



Vinidex Pty Ltd

PRODUCT APPRAISAL REPORT 0407 Issue 2

PVC-O Series 2 Pressure Pipe

AS/NZS 4441:2017 – Oriented PVC (PVC-O) pipes for pressure applications

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Peer Reviewers

Name/Title	Organisation	Date
Product Appraisal Technical Advisory Group	WSAA	19 April 2024
Expert Panel	WSAA	19 April 2024
Peter Pittard, WSAA Consultant	WSAA	3 April 2024
Carl Radford, Product Appraisal Manager	WSAA	26 April 2024

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

Vinidex Pty Ltd, founded in 1960, is a leading manufacturer and distributor of thermoplastic pipeline systems in Australia. Its systems are used in the transportation of fluids for infrastructure development, agriculture, mining and building.

Vinidex is wholly owned by the Aliaxis Group, a leading global manufacturer and distributor of fluid handling systems used in residential and commercial construction, as well as in industrial and public infrastructure applications.

This Appraisal is for a range of Supermain PVC-O Series 2 DIOD pipes in sizes DN 100 to DN 300 with PN12.5 or PN16 pressure classifications, manufactured in conformance with AS/NZS 4441:2017 *Oriented PVC (PVC-O) pipes for pressure applications* for use in water supply and sewer applications.

This Issue 2 is a replacement of the original appraisal that was issued in 2006 and expired in 2011.

The effective length of the pipes is six metres with socket and spigot ends for elastomeric seal jointing. The joints have 1° maximum angular deflection.

AS/NZS 4441 classifies PVC-O pipes based on the Minimum Required Strength (MRS) of the material. Supermain pipes are manufactured from PVC-O MRS 400, MRS450 and MRS500.

Stiffness classifications for the range of pipes included in the scope of this appraisal are nominated in Table 1. WSAA specifications do not include minimum required pipe stiffnesses, however some water agencies specify a minimum of SN10.

Supermain PVC-O pipes are available in solid light blue for drinking water supply, solid purple for non-drinking water supply and solid cream for pressure sewer applications.

Vinidex Pty Ltd holds an ISO 9001:2015 Quality Management System Licence.

Supermain PVC-O pipes have ISO Type 5 StandardsMark Product Certification to AS/NZS 4441:2017 *Oriented PVC (PVC-O) pipes for pressure applications* for its Smithfield manufacturing site.

This Appraisal has determined that Vinidex Supermain PVC-O Series 2 pipes, as detailed in this report, meet the requirements of WSA PS 210 *Polyvinylchloride, Oriented (PVC-O) Pressure Pipes for Pressure Applications – Drinking Water, Non-Drinking Water Supply and Sewerage* and are considered as 'fit-for-purpose'.

1.1 Report Recommendation

It is recommended that WSAA members, subject to any specific requirements of the member, accept or authorise the Vinidex Supermain range of PVC-O pressure pipes, as detailed in this report, for use in water supply and sewerage applications provided the pipeline design, installation, acceptance testing and commissioning are in accordance with relevant WSAA Codes and the manufacturer's requirements.

2 THE APPLICANT

The Applicant is Vinidex Pty Ltd.

2.1 The Manufacturer and Supplier

Vinidex Pty Ltd is a leading Australian manufacturer and distributor of thermoplastic pipe and fittings used in the transportation of fluids for infrastructure development, agriculture, mining and building.

Founded in 1960, Vinidex has pipe manufacturing factories and distribution centres located in Sydney, Melbourne, Brisbane, Toowoomba, Townsville, Launceston, Perth, Adelaide, Darwin and Wagga Wagga. The company also has a significant presence in the Asia-Pacific Rim, with operations in New Zealand.

Vinidex Supermain PVC-O pressure pipe is manufactured at Smithfield NSW.

Vinidex is wholly owned by the Aliaxis Group which is a leading global manufacturer and distributor of fluid handling systems used in residential and commercial construction, as well as in industrial and public infrastructure applications.

Aliaxis is present in over 40 countries, has more than 100 manufacturing and commercial entities and employs over 14,000 people. In addition to the well-established markets of Europe and North America, Aliaxis has operations in Latin and South America, Australasia and Asia.

Further information is available on Vinidex and Aliaxis websites at www.vinidex.com.au or www.aliaxis.com.

3 THE PRODUCT

This Appraisal is for a range of Supermain PVC-O Series 2 DIOD pipes in sizes DN 100 to DN 300 with PN 12.5 or PN16 pressure classifications, manufactured in conformance with AS/NZS 4441:2017 *Oriented PVC (PVC-O) pipes for pressure applications* for use in water supply and sewer applications.

