



U.S. Department
of Transportation

Pipeline and Hazardous
Materials Safety
Administration

NOV 16 2017

1200 New Jersey Avenue, SE
Washington, DC 20590

Kym Seth
Manager, Hazard Communications & Product Stewardship
Tyco Fire Protection Products
2700 Industrial Parkway South
Marinette, WI 54143

Reference No. 17-0066

Dear Ms. Seth:

This letter is in response to your June 13, 2017, email requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to classification. You describe your material as a highly-concentrated, water-based surfactant solution with a flash point of 23 °C and a boiling point of greater than 100 °C, which is not capable of sustaining combustion. Specifically, you ask if the material is considered a Class 3 flammable liquid under the HMR.

As specified in § 173.22 of the HMR, it is the shipper's responsibility to properly class and package a hazardous material. This Office does not normally perform this function. The HMR define a flammable liquid as having a flash point of not more than 60 °C. Per § 173.120(a)(3), for your material to be exempted from classification as a Class 3 material, it must have a flash point of greater than 35 °C. Since your material does not have a flash point of greater than 35 °C, it is the opinion of this Office that the material in question is a Class 3 flammable liquid.

If experience or other data indicate that the hazard of flammable liquid or combustible liquid material is greater or less than indicated by the criteria specified in § 173.120(a) or (b), the Associate Administrator of Hazardous Materials Safety may revise the classification or make the material subject or not subject to the requirements of the HMR (see § 173.120(d)).

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,

T. Glenn Foster
Chief, Regulatory Review and Reinvention
Standards and Rulemaking Division

Wolcott
S 176 305
Cowan
17-0066

Dodd, Alice (PHMSA)

From: INFOCNTR (PHMSA)
Sent: Wednesday, June 14, 2017 1:41 PM
To: Hazmat Interps
Subject: FW: Interpretation Letter Request
Attachments: 4221_001.pdf

Hi Shante/Alice,

Please submit this as a letter on interpretation. Please let me know if you have any questions.

Thanks,
Jordan

From: Seth, Kimberley [mailto:kseth@tycoint.com]
Sent: Tuesday, June 13, 2017 12:45 PM
To: PHMSA HM InfoCenter <PHMSAHMInfoCenter@dot.gov>
Subject: Interpretation Letter Request

We recently submitted a sample to determine flammability for purposes of transport. Both the UN and 49CFR standards allow exceptions to the classification of flammable liquids (Class 3). According to the above standards, "liquids with a flashpoint greater than 35°C that do not sustain combustion" are exceptions to the Class 3 definition of a flammable liquid.

Our product is a highly concentrated (40% solids) water-based surfactant solution with the following characteristics:

- Flash point: 23°C (mainly due to the presence of t-butanol)
- Boiling point: >100°C
- Does not support sustained combustibility according to the test protocols of the UN and 49CFR standards. (I have attached the test report from Stresau Laboratory)

According to the test results, we believe our product is not a flammable liquid despite its flash point lower than the 35°C mentioned in the standards.

I would appreciate it if you could give us an official interpretation on whether our product is a Class 3 flammable liquid or not?

Kind regards,
Kym Seth

Kym Seth | Manager, Hazard Communication & Product Stewardship | Tyco Fire Protection Products
2700 Industrial Parkway South, Marinette, WI 54143 USA
Tel: 1-715-735-7411 ext. 73522 | Mobile: 1-715-584-7049 | Fax: 1-715-732-3632
kseth@tycoint.com
<http://www.tyco.com>

CONFIDENTIALITY NOTICE: This e-mail message, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information or otherwise protected by law. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message. Any applicable rights to privilege have not been waived.

Tyco's vision is Zero Harm to people and the environment. Please consider the environment before printing this message.

This e-mail contains privileged and confidential information intended for the use of the addressees named above. If you are not the intended recipient of this e-mail, you are hereby notified that you must not disseminate, copy or take any action in respect of any information contained in it. If you have received this e-mail in error, please notify the sender immediately by e-mail and immediately destroy this e-mail and its attachments.

