

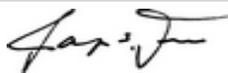


COMPLIANCE TESTED by berkeley analytical

VOC Emission Test Certificate

Product Name: Siderise® XFS Board

Product Sample Information	
Company:	Siderise Insulations Limited
Company Website:	www.siderise.com
Product Type:	Thermal Insulation – Stone Wool Fire-Stop (see attached letter)
Date Produced:	1/9/2019

Certificate Information	
Certificate No:	190226-01
Certified By:	 Raja S. Tannous, Laboratory Director
Date:	February 26, 2019

Reference Standard: California Department of Public Health CDPH/EHLB/Standard Method Version 1.2, 2017 (Emission testing method for CA Specification 01350)

Acceptance Criteria and Results Demonstrating Compliance of Product Sample to Referenced Standard:

Exposure Scenario ¹	Individual VOCs of Concern ²		Formaldehyde ³		TVOC ⁴
	Criterion	Compliant?	Criterion	Compliant?	
School Classroom	≤½ Chronic REL	YES	≤9.0 µg/m ³	YES	≤ 0.5 mg/m ³
Private Office	≤½ Chronic REL	YES	≤9.0 µg/m ³	YES	≤ 0.5 mg/m ³

Product Coverage⁵: Non-full spread application – see attached letter

1. Exposure scenarios & product quantities for classroom & office are defined in Tables 4-2 – 4-5 (CDPH Std. Mtd. V1.2-2017)
2. Maximum allowable concentrations of individual target VOCs are specified in Table 4-1 (*ibid.*)
3. Maximum allowable formaldehyde concentration is ≤9 µg/m³, effective Jan 1, 2012; previous limit was ≤16.5 µg/m³ (*ibid.*)
4. Informative only; predicted TVOC Range in three categories, i.e., ≤0.5 mg/m³, >0.5 – 4.9 mg/m³, and ≥5.0 mg/m³
5. Informative and applicable only to tests of wet-applied products; grams of sample applied per square meter of substrate; special applications

Standards & Codes Recognizing CDPH Standard Method V1.2 (partial list)

- USGBC LEED Version 4, BD&C, ID&C
- The WELL Building Standard
- ANSI/GBI 01, Green Building Assessment Protocol
- CALGreen, CA Code of Regulations Title 24, Part II

Narrative: Siderise Insulations Limited selected a sample representative of its XFS boards, CW, RV, CH-CB, EW and RH mineral fibre element - stone wool insulation products and submitted it on 1/14/2019 for testing. Berkeley Analytical measured and evaluated the emissions of VOCs from this sample following CDPH/EHLB/Standard Method V1.2-2017. The results of the test are presented in Berkeley Analytical report, 1143-001-01A-Feb2619.

Berkeley Analytical is an independent, third-party laboratory specializing in the analysis of organic chemicals emitted by and contained in building products, finishes, furniture, and consumer products. We are an ISO/IEC 17025 accredited laboratory (IAS, [TL-383](#)); all standards used in performing this test are in Berkeley Analytical's scope of accreditation.

DISCLAIMER: THIS CERTIFICATE OF COMPLIANCE AFFIRMS THAT: 1) A SAMPLE OF THE LISTED PRODUCT WAS TESTED ACCORDING TO THE REFERENCED STANDARD; 2) THE MEASURED VOC EMISSIONS FROM THE SAMPLE WERE EVALUATED FOR THE DEFINED EXPOSURE SCENARIO(S); AND 3) THE RESULTS MEET THE ACCEPTANCE CRITERIA OF THE REFERENCED STANDARD(S). BERKELEY ANALYTICAL IS NOT RESPONSIBLE FOR ANY CLAIMS REGARDING A PRODUCT OR PRODUCTS ENTERED INTO COMMERCE THAT MAY BE BASED ON THIS TEST. BERKELEY ANALYTICAL PROVIDES THIS CERTIFICATE OF COMPLIANCE "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE.

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Siderise Insulation Limited
Forge Factory Estate, Maesteg
Bridgend, UK. CF34 0AZ

T: +44 (0)1656 730833
F: +44 (0)1656 812509
E: sales@siderise.com
www.siderise.com

RE: VOC Emission Testing; CDPH Standard Method V1.2; non-full spread application calculations

Below are the rationale and the calculations for quantity of Siderise 'XFS' board used to produce Siderise 'CW', 'RV' 'CH-CB', 'EW' and the mineral fibre element of the 'RH' product range that would be used in the standard school classroom and the standard private office defined in CDPH Standard Method V1.2."

