

Date :2024-03-11

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No. : DT24010502

Applicant (08316483) : Noviland Technology Co., Ltd
204, Building 7, No. 1818-2, Wenyi West Road, Yuhang Street,
Yuhang District, Hangzhou City

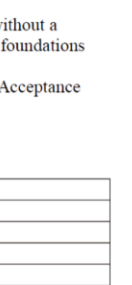
Description of Sample(s) : Five (5) pieces of submitted sample(s) said to be:
Hybrid Memory Mattress
(See the attached photo)

Date sample(s) Received : 2024-01-24

Date Tested : 2024-01-24 to 2024-03-11

Investigation(s) Requested : Selected test(s) as detailed herein.

Conclusion(s) : The submitted sample(s) **complied** with the requirements of 16 CFR 1633.
The submitted sample(s) **complied** with the requirements of 16 CFR 1632.



Zhang Ke Yun, Kent
Authorized Signatory

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TEST RESULT(S):**16 CFR 1633 – Standard for the Flammability (Open Flame) of Mattress Sets**

Test Category Requested: Qualified Prototype (3 mattress sets)

Note: As defined by CFR Title 16 Part 1633, a "mattress set" can either be a mattress without a foundation or a mattress with a foundation. The sale of mattresses tested without foundations might be limited to that configuration.
Qualified Prototype: Three mattress sets must demonstrate compliance with the Acceptance Criteria.

1.Sample Information

The follow sample(s) was/were submitted and identified on behalf of the client as :

Model Name :	AM01 AM02 ANMIZ Hybrid Memory Mattress
Prototype Identification:	/
Method of Assembly:	Quilt
Specimen Composite:	/
Covering Material(Ticking):	/
Foam Padding:	/
Barrier/ Interliner:	/
Overall Size:	/
Foundation:	Without Foundation

2.Conditions:

	Requirement	Actual
Temperature:	Greater than 59°F Less than 80.6 °F	78.6°F
Relative Humidity:	Less than 75%	65%
Time lag between conditioning room & test start:	Within 20 minutes	10 minutes

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TEST RESULT(S):**3.Procedure:**

The sample was conditioned before testing for at least 48 hours at greater than 65°F and less than 77 °F and a relative humidity less than 55%.

The mattress was placed on a metal test frame and catch surface under the center of an open hood. The open hood and open calorimeter test room were configured in accordance with open calorimeter Layout Option A as specified in 16 CFR 1635.

The ignition source was the NIST Dual Burner System constructed of stainless steel tubing in accordance with the Section 6 Ignition Source and Figure 7. The fuel used was commercial propane delivered at a rate of 12.9 l/min to the top burner for a total time of 70 seconds and a rate of 6.6 l/min to the side burner for a total time of 50 seconds.

After ignition of the burner, we monitored recorded certain properties of the test procedure. These properties are Heat Release Rate, Total Heat.

4. Test Results:

Sample Set #1:

Measurement Type	Initial Value	Maximum Value	Time Occurred (min: sec)	Allowed Value	Comments
Heat Release Rate (kW)	0	35.6	01:21	200	Pass
Total Heat Release – First 10 Min (MJ)		2.7		15	Pass

Total Test Time (min:sec):	30:00
Total Heat Release (Entire Test, MJ)	2.7
Please reference Figure 1and 2 for graphical representation of the Heat Release Rate and Total Heat Release.	

OBSERVATIONS:

- 13:40 – Sample was removed from conditioning room.
- 13:50 – Test was started.
- 13:58 – Little flame kept burning on the mattress.
- 14:07 –All the flame extinguished.
- 14:20 – Test was stopped.

