VistaClad

Open Joint Profile Cladding

EVA-TECH TECHNICAL DATA SHEET

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Contents

VistaClad Eva-tech

The VistaClad lightweight bamboo composite cladding system is revolutionising how cladding works with an innovative clip strip which locks boards into place using reliable dual clip technology. VistaClad is available in a range of colours and finishes, as a complete cladding system with optional trim and accessories, and designed for ease of installation. Backed by an industry-leading warranty, this low-maintenance, weather resistant cladding is a smart, cost-efficient investment in your project, and a sustainable investment in our planet.

Product name: VistaClad Eva-tech

Product use: Primarily used in cladding, façades, screens, and similar applications.

Material: HDPE and Bamboo cellulose fibres.

Material description: Mono-extruded profiles with a cellulose-polymer composite core.

Document layout

Eva-Last strives to evaluate their products in depth and present the technical and safety information available in a manner that assists with the application thereof. If additional data or information is required, please do not hesitate to contact us at rad@eva-last.com.

In an attempt to simplify the information, similar data is loosely grouped into the categories summarised below. This document is ordered according to these categories and the applicable page number for the start of each section captured in the Table of contents above.

- Material composition
- Physical properties
- Mechanical properties
- Thermal properties
- Fire reaction properties
- Weathering properties
- Surface properties

The Material compositions section captures a summary of the product make-up from the Material Safety Data Sheet (MSDS). A link to the MSDS is provided for additional detail. Summaries of chemical compliance data available are also collected in this section.

The Physical properties section provides a summary of available profiles and general material properties such as density, water absorption, etc. Additional profile information can be obtained from drawings in the appropriate appendix. Where possible, material properties that can be assigned to more specific categories are moved to the relevant section.

The Mechanical properties section captures data related to the product's reaction to various load conditions. The section is broadly assembled into the below categories. Additional profile and sectional information are captured by the drawings in the appropriate appendix.

- Material specific mechanical properties
- Profile specific mechanical properties
- Sectional properties

Product properties such as the expansion coefficient, thermal resistance, etc. are captured, where applicable, in the Thermal properties section.

Information regarding the product's reaction to fire is captured in the Fire reaction properties section.

Test data relating to the acoustic performance of the, where applicable, is summarised in the Acoustic properties section.

Information on the product's resistance to mold, termites, etc. is collected in the Biodegradation properties section.

The Surface properties section summarises information regarding the finish or texture of the product. Test data on aspects such as slip resistance (where applicable) is captured in section.

Where the products form part of a system and, as a result, utilise other components, an additional section to capture useful data regarding these components is added to the document.

Where information is not yet available, the section is simply omitted. In the cases where information can be substituted or supplemented with alternative data (based on similar compositions, etc.), an attempt to do so is made. Where this is the case, it is highlighted. Please make use of the data accordingly. For any additional information regarding this, please feel free to contact rad@eva-last.com.

Ensure the product and application thereof is suitable, rational, and compliant with any applicable regulations or standards. Wherever necessary, consult a suitably qualified professional. For information about the installation and use of the product, please see the applicable Installation Guide (IG). For additional material safety and handling information, please refer to the applicable MSDS. For any further information, please contact rad@eva-last.com.

Material composition

The following table is a simplified material composition for the Eva-tech material technology. For more information regarding the composition, safety, and handling of the material, please see the **Eva-tech MSDS**. for additional information related to the safe use of these products. To confirm which substances are compatible, or incompatible, with the product, please refer to **Appendix B**.

Component	Substance	Mass (%)
Cap and core	Polyethylene (PE)	25
	Cellulose fibre (Bamboo fibres)	56
	Calcium carbonate	15
Additional additives	Other	4

Material Compliance

Eva-tech has been assessed to determine whether it contains Substances of Very High Concern (SVHC) that may be classified as carcinogenic, mutagenic, or toxic to reproduction of humans or animals, or have a persistent, cumulative, or negative impact on the environment in accordance with European REACH (Registration, evaluation, and authorization of chemicals) regulations.

Compliance report	Result	Issue date	Compliance body	Information
SVHC compliance	Pass	2019-06	EU REACH	Of the 197 substances evaluated, non-have been detected. SVHC concentration require detection levels of less than 0.05% of the whole product. See this **link** for the full list of substances.

Physical properties

General material properties

Typical properties of the Eva-tech material technology are captured below as an indication of the expected behaviour of the Eva-tech material.

Properties	Results	Requirement	Test method	Information
Density	1 100 to 1 300 kg/m^2 (68.67 to 81.16 lb/ft^3)	N/A	EN 15534-1	Results are based on internal testing.
Water absorption (Mass)	0.8%	Less than 7%	EN 15534-1 for 28 days	Eva-tech materials were evaluated by a third-party laboratory for water absorption properties in accordance with the test method listed to determine dimensional stability. **See the report here for further details.**
Thickness swell (Dimensional)	1.4%	Less than 5%		
Length swell (Dimensional)	0.1%	Less than 0.6%		
Width swell (Dimensional)	0.2%	Less than 1.2%		

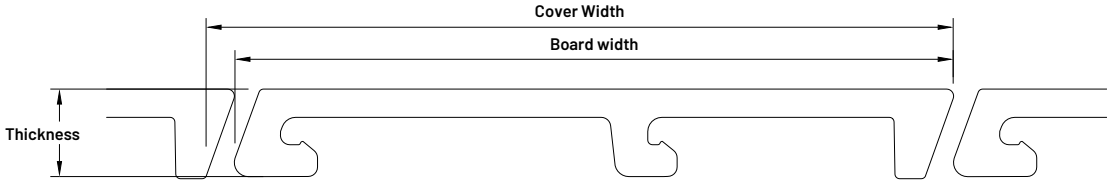
Profile Performance

The profile was evaluated for resistance to thermal exposure, moisture cycling, boiling water immersion, and dimensional stability in accordance with internal laboratory procedures and relevant EN test methods.

Property	Test Condition	Requirement	Result	Test Method
Boiling water resistance	100°C × 24 h	No cracking after continuous boiling	No cracking observed	BS EN 15534-1:2014+A1:2017
Extended boiling water resistance	100°C × 72 h	No delamination, blistering, swelling, cracking, wrinkling, or surface peeling	No abnormalities observed	BS EN 15534-1:2014+A1:2017
Thermal and moisture cycling resistance	35°C drying for 24 h + 60°C water immersion for 12 h per cycle × 5 cycles	No blistering, bubbling, cracking, or delamination	No blistering, bubbling, or cracking observed	LY/T 2565-2015 Section 5.3.10

Profile properties

The following table is a summary of the currently available profiles, please see **Appendix A** for profile drawings.



