



# International Fireproof Technology, Inc.

## *The Ultimate in Fire Protective Coatings*

### DC 315 ANNOUNCES 50 YEAR +, USEFUL LIFE TECHNICAL BULLITEN:

International Fireproof Technology, Inc., (IFTI) the manufacturers of DC 315, announced today that after extensive 3<sup>rd</sup> party testing DC 315 fire resistant property is not compromised after 50 years or more under normal service conditions. Testing was performed using, Simulated Lifetime for Materials Flammability Testing Determined from Materials Arrhenius Testing.

Gary Wolfe, Worldwide Director of IFTI stated, "Simply put, DC 315 will perform after 50 years the same as the day it was installed."

This is important industry changing testing for the SPF – Coating industry. Testing that gives assurances that DC 315 flame retardancy does not degrade during the life of the coating, as this could lead to fire propagation in the event of an accident. Richard Guarneri, IFTI's Director of Technology stated, "IFTI – DC 315 has performed a lot of testing, and goes to great lengths to support our SPF Manufactures and the industry, but our Useful Life Testing, may be the most important industry test we have ever conducted".

IFTI continues through its testing, and its own stringent industry leading policies to lead a charge for the expansion of the use of SPF safely. Wolfe stated, "Our useful life testing already landed a large international airport, and we expect several more large airports to go to bid in late 2015 or early 2016, specifying DC 315 with its Useful Life Warranty". One of the largest Commercial Architectural firms that does many large SPF - coatings specifications per year, will be exclusively specifying DC 315 on future jobs. Wolfe goes on to say, "this **new bar set by IFTI – DC 315** for a coating over SPF is in response to the many requests we get from Authorities Having Jurisdiction, (AHJ's), asking how do we know how long your product will perform?, which is a fair and until now unanswered question? The jobs we are developing for the SPF industry are new opportunities." Typical to IFTI, we embraced the question as a hurdle and opportunity for the SPF- Coating industry. **IFTI spent almost a year testing** and now we have an answer, DC 315 has a 50+ year useful life and DC 315 performance is not compromised after 50 years or more under normal service conditions. IFTI testing included burn tests prior to aging and after aging of DC 315.



IFTI has released this information to hundreds of Fire Marshalls and AHJ's and the response from them has been overwhelming. I think a West Coast Fire Marshall summed up the overall sentiment of the AHJ's, "Thank you, your company continues to make our job easier and applied SPF safer!"

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Tel:886-2-82317717 886-3-4711400 Fax:886-3-4711064 http://www.iner.gov.tw/

## Certificate of Irradiation

Irradiation Facility : Co-60 Gamma Processing Plant, INER

Customer Name : International Carbide Technology Co., Ltd. (國碳科技股份有限公司)

Customer PO. Number : -----

Irradiation Run Date : Aug 26, 2015 ~ Oct 7, 2015

Irradiation Run Number : -----

### MATERIALS PROCESSED :

Qty	Product	Description	Lot Number
1.	PU發泡材+塗料(10cmx10cm)	(3片)	
2.	矽酸鈣板+塗料(10cmx10cm)	(3片)	

### " TREATED WITH IRRADIATION "

Maximum Dose : 1120KGy

Minimum Dose : 1100KGy

INER certifies that the materials listed above (as described by its Manufacturer) received the above doses within the precision and accuracy of the dosimetry system employed.



Quality Control by : Li Bin Certified By : Chang Kang-Mei



Industrial and Environmental Hazard Testing Laboratory  
College of Engineering  
National Kaohsiung First University of Science and Technology,

Address : No.2, Zhuoyue Rd., Nanzi Dist., Kaohsiung City 811, Taiwan

## Report on heat release rate of building materials

Report date : Sep 17<sup>th</sup>, 2015

Report number : CNS 14705-1-1509-009

Test No. : CNS 14705-1509-009

Client : INternational CARbide Technology Co., Ltd.

Identification of sample : DC315 Fireproof Paint coated on PU Foam

Client address : No. 1-17, Toa-Chan, Kern-Ko Village, Lu-Chu Hsiang, Taoyuan 338, Taiwan

Note:

1. Items recorded in this report can only be regarded as reference, not for advertising, publications, publicity and promotion of the use of such commercial.
2. Sample used in this report with the name is provided by the Commission. The lab is only responsible for test analysis.
3. Corrections of data in the test report are not valid.
4. Test results are valid only for the test product.
5. Except with the written consent of laboratory, extracting the certificate or report is not allowed.
6. The trademark of this product belongs to the client or delegate authority.

Industrial and Environmental Hazard Testing Laboratory, College of Engineering,  
National Kaohsiung First University of Science and Technology page : 1/13

## Report content

I. Sample illustration

II. Test procedure

III. Observation record

IV. Test record

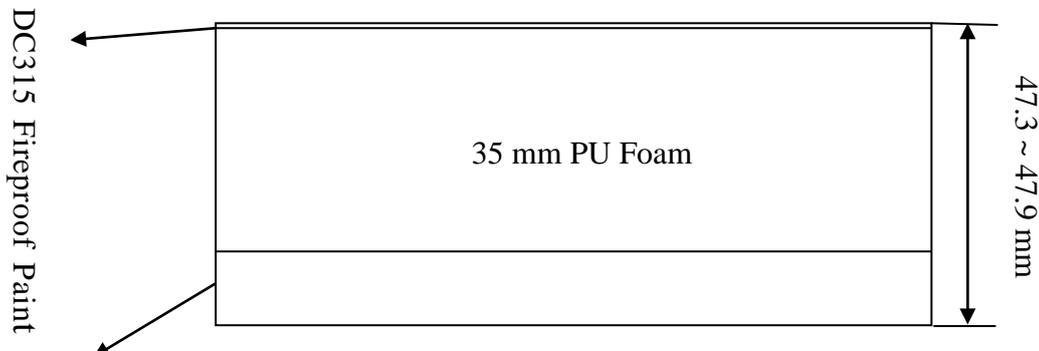
V. Curves

VI. Conclusion

## I. Sample illustration:

### A. Preparation:

#### 1. Specimen configuration diagram:



12mm Gypsum board

2. Sample Size : Square, edge length is 100mm with tolerance of 0/-2mm. If sample thickness is under 50mm the whole sample should be tested. Otherwise, if sample thickness is larger than 50mm, trim the unexposed face side off till the thickness is 50mm. After sample is processed, the sample should be wrapped up by aluminum foil with thickness of 0.025mm~0.04mm, and foil's shiny side towards the specimen.
3. Pre-treatment : Ambient Temp. at  $23\pm 2^{\circ}\text{C}$ , and Relative Humidity of  $50\pm 5\%$ . Specimens are set in the environment till constant weight. The constant weight means the weighting value difference less than 0.1% or 0.1g during the interval of 24 hrs.