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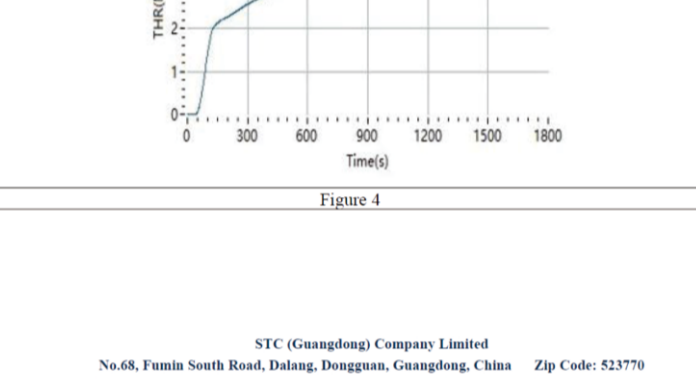
TEST RESULT(S):

Figure 1



Figure 2

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TEST RESULT(S):

Sample Set #2:

Measurement Type	Initial Value	Maximum Value	Time Occurred (min: sec)	Allowed Value	Comments
Heat Release Rate (kW)	0	34.1	01:18	200	Pass
Total Heat Release – First 10 Min (MJ)		3.2		15	Pass

Total Test Time (min:sec):	30:00
Total Heat Release (Entire Test, MJ)	4.2
Please reference Figure 3and 4 for graphical representation of the Heat Release Rate and Total Heat Release.	

OBSERVATIONS:

- 14:25 – Sample was removed from conditioning room.
- 14:35 – Test was started.
- 15:08 – Little flame kept burning on the mattress.
- 15:05 – Test was stopped.

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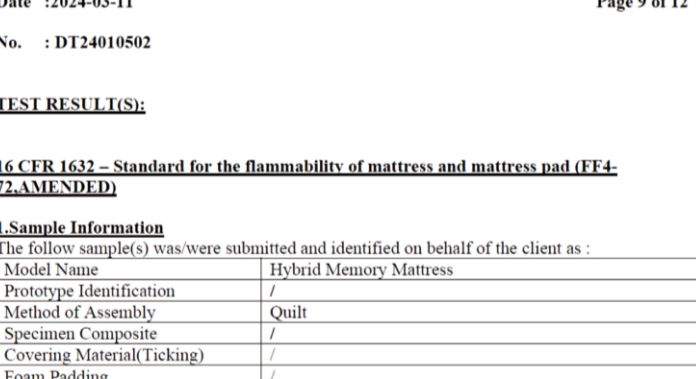
TEST RESULT(S):

Figure 3

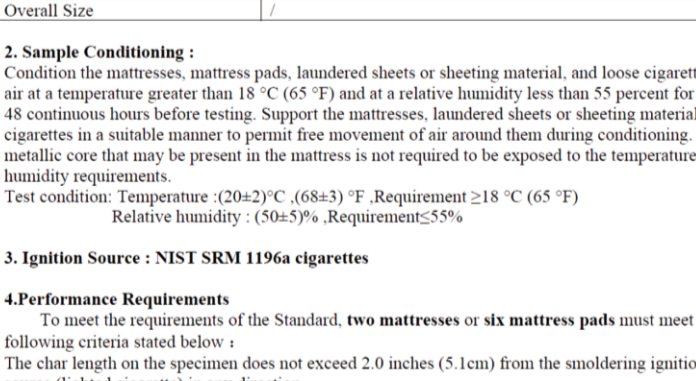


Figure 4

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TEST RESULT(S):

Sample Set #3:

Measurement Type	Initial Value	Maximum Value	Time Occurred (min: sec)	Allowed Value	Comments
Heat Release Rate (kW)	0	33.9	01:2	200	Pass
Total Heat Release – First 10 Min (MJ)		2.4		15	Pass

Total Test Time (min:sec):	30:00
Total Heat Release (Entire Test, MJ)	2.6
Please reference Figure 5and 6 for graphical representation of the Heat Release Rate and Total Heat Release.	

OBSERVATIONS:

- 15:08 – Sample was removed from conditioning room.
- 15:18 – Test was started.
- 15:21 – Little flame kept burning on the mattress.
- 15:48 – Test was stopped.