CLASSROOM

Assumptions

- The classroom is situated in the corner of a tall building and require the fitment of fire stops on the two external faces and has another classroom above and classrooms either side
- The gap that requires fire stopping is 100mm
- Both the windows in the classroom are protected with fire stopping around all the edges

Horizontal Product

Siderise horizontal product is used at floor slab level so the room will be exposed to the area from the top side of the product at floor level and from the underside of the product installed in the floor slab above

$(12.2\text{m} + 7.32\text{m}) \times 0.1\text{m} = 1.95 \text{ m}^2$ exposed area
Total exposed area from horizontal product is $2 \times 1.95\text{m} = 3.90\text{m}^2$

Vertical Product

Walls

Siderise product used as vertical firestopping at the corner of the classroom and at both ends where the classroom joins the other classrooms

Vertical at corner = 2 exposed edges

Verticals at one end of classroom = 1 exposed edge (as the other would be in the classroom next door)

Verticals at other end of classroom = 1 exposed edge (as the other would be in the classroom next door)

Total exposed area from vertical wall product $2.59 \times 0.1\text{m} = 0.259\text{m}^2 \times 4 = 1.04\text{m}^2$

Window

'4ft x 4ft' (1.219m x 1.219m) window

2 lengths at sides of window = $2 \times (1.219 + 0.075 + 0.075) = 2.738\text{m}$

2 lengths at top & bottom of window = $2 \times 1.219 = 2.438\text{m}$

Total length = 5.176m

Product width 0.1m with 2 faces exposed therefore:

Total exposed area '4ft x 4ft' window = $5.176 \times 0.1 \times 2 = 1.04\text{m}^2$

'8ft x 4ft' (2.438m x 1.219m) window

$$2 \text{ lengths at top and bottom of window} = 2 \times 2.438 = 4.876\text{m}$$

$$2 \text{ lengths at sides of window} = 2 \times (1.219+0.075+0.075) = 2.738\text{m}$$

$$\text{Total length} = 7.614\text{m}$$

Product width 0.1m with 2 faces exposed therefore:

$$\text{Total exposed area '8ft x 4ft' window} = 7.614 \times 0.1 \times 2 = \mathbf{1.52\text{m}^2}$$

Total product used:

$$\text{Total exposed area from horizontal product is } 2 \times 1.95\text{m} = \mathbf{3.90\text{m}^2}$$

$$\text{Total exposed area from vertical wall product } 2.59 \times .1 = 0.259\text{m}^2 \times 4 = \mathbf{1.04\text{m}^2}$$

$$\text{Total exposed area '4ft x 4ft' window} = 5.176 \times 0.1 \times 2 = \mathbf{1.04\text{m}^2}$$

$$\text{Total exposed area '8ft x 4ft' window} = 7.614 \times 0.1 \times 2 = \mathbf{1.52\text{m}^2}$$

$$\mathbf{\text{Total} = 3.90+1.04+1.04+1.52 = 7.50\text{m}^2}$$

OFFICE

Assumptions

- The office is situated in the corner of a tall building and require the fitment of fire stops on the two external faces and has another office above and offices either side
- The gap that requires fire stopping is 100mm
- The window in the office is protected with fire stopping around all the edges

Horizontal Product

Siderise horizontal product is used at floor slab level so the room will be exposed to the area from the top side of the product at floor level and from the underside of the product installed in the floor slab above

$$(3.66\text{m} + 3.05\text{m}) \times 0.100\text{m} = 0.67 \text{ m}^2 \text{ exposed area}$$
$$\text{Total exposed area from horizontal product is } 2 \times 0.67\text{m} = \mathbf{1.34\text{m}^2}$$

Vertical Product

Walls

Siderise product used as vertical firestopping at the corner of the classroom and at both ends where the classroom joins the other classrooms

Vertical at corner = 2 exposed edges

Verticals at one end of classroom = 1 exposed edge (as the other would be in the classroom next door)

Verticals at other end of classroom = 1 exposed edge (as the other would be in the classroom next door)

$$\text{Total exposed area from vertical wall product } 2.74 \times .1 = 0.274\text{m}^2 \times 4 = \mathbf{1.10\text{m}^2}$$

Window

'4ft x 4ft' (1.219m x 1.219m) window

$$2 \text{ lengths at sides of window} = 2 \times (1.219 + 0.075 + 0.075) = 2.738\text{m}$$

$$2 \text{ lengths at top \& bottom of window} = 2 \times 1.219 = 2.438\text{m}$$

$$\text{Total length} = 5.176\text{m}$$

Product width 0.1m with 2 faces exposed therefore:

$$\text{Total exposed area '4ft x 4ft' window} = 5.176 \times 0.1 \times 2 = \mathbf{1.04\text{m}^2}$$

Total product used:

$$\text{Total exposed area from horizontal product is } 2 \times 0.67\text{m} = \mathbf{1.34\text{m}^2}$$

$$\text{Total exposed area from vertical wall product } 2.74 \times .1 = 0.274\text{m}^2 \times 4 = \mathbf{1.10\text{m}^2}$$

$$\text{Total exposed area '4ft x 4ft' window} = 5.176 \times 0.1 \times 2 = \mathbf{1.04\text{m}^2}$$

$$\mathbf{\text{Total} = 1.34 + 1.10 + 1.04 = 3.48\text{m}^2}$$