



TECHNICAL INFORMATION

**Maintenance and Inspection**

LAF Group's holistic approach to passive fire protection for air-handling ductwork includes the installation of access panels, expansion/vibration control joints, and inspection grilles.

Access panels cater for openings up to 1.2 m x 1.2 m. Control joints have been successfully tested with Vermiduct® systems. Inspection grilles feature an intumescent grill that allows uninterrupted viewing of equipment.

**Architectural**

Vermiduct® is a naturally pastel-pink material. It can be coloured to suit design requirements by the addition of colour pigments into the mix during spray application.

It is a monolithic coating that can be textured or trowelled to a smooth finish.

**Testing**

Vermiduct® has been rigorously tested and complies with the requirements of the following standards:

- ISO 6944: 1985 – Fire resistance tests; Ventilation ducts
- BS 476: Part 4 – Non combustibility test for materials
- BS 476: Part 20 – Method for determination of the fire resistance of elements of construction

- BS 476: Part 24 – Method for determination of fire resistance of ventilation ducts
- BS 5669: Part 1 – Particleboard. Methods of sampling, conditioning and test
- BS 5588: Part 9 – Code of practice for ventilation and air conditioning ductwork
- AS 1530: Part 4 – Fire resistance test of elements of building construction
- AS 1668: Part 1 – The use of mechanical ventilation and air handling in buildings; Part 1 – Fire and smoke control;
- AS 4254: Ductwork for air handling systems in buildings
- ASTM C518-02 – Thermal conductivity measurement
- DW/144 – HVCA Specification for Sheet Metal Ductwork

**International Acceptance**

- PSB, Singapore – No 011014
- Fire Services Dept, Hong Kong – No FF316/23
- Architectural Services Dept, Hong Kong – No 1216P
- Dubai Civil Defense Department, UAE

**Minimum Thickness of Vermiduct® to BS476: Part 24**

(please refer to LAF for thickness compliance with Australian Standard requirements)

Maximum Size (mm)	Orientation Horizontal/Vertical	Fire Side	Fire Resistance Level (or Period)				
			60/60/60	90/90/90	120/120/120	180/180/180	240/240/240
1600 x 1600	Horizontal/Vertical	Internal/External	12	16	20	45	55
2400 x 2400	Horizontal/Vertical	Internal/External	16	20	25	50	55
4800 x 3600	Horizontal/Vertical	Internal/External	16	20	25	55	65

**Health and Safety**

Being a blend of gypsum and vermiculite, Vermiduct® contains no asbestos and presents no known health hazard before, during or after application. Normal precautions for gypsum products apply, including dust mask, eye protection and covering of sensitive skin.

**Contact**

For more information on Vermiduct® and our complete range of products for the construction, industrial and agricultural sectors, contact LAF Group by telephone, facsimile, email or visit our website. Contact points are provided below.



VERMIDUCT®

PRODUCT INFORMATION



A fire-resistant coating for air-handling systems.

**What Is Vermiduct®?**

Vermiduct® is a complete fireproofing solution for air-handling duct systems.

It is especially developed to provide up to four (4) hours fire resistance level/period (FRL/FRP) to: Ducting (constructed in steel and plastics), Fan Enclosures, Dampers, Access Panels, Plenums, Wall Penetrations, Electrical and Data Cable Trays and Separating Construction.

Vermiduct® has been thoroughly tested at the Commonwealth Scientific Industrial Research Organisation (CSIRO) in Australia, to comply with the most stringent International Standard requirements. It fully meets and exceeds the conditions for fire inside and fire outside air handling systems, across structural

stability, integrity and insulation requirements, for up to four (4) hours FRL/FRP (240/240/240).

Factory blended from gypsum and vermiculite base products, Vermiduct® is manufactured to exacting standards to ensure sustainable quality, durability and performance in service.

Vermiduct® is quick and easy to install by spray-application. It is a highly cost effective solution for the fire rating of air handling systems, and is totally safe.

**Benefits?**

While unprotected sheet-metal ductwork can resist the passage of smoke and decomposition products, its high thermal conductivity means fire resistance is in fact low.



