ULTIMATE SOLUTIONS+
ZERO DUST ZERO DAMAGE ZERO DEFECTS

0800-160-101
SALES@ULTSOL.CO.NZ
4 BRANCHES NATIONWIDE

ULTIMATE-SOLUTIONS.CO.NZ

HYGIENE CLAD PVC WALL LINER

Hygiene Clad PVC Wall Liner's unique design and heavy wall thickness provides industry leading spanning properties and high strength. It creates a great looking, easy-to-clean wall for corrosive or high moisture areas maintain a fresh, clean environment. Whenever you need a smooth finish that is easy to clean, low maintenance, and abuse resistant, Ultimate Solutions' Hygiene Clad PVC Wall Liner has your project covered.

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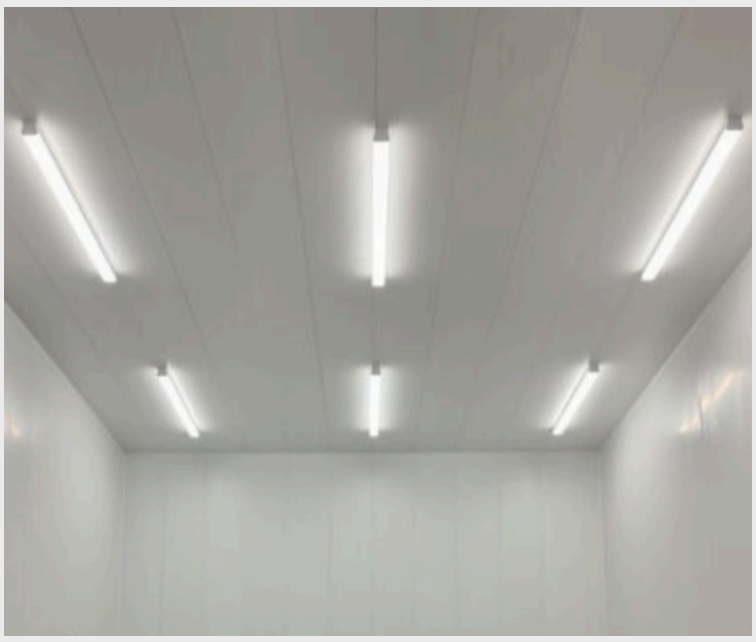
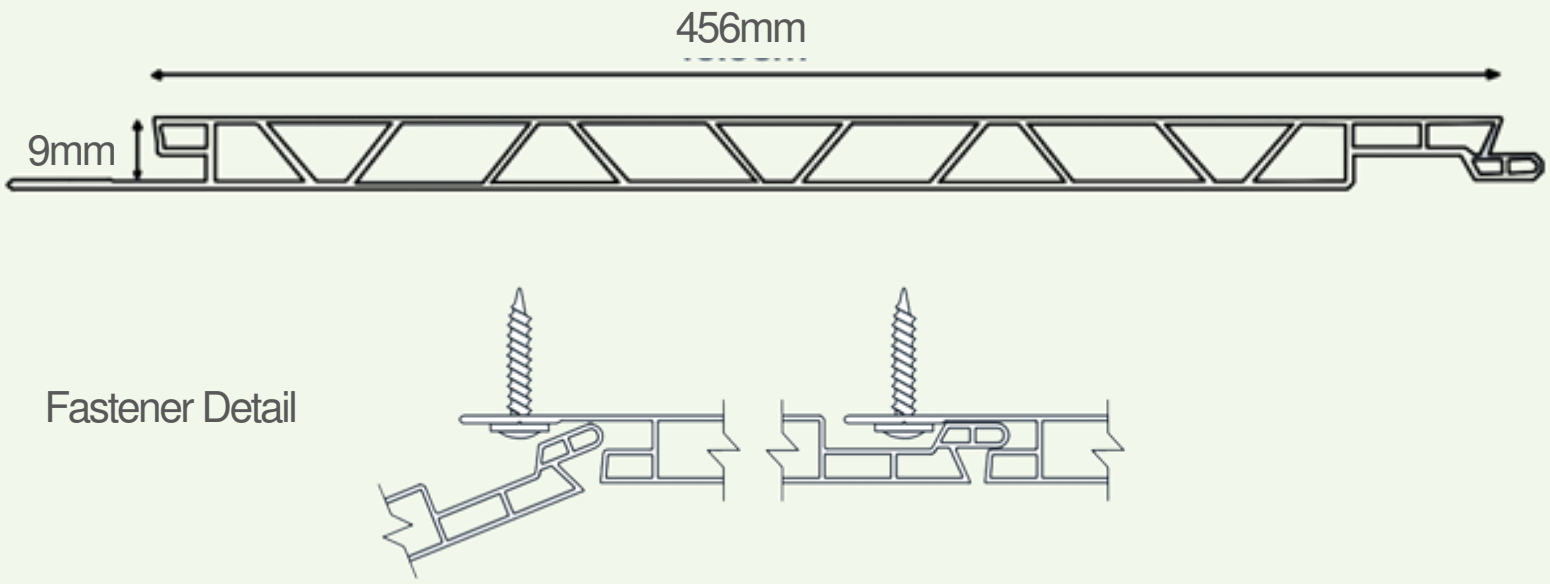
Hygiene Clad is a wide, glossy-finish, extruded PVC panel with interlocking tongue and groove joints along each panel edge. It provides a superior aesthetic and easy-to-maintain wall and ceiling finish.

