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## CERTIFICATE OF APPROVAL

### No CF 768

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This is to certify that, in accordance with  
TS00 General Requirements for Certification of Fire Protection Products  
The undermentioned product of

## U.S. MINERAL PRODUCTS CO. DBA ISOLATEK INTERNATIONAL

41 Furnace Street, Stanhope, New Jersey 07874  
United States

Tel: 001 973 347 1200 Fax: 001 973 347 9170

Has been assessed against the requirements of the Technical Schedule(s)  
denoted below and is approved for use subject to the conditions  
appended hereto:

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#### CERTIFIED PRODUCT

ISOLATEK™ Type WB 3 and  
ISOLATEK™ Type WB 4

#### TECHNICAL SCHEDULE

TS15 Intumescent  
Coatings for Steelwork

Signed and sealed for and on behalf of CERTIFIRE

Sir Ken Knight  
Chairman - Management Council  
Page 1 of 30

Issued: 3<sup>rd</sup> September 2010  
Revised: 21<sup>st</sup> May 2014  
Valid to: 2<sup>nd</sup> September 2015



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**CERTIFICATE No CF 768**  
**U.S. MINERAL PRODUCTS CO. DBA**  
**ISOLATEK INTERNATIONAL**

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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4**

1. This approval relates to the use of ISOLATEK™ Type WB 3 and Type WB 4 for the fire protection of I-shaped and hollow steel sections including those made from galvanised mild steel. The precise scope is given in Tables 1 to 16 which show the total dry film thickness of ISOLATEK™ Type WB 3 and Type WB 4 (excluding primer and top sealer) required to provide fire resistance periods in accordance with BS476: Part 21: 1987 of 30 minutes up to 120 minutes for differing sections and section factors.
2. This certification is designed to demonstrate compliance of the product or system specifically with Approved Document B (England and Wales), Section D of the Technical Standards (Scotland) and Technical Booklet E (N. Ireland). If compliance is required to other regulatory or guidance documents there may be additional considerations or conflict to be taken into account.<sup>1</sup>
3. The products are approved on the basis of:
  - i) Initial type testing.
  - ii) A design appraisal against TS15.
  - iii) Production surveillance under ISO 9001: 2008.
  - iv) Audit testing
4. The data referring to three-sided fire exposure of beams relates to beams supporting concrete floor slabs. Separate consideration is required where this is not the case.
5. The data shown is applicable to non-galvanised steel sections blast cleaned to ISO 8501-1 SA2<sup>1</sup>/<sub>2</sub> or equivalent and primed with a suitable and compatible primer. The data is also applicable to suitably treated galvanised steel sections. Specifications of surface preparations, primers and top sealers and for the treatment of galvanised steel substrates is available from U.S. Mineral Products Co. dba Isolatek International whose responsibility is to ensure that ISOLATEK™ Type WB 3 and Type WB 4 are compatible for use in respect of both ambient and fire conditions. The total dry film thickness of primer should not exceed that tested. Note: Isolatek requires a topcoat over ISOLATEK™ Type WB 4.
6. The data shown in Tables 4, 5, 9 and 13 is applicable to ISOLATEK™ Type WB 3 and Type WB 4 applied by spray to horizontal, vertical, flexural and compression members supporting loads up to the maximum design loads specified in BS449: Part 2.
7. The approval relates to on going production. Product and/or its immediate packaging is identified with the manufacturers' name, the product name or number, the CERTIFIRE name or name and mark, together with the CERTIFIRE certificate number and application where appropriate.
8. The data shown in the tables are based on an assessment which complies with the criteria for acceptability incorporated within the CERTIFIRE scheme.

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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 1**

<b>I-Section Beams: 500°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
40	0.23	0.57	1.20	1.50
45	0.23	0.57	1.20	1.50
50	0.23	0.57	1.20	1.50
55	0.23	0.57	1.20	1.69
60	0.23	0.57	1.20	1.88
65	0.23	0.57	1.20	2.04
70	0.23	0.57	1.20	2.15
75	0.23	0.57	1.20	2.26
80	0.23	0.57	1.25	2.37
85	0.23	0.57	1.29	2.48
90	0.23	0.57	1.34	2.59
95	0.23	0.57	1.38	2.70
100	0.23	0.57	1.43	2.80
105	0.23	0.61	1.47	2.91
110	0.23	0.66	1.52	3.02
115	0.23	0.70	1.73	3.16
120	0.23	0.74	1.90	3.29
125	0.24	0.78	2.03	3.42
130	0.24	0.83	2.09	3.55
135	0.24	0.87	2.16	3.68
140	0.24	0.89	2.22	3.82
145	0.24	0.92	2.29	3.95
150	0.25	0.94	2.35	4.08
155	0.25	0.96	2.42	4.30
160	0.25	0.98	2.48	4.49
165	0.25	1.00	2.55	4.68
170	0.25	1.02	2.61	4.87
175	0.26	1.04	2.68	5.06
180	0.27	1.06	2.74	5.25
185	0.28	1.08	2.81	5.43
190	0.29	1.11	2.87	5.62
195	0.30	1.13	2.94	5.81
200	0.31	1.15	3.00	6.00

Beams with concrete slabs. Thickness is intumescent only.




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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4**  
**Table 1 continued**

<b>I-Section Beams: 500°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
205	0.32	1.17	3.10	6.19
210	0.34	1.19	3.20	6.38
215	0.35	1.21	3.30	6.57
220	0.36	1.26	3.40	-
225	0.37	1.30	3.50	-
230	0.38	1.34	3.60	-
235	0.39	1.38	3.70	-
240	0.40	1.42	3.80	-
245	0.41	1.46	3.90	-
250	0.42	1.50	4.00	-
255	0.43	1.55	4.28	-
260	0.44	1.59	4.56	-
265	0.45	1.64	4.83	-
270	0.46	1.68	5.11	-
275	0.47	1.73	5.39	-
280	0.48	1.77	5.67	-
285	0.50	1.82	5.94	-
290	0.51	1.86	6.22	-
295	0.52	1.91	6.50	-
300	0.53	1.95	-	-
305	0.54	2.00	-	-
310	0.55	2.05	-	-
315	0.56	2.09	-	-
320	0.57	2.14	-	-

Beams with concrete slabs. Thickness is intumescent only.




