

### Pipe Couplings Australasia Pty Ltd

**PRODUCT APPRAISAL REPORT 2305** 

PCA Polyethylene (PE) Pressure Pipe

AS/NZS 4130:2018 Polyethylene pipes for pressure applications

Published: 30 June 2023

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#### **Document History**

The following information indicates the changes made to this document.

Date	Version
16 June 2023	Client Review
16 June 2023	Peer Review
30 June 2023	Publication

#### **Peer Reviewers**

Name/Title	Organisation	Date
Product Appraisal Technical Advisory Group	WSAA	30 June 2023
WSAA Expert Panel	WSAA	30 June 2023
Peter Pittard, WSAA Consultant	WSAA	16 June 2023
Carl Radford, Product Appraisal Manager	WSAA	30 June 2023

#### Overview of WSAA

The Water Services Association of Australia (WSAA) is the peak industry body representing the urban water industry. Our members provide water and sewerage services to over 20 million customers in Australia and New Zealand and many of Australia's largest industrial and commercial enterprises.

Based around our vision of 'customer driven, enriching life', WSAA facilitates collaboration, knowledge sharing, networking and cooperation within the urban water industry. We are proud of the collegiate attitude of our members which has led to industry-wide approaches to national water issues.

WSAA can demonstrate success in the standardisation of industry performance monitoring and benchmarking, as well as many research outcomes of national significance. The WSAA Executive retains strong links with policy makers and legislative bodies and their influencers, to monitor emerging issues of importance to the urban water industry.

WSAA was formed in 1995 as a non-profit organisation to foster the exchange of information between industry, government and the community, and to promote sustainable water resource management.

The urban water industry is committed to anchoring its services to customers' values, and to enrich communities where water services have broad economic, environmental and social values. In line with this our main activities focus on four areas:

- 1. influencing national and state policies on the provision of urban water services and sustainable water resource management
- 2. promoting debate on environmentally sustainable development and management of water resources and the community health requirements of public water supplies
- 3. improving industry performance and establishing benchmarks and industry leading practices for water service processes; and
- 4. fostering the exchange of information on education, training, research, water and wastewater management and treatment and other matters of common interest.

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#### 1 EXECUTIVE SUMMARY

Pipeline Couplings Australasia Pty Ltd (PCA) is a privately owned manufacturer and supplier of PE pipe, valves and associated fittings for the water, oil and gas industries. The company is headquartered in Smithfield NSW and also operates a manufacturing plant near Shanghai in China.

This Appraisal is for a range of Series 1 PE100 plain wall pipes manufactured in sizes from DN 20 to DN 180 with pressure classifications from PN 8 to PN 25 in accordance with AS/NZS 4130:2018 – *Polyethylene (PE) pipes for pressure applications*.

Pipes are offered in lengths of 6 m, 12 m or 20 m for all sizes and pressure ratings. DN 20 to DN 75 pipes are available in coil lengths of 50m, 100 m, 150m or 200m whilst DN 90 to DN125 pipes are available in coil lengths of 50 m or 100 m.

PCA PE100 pipes are available as black, black with blue, purple or cream stripes (or coextruded jackets) for drinking water, non-drinking water and pressure sewer applications respectively.

Pipeline Couplings Australasia Pty Ltd has a Quality Management System certification to ISO 9001:2015.

The PCA PE100 pipe range is covered by a Type 5 StandardsMark Product Certification to AS/NZS 4130:2018.

This Appraisal has determined that PCA PE 100 pipe meets the requirements of WSA PS 207 – Polyethylene (PE) Pipes for Pressure Applications – Drinking Water, Non-Drinking Water Supply and Sewerage, WSA PS 242 Polyethylene (PE) Plain Wall, Pipes and Fittings for Non-Pressure Applications – Sewerage and WSA PS 215 – Polyethylene (PE) Property Service Pipes for Pressure Applications – Drinking Water and Non-Drinking Water Supply and are considered as 'fit for purpose'.