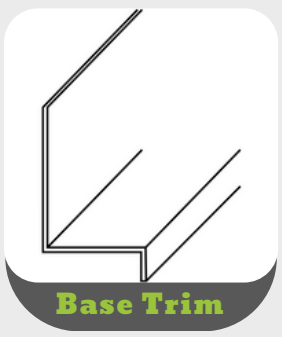


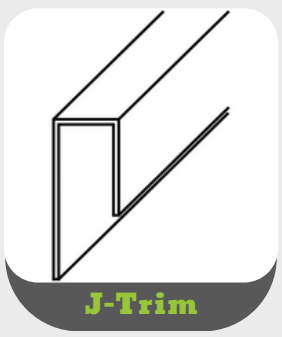
Panels are 456mm wide, 9mm thick, and 5800mm long.

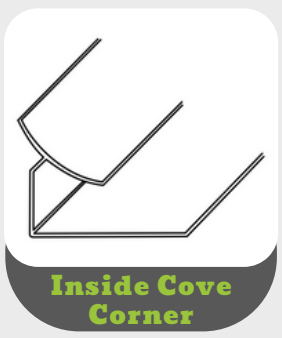
- Custom lengths are also available to fit your project requirements

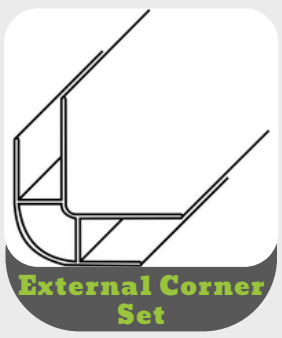


Hygiene Clad Trims and Accessories









Trims, Joiners, and Corners are available to accommodate all of your project requirements.

Key Advantages Include:

- Ideal replacement for conventional wall systems
- Cost effective compared to other materials
- Won’t support bacterial growth
- Won’t corrode and is resistant to most chemicals
- Inner truss design for rigidity and strength
- Lightweight, easy to transport
- High strength to weight ratio
- Supports attic insulation loads
- Bright clean appearance
- Virtually maintenance free – just wipe it clean
- Highly resistant to moisture and mold
- Class A Fire Rating – potential insurance savings
- Quick and easy to install
- Hidden fasteners provide smooth finish
- Pre-punched nailing flange
- BRANZ Appraised

Protects Walls and Ceilings

Supports Standard Insulation

HYGIENIC

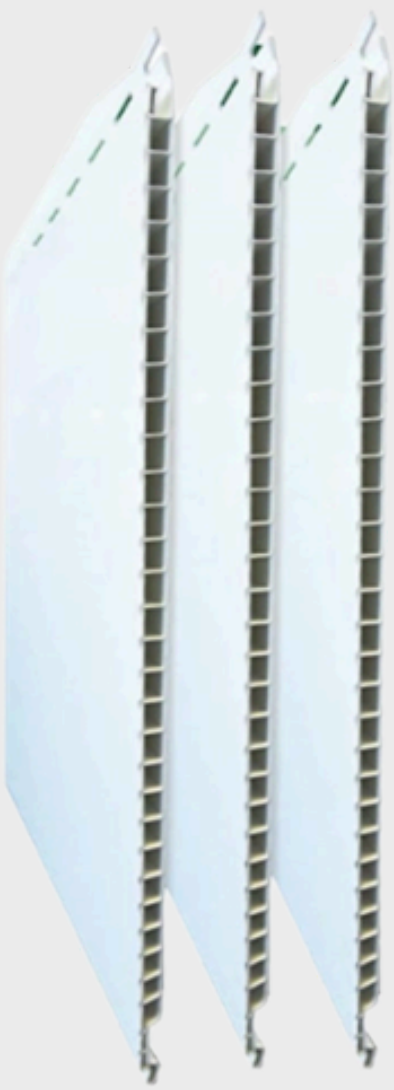
Hygiene Clad panels meet the strict sanitation standards set by BRANZ and accepted with a stamp of approval. Extruded from food-grade PVC, they are perfect for food-processing facilities, clean rooms, and anywhere hygiene is essential.

DURABLE

Hygiene Clad protects any type of wall or ceiling from moisture and chemicals. As PVC is resistant to most mineral acids, bases, and salts, you can be confident our panels will stand the test of time.

LONG LASTING

Hygiene Clad forms a barrier between your wall and the elements that can harm it. Our durable panels are easy to clean and extend the life of your investment.



- Built to Last
- Class A Fire Rated
- Cost Effective
- Builds Quickly
- Corrosion Resistant
- Easy to Clean
- Food Safe
- Moisture Resistant
- Smooth Finish

RATINGS

Certified BRANZ Approved product with a stamp of approval
Class A Fire Rated as per NZBC Verification Method C/VM2 Appendix A

Specifications

HYGIENE CLAD EDGES

No sealant is required. Finish quickly and professionally at any wall location. Easily replace damaged or vandalized panels without removal and re-installation of the adjoining panels.

DURABLE PVC

Our heavy duty panels are extruded from an industry leading grade of PVC. Available in 456mm width and custom lengths.

TONGUE & GROOVE

Wide interlocking tongue and groove joint hides fasteners and allows a quick and simple installation.

NAILING FLANGE

Panels can be fastened to any structure and are typically supported every 400mm to 600mm. Our flange design accommodates expansion and contraction in varied temperatures.

