Confidential Report

Our Ref: 27/06759C/04/25

Wira House, West Park Ring Road, Leeds, LS16 6QL, UK.
Telephone: +44 (0) 113 259 1999
Email: onestopshop@bttg.co.uk
Website: www.bttg.co.uk

Date: 30 May 2025

Our Ref: 27/06759C/04/25
Your Ref:

Client: **Kvadrat A/S**

Lundbergsvej 10
8400 Ebeltoft
Denmark

Job Title: Fire Tests on Two Samples of Fabrics

Clients Order Ref: --

Date of Receipt: 30 April 2025

Description of Samples: Two samples of fabrics, referenced;

Noon 2, stated to be: 100% Recycled Polyester FR, app. 80 g/m2 (light weight).

Remix Flow, stated to be: 100% Recyled Polyester FR (95% Recycled Polyester FR, 5% Polyester FR), app. 250 g/m2 (heavy weight).

Work Requested: We were asked to make the following test(s):

BS EN ISO 11925-2
BS EN 13823

* subcontracted test, UKAS accredited
** subcontracted test, EN ISO/IEC 17025 accredited
*** not UKAS accredited

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Note: This report relates only to the items tested.

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Sample Description
(as supplied by client)

General description		Woven textile Noon 2
Product reference of composite		
Name of manufacturer of composite		Kvadrat
Thickness of composite		0-1 mm
Surface	Generic type	100% recycled polyester FR
	Product reference	**Noon 2**
	Name of manufacturer	Kvadrat
	Thickness	0-1 mm
	Density / weight per unit area	App. 80 g/m2
	Colour reference	
	Trade name of flame retardant	
	Generic type of flame retardant	Inherently flame retardant
	Amount of flame retardant	
Adhesive	Generic type	
	Product reference	None
	Name of manufacturer	
	Colour reference	
	Application rate / thickness	
	Application method	
	Trade name of flame retardant	
	Generic type of flame retardant	
	Amount of flame retardant	
	Curing process	
Substrate	Generic type	
	Product reference	None
	Name of manufacturer	
	Thickness	
	Density / weight per unit area	
	Colour reference	
	Trade name of flame retardant	
	Generic type of flame retardant	
	Amount of flame retardant	
Brief description of manufacturing process		
Additional Information		Textile tested free hanging

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Sample Description
(as supplied by client)

General description		Woven textile Remix Flow
Product reference of composite		
Name of manufacturer of composite		Kvadrat
Thickness of composite		0-1 mm
Surface	Generic type	95% recycled polyester FR, 5% polyester FR
	Product reference	**Remix Flow**
	Name of manufacturer	Kvadrat
	Thickness	0-1 mm
	Density / weight per unit area	App. 250 g/m2
	Colour reference	
	Trade name of flame retardant	
	Generic type of flame retardant	Inherently flame retardant
	Amount of flame retardant	
Adhesive	Generic type	
	Product reference	None
	Name of manufacturer	
	Colour reference	
	Application rate / thickness	
	Application method	
	Trade name of flame retardant	
	Generic type of flame retardant	
	Amount of flame retardant	
	Curing process	
Substrate	Generic type	
	Product reference	None
	Name of manufacturer	
	Thickness	
	Density / weight per unit area	
	Colour reference	
	Trade name of flame retardant	
	Generic type of flame retardant	
	Amount of flame retardant	
Brief description of manufacturing process		
Additional Information		Textile tested free hanging

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Client: **Kvadrat A/S**

FIRE TESTS ACCORDING TO BS EN ISO 11925-2:2020
Reaction to fire tests for building products – Part 2: Ignitability when subjected to direct impingement of flame

Date of Test: 16/05/25

Conditioning

Test specimens and filter paper conditioned as described in BS EN 13238:2010.

Mounting Method

Each specimen was mounted using the following conditions:

Method of Mounting/Fixing:	Unsupported (Free Hanging)
Test Substrate (as specified in (BS EN 13238):	N/A
Adhesive (if applicable):	N/A

Procedure

Each sample was tested in accordance with BS EN ISO 11925-2:2020.

Three specimens from each direction and each sample were tested in accordance with the above standard. Specified filter paper was placed beneath the specimen holder and replaced between tests.

The specimens were mounted vertically in the specimen holder so that one end and both sides were enclosed with the exposed end 30mm from the end of the frame. The burner was inclined at an angle of 45^{o}.

Face Ignition

The flame height was set at 20 mm with the flame impinging on the specimen for 30 seconds on the centre line, 40 mm above the bottom edge.

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Procedure (Continued)

Edge ignition

The flame was applied for 30 seconds to the centre of the width of the bottom edge of the test specimen 1.5 mm behind the surface.