Supermain pipe is a pressure pipe of molecular oriented polyvinylchloride (PVC-O) for use in water supply, sewer pressure (rising) mains and pressure and vacuum sewer systems. It is designed for buried and above ground use where not exposed to direct sunlight. Supermain PVC-O pipes are suitable for the conveyance of cold drinking water up to 40°C and for general purposes up to and including 45°C. It is especially suitable for those applications where special performance requirements are needed, such as impact loads and transient pressures, up to pressure ratings of 2,000 KPa.

PVC-O pipe is extruded in an in line two stage process commencing with the extrusion of a thick-walled pipe that is then expanded under precise temperature and pressure conditions to form the final pipe size. The online expansion stage produces the molecular orientation increasing the hoop and axial strength of the pipe and increasing the resistance to internal pressure.

Molecular orientation of plastics also enhances the yield strength of the material, enabling higher operating stresses to be utilised and also enhances resistance to crack propagation across the planes of orientation through the pipe wall. The high resistance to radial crack propagation imparts increased impact resistance, fatigue resistance and tolerance to handling and installation damage.

The enhanced mechanical properties enable the material to operate at higher stresses which in turn allows a reduction in the wall thickness of PVC-O pipes compared to standard PVC-U and PVC-M providing increased flow capacity or pump power requirements for a given pipe outside diameter. Designers should be aware of the limitations of thin wall pipes and seek further advice from AS/NZS 2566 or Vinidex where required.

The effective length of the pipe is six metres with socket and spigot ends for elastomeric seal jointing. The joints have 1° maximum angular deflection.

Supermain PVC-O pipes are available in solid light blue for drinking water supply, solid purple for non-drinking water supply and solid cream for pressure sewer applications

AS/NZS 4441 classifies PVC-O pipes based on the Minimum Required Strength (MRS) of the material. Supermain pipes are manufactured from PVC-O MRS400, MRS450 and MRS500.

See Table 1 for dimensions and initial ring stiffnesses for the Supermain range of pipes included in this appraisal. The initial ring stiffness values are calculated using the formulae provided in AS/NZS 4441 and the mean wall thickness (assumed to be minimum + 5%). Vinidex provides MRS450 PN16 pipes with minimum wall thicknesses in excess of those specified in AS/NZS 4441 to ensure a minimum stiffness of SN10.

WSAA specifications do not include minimum required pipe stiffnesses, however some water agencies specify a minimum of SN10.

TABLE 1 VINIDEX SUPERMAIN PVC-O PIPE RANGE

MRS	DN	Pipe OD mm	PN12.5		PN16	
			Min Wall Thickness mm	SN	Min Wall Thickness mm	SN
400	100	122	3.0	6.3	-	-
	150	177	4.4	6.4	-	-
	200	232	5.7	6.2	-	-
	225	259	6.4	6.3	-	-
	250	286	7.0	6.1	-	-
	300	345	8.5	6.2	-	-
450	100	122	-	-	3.7	12.0
	150	177	-	-	5.3	11.4
	200	232	-	-	7.0	11.7
	225	259	-	-	7.8	11.6
	250	286	-	-	8.6	11.6
	300	345	-	-	10.4	11.7
500	100	122	-	-	3.9	6.3
	150	177	-	-	4.4	6.4
	200	232	-	-	5.7	6.2
	225	259	-	-	6.4	6.3
	250	286	-	-	7.0	6.1
	300	345	-	-	8.5	6.2

PVC-O Series 2 pipes are compatible with ductile iron fittings complying with AS/NZS 2280. See 12.4 for additional information.

Type F tapping bands and repair couplings, where a full circle design and positive stop is incorporated, are considered essential for use with PVC-O pipes. Pre-tapped connectors are preferred for new property service installations.

4 SCOPE OF THE APPRAISAL

This product appraisal applies to Vinidex Supermain PVC-O MRS400, MRS450 and MRS500 PN12.5 and PN16 Series 2 DIOD pipes in sizes DN 100 to DN 300 as detailed in Section 3 and included in the ISO Type 5 StandardsMark Product Certification schedule included in Appendix B.

5 APPRAISAL CRITERIA

5.1 Quality Assurance Requirements

The WSAA Product Appraisal Technical Advisory Group accepts PVC-O pipes for pressure applications manufactured in compliance with AS/NZS 4441:2017 *Oriented PVC (PVC-O) pipes for pressure applications* and duly certified by means of an ISO Type 5 product

certification scheme undertaken by a JAS-ANZ accredited Conformity 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

Vinidex Supermain PVC-O pipe has been appraised for compliance with the requirements of AS/NZS 4441:2017 *Oriented PVC (PVC-O) pipes for pressure applications*.