## II. Test procedure :

### A. Test environment :

The apparatus shall be located in an essentially draught-free environment in an atmosphere of relative humidity of between 20% and 80%, and a temperature between  $10^{\circ}\text{C}$  and  $40^{\circ}\text{C}$ .

### B. Preliminary steps :

1. Check the  $\text{CO}_2$  trap and the final moisture trap. Replace the sorbent if necessary. Drain any accumulated water in the cold trap separation chamber. The normal operating temperature of the cold trap shall not exceed  $4^{\circ}\text{C}$ ;
2. Turn on power to the cone heater and the exhaust fan. Power to the

gas analysers, weighing device and pressure transducer shall not be turned off on a daily basis;

3. Set an exhaust flow rate of  $(0.024 \pm 0.002) \text{ m}^3/\text{s}$ .
4. Perform the calibration procedure. Placed in the load device top stage fills refractory fiber blanket specimen carrying plate to prevent excessive heat transfer to the load device.
5. If with additional igniter, spark ignition shall be placed in the appropriate position.

### III. Heating test:

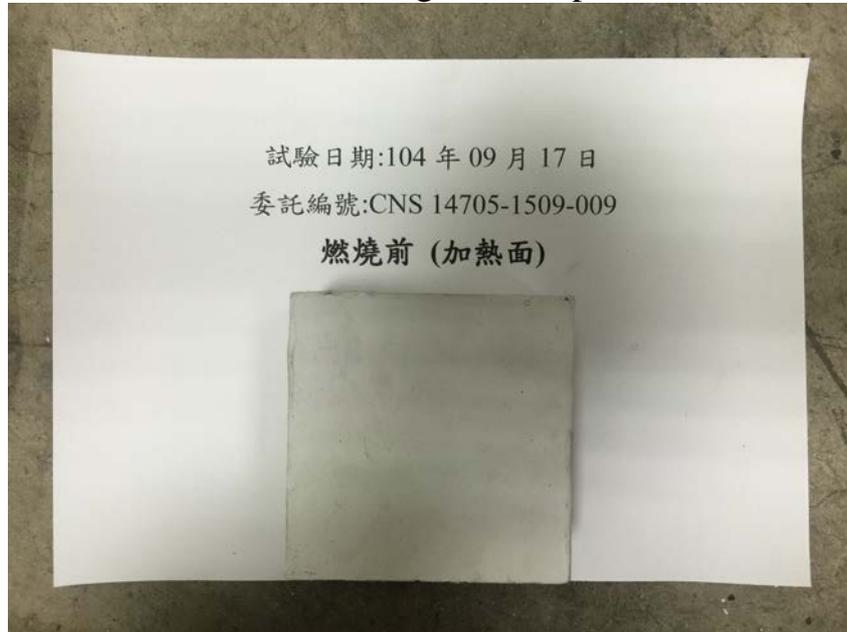
1. Start data collection. Collect 1 min of baseline data.
2. Insert the radiation shield in position. Remove the thermal barrier protecting the weighing device. Place the specimen holder and specimen and insert the spark plug. (The radiation shield shall be cooler than  $100^\circ\text{C}$  immediately prior to the insertion.)
3. Remove the shield and start the test within 10 s after insertion and power the igniter. For water-cooled shielding plate, within 1 min of removing the shield, insert and power the igniter.
4. Put the specimens and specimens holder.
5. Record the times when flashing or transitory flaming occurs. When sustained flaming occurs, record the time, turn off the spark, and remove the spark igniter. If the flame extinguishes after turning off the spark, re-insert the spark igniter, turn on the spark within 5s, and do not remove the spark until the entire test is completed. Report these events in the test report.
6. Heating time: 10 min.
7. Remove specimen and specimen holder.
8. At least three specimens shall be tested at each test condition, and the average heat release rate in 180 s of the three tests shall be compared with one another. If any of the readings deviates from the arithmetic average for more than 10%, another three specimens shall be tested. The fire retardant grade of the specimen is determined by the test results of all six specimens according to Table B.1.

### III. Observation record

#### 1. Pre-test:

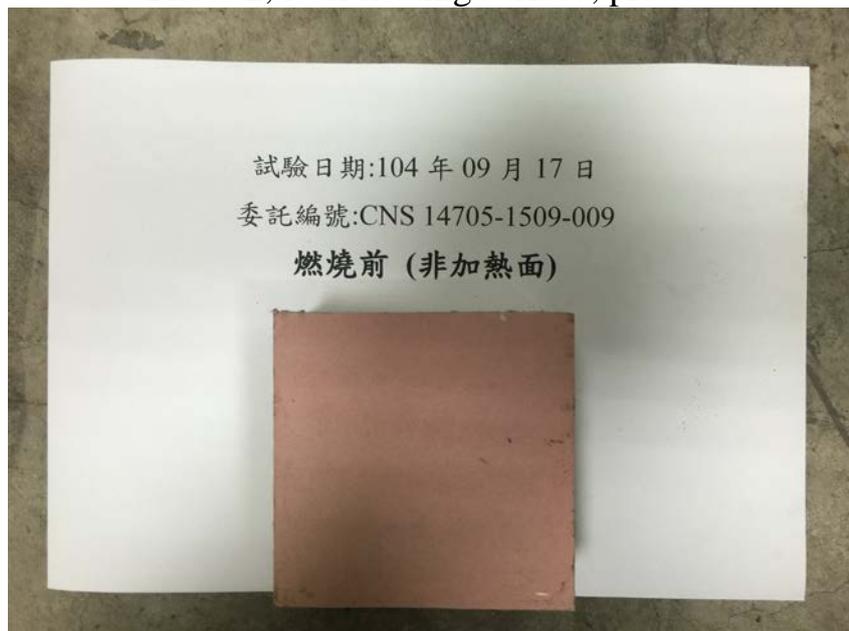
- (1) Specimen No. DC315 Fireproof Paint coated on PU Foam

