



SIRIM QAS International Sdn. Bhd.
Company No. 199601037981 (410334-X)
No.1, Persiaran Dato' Menteri, P.O.BOX 7035, Section 2,
40700 Shah Alam, Selangor Darul Ehsan, Malaysia
Tel: 014-834 6406
<http://www.sirim-qas.com.my/>

TEST REPORT

REPORT NO : 2026CE1629	PAGE : 1 OF 7
Unless otherwise stated, the results shown in this Test Report shall be valid exclusively for the specific sample either provided by the Applicant or sampled by the qualified officer and tested by SIRIM QAS International Sdn. Bhd. In deriving the results of this Test Report, SIRIM QAS International Sdn. Bhd. has relied solely on the sample and data information provided by the Applicant, in accordance with the applicable standards requested by the Applicant in the Application Form. This Test Report shall not be reproduced, except in full, without written approval from the Head of Quality, Occupational Safety and Health & Environment (QOSHE) of SIRIM QAS International Sdn. Bhd. Kindly refer to the last page of this Test Report for the 'Conditions Relating to the Use of SIRIM QAS International Sdn. Bhd. Test Report'.	

Applicant : NORDITUBE ASIA-PACIFIC PTE. LTD
151 CHIN SWEE ROAD
169876 #01-39 MANHATTAN HOUSE.
SINGAPORE SINGAPORE

Manufacturer : 5Elem Hi-Tech Corporation
No. 16 Jiangqing Road, Jiangyan District, Taizhou City, Jiangsu Province,
China, 225500, Taizhou

Product : Nordiliner

Reference Standard / Method of Test : MS 1583 : Part 1 : 2003
(Suitability of Non-Metallic Product for use in Contact with Water Intended for Human Consumption with Regards to Their Effect on the Quality of the Water)

Description of sample/ Description of Test Specimen : Received one (1) sample for testing. The sample was identified as:
Product Name: Nordiliner
Product Details: Refer Page 2 to Page 6

Disclaimer: All the information stated above has been provided/agreed by the Applicant. SIRIM QAS International Sdn. Bhd. shall not be held responsible for the accuracy, completeness, or validity of the information provided by the Applicant which may affect the validity of the test results. The accuracy and reliability of the test results are contingent upon the integrity and accuracy of the information provided by the Applicant.

Date Received of Complete Application : 02 March 2026

Job No. : J20263670473

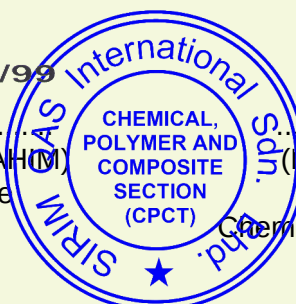
Description of Test Results/ Overall Test Result : The test results for the submitted test sample as described on Page 2 to Page 6 of this test report complied with the requirements of the above reference standard at the respective clauses tested.

Issued Date : 21 May 2026

Approved Signatory;


IKM M/1700/3994/99

.....
(ChM. ROHAIDAH BINTI IBRAHIM)
Principal Testing Executive





.....
(DALHA BIN KATNI @ RAHMAT)
Head
Chemical, Polymer and Composite Section
Testing Services Department

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TEST RESULTS

Test : **Odour and Flavour of Water**
Product Name : **Nordiliner**
Brand : **Nordiliner**
Model : **Nordiliner PE with Carbon Steel Connector**
Size(s) : **DN50DN100DN150DN200DN250DN300DN350DN400DN450DN500
DN600DN700DN750DN800DN900DN1000DN1100DN1200**
Product Description : **Nordiliner is a pull-in-place-pipe rehab technology, designed for diameters from DN50 up to DN1200**
Product Marking : **Liner (Blue)**

No.	Type of Tests	Requirement under MS 1583 : 2003 : Part 1 Clause 4	Test results after final extraction	
			Unchlorinated extracts	Chlorinated extracts
1.	Odour	No discernable odour	No discernable odour	No discernable odour
2.	Flavour	No discernable flavour	No discernable flavour	No discernable flavour