Vermiduct® provides a monolithic insulating coat over the duct thereby greatly increasing the fire resistance of the air-handling system.

Because of the lightweight and comparatively thin coating required (around 25mm for 2 hours FRL, for fire inside and fire outside situations to Australian and British Standard requirements), Vermiduct® is very cost effective, quick and easy to install.

All these translate to savings in actual ductwork construction (in terms of sheet metal gauge and hardware) and construction time.

In addition, its space saving and spray-to-contour features give the designer enhanced flexibility in tight and restricted spaces.

#### Has It Been Tested?

Yes, and Vermiduct® has passed requisite tests with flying colours – even when tested with ductwork joined by conventional 'slide joints' offering minimal structural support.

Vermiduct® has been successfully tested on large and small ducts to include: access panels, ventilating and inspection grilles, hanging rod protective covers, fan enclosures and PVC ductwork. Most importantly, it satisfies the criteria for STABILITY, INTEGRITY and INSULATION to four (4) hours (240/240/240) FRL.



Vermiduct® has been developed in accordance with the well-recognised guidelines of major international ductwork Standards including AS 4254-1995, BS 5588 Part 9, and SMACNA.

The one coating serves the dual function of fire resistance and insulation. No additional wrap around or rigid insulation is required.

# VERMIDUCT®



#### Production

Vermiduct® is manufactured under factory-controlled conditions to ISO9001-2000 Quality Standard, delivered to site in 'batch' form, and mixed with clean water to the required consistency before application.

#### Packaging

Vermiduct® is packaged in polypropylene lined paper valve sacks, which can be stored for up to six months under dry conditions. Bags should be stored covered, off the ground, and away from wet or damp surfaces or areas of high humidity.

#### Application

Before application, ensure the substrate is free from rust, oil, excessive dust or any other substance that may impair adhesion.

Once mechanical reinforcement has been secured, Vermiduct® can be applied to the desired thickness in one coating.

The initial coat will set in two to six hours, with a required coating interval of between two and eight hours.

New coatings should only be applied over partially set coatings. If this is not possible, the last coating surface should be textured or scratched to improve adhesion.

When applied in well-ventilated areas to a thickness of 50 mm, Vermiduct® will dry in two to three weeks. Ambient temperature should not be allowed to drop below 4° C for 24 hours following application.

Applied in accordance with LAF instructions, Vermiduct® will neither contribute to nor promote the corrosion of bare, galvanised or primed steel.

#### Mechanical Reinforcement

For exhaust ducts such as kitchen exhaust, smoke spill, return air and exhaust air, mechanical reinforcement (25 mm x 25 mm x 1 mm wire mesh) is required.

No mechanical reinforcement is required for supply air ducts.

#### Fan Enclosures

Fan enclosures, including the motor, should be fire-isolated in accordance with International Standards. Vermiduct® has been comprehensively tested by the CSIRO, and can provide fan enclosures with FRLs up to 240/240/240 with the following dimensions: 5.2 m (l) x 2.4 m (w) x 3.5 m (h).



#### Penetrating Ductwork

Ductwork that penetrates fire-rated and ordinary walls is vulnerable to thermal and structural load redistribution, and should be restrained to ensure construction tolerance and to prevent the passage of fire.

Vermiduct® is an effective fire stop that has been developed and tested to overcome these load distributions. Used in conjunction with the Trimesh®, it will effectively seal oversized openings to a FRL/FRP of 240/240/240, all in accordance with Australian and British Standard requirements.

Please refer to LAF for further technical details.

#### Coverage

The theoretical yield of one 50-litre bag of Vermiduct® will cover approximately 1m<sup>2</sup> at a nominal thickness of 50 mm. Overspray and waste will have an effect on bag yield and it is recommended that 10 to 15% waste be allowed for coverage calculations.

#### Density

Dry density: 280 kg/m<sup>3</sup>

#### Thermal Conductivity

Thermal Conductivity: 0.0819 W/mK (Tested in accordance with ASTM C518-02)