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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 2**

<b>I-Section Columns: 500°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
40	0.23	0.60	1.00	2.00
45	0.23	0.60	1.00	2.00
50	0.23	0.60	1.00	2.00
55	0.23	0.60	1.02	2.00
60	0.23	0.60	1.12	2.05
65	0.23	0.60	1.21	2.13
70	0.23	0.60	1.31	2.21
75	0.23	0.60	1.40	2.30
80	0.23	0.60	1.50	2.38
85	0.23	0.60	1.57	2.46
90	0.23	0.65	1.63	2.54
95	0.23	0.71	1.70	2.62
100	0.23	0.76	1.76	2.70
105	0.23	0.82	1.83	2.79
110	0.23	0.87	1.89	2.87
115	0.24	0.89	1.96	2.95
120	0.24	0.90	2.03	3.03
125	0.24	0.92	2.08	3.28
130	0.24	0.94	2.13	3.48
135	0.24	0.95	2.19	3.68
140	0.25	0.97	2.24	3.88
145	0.25	0.98	2.30	4.08
150	0.25	1.00	2.36	4.22
155	0.25	1.02	2.41	4.37
160	0.25	1.05	2.47	4.52
165	0.26	1.07	2.52	4.68
170	0.26	1.10	2.58	4.83
175	0.27	1.12	2.63	4.98
180	0.27	1.14	2.69	5.14
185	0.28	1.17	2.74	5.29
190	0.29	1.19	2.80	5.45
195	0.29	1.21	2.86	5.60
200	0.30	1.24	2.91	5.75
205	0.30	1.26	2.97	5.91
210	0.31	1.29	3.02	6.06

Thickness is intumescent only. Table also applies to four sided beams.




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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 2 continued**

<b>I-Section Columns: 500°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
215	0.32	1.31	3.13	6.22
220	0.32	1.33	3.22	6.37
225	0.33	1.36	3.31	6.52
230	0.33	1.38	3.40	-
235	0.34	1.40	3.49	-
240	0.34	1.43	3.58	-
245	0.35	1.45	3.67	-
250	0.36	1.48	3.76	-
255	0.36	1.50	3.85	-
260	0.37	1.52	3.95	-
265	0.37	1.54	4.04	-
270	0.38	1.57	4.61	-
275	0.39	1.59	5.04	-
280	0.39	1.61	5.48	-
285	0.40	1.63	5.91	-
290	0.40	1.65	6.35	-
295	0.41	1.67	-	-
300	0.42	1.70	-	-
305	0.42	1.72	-	-
310	0.43	1.74	-	-
315	0.43	1.76	-	-
320	0.44	1.78	-	-

Thickness is intumescent only. Table also applies to four sided beams.



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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 3**

<b>I-Section Beams: 550°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
40	0.23	0.57	1.20	1.20
45	0.23	0.57	1.20	1.20
50	0.23	0.57	1.20	1.20
55	0.23	0.57	1.20	1.22
60	0.23	0.57	1.20	1.33
65	0.23	0.57	1.20	1.44
70	0.23	0.57	1.20	1.53
75	0.23	0.57	1.20	1.82
80	0.23	0.57	1.20	2.05
85	0.23	0.57	1.20	2.09
90	0.23	0.57	1.20	2.17
95	0.23	0.57	1.20	2.25
100	0.23	0.57	1.20	2.33
105	0.23	0.57	1.21	2.41
110	0.23	0.57	1.27	2.48
115	0.23	0.57	1.33	2.56
120	0.23	0.57	1.38	2.64
125	0.23	0.57	1.44	2.72
130	0.23	0.63	1.50	2.80
135	0.23	0.68	1.63	2.88
140	0.23	0.74	1.76	2.95
145	0.23	0.79	1.89	3.03
150	0.23	0.85	2.03	3.24
155	0.23	0.88	2.06	3.41
160	0.23	0.90	2.12	3.59
165	0.23	0.91	2.17	3.76
170	0.23	0.93	2.22	3.93
175	0.24	0.95	2.27	4.13
180	0.24	0.96	2.33	4.36
185	0.24	0.98	2.38	4.58
190	0.24	1.00	2.43	4.80
195	0.24	1.01	2.48	5.02
200	0.25	1.03	2.54	5.24

Beams with concrete slabs. Thickness is intumescent only.



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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 3 continued**

<b>I-Section Beams: 550°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
205	0.25	1.05	2.59	5.47
210	0.25	1.07	2.64	5.69
215	0.25	1.08	2.69	5.91
220	0.26	1.10	2.75	6.13
225	0.27	1.12	2.80	6.36
230	0.27	1.13	2.85	6.58
235	0.28	1.15	2.91	-
240	0.29	1.17	2.96	-
245	0.30	1.18	3.01	-
250	0.30	1.20	3.18	-
255	0.31	1.22	3.32	-
260	0.32	1.25	3.47	-
265	0.32	1.27	3.62	-
270	0.33	1.30	3.76	-
275	0.34	1.32	3.91	-
280	0.35	1.34	4.06	-
285	0.35	1.37	4.18	-
290	0.36	1.39	4.30	-
295	0.37	1.41	4.43	-
300	0.38	1.44	4.56	-
305	0.38	1.46	4.68	-
310	0.39	1.49	4.81	-
315	0.40	1.51	4.94	-
320	0.40	1.54	5.06	-

Beams with concrete slabs. Thickness is intumescent only.