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AGRICULTURE HIGH SANITATION STANDARDS:

Hygiene Clad can reduce the need for chemical pest control, antibiotics, or other medical treatment often necessitated by conventional environments. Hygiene Clad's food-grade PVC finish is easy to clean and will not absorb bacteria or support the growth of mold.

CAR WASH REDUCED MAINTENANCE:

Hygiene Clad ensures that your vehicle wash will look great and perform like the day it was built for many years to come. With Hygiene Clad's easy-to-clean, bright white PVC finish, you don't have to be concerned about maintenance and upkeep.

Hygiene Clad is your top solution against moisture and harsh cleaning chemicals in any projects you may handle.

- Dairy, Hog, & Poultry Farms
- Car Washes
- Home Ceiling / Wall Panels
- Kennels
- Riding Stables
- Marinas
- Fisheries
- Food Processing Plants
- Chemical Processing Plants
- Meat Packaging Facilities
- Restaurant Kitchens
- Supermarkets
- Laboratories
- Theme Parks
- Breweries
- Nursing Homes
- Health Care Facilities
- Public Bathrooms
- Refrigerated Warehouses
- Schools
- Laundromats

VALIDATION

Certificate and Reports

BRANZ Certificate

BRANZ

FH 6305-TT [2017]
GROUP NUMBER CLASSIFICATION

This is to certify that the specimens described below were tested by BRANZ for determination of Group Number Classification and Average Specific Extinction Area in accordance with ISO 5660 Parts 1 and 2.

Test Sponsor

Modular Wall Systems
13 Olive Road
Penrose
Auckland 1061

Date of tests

9 August and 2 November 2017

Reference BRANZ Test Report

FH 6305-TT – issued 1 December 2017

Test specimens as described by the client

Hygiene-Clad

A white, 100% virgin PVC lining material.

Specimen Reference	Mean values			Colour
	Mass (g)	Thickness (mm)	Apparent Density (kg/m³)	
FH6234-4	31.8	12.7	250.1	White

Group Number Classification in accordance with the New Zealand Building Code

Calculations were carried out according to NZBC Verification Method C/VM2 Appendix A. The classification for the sample as described above is given in the table below.

Regulatory authorities are advised to examine test reports before approving any product

Building Code Document	Group Number Classification
NZBC Verification Method C/VM2 Appendix A	3

Issued by

L. F. Hersche
Fire Testing Technician

Reviewed by

P. C. R. Collier
Senior Fire Testing Engineer
IANZ Approved Signatory

IANZ ACCREDITED LABORATORY

All tests and procedures reported herein, unless indicated, have been performed in accordance with the laboratory's scope of accreditation

Issue Date
1 December 2017

Expiry Date
1 December 2022

BRANZ Type Test Report

BRANZ
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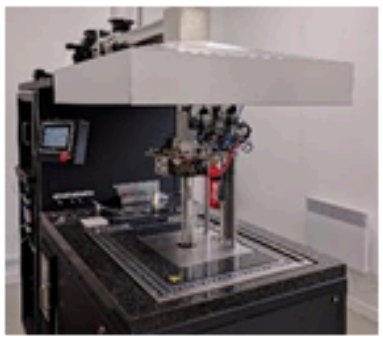
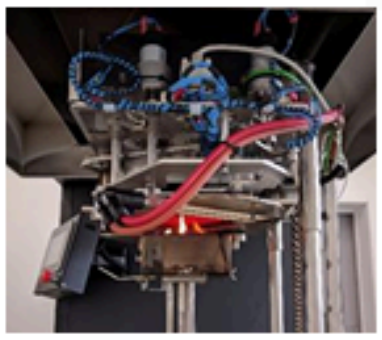
Porirua 5381
New Zealand
T +64 4 237 1170
F +64 4 237 1171
branz@branz.co.nz
www.branz.co.nz

BRANZ Type Test

FH 6305-TT [2017]

CONE CALORIMETER TEST AND NZBC VERIFICATION METHOD C/VM2 APPENDIX A PERFORMANCE OF HYGIENE-CLAD

CLIENT
Modular Wall Systems
13 Olive Road
Penrose
Auckland 1061

ilac-MRA IANZ ACCREDITED LABORATORY

All tests and procedures reported herein, unless indicated, have been performed in accordance with the laboratory's scope of accreditation.

PROJECT NUMBER:	ISSUE DATE:	EXPIRY DATE:	PAGE:
FT6234	**1 December 2017**	**1 December 2022**	**1 of 10**

TEST SUMMARY

Objective

To conduct cone calorimeter testing and reduce the data in accordance with ISO 5660 on client supplied specimens for the purposes of determination of the Group Classifications in accordance with New Zealand Building Code (NZBC) Verification Method C/VM2 Appendix A.

Test sponsor

Modular Wall Systems
13 Olive Road
Penrose
Auckland 1061

Description of test specimen

The products as described by the client as Hygiene-Clad, a white, 100% virgin PVC lining material.

Date of tests

9 August and 2 November 2017

Test results

For the purposes of compliance with the relevant building code documents, the following classification is considered applicable to the tested samples as described in Section 1.

Building Code Document	Group Number Classification
NZBC Verification Method C/VM2 Appendix A	3

LIMITATION

The results reported here relate only to the item/s tested.

TERMS AND CONDITIONS

This report is issued in accordance with the Terms and Conditions as detailed and agreed in the BRANZ Services Agreement for this work.