The following Product Specification is relevant to this application:

WSA PS 210 *Polyvinylchloride, Oriented (PVC-O) Pressure Pipes for Pressure Applications – Drinking Water, Non-Drinking Water Supply and Sewerage*

A copy of the Product Specification is 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

Vinidex has submitted the following quality certificates:

- ISO 9001:2015 Certificate of Registration No. QEC0570 issued to Vinidex Pty Ltd by Intertek SAI Global.
- AS/NZS 4441:2017 StandardsMark ISO Type 5 Product Certification Licence No. SMKP02595 issued to Vinidex Pty Ltd by Intertek SAI Global.
- AS/NZS 4441:2017 Best Environmental Practice PVC Certificate No. SPROD40047 issued to Vinidex Pty Ltd by Intertek 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 Type testing

Vinidex has submitted type test reports from NATA accredited laboratories to demonstrate conformance with the requirements of AS/NZS 4441:2017 Appendix ZA as follows:

Material Properties

- Composition, K value, Vicat softening point, vinyl chloride monomer.

Performance

- Opacity
- Resistance to hydrostatic pressure 1000h @ 60°C (pipe)
- Resistance to hydrostatic pressure 1000h @ 20°C (pipe)
- Tensile strength

Vinidex has advised that they are unable to submit leak-tightness test reports for the elastomeric joints. WSAA has requested that testing be undertaken for each size joint in accordance with AS/NZS 4441 as follows:

- short term positive pressure with deflection
- short term negative pressure with deflection
- long term positive pressure

A fire at the Vinidex Smithfield NATA laboratory in September 2023 destroyed most of the equipment and rendered the laboratory inoperable. Given that Vinidex PVC-O pipes have been used by the industry since early 2000's and there has been no change in the design of the joints, a Future Work item has been included to complete the tests by November 1 2024. See Section 14.

6.2.2 Elastomeric seals

SBR elastomeric seals are manufactured by Thai Duong Joint Stock Company and supplied by Hultec Asia Pacific Pty Ltd. The seals are covered by ISO Type 5 product certification to AS 1646. A copy of the licence is held on file by WSAA.

6.2.3 Suitability for contact with drinking water

Vinidex has submitted a copy of test report No. AAT33531 dated 30 September 2021 undertaken by Eurofins ams (NATA Accreditation No 15773) on a DN 100 PN16 PVC-O pipe to demonstrate compliance with AS/NZS 4020:2018.

A copy of the AS/NZS 4020:2018 test report (including gap testing for Amendment 1 requirements for monochloramine resistance) is held on file by WSAA for the Hultec SBR HT 627 compound utilised in the Vinidex seals.

6.2.4 Colour

Supermain PVC-O pipe is available in solid light blue for drinking water supply, solid purple for non-drinking water supply and solid cream for pressure sewer applications.

This meets the requirements of AS/NZS 4441:2017 and WSAA codes.

6.2.5 Pipe stiffness

Annex D of AS/NZS 4441:2017 details the minimum initial stiffness of various material classes of PVC-O pressure pipe. Stiffness values have been calculated for the PVC-O pipes included in this Appraisal, assuming a mean wall thickness of 5% greater than the specified minimum wall thickness.

WSAA specifications do not include minimum required pipe stiffnesses, however some water agencies specify a minimum of SN10.

Vinidex provides MRS450 PN16 pipes with minimum wall thicknesses in excess of those specified in AS/NZS 4441 to ensure a minimum stiffness of SN10. Vinidex also includes a stiffness test in their Batch Release testing procedures to ensure a stiffness in excess of SN10 is achieved for MRS450 PN16 PVC-O pipes.

See Section 12 for more information.

7 FITTING INSTRUCTIONS, TRAINING AND INSTALLATION

PVC-O pressure pipe has been a commonly used product in the urban water industry for many years. Vinidex does not provide any specific training for pipe layers, however there are a number of Registered Training Organisations (RTO's) conducting suitable training courses based on AS/NZS 2032 and AS/NZS 2566.2.

Vinidex recommends that suitable anchorage is provided at all tees, valves, tapers, changes in direction and termination points except where restrained elastomeric seal joint fittings are utilised.

Further details are available on the Vinidex website at the following link:

<https://www.vinidex.com.au/technical-resources/pvc-pressure-pipe/>.

8 PRODUCT MARKING

Vinidex PVC-O pipes are marked as follows:

- Manufacturer's name: Vinidex Supermain
- Pipe material, classification and series: e.g., PVC-O 500 S2

- Nominal size x wall thickness: e.g., 100 (121.7 x 3.0)
- Pressure classification: e.g., PN16
- Date of manufacture: e.g., 240210 (10 February 2024)
- Time of manufacture: e.g., 15:43
- Place of manufacture code: e.g., S11
- Standard number: AS/NZS 4441
- Licence number: SMKP002595
- Best Environmental Practice: BEP PVC
- Special application information e.g., RECYCLED WATER - DO NOT DRINK

Example:

VINIDEX SUPERMAIN QUALITY BEP PVC S2 100 (121.7 x 3.0) PVC-O 500 PN16 AS/NZS 4441 Lic. No SMKP002595 S11 240210

Each pipe also has a witness mark on the spigot end to indicate insertion depth.