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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 4**

<b>I-Section Columns: 550°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
40	0.23	0.60	1.00	1.50
45	0.23	0.60	1.00	1.50
50	0.23	0.60	1.00	1.50
55	0.23	0.60	1.00	1.50
60	0.23	0.60	1.00	1.50
65	0.23	0.60	1.00	1.50
70	0.23	0.60	1.00	1.75
75	0.23	0.60	1.00	2.00
80	0.23	0.60	1.00	2.07
85	0.23	0.60	1.00	2.14
90	0.23	0.60	1.01	2.21
95	0.23	0.60	1.10	2.29
100	0.23	0.60	1.19	2.36
105	0.23	0.60	1.28	2.43
110	0.23	0.60	1.36	2.50
115	0.23	0.60	1.45	2.57
120	0.23	0.60	1.53	2.64
125	0.23	0.66	1.61	2.71
130	0.23	0.71	1.69	2.79
135	0.23	0.75	1.77	2.86
140	0.23	0.80	1.85	2.93
145	0.23	0.85	1.94	3.00
150	0.23	0.87	2.02	3.19
155	0.23	0.88	2.05	3.37
160	0.24	0.89	2.10	3.56
165	0.24	0.90	2.14	3.74
170	0.24	0.90	2.18	3.93
175	0.24	0.91	2.23	4.13
180	0.24	0.92	2.27	4.36
185	0.25	0.92	2.32	4.58
190	0.25	0.93	2.36	4.80
195	0.25	0.94	2.40	5.02
200	0.25	0.95	2.45	5.24

Thickness is intumescent only. Table also applies to four sided beams.




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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 4 continued**

<b>I-Section Columns: 550°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
205	0.25	0.95	2.49	5.47
210	0.26	0.96	2.54	5.69
215	0.26	0.97	2.58	5.91
220	0.27	0.97	2.62	6.13
225	0.27	0.98	2.67	6.36
230	0.28	0.99	2.71	6.58
235	0.28	1.00	2.75	-
240	0.29	1.00	2.80	-
245	0.29	1.04	2.84	-
250	0.30	1.06	2.89	-
255	0.30	1.09	2.93	-
260	0.31	1.12	2.97	-
265	0.31	1.14	3.02	-
270	0.32	1.17	3.14	-
275	0.32	1.19	3.24	-
280	0.33	1.22	3.34	-
285	0.33	1.25	3.44	-
290	0.34	1.27	3.54	-
295	0.34	1.30	3.64	-
300	0.35	1.33	3.74	-
305	0.35	1.35	3.84	-
310	0.36	1.38	3.94	-
315	0.36	1.41	4.04	-
320	0.37	1.43	4.32	-

Thickness is intumescent only. Table also applies to four sided beams.




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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 5**

<b>I-Section Beams: 620°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
40	0.23	0.25	1.20	1.20
45	0.23	0.25	1.20	1.20
50	0.23	0.25	1.20	1.20
55	0.23	0.25	1.20	1.20
60	0.23	0.25	1.20	1.20
65	0.23	0.25	1.20	1.20
70	0.23	0.25	1.20	1.20
75	0.23	0.25	1.20	1.20
80	0.23	0.27	1.20	1.23
85	0.23	0.28	1.20	1.32
90	0.23	0.30	1.20	1.40
95	0.23	0.32	1.20	1.48
100	0.23	0.34	1.20	1.70
105	0.23	0.36	1.20	1.95
110	0.23	0.38	1.20	2.05
115	0.23	0.40	1.20	2.11
120	0.23	0.42	1.20	2.17
125	0.23	0.44	1.20	2.23
130	0.23	0.46	1.20	2.29
135	0.23	0.48	1.20	2.35
140	0.23	0.50	1.20	2.41
145	0.23	0.52	1.20	2.47
150	0.23	0.54	1.26	2.53
155	0.23	0.56	1.31	2.59
160	0.23	0.57	1.37	2.65
165	0.23	0.57	1.42	2.71
170	0.23	0.57	1.48	2.77
175	0.23	0.61	1.58	2.83
180	0.23	0.64	1.70	2.89
185	0.23	0.67	1.83	2.95
190	0.23	0.70	1.95	3.01
195	0.23	0.73	2.02	3.40
200	0.23	0.76	2.07	3.73

Beams with concrete slabs. Thickness is intumescent only.



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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 5 continued**

Section factor up to m <sup>-1</sup>	I-Section Beams: 620°C			
	Coating thickness - mm			
	30 minutes	60 minutes	90 minutes	120 minutes
205	0.23	0.80	2.11	4.07
210	0.23	0.83	2.15	4.26
215	0.24	0.86	2.19	4.48
220	0.24	0.88	2.23	4.70
225	0.24	0.89	2.27	4.91
230	0.24	0.91	2.31	5.13
235	0.24	0.93	2.36	5.35
240	0.25	0.94	2.40	5.57
245	0.25	0.96	2.44	5.78
250	0.25	0.97	2.48	6.00
255	0.25	0.99	2.52	6.22
260	0.25	1.00	2.56	6.43
265	0.26	1.02	2.60	-
270	0.26	1.04	2.64	-
275	0.27	1.05	2.69	-
280	0.28	1.07	2.73	-
285	0.28	1.08	2.77	-
290	0.29	1.10	2.81	-
295	0.29	1.11	2.85	-
300	0.30	1.13	2.89	-
305	0.30	1.14	2.93	-
310	0.31	1.16	2.98	-
315	0.31	1.18	3.02	-
320	0.32	1.19	3.22	-

Beams with concrete slabs. Thickness is intumescent only.

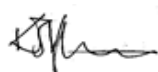


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U.S. MINERAL PRODUCTS CO. DBA  
ISOLATEK INTERNATIONAL**

**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 6 continued**

<b>I-Section Columns: 620°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
40	0.25	0.25	1.00	1.00
45	0.23	0.25	1.00	1.00
50	0.23	0.25	1.00	1.00
55	0.23	0.25	1.00	1.03
60	0.23	0.25	1.00	1.10
65	0.23	0.25	1.00	1.17
70	0.23	0.25	1.00	1.24
75	0.23	0.25	1.00	1.31
80	0.23	0.25	1.00	1.39
85	0.23	0.25	1.00	1.46
90	0.23	0.25	1.00	1.53
95	0.23	0.25	1.00	1.75
100	0.23	0.28	1.01	1.93
105	0.23	0.30	1.04	2.03
110	0.23	0.32	1.07	2.09
115	0.23	0.34	1.10	2.15
120	0.23	0.37	1.14	2.21
125	0.23	0.39	1.17	2.26
130	0.23	0.41	1.20	2.32
135	0.23	0.43	1.23	2.38
140	0.23	0.46	1.26	2.44
145	0.23	0.48	1.29	2.49
150	0.23	0.50	1.32	2.55
155	0.23	0.52	1.35	2.61
160	0.23	0.55	1.38	2.67
165	0.23	0.57	1.41	2.72
170	0.23	0.59	1.44	2.78
175	0.23	0.61	1.48	2.84
180	0.23	0.64	1.51	2.90
185	0.23	0.66	1.60	2.95
190	0.23	0.68	1.69	3.01
195	0.23	0.70	1.78	3.40
200	0.23	0.72	1.86	3.73

Thickness is intumescent only. Table also applies to four sided beams.



