Progress report to phase 2

Specimen preparation for testing intumescent paints inside cone calorimeter
Test to be conducted at INEGI facilities

Two different intumescent paints are ready to be used, from two distinct manufactures. Intumescent paint A, obtained from CIN and commercially identified as C-therm and intumescent paint B, ontained from abroad company NULLIFIRE and commercially identified as S707-60.

Intumescent paint will be used on squared steel plates, into two distinct groups of 4 and 6 [mm] thickness, which will be known as the substratum thickness.

Three distinct protection thicknesses will be tested according to targets of 500, 1500 and 2500 [μm]. Those thickness values were controlled over 16 measuring points, as represented in figure 1

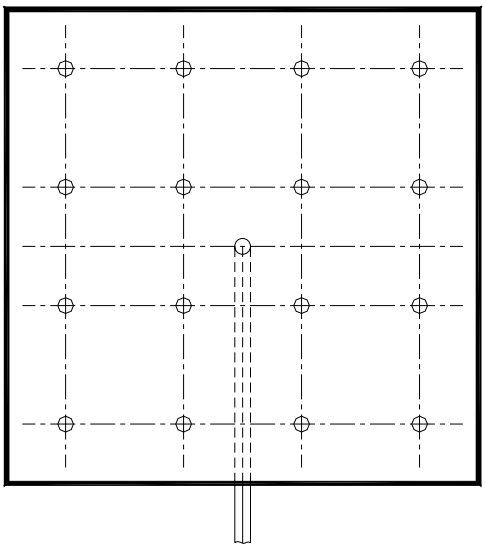

Figure 1 –Positions for dry thickness measurement.

The reference of each testing specimen is defined as follows. First comes the information about the intumescent paint to be tested (A or B), then the heat flux utilized (35 or 75 [W/m^2]), after comes the substratum / plate thickness (4 or 6 [mm]), followed by the dry thickness of the intumescent paint (0,5; 1,5 or 2,5 [mm]) and finally the test number (1,2 or 3).

Specimens were also weighted before and after intumescent insertion, see tables 1 and 2.

Table 1- Specimens for intumescent paint A

Specimens identification					Initial mass [g]	Final mass [g]	Coating mass [g]	$\overline{X}$ (mean) [μm]	σ (SD) [μm]	Higher [μm]	Smaller [μm]
A	**35**	**4**	**0.5**	**1**	363,77	373,56	9,79	575	47,3	647	468
A	**35**	**4**	**0.5**	**2**	363,82	373,35	9,53	574	56,4	672	464
A	**35**	**4**	**0.5**	**3**	364,54	373,19	8,65	528	60,4	624	427
A	**35**	**4**	**1.5**	**1**	361,10	387,74	26,64	1670	107	1860	1500
A	**35**	**4**	**1.5**	**2**	362,17	388,06	25,89	1610	72,2	1750	1500
A	**35**	**4**	**1.5**	**3**	361,38	385,42	24,04	1450	84,9	1580	1280
A	**35**	**4**	**2.5**	**1**	362,81	403,37	40,56	2530	149	2710	2200
A	**35**	**4**	**2.5**	**2**	365,81	407,89	42,08	2590	122	2790	2310
A	**35**	**4**	**2.5**	**3**	363,49	415,12	51,63	2590	121	2730	2349
A	**75**	**4**	**0.5**	**1**	363,46	372,34	8,88	549	60,3	639	425
A	**75**	**4**	**0.5**	**2**	363,58	373,20	9,62	581	61,1	691	473
A	**75**	**4**	**0.5**	**3**	368,44	377,85	9,41	582	48,6	657	466
A	**75**	**4**	**1.5**	**1**	369,59	394,82	25,23	1510	83,7	1660	1390
A	**75**	**4**	**1.5**	**2**	371,11	396,24	25,13	1530	87,7	1720	1380
A	**75**	**4**	**1.5**	**3**	364,87	391,13	26,26	1620	98,7	1820	1450
A	**75**	**4**	**2.5**	**1**	366,97	407.71	40,74	2590	122	2760	2330
A	**75**	**4**	**2.5**	**2**	365,11	404,90	39,79	2590	134	2800	2350
A	**75**	**4**	**2.5**	**3**	370,60	410.77	40,17	2530	167	2810	2260
A	**35**	**6**	**0.5**	**1**	527,37	535,05	7,68	476	33,1	518	403
A	**35**	**6**	**2.5**	**1**	526,65	565,71	39,06	2420	150	2610	2130
A	**75**	**6**	**0.5**	**1**	522,90	530,58	7,68	494	33,9	561	434
A	**75**	**6**	**2.5**	**1**	525,71	564,89	39,18	2490	112	2670	2290

Table 2- Specimens for intumescent paint B

Specimens identification					Initial mass [g]	Final mass [g]	Coating mass [g]	$\overline{X}$ (mean) [µm]	σ (SD) [µm]	Higher [µm]	Smaller [µm]
B	**35**	**4**	**0.5**	**1**	366,73	375,36	8,63	571	41,6	665	506
B	**35**	**4**	**0.5**	**2**	365,38	374,88	9,5	626	38,6	698	563
B	**35**	**4**	**0.5**	**3**	364,95	373,95	9	603	49,5	710	481
B	**35**	**4**	**1.5**	**1**	365,63	390,10	24,47	1510	70,2	1610	1400
B	**35**	**4**	**1.5**	**2**	365,82	391,42	25,6	1570	64,1	1670	1470
B	**35**	**4**	**1.5**	**3**	364,80	390,67	25,87	1580	66,5	1710	1470
B	**35**	**4**	**2.5**	**1**	365,49	409,85	44,36	2640	90,9	2750	2460
B	**35**	**4**	**2.5**	**2**	366,29	409,12	42,83	2560	89,0	2660	2400
B	**35**	**4**	**2.5**	**3**	366,40	407,77	41,37	2510	85,7	2660	2350
B	**75**	**4**	**0.5**	**1**	362,92	371,94	9,02	581	35,9	653	518
B	**75**	**4**	**0.5**	**2**	366,00	375,97	9,97	662	53,9	817	599
B	**75**	**4**	**0.5**	**3**	367,53	377,53	10	631	31,2	707	583
B	**75**	**4**	**1.5**	**1**	366,27	390,71	24,44	1530	79,5	1720	1440
B	**75**	**4**	**1.5**	**2**	364,69	389,63	24,94	1550	67,8	1690	1450
B	**75**	**4**	**1.5**	**3**	359,09	384,05	24,96	1560	74,9	1740	1450
B	**75**	**4**	**2.5**	**1**	359,79	399,66	39,87	2520	211	2840	2170
B	**75**	**4**	**2.5**	**2**	364,28	405,30	41,02	2520	91,4	2690	2350
B	**75**	**4**	**2.5**	**3**	364,80	404,97	40,17	2490	126	2760	2340
B	**35**	**6**	**0.5**	**1**	528,60	537,10	8,5	533	56,7	663	431
B	**35**	**6**	**2.5**	**1**	528,91	571,74	42,83	2570	105	2720	2360
B	**75**	**6**	**0.5**	**1**	525,47	534,86	9,39	607	65,9	799	528
B	**75**	**6**	**2.5**	**1**	529,04	570,00	40,96	2610	75,8	2760	2500