Profile ID	Material	Description	Board width mm (in)	Thickness mm (in)	Linear mass kg/m (lb/ft)	Cover width mm (in)	Coverage m/m^2 (ft/ft^2)	Coverage mass kg/m^2 (ft/ft^2)	VistaClad trim compatibility
ST02R	Eva-tech		152.6 (6.01)	18.6 (0.73)	1.75 (1.18)	152.6 (6.01)	6.6 (2.02)	11.6 (2.38)	Yes* Requires caulking

Mechanical properties

Material specific mechanical properties

All information within this table is based on internal laboratory results of Eva-tech.

Properties	Result	Test method	Information
Abrasion resistance	16 mg (0.0005 oz)	ASTM D4060	An abrasive wheel carrying a 1 kg load and rotating at 60 rotations a minute was applied to the surface of the profile. The product of the abrasion was then weighed after 1 000 rotations
Hardness	71	Shore D	The depth of penetration of a specific indenter. Results greater than sixty fall under the category “Extra hard”
Value of residual indentation	0.1 (0.003)	EN 15534-1:2014	A striking pin with a mass of 1000 g and a spherical surface of the striking pin had a radius of 25 mm. The falling height was 700 mm. The report can be found **here** .
Maximum crack length	No Cracking	EN 15534-1: 2014	
Scratch resistance	0.5	FORD FLTM BO 162-01	Several weighted sharp ended shafts are run against the surface of the board and the depth of the marks measured to determine scratch resistance.
Brinell hardness	39.8	EN 15534-1	

Flexural Performance

Flexural properties of composite cladding profiles can be influenced by profile geometry and support span. The following results were obtained from internal laboratory testing of the first batch of product conducted in accordance with BS EN 15534-1:2014+A1:2017 using three-point bending evaluations.

Profile	Span mm (in)	Maximum Load (kN)	Flexural Strength MOR (MPa)	Flexural Modulus MOE (MPa)
ST02R OJP Profile	300	0.736	9.63	959
	400	0.529	9.22	1 095
	450	0.453	8.90	1 156
	550	0.428	10.28	1 631

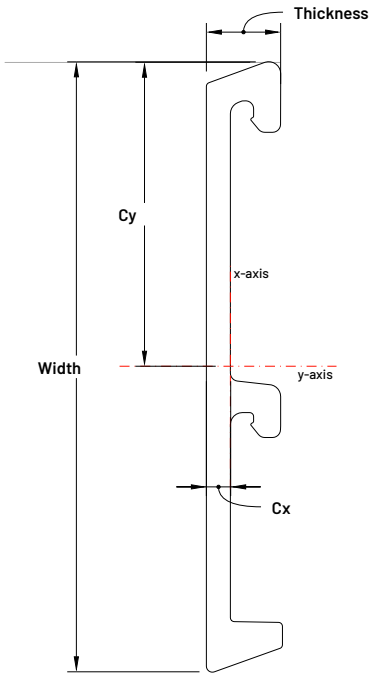
Impact of weathering (material factor estimate)

Material properties can vary as a result of long-term weathering. To estimate this impact on the material's flexural properties, the product is subjected to various weathering effects and the performance with and without weathering is compared. The overall end-use adjustment factor is selected based on the weathering effect that has the most impact on the material.

Properties	Flexural strength (%)	Flexural stiffness (%)	Adjustment factor	Test method	Information
High temperature effect	96.8	90.3	0.9	ASTM D7032 – 17, ASTM D2565, and ASTM D790.	To confirm compliance with ICC-ES, AC 174, Infinity materials were evaluated for a decking application to determine what affect temperature, moisture and UV exposure had on the flexural performance of the material in accordance with the test methods listed. The end use adjustment factor is based on the effect with the most impact. The results of which can be located within the issued CCR report, here.
Low temperature effect	145.6	137.5	1.0		
Moisture effect	108.3	108.5	1.0		
UV resistance	92.7	94.4	1.0		
Freeze-thaw resistance	104.8	100.7	1.0		
Overall end-Use adjustment factor			0.9		

Sectional properties

The following table provides a sectional property summary of the currently available VistaClad Infinity profiles in their typical board orientation. Please see **Appendix A** for profile drawings and further information.



Profile ID	Width mm (in)	Thickness mm (in)	Area mm^2 (in^2)	I_x mm^4 (in^4)	I_y mm^4 (in^4)	C_x mm (in)	C_y mm (in)	S_x mm^3 (in^3)	S_y mm^3 (in^3)
ST02R	152.6 (6.01)	18.5 (0.73)	1292 (2.00)	2 899 366 (6.96)	34 465 (0.08)	76.47 (3.01)	12.94 (0.51)	37 912 (2.31)	2 663 (0.16)

Thermal Properties

Typical properties of the Eva-tech material technology are captured below as an indication of the expected behaviour of the Eva-tech products.

Properties	Results	Test method	Information
Coefficient of thermal expansion (CTE)	47.1 x 10-6 mm/mm.°C 25 x 10-6 in/in.°F	ASTM D696-16	Eva-tech thermal properties were evaluated by a third-party laboratory. The report may be found here.

Weathering

Most materials are susceptible to weathering. The environment, and factors such as Ultraviolet (UV) light exposure, oxidation and contact with organisms (termites, mold, etc.), to which the materials are exposed will influence the rate of deterioration. The impact of weathering on the flexural performance (material factor estimate) of the products is captured in the Mechanical properties section above.

Colour fade

Weathering over time can result in a colour change of the material. **ΔE** is a common form of measurement for colour fade. The **ΔE** denotes the colour difference between an original sample and a tested sample after different levels of exposure to UV light (and potentially other weathering effects). **ΔE** is measured on a scale of 1 to 100 and attempts to provide a simple metric of how the human eye perceives colour change. Both 'light' and 'dark' colours are tested to provide an indication of the range of performance of the product.

Standard	Colour Reference	Hours	ΔE	Grey scale	Test method	Information
EN	C11 – Xavia – Dark grey	1 300	8.2	2.5	ASTM G155	Changes perceptible at a glance
	C04 – Rusteak – Brown	1 300	4.3	4.0		Changes perceptible through close observation

Biodegradation

Materials susceptible to organism-induced degradation, like termites or mold, can deteriorate over time. In the absence of specific data for Eva-tech, the bellow tables are based on Infinity materials, which share a core composition with Eva-tech. Consequently, it is assumed their performance will be similar. Nonetheless, it is important to note that Eva-tech's sanded surface could expose cellulose materials, an aspect that may influence its durability in a distinct manner.

