	2.34	12.00
160mm PN6.3	6.3	26	160.00	161.50	3.20	6.20	7.00	3.06	12.00
180mm PN6.3	6.3	26	180.00	181.70	3.60	6.90	7.70	3.81	12.00
32mm Pn8	8	21	32.00	32.30	0.60	1.60	1.90	0.16	200.00
40mm Pn8	8	21	40.00	40.40	0.80	1.90	2.20	0.24	150.00
50mm Pn8	8	21	50.00	50.50	1.00	2.40	2.80	0.37	150.00
63mm Pn8	8	21	63.00	63.60	1.20	3.00	3.40	0.58	100.00
75mm Pn8	8	21	75.00	75.70	1.50	3.60	4.10	0.83	100.00
90mm Pn8	8	21	90.00	90.90	1.80	4.30	4.90	1.19	100.00
110mm Pn8	8	21	110.00	111.00	2.20	5.30	6.00	1.78	12.00
125mm Pn8	8	21	125.00	126.20	2.50	6.00	6.70	2.28	12.00
140mm Pn8	8	21	140.00	141.30	2.80	6.70	7.50	2.86	12.00
160mm Pn8	8	21	160.00	161.50	3.20	7.70	8.60	3.74	12.00
180mm Pn8	8	21	180.00	181.70	3.60	8.60	9.60	4.71	12.00
32mm Pn10	10	17	32.00	32.30	0.60	1.90	2.20	0.19	200.00
40mm Pn10	10	17	40.00	40.40	0.80	2.40	2.80	0.29	150.00
50mm Pn10	10	17	50.00	50.50	1.00	3.00	3.40	0.45	150.00
63mm Pn10	10	17	63.00	63.60	1.20	3.80	4.30	0.72	100.00
75mm Pn10	10	17	75.00	75.70	1.50	4.50	5.10	1.02	100.00
90mm Pn10	10	17	90.00	90.90	1.80	5.40	6.10	1.47	100.00
110mm Pn10	10	17	110.00	111.00	2.20	6.60	7.40	2.18	12.00
125mm Pn10	10	17	125.00	126.20	2.50	7.40	8.30	2.78	12.00
140mm Pn10	10	17	140.00	141.30	2.80	8.30	9.30	3.49	12.00
160mm Pn10	10	17	160.00	161.50	3.20	9.50	10.60	4.56	12.00
180mm Pn10	10	17	180.00	181.70	3.60	10.70	11.90	5.77	12.00
32mm Pn12.5	12.5	13.6	32.00	32.30	0.60	2.40	2.80	0.23	200.00
40mm Pn12.5	12.5	13.6	40.00	40.40	0.80	3.00	3.40	0.36	150.00
50mm Pn12.5	12.5	13.6	50.00	50.50	1.00	3.70	4.20	0.55	150.00
63mm Pn12.5	12.5	13.6	63.00	63.60	1.20	4.70	5.30	0.88	100.00
75mm Pn12.5	12.5	13.6	75.00	75.70	1.50	5.50	6.20	1.22	100.00
90mm Pn12.5	12.5	13.6	90.00	90.90	1.80	6.60	7.40	1.76	100.00
110mm Pn12.5	12.5	13.6	110.00	111.00	2.20	8.10	9.10	2.64	100.00
125mm Pn12.5	12.5	13.6	125.00	126.20	2.50	9.20	10.30	3.40	12.00
140mm Pn12.5	12.5	13.6	140.00	141.30	2.80	10.30	11.50	3.49	12.00
160mm Pn12.5	12.5	13.6	160.00	161.50	3.20	11.80	13.10	5.56	12.00
180mm Pn12.5	12.5	13.6	180.00	181.70	3.60	13.30	14.80	7.06	12.00
32mm Pn16	16	11	32.00	32.30	0.60	2.90	3.30	0.27	200.00
40mm Pn16	16	11	40.00	40.40	0.80	3.70	4.20	0.43	150.00
50mm Pn16	16	11	50.00	50.50	1.00	4.60	5.20	0.67	150.00
63mm Pn16	16	11	63.00	63.60	1.20	5.80	6.50	1.06	100.00
75mm Pn16	16	11	75.00	75.70	1.50	6.80	7.60	1.48	100.00
90mm Pn16	16	11	90.00	90.90	1.80	8.20	9.20	2.14	100.00
110mm Pn16	16	11	110.00	111.00	2.20	10.00	11.10	3.18	100.00
125mm Pn16	16	11	125.00	126.20	2.50	11.40	12.70	4.12	12.00
140mm Pn16	16	11	140.00	141.30	2.80	12.70	14.10	5.13	12.00
160mm Pn16	16	11	160.00	161.50	3.20	14.60	16.20	6.74	12.00
180mm Pn16	16	11	180.00	181.70	3.60	16.40	18.20	8.52	12.00