June 13, 2017

Ms. Martina Bowen
Tyco Fire Protection Products
One Stanton Street
Marinette, WI 54143


Dear Ms. Bowen:

Enclosed please find Laboratory Report # 17064 for Sustained Combustibility Analysis of your sample. Full details are in the enclosed report.

An invoice to cover the cost of the laboratory examinations will be sent to your accounting department under separate cover.

We appreciate your business and look forward to working with you in the future. If we may be of further assistance, or if you have any questions, please call me at (715) 635-2777.

Sincerely,


Thomas E. Basham
Hazardous Materials Manager

tb (17064)

LABORATORY REPORT # 17064
"SUSTAINED COMBUSTIBILITY ANALYSIS"

June 13, 2017

for

Tyco Fire Protection Products

One Stanton Street

Marinette, WI 54143

USA

Attn: Ms. Martina Bowen

Prepared by: Thomas E. Basham

Thomas E. Basham

Hazardous Materials Manager

Reviewed by: Richard Hoff

Richard Hoff

Compliance Specialist

Over Forty Years of Development • Evaluation • Production of Energetic Devices

Classification • Packaging • Testing of Hazardous Materials

ISO 9001:2008 Certified

Wisconsin Green Tier participant

Prepared for: Tyco Fire Protection Products
One Stanton Street
Marinette, WI 54143

Subject: "SUSTAINED COMBUSTIBILITY ANALYSIS"

1.0 OBJECT

One sample, identified below, was subjected to Sustained Combustibility Analysis in accordance with the United States Department of Transportation's *Code of Federal Regulations Title 49, Pt. 173, App. H* and the United Nation's *Transport of Dangerous Goods-Manual of Tests and Criteria, Sixth revised edition (2015) (Test L.2)* as requested by Martina Bowen of Tyco Fire Protection Products. Credit Card Payment.

2.0 IDENTIFICATION AND PHYSICAL APPEARANCE

SAMPLE NAME	FS-221 Product Identifier 780095 Lot # 5202111
STRESAU LABORATORY ID NO.	17064
PHYSICAL APPEARANCE	Yellow liquid
<p><i>The sample arrived at Stresau Laboratory, Inc. in a plastic container at ambient temperature and was tested in the form received.</i></p>	

3.0 TEST CONDUCTED

3.1 SUSTAINED COMBUSTIBILITY TESTING

3.1.1 SCOPE:

This test is performed to determine if the tested material will sustain combustion with application and subsequent removal of a flame at temperatures specified by the U.S. D.O.T. and the United Nations criteria.

3.1.2 PROCEDURE:

- The sample is heated to 75 °C / 165 °F.

-

The sample is loaded into a Setaflash Open Cup Flashpoint Tester, Model # 01SF Tester in 2 ml increments and heated to 75 °C / 165 °F at standard pressure. The actual temperature, that the material is tested at, is mathematically determined to correspond with the temperature that the sample would be heated to at standard pressure.

A flame is then placed adjacent to the sample in a position specified by the UN as the "Off" position for a 60 second stabilization period.

If no sustained combustion occurs in accordance with the test criteria, the flame is placed above the sample in a position specified by the UN as the "Test" position for an additional 15 seconds. This process is repeated a total of three times or until sustained combustion is achieved.

If no sustained combustion is observed with a 60 second stabilization period at 75 °C / 165 °F, the process is repeated using a 30 second stabilization period instead of the 60 second stabilization period.

If still no sustained combustion occurs in accordance with the test criteria with either of the stabilization periods 60 seconds and 30 seconds, the entire procedure is repeated again with the sample heated to 75 °C. Again, a mathematical adjustment to the test temperature is made to reflect the actual barometric pressure.

If no sustained combustion is found at test temperatures of 5 °C (9 °F) or 20 °C (36 °F), in the case of a material which has a flash point above 60 °C (140 °F) and below 93 °C (200 °F), if sustained combustion is not found at a test temperature of 5 °C (9 °F) above its flash point, repeat the complete procedure with new portions, but at a test temperature of 20 °C (36 °F) above its flash point.