TO WHOM IT MAY CONCERN

Both NATA (National Association of Testing Authorities, Australia) and IANZ (International Accreditation New Zealand) are signatories to the ILAC Mutual Recognition Arrangement. Under the terms of this arrangement, each signatory:

(i) recognises within its scope of recognition of this Arrangement the accreditation of an organisation by other signatories as being equivalent to an accreditation by its own organisation,

(ii) accepts, for its own purposes, endorsed* certificates or reports issued by organisations accredited by other signatories on the same basis as it accepts endorsed* certificates or reports issued by its own accredited organisations,

(iii) recommends and promotes the acceptance by users in its economy of endorsed* certificates and reports,

* *The word "endorsed" means a certificate or report bearing an Arrangement signatory's accreditation symbol (or mark) preferably combined with the ILAC-MRA Mark.*

Signed:

Jennifer Evans
NATA CEO

Date: 24 March 2014

Dr Llewellyn Richards
IANZ CEO

Date: 24th March 2014

CONTENTS

FIGURES

TABLES

SIGNATORIES

Author

L. F. Hersche
Fire Testing Engineer

Reviewer

P. C. R. Collier
Senior Fire Testing Engineer
IANZ Approved Signatory

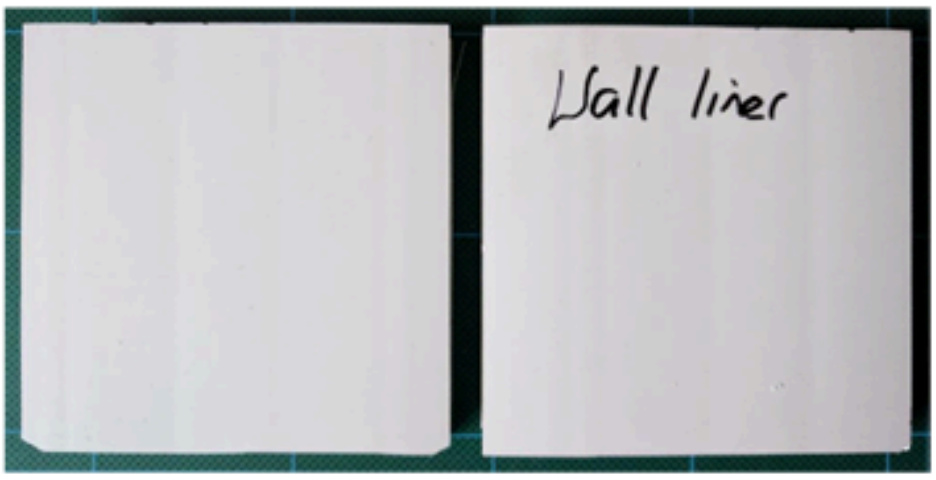
DOCUMENT REVISION STATUS

ISSUE NO.	DATE ISSUED	EXPIRY DATE	DESCRIPTION
1	1 December 2017	1 December 2022	Initial Issue

1. GENERAL

The product submitted by the client for testing was identified by the client as Hygiene-Clad, a white, 100% virgin PVC lining material. Figure 1 illustrates representative specimens of those tested.

Figure 1: Representative specimen (front face on left, back face on right)



1.1 Sample measurements

The following physical parameters were measured for each specimen prior to testing.

Table 1: Physical parameters

Specimen ID	Initial properties		Overall apparent density (kg/m³)	Colour
	Mass (g)	Mean thickness (mm)		
FH6234-4-50-1	33.0	12.7	260	White
FH6234-4-50-2	30.6	12.7	241	White
FH6234-4-50-3	31.7	12.7	250	White

2. EXPERIMENTAL PROCEDURE

2.1 Test standard

The tests were carried out and data reduced according to the test procedures described in ISO 5660: (2002), Reaction-to-fire tests – Heat release, smoke production and mass loss – Part 1: Heat release rate, and Part 2: Smoke production rate; (the test standard). The sample preparation and test procedure were as described in 2.4 and 2.5.

2.2 Test date

The tests were conducted on 9 August and 2 November 2017 by Mr Lukas Hersche at BRANZ Limited laboratories, Judgeford, New Zealand.

2.3 Specimen conditioning

All specimens were conditioned to moisture equilibrium (constant weight), at a temperature of 23 ± 2°C and a relative humidity of 50 ± 5% immediately prior to testing.

2.4 Specimen wrapping and preparation

All tests were conducted and the specimens prepared in accordance with the test standard. The spark igniter and the stainless-steel retainer frame were used. All specimens were wrapped in a single layer of aluminium foil, covering the unexposed surfaces.

2.5 Test programme

The test program consisted of three replicate specimens as identified in Table 1, tested at an irradiance level of 50 kW/m^2. All tests were carried out with the specimen horizontal, and with a nominal duct flow rate of 0.024 m^3/s.

2.6 Specimen selection

BRANZ was not involved in the selection of the materials submitted for testing. The test materials used were supplied to the laboratory by the client.