A marker was placed 150 mm above the upper end of the burner and the time recorded when the flame tip reached the marker, if applicable. The following parameters were also recorded: -

1. If ignition occurs
2. Presence of flaming debris, if applicable
3. Ignition of the filter paper, if applicable

Samples were tested as an essentially flat product.

Duration of test

For a flame application time of 30 seconds, the total test duration is 60 seconds after application of the flame.

Classification Criteria (***)

BS EN 13501-1:2018 Fire classification of Construction Products and Building Elements: Part 1 – Classification using Test Data from Reaction to Fire Tests specifies the following:

Flaming Classification	
Classification	Criteria (mean values)
E F	Fs ≤ 150mm within 60 seconds Fails Class E

Flaming droplets / particles classification	
Classification	Criteria
No classification d2	Pass Fail (Ignition of paper)

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Results

Reference: Noon 2							
	Specimen		Ignition (Yes or No)	Tip of flame reaches 150mm		Flaming droplets	
				Yes or No	Time taken (s)	Yes or No	Ignition of Filter paper (Yes or No)
Face Ignition	Machine Direction	1	Yes	No	N/A	No	No
		2	Yes	No	N/A	No	No
		3	Yes	No	N/A	No	No
	Across Machine Direction	1	Yes	No	N/A	No	No
		2	Yes	No	N/A	No	No
		3	Yes	No	N/A	No	No
Edge Ignition	Machine Direction	1	Yes	No	N/A	No	No
		2	Yes	No	N/A	No	No
		3	Yes	No	N/A	No	No
	Across Machine Direction	1	Yes	No	N/A	No	No
		2	Yes	No	N/A	No	No
		3	Yes	No	N/A	No	No

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Results (Continued)

Reference: Remix Flow							
	Specimen		Ignition (Yes or No)	Tip of flame reaches 150mm		Flaming droplets	
				Yes or No	Time taken (s)	Yes or No	Ignition of Filter paper (Yes or No)
Face Ignition	Machine Direction	1	Yes	No	N/A	No	No
		2	Yes	No	N/A	No	No
		3	Yes	No	N/A	No	No
	Across Machine Direction	1	Yes	No	N/A	No	No
		2	Yes	No	N/A	No	No
		3	Yes	No	N/A	No	No
Edge Ignition	Machine Direction	1	Yes	No	N/A	No	No
		2	Yes	No	N/A	No	No
		3	Yes	No	N/A	No	No
	Across Machine Direction	1	Yes	No	N/A	No	No
		2	Yes	No	N/A	No	No
		3	Yes	No	N/A	No	No

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Photograph of BS EN 13823 Specimen

Reference: Noon 2

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Photograph of BS EN 13823 Specimen

Reference: Remix Flow

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Client: **Kvadrat A/S**

FIRE TESTS ACCORDING TO BS EN 13823:2020+A1:2022
Reaction to fire tests for Building Products - Building Products excluding floorings exposed to the thermal attack by a single burning item.

Date of Test: 16/05/25

Conditioning

The specimens were conditioned in accordance with BS EN 13238:2010.

Principle

Test specimens, consisting of two vertical wings forming a right-angled corner, is exposed to the flames of a burner placed at the bottom of that corner. The flames are obtained by the combustion of propane gas, injected through a sandbox to give a heat output of 30.7±2.0kW.

The performance of the test specimen is evaluated over a period of 20 minutes. The performance requirements are: heat production, smoke production, lateral flame spread and falling flaming droplets and particles.

The heat production is measured by use of oxygen calorimeter that uses the principle that the amount of oxygen consumed in a fire is proportional to the amount of heat produced. The smoke production is measured by use of a light attenuation instrument installed in the exhaust duct alongside the sampling equipment used to measure the heat release. Visual observations are made of the horizontal flame spread and falling of flaming droplets and particles.

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Mounting Method

Each specimen was mounted using the following conditions:

Method of Mounting/Fixing:	80mm air gap between sample and backing board
Test Substrate (as specified in (BS EN 13238):	N/A
Adhesive (if applicable):	N/A
Specimen Consisted of Horizontal Joint:	No
Specimen Consisted of Vertical Joint:	No

Procedure

The test was carried out in accordance with BS EN 13823:2020+A1:2022.

Each specimen was placed in the trolley as per the instructions given and placed underneath the hood in the testing chamber. The volume flow of the exhaust was set to 0.60±0.05 m^3/s and maintained at this throughout the test period.

The temperatures in the exhaust hood and the ambient temperature should be within 4°C with the ambient temperature being within 20±10°C. The other pre-test conditions of ambient pressure and ambient relative humidity were also recorded.