**CERTIFICATE No CF 768**  
**U.S. MINERAL PRODUCTS CO. DBA**  
**ISOLATEK INTERNATIONAL**

**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4**  
**Table 6 continued**

<b>I-Section Columns: 620°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
205	0.24	0.75	1.95	4.07
210	0.24	0.77	2.03	4.26
215	0.24	0.79	2.07	4.48
220	0.24	0.81	2.13	4.70
225	0.24	0.83	2.18	4.91
230	0.25	0.86	2.23	5.13
235	0.25	0.88	2.28	5.35
240	0.25	0.88	2.34	5.57
245	0.25	0.89	2.39	5.78
250	0.25	0.89	2.44	6.00
255	0.26	0.90	2.49	6.22
260	0.26	0.91	2.55	6.43
265	0.27	0.92	2.60	-
270	0.27	0.92	2.65	-
275	0.27	0.93	2.71	-
280	0.28	0.94	2.76	-
285	0.28	0.95	2.81	-
290	0.28	0.95	2.86	-
295	0.29	0.96	2.92	-
300	0.29	0.97	2.97	-
305	0.30	0.97	3.02	-
310	0.30	0.98	3.17	-
315	0.30	0.99	3.29	-
320	0.31	1.00	3.40	-

Thickness is intumescent only. Table also applies to four sided beams.



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U.S. MINERAL PRODUCTS CO. DBA  
ISOLATEK INTERNATIONAL**

**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 7**

<b>I-Section Beams: 700°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
40	0.23	0.25	0.57	0.87
45	0.23	0.25	0.57	0.87
50	0.23	0.25	0.57	0.87
55	0.23	0.25	0.57	0.87
60	0.23	0.25	0.57	0.87
65	0.23	0.25	0.57	0.87
70	0.23	0.25	0.57	0.93
75	0.23	0.25	0.57	0.98
80	0.23	0.25	0.57	1.04
85	0.23	0.25	0.57	1.09
90	0.23	0.25	0.57	1.15
95	0.23	0.25	0.63	1.20
100	0.23	0.25	0.69	1.28
105	0.23	0.25	0.75	1.36
110	0.23	0.25	0.81	1.44
115	0.23	0.25	0.87	1.52
120	0.23	0.25	0.89	1.59
125	0.23	0.25	0.91	1.67
130	0.23	0.25	0.93	1.74
135	0.23	0.26	0.96	1.82
140	0.23	0.28	0.98	1.89
145	0.23	0.29	1.00	1.97
150	0.23	0.31	1.02	2.03
155	0.23	0.32	1.05	2.09
160	0.23	0.33	1.07	2.14
165	0.23	0.35	1.09	2.20
170	0.23	0.36	1.11	2.25
175	0.23	0.38	1.14	2.31
180	0.23	0.39	1.16	2.36
185	0.23	0.40	1.18	2.42
190	0.23	0.42	1.20	2.47
195	0.23	0.43	1.24	2.53
200	0.23	0.44	1.27	2.58

Beams with concrete slabs. Thickness is intumescent only.



**CERTIFICATE No CF 768  
U.S. MINERAL PRODUCTS CO. DBA  
ISOLATEK INTERNATIONAL**

**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 7 continued**

<b>I-Section Beams: 700°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
205	0.23	0.46	1.30	2.64
210	0.23	0.47	1.33	2.69
215	0.23	0.49	1.36	2.75
220	0.23	0.50	1.39	2.80
225	0.23	0.51	1.42	2.86
230	0.23	0.53	1.45	2.91
235	0.24	0.54	1.48	2.97
240	0.24	0.56	1.51	3.02
245	0.24	0.57	1.53	3.22
250	0.24	0.60	1.56	3.38
255	0.24	0.62	1.58	3.53
260	0.24	0.65	1.60	3.69
265	0.24	0.68	1.63	3.84
270	0.24	0.71	1.65	4.00
275	0.25	0.73	1.67	4.42
280	0.25	0.76	1.70	4.83
285	0.25	0.79	1.72	5.25
290	0.25	0.82	1.74	5.67
295	0.25	0.84	1.77	6.08
300	0.25	0.87	1.79	6.50
305	0.25	0.88	1.81	-
310	0.25	0.89	1.84	-
315	0.25	0.90	1.86	-
320	0.25	0.91	1.88	-

Beams with concrete slabs. Thickness is intumescent only.



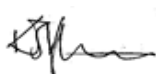


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ISOLATEK INTERNATIONAL**

**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 8**

<b>I-Section Columns: 700°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
40	0.23	0.25	0.60	1.00
45	0.23	0.25	0.60	1.00
50	0.23	0.25	0.60	1.00
55	0.23	0.25	0.60	1.00
60	0.23	0.25	0.60	1.00
65	0.23	0.25	0.60	1.00
70	0.23	0.25	0.60	1.00
75	0.23	0.25	0.60	1.00
80	0.23	0.25	0.60	1.00
85	0.23	0.25	0.60	1.02
90	0.23	0.25	0.60	1.09
95	0.23	0.25	0.60	1.17
100	0.23	0.25	0.60	1.25
105	0.23	0.25	0.67	1.33
110	0.23	0.25	0.74	1.41
115	0.23	0.25	0.80	1.48
120	0.23	0.25	0.87	1.55
125	0.23	0.26	0.88	1.61
130	0.23	0.28	0.89	1.68
135	0.23	0.29	0.90	1.74
140	0.23	0.30	0.91	1.80
145	0.23	0.32	0.92	1.86
150	0.23	0.33	0.93	1.93
155	0.23	0.34	0.94	1.99
160	0.23	0.36	0.95	2.05
165	0.23	0.37	0.96	2.11
170	0.23	0.38	0.97	2.17
175	0.23	0.40	0.98	2.23
180	0.23	0.41	0.99	2.29
185	0.23	0.43	1.00	2.35
190	0.23	0.44	1.04	2.41
195	0.23	0.45	1.07	2.48
200	0.23	0.47	1.11	2.54

Thickness is intumescent only. Table also applies to four sided beams.