The marking meets the requirements of AS/NZS 4441.

9 PACKAGING AND TRANSPORTATION

The method of packaging and transport of these pipes is similar to other Vinidex PVC pressure pipes. Scalloped timber bearers are used to provide support and crates are secured with plastic strapping. Refer AS/NZS 2032 for further information.

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 Vinidex warranty is included in their terms and conditions of sale.

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

Supermain PVC-O pipe has been used by the water industry since the early 2000's with water agency approvals dating back to 2005. Some water agencies specify pipe with a minimum stiffness rating of SN10.

12 DISCUSSION

PVC-O pipes were first introduced in Australia by Vinidex in 1986 and have been in common use since the early 2000's.

Whilst standard PVC pipe installation procedures are applicable, designers and installers should be aware of some aspects of installation that are particularly applicable to PVC-O pipes.

The 2008 publication of AS/NZS 4441 stated "In order to take full advantage of the economics and performance of PVC-O pipes, it is essential that application designers are cognisant of the limitations of thin-walled pipes and information is presented in this Standard on lateral stiffness, negative pressure resistance and aspects of joint performance. Users should refer to AS/NZS 2566 for further advice."

12.1 Under Pressure Cut-in Connections

Only Type F flanged off-take clamps complying with AS 4181:2013 *Repair and off-take clamps for water industry purposes* incorporating a full circle design and positive stop, are recommended for use with PVC-O pipes.

12.2 Tapping

It is recommended that property services are installed at the time of main laying, utilising pre-tapped connectors wherever possible. Where tapping bands or repair clamps are utilised

Type F designated products that incorporate a full circle design and positive stop, are considered essential for use with PVC-O pipes.

Specific method(s) shall be in accordance with the requirements of the Water Agency.

Conventional drilling and tapping equipment used for PVC-U can also be used on PVC-O pipes. Fine toothed “shell cutters” or hole saws are recommended to avoid spalling of the internal pipe surface. Speed bore or spayed bits should not be used.

12.3 Pipeline Repairs

Pipeline repairs can be carried out using standard long barrel mechanical couplings.

12.4 Pipe Fittings

Conventional ductile iron socketed fittings complying with AS/NZS 2280 are suitable for use with PVC-O Series 2 pressure pipes.

Each pipe has a witness mark on the spigot end to indicate the optimum insertion depth. After inserting the pipe into the socketed fitting, the witness mark should be just visible at the face of each socket.

AS/NZS 2280 nominates the minimum depth of entry beyond the elastomeric seal for socketed fittings intended for use with plastic pipes. The minimum entry depths are proposed to accommodate axial movement of the pipe due to the combined effects of thermal contraction, Poisson contraction together with an allowance for joint angular deflection, spigot chamfer length, spigot end squareness and soil friction effects.

See WSAA TN2 at <https://www.wsaa.asn.au/shop/category/5> for further information and Table 7 below for the minimum depth of entry beyond the elastomeric seal for fittings sockets.

TABLE 2: MINIMUM DEPTH OF ENTRY FOR DI FITTINGS SOCKETS

DN	Minimum depth of entry beyond elastomeric seal (mm)
100	42
150	50
200	58
225	62
250	66
300	71

13 OUTCOMES OF EXPERT PANEL PRODUCT REVIEW

No issues were raised.

14 FUTURE WORKS

Type tests are required to be undertaken, prior to September 1 2024, for each size elastomeric joint to verify compliance with the performance requirements of AS/NZS 4441.

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, 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 to each person involved in the preparation of the Report that the Recipient has understood and accepted the terms of this Disclaimer.

15.2 Limits on Reliance on Information and Recommendations

15.2.1 Disclaimer of liability

Neither the Publisher(s) nor any person involved in the preparation of the Report accept(s) any liability for any loss or damage suffered by any person however caused (including negligence or the omission by any person to do anything) relating in any way to the Report or the product appraisal criteria underlying it. This includes (without limitation) any liability for any recommendation or information in the Report or any errors or omissions.

15.2.2 Intellectual Property and other rights

The Water Services Association of Australia Limited does not undertake any assessment of whether the importation, manufacture, sale or use of the Product the subject of this Report infringes the intellectual property rights or proprietary rights of any person. Recipients of the report should undertake their own assessment of whether (as relevant) the importation, manufacture, sale or use of the relevant Products infringe the intellectual property rights or other proprietary rights of any person. If the Product infringes intellectual property rights or other proprietary rights there is potential for the supply of the Products to be interrupted.

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15.2.3 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. 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 indemnity 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.

15.3 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.