Please Note: ALL dimensions and weights are approximate and are subject to change without notice.

Metric Standard Dimensions to AS/NZ 4130:2009

Nom Size	PN Rating	SDR Rating	OD Min (mm)	OD Max (mm)	Ovality	Min Wall (mm)	Max Wall (mm)	Kgs / m	STD Length (m)
32mm Pn20	20	9	32.00	32.30	0.60	3.60	4.10	0.33	200.00
40mm Pn20	20	9	40.00	40.40	0.80	4.50	5.10	0.51	150.00
50mm Pn20	20	9	50.00	50.50	1.00	5.60	6.30	0.79	150.00
63mm Pn20	20	9	63.00	63.60	1.20	7.10	8.00	1.27	100.00
75mm Pn20	20	9	75.00	75.70	1.50	8.40	9.40	1.78	100.00
90mm Pn20	20	9	90.00	90.90	1.80	10.10	11.30	2.57	100.00
110mm Pn20	20	9	110.00	111.00	2.20	12.30	13.70	3.82	100.00
125mm Pn20	20	9	125.00	126.20	2.50	14.00	15.50	4.92	12.00
140mm Pn20	20	9	140.00	141.30	2.80	15.70	17.40	6.19	12.00
160mm Pn20	20	9	160.00	161.50	3.20	17.90	19.80	8.06	12.00
180mm Pn20	20	9	180.00	181.70	3.60	20.10	22.30	10.19	12.00

Please Note: ALL dimensions and weights are approximate and are subject to change without notice.

Pipe Coil Lengths

Nom Size	Min Wall (mm)	Mean ID (mm)	Coil OD (mm)	Coil ID (mm)
32mm PN8	200.00	1000	300	1410
40mm PN8	150.00	1000	300	1500
50mm PN8	150.00	1300	300	1900
63mm PN8	100.00	1800	300	2300
75mm PN8	100.00	1900	330	2500
90mm PN8	100.00	2200	360	3000
32mm PN10	200.00	1000	300	1410
40mm PN10	150.00	1000	300	1500
50mm PN10	150.00	1300	300	1900
63mm PN10	100.00	1600	300	2200
75mm PN10	100.00	1900	330	2500
90mm PN10	100.00	2200	360	3000
110mm PN10	100.00	2000	450	2880
32mm PN12.5	200.00	700	300	1200
40mm PN12.5	150.00	1000	300	1500
50mm PN12.5	150.00	1050	300	1750
63mm PN12.5	100.00	1300	300	1950
75mm PN12.5	100.00	1900	330	2400
90mm PN12.5	100.00	1900	400	2650
110mm PN12.5	100.00	2000	450	2880
32mm PN16	200.00	700	300	1200
40mm PN16	150.00	1000	300	1500
50mm PN16	150.00	1050	300	1750
63mm PN16	100.00	1300	300	1950
75mm PN16	100.00	1900	330	2400
90mm PN16	100.00	1900	400	2650
110mm PN16	100.00	2000	450	2880
32mm PN20	200.00	700	300	1200
40mm PN20	150.00	1000	300	1500
50mm PN20	150.00	1050	300	1750
63mm PN20	100.00	1300	300	1950
75mm PN20	100.00	1900	330	2400
90mm PN20	100.00	1900	400	2650

Please Note: ALL dimensions and weights are approximate and are subject to change without notice.