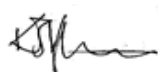


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**U.S. MINERAL PRODUCTS CO. DBA**  
**ISOLATEK INTERNATIONAL**

**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4**  
**Table 8 continued**

<b>I-Section Columns: 700°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
205	0.23	0.48	1.14	2.60
210	0.23	0.49	1.18	2.66
215	0.23	0.51	1.21	2.72
220	0.23	0.52	1.25	2.78
225	0.23	0.53	1.29	2.84
230	0.23	0.55	1.32	2.90
235	0.24	0.56	1.36	2.96
240	0.24	0.57	1.39	3.02
245	0.24	0.59	1.43	3.22
250	0.24	0.60	1.46	3.38
255	0.24	0.62	1.50	3.53
260	0.24	0.65	1.54	3.69
265	0.24	0.67	1.58	3.84
270	0.24	0.69	1.62	4.00
275	0.25	0.71	1.65	4.42
280	0.25	0.74	1.69	4.83
285	0.25	0.76	1.73	5.25
290	0.25	0.78	1.77	5.67
295	0.25	0.80	1.81	6.08
300	0.25	0.83	1.85	6.50
305	0.25	0.85	1.88	-
310	0.25	0.87	1.92	-
315	0.25	0.88	1.96	-
320	0.26	0.88	2.00	-

Thickness is intumescent only. Table also applies to four sided beams.



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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 9**

<b>Rectangular Hollow Section Columns: 532°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
40	0.23	0.40	1.80	3.50
45	0.23	0.40	1.80	3.50
50	0.23	0.41	1.80	3.50
55	0.23	0.44	1.80	3.50
60	0.23	0.46	1.80	3.50
65	0.23	0.48	1.90	3.50
70	0.23	0.50	2.00	3.50
75	0.24	0.52	2.10	3.50
80	0.24	0.55	2.20	3.50
85	0.25	0.57	2.30	3.50
90	0.25	0.59	2.40	3.50
95	0.26	0.64	2.50	3.50
100	0.27	0.71	2.56	3.64
105	0.28	0.79	2.61	3.97
110	0.30	0.86	2.67	4.31
115	0.31	0.93	2.72	4.65
120	0.32	1.00	2.78	4.99
125	0.33	1.03	2.83	5.32
130	0.35	1.06	2.89	5.66
135	0.36	1.10	2.94	6.00
140	0.37	1.13	3.00	6.34
145	0.38	1.16	3.06	-
150	0.40	1.19	3.11	-
155	0.40	1.23	3.17	-
160	0.41	1.26	3.22	-
165	0.41	1.29	3.28	-
170	0.42	1.32	3.33	-
175	0.42	1.35	3.39	-
180	0.43	1.39	3.44	-
185	0.43	1.42	3.50	-
190	0.44	1.45	3.65	-
195	0.44	1.48	3.79	-
200	0.45	1.52	3.94	-

Thickness is intumescent only.




**CERTIFICATE No CF 768  
U.S. MINERAL PRODUCTS CO. DBA  
ISOLATEK INTERNATIONAL**

**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 9 continued**

<b>Rectangular Hollow Section Columns: 532°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
205	0.45	1.55	4.09	-
210	0.46	1.58	4.24	-
215	0.47	1.61	4.38	-
220	0.47	1.65	4.53	-
225	0.48	1.68	4.68	-
230	0.48	1.71	4.82	-
235	0.49	1.74	4.97	-
240	0.49	1.77	5.12	-
245	0.50	1.81	5.26	-
250	0.50	1.90	5.41	-
255	0.51	1.98	5.56	-
260	0.51	2.07	5.71	-
265	0.52	2.15	5.85	-
270	0.52	2.23	6.00	-
275	0.53	2.32	6.15	-
280	0.53	2.40	6.29	-
285	0.54	2.48	6.44	-
290	0.54	2.56	6.59	-
295	0.55	2.63	-	-
300	0.55	2.70	-	-
305	0.56	2.77	-	-
310	0.56	2.84	-	-
315	0.57	2.91	-	-
320	0.57	2.98	-	-

Thickness is intumescent only.




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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 10**

<b>Rectangular Hollow Section Columns: 550°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
40	0.23	0.40	1.80	3.50
45	0.23	0.40	1.80	3.50
50	0.23	0.40	1.80	3.50
55	0.23	0.42	1.80	3.50
60	0.23	0.44	1.80	3.50
65	0.23	0.47	1.80	3.50
70	0.23	0.49	1.80	3.50
75	0.24	0.51	1.93	3.50
80	0.24	0.53	2.07	3.50
85	0.25	0.56	2.20	3.50
90	0.25	0.58	2.34	3.50
95	0.25	0.60	2.47	3.50
100	0.26	0.66	2.54	3.50
105	0.27	0.72	2.59	3.67
110	0.28	0.78	2.65	3.94
115	0.28	0.84	2.70	4.22
120	0.29	0.90	2.75	4.50
125	0.30	0.96	2.80	4.78
130	0.31	1.02	2.85	5.06
135	0.32	1.03	2.91	5.33
140	0.33	1.06	2.96	5.61
145	0.34	1.08	3.01	5.89
150	0.35	1.11	3.06	6.17
155	0.36	1.13	3.11	6.44
160	0.37	1.15	3.17	-
165	0.38	1.18	3.22	-
170	0.39	1.20	3.27	-
175	0.40	1.23	3.32	-
180	0.40	1.25	3.38	-
185	0.41	1.27	3.43	-
190	0.41	1.30	3.48	-
195	0.42	1.32	3.57	-
200	0.42	1.35	3.70	-

Thickness is intumescent only.