#### 1.1 Recommendations

It is recommended that WSAA members, subject to any specific requirements of the member, accept or authorise the PCA range of PE100 pipes for use in water supply and sewerage pressure pipelines, provided they are installed in accordance with WSAA Codes and the manufacturers requirements, where specified.

#### 2 THE APPLICANT

The applicant is Pipeline Couplings Australasia Pty Ltd.

#### 2.1 The Manufacturer / Supplier

Pipeline Couplings Australasia Pty Ltd (PCA), established in 1972, is a privately owned manufacturer and supplier of PE pipe, valves and associated fittings for the water oil and gas industries of Australasia and also exports to Europe, USA, South America and Asia. The company is headquartered in Smithfield NSW where the PE pipe included in the scope of this appraisal is manufactured. Its facilities include extrusion and injection moulding machines, a CAD/CAM design centre, computerized lathes, milling machines and machining centres.

#### 3 THE PRODUCT

This Appraisal is for a range of Series 1 PE100 plain wall pipes manufactured in sizes from DN 20 to DN 180 with pressure classifications from PN 8 to PN 25 in accordance with AS/NZS 4130:2018 – *Polyethylene (PE) pipes for pressure applications*.

Pipes are offered in lengths of 6 m, 12 m or 20 m for all sizes and pressure ratings. DN 20 to DN 75 pipes are available in coil lengths of 50m, 100 m, 150m or 200m whilst DN 90 to DN125 pipes are available in coil lengths of 50 m or 100 m.

PCA PE100 pipes are available as black, black with blue, purple or cream stripes (or coextruded jackets) for drinking water, non-drinking water and pressure sewer applications respectively.

The details are as follows:

- Series 1
- Material Classification: PE100
- Pressure Classifications: PN8, PN10, PN12.5, PN16, PN20, PN25.
- Sizes DN 20, DN 25, DN 32, DN 40, DN 50, DN 63, DN 75, DN 90, DN 110, DN125, DN 140, DN 160, DN 180.

#### 4 SCOPE OF THE APPRAISAL

The Scope of this Appraisal is for a range of PE 100 pressure pipe as detailed in Section 3 and included in the Type 5 StandardsMark product certification included in Appendix B.

#### 5 APPRAISAL CRITERIA

#### 5.1 Quality Assurance Requirements

The WSAA Product Appraisal Technical Advisory Group accepts PE 100 pipes manufactured in compliance with AS/NZS 4130:2018 *Polyethylene (PE) pipes for pressure applications* and duly certified by means of an ISO Type 5 product certification scheme undertaken by a JAS-ANZ accredited Certification Assessment Body (CAB) or by an international accreditation system recognised by JAS-ANZ.

The manufacturer is generally expected to have a production management and control system that has been duly accredited in accordance with AS/NZS ISO 9001 as a prerequisite to undergoing a product certification audit.

The ISO Type 5 Product Certification Scheme shall meet the criteria described in WSA TN-08.

#### 5.2 **Performance Requirements**

PCA PE100 PE pressure pipe has been appraised for compliance with AS/NZS 4130:2018 *Polyethylene (PE) pipes for pressure applications*. It is a requirement of AS/NZS 4130 that the compound used has in turn been demonstrated to comply with the requirements of AS/NZS 4131.

Appraisal criteria are also determined by the WSAA Product Appraisal Technical Advisory Group and regularly reviewed to ensure that the criteria reflect the requirements of WSAA members.

The following Product Specifications are relevant to this application.