Maximum Allowable Operating Pressure - PE100 (Black)

Temp (°C)	Design Life (yrs)	Design Factor	PN 4	PN 6.3	PN 8	PN 10	PN 12.5	PN 16	PN 20	PN 25
			SDR 41	SDR 26	SDR 21	SDR 17	SDR 13.6	SDR 11	SDR 9	SDR 7.4
20	100	1.0	40	64	80	100	127	160	200	250
25	100	1.1	36	58	73	91	115	145	182	227
30	100	1.1	36	58	73	91	115	145	182	227
35	50	1.2	33	53	67	83	106	133	167	208
40	50	1.2	33	53	67	83	106	133	167	208
45	35	1.3	31	49	62	77	99	123	154	192
50	22	1.4	29	46	57	71	91	114	143	179
55	15	1.4	29	46	57	71	91	114	143	179
60	7	1.5	27	43	53	67	85	107	133	167
80	1	2.0	20	32	40	50	63	80	100	125

The design life periods may be considered to be the minimum potential service lives and represent the maximum extrapolated periods permitted by the ISO 9080:2003 extrapolation rules given the available test data.

Comparison of SDR & Pressure Ratings (PN)

SDR	41	33	26	21	17	13.6	11	9	7.4
PE80	PN 3.2	PN 4	-	PN 6.3	PN 8	PN 10	PN 12.5	PN 16	PN 20
PE100	PN 4	-	PN 6.3	PN 8	PN 10	PN 12.5	PN 16	PN 20	PN 25

SDR: Nominal ratio of outside diameter to wall thickness.

PN: Pressure rating at 20DC (MPa multiplied by 10).

PE Classification: Long term rupture stress at 20DC (MPa multiplied by 10) to which the minimum safety factor of 1.25 is applied in order to obtain the 20DC design hoop stress.

Standard Pipe Colour Chart

Colour	Common Use
Blue	Water
Orange	Electrical Conduit
Yellow	Gas - PE100
Light Yellow	Gas - PE80
Red	Fire Service Water
Green	Imperial Rural/Raw Water
Purple	Recycled/Reclaimed Water
Grey	SewerFlex
Cream	Pressure Sewer
White	Communications Conduit

Poly Pipe aims to meet its commitment to quality through continuous improvement programs, use of latest technology, close co-operation with key suppliers, commitment to staff development and regular customer feedback.

The Poly Pipe manufacturing plant has Quality Assurance Certification to ISO 9001:2008. All Pressure Pipes, including Gas, have the WaterMark and Standards Certification.

External Agencies carry out regular audits to provide third party accreditation to the Poly Pipe Quality Management System and verify its ongoing compliance with this Standard.

POLY PIPE

Poly Pipe Pty Ltd
 ABN 54 118 106 022
 379 Awaba Road
 Toronto NSW 2283

P: (02) 4959 1087
 F: (02) 4950 4507
 sales@polypipeaustralia.com.au
 www.polypipeaustralia.com.au



Poly Pipe Pty Ltd, ABN 54 118 106 022. All reasonable care has been taken in the compilation of the information contained in this brochure but errors and omissions are accepted. All recommendations on the use of our products are made without guarantee as conditions of use are beyond the control of Poly Pipe Pty Ltd. It is the customer's responsibility to ensure that the product is fit for its intended purpose and that the actual conditions of use are suitable. Poly Pipe Pty Ltd pursues a policy of continuous development and reserves the right to amend specifications without prior notice.