Photo 1, Heating surface, pre-test



- (2) Specimen No. DC315 Fireproof Paint coated on PU Foam

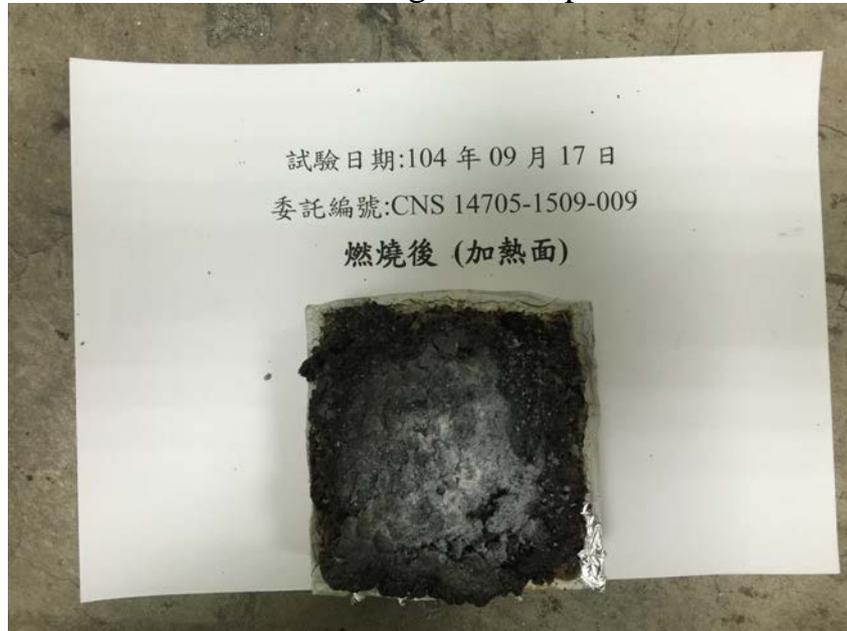
Photo 2, Non-heating surface, pre-test



2. Post-test:

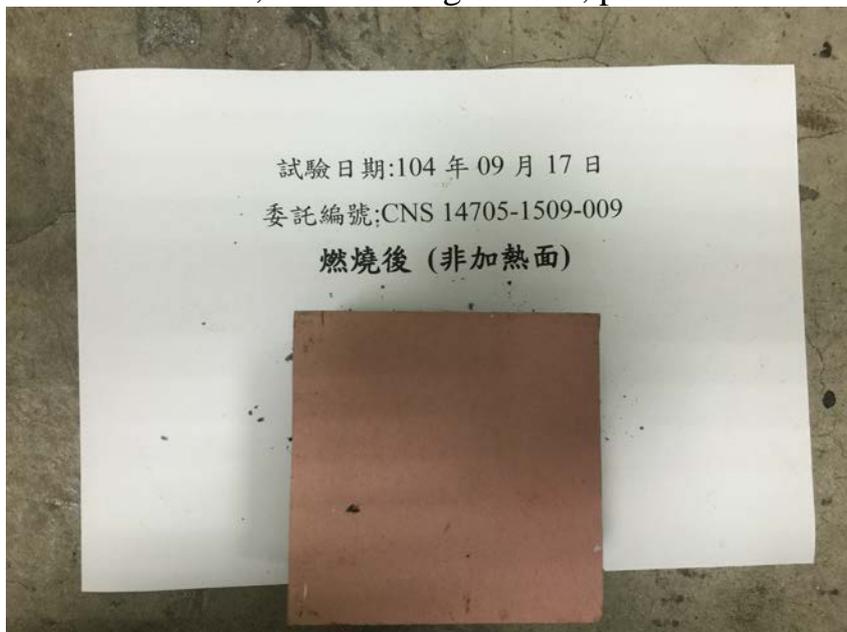
- (1) Specimen No. DC315 Fireproof Paint coated on PU Foam

Photo 3, Heating surface, post-test



- (2) Specimen No. DC315 Fireproof Paint coated on PU Foam

Photo 4, Non-heating surface, post-test



#### IV. Test record

Test standard	CNS 14705-1 Method of test for heat release rate for building materials – Part 1:Cone calorimeter method		
Samples	DC315 Fireproof Paint coated on PU Foam		
Ambient Temp. at $23\pm 2^{\circ}\text{C}$ , and Relative Humidity of $50\pm 5\%$ . Specimens were set in the environment till constant weight			
Orifice flow rate calculate constant (C factor) : 0.035~0.045			
Mass flow rate in exhaust duct : $0.024 \text{ m}^3/\text{s}\pm 0.002 \text{ m}^3/\text{s}$			
Cold trap temperature : $0\sim 4^{\circ}\text{C}$			
Heater temperature : $870\pm 10^{\circ}\text{C}$			
Temperature of indoor : $31\sim 33^{\circ}\text{C}$			
R.H. of indoor : $51\sim 52\%$			
Sample collection date	Sep 11 <sup>th</sup>	Sep 11 <sup>th</sup>	Sep 11 <sup>th</sup>
Test date	Sep 17 <sup>th</sup>	Sep 17 <sup>th</sup>	Sep 17 <sup>th</sup>
Specimen No.	DC315 Fireproof Paint coated on PU Foam-1	DC315 Fireproof Paint coated on PU Foam-2	DC315 Fireproof Paint coated on PU Foam-3
L x W (mm)	100×100	100×100	100×100
Thickness (mm)	47.8	47.3	47.9
Initial weight (g)	111.21	106.64	107.64
Heat flux	$50\text{kW}/\text{m}^2$	$50\text{kW}/\text{m}^2$	$50\text{kW}/\text{m}^2$

Ignition time(sec)	0	0	0
Flameout (sec)	0	0	0
Flame duration(sec)	0	0	0
Heat time (sec)	600	600	600
Total heat released (MJ/m <sup>2</sup> )	2.9	2.2	1.7
Total oxygen consumed (g)	1.5	1.2	0.9
Mass loss (g)	10.3	7.9	7.4
Mass at end of test (g)	100.91	98.74	100.24
Average mass loss rate (g/m <sup>2</sup> s)	1.99	1.61	1.44
Total Heat release < 8 MJ/m <sup>2</sup>	Qualified	Qualified	Qualified
Max. Heat release <200 kW/m <sup>2</sup> and continue 10 sec.	Qualified	Qualified	Qualified
No disadvantaged fireproofing cracks or fissures on sample back	Qualified	Qualified	Qualified
Criteria	Qualified Fire retardant 2-grade of CNS 14705-1 annex B.4		

• Results of peak and average values

Specimen No. DC315 Fireproof Paint coated on PU Foam-1			
Items	Average	Peak	Time to peak (s)
Heat release rate (kW/m <sup>2</sup> )	4.79	8.01	33
Effective heat of combustion (MJ/kg)	2.47	6.78	382
Mass loss rate (g/s)	0.018	0.484	0
Specimen No. DC315 Fireproof Paint coated on PU Foam-2			
Items	Average	Peak	Time to peak (s)
Heat release rate (kW/m <sup>2</sup> )	3.67	5.79	45
Effective heat of combustion (MJ/kg)	2.45	12.86	593
Mass loss rate (g/s)	0.013	0.175	8
Specimen No. DC315 Fireproof Paint coated on PU Foam-3			
Items	Average	Peak	Time to peak (s)
Heat release rate (kW/m <sup>2</sup> )	2.83	7.41	45
Effective heat of combustion (MJ/kg)	2.04	6.97	244
Mass loss rate (g/s)	0.010	0.094	19