3. TEST RESULTS AND REDUCED DATA

3.1 Test results and reduced data – ISO 5660

Table 2: Test results and reduced data – ISO 5660

Material		**Test specimens as described in Section 1 (in accordance with ISO 5660)**			**Mean**
Specimen test number		FH6234-4-50-1	FH6234-4-50-2	FH6234-4-50-3	
Test Date		9/08/2017	2/11/2017	2/11/2017	
Time to sustained flaming	s	29	34	67	43
Observations[a]		-	-	-	
Test duration[b]	s	1829**	1834**	1867**	1843
Mass remaining, m_f	g	4.0	4.7	10.0	6.2
Mass pyrolyzed	%	87.9%	84.5%	68.6%	80.3%
Specimen mass loss[c]	kg/m^2	3.3	2.9	2.5	2.9
Specimen mass loss rate[c]	g/m^2 .s	4.9	4.4	3.4	4.2
Heat release rate					
peak, $\dot{q}''_{max}$	kW/m^2	159.0	135.5	155.1	149.9
average, $\dot{q}''_{avg}$					
Over 60 s from ignition	kW/m^2	108.6	122.7	120.2	117.2
Over 180 s from ignition	kW/m^2	116.6	108.5	91.0	105.4
Over 300 s from ignition	kW/m^2	90.4	84.6	73.5	82.8
Total heat released	MJ/m^2	41.5	39.7	41.7	41.0
Average Specific Extinction Area	m^2/kg	566.4	580.7	514.7	553.9
Effective heat of combustion[d], $\Delta h_{c,eff}$	MJ/kg	11.8	12.1	12.4	12.1

Notes:

[a] no significant observations were recorded

[b] determined by * X_{O2} returning to the pre-test value within 100 ppm of oxygen concentration for 10 minutes
** 30 minutes after time to sustained flaming or without ignition

[c] from ignition to end of test;

[d] from the start of the test

[+] value calculated using data beyond the official end of test time according to the test standard.

NR not recorded

4. SUMMARY

The test standard requires the mean heat release rate (HRR) readings over the first 180 s from ignition for the three specimens should differ by no more than 10% of the arithmetic mean of the three readings. In the event of this criterion not being met, a further three specimens are required to be tested.

Table 3: Heat release rate

Specimen ID	Average HRR over 180 s from ignition	Arithmetic mean	% difference from the arithmetic mean
FH6234-4-50-1	116.6	105.4	10.7%
FH6234-4-50-2	108.5		2.9%
FH6234-4-50-3	91.0		-13.6%

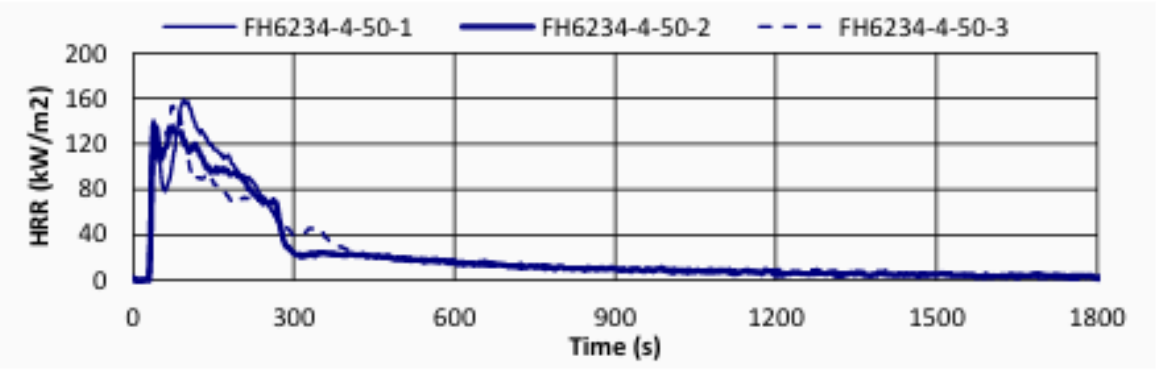
Table 3 identifies two of the specimens exposed to 50 kW/m² irradiance exceeded the acceptance criteria. Although two of the specimens were outside of the variability criteria of the test standard, the same Group Classification was determined for each specimen. A further set of three tests as required by the test standard was deemed not to be necessary and would not be expected to lead to an alteration of the classification.

The report summary for the specimens as described in Section 1, exposed to an irradiance of 50 kW/m² is given in Table 4 below with rates of heat release illustrated in Figure 2.

Table 4: Report summary

Mean Specimen thickness (mm)	Irradiance (kW/m²)	Mean Time to Ignition (s)	Mean Peak Heat Release Rate (kW/m²)	Average Specific Extinction Area (m²/kg)
12.7	50	43	149.9	553.9

Figure 2: Rate of heat release versus time



5. CLASSIFICATION IN ACCORDANCE WITH NZBC VERIFICATION METHOD C/VM2 APPENDIX A

The following classification has been assessed in accordance with the New Zealand Building Code Verification Method C/VM2 Appendix A: Establishing Group Numbers for lining materials. Calculations were carried out according to section A1.3 for predicting a material's group number for each specimen tested. It states that "If a different classification group is obtained for different specimens tested, then the highest (worst) classification for any specimen must be taken as the final classification for that material." The classification for the specimens as described in Section 1 is as follows:

Table 5: NZBC Group classification and smoke extinction area

	Sample 1	Sample 2	Sample 3	Classification
Group number Classification	3	3	3	3
Average Specific Extinction Area (m^2/kg)	566.4	580.7	514.7	

In accordance with Verification Method C/VM2 Appendix A, samples achieving either a Group number classification 1 or 2, and with an average specific extinction area less than 250 m^2/kg are identified with "S" post-script to the Group number. The samples achieved a Group number of 3, therefore no identifier is used.

