C.I. TAKIRON IVY-ONE System Specification

This Specification defines the specifications and detail of C. I . Takiron IVY-ONE cPVC Panels - Part # IVY573

1. IVY573 Panel System Components*

Component	Part Number	Description
Panel	IVY573	cPVC, 4ft Wide x 8ft Height x 2mm Thick
Preformed Corners	7L952	8ft Preformed 90° L Corner, 3.75” x 3.75” x 8ft long
	7R952	8ft Preformed Radius Corner, 3.75” x 3.75” x 8ft long
Transition Parts	INRL	Inside 3way L/Radius Corner Transition
	INRR	Inside 3way Radius Corner Transition
	OUTRL	Outside 3way L/Radius Corner Transition
Welding Rod	Welding Rod 6171	Welding Rod for gaps, 0.16” x 1000ft per coil
Adhesive Tape	Takitape 47	Double sided Adhesive Tape, 0.78” W x 33ft Long
Adhesive	Takibond 47	Silicone Adhesive, 11fl oz/330ml per carrtridge
**Color for Panels, Corners and Transition Parts is White*		

2. IVY573 Certified standards

IVY573 is a product certified by the following standards:

a) American Society for Testing and Materials [ASTM]:
ASTM E 84 - Test for Surface Burning Characteristics of Building Materials, Class A rating
ASTM D 638 - Test Method for Tensile Properties of Plastics
ASTM D 648 - Test Method of Deflection Temperature of Plastics Under Flexural Load
ASTM D 790 - Test Method for Flexural Properties of Unreinforced and Reinforced Plastics
ASTM D 256 - Test Method for Determining the Izod Pendulum Impact Resistance of Plastics

b) Factory Mutual [FM Approval]:
FM Class Number 4880 and 4882 - Class 1 Interior Wall and Ceiling Materials or Systems for Smoke Sensitive Occupancies, Class 1 rating

c) United States Department of Agriculture (USDA) requirements

d) Food and Drug Administration (FDA) 1999 Food Code 6-101.11

Note: IVY573 is certified only for installation onto walls less than 30 feet high

3. Mechanical properties

IVY573 has been certified through mechanical testingas defined by the following ASTM standards:

a) ASTM D 638 - Standard Test Method for Tensile Properties of Plastics

b) ASTM D 790 - Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and the Electrical Insulating Materials

c) ASTM D 256 - Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics

d) ASTM D 648 - Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position

4. Physical Properties

Table 1 Physical Properties* (imperial units)

Evaluation Item	IVY573	Test Method
Tensile Stress at yield	7,200psi	ASTM D 638
Nominal tensile Strain at break	10,00psi	ASTM D 790
Tensile Modulus of elasticity	435,000psi	ASTM D 790
Charpy impact strength	2 ft-lbs/in	ASTM D 256
Vicat softening Temperature	210°F	JIS K 7206 8 method (MOD I SO 306)
Dimensional change when heated	200°F	ASTM D 648
**The above data are a series of test results and given here without guarantee.*		

Table 1 Physical Properties* (imperial units)

Evaluation Item	IVY573	Test Method
Tensile Stress at yield	50MPa	JIS K 7162-18/50 (IDT I SO 527-2)
Flexural strength	75MPa	JIS K 7162-18/50 (IDT I SO 527-2)
Flexural modulus of elasticity	3,000MPa	JIS K 7162-18/1 (IDT ISO 527-2)
Charpy impact strength	4kJ/m2	JIS K 7111-1epA (MOD I SO 179)
Vicat softening Temperature	100°C	JIS K 7206 8 method
Heat Deflection Temperature (HDT) 1.8MPa (264psi)	95°C	JIS K 7191
**The above data are a series of test results and given here without guarantee.*		