Fungal and Termite resistance

As a certain percentage of cellulose-polymer composition contains cellulose fibres which may provide nutrition to fungi and mold, promote growth, samples were exposed to spores and their growth rates monitored.

Standard	Fungal strand	Measured value	Test method	Information
ICC-ES AC 174 (Fungal resistance)	G.trabeum (change in mass)	0.77%	ASTM D 2017	To confirm compliance with ICC-ES, AC 174, bio resistance requirements. The results of which can be located within the issued CCR report **here**
	P.Placenta (change in mass)	0.91%		
	T.Versicolor (change in mass)	0.90%		
	I.Lacteus (change in mass)	0.91%		
ICC-ES AC 174 (Termite resistance)	G.trabeum (change in mass)	0.77%		

Infinity materials were submitted for testing to confirm the effectiveness of fungistatic compounds within the composition's formulation, then visually assessed in accordance with the following scale.

0. No growth, the material is resistant to fungal attack.
1. Initial growth, the material is partially protected against fungal attack or generally not susceptible to such attach.
2. Obvious growth and sporulation, the material is susceptible to fungal attack.

Standard	Fungal strand	Measured value	Test method	Information
Eurocode	A.Niger , ATCC 6275	0	ISO 16869	To confirm compliance with ISO 16869 for fungal, Infinity samples were exposed to spores for a period of 21 days and their growth rates monitored. The report can be found **here**.
	C. Globosum , ATCC 6205	0		
	P.Variotii, CICC 40379	0		
	P.Funiculosum, CICC 40279	0		
	T.Longibrachiatum CICC 13053	0		

System components

The following section provides a brief overview of the system components and ancillary items with which the Apex cladding profiles interact. Please see **Appendix B** for drawings.

Cladding clip strips

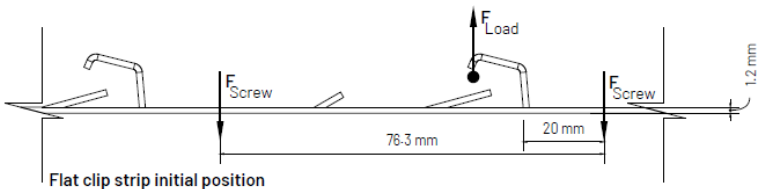
Material specific properties

Typical mechanical properties for ISQ 230 (AMSA) from online sources.

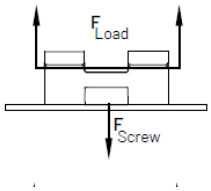
Properties	Results	Notes
Typical yield strength	230 MPa (33 350 lbf/in^2)	Typical for ISQ 230 (SANS 4998 Gr220, ASTM A653 Gr230 CS type A, EN 10346 DX 51D, JIS G3302 SGCC).
Ultimate tensile strength	270 to 500 MPa (39 150 to 72 500 lbf/in^2)	
Modulus of Elasticity	200 GPa (2.901 x 107 lbf/in^2)	
Bulk Modulus	160 GPa (2.32 x 107 lbf/in^2)	
Poisson Ratio	0.29	
Shear modulus	80 (GPa) (1.16 x 107 lbf/in^2)	

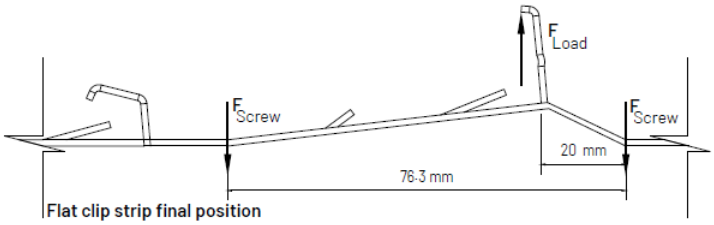
Profile specific strength properties

The individual 'supports' of the clip strip that hold the boards in once installed were tested to provide an indication of a yielding point under a negative load. These springs were loaded (Fload in schematics below) individually with a custom-made jig that would result in the maximum moment being generated (attempting to replicate a worst-case scenario). The strips were supported with fasteners (Fscrew in schematics below) into a secure substructure using the holes provided in the strips: two through the front face of the flat strip either side of the point of application of the tensile load and four through the bottom flanges of the top hat.

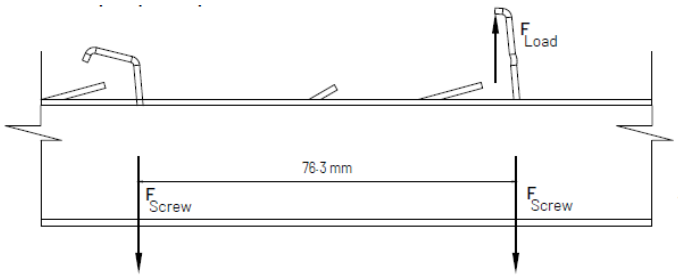


Flat clip strip initial position

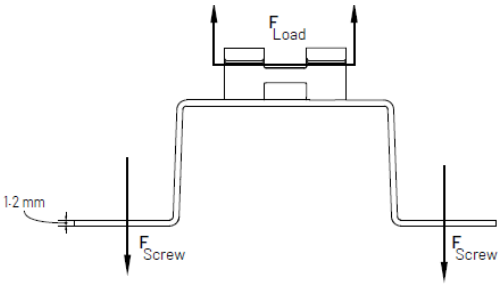




Flat clip strip final position



Top hat clip strip final position



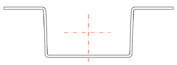
The yield load captured below is an indication of the load at which a single clip deforms to an extent that would allow the respective part of the board profile to escape the clip. This load provides an indication of the maximum load that a single clip strip interaction can support. It is suggested that this would be conservative when considering the interaction of multiple clip strips and boards together. In this scenario, it is expected that a larger load would be required to create enough deformation that would facilitate the release of a board or part thereof. These assessments assume adequate interaction between the board and clip strip, and appropriate fixing of the clip strip to the substructure/substrate. Note that the tests conducted on the flat strips resulted in localized separation (see final flat clip strip schematic above) of the clip strip from the support structure during loading (a potential explanation of the differences in results below). This highlights the need for appropriate fixing frequency between this part and the substructure/substrate (in addition to fastener withdrawal limitations).