- WSA PS 207 Polyethylene Pipe (PE) Pipes for Pressure Applications Drinking Water, Non-Drinking Water Supply and Sewerage
- WSA PS 242 Polyethylene (PE) Plain Wall, Pipes and Fittings for Non-Pressure Applications Sewerage
- WSA PS 215 Polyethylene Pipe (PE) Property Service Pipes (PE) Pipes for Pressure Applications – Drinking Water and Non-Drinking Water Supply

Copies of the Product Specifications are available at the following link:

https://www.wsaa.asn.au/shop/product/60961

#### 6 COMPLIANCE WITH APPRAISAL CRITERIA

#### 6.1 Compliance with Quality Assurance Requirements

PCA has submitted the following quality certificates:

- ISO 9001:2015 Certificate of Registration No. QEC2632 issued to Pipe Couplings Australasia Pty Ltd by SAI-Global.
- AS 4130:2018 ISO Type 5 StandardsMark Product Certification Licence No. SMKP21387 issued to Pipe Couplings Australasia Pty Ltd by SAI-Global.

Copies of the Quality Assurance and Product Certification licences have been included in Appendix B and are also available from WSAA.

#### 6.2 Compliance with Performance Requirements

#### 6.2.1 Polyethylene (PE) compounds

PCA has provided certificates of compliance for the following black PE100 compounds that are used for the manufacture of the pipe:

- Qenos HDF 193B
- Hanwha XS10B

These PE compounds are listed in PIPA POP004 as complying with AS/NZS 4131.

The PE100 based striping or jacketing/co-extruded compounds used are Martogg BE2216 (Blue), Martogg RD1937 (Purple), and Price Plastics JS210801BE (Cream) which are also listed in POP004 as compliant to AS/NZS 4130.

#### 6.2.2 Type Tests

PCA has provided copies of Type Test reports to demonstrate compliance with the performance requirements of AS/NZS 4130. These tests demonstrate resistance to internal pressure, reversion, thermal stability and slow crack growth resistance.

#### 6.2.3 Suitability for contact with drinking water

The PE100 compounds detailed in 6.2.1 are listed in PIPA POP004 as complying with AS/NZS 4020.

#### 6.2.4 Colour coding

PCA PE 100 pressure pipe complies with the colour coding scheme specified in AS/NZS 4130:2018:

- (a) Solid black pipe with blue stripes or jackets no darker than RAL 5012 for water supply reticulation networks.
- (b) Solid black pipe with purple stripes or jackets no lighter than RAL 310 70 15 nor darker than RAL 330 40 40 or RAL 310 50 30 for non-drinking water applications.
- (c) Solid black pipe with cream stripes or jackets no lighter than RAL 080 90 20 nor darker than RAL 075 80 20 for sewerage applications.

#### 6.2.5 Batch release tests

The Batch Release Test requirements of AS/NZS 4130:2018 Amdt 1:2020 requires a thermal stability test to be undertaken at commencement of production of a batch and at a maximum frequency of 24 hours thereafter. The Standard also requires that clean rework generated from the manufacturers own production of pipe may be used if it is derived from the same grade of resin as used for the relevant production. In such cases the manufacturer shall treat this run as a new batch. PCA has provided a copy of their procedures to verify compliance to the thermal stability test frequencies and have declared that no recyclate material is used in the manufacture of their pipe.

#### 7 FITTING INSTRUCTIONS, TRAINING AND INSTALLATION

PE pressure pipe has been a commonly used product in the urban water industry for many years. PCA PE pipe is compatible with fittings manufactured in accordance with AS/NZS 4129 *Fittings for polyethylene pipes for pressure applications*.

For specific design and installation information relating to 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 or AS/NZS 2033:2008 *Installation of polyethylene pipe systems*.

Electrofusion welding, butt fusion and mechanical compression fittings 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 jointing 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

PCA pipes are marked in accordance with the requirements of AS/NZS 4130:2018 as follows:

- Manufacturers Name: PCA
- Pipe Series Number: S1
- Nominal diameter: e.g., DN25
- Pressure classification: e.g., PN16
  - SDR: e.g., SDR11
- PE material classification: PE100
  - Date of manufacture: yymmdd
  - Place of manufacture: e.g., F1
- Standard number: AS/NZS 4130
- StandardsMark and No: KKKK 21387
- Application information: e.g., RECYCLED WATER DO NOT DRINK or SEWAGE

Example: PCA S1 DN25 PN16 SBR11 PE100 YYMMDD F1 AS/NZS4130 KKKK 21387

#### 9 PACKAGING AND TRANSPORTATION

PCA advises that for coiled pipe, plastic strapping is used to hold coils together in a safe manner. Straight lengths of pipe are bundled into packs with quantities depending on size. The method of transport for PE pipes is size and load dependent. Any restrictions relating to the delivery destination is also a consideration factor in the transportation of the products.