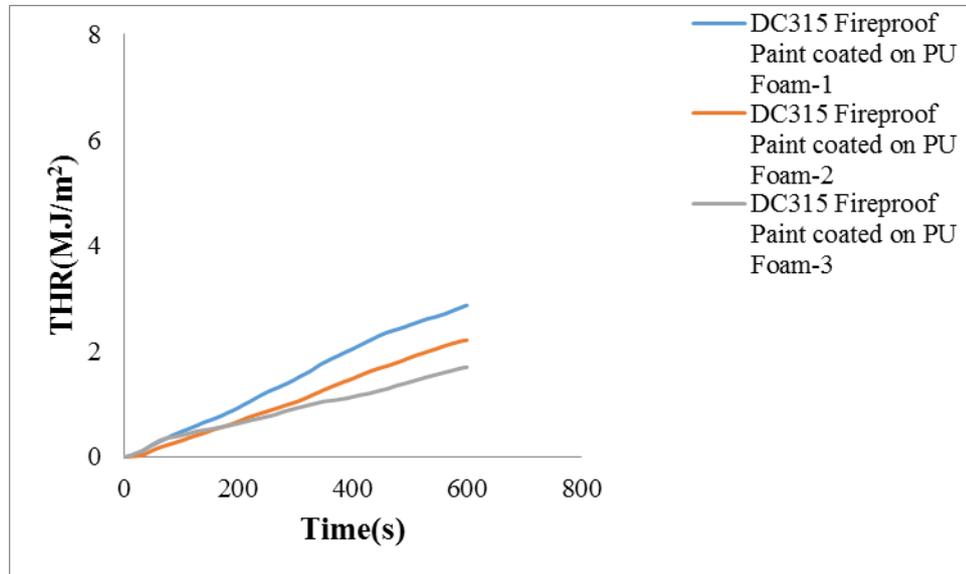
· Results of ignition from 1 min to 4 min

Specimen No. DC315 Fireproof Paint coated on PU Foam-1				
Time	1 min	2 min	3 min	4 min
Heat release rate (kW/m <sup>2</sup> )	4.65	4.68	4.61	4.87
Effective heat of combustion (MJ/kg)	0.74	1.09	1.31	1.60
Mass loss rate (g/s)	0.068	0.044	0.035	0.030
Specimen No. DC315 Fireproof Paint coated on PU Foam-2				
Time	1 min	2 min	3 min	4 min
Heat release rate (kW/m <sup>2</sup> )	3.64	3.11	3.24	3.40
Effective heat of combustion (MJ/kg)	0.45	0.80	1.06	1.29
Mass loss rate (g/s)	0.052	0.035	0.027	0.023
Specimen No. DC315 Fireproof Paint coated on PU Foam-3				
Time	1 min	2 min	3 min	4 min
Heat release rate (kW/m <sup>2</sup> )	4.92	3.84	3.24	3.06
Effective heat of combustion (MJ/kg)	0.99	1.12	1.22	1.36
Mass loss rate (g/s)	0.034	0.025	0.022	0.017
Test operator	Chen Ming Hsiao		Approval signatory	Keap chey 7