The recording of baseline data is started at 0 s. At 120 s the auxiliary burner is ignited and the propane mass flow adjusted to the specified flow before 150 s, this flow to be kept constant throughout the test.

With the pre-test conditions met, the propane supply is switched from the auxiliary burner to the main burner at 300 s.

The burning behaviour of the specimen was recorded both automatically and visually over a period of 1,260 s from when the main burner was ignited.

At 1560 s the gas supply was terminated along with the automatic recording of the data. The conditions at the end of the test were recorded at least one minute after any remaining combustion has been totally extinguished.

The individual pre-test and baseline conditions, apparatus specifications, test validity criteria, burner details was found to be within specified parameters. The graphs of HRR, HRR(30), THR, FIGRA, SPR, SPR(60), TSP and SMOGRA are found below with the results and classification.

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Classification Criteria (***)

BS EN 13501:2018 Fire classification of Construction Products and Building Elements: Part 1: Classification using Test Data from Reaction to Fire Tests specifies the following:

For construction products excluding floorings the classes are:

Classification	Classification Criteria (mean values)			
	$FIGRA_{0.2MJ}$ (W/s)	$FIGRA_{0.4MJ}$ (W/s)	LFS	THR_{600s} (MJ)
A2	≤120	N/A	Edge of specimen	≤7.5
B	≤120	N/A	Edge of specimen	≤7.5
C	N/A	≤250	Edge of specimen	≤15
D	N/A	≤750	No requirement	No requirement

To meet classification A2 the sample also has to meet the requirements of either BS EN ISO 1182 or BS EN ISO 1716.

To meet classification B, C and D the sample also has to meet the requirements of BS EN ISO 11925-2.

Additional Classifications - Smoke and Flaming droplets/particles

Classification	**Classification Criteria (mean values)**	
	SMOGRA (m^2/s^2)	TSP_{600s} (m^2)
s1	≤30	≤50
s2	≤180	≤200
s3	Not s1 or s2	Not s1 or s2
d0	No flaming droplets/particles within 600seconds	
d1	No flaming droplets/particles persisting longer than 10 seconds within 600 seconds	
d2	Not d0 or d1	

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Results

Reference	Classification criteria	Specimen			Mean
		1	2	3	
Noon 2	$FIGRA_{0.2MJ}$ (W/s)	4.1	3.4	0	2.5
	$FIGRA_{0.4MJ}$ (W/s)	4.1	3.4	0	2.5
	THR_{600s} (MJ)	0.6	0.6	0.1	0.4
	LFS to edge (yes or no)	No	No	No	No
	SMOGRA (m^2/s^2)	0	0	0.9	0.3
	TSP_{600s} (m^2)	25.3	22.6	28.3	25.4
	FDP flaming ≤ 10 s (yes or no)	No	No	No	No
	FDP flaming > 10 s (yes or no)	No	No	No	No
Remix Flow	$FIGRA_{0.2MJ}$ (W/s)	4.2	12.3	13.5	10.0
	$FIGRA_{0.4MJ}$ (W/s)	4.2	12.3	9.8	8.8
	THR_{600s} (MJ)	0.8	1.6	1.3	1.2
	LFS to edge (yes or no)	No	No	No	No
	SMOGRA (m^2/s^2)	0	0	0.9	0.3
	TSP_{600s} (m^2)	26.6	28.4	30.5	28.5
	FDP flaming ≤ 10 s (yes or no)	No	No	No	No
	FDP flaming > 10 s (yes or no)	No	No	No	No

Note

The test results relate to the behaviour of the test specimen of a product under the particular conditions of the test; they are not intended to be the sole criteria for assessing the potential fire hazard of the product in use.

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Comment (***)

The results from both samples meet the requirements of a Class B, s1, d0**,** as specified in BS EN 13501-1:2018.

Where required to make a judgement to any pass/fail criteria an estimation of uncertainty of measurement has been taken into account. Under our Policy we have used a non-binary decision rule.

See our decision rules Policy (https://www.bttg.co.uk/about-us/decision-rules-policy/) for further information.

Reported by:..... B Marsden (Mrs), Senior Laboratory Technician

Countersigned by:..... A Shute, Section Leader

Enquiries concerning this report should be addressed to Customer Services.