**CERTIFICATE No CF 768  
U.S. MINERAL PRODUCTS CO. DBA  
ISOLATEK INTERNATIONAL**

**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 10 continued**

<b>Rectangular Hollow Section Columns: 550°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
205	0.43	1.37	3.82	-
210	0.43	1.40	3.94	-
215	0.44	1.42	4.06	-
220	0.44	1.44	4.19	-
225	0.45	1.47	4.31	-
230	0.45	1.49	4.43	-
235	0.46	1.52	4.55	-
240	0.46	1.54	4.68	-
245	0.47	1.56	4.80	-
250	0.47	1.59	4.92	-
255	0.48	1.61	5.04	-
260	0.48	1.64	5.17	-
265	0.49	1.66	5.29	-
270	0.49	1.68	5.41	-
275	0.50	1.71	5.53	-
280	0.50	1.73	5.66	-
285	0.50	1.76	5.78	-
290	0.51	1.78	5.90	-
295	0.51	1.80	6.02	-
300	0.52	1.86	6.15	-
305	0.52	1.90	6.27	-
310	0.53	1.95	6.39	-
315	0.53	1.99	6.51	-
320	0.54	2.04	-	-

Thickness is intumescent only.




**CERTIFICATE No CF 768  
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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 11**

<b>Rectangular Hollow Section Columns: 650°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
40	0.23	0.25	0.60	2.50
45	0.23	0.25	0.60	2.50
50	0.23	0.25	0.60	2.50
55	0.23	0.26	0.60	2.50
60	0.23	0.31	0.60	2.50
65	0.23	0.35	0.60	2.50
70	0.23	0.40	0.60	2.50
75	0.23	0.41	0.75	2.50
80	0.23	0.43	0.91	2.52
85	0.23	0.44	1.06	2.61
90	0.23	0.45	1.16	2.70
95	0.23	0.47	1.27	2.80
100	0.24	0.48	1.38	2.89
105	0.24	0.50	1.49	2.98
110	0.24	0.51	1.60	3.07
115	0.24	0.52	1.71	3.17
120	0.24	0.54	1.82	3.26
125	0.25	0.55	1.88	3.35
130	0.25	0.56	1.94	3.44
135	0.25	0.58	2.00	3.54
140	0.26	0.59	2.06	3.75
145	0.26	0.61	2.13	3.92
150	0.27	0.64	2.19	4.10
155	0.27	0.67	2.25	4.27
160	0.28	0.70	2.31	4.45
165	0.29	0.73	2.38	4.63
170	0.29	0.75	2.44	4.80
175	0.30	0.78	2.50	4.98
180	0.30	0.81	2.58	5.15
185	0.31	0.84	2.66	5.33
190	0.31	0.87	2.74	5.51
195	0.32	0.90	2.82	5.68
200	0.32	0.93	2.90	5.86

Thickness is intumescent only.



**CERTIFICATE No CF 768  
U.S. MINERAL PRODUCTS CO. DBA  
ISOLATEK INTERNATIONAL**

**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 11 continued**

<b>Rectangular Hollow Section Columns: 650°C</b>				
<b>Section Factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
205	0.33	0.95	2.98	6.04
210	0.33	0.98	3.06	6.21
215	0.34	1.01	3.13	6.39
220	0.35	1.03	3.21	6.56
225	0.35	1.05	3.29	-
230	0.36	1.07	3.37	-
235	0.36	1.09	3.45	-
240	0.37	1.12	3.53	-
245	0.37	1.14	3.63	-
250	0.38	1.16	3.73	-
255	0.38	1.18	3.82	-
260	0.39	1.20	3.92	-
265	0.39	1.22	4.01	-
270	0.40	1.24	4.11	-
275	0.40	1.27	4.20	-
280	0.40	1.29	4.30	-
285	0.41	1.31	4.39	-
290	0.41	1.33	4.48	-
295	0.41	1.35	4.58	-
300	0.41	1.37	4.67	-
305	0.41	1.39	4.77	-
310	0.42	1.41	4.86	-
315	0.42	1.44	4.96	-
320	0.42	1.46	5.05	-

Thickness is intumescent only.





**CERTIFICATE No CF 768  
U.S. MINERAL PRODUCTS CO. DBA  
ISOLATEK INTERNATIONAL**

**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 12**

<b>Rectangular Hollow Section Columns: 700°C</b>				
<b>Section factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
40	0.23	0.25	0.50	1.80
45	0.23	0.25	0.51	1.80
50	0.23	0.25	0.52	1.80
55	0.23	0.25	0.53	1.80
60	0.23	0.25	0.54	1.80
65	0.23	0.25	0.55	1.80
70	0.23	0.29	0.56	1.80
75	0.23	0.31	0.57	1.82
80	0.23	0.34	0.59	1.94
85	0.23	0.36	0.60	2.06
90	0.23	0.39	0.64	2.17
95	0.23	0.41	0.74	2.29
100	0.23	0.41	0.84	2.41
105	0.23	0.43	0.94	2.52
110	0.23	0.44	1.03	2.61
115	0.23	0.45	1.09	2.69
120	0.24	0.46	1.16	2.78
125	0.24	0.47	1.22	2.87
130	0.24	0.48	1.29	2.96
135	0.24	0.49	1.35	3.04
140	0.25	0.50	1.42	3.13
145	0.25	0.51	1.49	3.22
150	0.25	0.52	1.55	3.31
155	0.25	0.53	1.62	3.39
160	0.25	0.54	1.68	3.48
165	0.26	0.55	1.75	3.63
170	0.26	0.56	1.81	3.79
175	0.27	0.57	1.87	3.95
180	0.27	0.58	1.92	4.12
185	0.28	0.59	1.98	4.28
190	0.28	0.60	2.03	4.44
195	0.29	0.62	2.08	4.60
200	0.29	0.65	2.14	4.77

Thickness is intumescent only.