3.1.3 CRITERIA:

The material must be assessed either as not sustaining combustion or as sustaining combustion. Sustained combustion must be reported at either of the heating times if one of the following occurs with either of the test portions:

- a) When the test flame is in the "Off" position, the test portion ignites and sustains combustion.
- b) The test portion ignites while the test flame is in the "Test" position for 15 seconds, and sustains combustion for more than 15 seconds after the test flame has been returned to the "Off" position.

3.1.4 RESULTS

3.1.4.1 49 C.F.R PART 173 APPENDIX H

Sample No. 17064

Date: 06/08/2017

Barometric Pressure: 733.6 mm/Hg

Temperature Correction: + 0.9 °C

		Corrected Test Temperature: 60.9 °C	
		60 Second Stabilization Period	
		Off Position	"TEST" Position
60.0 °C @ 1 atm	Trial		
	1	No Ignition or Sustained Combustion	No Ignition or Sustained Combustion
	2		
	3		

30 Second Stabilization Period		
	No Ignition or Sustained Combustion	No Ignition or Sustained Combustion
1	_____	_____
2	↓	↓
3	_____	_____

3.1.4.2 49 C.F.R PART 173 APPENDIX H DISCUSSION:

The sample did not ignite and sustain combustion in the "Off" or "Test" position for greater than 15 seconds, at test temperatures of 60 °C.

3.1.5 UNITED NATIONS

The test was also performed at 60.5 °C in accordance with the *United Nations Transport of Dangerous Goods Manual of Tests and Criteria, Sixth revised edition (2015)* to provide additional information concerning international shipments of the material.

3.1.5.1 RESULTS

Sample No. 17064

Date: 06/08/2017

Barometric Pressure: 733.6 mm/Hg

Temperature Correction: + 0.9 °C

Corrected Test Temperature: 61.4 °C

60.5 °C @ 1 atm		
50 Second Stabilization Period		
Flame Position Trial	"OFF" Position	"TEST" Position
1	No Ignition or Sustained Combustion	No Ignition or Sustained Combustion
2	↓	↓
3	_____	_____
30 Second Stabilization Period		
1	No Ignition or Sustained Combustion	No Ignition or Sustained Combustion
2	↓	↓
3	_____	_____

The sample did not ignite and sustain combustion in the "Off" or "Test" position for greater than 15 seconds, at test temperatures of 60.5 °C.

3.1.6 49 C.F.R PART 173 APPENDIX H/UNITED NATIONS TEST 1

The test was also performed at 75.0 °C in accordance with the *Code of Federal Regulations Title 49, Pt. 173, App. H* and the *United Nations Transport of Dangerous Goods Manual of Tests and Criteria, sixth revised edition (2015)* to provide additional information concerning international shipments of the material.

3.1.6.1 RESULTS

Sample No. 17064
Date: 06/08/2017
Barometric Pressure: 733.6 mm/Hg
Temperature Correction: + 0.9 °C

Corrected Test Temperature: 75.9 °C		
60 Second Stabilization Period		
Flame Position	"OFF" Position	"TEST" Position
Trial		
75.0 °C @ 1 atm	1	No Ignition or Sustained Combustion
	2	No Ignition or Sustained Combustion
	3	No Ignition or Sustained Combustion
30 Second Stabilization Period		
1	No Ignition or Sustained Combustion	No Ignition or Sustained Combustion
2	No Ignition or Sustained Combustion	No Ignition or Sustained Combustion
3	No Ignition or Sustained Combustion	No Ignition or Sustained Combustion

3.1.6.2 49 C.F.R PART 173 APPENDIX H/UNITED NATIONS TEST 1 DISCUSSION

The sample did not ignite and sustain combustion in the "Off" or "Test" position for greater than 15 seconds, at test temperatures of 75.0 °C.

4.0 CONCLUSIONS

Based on the test results, the following conclusions were made:

49 C.F.R PART 173 APPENDIX H

- 1) The material represented by sample # 17064 did not appear to sustain combustion at test temperatures of 60.9 °C or 75.9 °C, which were raised appropriately in order to compensate for the lower than standard barometric pressure as defined by the listed test specifications. Since the Flashpoint was either unknown or not performed by Stresau Laboratory, Inc., the test was not performed at 5 °C and 20 °C above its flashpoint as per the specification.