APPENDIX B – QUALITY ASSURANCE CERTIFICATES AND SCHEDULES**TABLE B1 POLY PIPE PTY LTD– MANAGEMENT SYSTEMS**

Quality Systems Standard	ISO 9001:2008
Certificate of Registration	QEC24573
Certifying agency	SAI Global
Issued	28/8/2013
Originally Certified	5/3/2008
Expiry date of certification	5/3/2017

TABLE B2 POLY PIPE PTY LTD – PRODUCT CERTIFICATION

Product Standard/Spec.	AS/NZS 4130:2009 – Polyethylene (PE) pipes for pressure applications
StandardsMark Licence	SMKP21482
Certifying agency	SAI Global
Issued	28/5/2013
Originally Certified	23/7/2008
Expiry date of certification	22/7/2018

NOTE:1 Product Schedules for above Certification Numbers SMKP21482 and QEC24573 can be downloaded by visiting the SAI Global site as follows:

<http://standardsmark.saiglobal.com/certifiedproducts/>



CERTIFICATE OF REGISTRATION

This is to certify that:

Poly Pipe Pty Ltd

ABN 54 118 106 022

379 Awaba Road Toronto NSW 2283 AUSTRALIA

operates a

QUALITY MANAGEMENT SYSTEM

which complies with the requirements of

ISO 9001:2008

for the following scope

New site contact is also invoice contact

Certificate No: QEC24573

Issued: 28 August 2013
Expires: 5 March 2017

Originally Certified: 5 March 2008
Current Certification: 23 August 2013

Samer Chaouk
Head of Policy, Risk and Certification

Paul Butcher
Global Head – Assurance Services



ISO 9001



Registered by:
SAI Global Certification Services Pty Ltd (ACN 108 716 669) 286 Sussex Street Sydney NSW 2000 Australia with SAI Global Limited 286 Sussex Street Sydney NSW 2000 Australia ("SAI Global") and subject to the SAI Global Terms and Conditions for Certification. While all due care and skill was exercised in carrying out this assessment, SAI Global accepts responsibility only for proven negligence. This certificate remains the property of SAI Global and must be returned to SAI Global upon its request. To verify that this certificate is current please refer to SAI Global On-Line Certification register at <http://www.saiglobal.com>





STANDARDSMARK LICENCE

SAI Global hereby grants:

Poly Pipe Pty Ltd

ABN 54118106022

379 Awaba Road, Toronto, NSW 2283, Australia

StandardsMark Licence

Manufactured to:

AS/NZS 4130:2009 - Polyethylene (PE) pipes for pressure applications

"the StandardsMark Licensee" the right to use the STANDARDSMARK as shown below only in respect of the goods described and detailed in the Schedule which are produced by the Licensee or on behalf of the Licensee* and which comply with the appropriate Standard referred to above as from time to time amended. The Licence is granted subject to the rules governing the use of the STANDARDSMARK and the Terms and Conditions for certification and licence. The Licensee covenants to comply with all the Rules and Terms and Conditions.

Certificate No:SMKP21482

Issued: 28 May 2013

Expires: 22 July 2018

Originally Certified: 23 July 2008

Current Certification: 28 May 2013

Paul Butcher
Global Head – Assurance Services

Samer Chaouk
Head of Policy, Risk and Certification



* For details of manufacture, refer to the licensee

The STANDARDSMARK is a registered certification trademark of SAI Global Limited (A.C.N. 050 644 642) and is issued under licence by SAI Global Certification Services Pty Limited (ACN 108 716 669) ("SAI Global") 286 Sussex Street, Sydney NSW 2000, GPO Box 5420 Sydney NSW 2001. This certificate remains the property of SAI Global and must be returned to SAI Global upon its request. Refer to www.saiglobal.com, for the list of product models.



SCHEDULE TO STANDARDSMARK LICENCE

SAI Global hereby grants:

Poly Pipe Pty Ltd

379 Awaba Road, Toronto, NSW 2283, Australia

StandardsMark Licence

Manufactured to:

AS/NZS 4130:2009 - Polyethylene (PE) pipes for pressure applications

Model identification of the goods on which the STANDARDSMARK may be used:

Model Identification	Nominal Size (DN)	SDR	Pressure Classification (PN)	Date Endorsed
	100mm ID	11, 17, 21		10 May 2011
	10mm ID	11, 9.9		10 May 2011
	110	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	110mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	110mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	125	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	125mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	125mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	13mm ID	9.9		10 May 2011
	140	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	140mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	140mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	150mm ID	11, 17, 21, 26		10 May 2011
	15mm ID	11, 9.9		10 May 2011
	16	11, 9, 7.4	16, 20, 25	16 Jun 2011
	160	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	160mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	160mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	16mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	16mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	180	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011