Item	Min. yield load N (lbf)	Average yield load N (lbf)	Test method	Information
Flat strip	431 (96.9)	595 (133.77)	N/A	Simple tensile tests were conducted by an independent third-party laboratory. Five samples of the flat strip and five samples of top hat strip were tested. The performance of the top hat strip is assumed to be indicative of that of the channel strip.
Channel	374 (84.08)	429 (96.45)		
Top hat	374 (84.08)	429 (96.45)		

Weathering (Corrosion information)

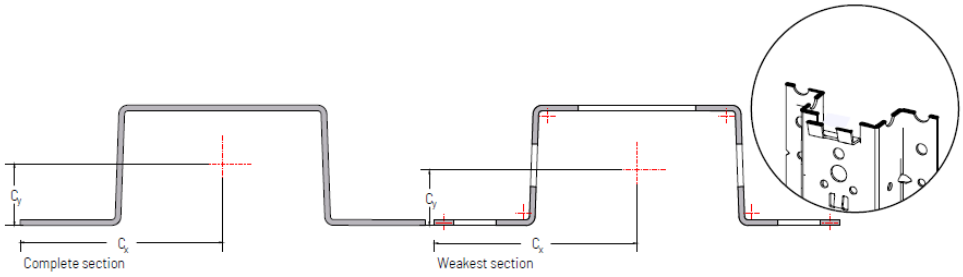
Part	Specification	Thickness	Notes
Steel substrate	ISO 230	1.2 mm (0.05")	All clip strip types are 1.2 mm (0.05") thick.
Galvanisation	Z275	19 µm	Supplier information.
Powder coating	Ferro VEDOC VP Polyester (matt black)	60 to 80 µm	Supplier information.

Profile properties

Item	Description	Material	Width mm (in)	Gauge mm (in)	Depth mm (in)	Ventilation gap mm (in)	Length mm (in)	Mass kg (lb)
Flat strip		Galvanised steel ISO 230 (Z275) Powder coated	40 (1.58)	1.2 (0.05)	12 (0.47)	1.2 (0.05)	1 831 (72.09)	0.7 (1.55)
Channel			45 (1.77)	1.2 (0.05)	34 (1.34)	> 23.5 (0.93)	2 745 (108.07)	2.2 (4.86)
Top hat			86 (3.39)	1.2 (0.05)	36 (1.42)	> 25.4 (1)	2 745 (108.07)	3.2 (7.06)

Sectional properties

Sectional properties for the full cross-section of each profile as well as the portion of the profile with the most cavities present are provided.



Item	Width mm (in)	Thickness mm (in)	Area mm^2 (in^2)	I_x mm^4 (in^4)	I_y mm^4 (in^4)	C_x mm (in)	C_y mm (in)	S_x mm^3 (in^3)	S_y mm^3 (in^3)
Flat strip	40 (1.58)	1.2 (0.05) G18	48 (1.89)	6 (0.01)	6400 (0.02)	20 (0.79)	0.6 (0.03)	10 (0.01)	320 (0.02)
Flat strip adjustment			18 (0.71)	2.2 (0.01)	4889 (0.02)	20 (0.79)	0.6 (0.03)	3.7 (0.01)	244 (0.02)
Channel	45 (1.78)	1.2 (0.05) G18	105 (4.14)	5820 (0.02)	33006 (0.08)	22.7 (0.9)	16.9 (0.67)	345 (0.03)	1455 (0.09)
Channel adjustment			54 (2.13)	3775 (0.01)	21334 (0.06)	22.7 (0.9)	16 (0.63)	235 (0.02)	950 (0.06)
Top hat	86 (3.39)	1.2 (0.05) G18	156 (6.15)	17166 (0.05)	87585 (0.22)	42.7 (1.69)	12.8 (0.51)	1338 (0.09)	2050 (0.13)
Top hat adjustment			83 (3.27)	9446 (0.03)	50452 (0.13)	42.7 (1.69)	11.8 (0.47)	802 (0.05)	1180 (0.08)

Fasteners

The following table provides a quick reference list of typical fasteners that may be used for various substrates. This information has been collected from several manufacturers for convenience and is presented herein to provide indicative performance. Please refer to applicable manufacturers for further information and/or confirmation of the suitability of the application. Appropriate fasteners must be utilised. Particular attention should be paid to substructure/substrate and environmental conditions (particularly with respect to corrosion) of the site. All applications should adhere to applicable standards. All timber and metal profiles should be treated and/or coated appropriately. Regular proactive maintenance is advised where possible.

Application	Fastener type	Material	Size (mm)	Tensile kN (lbf)	Ultimate Shear kN (lbf)	Withdrawal resistance kN (lbf)	Edge distance	Minimum spacing	Minimum substructure material specification
Timber	Wafer head Tek screw	C1022 case hardened	M5.5 x 45 M5.5 x 50	13.9 (3 124.72)	8.4 (1 888.32)	3.9 (876.72)	Ø x 5 = 28 mm (1.10″)	Ø x 5 = 28 mm (1.10″)	Pine - F7 rated at 36 mm (1.42″) embedment
Steel	Wafer head Tek screw	C1022 case hardened	M5.5 x 22 M5.5 x 25	15.3 (3 439.44)	8.8 (1 978.24)	2.2 (494.56) 4.0 (899.20) 5.4 (1 213.92) 7.4 (1 663.52)	Ø x 2 = 12 mm (0.47″)	Ø x 2 = 12 mm (0.47″)	Steel - 1.2 mm (0.05″) thick Steel - 1.5 (0.06″) mm thick Steel - 1.9 (0.08″) mm thick Steel - 2.4 (0.10″) mm thick
Masonry	Hilti HPS-1 6 PE sleeved anchor*	Carbon steel, galvanised	M 6.0 x 40	0.25 (56.20)	0.35 (78.68)	Not available	30 mm (1.18″)	30 mm (1.18″)	Devoid of cracks and similar. Typical embedment depth of 30 to 40 mm (1.18″ to 1.58″) Confirm adequate strength. Refer to Hilti TDS.
	Hilti HUS3-P Concrete screw*	Carbon steel, galvanised	M5.0 x 40	2.8 (629.44)	3.9 (876.72)	Not available	35 mm (1.38″)	35 mm (1.38″)	Devoid of cracks and similar. Typical embedment depth of 40 mm (1.58″). Confirm adequate strength. Refer to Hilti TDS.

*Refer to actual suppliers TDS for specific information.

Typical fastener specifications and coating

Screw corrosion classification

The following table provides a summary of materials and coatings typical fasteners used by Eva-last.