**CERTIFICATE No CF 768  
U.S. MINERAL PRODUCTS CO. DBA  
ISOLATEK INTERNATIONAL**

**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 12 continued**

<b>Rectangular Hollow Section Columns: 700°C</b>				
<b>Section Factor up to m<sup>-1</sup></b>	<b>Coating thickness - mm</b>			
	<b>30 minutes</b>	<b>60 minutes</b>	<b>90 minutes</b>	<b>120 minutes</b>
205	0.30	0.67	2.19	4.93
210	0.31	0.69	2.25	5.09
215	0.31	0.71	2.30	5.25
220	0.32	0.73	2.36	5.42
225	0.32	0.75	2.41	5.58
230	0.33	0.77	2.47	5.74
235	0.33	0.79	2.52	5.90
240	0.34	0.81	2.61	6.06
245	0.34	0.83	2.70	6.23
250	0.35	0.83	2.78	6.39
255	0.35	0.87	2.86	6.55
260	0.36	0.89	2.94	-
265	0.36	0.91	3.02	-
270	0.37	0.93	3.11	-
275	0.37	0.95	3.19	-
280	0.38	0.98	3.27	-
285	0.38	1.00	3.35	-
290	0.39	1.02	3.43	-
295	0.39	1.05	3.52	-
300	0.40	1.08	3.64	-
305	0.40	1.10	3.76	-
310	0.40	1.13	3.88	-
315	0.41	1.16	4.00	-
320	0.41	1.18	4.11	-

Thickness is intumescent only.



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U.S. MINERAL PRODUCTS CO. DBA  
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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 13**

Circular Hollow Section Columns at 538°C				
Section Factor up to m <sup>-1</sup>	Thickness (mm) required for a Fire Resistance Period of			
	30 minutes	60 minutes	90 minutes	120 minutes
40	0.26	0.46	2.07	4.03
45	0.26	0.46	2.07	4.03
50	0.26	0.47	2.07	4.03
55	0.26	0.51	2.07	4.03
60	0.26	0.53	2.07	4.03
65	0.26	0.55	2.19	4.03
70	0.26	0.58	2.30	4.03
75	0.28	0.60	2.42	4.03
80	0.28	0.63	2.53	4.03
85	0.29	0.66	2.65	4.03
90	0.29	0.68	2.76	4.03
95	0.30	0.74	2.88	4.03
100	0.31	0.82	2.94	4.19
105	0.32	0.91	3.00	4.57
110	0.35	0.99	3.07	4.96
115	0.36	1.07	3.13	5.35
120	0.37	1.15	3.20	5.74
125	0.38	1.18	3.25	6.12
130	0.40	1.22	3.32	6.51
135	0.41	1.27	3.38	-
140	0.43	1.30	3.45	-
145	0.44	1.33	3.52	-
150	0.46	1.37	3.58	-
155	0.46	1.41	3.65	-
160	0.47	1.45	3.70	-
165	0.47	1.48	3.77	-
170	0.48	1.52	3.83	-
175	0.48	1.55	3.90	-
180	0.49	1.60	3.96	-
185	0.49	1.63	4.03	-
190	0.51	1.67	4.20	-
195	0.51	1.70	4.36	-
200	0.52	1.75	4.53	-
205	0.45	1.55	4.09	-
210	0.46	1.58	4.24	-
215	0.47	1.61	4.38	-
220	0.47	1.65	4.53	-
225	0.48	1.68	4.68	-
230	0.48	1.71	4.82	-
235	0.49	1.74	4.97	-
240	0.49	1.77	5.12	-
245	0.50	1.81	5.26	-
250	0.50	1.90	5.41	-
255	0.51	1.98	5.56	-
260	0.51	2.07	5.71	-
265	0.52	2.15	5.85	-
270	0.52	2.23	6.00	-
275	0.53	2.32	6.15	-
280	0.53	2.40	6.29	-
285	0.54	2.48	6.44	-
290	0.54	2.56	6.59	-
295	0.55	2.63	-	-
300	0.55	2.70	-	-
305	0.56	2.77	-	-
310	0.56	2.84	-	-
315	0.57	2.91	-	-
320	0.57	2.98	-	-

Thickness is intumescent only.

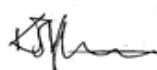


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U.S. MINERAL PRODUCTS CO. DBA  
ISOLATEK INTERNATIONAL**

**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4  
Table 14**

Circular Hollow Section Columns at 550°C				
Section Factor up to m <sup>-1</sup>	Thickness (mm) required for a Fire Resistance Period of			
	30 minutes	60 minutes	90 minutes	120 minutes
40	0.26	0.46	2.07	4.03
45	0.26	0.46	2.07	4.03
50	0.26	0.46	2.07	4.03
55	0.26	0.48	2.07	4.03
60	0.26	0.51	2.07	4.03
65	0.26	0.54	2.07	4.03
70	0.26	0.56	2.07	4.03
75	0.28	0.59	2.22	4.03
80	0.28	0.61	2.38	4.03
85	0.29	0.64	2.53	4.03
90	0.29	0.67	2.69	4.03
95	0.29	0.69	2.84	4.03
100	0.30	0.76	2.92	4.03
105	0.31	0.83	2.98	4.22
110	0.32	0.90	3.05	4.53
115	0.32	0.97	3.11	4.85
120	0.33	1.04	3.16	5.18
125	0.35	1.10	3.22	5.50
130	0.36	1.17	3.28	5.82
135	0.37	1.18	3.35	6.13
140	0.38	1.22	3.40	6.45
145	0.39	1.24	3.46	-
150	0.40	1.28	3.52	-
155	0.41	1.30	3.58	-
160	0.43	1.32	3.65	-
165	0.44	1.36	3.70	-
170	0.45	1.38	3.76	-
175	0.46	1.41	3.82	-
180	0.46	1.44	3.89	-
185	0.47	1.46	3.94	-
190	0.47	1.50	4.00	-
195	0.48	1.52	4.11	-
200	0.48	1.55	4.26	-
205	0.49	1.58	4.39	-
210	0.49	1.61	4.53	-
215	0.51	1.63	4.67	-
220	0.51	1.66	4.82	-
225	0.52	1.69	4.96	-
230	0.52	1.71	5.09	-
235	0.53	1.75	5.23	-
240	0.53	1.77	5.38	-
245	0.54	1.79	5.52	-
250	0.54	1.83	5.66	-
255	0.55	1.85	5.80	-
260	0.55	1.89	5.95	-
265	0.56	1.91	6.08	-
270	0.56	1.93	6.22	-
275	0.58	1.97	6.36	-
280	0.58	1.99	6.51	-
285	0.58	2.02	-	-
290	0.59	2.05	-	-
295	0.59	2.07	-	-
300	0.60	2.14	-	-
305	0.60	2.19	-	-
310	0.61	2.24	-	-
315	0.61	2.29	-	-
320	0.62	2.35	-	-

Thickness is intumescent only.