Certificate No: SMKP21482

Issued Date: 28 May 2013

This schedule supersedes all previously issued schedules

* For details of manufacture, refer to the licensee

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SCHEDULE TO STANDARDSMARK LICENCE

Model Identification	Nominal Size (DN)	SDR	Pressure Classification (PN)	Date Endorsed
	180mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	180mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	18mm ID	9.9		10 May 2011
	20	13.6, 11, 9, 7.4	12.5, 16, 20, 25	16 Jun 2011
	200	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	200mm ID	11, 17, 21, 26, 32		10 May 2011
	200mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	200mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	20mm ID	9.9, 11, 15, 17		10 May 2011
	20mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	20mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	225	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	225mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	225mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	25	17, 13.6, 11, 9, 7.4	10, 12.5, 16, 20, 25	16 Jun 2011
	250	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	250mm ID	11, 17, 21, 26, 32		10 May 2011
	250mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	250mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	25mm ID	9.9, 11, 15, 17		10 May 2011
	25mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	25mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	280	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	280mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	280mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	300mm ID	11, 17, 21, 26, 32		10 May 2011
	315	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	315mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	315mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	32	21, 17, 13.6, 11, 9, 7.4	8, 10, 12.5, 16, 20, 25	16 Jun 2011
	32mm ID	9.9, 11, 15, 17		10 May 2011
	32mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	32mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	32S mm ID	15		10 May 2011

Certificate No: SMKP21482

Issued Date: 28 May 2013

This schedule supersedes all previously issued schedules

*** For details of manufacture, refer to the licensee**

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SCHEDULE TO STANDARDSMARK LICENCE

Model Identification	Nominal Size (DN)	SDR	Pressure Classification (PN)	Date Endorsed
	180mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	180mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	18mm ID	9.9		10 May 2011
	20	13.6, 11, 9, 7.4	12.5, 16, 20, 25	16 Jun 2011
	200	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	200mm ID	11, 17, 21, 26, 32		10 May 2011
	200mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	200mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	20mm ID	9.9, 11, 15, 17		10 May 2011
	20mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	20mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	225	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	225mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	225mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	25	17, 13.6, 11, 9, 7.4	10, 12.5, 16, 20, 25	16 Jun 2011
	250	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	250mm ID	11, 17, 21, 26, 32		10 May 2011
	250mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	250mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	25mm ID	9.9, 11, 15, 17		10 May 2011
	25mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	25mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	280	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	280mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	280mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	300mm ID	11, 17, 21, 26, 32		10 May 2011
	315	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	315mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	315mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	32	21, 17, 13.6, 11, 9, 7.4	8, 10, 12.5, 16, 20, 25	16 Jun 2011
	32mm ID	9.9, 11, 15, 17		10 May 2011
	32mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	32mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	32S mm ID	15		10 May 2011

Certificate No: SMKP21482

Issued Date: 28 May 2013

This schedule supersedes all previously issued schedules

*** For details of manufacture, refer to the licensee**

The STANDARDSMARK is a registered certification trademark of SAI Global Limited (A.C.N. 050 644 642) and is issued under licence by SAI Global Certification Services Pty Limited (ACN 108 716 669) ("SAI Global") 286 Sussex Street, Sydney NSW 2000, GPO Box 5420 Sydney NSW 2001. This certificate remains the property of SAI Global and must be returned to SAI Global upon its request. Refer to www.saiglobal.com, for the list of product models.