15.4 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

This Catalogue and other product information is available at the following link:
<https://www.vinidex.com.au/products/pvc-pressure-systems/supermain-pvc-o/>



Supermain® PVC-O

Molecular Oriented For Superior Strength & Performance



- HIGH FLOW CAPACITY
- HIGH IMPACT STRENGTH
- HIGH TOUGHNESS
- EXCELLENT DAMAGE TOLERANCE
- LIGHT WEIGHT
- CORROSION RESISTANT
- MATERIAL AND ENERGY EFFICIENT



Quality
ISO 9001
Lic. 570
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APPENDIX B - QUALITY CERTIFICATIONS

Copies of the following quality certificates are available from WSAA.

**TABLE B1
VINIDEX PTY LTD – MANAGEMENT SYSTEMS**

254 Woodpark Road Smithfield NSW	
Quality Systems Standard	ISO 9001:2015
Certification Licence No.	QEC0570
Certifying Agency	Intertek SAI Global
First Date of Certification	19 February 1991
Current Date of Certification	16 November 2023
Expiry Date of Certification	21 November 2026

**TABLE B2
VINIDEX PTY LTD – PRODUCT CERTIFICATION**

254 Woodpark Road Smithfield NSW	
Product Standard/Spec.	AS/NZS 4441:2017
Certificate No.	SMKP02595
Issuing Certification Body	Intertek SAI-Global
First Date of Certification	10 August 2011
Current Date of Certification	2 April 2024
Expiry Date of Certification	9 August 2026

**TABLE B3
VINIDEX PTY LTD – BEST ENVIRONMENTAL PRACTICE**

254 Woodpark Road Smithfield NSW	
Product Standard/Spec.	AS/NZS 4441:2017
Certificate No.	SPROD40047
Issuing Certification Body	Intertek SAI-Global
Current Date of Certification	22 February 2024
Expiry Date of Certification	21 February 2026



CERTIFICATE OF REGISTRATION

This is to certify that:

Vinidex Pty Ltd

ABN 42 000 664 942

Level 4 26 College Street Darlinghurst NSW 2010 AUSTRALIA
(Refer to Attachment to Certificate of Registration dated 16 November 2023 for additional certified sites)

operates a

QUALITY MANAGEMENT SYSTEM

which complies with the requirements of

ISO 9001:2015

for the following scope

The design, manufacture and distribution of polyethylene, polypropylene, modified PVC, oriented PVC and unplasticised PVC pipes, conduits and associated fittings for the water supply, sewerage, drainage, electrical, mining, gas, rural and communications industries.

Certificate Number:

QEC0570

Originally Certified:

19 February 1991

Current Certification:

16 November 2023

Issue Date:

16 November 2023

Expiry Date:

21 November 2026



Calin Moldovean
President, Business Assurance

SAI Global Certification Services Pty. Ltd.
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Australia

Registered by:

SAI Global Certification Services Pty Ltd (ACN 108 716 669) Level 7 Suite 7.01 45 Clarence Street Sydney NSW 2000 Australia with SAI Global Pty Limited Level 7 Suite 7.01 45 Clarence 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://register.saiglobal.com/>



APPENDIX TO CERTIFICATE OF REGISTRATION

These sites are registered under certificate No: QEC0570 issued on 16 November 2023.

Vinidex Pty Ltd

Extrusion 254 Woodpark Road Smithfield NSW 2164 AUSTRALIA

Injection Moulding 254-288 Woodpark Road Smithfield NSW 2164 AUSTRALIA

3846 Marjorie Street Berrimah NT 0828 AUSTRALIA

49 Enterprise Street Bohle QLD 4818 AUSTRALIA

14 Enterprise Street Bohle QLD 4818 AUSTRALIA

224 Musgrave Road Coopers Plains QLD 4108 AUSTRALIA

Lot 2, Witmack Road Wellcamp QLD 4350 AUSTRALIA

15 Thistle Street South Launceston TAS 7249 AUSTRALIA

42 Calarco Drive Derrimut VIC 3026 AUSTRALIA

Unit 1 10 Duerdin Street Notting Hill VIC 3168 AUSTRALIA

231 - 245 St Albans Road Sunshine VIC 3020 AUSTRALIA

Sainsbury Road O'Connor WA 6163 AUSTRALIA

These registrations are dependent on Vinidex Pty Ltd maintaining their scope of registration to ISO 9001:2015.

Registered by:

SAI Global Certification Services Pty Ltd (ACN 108 716 669) Level 7 Suite 7.01 45 Clarence Street Sydney NSW 2000 Australia with SAI Global Pty Limited Level 7 Suite 7.01 45 Clarence 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://register.saiglobal.com/>



STANDARDSMARK LICENCE



Intertek SAI Global hereby grants: **Vinidex Pty Ltd**

ABN 42 000 664 942

Extrusion, 254 Woodpark Road, Smithfield, NSW 2164, Australia

StandardsMark Licence

Manufactured to:

AS/NZS 4441:2017 - Oriented PVC (PVC-O) pipes for pressure applications (ISO 16422:2014, MOD)