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Uncertainty Budget

The uncertainty budget for BS EN 13501-1:2018 was determined as follows:-

BS EN ISO 11925-2:2020

±2 seconds for time recorded removal of flame and terminate test and ±2mm to measure the distance at 150mm

BS EN 13823:2020+A1:2022

FIGRA 0.2MJ	±15%
FIGRA 0.4MJ	±15%
THR 600s	±10%
SMOGRA	±15%
TSP 600s	±20%

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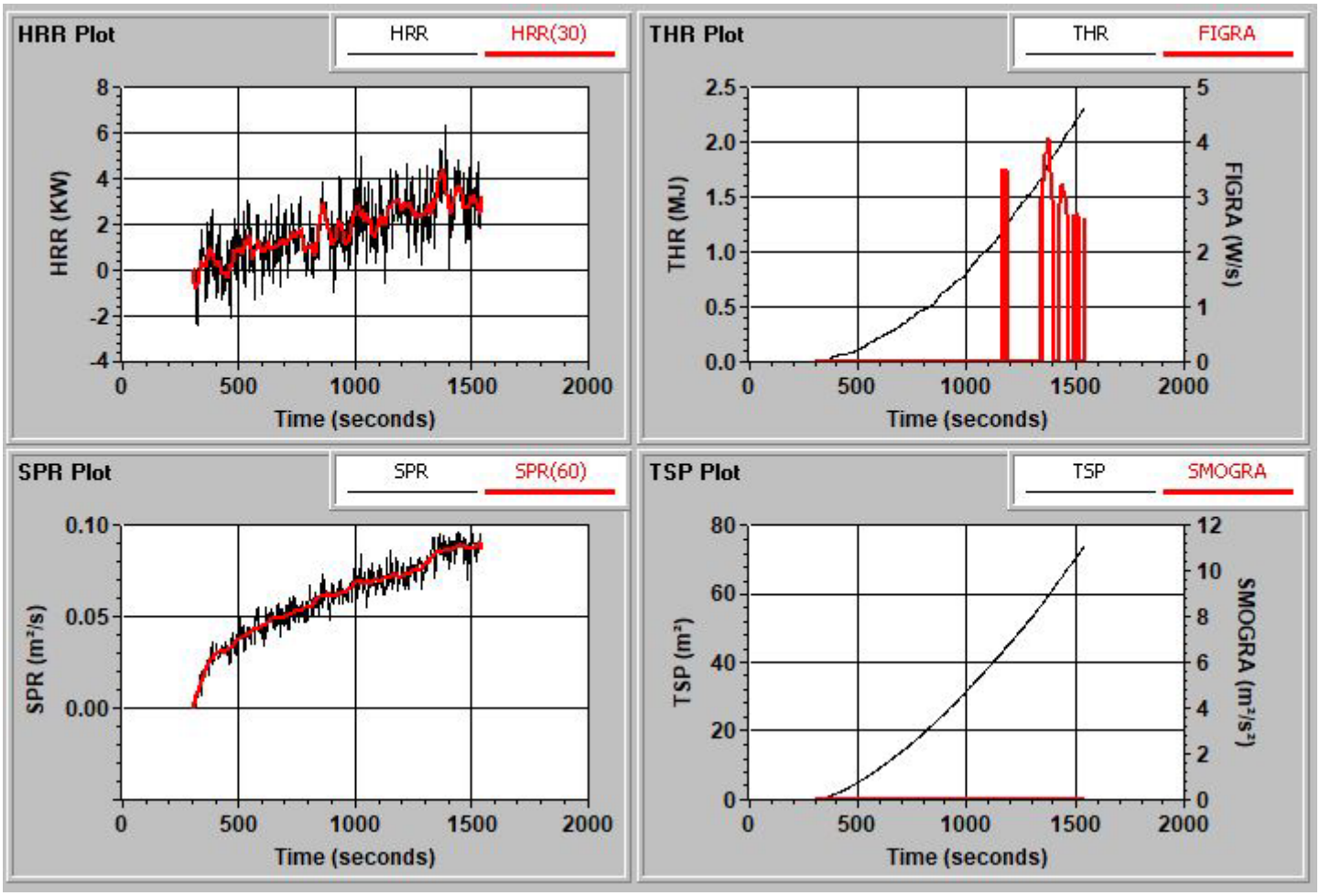
Noon 2 Graphs