5. Data Chemical Resistance Properties*

No.		Chemical	Concentration	IVY573 Panel	Weld Rod 6171
1	Acid/Alkali	Hydrochloric acid (HCl)	0.5%+1%	VG	VG
2	Acid/Alkali	Sulfuric acid (H_2S0_4)	1%	VG	VG
3	Acid/Alkali	Nitric acid ($HN0_3$)	1%	VG	VG
4	Acid/Alkali	Phosphoric acid (H_3P0_4)	1%	VG	VG
5	Acid/Alkali	Acetic acid (CH_3COOH)	1%	VG	VG
6	Acid/Alkali	Hydrogen fluoride (HF)	0.5%+1%	VG	VG
7	Acid/Alkali	Hydrogen peroxide solution (H_20_2)	1%	VG	VG
8	Acid/Alkali	Sodium hydroxide (NaOH)	1%	VG	VG
9	Acid/Alkali	Ammonia solution (NH_3)	1%	VG	VG
10	Acid/Alkali	Sodium hypochlorite (NaClO)	1%	VG	VG
11	Solvent	METHANOL (Methyl alcohol)	100%	VG	VG
12	Solvent	ETHANOL (Ethyl alcohol)	100%	VG	VG
13	Solvent	ISOPROPANOL (Propan-2-ol)	100%	VG	VG
14	Solvent	BUTANOL (Butyl alcohol)	100%	VG	VG
15	Solvent	ETHYLENE GLYCOL (Ethylene glycol)	100%	VG	VG
16	Solvent	ACETONE (Acetone)	100%	Bad/Melted	Bad/Melted
17	Solvent	TOLUENE (Toluene)	100%	Bad/Melted	Bad/Melted
18	Others	Sodium chloride (NaCl)	1%	VG	VG
19	Others	Ammonium fluoride (NH_4 F)	1%	VG	VG
20	Others	Potassium chloride (KCl)	1%	VG	VG
21	Others	Detergent	1%	VG	VG
22	Sterile Liquid	Sodium Dioxochlorate Detergent Solution ($C_{18}H_{29}SO_3Na+NACIO_2$)	0.5%+1%	VG	VG
23	Sterile Liquid	Lactic Acid ($CH_3CHOH)(COOH$)	1%	VG	VG
24	Sterile Liquid	Paracetic Acid Preparation ($CH_3COOOH+H_2O_2+CH_3COOH$)	0.5%	VG	VG

**The above data are a series of test results and given here without guarantee.*

- *Evaluation Method: JIS A5705 Staining Resistance for Resilient Floor Coverings*
- *The 2ml of chemical is mounted on IVY573. The specimen is kept in contact with the chemical for 24hrs at 23oC. After 24hrs, the specimen was rinsed with water and its Surface Appearance were observed*
- *Evaluation result: VG: No change was observed, SC: Slight change was observed, BAD: Big change was observed.*

6. Substrate Requirements

IVY573 shall be applied to substrates that meet the FM4882 standards.

a) Substrate surfaces should be permanently dry, smooth, uniform, clean and free from foreign matter, dust, mold or rust. Any irregularities, protruding objects or uneven surfaces should be removed to provide a smooth surface. Joints and cracks should be filled flush and all corners should be plumb and straight.

b) IVY573 Panels are only applicable to the surfaces of noncombustible materials. Allowable substrates include dry wall, mortar, or concrete. It is recommended to have a coat of primer on the substrate.

c) IVY573 Panels are not applicable to any wall surface made of plywood, PVC sheets, or other

combustible materials.

d) In cases in which the application of IVY573 Panels to these combustible materials is unavoidable, remember to mount proper incombustible boards, 12mm or greater in thickness onto the combustible wall materials, to which the IVY573 Panels are then applied.
e) All plumbing should have pipework removed with “tails” left protruding from the substrate. IVY573 panels can then be drilled and slid over the pipe tails. All holes should be drilled 1/8” (3mm) oversize to allow for expansion, then sealed with Sanitary Sealant.
f) Hot pipes and steam pipes should be insulated and a 1/8” to ¼” (3mm to 6mm) expansion gap should be created when installing IVY573 panels around these pipes. Seal the gap with Sanitary Sealant.

7. Transportation and Storage Requirements

a) IVY573 Panels shall be stored horizontally in undamaged crates or containers. They should not be stored vertically.
b) IVY573 Panels should be covered and protected from the elements and sunlight.

8. Environmental Requirements for Installations

a) The temperature of the installation area shall remain constant between 65°F (18.3°C) and 85°F (29.4°C) for at least 72 hours before installation.
b) IVY573 Panels shall be removed from packages before installation so that they can be acclimated for 24 hours to the environment where they will be installed.
c) The temperature of the walls shall be at least 65°F (18.3°C) and shall not exceed 85°F (29.4°C) during installation work to allow the adhesive to fully cure.
d) Relative humidity shall not exceed 80% during installation work.
e) Provide ventilation consistent with good working conditions for installation work.
f) IVY573 Wall Panels shall not be exposed to direct sunlight during and after installation work. If the temperature of the panel surface exceeds 140°F (60°C), the IVY573 Wall panels may warp or become discolored.
g) Refer to Takiron Installation Manual for specific requirements on installation.

9. Inspection

The contractor shall inspect the conditions of all installation areas and the Products that will be installed. The contractor shall notify the design office and other relevant parties of any trouble that may cause a delay in the installation schedule. Installation work can start only when the conditions are judged normal by the contractor. The start of installation work will be defined as the time when the contractor approved the conditions for the installation work.

10. Installation

See the Takiron Installation Manual for recommended procedures and installation sequence

11. Routine maintenance

a) Clean and wipe IVY573 Panels with a soft cloth rag dampened with an alcohol-based cleaner (technical grade IPA is recommended).
b) Never use hard brushes that may damage the surface of IVY573 Panels.
c) The ambient temperature shall be at least 50°F (10°C) and shall not exceed 140°F (60°C).
d) When cleaning the panels, don’t use water or any other liquid at a temperature that exceeds 140°F (60°C).
e) Do not expose the panels to rapid temperature swings or the panel and weld joint may be damaged. Limit the temperature increase/decrease to a maximum of 20°F (11°C) per minute.

f) Should the IVY573 Panels get cracked or damaged through inadvertent contact, contact your Installer or Terra Universal to arrange for repairs.