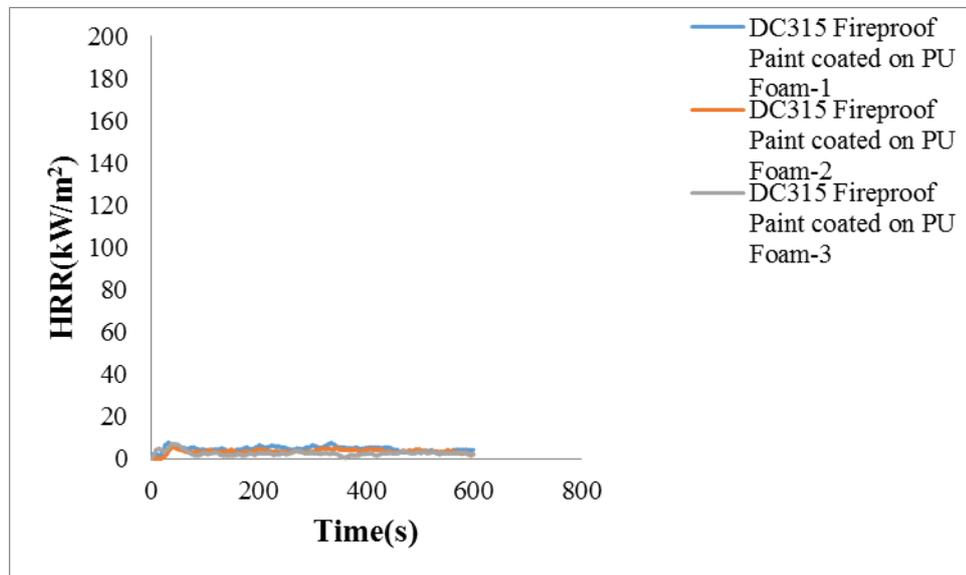
## V. Curves

Specimen No. DC315 Fireproof Paint coated on PU Foam-1~3

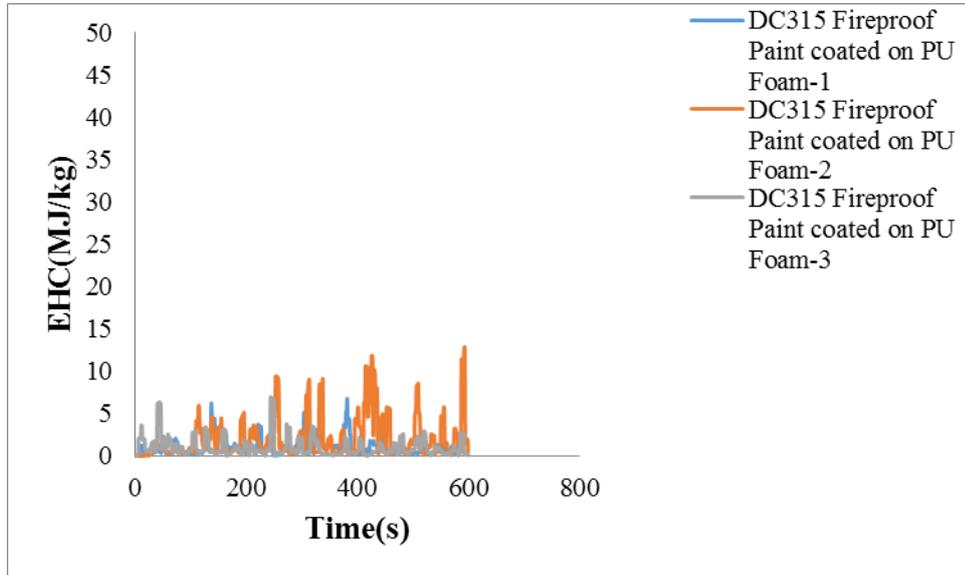
### (1) Total heat release



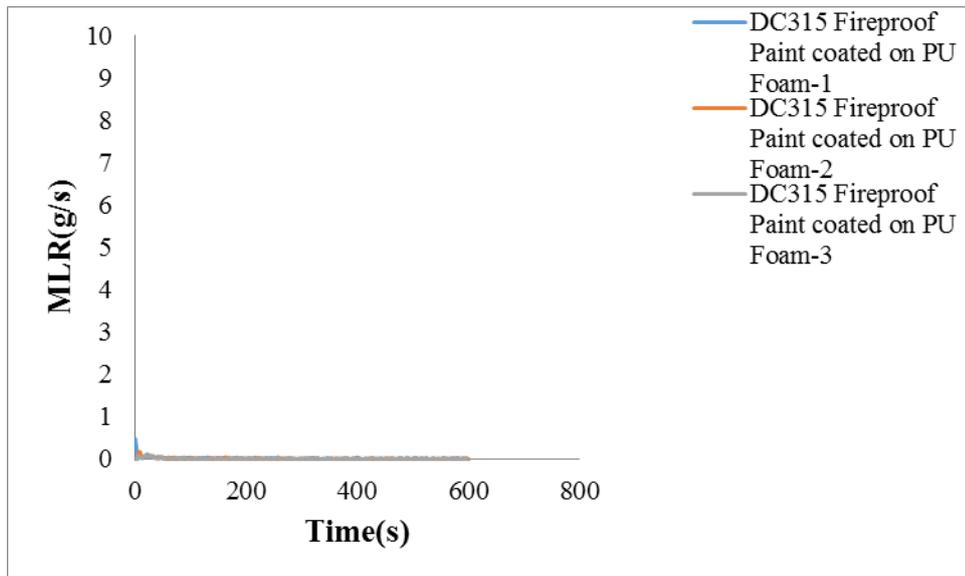
### (2) Heat release rate



(3) Effective heat of combustion



(4) Mass loss rate



## VI. Conclusion

1. The averaged heat release rate of the 3 specimens (DC315 Fireproof Paint coated on PU Foam-1, DC315 Fireproof Paint coated on PU Foam-2 and DC315 Fireproof Paint coated on PU Foam-3) are  $4.61 \text{ kW/m}^2$ ,  $3.24 \text{ kW/m}^2$ , and  $3.24 \text{ kW/m}^2$ , with bias more than 10% of mean. The total heat release of the 3 specimens are less than  $7 \text{ MJ/m}^2$ .
2. The total heat release of the 3 specimens (DC315 Fireproof Paint coated on PU Foam-1, DC315 Fireproof Paint coated on PU Foam-2 and DC315 Fireproof Paint coated on PU Foam-3) are  $2.9 \text{ MJ/m}^2$ ,  $2.2 \text{ MJ/m}^2$ , and  $1.7 \text{ MJ/m}^2$ . All of the three values of total heat release are less than  $8 \text{ MJ/m}^2$ .
3. The values of maximum heat release of the 3 specimens (DC315 Fireproof Paint coated on PU Foam-1, DC315 Fireproof Paint coated on PU Foam-2 and DC315 Fireproof Paint coated on PU Foam-3) are less than  $200 \text{ kW/m}^2$  in 10 seconds.
4. No disadvantaged fireproofing cracks or fissures on sample back.
5. Qualified Fire retardant 2-grade of CNS 14705-1 annex B.4.

— End of The Report —



Industrial and Environmental Hazard Testing Laboratory  
College of Engineering  
National Kaohsiung First University of Science and Technology,

Address : No.2, Zhuoyue Rd., Nanzi Dist., Kaohsiung City 811, Taiwan

## Report on heat release rate of building materials

Report date : Nov 10<sup>th</sup>, 2015

Report number : CNS 14705-1-1511-005

Test No. : CNS 14705-1511-005

Client : INternational CARbide Technology Co., Ltd.

Identification of sample : DC315 Fireproof Paint coated on PU Foam

(after 1101.34 kGy radiation)

Client address : No. 1-17, Toa-Chan, Kern-Ko Village, Lu-Chu Hsiang, Taoyuan 338, Taiwan

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Industrial and Environmental Hazard Testing Laboratory, College of Engineering,  
National Kaohsiung First University of Science and Technology page : 1/14

## **Report content**

I. Sample illustration

II. Test procedure

III. Observation record

IV. Test record

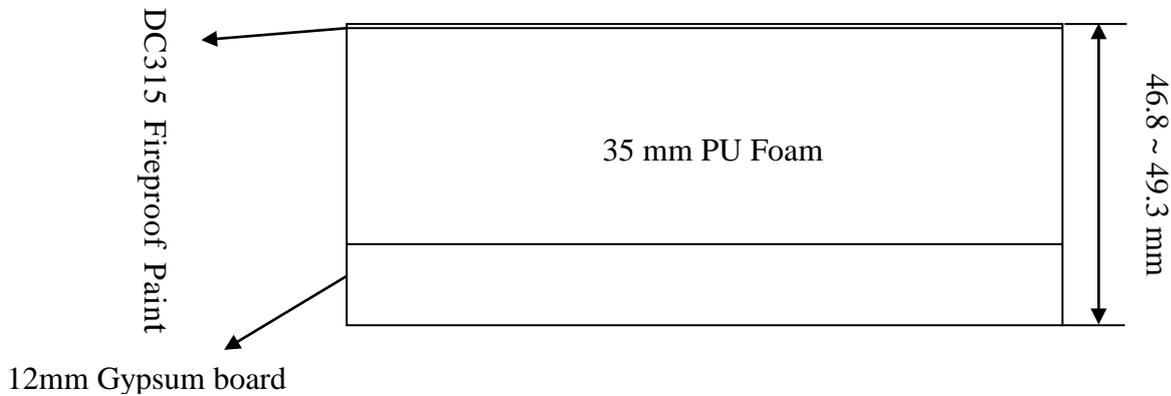
V. Curves

VI. Conclusion

## I. Sample illustration:

### A. Preparation

#### 1. specimen configuration diagram:



3. The specimens was prepared by International Carbide Technology Co., Ltd. These exposed under radiation for 527 hours at INER(Institute of Nuclear Energy Research Atomic Energy Council, Executive Yuan). Period of radiation: AUG. 26th, 2015 ~ OCT. 7th, 2015. Applied radiation dose was 1101.34 kGy. Tested base on CNS14705-1 (Method of test for heat release rate for building materials) at Industrial and Environmental Hazard Testing Laboratory, College of Engineering, National Kaohsiung First University of Science and Technology.
4. Sample Size : Square, edge length is 100mm with tolerance of 0/-2mm. If sample thickness is under 50mm the whole sample should be tested. Otherwise, if sample thickness is larger than 50mm, trim the unexposed face side off till the thickness is 50mm. After sample is processed, the sample should be wrapped up by aluminum foil with thickness of 0.025mm~0.04mm, and foil's shiny side towards the specimen.
5. Pre-treatment : Ambient Temp. at  $23\pm 2^{\circ}\text{C}$ , and Relative Humidity of  $50\pm 5\%$ . Specimens are set in the environment till constant weight. The constant weight means the weighting value difference less than 0.1% or 0.1g during the interval of 24 hrs.