SCHEDULE TO STANDARDSMARK LICENCE

Model Identification	Nominal Size (DN)	SDR	Pressure Classification (PN)	Date Endorsed
	355	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	40	21, 17, 13.6, 11, 9, 7.4	8, 10, 12.5, 16, 20, 25	16 Jun 2011
	400	41, 26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	400mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	400mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	40mm ID	9.9, 11, 15, 17		10 May 2011
	40mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	40mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	450mm	41,26, 21, 17, 13.6, 11, 9, 7.4	4, 6.3, 8, 10, 12.5, 16, 20, 25	21 Nov 2012
	50	21, 17, 13.6, 11, 9, 7.4	8, 10, 12.5, 16, 20, 25	16 Jun 2011
	500mm	41,26, 21, 17, 13.6, 11, 9	4, 6.3, 8, 10, 12.5, 16, 20	15 Nov 2012
	50mm ID	9.9, 11, 15, 17		10 May 2011
	50mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	50mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	560mm	41,26, 21, 17, 13.6, 11, 9	4, 6.3, 8, 10, 12.5, 16, 20	21 Nov 2012
	63	26, 21, 17, 13.6, 11, 9, 7.4	6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	630mm	41,26, 21, 17, 13.6, 11, 9	4, 6.3, 8, 10, 12.5, 16, 20	21 Nov 2012
	63mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	63mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	65mm ID	11, 17		10 May 2011
	710mm	41,26, 21, 17, 13.6, 11, 9	4, 6.3, 8, 10, 12.5, 16, 20	21 Nov 2012
	75	26, 21, 17, 13.6, 11, 9, 7.4	6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	75mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	75mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	800mm	41,26, 21, 17, 13.6, 11, 9	4, 6.3, 8, 10, 12.5, 16, 20	21 Nov 2012
	80mm ID	11, 17, 21		10 May 2011
	90	26, 21, 17, 13.6, 11, 9, 7.4	6.3, 8, 10, 12.5, 16, 20, 25	16 Jun 2011
	90mm. OD	26,21,17, 13.6, 11, 9		10 May 2011
	90mm. OD	26,21,17, 13.6, 11, 9		10 May 2011

Certificate No: SMKP21482

Issued Date: 28 May 2013

This schedule supersedes all previously issued schedules

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SCHEDULE TO STANDARDSMARK LICENCE

End of Record

Certificate No: SMKP21482

Issued Date: 28 May 2013

This schedule supersedes all previously issued schedules

*** For details of manufacture, refer to the licensee**

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CERTIFICATE OF CONFORMITY

SAI Global hereby grants:

Poly Pipe Pty Ltd

ABN 54118106022

379 Awaba Road, Toronto, NSW 2283, Australia

Watermark Certificate of Conformity - Level 1

Evaluated to:

AS/NZS 4130:2009 - Polyethylene (PE) pipes for pressure applications

"the WaterMark Licensee" the right to use or arrange the use of the WATERMARK as shown below only in respect of the goods described and detailed on the product schedule identified on www.saiglobal.com which are produced by the WaterMark Licensee or on behalf of the WaterMark Licensee* and which comply with the appropriate Standard referred to above as from time to time amended. The Licence is granted subject to the rules governing the use of the WATERMARK and the Terms and Conditions for certification. The WaterMark Licensee covenants to comply with all the Rules and Terms and Conditions

Certificate No:WMKA21482

Issued: 28 May 2013

Expires: 22 July 2018

Originally Certified: 23 July 2008

Current Certification: 28 May 2013

Paul Butcher
Global Head – Assurance Services

Samer Chaouk
Head of Policy, Risk and Certification



* For details of manufacture, refer to the licensee

The WATERMARK is a registered certification trademark of Standards Australia Limited (ACN 087 326 690) and is issued under licence by SAI Global Certification Services Pty Limited (ACN 108 716 669) ("SAI Global") 286 Sussex Street, Sydney NSW 2000, GPO Box 5420 Sydney NSW 2001. This certificate remains the property of SAI Global and must be returned to SAI Global upon its request. Refer to www.saiglobal.com for the list of product models.



APPENDIX C - SUPPLIER CONTACTS

Poly Pipe Pty Ltd

379 Awaba Road

Toronto NSW 2283

Phone: 02 4959 1087

Fax: 02 4959 4507

Contact: Robert Hadley

Email: rhadley@polyp.com.au

Web: www.polypipeaustralia.com.au

APPENDIX D – WSA PRODUCT SPECIFICATION

WATER SERVICES ASSOCIATION of Australia

PRODUCT SPECIFICATION

WSA PS - 207 POLYETHYLENE (PE) PIPES FOR PRESSURE APPLICATIONS - WATER SUPPLY AND SEWERAGE

207.1 SCOPE

This specification covers polyethylene (PE) pipes¹ for pressure applications in water supply^{1,2} and sewerage.