Note:

The final unchlorinated and chlorinated extracts for odour and flavour tests were after 24 hours i.e 1st extractions

Comment : The sample tested complied with the requirements of MS 1583 : Part 1 : 2003 : Clause 4



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TEST RESULTS

Test : Appearance of Water
Product Name : Nordiliner
Brand : Nordiliner
Model : Nordiliner PE with Carbon Steel Connector
Size(s) : DN50DN100DN150DN200DN250DN300DN350DN400DN450DN500
 DN600DN700DN750DN800DN900DN1000DN1100DN1200
Product Description : Nordiliner is a pull-in-place-pipe rehab technology, designed for diameters from DN50 up to DN1200
Product Marking : Liner (Blue)

No.	Type of Tests	Methods Used	Requirement under MS 1583 : 2003 Part 1 : Clause 5	Test results after final extraction		
				Control	Sample	Net Increase
1.	Colour as Colour Unit*	APHA 2120 B	The increase in colour and turbidity of the water in the final extract shall not be more than 5 standard units (of colour) or 0.5 FNU respectively	Less than 5	Less than 5	Less than 5
2.	Turbidity, FNU*	ISO 7027-1		0.16	0.19	0.03

Note :

*The final extract for colour and turbidity tests were the first 24 hours.

Comment : The sample tested complied with the requirements of MS 1583 : Part 1 : 2003 : Clause 5



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TEST RESULTS

Test : Growth of Aquatic Microorganisms
Product Name : Nordiliner
Brand : Nordiliner
Model : Nordiliner PE with Carbon Steel Connector
Size(s) : DN50DN100DN150DN200DN250DN300DN350DN400DN450DN500
 DN600DN700DN750DN800DN900DN1000DN1100DN1200
Product Description : Nordiliner is a pull-in-place-pipe rehab technology, designed for diameters from DN50 up to DN1200
Product Marking : Liner (Blue)

Type of Tests	Requirement under MS 1583 : 2003 Part 1 : Clause 6	Test results after final extraction		
		After 5 th week	After 6 th week	After 7 th week
Dissolved oxygen difference (MDOD), mg/L	-	0.14	0.15	0.15
The mean dissolved oxygen difference (MDOD), mg/L	2.39 or less	0.2		

Note:

If mean dissolved oxygen difference (MDOD) is less than 1.69, report to one decimal place

Comment : The sample tested complied with the requirements of MS 1583 : Part 1 : 2003: Clause 6



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TEST RESULTS

Test : Extraction of Substances That May Be of Concern to Public Health⁽¹⁾

Product Name : Nordiliner

Brand : Nordiliner

Model : Nordiliner PE with Carbon Steel Connector

Size(s) : DN50DN100DN150DN200DN250DN300DN350DN400DN450DN500
DN600DN700DN750DN800DN900DN1000DN1100DN1200

Product Description : Nordiliner is a pull-in-place-pipe rehab technology, designed for diameters from DN50 up to DN1200

Product Marking : Liner (Blue)

Test Result : Refer REPORT NO. R0227/26/B19/01

Note : ⁽¹⁾ Externally provided and accredited by Life Science Centre, SIRIM Berhad



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TEST RESULTS

Test : **Extraction of Metals⁽¹⁾**
Product Name : **Nordiliner**
Brand : **Nordiliner**
Model : **Nordiliner PE with Carbon Steel Connector**
Size(s) : **DN50DN100DN150DN200DN250DN300DN350DN400DN450DN500
DN600DN700DN750DN800DN900DN1000DN1100DN1200**
Product Description : **Nordiliner is a pull-in-place-pipe rehab technology, designed for diameters from DN50 up to DN1200**
Product Marking : **Liner (Blue)**