## II. Test procedure :

### A. Test environment :

The apparatus shall be located in an essentially draught-free

Industrial and Environmental Hazard Testing Laboratory, College of Engineering,  
National Kaohsiung First University of Science and Technology

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environment in an atmosphere of relative humidity of between 20% and 80%, and a temperature between 10°C and 40°C.

**B. Preliminary steps :**

1. Check the CO<sub>2</sub> trap and the final moisture trap. Replace the sorbent if necessary. Drain any accumulated water in the cold trap separation chamber. The normal operating temperature of the cold trap shall not exceed 4°C;
2. Turn on power to the cone heater and the exhaust fan. Power to the gas analysers, weighing device and pressure transducer shall not be turned off on a daily basis;
3. Set an exhaust flow rate of (0.024±0.002) m<sup>3</sup>/s.
4. Perform the calibration procedure. Placed in the load device top stage fills refractory fiber blanket specimen carrying plate to prevent excessive heat transfer to the load device.
5. If with additional igniter, spark ignition shall be placed in the appropriate position.

**III. Heating test:**

1. Start data collection. Collect 1 min of baseline data.
2. Insert the radiation shield in position. Remove the thermal barrier protecting the weighing device. Place the specimen holder and specimen and insert the spark plug. (The radiation shield shall be cooler than 100°C immediately prior to the insertion.)
3. Remove the shield and start the test within 10 s after insertion and power the igniter. For water-cooled shielding plate, within 1 min of removing the shield, insert and power the igniter.
4. Put the specimens and specimens holder.
5. Record the times when flashing or transitory flaming occurs. When sustained flaming occurs, record the time, turn off the spark, and remove the spark igniter. If the flame extinguishes after turning off the spark, re-insert the spark igniter, turn on the spark within 5s, and do not remove the spark until the entire test is completed. Report these events in the test report.
6. Heating time: 10 min.
7. Remove specimen and specimen holder.

8. At least three specimens shall be tested at each test condition, and the average heat release rate in 180 s of the three tests shall be compared with one another. If any of the readings deviates from the arithmetic average for more than 10%, another three specimens shall be tested. The fire retardant grade of the specimen is determined by the test results of all six specimens according to Table B.1.

### III. Observation record

#### 1. Pre-test:

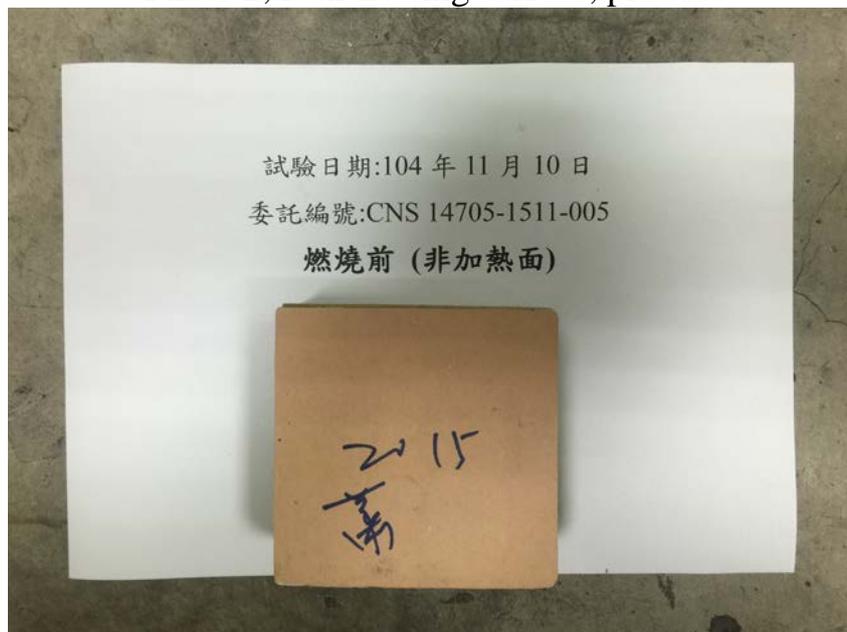
- (1) Specimen No. DC315 Fireproof Paint coated on PU Foam  
(after 1101.34 kGy radiation)

Photo 1, Heating surface, pre-test



- (2) Specimen No. DC315 Fireproof Paint coated on PU Foam  
(after 1101.34 kGy radiation)

Photo 2, Non-heating surface, pre-test



2. Post-test:

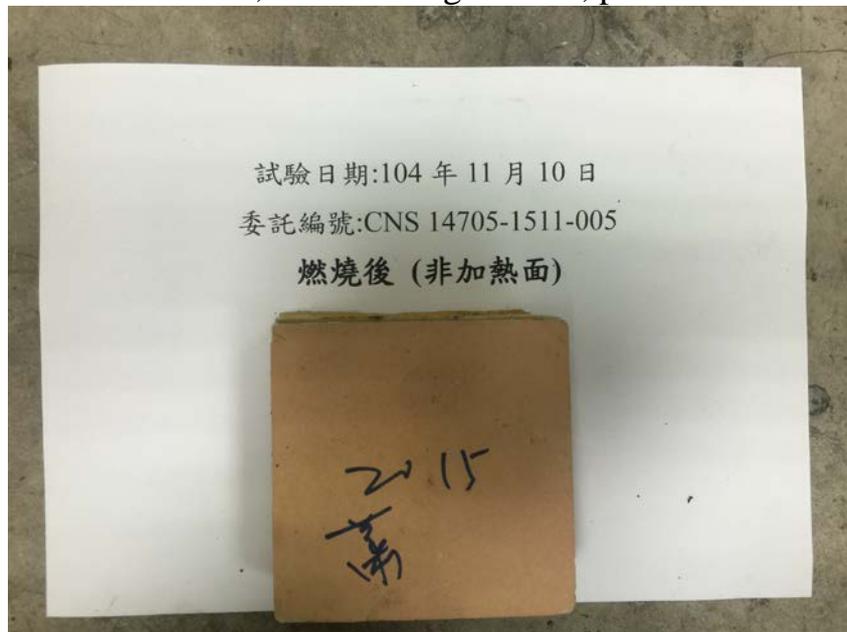
- (1) Specimen No. DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)

