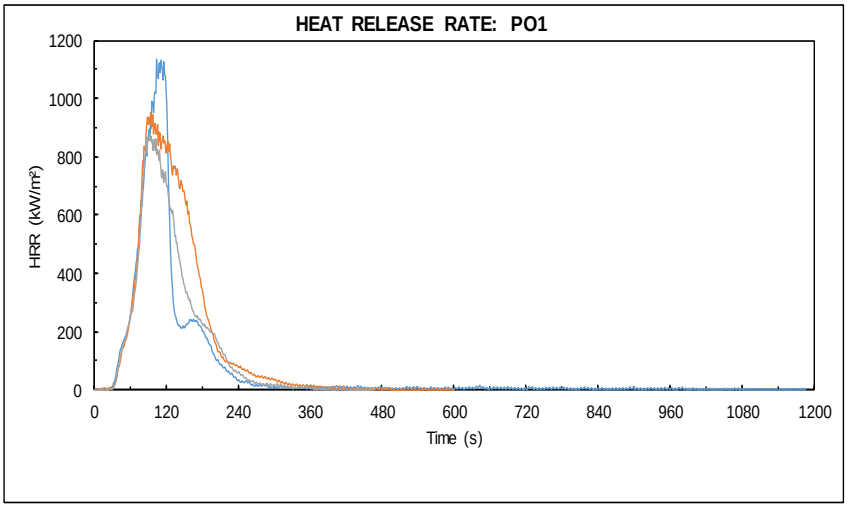
Cone Calorimeter Fire Performance Evaluation

CONE CALORIMETER LAB RESULTS

Client:	Corporation	*Material ID:*	PO1
SwRI Project No:	01	*Heat Flux:*	50 kW/m²
		Duct Flow:	24 l/s
Orientation:	Horizontal	*Sample Area:*	0.00884 m²
Frame:	Yes	*Distance:*	25 mm
Spark Igniter:	Yes	*Operator:*	J. Friday

Test ID	Test Date	t_{ig} (s)	Test Duration (s)	C-Factor (SI Units)	HRR_{peak} (kW/m²)	THR (MJ/m²)	HRR_{60s} (kW/m²)	HRR_{180s} (kW/m²)	HRR_{300s} (kW/m²)	$HRR_{30s,\ max}$ (kW/m²)
17-19-1	07/10/17	27	1081	0.0473	1137	84.1	302	413	260	1040
17-19-2	07/10/17	32	493	0.0473	950	99.8	372	510	328	892
17-19-3	07/10/17	32	361	0.0473	879	79.9	354	415	265	830
Average		30	645	---	989	87.9	343	446	285	921

Initial Mass (g)	Mass at Ignition (g)	Final Mas (g)	Mass Loss (g/m^2)	MLR (g/m^2-s)	10-90 MLR (g/m^2-s)	EHC (MJ/kg)	$S_{A,1}$ (m²/m²)	$S_{A,2}$ (m²/m²)	S_A (m²/m²)	SEA (m²/kg)
28.7	28.2	2.8	2933	2.7	6.7	28.7	2	2304	2307	786
28.8	28.7	0.5	3196	6.5	20.6	31.2	6	2920	2926	914
28.6	29.4	4.4	2739	7.2	14.9	29.2	5	2520	2525	920
28.7	28.8	2.6	2956	5.5	14.1	29.7	4	2582	2586	873



- HRR_{peak} maximum value of the heat release rate per unit area (kW/m²)
- THR total amount of heat released per square meter (MJ/m²)
- HRR_{60s} average heat release rate over the first 60 s (1 min) after ignition
- HRR_{180s} average heat release rate over the first 180 s (3 min) after ignition
- HRR_{300s} average heat release rate over the first 300 s (5 min) after ignition
- $HRR_{30s,\ max}$ the maximum 30-s sliding average of the heat release rate per unit area (kW/m²)
- Initial Mass the initial mass of the test specimen, prior to testing (g)
- Mass at Ignitionthe mass of the test specimen at the time of sustained ignition (g)
- Final Mass the mass of the test specimen at the end of the test (g)
- Mass Loss total specimen mass loss over the test (g/m^2)
- MLR average specimen mass loss rate per unit area (g/m²·s) computed over the test duration
- 10-90 MLR average specimen mass loss rate per unit area (g/m²·s) computed over the period starting when 10 percent of the specimen mass loss occurred and ending when 90 percent of the specimen mass loss occurred10-90 MLR average specimen mass loss rate per unit area (g/m²·s) computed over the period starting when 10 percent of the specimen mass loss occurred and ending when 90 percent of the specimen mass loss occurred
- EHC effective heat of combustion (the ratio of heat release rate to mass loss rate–MJ/kg) averaged over the test duration or the entire test if ignition does not occur
- $S_{A,1}$ smoke production per unit area of exposed specimen (m²/m²) prior to ignition
- $S_{A,2}$ smoke production per unit area of exposed specimen (m²/m²) from ignition until flameout or the end of the test; equal to zero if ignition does not occur
- S_A total smoke production per unit area of exposed specimen during the test duration ($S_{A,1} + S_{A,2}$)

SEA specific smoke extinction area (the ratio of smoke production to specimen mass loss–m²/kg) averaged over the test duration.