"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:
SMKP02595

Originally Certified:
10 August 2011

Current Certification:
2 April 2024

Issued:
4 April 2024

Expires:
9 August 2026



Calin Moldovean

President, Business Assurance

SAI Global Certification Services Pty. Ltd.
Level 7 Suite 7.01 45 Clarence Street
Sydney NSW 2000 Australia

* For details of manufacture, refer to the licensee

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SCHEDULE TO STANDARDSMARK LICENCE



Intertek SAI Global hereby grants:

Vinindex Pty Ltd

Extrusion, 254 Woodpark Road, Smithfield, NSW 2164, Australia

Manufactured to:

AS/NZS 4441:2017 - Oriented PVC (PVC-O) pipes for pressure applications (ISO 16422:2014, MOD)

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

Model Identification	Model Name	Brand Name	Product Description	Material Classification	Application	Nominal Size (DN)	Pipe Series	Pressure Classification	Joint Type	Colour	Date Endorsed
OP2_0100_10.0R-P400	Superman	Vinindex	O-PVC pressure pipe	MPS400	Water/Sewage/Recycled Water	100	2	10	Rubber ring joint or Flan	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0100_10.0R-P450	Superman	Vinindex	O-PVC pressure pipe	MPS450	Water/Sewage/Recycled Water	100	2	10	Rubber ring joint or Flan	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0100_10.0R-P500	Superman	Vinindex	O-PVC pressure pipe	MPS500	Water/Sewage/Recycled Water	100	2	10	Rubber ring joint or Flan	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0100_12.5R-P400	Superman	Vinindex	O-PVC pressure pipe	MPS400	Water/Sewage/Recycled Water	100	2	12.5	Rubber ring joint or Flan	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0100_12.5R-P450	Superman	Vinindex	O-PVC pressure pipe	MPS450	Water/Sewage/Recycled Water	100	2	12.5	Rubber ring joint or Flan	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0100_12.5R-P500	Superman	Vinindex	O-PVC pressure pipe	MPS500	Water/Sewage/Recycled Water	100	2	12.5	Rubber ring joint or Flan	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0100_16.0R-P400	Superman	Vinindex	O-PVC pressure pipe	MPS400	Water/Sewage/Recycled Water	100	2	16	Rubber ring joint or Flan	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0100_16.0R-P450	Superman	Vinindex	O-PVC pressure pipe	MPS450	Water/Sewage/Recycled Water	100	2	16	Rubber ring joint or Flan	light blue, purple, cream, other colours at customer request	28 Mar 2024

Certificate No: SMKPO2595

Issued Date: 4 April 2024

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 Pty Limited (A.C.N. 050 644 642) and is issued under licence by SAI Global Certification Services Pty Limited (ACN 108 716 669) ("INTERTEK SAI Global") Level 7 Suite 7.01 45 Clarence Street Sydney NSW 2000 Australia and subject to the INTERTEK SAI Global Terms and Conditions for Certification. In the issuance of this certificate, INTERTEK SAI Global assumes no liability to any party other than to the Client, and then only in accordance with the agreed upon Certification Agreement. This certificate's validity is subject to the organization maintaining their system in accordance with INTERTEK SAI Global requirements for systems certification. This certificate may only be reproduced in its entirety and remains the property of INTERTEK SAI Global, to whom it must be returned upon request. Refer to <https://register.saiglobal.com/> for the list of product models.



SCHEDULE TO STANDARDSMARK LICENCE



Model Identification	Model Name	Brand Name	Product Description	Material Classification	Application	Nominal Size (DN)	Pipe Series	Pressure Classification	Joint Type	Colour	Date Endorsed
OP2_0150_16.0R-P400	Superman	Vindex	O-PVC pressure pipe	MRS500	Water/Sewage/Recycled Water	100	2	16	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0150_10.0R-P400	Superman	Vindex	O-PVC pressure pipe	MRS400	Water/Sewage/Recycled Water	150	2	10	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0150_10.0R-P450	Superman	Vindex	O-PVC pressure pipe	MRS450	Water/Sewage/Recycled Water	150	2	10	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0150_10.0R-P500	Superman	Vindex	O-PVC pressure pipe	MRS500	Water/Sewage/Recycled Water	150	2	10	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0150_12.5R-P400	Superman	Vindex	O-PVC pressure pipe	MRS400	Water/Sewage/Recycled Water	150	2	12.5	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0150_12.5R-P450	Superman	Vindex	O-PVC pressure pipe	MRS450	Water/Sewage/Recycled Water	150	2	12.5	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0150_12.5R-P500	Superman	Vindex	O-PVC pressure pipe	MRS500	Water/Sewage/Recycled Water	150	2	12.5	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0150_16.0R-P400	Superman	Vindex	O-PVC pressure pipe	MRS400	Water/Sewage/Recycled Water	150	2	16	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0150_16.0R-P450	Superman	Vindex	O-PVC pressure pipe	MRS450	Water/Sewage/Recycled Water	150	2	16	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0150_16.0R-P500	Superman	Vindex	O-PVC pressure pipe	MRS500	Water/Sewage/Recycled Water	150	2	16	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0200_10.0R-P400	Superman	Vindex	O-PVC pressure pipe	MRS400	Water/Sewage/Recycled Water	200	2	10	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024