		Material Details		
Fastener category	Size	Material	Coating Type	Coating Thickness
Carbon clip screws	M4.2	C1022	Magni 599 (full coat)	20 µm
Carbon deck screws	M5.0			
Carbon frame screws	M6.0			
Carbon trim screws	M5.5	10B21		20 µm
Tek screw	M5.5 M5.5 M5.5	C1022	Class 3 Class 4 Zinc Plated	25 µm 50 µm 8 µm
Stainless clip screw	M4.2	SS316	Magni 599 (full coat)	20 µm
Stainless deck screw	M5.0		Enamel head coating	N/a
Stainless trim screw	M5.5			

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Website: www.eva-last.com

Appendix A
Profiles

Profile properties	
Product code	ST02R
Sectional area (mm²)	1 292
Approximate mass (kg/m)	1.75

Sectional properties	
I_x (mm)	2 899 366
I_y (mm)	34 465
C (mm)	76.47
C (mm)	12.94
S (mm³)	37 912
S (mm³)	2 663

Drawing title

ST02R - OJP Profile 18.6 mm

File name

VERSION G - TDS - VistaClad OJP

File details

Drawing number	
Date	
Page	
Scale	

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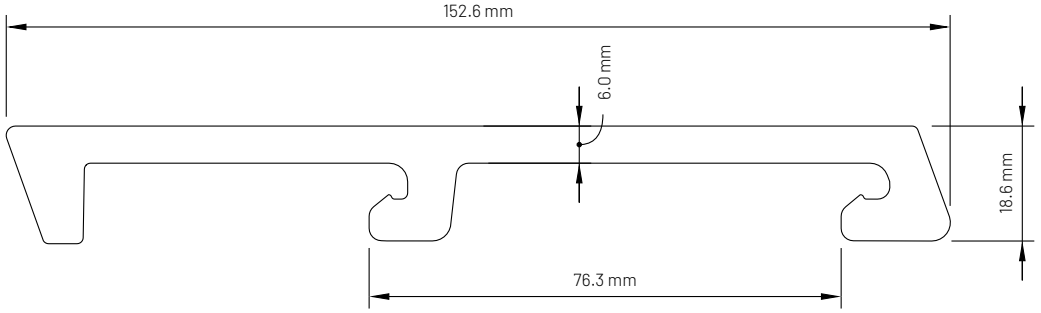
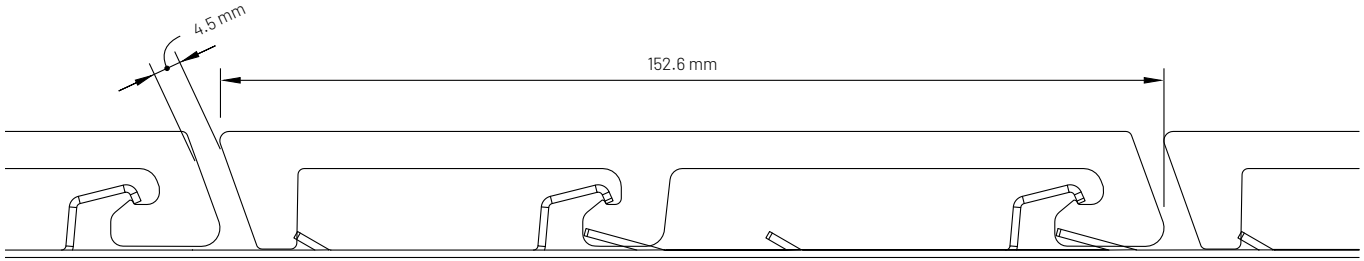
VistaClad
Open Joint Profile Cladding





Appendix B
System components

Profile properties	
Product code	Flat strip
Sectional area (mm²)	48
Approximate mass (kg/m)	±0.4

Sectional properties	
I_x (mm⁴)	6
I_y (mm⁴)	6 400
C_x (mm)	0.6
C_y (mm)	20
S_x (mm³)	10
S_y (mm³)	320

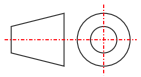
Drawing title

Cladding clip strip - Flat strip

File name

VERSION F - TDS - VistaClad Parts

File details



Drawing number	01
Date	December 14, 2023
Page	6 of 8
Scale	NTS

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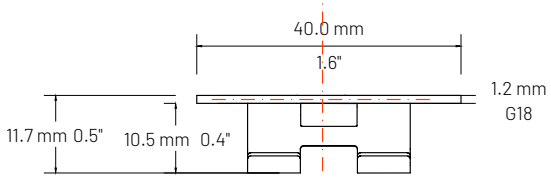
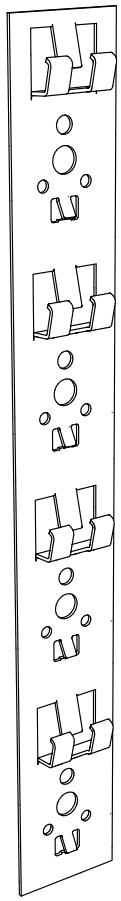
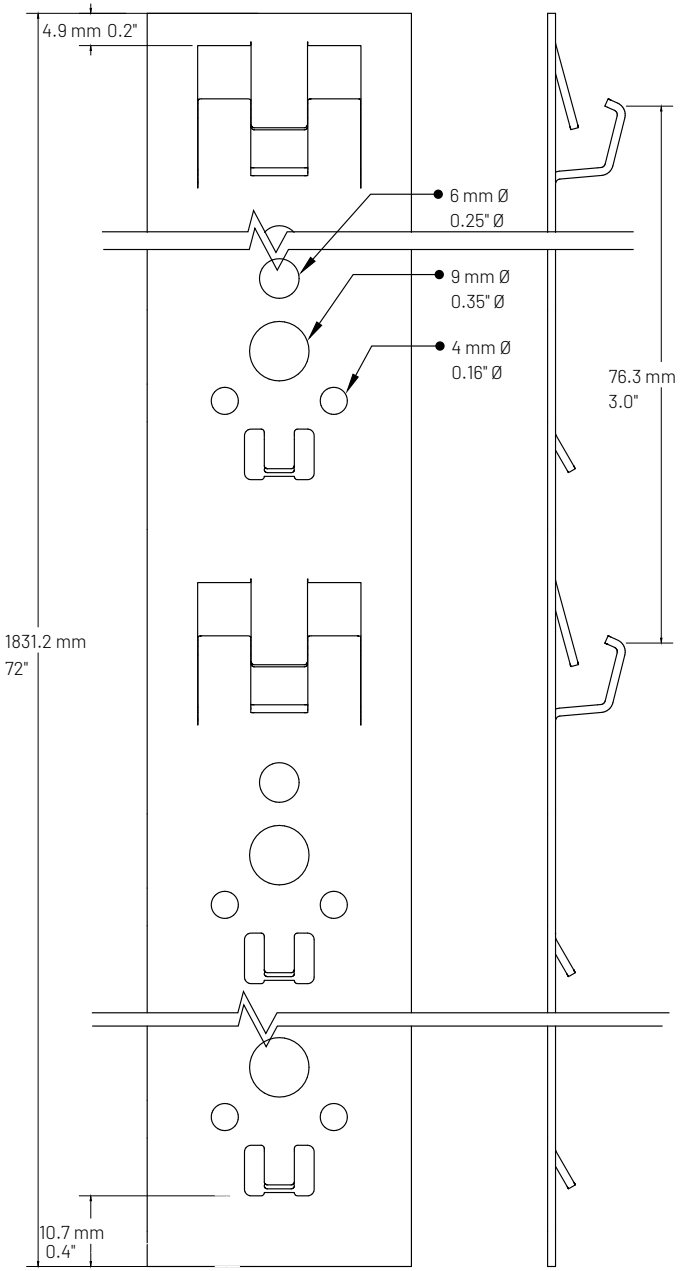
VistaClad
Open Joint Profile Cladding