12. Routine maintenance

a) Takibond 47 is a one component, moisture curing, elastic adhesive, based on silyl modified polymer. It is environmental-friendly and has good weather resistance, so it will fit for both interior and exterior applications.
b) Takibond Features:
   1. Solvent, isocyanate, and water free
   2. One-part system; Simple, trouble free application
   3. Good initial fixation & rapid cure time
   4. Elastic & tenacious
   5. Excellent durability with high tensile, shear strength
   6. Easy to clean up
   7. No gassing or foaming
   8. Excellent mold resistance
   9. Stable peak retention
   10. Good UV and weather resistance
   11. Bonds to a wide variety of substrates
c) Technical Specifications
   1. Packaging consists of 11fl oz/330ml of Takibond adhesive per cartridge, use with manual or pneumatic caulking gun.
   2. Surfaces must be clean, free of dust, standing water, oil or contamination and cracks.
   3. For application instruction refer to the Takiron Installation Manual for additional details
   4. To clean up uncured Takibond 47 from tools and substrates use mild solvents such as methylated spirits or mineral turpentine.

Basic Material	Modified Silicone Polymer
Color	White (colors can be added on request)
Odor	Odorless
Solids content	ca. 98%
Specific Gravity	ca. 1.5
Consistency	Pasty, thixotropic Viscosity; ca. 400 Pa's (10rpm, at 23°C)
Tack Free Time	ca. 20 mins (at 23°C 50% RH)
Cure Depth	ca. 4 mm/24 hr (at 23°C, 50% RH)*
Application Temperature	5°C to 40°C
In Service Temperature Range	-30°C to 90°C
Stress at 100% Elongation	ca 0.6 MPa (According to JIS K-6301)
Tensile Strength	ca. 1.5 MPa (According to JIS K-6301)
Elongation to Break	ca. 500% (According to JIS K-6301)
Shelf Life	12 months in an unopened container
**Curing time is dependent on temperature and humidity*	

d) Hazard Information

1. This product doesn't contain any hazardous ingredients; according to the criteria of Japanese Ministry.
2. Avoid long time contact with skin. Wear personal protective equipment (chemical resistant goggles/gloves/clothing) to prevent direct contact with skin and eyes.
3. Store in a dry place at temperatures between +5°C and +30°C
4. Keep cartridges tightly closed to prevent contact to moisture.

13. Takitape 47

Takitape 47 Features

a) 0.78" (20mm) wide x 0.04" (1.1mm) thick x 33ft (10m) long
b) VOC 14* chemical substances are not contained in this tape.
c) Excellent initial adhesion
d) Suitable to adhere in the low temperature atmosphere.
e) Easy to cut the tape and fits to rough surfaces because special foam is structured in base material.
**VOC 14 chemical Substances; Formaldehyde, Toluene, Xylene, P-Dichlorobenzene, Ethyl benzene, Styrene, Chlorpyrifos, Di-n-butyl phthalate Tetradecane, Diethylhexyl phthalate, Diazinon, Acetaldehyde, Fenobucarb*

14. Certification Documents

Terra Universal can provide the following certificates upon request:

a) FM Approvals FM 4882 standard approvals certification
b) SDS for IVY573
c) SDS for Takibond 47 & Takitape 47
d) SDS for IVY573 Welding Rod 6171
e) SDS for IVY573 Transition parts INRL, INRR, OUTRL
f) SDS for IVY573 Corner parts L Corner 7L952 & R Corner 7R952

Item	Unit	-	Value	Measure-ment meth-od
Adhesion Power (90° Peeling, to SUS Plate)	N/25mm	2nd	14.4	Based on JIS Z 0237
		1st	20.9	
Adhesion Power (90° Peeling, to Gypsum Board)		2nd	11.3	
		1st	12.3	
Tack (J. DOW Method)	1/32"	2nd	32<X	
		1st	32<X	
Holding Power (to SUS Plate, 40°C	mm	2nd	0.1	
		1st	0.1	
**The figures above are not guaranteed values.*				

15. Warranty

1. Takiron shall only guarantee that IVY537 will not suffer surface discoloration or deform for one (1) year after the completion of construction under normal use conditions in conformity with this specification. Takiron assumes no responsibility for damage caused by construction, processes of construction work, or any other causes.
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For details regarding construction procedures, consult us at:

TerraUniversal.com
info@TerraUniversal.com
Tel:+1(714)578-6100
800 South Raymond Ave., Fullerton, CA 92831