207.2 REQUIREMENTS

- (a) PE pipes shall be PE 100 Series 1 complying with AS/NZS 4130:2009/Amdt 1:2009.
- (b) Drinking water pipes shall be solid blue or sheathed blue or black with blue stripes.
- (c) Recycled water pipes shall be solid purple or sheathed purple or black with purple stripes.
- (d) Sewerage pipes shall be solid cream or sheathed cream.
- (e) Recycled water pipes shall be legibly and durably marked with letters of at least 10 mm high "RECYCLED WATER – DO NOT DRINK" or equivalent words, repeated at intervals such that the length of any unmarked pipe shall not exceed 1 m.

207.3 QUALITY ASSURANCE

- (a) PE pipes shall have product certification (ISO Type 5) to AS/NZS 4130:2009/Amdt 1:2009.
- (b) All products shall be marked in accordance with the conformity assessment body's requirements.

207.4 AGENCY OR PROJECT SPECIFIC REQUIREMENTS

Pressure Class ³ , PN	
Application ³	
Pipes or coils	
Colour identification ⁴ (complete pipe colour or striped or either)	
Alternative pipe compounds e.g. PE 80B	

NOTES:

- 1 For PE property service pipes see [WSA PS-215](#).
- 2 Includes mains for drinking water and recycled water supply.
- 3 Pressure Class and application shall be as specified in the Project Specification or on the Design Drawings.
- 4 Some water agencies may have a specific colour identification requirement e.g. solid/sheathed complete pipe colour only.

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File Name: WSA_PS_207_02
Doc Name: Product Specifications for Products & Materials

Copyright Issue: 03

August 2013
Page 1 of 1

PRODUCT SPECIFICATION**WSA PS – 215 POLYETHYLENE (PE) PROPERTY SERVICE PIPES
FOR PRESSURE APPLICATIONS – WATER SUPPLY****215.1 SCOPE**

This specification covers polyethylene (PE) pipes for pressure applications in property services in water supply¹.

215.2 REQUIREMENTS

- (a) PE property service pipes shall be PE 100, PN 16, Series 1 complying with AS/NZS 4130:2009/Amdt 1:2009.
- (b) Drinking water property service pipes shall be black with blue stripes.
- (c) Recycled water property service pipes shall be solid purple or sheathed purple.
- (d) Recycled water property service pipes shall be legibly and durably marked with black letters of at least 10 mm high "RECYCLED WATER – DO NOT DRINK" or equivalent, repeated at intervals such that the length of any unmarked pipe shall not exceed 1 m.

215.3 QUALITY ASSURANCE

- (a) Polyethylene pipes shall have product certification (ISO Type 5) to AS/NZS 4130:2009/Amdt 1:2009.
- (b) All products shall be marked in accordance with the conformity assessment body's requirements.

215.4 AGENCY OR PROJECT SPECIFIC REQUIREMENTS

Nominal size, DN ²	
Alternative PE compound (e.g. PE 80B)	
Alternative pressure rating	
Alternative colour identification ³ (complete pipe colour or striped)	

NOTES:

- 1 Includes drinking water and recycled water supply.
- 2 A minimum diameter of DN 20 is recommended to limit potential taste and odour complaints with small diameter PE pipe.
- 3 Some water agencies may have a specific colour identification requirement e.g. solid/sheathed complete pipe colour only.

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APPENDIX E OUTCOMES OF EXPERT PANEL PRODUCT REVIEW

An expert panel meeting was conducted to progress the Product Appraisal application for Poly Pipe Pty Ltd PE pipe. The minutes of the meeting are available to WSAA website IPAM Portal (Members only).

The IPAM members and representatives from the Applicant participating in the Expert Panel review are listed in Table E1.