Profile properties	
Product code	Channel
Sectional area (mm²)	105
Approximate mass (kg/m)	±0.8

Sectional properties	
I_x (mm⁴)	5 820
I_y (mm⁴)	33 006
C_x (mm)	22.7
C_y (mm)	16.9
S_x (mm³)	345
S_y (mm³)	1 455

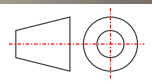
Drawing title

Cladding clip strip - Channel

File name

VERSION F - TDS - VistaClad Parts

File details



Drawing number	01
Date	December 14, 2023
Page	7 of 8
Scale	NTS

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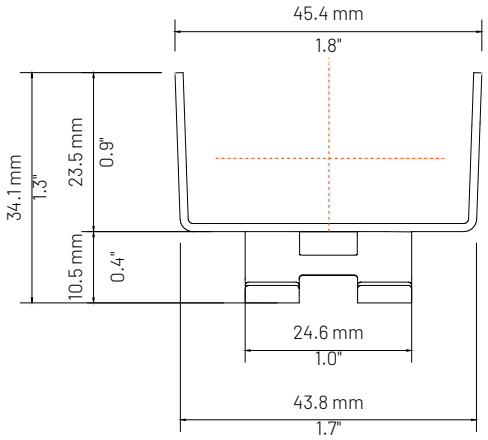
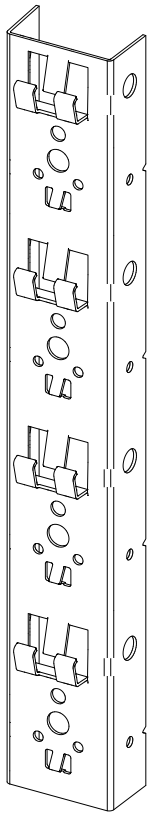
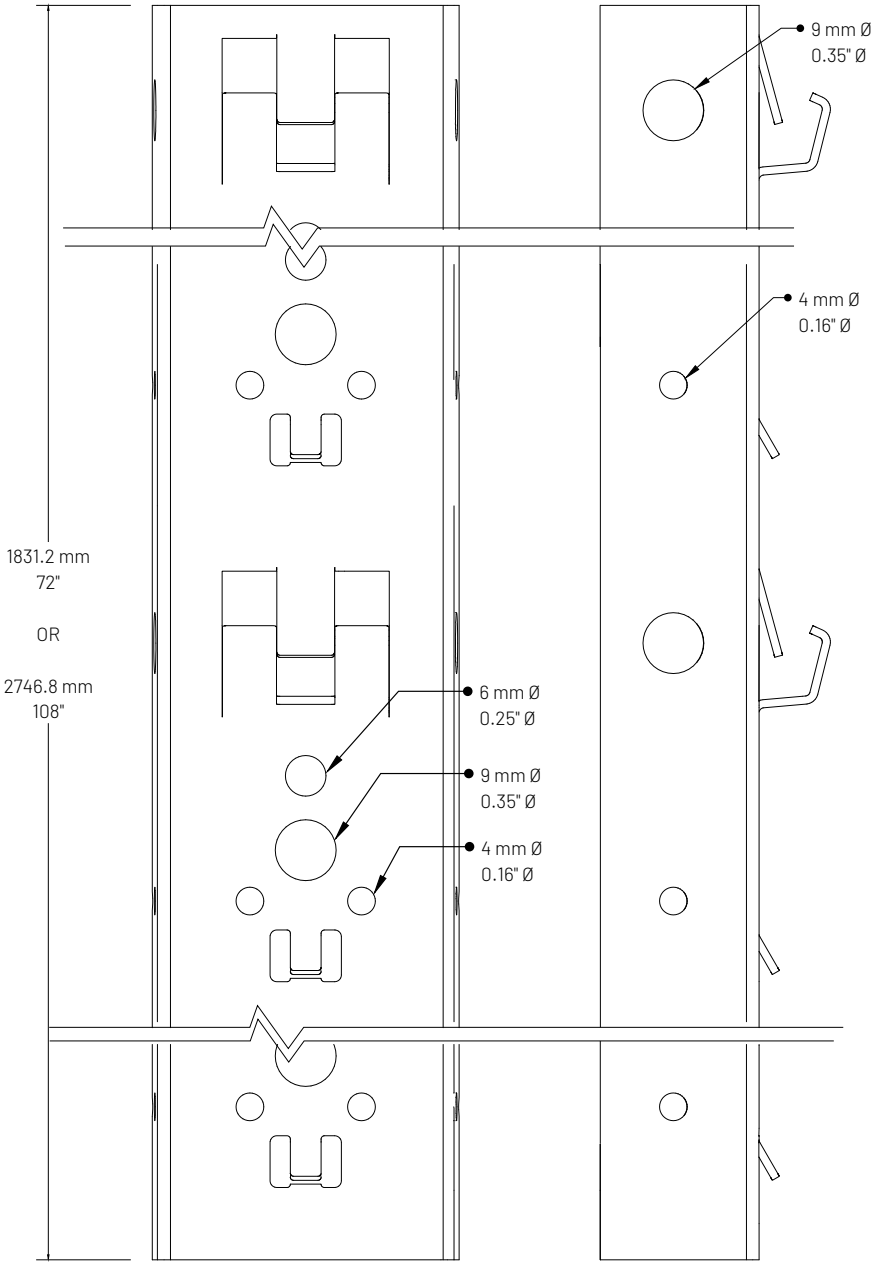
VistaClad
Open Joint Profile Cladding