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 (Cth)*, which covers manufacture to the relevant standard, and details of PCA's warranty is included in their terms and conditions of sale.

## 11 WATER AGENCY EXPERIENCE WITH THE PRODUCT OR FIELD-TESTING REPORT

Field testing was not deemed necessary for this appraisal as PE100 pipe is a common water industry product.

This Appraisal is a pre-requisite to apply for water agency product authorisations.

#### 12 OUTCOMES OF EXPERT PANEL PRODUCT REVIEW

No issues were raised.

#### 13 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 8605 7601 email carl.radford@wsaa.asn.au.

#### 13.1 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.

#### 13.2 Limits on Reliance on Information and Recommendations

#### 13.2.1 Disclaimer of liability

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#### **13.2.3** Need for independent assessment

The information and any recommendation contained (expressly or by implication) in this Report are provided in good faith (and subject to the limitations noted in this Report). However, you should treat the information as indicative only. You should not rely on that information or any such recommendation except to the extent that you reach an agreement to the contrary with the Publisher(s).

This Report does not contain all information that a person might require for the purposes of assessing any product discussed or appraised within it (Product). The product appraisal criteria used in preparing this Report may not address all relevant aspects of the Product.

Recipients should seek independent evidence of any matter which is material to their decisions in connection with an assessment of the Product and consult their own advisers for any technical information required. Any decision to use the Product should take into account the reliability of that independent evidence obtained by the Recipient regarding the Product.

Recipients should also independently verify and assess the appropriateness of any recommendation in the Report, especially given that any recommendation will not take into account a Recipient's particular needs or circumstances.

WSAA has not evaluated the extent of the product liability and professional indemnify insurance that the provider of the product maintains. Recipients should ensure that they evaluate the allocation of liability for product defects and any professional advice obtained in relation to the product or its specification including the requirements for product liability and professional indemnity insurance.

#### 13.3 No Updating

Neither the Publisher(s) nor any person involved in the preparation of this Report [has] [have] any obligation to notify you of any change in the information contained in this Report or of any new information concerning the Publisher(s) or the Product or any other matter.

#### 13.4 No Warranty

The Publisher(s) do[es] not, in any way, warrant that steps have been taken to verify or audit the accuracy or completeness of the information in this Report, or the accuracy, completeness or reasonableness of any recommendation in this Report.

#### **APPENDIX A – PRODUCT LITERATURE**









#### **Available Sizes**

W.T = Wall Thickness | LD = Internal Diameter | DN = Nominal Diameter | SDR = Standard Dimension Ratio | PN = Nominal Pressure