6. NZBC CONCLUSION

The cone calorimeter testing was carried out on the specimens as described in Section 1. For the purposes of compliance with the NZBC Verification Method C/VM2 Appendix A, the following classification is considered applicable to the material as described in Section 1.

Group Number Classification	**3**

FH 6305-TT [2017]
GROUP NUMBER CLASSIFICATION

This is to certify that the specimens described below were tested by BRANZ for determination of Group Number Classification and Average Specific Extinction Area in accordance with ISO 5660 Parts 1 and 2.

Test Sponsor

Modular Wall Systems
13 Olive Road
Penrose
Auckland 1061

Date of tests

9 August and 2 November 2017

Reference BRANZ Test Report

FH 6305-TT – issued 1 December 2017

Test specimens as described by the client

Hygiene-Clad

A white, 100% virgin PVC lining material.

Specimen Reference	Mean values			Colour
	Mass (g)	Thickness (mm)	Apparent Density (kg/m³)	
FH6234-4	31.8	12.7	250.1	White

Group Number Classification in accordance with the New Zealand Building Code

Calculations were carried out according to NZBC Verification Method C/VM2 Appendix A. The classification for the sample as described above is given in the table below.

Regulatory authorities are advised to examine test reports before approving any product

Building Code Document	Group Number Classification
NZBC Verification Method C/VM2 Appendix A	3

Issued by

L. F. Hersche
Fire Testing Technician

Reviewed by

P. C. R. Collier
Senior Fire Testing Engineer
IANZ Approved Signatory

All tests and procedures reported herein, unless indicated, have been performed in accordance with the laboratory's scope of accreditation

Issue Date
1 December 2017

Expiry Date
1 December 2022

Material Safety Data Sheet

MSDS OF PVC POWDER FOR PANEL

Material Safety Data Sheet: PVC POWDER FOR PANEL

1.CHEMICAL PRODUCT AND COMPANY INDENTIFICATION

Product name: PVC POWDER FOR PANEL

Effective Date: April 28th,2024

Synonyms: Polyvinyl Chloride compound

Chemical Formula: (C2H3Cl)n plus functional additives

CAS Name & No.: Not applicable (mixture)

Emergency telephone number:

For transportation emergencies:
CHEMTREC 86-573-88499527
For all other emergencies: 86-573-88496597

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No.	WT%
Polyvinyl Chloride Resin	9002-86-2	81%
CPE	63231-66-3	9%
Stabilizer	57583-35-4	2%
Lubricant	9002-88-4	1.5%
Titanium Dioxide	13463-67-7	2.5%
Other		4%

3. HAZARDS IDENTIFICATION:

PRECAUTIONARY INFORMATION

Caution: If proper procedures for processing PVC compounds are not followed, process fumes and vapors can be liberated at elevated temperatures. The presence of these fumes or vapors may result in elevated levels of exposure. Additionally, the composition of these fumes or vapors may vary widely according to the individual processing procedures and materials used. Processors must determine for themselves the appropriate equipment and procedures for their operation.

POTENTIAL HEALTH EFFECTS

Primary Routes of Exposure: Inhalation of process emissions during periods of elevated temperature.

Eye: Vapors or fumes emitted during processes involving elevated temperatures may cause eye irritation. Dust resulting from the handling of powder may be irritating to the eyes.

Skin Contact: Vapors or fumes emitted during processes involving elevated temperatures may cause skin irritation. Dust resulting from the handling of powder may be irritating to the skin.

Skin Absorption: This material is initially a dry solid pellet or powder; no absorption is likely to occur in its initial form. Vapors or fumes emitted during processes involving elevated temperatures may absorb through the skin at low levels.

Ingestion: Slightly toxic by ingestion. Powder form may become airborne during handling, resulting in the potential for incidental ingestion. Vapors or fumes emitted during processes involving elevated temperature may be ingested at low levels. Adequate ventilation should be provided.

Inhalation: Powder form may become airborne during handling, resulting in potential inhalation exposure. Vapors or fumes emitted during processes involving elevated temperatures may be inhaled if not adequately ventilated.

HAZARD CLASSIFICATION

Acute Effects:

Dust associated with the handling of PVC powder as well as fumes or vapors liberated from both PVC powder and pellets at high temperatures may be irritating to the eyes, skin and respiratory tract if not adequately ventilated.

Chronic Effects:

Chronic exposure to fumes and vapors from heated or thermally decomposed plastics may cause an asthma-like syndrome due to the inhalation of process vapors or fumes. The onset of irritation maybe delayed for several hours. Fumes or vapors may accumulate within the facility during normal operating procedures that involve elevated temperatures. Exposure to these elevated concentrations, if not adequately ventilated, may have significant health effects.

Carcinogenic:

IARC has determined that there is inadequate evidence of carcinogenicity of a polyvinyl chloride resin in both animals and humans. The overall evaluation of polyvinyl chloride is Group 3, meaning that it is not classifiable as a carcinogen (IARC Vol. 19, 1979). Polyvinyl chloride is not listed as a carcinogen by OSHA, NIOSH, NTP, IARC or EPA.

Some pigments used to color PVC compounds may contain metals, which in some of their chemical forms are suspected or confirmed carcinogens. These metals are bound in the crystalline structure of the pigment, and to the best of the supplier's knowledge, do not present a significant health risk. Additionally, the low levels of pigments used in PVC pellet compounds are also bound in the polymer matrix and to the best of our knowledge do not present a significant health risk.