Specimen 1



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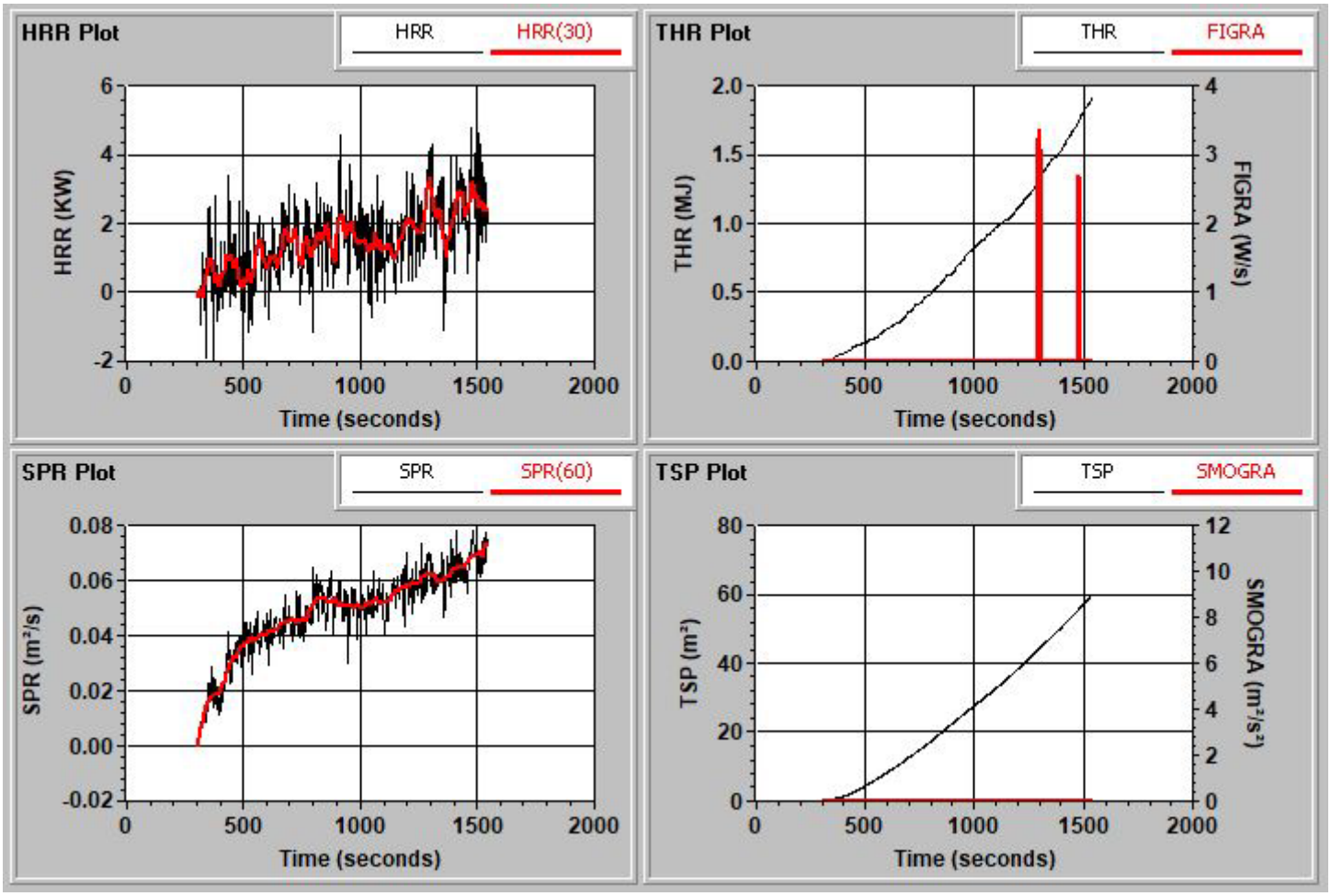
Noon 2 Graphs