Nominal Size DN	SDR7.4/PN25		SDR9/PN20		SDR11/PN16		SDR13.6/PN12.5		SDR17/PN10		SDR21/PN8		SDR26/PN6.3		SDR33/PNS		SDR41/PN4	
	Min W.T (mm)	Mean I.D. (mm)	Min W.T (mm)	Mean LD. (mm)	Min W.T (mm)	Mean LD. (mm)	Min W.T (mm)	Mean I.D. (mm)	Min W.T (mm)	Mean LD. (mm)	Min WT (mm)	Mean I.D. (mm)	Min W.T (mm)	Mean LD. (mm)	Min W.T (mm)	Mean LD, (mm)	Min W.T (mm)	Mean LD. (mm)
16	2.2	11.4	1.8	12.3	1.6	12.7												
20	2.8	14.2	2.3	15.2	19	16	16	16.7										
25	3.5	17.7	2.8	19.2	23	20.2	19	21	1.6	21.7								
32	4.4	22.8	3.6	24.5	2.9	26	2.4	27	19	28	1.6	28.7						
40	5.5	28.5	45	30.6	3.7	32.3	3	33.8	2.4	35	1.9	361						
50	6.9	35.7	5.6	38.4	4.6	40.4	3.7	42.4	3	43.9	2.4	45						
63	8.6	45.1	7.1	48.2	5.8	51	47	53.3	3.8	55.2	3	56.9						
75	10.3	53.6	8.4	\$7.6	6.8	61	5.5	63.7	4.5	65.8	3.6	67.7	2.9	69.15	2.3	70.35		
90	12.3	64.5	10.1	69.1	8.2	73	6.6	76.5	5.4	79	4.3	81.3	3.5	82.95	2.8	84.45		
110	15.1	78.6	12.3	84.5	10	89.4	8.1	93.3	6.6	96.5	5.3	99.2	4.3	101.3	3.4	103.2	2.7	104.7
125	173	89.5	14	96.1	11.4	101.5	9.2	106.1	7,4	109.9	6	112.9	4.8	115.4	3.9	117.3	3.1	118.9
140	19.2	100.2	15.7	107.6	12.7	113.9	10.3	118.9	8.3	123	6.7	126.5	5.4	129.15	43	131.45	3.5	133.15
160	21.9	114.7	17.9	123	14.6	130	11.8	135.9	9.5	140.7	7.7	114.5	6.2	147.55	49	150.35	4	152.25
180	24.6	129.1	20,1	138.5	16.4	146.3	13.3	152.8	10.7	158.3	8.6	163.1	6.9	166.25	5.5	169.15	4,4	171.45

Additional sizes and classes are available, please contact us for details.

#### **APPENDIX B - QUALITY CERTIFICATIONS**

Copies of the following Quality Certificates are available from WSAA.

#### PIPELINE COUPLINGS AUSTRALASIA PTY LTD - MANAGEMENT SYSTEM

# 16 Britton Street Smithfield NSW Quality Systems Standard ISO 9001:2015 Certification Licence No. QEC2632 Certifying Agency SAI-Global

First Date of Certification	29 September 1993
Current Date of Certification	2 June 2021
Expiry Date of Certification	30 July 2024

#### TABLE B2

#### PIPELINE COUPLINGS AUSTRALASIA PTY LTD - PRODUCT CERTIFICATION

16 Britton Street Smithfield NSW				
Product Standard/Spec.	AS/NZS 4130:2018			
Certificate No.	SMKP21387			
Issuing Certification Body	SAI-Global			
First Date of Certification	30 August 2007			
Current Date of Certification	13 June 2023			
Expiry Date of Certification	2 October 2027			

# CERTIFICATE **OF REGISTRATION**

#### This is to certify that: **Pipe Couplings Australasia Pty Ltd**

ABN 67 001 298 906

16 Britton Street Smithfield NSW 2164 AUSTRALIA

operates a

#### QUALITY MANAGEMENT SYSTEM

which complies with the requirements of

#### ISO 9001:2015

for the following scope

The design, manufacture, assembly and distribution of specialised parts, pipe and fittings in plastics and metals for the gas oil and water industries.

#### Certificate No: QEC2632

Issued: 10 June 2021 Expires: 30 July 2024 Originally Certified: 29 September 1993 Current Certification: 2 June 2021

P

Frank Camasta Global Head of Technical Services SAI Global Assurance



WWW.JAS-ANZ.ORG/REGISTER

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The Product Schedule for this licence is 49 Pages. A copy may be obtained from PCA, WSAA or at the following link:

https://register.saiglobal.com/Client/PrintSchedule/schedules/Temp/Certificate%20SMKP21387 %2020230615.pdf



#### **APPENDIX C - SUPPLIER CONTACTS**

#### Pipe Couplings Australasia Pty Ltd

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Smithfield NSW 2164

Phone: 02 8788 5588

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Website: https://pca.net.au/



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