4.FIRST AID MEASURES

Inhalation

No adverse effects anticipated under normal conditions if adequately ventilated. However, if exposure occurs, remove victim to fresh air. Obtain medical attention if irritation persists.

Skin Contact

No adverse effects anticipated under normal conditions. However, if vapor or fume exposure occurs, wash skin thoroughly with soap and water. Obtain medical attention if irritation persists.

Eye Contact
In the event of eye irritation, flush eyes with water for at least 15 minutes. Obtain medical attention if irritation persists.

Ingestion
If ingestion occurs, vomiting can be induced after diluting with water or milk. Call a physician for additional medical advice.

5. FIRE FIGHTING MEASURES

Flash Ignition Temperature >730°F

Flammable Limits (% By Vol.)
Lower Explosive Limit (LEL) Not Applicable
Upper Explosive Limit (UEL) Not Applicable

Autoignition Temperature Not Applicable
Fire Fighting Procedures/Fire Extinguishing Media
Carbon dioxide or water.

Unusual Fire and Explosion Hazards
Dense smoke may be emitted when burned. Rigid PVC Compounds will not normally continue to burn after ignition without an external fire source. Do not allow fire fighting runoff water to enter streams, rivers or lakes. The water may collect HCl and other combustion products. **See Section 10 for additional information.**

Fire-Fighting Equipment
Wear full bunker gear including a positive pressure self-contained breathing apparatus in any closed space.

6.ACCIDENTAL RELEASE MEASURES

Protect People:
Remove unnecessary personnel from the release area. Wear appropriate personal protection equipment during clean-up.

Protect the Environment:
Contain material to prevent contamination of the soil,surface water or ground water.

Clean Up:
Sweep or vacuum material and place in a disposal container. See Section 11.

7.HANDLING AND STORAGE

Handling
Use the proper personal protective equipment during handling. Minimize dust generation and accumulation. Use good housekeeping practices.

Storage
Store in a cool, dry, protected area away from heat, sparks, and flame.

8.EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls
Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Good ventilation should be sufficient for most conditions. Local exhaust ventilation should comply with OSHA regulations and the American Conference of Governmental Industrial Hygienists, Industrial Ventilation - A Manual of Recommended Practice.

Respiratory Protection
For most conditions, no respiratory protection should be needed. However, in cases of dust formation, NIOSH-approved respiratory protection meeting the requirements of 29 CFR 1910.134 may be needed. If the material is over heated and starts smoldering, wear a positive pressure self-contained breathing apparatus for respiratory protection.

Eye Protection
Use safety glasses. If there is a potential for exposure to particles, which could cause mechanical injury to the eye, wear chemical goggles.

Skin Protection
Normally clean clothing should be sufficient. However, skin protection meeting the requirements of 29 CFR 1910.132 may be needed. Wash skin if contacted by PVC powder or pellets. Wash contaminated clothing before reusing.

Exposure Guidelines

No exposure limits have been established for this material. It is recommended that exposure be kept below the limits for Particulates not otherwise classified.

OSHA-PEL: 15 mg/M^3 8 hr-TWA (total dust) ACGIH: 10 mg/M38 hr-TWA (inhalable)*
5 mg/M^3 8 hr-TWA (respirable) 3 mg/M38 hr-TWA (respirable) *

*The ACGIH has withdrawn the TLV for Particulates not otherwise classified. The values listed above are recommendations from Appendix B of ACGIH TLV book.

The following materials may be present in this product, but are not anticipated to exceed exposure limits under normal conditions:

Chemical	OSHA-PEL	ACGIH-TLV
Calcium Carbonate	15 mg/M^3 8 hr-TWA (total dust) 5mg/M^3 8 hr-TWA (respirable)	10 mg/M^3 8 hr-TWA
Carbon Black	3.5 mg/M^3 8 hr-TWA	3.5 mg/M^3 8 hr-TWA
Titanium Dioxide	15 mg/M^3 8 hr-TWA	10 mg/M^3 8 hr-TWA(total dust)
Antimony Trioxide	N/A	0.5 mg/M^3 8 hr-TWA
ArsenicCompounds	0.01 mg/M^3 8 hr-TWA (organic) 0.1 mg/M^3 8 hr-TWA (inorganic)	0.01 mg/M^3 8hr-TWA (elemental/inorganic)
Chromium Compounds	0.5 mg/M^3 8 hr-TWA (Cr II and Cr III)	0.5 mg/M^3 8 hr-TWA (Metals and Cr III)
Tin organic compounds	0.1 mg/M^3 8 hr-TWA	0.1 mg/M^3 8 hr-TWA 0.2 mg/M^3 STEL
Hydrogen chloride	5 ppm Ceiling	2 ppm Ceiling

Additional hazardous constituents may be released during processes involving elevated temperatures. These constituents are dependent on processing conditions and should be verified by processor.

Under normal processing conditions, no occupational exposures to vinyl chloride monomer exceeding the established exposure limits for this material are anticipated. The OSHA-PEL for vinyl chloride is 1 ppm over an 8-hr TWA. The OSHA-STEL for vinyl chloride is 5 ppm for any 15minute period.

Local and state regulations regarding the handling and storage of chemicals may vary widely. Knowledge of these and other appropriate federal and state laws and regulations as well as consultation with the proper authority should provide guidance for developing adequate handling procedures and constructing appropriate storage facilities.