Photo 3, Heating surface, post-test



- (2) Specimen No. DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)

Photo 4, Non-heating surface, post-test



#### IV. Test record

Test standard	CNS 14705-1 Method of test for heat release rate for building materials – Part 1:Cone calorimeter method		
Samples	DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)		
Ambient Temp. at 23±2°C, and Relative Humidity of 50±5%. Specimens were set in the environment till constant weight			
Orifice flow rate calculate constant (C factor) : 0.035~0.045			
Mass flow rate in exhaust duct : 0.024 m <sup>3</sup> /s±0.002 m <sup>3</sup> /s			
Cold trap temperature : 0~4 °C			
Heater temperature : 865±10 °C			
Temperature of indoor : 27~29 °C			
R.H. of indoor : 51~52 %			
Sample collection date	Nov 5 <sup>th</sup>	Nov 5 <sup>th</sup>	Nov 5 <sup>th</sup>
Test date	Nov 10 <sup>th</sup>	Nov 10 <sup>th</sup>	Nov 10 <sup>th</sup>
Specimen No.	DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-1	DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-2	DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-3
L x W (mm)	100×100	100×100	100×100
Thickness (mm)	49.3	46.8	48.6
Initial weight (g)	106.09	106.18	106.26

Heat flux	50kW/m <sup>2</sup>	50kW/m <sup>2</sup>	50kW/m <sup>2</sup>
Ignition time(sec)	0	0	0
Flameout (sec)	0	0	0
Flame duration(sec)	0	0	0
Heat time (sec)	600	600	600
Total heat released (MJ/m <sup>2</sup> )	1.3	0.7	1.0
Total oxygen consumed (g)	0.7	0.3	0.5
Mass loss (g)	7.1	7.5	6.2
Mass at end of test (g)	98.99	98.68	100.06
Average mass loss rate (g/m <sup>2</sup> s)	1.46	1.46	1.25
Total Heat release < 8 MJ/m <sup>2</sup>	Qualified	Qualified	Qualified
Max. Heat release <200 kW/m <sup>2</sup> and continue 10 sec.	Qualified	Qualified	Qualified
No disadvantaged fireproofing cracks or fissures on sample back	Qualified	Qualified	Qualified
Criteria	Qualified Fire retardant 2-grade of CNS 14705-1 annex B.4		

• Results of peak and average values

Specimen No. DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-1			
Items	Average	Peak	Time to peak (s)
Heat release rate (kW/m <sup>2</sup> )	1.98	5.77	71
Effective heat of combustion (MJ/kg)	1.47	9.57	572
Mass loss rate (g/s)	0.012	0.161	6
Specimen No. DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-2			
Items	Average	Peak	Time to peak (s)
Heat release rate (kW/m <sup>2</sup> )	0.83	3.77	58
Effective heat of combustion (MJ/kg)	0.59	7.93	321
Mass loss rate (g/s)	0.012	0.098	31
Specimen No. DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-3			
Items	Average	Peak	Time to peak (s)
Heat release rate (kW/m <sup>2</sup> )	1.58	3.43	274
Effective heat of combustion (MJ/kg)	1.35	6.48	436
Mass loss rate (g/s)	0.010	0.102	22

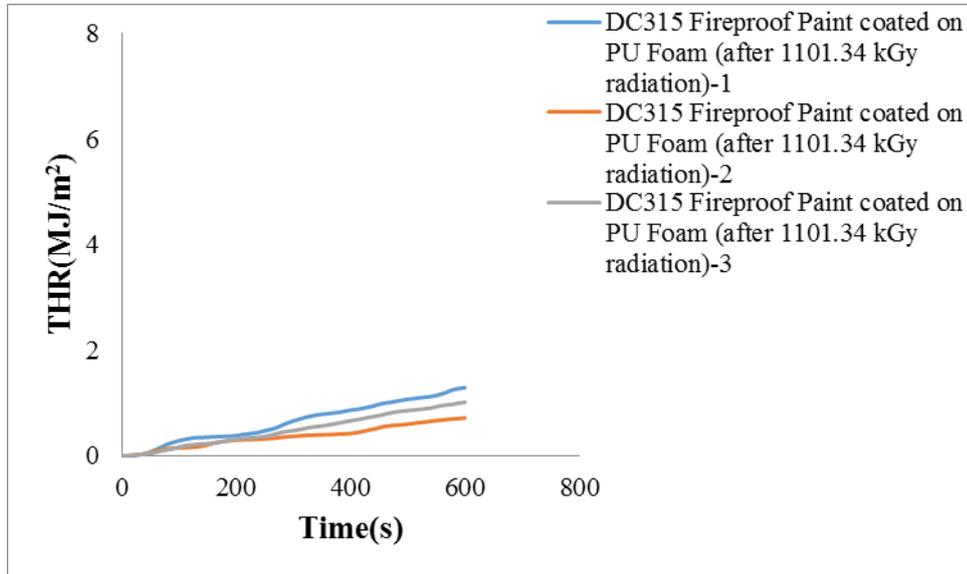
• Results of ignition from 1 min to 4 min

Specimen No. DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-1				
Time	1 min	2 min	3 min	4 min
Heat release rate (kW/m <sup>2</sup> )	1.47	2.51	1.63	1.49
Effective heat of combustion (MJ/kg)	0.25	0.64	0.55	0.60
Mass loss rate (g/s)	0.057	0.037	0.028	0.023
Specimen No. DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-2				
Time	1 min	2 min	3 min	4 min
Heat release rate (kW/m <sup>2</sup> )	1.35	0.97	1.27	0.93
Effective heat of combustion (MJ/kg)	0.23	0.24	0.42	0.37
Mass loss rate (g/s)	0.047	0.032	0.025	0.020
Specimen No. DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-3				
Time	1 min	2 min	3 min	4 min
Heat release rate (kW/m <sup>2</sup> )	0.89	1.55	1.36	1.28
Effective heat of combustion (MJ/kg)	0.22	0.54	0.58	0.65
Mass loss rate (g/s)	0.031	0.023	0.019	0.016
Test operator	Chen Ming Hsin		Approval signatory	Chen Ming Hsin