Profile properties

Product code	Top hat
Sectional area (mm²)	156
Approximate mass (kg/m)	±1.2

Sectional properties

I_x (mm⁴)	17 166
I_y (mm⁴)	87 585
C_x (mm)	42.7
C_y (mm)	12.8
S_x (mm³)	1 338
S_y (mm³)	2 050

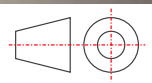
Drawing title

Cladding clip strip - Top hat

File name

VERSION F - TDS - VistaClad Parts

File details



Drawing number	01
Date	December 14, 2023
Page	8 of 8
Scale	NTS

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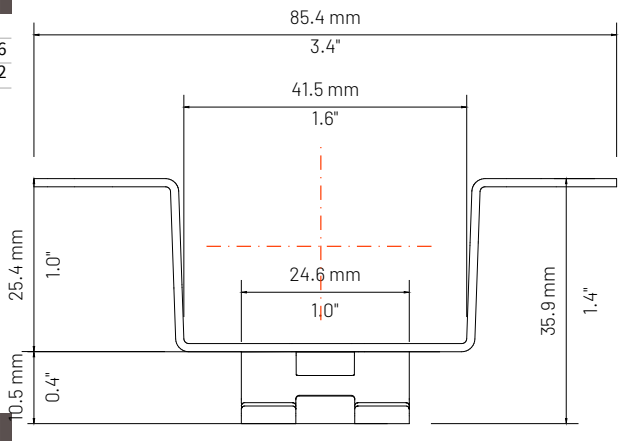
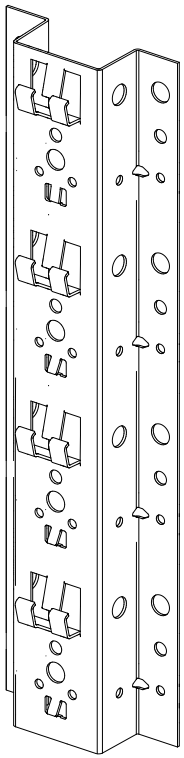
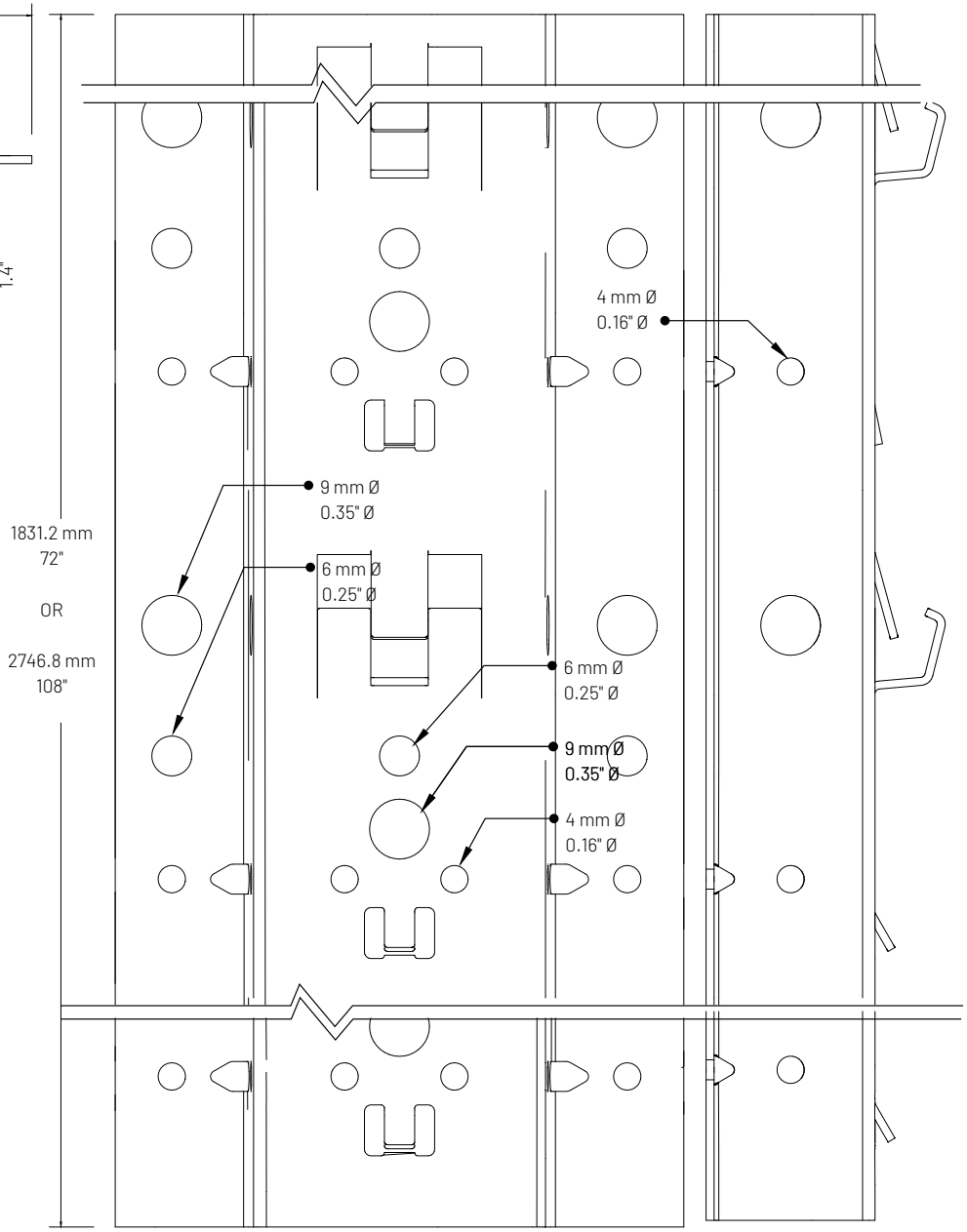
VistaClad
Open Joint Profile Cladding







Appendix C
Material compatibility

Eva-tech profiles blend cellulose fibers within an HDPE polymer matrix, often featuring sanded surfaces that reveal the fibers. This unique combination, similar to other materials, has specific sensitivities to various substances that could potentially lead to surface damage. Sources of such substances often include cleaning agents, pool chemicals, plant oils, and saps. It is important, as with any material, to understand and ensure compatibility with Eva-tech products, particularly when they are likely to come into contact with different chemicals.

