Test Report

Report No.: KN-2409-1729-2

Applicant Company:	Ningbo Langchi New Materials Technology Co., Ltd.
Address:	No. 59 Lixin Road, Zonghan Street, Cixi City, Zhejiang province
Attn:	Huang Kang
Sample:	FEP Gas Pipe
OEM:	/
Model:	/
Car Model:	/
Part No.:	/
Material:	/
Date Produced:	/
Date of Sample Received:	Sep.23, 2024
Date of Testing:	Sep.24, 2024~Sep.26, 2024
Date of Report Released:	Sep.26, 2024

Shanghai KUIEN Technical Testing Service Co., LTD

Reporter / Main testing:	Verifier:	Approver:
Bell Liu	Beryl Luo	Landy Luan
Date: Sep.26, 2024	Date: Sep.26, 2024	Date: Sep.26, 2024

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Test Summary

Section No.	Test item	Evaluation
KN-2409-1729-2.001	Size	Pass
KN-2409-1729-2.002	Heat resistance	Pass
KN-2409-1729-2.003	Low temperature flexibility	Pass

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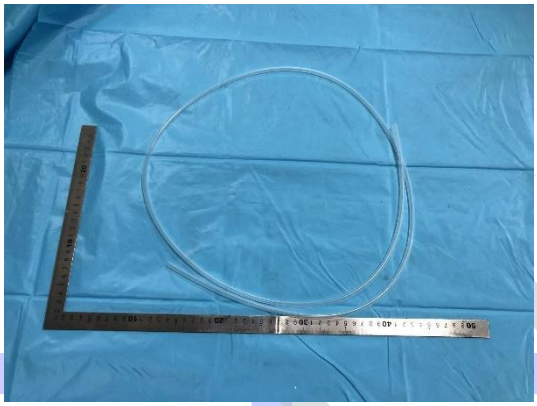
Test Items, Method and Results:

<table>
<tr><td>KN-2409-1729-2.001</td><td colspan="4">Size</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td>Ref. Specs Section</td><td colspan="4">QBT 4883-2015 chapter 4.2</td></tr>
<tr><td>Date Tested</td><td colspan="4">2024.09.24~2024.09.26</td></tr>
<tr><td>Sample No.</td><td colspan="4">1#.</td></tr>
<tr><td>Test Method</td><td colspan="4">According to GB/T 2918-1998, the sample was subjected to state adjustment for at least 4 h under the condition of temperature of (23±2)℃ and relative humidity of (50±10)%, and the size was measured under this condition.
1. Inner diameter deviation: The plug gauge corresponding to the inner diameter of FEP pipe is used for measurement, the accuracy of the plug gauge is not less than 0.02mm, and the inner diameter deviation is the difference between the measured inner diameter and the nominal inner diameter.
2. Wall thickness: According to GB/T 8806-2008, the maximum and minimum wall thickness are measured.</td></tr>
<tr><td>Acceptance Criteria</td><td colspan="4">Nominal inner diameter is 4mm and inner diameter deviation should be less than ±0.13mm,
The wall thickness is 1mm and the wall thickness deviation should be less than ±0.12mm.</td></tr>
<tr><td>Deviation</td><td colspan="4">/</td></tr>
<tr><td>Test Results</td><td colspan="4"><table>
<tr><td>Item</td><td>Measured value</td><td>Deviation</td><td>Evaluation</td></tr>
<tr><td>Inner diameter</td><td>3.97mm</td><td>-0.03mm</td><td>Pass</td></tr>
<tr><td>Maximum wall thickness</td><td>1.02mm</td><td>0.02mm</td><td>Pass</td></tr>
<tr><td>Minimum wall thickness</td><td>0.97mm</td><td>-0.03mm</td><td>Pass</td></tr>
</table></td></tr>
<tr><td>Test Instruments</td><td colspan="4"><table>
<tr><td>Equipment No.</td><td>Equipment Name</td><td>Calibration Due Date</td></tr>
<tr><td>KN-SH-EQ-257</td><td>Bore gauge</td><td>2025.08.25</td></tr>
<tr><td>KN-SH-EQ-215</td><td>Digital display vernier caliper</td><td>2025.08.25</td></tr>
</table></td></tr>
</table>

Observations & Remarks

None

Pictures



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KN-2409-1729-2.002	Heat resistance
Ref. Specs Section	QBT 4883-2015 chapter 4.3
Date Tested	2024.09.24~2024.09.26
Sample No.	1#, 2#, 3#.
Test Method	1. Size change rate: Three FEP pipes with a length of (100±1)mm were cut off, and the initial length of the sample was measured with a measuring tool with an index value no greater than 0.05 mm. Then the samples were placed in an oven at (200 ±2)℃ for 3 h. After heating, the samples were taken out and cooled to (23±2)℃, and placed in this environment for 4 h. The length of FEP pipe after heating was measured and the size change rate was calculated. The arithmetic average of 3 samples was taken as the test result. 2. State after heating: Visually check whether the FEP pipe after heating has cracks and color changes.
Acceptance Criteria	1. The size change rate is less than or equal to ±2% 2. No cracks after heating.
Deviation	/
Test Results	1. Size change rate:

NO.	Initial length	Length after heating	Size change rate
1#	99.46mm	97.94mm	-1.53%
2#	100.09mm	98.43mm	-1.66%
3#	100.36mm	98.56mm	-1.79%
Average Value	99.97mm	98.31mm	-1.66%
Evaluation	Pass		

2. State after heating:

NO.	Result
1#	After the test, there are no cracks and color changes.
2#	After the test, there are no cracks and color changes.