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TEST RESULT(S):

Figure 5



Figure 6

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TEST RESULT(S):**5. Test Results**

Surface1	Number of cigarettes					No. of relights
	1	2	3	4	5	
Bare surface test						
Smooth	p	p	p	-	-	0
Quilt/Tuft	p	p	p	-	-	0
Tape Edge	p	p	p	-	-	0
Two Sheet test						
Smooth	p	p	p	-	-	0
Quilt/Tuft	p	p	p	-	-	0
Tape Edge	p	p	p	-	-	0

Surface2	Number of cigarettes					No. of relights
	1	2	3	4	5	
Bare surface test						
Smooth	p	p	p	-	-	0
Quilt/Tuft	p	p	p	-	-	0
Tape Edge	p	p	p	-	-	0
Two Sheet test						
Smooth	p	p	p	-	-	0
Quilt/Tuft	p	p	p	-	-	0
Tape Edge	p	p	p	-	-	0

Code description	
P	Pass, cigarette burned full length
R	Pass, cigarette self-extinguished, replaced with a fresh cigarette which burned to full length or self-extinguished
F	Failure

Conclusion(s) : Pass of 16CFR 1632

The follow sample(s) was/were submitted and identified on behalf of the client as :

Model Name :	Hybrid Memory Mattress
Prototype Identification:	/
Method of Assembly:	Quilt
Specimen Composite:	/
Covering Material(Ticking):	/
Foam Padding:	/
Barrier/ Interliner:	/
Overall Size:	/

2. Sample Conditioning :

Condition the mattresses, mattress pads, laundered sheets or sheeting material, and loose cigarettes in air at a temperature greater than 18 °C (65 °F) and at a relative humidity less than 55 percent for at least 48 continuous hours before testing. Support the mattresses, laundered sheets or sheeting material, and cigarettes in a suitable manner to prevent free movement of air around them during conditioning. Any metallic core that may be present in the mattress is not required to be exposed to the temperature and humidity requirements.
Test condition: Temperature : (20±2)°C ,(68±3) °F ,Requirement ≥18 °C (65 °F)
Relative humidity : (50±5)% ,Requirement ≤55%

3. Ignition Source : NIST SRM 1196a cigarettes**4.Performance Requirements**

To meet the requirements of the Standard, **two mattresses or six mattress pads** must meet the following criteria stated below :
The char length on the specimen does not exceed 2.0 inches (5.1cm) from the smoldering ignition source (lighted cigarette) in any direction.

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TEST RESULT(S):

Figure 7

Figure 8

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TEST RESULT(S):**5. Test Results**

Surface1	Number of cigarettes					No. of relights
	1	2	3	4	5	
Bare surface test						
Smooth	p	p	p	-	-	0
Quilt/Tuft	p	p	p	-	-	0
Tape Edge	p	p	p	-	-	0
Two Sheet test						
Smooth	p	p	p	-	-	0
Quilt/Tuft	p	p	p	-	-	0
Tape Edge	p	p	p	-	-	0

Surface2	Number of cigarettes					No. of relights
	1	2	3	4	5	
Bare surface test						
Smooth	p	p	p	-	-	0
Quilt/Tuft	p	p	p	-	-	0
Tape Edge	p	p	p	-	-	0
Two Sheet test						
Smooth	p	p	p	-	-	0
Quilt/Tuft	p	p	p	-	-	0
Tape Edge	p	p	p	-	-	0

Code description	
P	Pass, cigarette burned full length
R	Pass, cigarette self-extinguished, replaced with a fresh cigarette which burned to full length or self-extinguished
F	Failure

Conclusion(s) : Pass of 16CFR 1632

The follow sample(s) was/were submitted and identified on behalf of the client as :

Model Name :	AM01 AM02 ANMIZ Hybrid Memory Mattress
Prototype Identification:	/
Method of Assembly:	Quilt
Specimen Composite:	/
Covering Material(Ticking):	/
Foam Padding:	/
Barrier/ Interliner:	/
Overall Size:	/

2. Sample Conditioning :

Condition the mattresses, mattress pads, laundered sheets or sheeting material, and loose cigarettes in air at a temperature greater than 18 °C (65 °F) and at a relative humidity less than 55 percent for at least 48 continuous hours before testing. Support the mattresses, laundered sheets or sheeting material, and cigarettes in a suitable manner to prevent free movement of air around them during conditioning. Any metallic core that may be present in the mattress is not required to be exposed to the temperature and humidity requirements.
Test condition: Temperature : (20±2)°C ,(68±3) °F ,Requirement ≥18 °C (65 °F)
Relative humidity : (50±5)% ,Requirement ≤55%

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To meet the requirements of the Standard, **two mattresses or six mattress pads** must meet the following criteria stated below :
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