No.	Type of Tests	Method Used	Requirement under MS 1583: Part 1: 2003 : Clause 8 (maximum allowed)	Test results after 24 hours extraction/final extraction ⁽²⁾	Remarks
1.	Aluminium (as Al), mg/L	APHA 3125 B	0.2	< 0.00127 ⁽³⁾	Pass
2.	Barium (as Ba), mg/L	APHA 3125 B	0.7	0.0010	Pass
3.	Chromium (as Cr), mg/L	APHA 3125 B	0.05	< 0.00003 ⁽³⁾	Pass
4.	Iron (as Fe), mg/L	APHA 3125 B	0.3	0.0012	Pass
5.	Manganese (as Mn), mg/L	APHA 3125 B	0.1	0.0006	Pass
6.	Nickel (as Ni), mg/L	APHA 3125 B	0.02	< 0.00246 ⁽³⁾	Pass
7.	Lead (as Pb), mg/L	APHA 3125 B	0.01	< 0.00054 ⁽³⁾	Pass
8.	Silver (as Ag), mg/L	APHA 3125 B	0.05	0.00009	Pass
9.	Cadmium (as Cd), mg/L	APHA 3125 B	0.003	< 0.00002 ⁽³⁾	Pass
10.	Arsenic (as As), mg/L	APHA 3125 B	0.01	< 0.00005 ⁽³⁾	Pass
11.	Antimony (as Sb), mg/L	APHA 3125 B	0.005	0.0006	Pass
12.	Mercury (as Hg), mg/L	APHA 3125 B	0.001	< 0.00002 ⁽³⁾	Pass
13.	Selenium (as Se), mg/L	APHA 3125 B	0.01	< 0.00012 ⁽³⁾	Pass
14.	Cyanide (as CN ⁻) mg/L ⁽⁴⁾	APHA 4500-CN C & E	0.07	< 0.0006 ⁽³⁾	Pass

Notes:

⁽¹⁾ Test is under scope of accreditation of SAMM 087 except for Cyanide. Test method was based on MS 1583: Part 2: Section 1: 2003 and MS 1583: Part 2: Section 6: 2003

⁽²⁾ Since results of test after the first 24 hours extraction comply with the requirements, this first extract is defined as the final extract

⁽³⁾ Method detection limit

⁽⁴⁾ Externally provided and accredited by Energy And Environment Centre, SIRIM Berhad

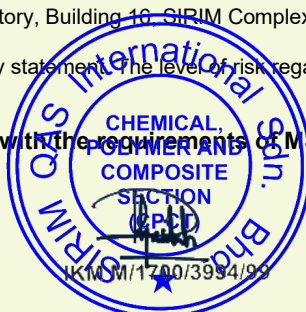
< denotes less than

Testing period – 10 Mac 2026 to 06 May 2026

Testing location – Chemical & Consumer Laboratory, Building 16, SIRIM Complex, Shah Alam, Selangor

Simple acceptance rule is used for the conformity statement. The level of risk regarding the probability of false accept is up to 50% according to ILAC G8 : 09

Comment : The sample tested complied with the requirements of MS 1583: Part 1: 2003 : Clause 8



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CONDITIONS RELATING TO THE USE OF SIRIM QAS INTERNATIONAL TEST REPORT