Grant Leslie – WSAA	Carl Radford – City West Water
Ed Kleywegt -	Hobart Water
Lance Fletcher –	Mid Coast Water
Russell Jennings –	Power and Water
Paul Vince –	SA Water
Henry Pisanko –	Sydney Water
Yoosuf Hussain –	City West Water

Q1. Application has been made to appraise PE100 pipe, however PE80 is also covered in the certifications provided on line from StandardsMark and Watermak. Please advise whether PE 80 is to be included in the appraisal.

Response Q1. Yes. PE 80 is to be included

Q2. Have you conducted testing as per Table A1 of AS/NZS 4130:2003 on all pipe diameters if so please provide evidence?

Response Q2. Yes. Please see attached forms. Performance Examples of: Clause 10.1 – 10.2 – 10.3 etc. Shift Production Reports – Specification checks done hourly.

Q3. Batch test reports may be required for all pipe diameters from some water agencies. Can they be supplied for all pipe diameters?

Response Q3 Yes. Can be supplied.

Q4. Does the striping compound being used conform to clause 7.3.1, 7.3.2, 7.3.3 and 7.3.4 of AS/NZS 4130:2003?

Response Q4. Yes. PIPA Polyethene pipe compounds issue 7.7 –General Polymers BE195 Blue, YW987 Yellow and RD1659 Purple

Q5. Who is the compound supplier? Is the supplier approved by PIPA and what level of certification do they have?

Response Q5. Suppliers are Borouge, Qenos, SCG, General Polymers and Guilda. Classification according to AS/NZS 4131:2003 Polyethylene Pipe compounds Issue 7.7 PIPA.

Q6. Can Poly Pipe advise on the distribution arrangements?

Response Q6. Distribution is either direct to the customer or through our network such as Pipe Makers Australia and the Metroll Group.

Q7. No fittings have been provided with the appraisal application. Do you have an arrangement or a preferred fittings supplier?

Response Q7. No at this time Poly Pipe has no preferred fitting supplier.

Q8 Do designers need to specify where electrofusion couplings are being used on any project?

Response Q8 No. For pressure applications, PE Pipes can be joined in the same manner as any solid wall PE Pipe currently being used throughout Australia: using electro fusion joints or by employing butt fusion welding for any two pipes of identical size. PE Pipe can be used with PE Pipe, fittings and joints from other manufactures already approved for use in the Australian Market.

Q9. Poly Pipe submitted spreadsheets for StandardsMark (SM) and WaterMark (WM) product certification for size range DN16 to DN400. However the online certification versions of SM & WM are from DN16 to DN355. Please refer the below link for the online SM version. So we have to appraise which size range? Can Poly Pipe advise which is the correct product range.

Response Q9 The sizes stated, DN16 to DN400, is at this time incorrect as we have not received the tooling for 400 as yet. (it is on order)

Q10. Poly Pipe submitted a spreadsheet detailing size, PN, color and length of pipe, where 'Blue color for potable water is available from DN16 to DN315. 'Purple color' for Recycled water is available from DN25, 32, 40, 50, 63, 125 & 180. However, in the online SM & WM versions, only 'Blue Stripe' for water from DN16 to DN355 is stated, Purple or cream colours do not appear. The WSAA Appraisal report will only include products that have been certified by a third party.

Response Q10 We did not find it necessary to have other classifications of pipe such as purple and cream etc certified to the Water Mark or Standards Mark there was no demand for it in the market.

APPENDIX F – TEST REPORTS

These test reports referred to in this Report are considered Commercial-In-Confidence and may be supplied by contacting the manufacturer

WATER SERVICES ASSOCIATION OF AUSTRALIA (WSAA)

Melbourne Office

Level 8, 401 Docklands Drive
Docklands VIC 3008

Phone: (03) 8605 7666
Fax: (03) 8605 7612

Sydney Office

Level 11, 39 Martin Place
Sydney NSW 2000

GPO Box 915

Sydney NSW 2001

Phone: (02) 9221 5966
Fax: (02) 9221 5977

www.wsaa.asn.au



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