Specimen 2



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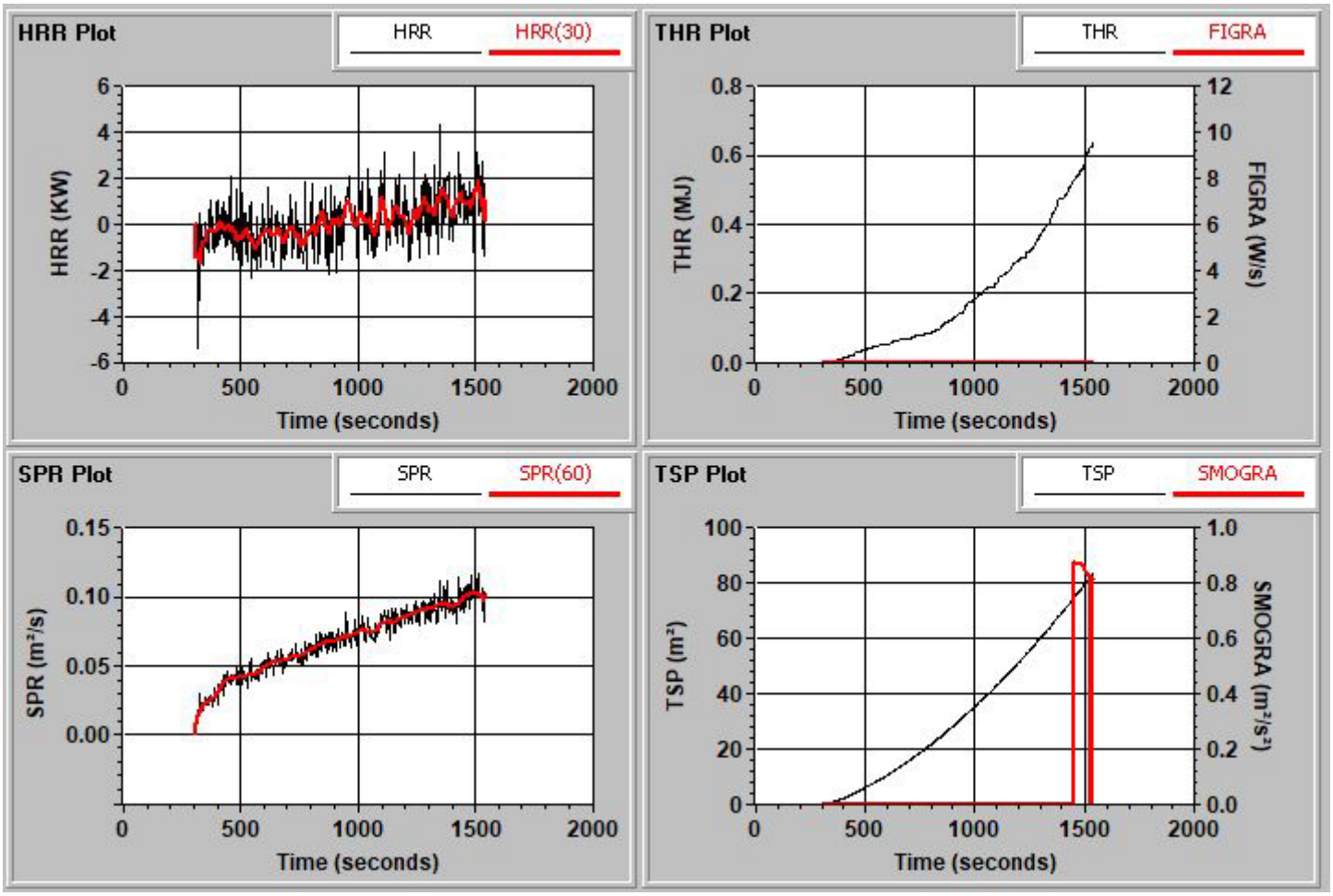
Noon 2 Graphs

Specimen 3



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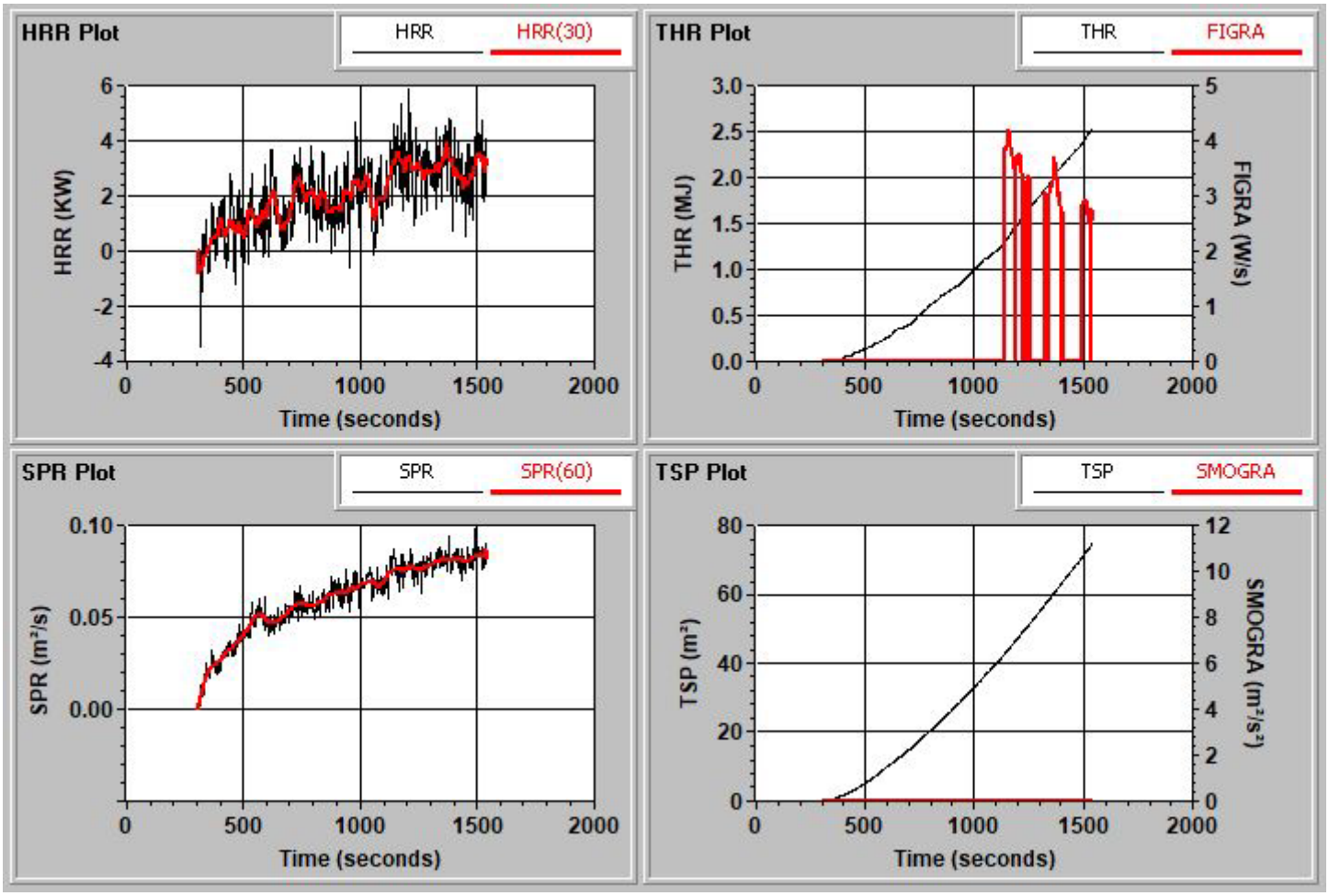
Remix Flow Graphs