Certificate No: SMKP02595

Issued Date: 4 April 2024

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	Model Name	Brand Name	Product Description	Material Classification	Application	Nominal Size (DN)	Pipe Series	Pressure Classification	Joint Type	Colour	Date Endorsed
OP2_0200_10.0R-P450	Superman	Vindex	O-PVC pressure pipe	MRS450	Water/Sewage/Recycled Water	200	2	10	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0200_10.0R-P500	Superman	Vindex	O-PVC pressure pipe	MRS500	Water/Sewage/Recycled Water	200	2	10	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0200_12.5R-P400	Superman	Vindex	O-PVC pressure pipe	MRS400	Water/Sewage/Recycled Water	200	2	12.5	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0200_12.5R-P450	Superman	Vindex	O-PVC pressure pipe	MRS450	Water/Sewage/Recycled Water	200	2	12.5	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0200_12.5R-P500	Superman	Vindex	O-PVC pressure pipe	MRS500	Water/Sewage/Recycled Water	200	2	12.5	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0200_16.0R-P400	Superman	Vindex	O-PVC pressure pipe	MRS400	Water/Sewage/Recycled Water	200	2	16	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0200_16.0R-P450	Superman	Vindex	O-PVC pressure pipe	MRS450	Water/Sewage/Recycled Water	200	2	16	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0200_16.0R-P500	Superman	Vindex	O-PVC pressure pipe	MRS500	Water/Sewage/Recycled Water	200	2	16	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0225_10.0R-P400	Superman	Vindex	O-PVC pressure pipe	MRS400	Water/Sewage/Recycled Water	225	2	10	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0225_10.0R-P450	Superman	Vindex	O-PVC pressure pipe	MRS450	Water/Sewage/Recycled Water	225	2	10	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0225_10.0R-P500	Superman	Vindex	O-PVC pressure pipe	MRS500	Water/Sewage/Recycled Water	225	2	10	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0225_12.5R-P400	Superman	Vindex	O-PVC pressure pipe	MRS400	Water/Sewage/Recycled Water	225	2	12.5	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024

Certificate No: SMKP02595

Issued Date: 4 April 2024

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SCHEDULE TO STANDARDSMARK LICENCE



Model Identification	Model Name	Brand Name	Product Description	Material Classification	Application	Nominal Size (DN)	Pipe Series	Pressure Classification	Joint Type	Colour	Date Endorsed
			pipe							cream, other colours at customer request	
OP2_025_12.5R-P450	Superman	Vindex	O-PVC pressure pipe	MPS450	Water/Sewage/Recycled Water	225	2	12.5	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_025_12.5R-P500	Superman	Vindex	O-PVC pressure pipe	MPS500	Water/Sewage/Recycled Water	225	2	12.5	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_025_16.0R-P400	Superman	Vindex	O-PVC pressure pipe	MPS400	Water/Sewage/Recycled Water	225	2	16	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_025_16.0R-P450	Superman	Vindex	O-PVC pressure pipe	MPS450	Water/Sewage/Recycled Water	225	2	16	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_025_16.0R-P500	Superman	Vindex	O-PVC pressure pipe	MPS500	Water/Sewage/Recycled Water	225	2	16	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_050_10.0R-P400	Superman	Vindex	O-PVC pressure pipe	MPS400	Water/Sewage/Recycled Water	250	2	10	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_050_10.0R-P450	Superman	Vindex	O-PVC pressure pipe	MPS450	Water/Sewage/Recycled Water	250	2	10	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_050_10.0R-P500	Superman	Vindex	O-PVC pressure pipe	MPS500	Water/Sewage/Recycled Water	250	2	10	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_050_12.5R-P400	Superman	Vindex	O-PVC pressure pipe	MPS400	Water/Sewage/Recycled Water	250	2	12.5	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_050_12.5R-P450	Superman	Vindex	O-PVC pressure pipe	MPS450	Water/Sewage/Recycled Water	250	2	12.5	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_050_12.5R-P500	Superman	Vindex	O-PVC pressure pipe	MPS500	Water/Sewage/Recycled Water	250	2	12.5	Rubber ring joint or Plain	light blue, purple, cream, other	28 Mar 2024

Certificate No: SMKP02595

Issued Date: 4 April 2024

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SCHEDULE TO STANDARDSMARK LICENCE