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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4**  
**Table 15**

Circular Hollow Section Columns at 650°C				
Section Factor up to m <sup>-1</sup>	Thickness (mm) required for a Fire Resistance Period of			
	30 minutes	60 minutes	90 minutes	120 minutes
40	0.26	0.29	0.69	2.88
45	0.26	0.29	0.69	2.88
50	0.26	0.29	0.69	2.88
55	0.26	0.30	0.69	2.88
60	0.26	0.36	0.69	2.88
65	0.26	0.40	0.69	2.88
70	0.26	0.46	0.69	2.88
75	0.26	0.47	0.86	2.88
80	0.26	0.49	1.05	2.90
85	0.26	0.51	1.22	3.00
90	0.26	0.52	1.33	3.11
95	0.26	0.54	1.46	3.22
100	0.28	0.55	1.59	3.32
105	0.28	0.58	1.71	3.43
110	0.28	0.59	1.84	3.53
115	0.28	0.60	1.97	3.65
120	0.28	0.62	2.09	3.75
125	0.29	0.63	2.16	3.85
130	0.29	0.64	2.23	3.96
135	0.29	0.67	2.30	4.07
140	0.30	0.68	2.37	4.31
145	0.30	0.70	2.45	4.51
150	0.31	0.74	2.52	4.72
155	0.31	0.77	2.59	4.91
160	0.32	0.81	2.66	5.12
165	0.33	0.84	2.74	5.32
170	0.33	0.86	2.81	5.52
175	0.35	0.90	2.88	5.73
180	0.35	0.93	2.97	5.92
185	0.36	0.97	3.06	6.13
190	0.36	1.00	3.15	6.34
195	0.37	1.04	3.24	6.53
200	0.37	1.07	3.34	-
205	0.38	1.09	3.43	-
210	0.38	1.13	3.52	-
215	0.39	1.16	3.60	-
220	0.40	1.18	3.69	-
225	0.40	1.21	3.78	-
230	0.41	1.23	3.88	-
235	0.41	1.25	3.97	-
240	0.43	1.29	4.06	-
245	0.43	1.31	4.17	-
250	0.44	1.33	4.29	-
255	0.44	1.36	4.39	-
260	0.45	1.38	4.51	-
265	0.45	1.40	4.61	-
270	0.46	1.43	4.73	-
275	0.46	1.46	4.83	-
280	0.46	1.48	4.95	-
285	0.47	1.51	5.05	-
290	0.47	1.53	5.15	-
295	0.47	1.55	5.27	-
300	0.47	1.58	5.37	-
305	0.47	1.60	5.49	-
310	0.48	1.62	5.59	-
315	0.48	1.66	5.70	-
320	0.48	1.68	5.81	-

Thickness is intumescent only.



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**ISOLATEK™ Type WB 3 and ISOLATEK™ Type WB 4**  
**Table 16**

Circular Hollow Section Columns at 700°C				
Section Factor up to m <sup>-1</sup>	Thickness (mm) required for a Fire Resistance Period of			
	30 minutes	60 minutes	90 minutes	120 minutes
40	0.26	0.29	0.58	2.07
45	0.26	0.29	0.59	2.07
50	0.26	0.29	0.60	2.07
55	0.26	0.29	0.61	2.07
60	0.26	0.29	0.62	2.07
65	0.26	0.29	0.63	2.07
70	0.26	0.33	0.64	2.07
75	0.26	0.36	0.66	2.09
80	0.26	0.39	0.68	2.23
85	0.26	0.41	0.69	2.37
90	0.26	0.45	0.74	2.50
95	0.26	0.47	0.85	2.63
100	0.26	0.47	0.97	2.77
105	0.26	0.49	1.08	2.90
110	0.26	0.51	1.18	3.00
115	0.26	0.52	1.25	3.09
120	0.28	0.53	1.33	3.20
125	0.28	0.54	1.40	3.30
130	0.28	0.55	1.48	3.40
135	0.28	0.56	1.55	3.50
140	0.29	0.58	1.63	3.60
145	0.29	0.59	1.71	3.70
150	0.29	0.60	1.78	3.81
155	0.29	0.61	1.86	3.90
160	0.29	0.62	1.93	4.00
165	0.30	0.63	2.01	4.17
170	0.30	0.64	2.08	4.36
175	0.31	0.66	2.15	4.54
180	0.31	0.67	2.21	4.74
185	0.32	0.68	2.28	4.92
190	0.32	0.69	2.33	5.11
195	0.33	0.71	2.39	5.29
200	0.33	0.75	2.46	5.49
205	0.35	0.77	2.52	5.67
210	0.36	0.79	2.59	5.85
215	0.36	0.82	2.65	6.04
220	0.37	0.84	2.71	6.23
225	0.37	0.86	2.77	6.42
230	0.38	0.89	2.84	6.60
235	0.38	0.91	2.90	-
240	0.39	0.93	3.00	-
245	0.39	0.95	3.11	-
250	0.40	0.95	3.20	-
255	0.40	1.00	3.29	-
260	0.41	1.02	3.38	-
265	0.41	1.05	3.47	-
270	0.43	1.07	3.58	-
275	0.43	1.09	3.67	-
280	0.44	1.13	3.76	-
285	0.44	1.15	3.85	-
290	0.45	1.17	3.94	-
295	0.45	1.21	4.05	-
300	0.46	1.24	4.19	-
305	0.46	1.27	4.32	-
310	0.46	1.30	4.46	-
315	0.47	1.33	4.60	-
320	0.47	1.36	4.73	-

Thickness is intumescent only.