Specimen 1



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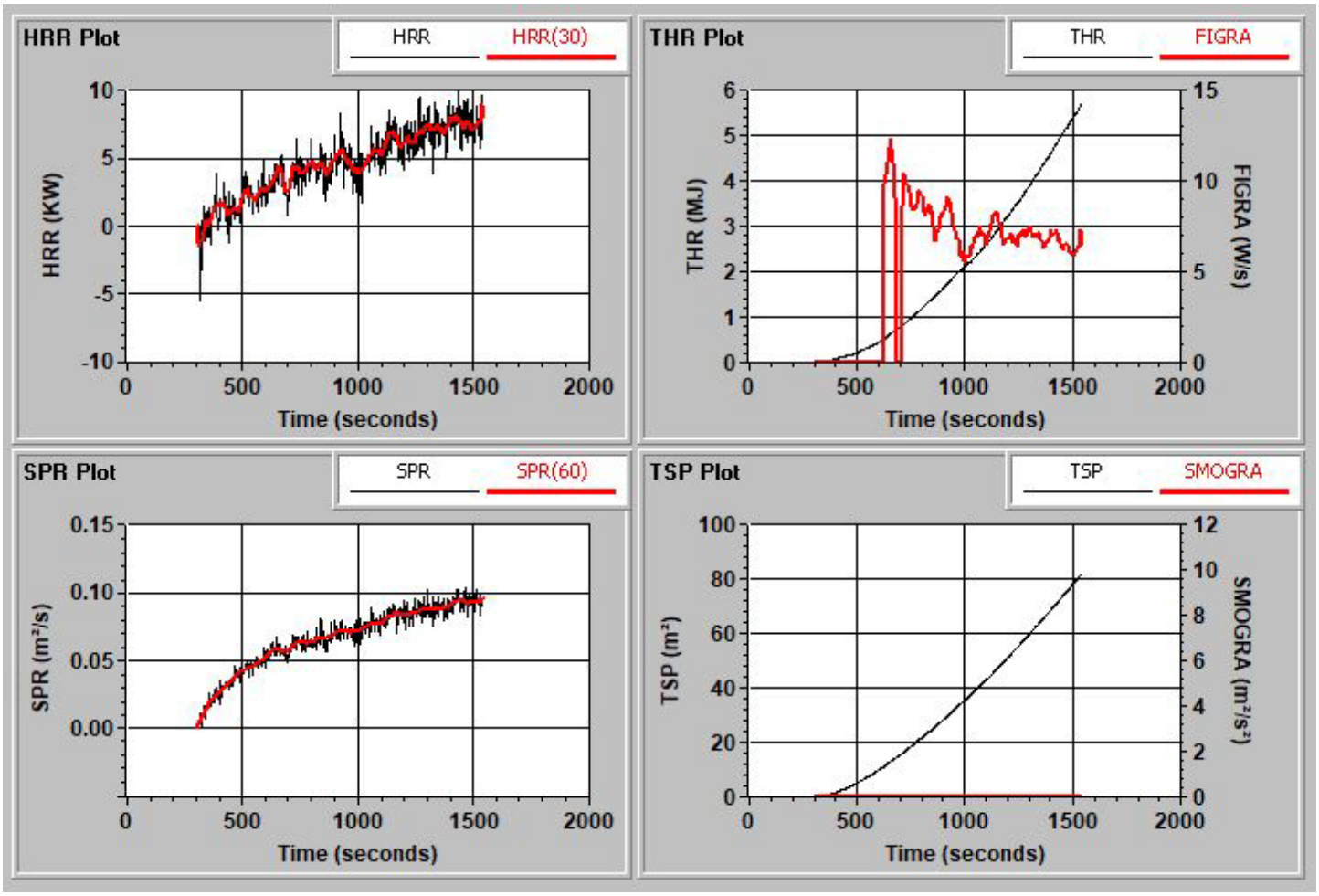
Remix Flow Graphs