UNITED NATIONS

- 2) The material represented by sample # 17064 did not appear to sustain combustion at a test temperature of 61.4 °C, which was raised appropriately in order to compensate for the lower than standard barometric pressure as defined by the listed test specifications.

The conclusion represents our interpretations of the test data, as defined by the above listed test specifications. The conclusions contained in this report are for the customer's information purpose only.

5.0 DATA STORAGE

The field data for this test is recorded in Data Book 2017-1, and will be filed with Stresau Laboratory's Document Control. No video or photographic documentation was made.

6.0 TEST SERVICES

For the benefit of our customers, Stresau Laboratory, Inc., will on occasion, use outside testing services to either expedite or qualify our own testing capabilities.

References

Code of Federal Regulations (2015). Title 49, Transportation, Part 173; "Appendix H", National Archives and Records Service, Office of the Federal Register Washington, D.C.

United Nations. (2015). Recommendations on the Transport of Dangerous Goods Manual of Tests and Criteria (6th ed.). New York and Geneva: United Nations. pp 363-366.

Report # 17064 Appendix A
EQUIPMENT QUALITY TRACEABILITY FORM

Customer: Tyco Fire Protection Products
Job Code: 4000
Stresau Report #: HMT 17064
Procedure #: TP 267
Date: June 13, 2017
Report by: Thomas E. Basham

Item	Mfg.	Model	Stresau Equip. #	Quality Status
Tester	ERDCO Engineering Corp.	01SF	N/A	1
Stopwatch	Fisher Scientific	06-662-50	1937	2
Microprocessor Thermometer	Omega Engineering, Inc.	HH21	1136	2
Calipers	Mitutoyo	CD-6"CSX	1613	2
Barometer	Princo Instruments, Inc.	453	N/A	1

Attach additional forms if needed

Equipment # = Traceable to Stresau Quality System

Status: 1 = Not in calibration system
2 = Calibration current as of date listed.
3 = Other. Attach MRR or other documentation as needed

FORM # 96C654

June 13, 2017

Ms. Martina Bowen
Tyco Fire Protection Products
One Stanton Street
Marinette, WI 54143

Dear Ms. Bowen:

Enclosed please find Laboratory Report # 17064 for Sustained Combustibility Analysis of your sample. Full details are in the enclosed report.

An invoice to cover the cost of the laboratory examinations will be sent to your accounting department under separate cover.

We appreciate your business and look forward to working with you in the future. If we may be of further assistance, or if you have any questions, please call me at (715) 635-2777.

Sincerely,



Thomas E. Basham

Hazardous Materials Manager

tb (17064)

LABORATORY REPORT # 17064
"SUSTAINED COMBUSTIBILITY ANALYSIS"

June 13, 2017

for

Tyco Fire Protection Products
One Stanton Street
Marinette, WI 54143
USA

Attn: Ms. Martina Bowen

Prepared by: Thomas E. Basham

Thomas E. Basham
Hazardous Materials Manager

Reviewed by: Richard Hoff

Richard Hoff
Compliance Specialist

Prepared for: Tyco Fire Protection Products

One Stanton Street


Marinette, WI 54143

Subject: "SUSTAINED COMBUSTIBILITY ANALYSIS"

1.0 OBJECT

One sample, identified below, was subjected to Sustained Combustibility Analysis in accordance with the United States Department of Transportation's *Code of Federal Regulations Title 49, Pt. 173, App. H* and the United Nation's *Transport of Dangerous Goods-Manual of Tests and Criteria, Sixth revised edition (2015) (Test L.2)* as requested by Martina Bowen of Tyco Fire Protection Products. Credit Card Payment.

2.0 IDENTIFICATION AND PHYSICAL APPEARANCE

<p><i>SAMPLE NAME</i></p>	<p>FS-221 Product Identifier 780095 Lot # 5202111</p>
<p><i>STRESAU LABORATORY ID NO.</i></p>	<p>17064</p>
<p><i>PHYSICAL APPEARANCE</i></p>	<p>Yellow liquid</p>
<p><i>The sample arrived at Stresau Laboratory, Inc. in a plastic container at ambient temperature and was tested in the form received.</i></p>	

3.0 TEST CONDUCTED

3.1 SUSTAINED COMBUSTIBILITY TESTING

3.1.1 SCOPE:

This test is performed to determine if the tested material will sustain combustion with application and subsequent removal of a flame at temperatures specified by the U.S. D.O.T. and the United Nations criteria.