The insights provided are derived from extensive reports and publications. For detailed information on the reaction of bamboo fibers, you can refer to **[this report]**. Additionally, a comparative analysis of three HDPE chemical compatibility charts, including the **A. Shulman list**, **GVF list**, and the **Astisensor list**, offers an in-depth overview of the various chemicals that impact HDPE, particularly at different solution temperatures.

To guide chemical selection and prevent damage to HDPE, LDPE, and bamboo pulp fibers, certain substances are best avoided:

- **Strong Acids:** Sulfuric acid, hydrochloric acid, nitric acid, chromic acid, phosphoric acid, and aqua regia are known to affect polyethylene and bamboo pulp fibers, especially at higher temperatures.
- **Halogen Gases and Liquids:** Bromine and fluorine can be harmful to both polyethylene and bamboo pulp fibers.
- **Organic Solvents and Compounds:** Aromatic hydrocarbons, benzene, butyric acid, tetrachloroethylene, tetrahydrofuran, and trichloroethylene may impact these materials.
- **Other Specific Chemicals:** Use caution with boron trifluoride, chlorosulphonic acid, cyclohexane, hydrogen peroxide, oleum, calcium benzoate, calcium bromates, and titanium tetrachloride.

The following list outlines chemicals and their concentrations where information is available; that have been identified to negatively impact HDPE or bamboo, as indicated in various studies. While this list is extensive, it is not definitive. For situations where the chemical impact on Eva-tech decking is uncertain, conducting tests is recommended. Additional details, including specific materials and temperatures that may influence these reactions, are available in the referenced reports and lists.

A

Acetic acid, glacial > 96 %
After shave
Allyl alcohol 100%
Amyl acetate (100%)
Amyl chloride 100%
Aniline (100%)
Anise seed oil
Aqua Regia (80% HCl, 20% HNO3)
Aromatic hydrocarbon

B

Benzaldehyde 100%
Benzene 100%
Brake fluid
Bromine, dry gas 100%
bromine, liquid 100%
Bromochloromethane
Bromoform 100%
Butadiene
Butyl acetate (100%)

C

Camphor oil
Carbon disulphide 100%
Carbon tetrachloride 100%
Caustic soda
Cedar leaf oil
Cedar wood oil
Chlorine liquid
Chlorine, aqueduct. Sol.
Chlorine, dry gas 100%
chlorobenzene 100%
Chlorobenzene
Chloroform 100%
Chlorosulphocyclonic acid 100%
Chlorotoluene
Chrome alum saturated
Chromic acid (10-20%)
Cinnamon oil
Citronella oil
Cresols
Cuprous chloride saturated
Cuprouxide
Cyclohexane
Cyclohexanone

D

Decane
Dibutyl amine
Dibutyl ether
Dichlorobenzene
Dichloroethylene
Dichloropropylene
Diesel Fuel
Diethyl Ether
Diethylamine
Dipentene

E

Ether
Ethyl acetate 100%
Ethyl acrylate 100%
Ethyl benzene
Ethyl chloride 100%
Ethyl ether
Ethyl mercaptan
Ethylbenzene
Ethylene chloride 100%
Ethylene Dichloride

F

Ferric Chloride
Fluorine
Fluorine gas 100%
Fluorine gas, dry 100%
Fluorine gas, wet 100%
Fluorine
Formaldehyde (30—40%)
Fuel oil
Furfural (100%)
Furfural 100%
Furfuryl alcohol

G

Gasoline
Glucose
Glycerine

H

Heptane
Hexachlorobenzene
Hexane
Hydrazine
Hydrobromic Acid 100%
Hydrobromic Acid 20%
Hydrochloric Acid > 37% *
Hydrochloric Acid, Dry Gas
Hydrofluoric Acid 100%
hydrogen peroxide >30%

I

Iodine crystal
Iodine, in alcohol
Iodine, in potassium Sol.
Iso pentane
Iso propyl amine
Isopropyl ether 100%

J

Jet Fuel (JP3, JP4, JP5, JP8)

K

Kerosene
Kerosene
Ketones

L

Lacquer Thinners
Lacquers
Lemon oil
Lithium Chloride
Lithium Hydroxide
Lysol.

M

Methoxy butanol 100%
Methyl benzoic acid Sat. Sol.
Methyl bromide 100%
Methyl chloride 100%
Methyl ethyl ketone (100%)
Methyl Isobutyl Ketone
Methylene chloride
Mineral oils
Mineral Spirits
Monochloroacetic Acid

N

Naphtha
Naphtha
Naphthalene
N-heptane 100%
Nitric acid >68% *
Nitric acid 95%
Nitrobenzene 100%
Nitroethane 100%
Nitroglycerine
Nitromethane
Nitrotoluene
N-pentane

O

Octyl alcohol
Oils: Cinnamon
Oils: Crude Oil
Oleum (H2SO4 + 10% SO3)
Oleum (H2SO4 + 50% SO3)
Oleum concentrated.
Olive oil
Ozone 100%
Ozone
O-zylene

P

Paraffin oil
Pentane 2
Peppermint oil
Perchloric acid 70%
Perchloric Acid
Perchloroethylene
Petroleum
Petroleum ether
Phenol (10%)
Phenol (Carbolic Acid)
Phosphoric Acid (molten)
Picric Acid
Pine oil
Propane (liquefied)
Propylene dichloride 100%
Pyridine
P-zylene

S

Sodium Iodide
Styrene
Sulphur Dioxide
Sulphur dioxide, dry 100%
Sulphur trioxide 100%
Sulphuric acid > 20 % *
Sulphuric acid, fuming

T

Tetrachloroethylene 100%
Tetrachloromethane 100%
Tetradecane
Tetrahydrofuran
Tetrahydronaphthalene 100%
Thionyl chloride 100%
Tin II chloride Sat. Sol.
Tin IV chloride Sat. Sol.
Tin IV chloride Sol.
Titanium tetrachloride Sat. Sol.
Toluene (Toluol)
Toluene 100%
Toluene
Transformer oil
Tribromomethane
Trichloroethylene 100%
Turpentine

V

Vinyl Acetate

X

Xylene 100%

*Known to dissolve bamboo.