Specimen 2



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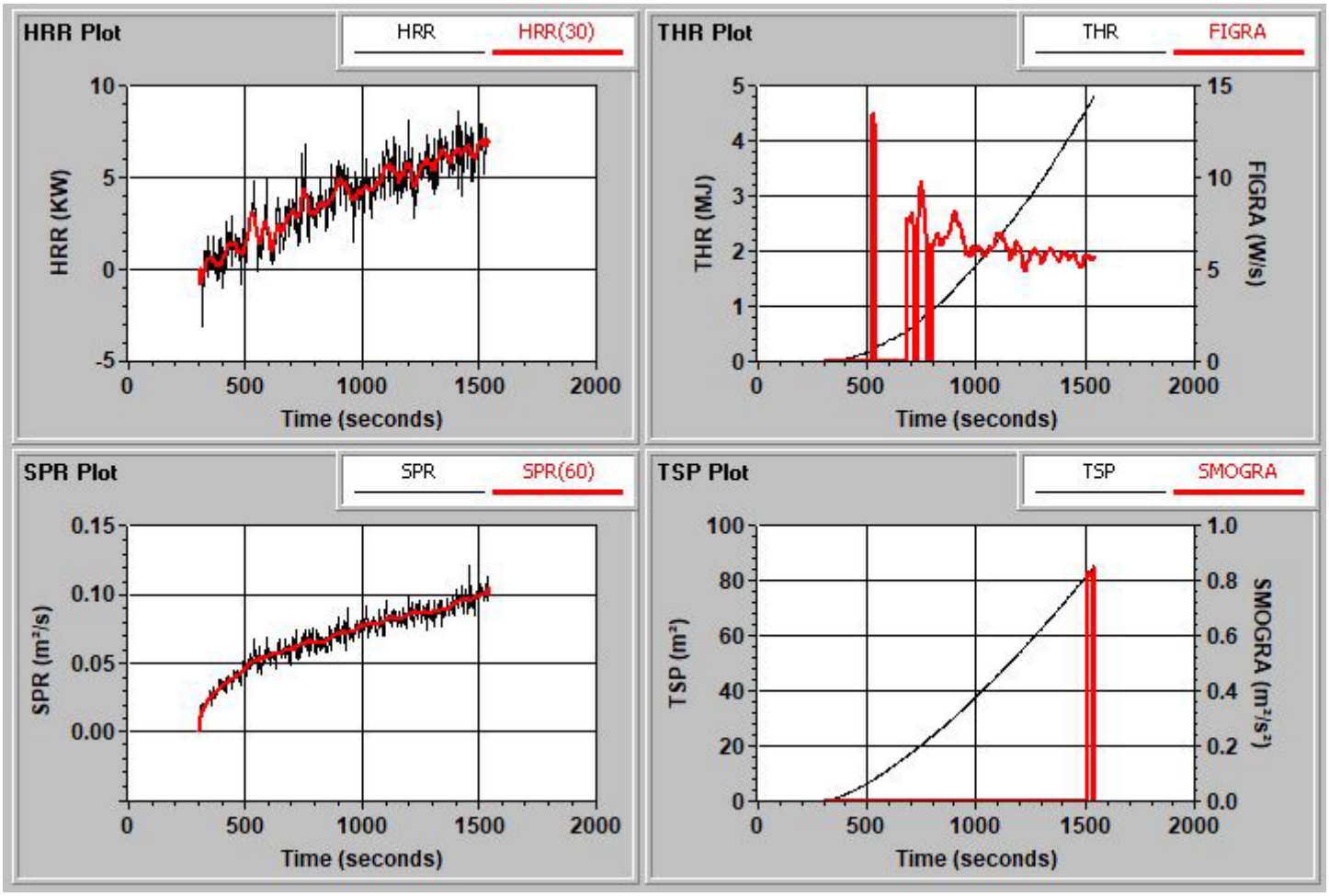
Remix Flow Graphs

Specimen 3



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