3.1.2 PROCEDURE:

- 49 CFR Part 173 Appendix H
- UN Test Method L.2

The sample is loaded into a Setaflash Open Cup Flashpoint Tester, Model # 01SF Tester in 2 ml increments and heated to 60.0 °C/60.5 °C at standard pressure. The actual temperature, that the material is tested at, is mathematically determined to correspond with the temperature that the sample would be heated to at standard pressure.

A flame is then placed adjacent to the sample in a position specified by the UN as the "Off" position for a 60 second stabilization period.

If no sustained combustion occurs in accordance with the test criteria, the flame is placed above the sample in a position specified by the UN as the "Test" position for an additional 15 seconds. This process is repeated a total of three times or until sustained combustion is achieved.

If no sustained combustion is observed with a 60 second stabilization period at 60.0 °C/60.5 °C, the process is repeated using a 30 second stabilization period instead of the 60 second stabilization period.

If still no sustained combustion occurs in accordance with the test criteria with either of the stabilization periods 60 seconds and 30 seconds, the entire procedure is repeated again with the sample heated to 75 °C. Again, a mathematical adjustment to the test temperature is made to reflect the actual barometric pressure.

If no sustained combustion is found at test temperatures of 60.0 °C or 75 °C, in the case of a material which has a flash point above 60 °C (140 °F) and below 93 °C (200 °F), if sustained combustion is not found at a test temperature of 5 °C (9 °F) above its flash point, repeat the complete procedure with new portions, but at a test temperature of 20 °C (36 °F) above its flash point.

3.1.3 CRITERIA:

The material must be assessed either as not sustaining combustion or as sustaining combustion. Sustained combustion must be reported at either of the heating times if one of the following occurs with either of the test portions:

- a) When the test flame is in the "Off" position, the test portion ignites and sustains combustion.
- b) The test portion ignites while the test flame is in the "Test" position for 15 seconds, and sustains combustion for more than 15 seconds after the test flame has been returned to the "Off" position.

3.1.4 RESULTS

3.1.4.1 49 C.F.R PART 173 APPENDIX H

Sample No. 17064

Date: 06/08/2017

Barometric Pressure: 733.6 mm/Hg

Temperature Correction: + 0.9 °C

Corrected Test Temperature: 60.9 °C

60 Second Stabilization Period

Flame Position	"OFF"	"TEST"
	Position	Position
Trial		
1	No Ignition or Sustained Combustion	No Ignition or Sustained Combustion
2	↓	↓
3	↓	↓

60.0 °C @ 1 atm

30 Second Stabilization Period		
Flame Position	"OFF" Position	"TEST" Position
Trial	No Ignition or Sustained Combustion	No Ignition or Sustained Combustion
1	Combustion	Combustion
2		
3		

3.1.4.2 49 C.F.R PART 173 APPENDIX H DISCUSSION:

The sample did not ignite and sustain combustion in the "Off" or "Test" position for greater than 15 seconds, at test temperatures of 60 °C.

3.1.5 UNITED NATIONS

The test was also performed at 60.5 °C in accordance with the *United Nations Transport of Dangerous Goods Manual of Tests and Criteria, Sixth revised edition (2015)* to provide additional information concerning international shipments of the material.

3.1.5.1 RESULTS

Sample No. 17064

Date: 06/08/2017

Barometric Pressure: 733.6 mm/Hg

Temperature Correction: + 0.9 °C

Corrected Test Temperature: 61.4 °C		
60 Second Stabilization Period		
Flame Position	"OFF" Position	"TEST" Position
Trial	No Ignition or Sustained Combustion	No Ignition or Sustained Combustion
1	Combustion	Combustion
2		
3		
30 Second Stabilization Period		
Trial	No Ignition or Sustained Combustion	No Ignition or Sustained Combustion
1	Combustion	Combustion
2		
3		

60.5 °C @ 1 atm

3.1.6.2 UNITED NATIONS TEST L.2 DISCUSSION

The sample did not ignite and sustain combustion in the "Off" or "Test" position for greater than 15 seconds, at test temperatures of 60.5 °C.