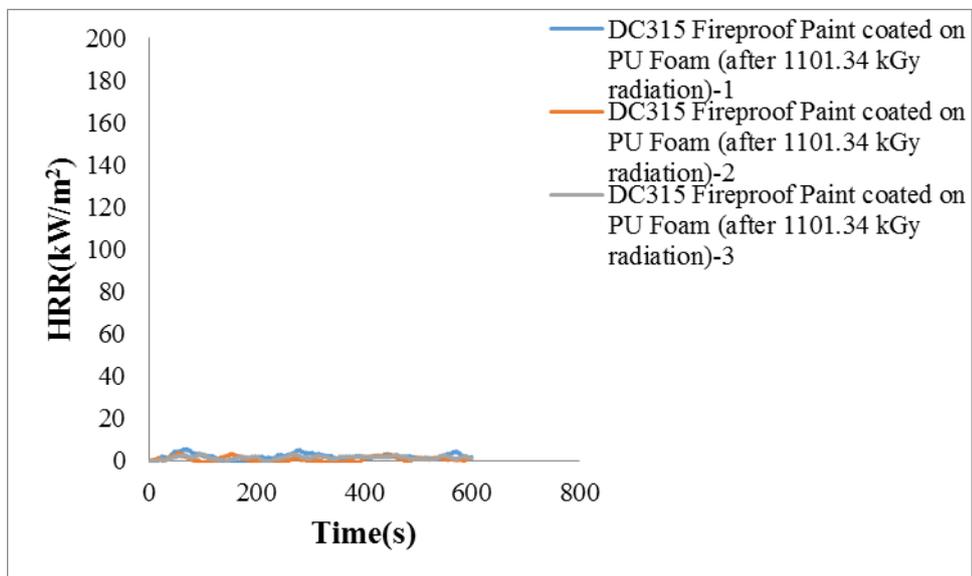
## V. Curves

Specimen No. : DC315 Fireproof Paint coated on PU foam (after 1101.34 kGy radiation)-1~3

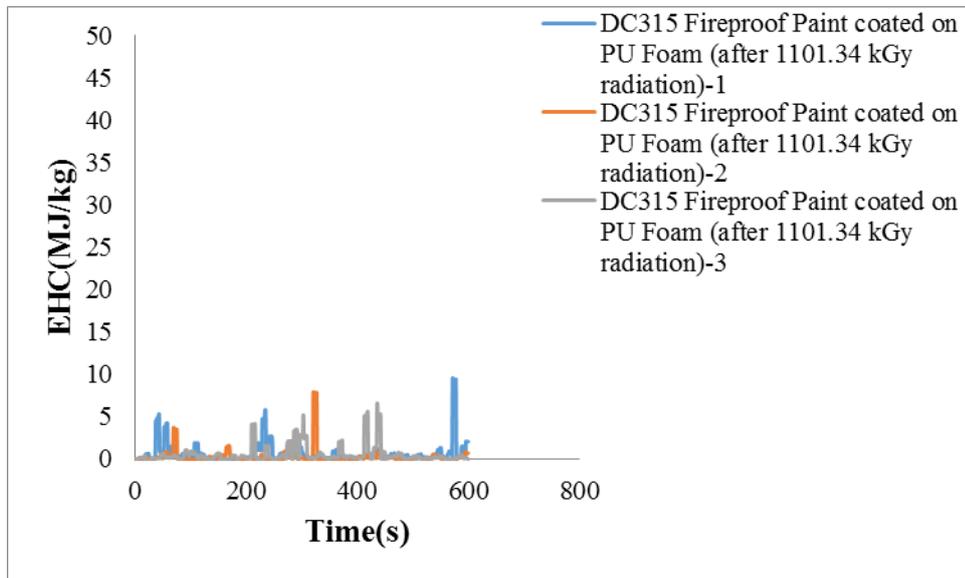
### (1) Total heat release



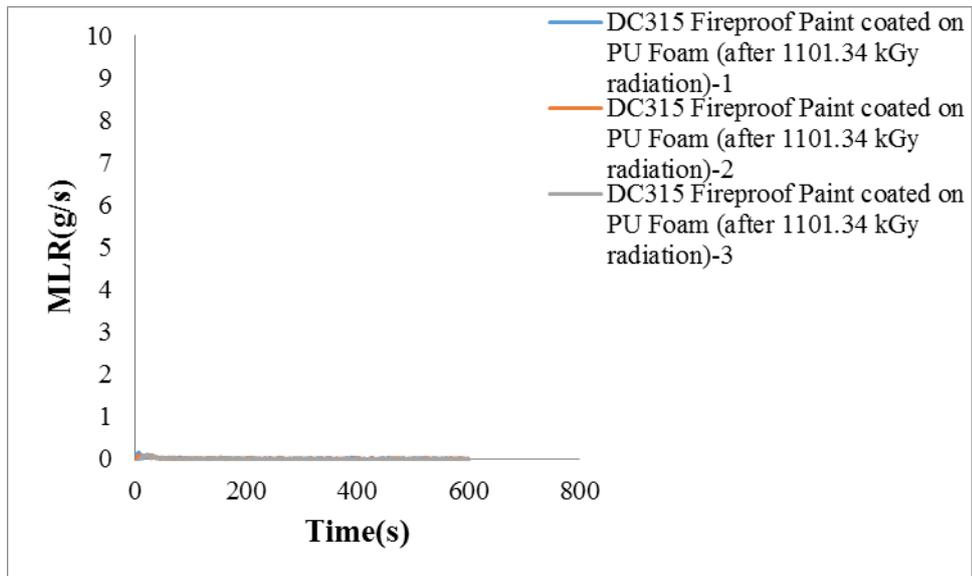
### (2) Heat release rate



### (3) Effective heat of combustion



### (4) Mass loss rate



## VI. Conclusion

1. The averaged heat release rate of the 3 specimens (DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-1, DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-2 and DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-3) are  $1.63 \text{ kW/m}^2$ ,  $1.27 \text{ kW/m}^2$ , and  $1.36 \text{ kW/m}^2$ , with bias more than 10% of mean. The total heat release of the 3 specimens are less than  $7 \text{ MJ/m}^2$ .
2. The total heat release of the 3 specimens (DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-1, DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-2 and DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-3) are  $1.3 \text{ MJ/m}^2$ ,  $0.7 \text{ MJ/m}^2$ , and  $1.0 \text{ MJ/m}^2$ . All of the three values of total heat release are less than  $8 \text{ MJ/m}^2$ .
3. The values of maximum heat release of the 3 specimens (DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-1, DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-2 and DC315 Fireproof Paint coated on PU Foam (after 1101.34 kGy radiation)-3) are less than  $200 \text{ kW/m}^2$  in 10 seconds.
4. No disadvantaged fireproofing cracks or fissures on sample back.
5. Qualified Fire retardant 2-grade of CNS 14705-1 annex B.4.

— End of The Report —