1. A Test Report will be issued in respect of the Testing Services conducted and shall relate only to the sample actually tested by SIRIM QAS International. The results in the Test Report will be based on all the information provided by the Applicant, unless otherwise stated. SIRIM QAS International makes no warranties whatsoever, and the Applicant shall not represent in any manner that any duplication or mass production of the Product is identical to the Sample actually tested, or that SIRIM QAS International has tested any duplicated or mass-produced Product. Measurement uncertainty shall be included in the Test Report when no statement of conformity is required.
2. For quantitative test results (with values), when a statement of conformity to a specification or standard is applied, the Simple Acceptance Rule shall be used. Unless otherwise stated, the Acceptance Rule with Guard Band will be applied, and an additional charge will be incurred accordingly.
3. For qualitative test results (visual observation), when requested by the applicant, a statement of conformity shall be included in the Test Report. If there is no request by the Applicant, a statement of conformity can be included in the Test Report based on SIRIM QAS International Sdn. Bhd.'s discretion.
4. The Applicant shall not at any time misrepresent the content of any Test Report provided by SIRIM QAS International Sdn. Bhd., nor shall the Test Report be misused, amended, changed, varied, or modified in any manner whatsoever by the Applicant or otherwise.
5. The Test Report shall not be reproduced, except in full, without the written approval from the Head of Quality, Occupational Safety and Health & Environment (QOSHE) of SIRIM QAS International of No. 1, Block 8, Persiaran Dato' Menteri, Section 2, P.O. Box 7035, 40700 Shah Alam, Selangor Darul Ehsan.
6. The Applicant is not permitted to use any SIRIM QAS International Sdn. Bhd., SIRIM Berhad or other SIRIM subsidiaries logos or words on packaging, sample manuals, technical specifications, items and products.
7. Subject to consent and written approval from the Head of Quality, Occupational Safety and Health & Environment (QOSHE) of SIRIM QAS International Sdn. Bhd., the Applicant may use the SIRIM QAS International Sdn. Bhd. logo or word on promotional materials. The Applicant shall only include the phrase, "A sample of this product has been tested by SIRIM QAS International Sdn. Bhd. (Test Report No) ... (dated) ... (for what test) ... (to which standard)", or similar words emphasizing that only the sample was tested. This phrase shall only be used for product advertisements or promotions (e.g.: brochures, flyers, official website). For clarity, the statement shall not be used on the sample, packaging, items or products.
8. In the event there is an investigation from a Government Regulatory Agency concerning the Applicant's Test Report, SIRIM QAS International Sdn. Bhd. may disclose the information pertaining to the Test Report for the purposes of such investigation.
9. In the event that the Applicant is found in breach of this provision, SIRIM QAS International Sdn. Bhd., SIRIM Berhad and/or other SIRIM subsidiaries may, without prejudice to any other rights and remedies, take whatever actions are necessary including but not limited to:
 - a) Informing and placing a notice in the media;
 - b) Obtaining an injunction from the Court (costs on a solicitor-client basis to be borne by the Applicant);
 - c) Refusing to accept any further Products for Testing Services from the Applicant or whosoever related to the Applicant, whether subsidiary or otherwise;
 - d) Instructing the Applicant to withdraw and recall the advertisement, statement, or document in question and to publish a clarification and apology to SIRIM QAS International, SIRIM and/or other SIRIM subsidiaries twice in a national publication of SIRIM QAS International's choice at the Applicant's sole cost; and
 - e) Informing or lodging a report pertaining to the Applicant's Test Report with the relevant authorities.
10. SIRIM QAS International is committed to supporting environmentally friendly business practices by reducing paper consumption. Therefore, we do not issue any hard copies of the Test Report to the Applicant. However, additional certified true copies or softcopies of the Test Report may be issued upon request by the Applicant, subject to payment of the relevant fee. Certified true copies or softcopies of the Test Report shall only be provided for Test Reports issued not more than **three (3) years** from the date of issuance.
11. The Issuance of an Amendment Report due to the following reasons is chargeable to the Applicant:
 - a) Typo or change1 in details of the Applicant's name and/or address; or
 - b) Typo or change1 in details of the Manufacturer's name and/or address; or
 - c) Typo or change1 in details of the Factory location name and/or address; or
 - d) Typo or change1 in details of the brand, size, model and/or type designation; or
 - e) Typo in details of the description of sample.

Note: ¹Applicable only for electrical and electronic products based on IECCE OD-2020.
12. Any corrections and/or changes to the Report requested by the Applicant shall only be allowed if the date of issuance of the original Test Report has not exceeded six (6) months and shall be limited to a maximum of three (3) times. After either of these conditions is met, no further amendments to the Test Report shall be issued.
13. However, the issuance of a Supplementary Report due to the following reasons is free of charge (FOC):
 - a) Misprints and typographical errors;
 - b) Missing technical information as agreed in the PP1 form;
 - c) Test data not reported; or
 - d) Mistakes in the reporting of test data.