3.1.6 49 C.F.R PART 173 APPENDIX H/UNITED NATIONS TEST L.2

The test was also performed at 75.0 °C in accordance with the *Code of Federal Regulations Title 49, Pt. 173, App. H* and the *United Nations Transport of Dangerous Goods Manual of Tests and Criteria, sixth revised edition (2015)* to provide additional information concerning international shipments of the material.

3.1.6.1 RESULTS

Sample No. 17064
 Date: 06/08/2017
 Barometric Pressure: 733.6 mm/Hg
 Temperature Correction: + 0.9 °C

Corrected Test Temperature: 75.9 °C		
60 Second Stabilization Period		
Flame Position	"OFF" Position	"TEST" Position
Trial		
75.0 °C @ 1 atm	1	No Ignition or Sustained Combustion
	2	No Ignition or Sustained Combustion
	3	No Ignition or Sustained Combustion
30 Second Stabilization Period		
1	No Ignition or Sustained Combustion	No Ignition or Sustained Combustion
2	No Ignition or Sustained Combustion	No Ignition or Sustained Combustion
3	No Ignition or Sustained Combustion	No Ignition or Sustained Combustion

3.1.6.2 49 C.F.R PART 173 APPENDIX H/UNITED NATIONS TEST L.2 DISCUSSION

The sample did not ignite and sustain combustion in the "Off" or "Test" position for greater than 15 seconds, at test temperatures of 75.0 °C.

4.0 CONCLUSIONS

Based on the test results, the following conclusions were made:

49 C.F.R PART 173 APPENDIX H

- 1) The material represented by sample # 17064 did not appear to sustain combustion at test temperatures of 60.9 °C or 75.9 °C, which were raised appropriately in order to compensate for the lower than standard barometric pressure as defined by the listed test specifications. Since the Flashpoint was either unknown or not performed by Stresau Laboratory, Inc., the test was not performed at 5 °C and 20 °C above its flashpoint as per the specification.

UNITED NATIONS

- 2) The material represented by sample # 17064 did not appear to sustain combustion at a test temperature of 61.4 °C, which was raised appropriately in order to compensate for the lower than standard barometric pressure as defined by the listed test specifications.

The conclusion represents our interpretations of the test data, as defined by the above listed test specifications. The conclusions contained in this report are for the customer's information purpose only.

5.0 DATA STORAGE

The field data for this test is recorded in Data Book 2017-1, and will be filed with Stresau Laboratory's Document Control. No video or photographic documentation was made.

6.0 TEST SERVICES

For the benefit of our customers, Stresau Laboratory, Inc., will on occasion, use outside testing services to either expedite or qualify our own testing capabilities.

References

Code of Federal Regulations (2015). Title 49, Transportation, Part 173; "Appendix H", National Archives and Records Service, Office of the Federal Register Washington, D.C.

United Nations. (2015). Recommendations on the Transport of Dangerous Goods Manual of Tests and Criteria (6th ed.). New York and Geneva: United Nations. pp 363-366.

Report # 17064 Appendix A
EQUIPMENT QUALITY TRACEABILITY FORM

Customer: Tyco Fire Protection Products
Job Code: 4000
Stresau Report #: HMT 17064
Procedure #: TP 267
Date: June 13, 2017
Report by: Thomas E. Basham

Item	Mfg.	Model	Stresau Equip. #	Quality Status
Tester	ERDCO Engineering Corp.	01SF	N/A	1
Stopwatch	Fisher Scientific	06-662-50	1937	2
Microprocessor Thermometer	Omega Engineering, Inc.	HH21	1136	2
Calipers	Mitutoyo	CD-6"CSX	1613	2
Barometer	Princo Instruments, Inc.	453	N/A	1

Attach additional forms if needed

Equipment # = Traceable to Stresau Quality System

Status: 1 = Not in calibration system
2 = Calibration current as of date listed.
3 = Other. Attach MRR or other documentation as needed

FORM # 96C654