9.PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Compound
Odor	Odorless to Mild
Boiling Point, Melting Point, Freezing Point	Not Applicable
Tensile strength(Yield)	43 Mpa
Notched izod impact strength	1000 J/M
Specific Gravity (Water = 1.0)	1.3 - 1.5
Vapor Pressure (mm of Mercury)	Non-volatility
PH VALUE	6.3~6.8
Decomposition temperature	200~220℃

10.STABILITY AND REACTIVITY

Stability
Stable

Polymerization
Hazardous polymerization will not occur.

Hazardous Decomposition Products
Overheating may cause thermal degradation of PVC compound. Fumes and vapors (including CO, CO2, and HCl) may be generated during this thermal degradation. Emissions are also possible during normal operating conditions, and may accumulate within an inadequately ventilated facility.

Incompatible Materials
Chlorinated Polyvinyl chloride compounds should not come into contact with acetal or acetal copolymers in elevated
temperature processing equipment. The two materials are not compatible and will react in a violent decomposition
when mixed under conditions of heat and pressure.

11.TOXICOLOGICAL INFORMATION

The following information on polyvinyl chloride is extracted from the HSDB and NTP databases.
Animal Toxicity

Oral:	Rat, TD_{LO}	210 gm/kg
Inhalation:	Mouse, LC_{50}	140 mg/M_3/10M

TD_{LO} = Lowest toxic dose in a given species by a given route of exposure.
LC_{50} = Concentration that is lethal to 50% of a given species by a given route of exposure.

Rodents exposed to PVC by dietary or inhalation routes for 6 to 24 months have shown no significant toxicological effects.

12.ECOLOGICAL INFORMATION

Environmental Fate:

Aquatic:	No data available
Biodegradation:	Not subject to biodegradation
Ecotoxicity:	Based on the high molecular weight of this polymeric material, transport of this compound across biological membranes is unlikely. Accordingly, the probability of environmental toxicity or bioaccumulation in organisms is remote. Due caution should be exercised to prevent the accidental release of this material to the environment.

13. DISPOSAL CONSIDERATIONS

Waste Management Information: Do not dump into any sewers, on the ground, or into any body of water. Any disposal practice must be in compliance with local, state and federal laws and regulations (contact local or state environmental agency for specific rules). Waste characterization and compliance with applicable laws are the
responsibility of the waste generator.

14.TRANSPORTATION INFORMATION

Proper Shipping Name	Polyvinyl Chloride
DOT - Hazard Class	None
DOT - Shipping ID No.	None
DOT - Labeling	None

15.REGULATORY INFORMATION

Regulatory information is not meant to be all-inclusive. It is the user's responsibility to ensure compliance with federal, state or provincial and local laws.

SARA Title III

Section 302 and 304 of the Act; Extremely Hazardous Substances (40 CFR 355)

COMPONENT	CAS No.	TPQ (lbs)	RQ (lbs)
None	N/A	N/A	N/A

Note: TPQ - Threshold Planning Quantity RQ - Reportable Quantity

Specific state and local requirements regarding reportable quantities should be reviewed prior to chemical use, as they may differ from the federal reportable quantity requirement as stated above.

Section 311 Hazard Categorization (40 CFR 370)

ACUTE	CHRONIC	FIRE	PRESSURE	REACTIVE
Not Listed				

Section 313 Toxic Chemicals (40 CFR 372.65)

This product contains the following EPCRA Section 313 chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986.

COMPONENT	CAS No.	WT.%
Antimony Compounds	N010	0-20%
Zinc Compounds	N982	0-10%

CERCLA

Section 102(a) Hazardous Substances (40 CFR 302.4)

COMPONENT	CAS No.	WT.%	RQ (lbs)
None	N/A	N/A	N/A

RCRA

This product, as supplied, is not a hazardous waste according to the USEPA's Toxicity.Characteristic Leaching Procedure. Any physical or chemical modification of this product may change the TCLP test results.

TSCA

All components are listed on the TSCA inventory or are exempt.

Proposition 65
This product contains substances known to the State of California to cause cancer and/or reproductive toxicity.

Canadian Regulations
This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations, Section 33 and the MSDS contains all information required by this regulation.

WHMIS Classification- Not a Controlled Product

Canadian Environmental Protection Act (CEPA)
All substances in this product are listed on the Canadian Domestic Substances (DSL) list or are not required to be listed.

OSHA 29 CFR 1910.1017:
This compound may contain trace levels (<0.001%) of VCM. Under normal working conditions with adequate ventilation, neither the OSHA-PEL of 1 ppm (8-hr TWA), nor the OSHA-STEL (5.0 ppm) should be exceeded. The workplace should be monitored and if the level exceeds any of the PELs or action levels, refer to 29 CFR 1910.1017.

16.OTHER INFORMATION

IMPORTANT: The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered you're your consideration, investigation and verification. Buyer assumes all risk of use,
storage, handling and disposal of the product in compliance with applicable federal, state, and local laws and regulations. **GEORGIA GULF CHEMICALS AND VINYLS, LLC MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, CONCERNING THE ACCURACY OR COMPLETENESS OF THE INFORMATION AND DATA HEREIN.** Georgia Gulf will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and data are inaccurate, incomplete or otherwise misleading. This information relates to the material designated and may not be valid for such material used in combination with any other materials nor in any process.

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