	3#	After the test, there are no cracks and color changes.
	Evaluation	Pass

Test Instruments

Equipment No.	Equipment Name	Calibration Due Date
KN-SH-EQ-054	Electric blast drying oven	2025.01.31
KN-SH-EQ-215	Digital display vernier caliper	2025.08.25

Observations & Remarks

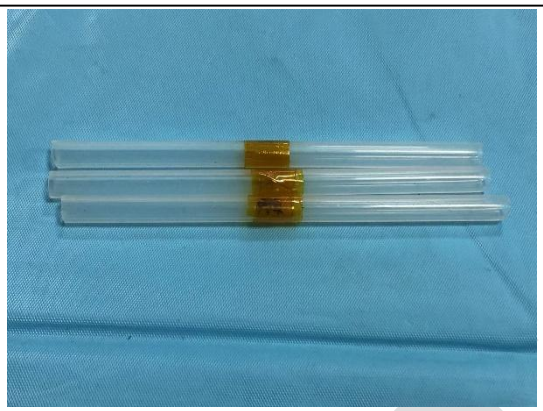
None

Pictures

Before Test

Test Set/During Test

After Test



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KN-2409-1729-2.003	**Low temperature flexibility**
Ref. Specs Section	QBT 4883-2015 chapter 4.3
Date Tested	2024.09.24~2024.09.26
Sample No.	1#, 2#, 3#.
Test Method	The three samples with a length of 300 mm were placed in the oven at (200±2)℃ for 5 h. Next the samples were taken out and cooled to room temperature. Then the samples and the 9.5mm diameter mandrel were placed in the temperature chamber at (-55±2)℃ for 4 h. Finally the samples were quickly tested at(-55±2)℃.The samples should be wound on the mandrel at least 2 times, and the winding speed is approximately 2 S per turn. Remove the samples from the temperature chamber to check for cracking after the test.
Acceptance Criteria	After the test, the samples should not crack.
Deviation	/

Test Results

NO.	Result
1#	After the test, the samples have not cracked.
2#	After the test, the samples have not cracked.
3#	After the test, the samples have not cracked.
Evaluation	Pass

Test Instruments

Equipment No.	Equipment Name	Calibration Due Date
KN-SH-EQ-054	Electric blast drying oven	2025.01.31
KN-SH-EQ-087	Constant temperature and humidity chamber	2025.03.01

Observations & Remarks

None

Pictures

Before Test

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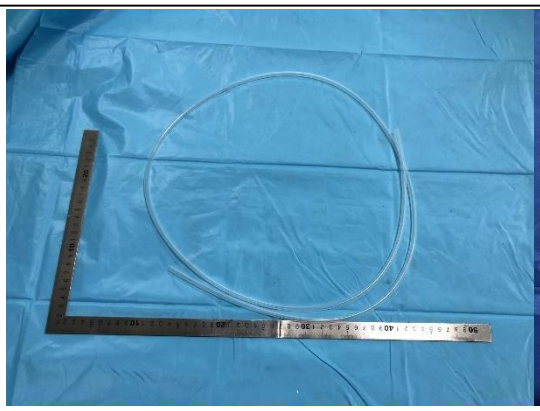
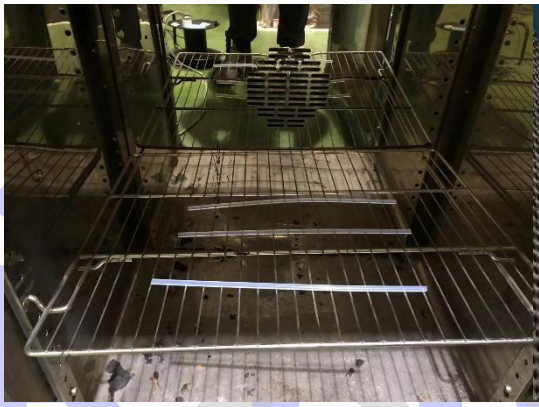
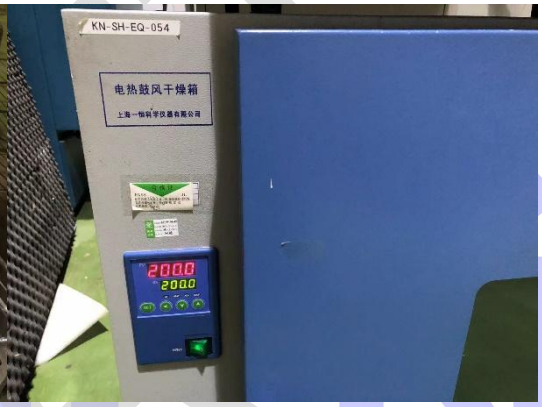


Test Set/During Test





After Test

-End of report-

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