Model Identification	Model Name	Brand Name	Product Description	Material Classification	Application	Nominal Size (DN)	Pipe Series	Pressure Classification	Joint Type	Colour	Date Endorsed
										colours at customer request	
OP2_0250_16.0R--P400	Superman	Vindex	O-PVC pressure pipe	MRS400	Water/Sewage/Recycled Water	250	2	16	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0250_16.0R--P450	Superman	Vindex	O-PVC pressure pipe	MRS450	Water/Sewage/Recycled Water	250	2	16	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0250_16.0R--P500	Superman	Vindex	O-PVC pressure pipe	MRS500	Water/Sewage/Recycled Water	250	2	16	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0300_10.0R--P400	Superman	Vindex	O-PVC pressure pipe	MRS400	Water/Sewage/Recycled Water	300	2	10	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0300_10.0R--P450	Superman	Vindex	O-PVC pressure pipe	MRS450	Water/Sewage/Recycled Water	300	2	10	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0300_10.0R--P500	Superman	Vindex	O-PVC pressure pipe	MRS500	Water/Sewage/Recycled Water	300	2	10	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0300_12.5R--P400	Superman	Vindex	O-PVC pressure pipe	MRS400	Water/Sewage/Recycled Water	300	2	12.5	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0300_12.5R--P450	Superman	Vindex	O-PVC pressure pipe	MRS450	Water/Sewage/Recycled Water	300	2	12.5	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0300_12.5R--P500	Superman	Vindex	O-PVC pressure pipe	MRS500	Water/Sewage/Recycled Water	300	2	12.5	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0300_16.0R--P400	Superman	Vindex	O-PVC pressure pipe	MRS400	Water/Sewage/Recycled Water	300	2	16	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024
OP2_0300_16.0R--P450	Superman	Vindex	O-PVC pressure pipe	MRS450	Water/Sewage/Recycled Water	300	2	16	Rubber ring joint or Plain	light blue, purple, cream, other colours at customer request	28 Mar 2024

Certificate No: SMKP02595

Issued Date: 4 April 2024

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SCHEDULE TO STANDARDSMARK LICENCE



Model Identification	Model Name	Brand Name	Product Description	Material Classification	Application	Nominal Size (DN)	Pipe Series	Pressure Classification	Joint Type	Colour	Date Endorsed
OPZ_0300_16.0H- -P500	Superman	Vindex	O-PVC pressure pipe	MFR500	Water/Sewage/Recycled Water	300	2	16	Rubber ring joint or Plain	light blue, purple, green, other colours at customer request	28 Mar 2024

End of Record

Certificate No: SMKP02595

Issued Date: 4 April 2024

This schedule supersedes all previously issued schedules

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

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CERTIFICATE OF VERIFICATION



Vinidex Pty Ltd

ABN: 42 000 664 942
254 Woodpark Road
Smithfield, NSW.
Australia
Verification to

BEST ENVIRONMENTAL PRACTICE PVC PIPES AND FITTINGS

Type of product: The product types listed below have been independently assessed and comply with the requirements of Best Environmental Practice PVC pipes and fittings as set out in AS/NZS 1254 Appendix B, AS/NZS 1260 Appendix C, AS/NZS 1477 Appendix B, AS/NZS 4765 Appendix G and AS/NZS 4441 Appendix ZB.

Pipe and pipe fittings manufactured in accordance to:

- AS/NZS 1254
- AS/NZS 1260
- AS/NZS 1477
- AS/NZS 4441
- AS/NZS 4765
- AS/NZS 2053.2
- AS/NZS 2053.6

PVC Application type: FP: Finished Product Manufacturer

- R: Resin Producer, C: Compound Producer, FP: Finished Product Manufacturer

Disclaimer: This certificate does not constitute product certification and does not imply the product is certified. This certificate remains valid until the expiry date above or until material change occurs to the PVC and VCM supply and / or process which requires re-validation under the guidelines. The certificate holder is responsible for the preparation and presentation of information about the continuing compliance with the requirements throughout the relevant period, in accordance with compliance pathway number 2 -manufacturer's declaration, as established within the Auditor Verification process. This certificate has been prepared for the purpose of assessing compliance with the requirements as established by the criteria, it is intended for a specific purpose, and we disclaim any responsibility if it's used differently.

Certificate No: SPROD40047

Issued: 22 February 2024

Expires: 21 February 2026

Simon Fraser
Head of Operations, Product Services
Intertek SAI Global

Certification Body:

SAI Global Certification Services Pty Limited (ACN 108 716 669) Operating as "Intertek & Intertek SAI Global"
JAS-ANZ Accreditation No. Z1440295AS
Address: Suite 7.01, 45 Clarence St, Sydney Australia
Website: www.saassurance.com.au



APPENDIX C - SUPPLIER CONTACTS

Vinidex Pty Ltd

Phone: 131169

Emails:

Queensland: qldsales@vinidex.com.au

Victoria: wasales@vinidex.com.au

Western Australia: wasales@vinidex.com.au

New South Wales: swsales@vinidex.com.au

Web: <https://www.vinidex.com.au/>



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