

APEX[®] TECHNICAL DATA SHEET

Apex[®]

Identification

Date of Publication:

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Product name: Eva-Last® Apex® co-extruded mineral-polymer composite decking.

Product use: This product is primarily used for decking, facades, screens, cladding, etc.

Website: www.eva-last.com

Manufacturers information:

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Product information: +27 10 593 9220

Technology description






The Apex® range was developed to provide a lightweight alternative to the Eva-Last® cellulose-polymer range. The foamed mineral-polymer core has improved water and fire resistance behaviour. The innovative double layer polymer coat provides a unique texture and aesthetic characteristic as well as improved slip resistance.

Deck profile specification

Description	Profile width (mm)	Depth (mm)	Typical length (mm)	Coverage (m/m²)*	Mass per meter (kg/m)
 Grooved deck board	140	24	5 700	5.10	3.18
			5 450		
			4 800		
Available in a single sided and double sided boards.  Grooved deck board	190	24	5 700	5.10	3.18
			5 450		
			4 800		
 Grooved deck board Single sided	135	24	5 700	5.10	3.18
			5 450		
			4 800		
 Square edge deck board	140	24	5 700	5.10	3.18
			5 450		
			4 800		
Available in a single sided and double sided boards.  Square edge deck board	190	24	5 700	5.10	3.18
			5 450		
			4 800		

*Coverage includes a 5mm gap between boards.

Fascia and batten profile specifications

Description	Profile width (mm)	Profile height (mm)	Typical length (mm)	Coverage (m/m²)*	Mass per meter (kg/m)
 Single sided fascia board	150	12	2 200	6.5	1.3
 Single sided fascia board	254	13	2 200	3.9	2.3
 Single sided fascia board	297	16	2 200	3.4	3.0
 Single sided fascia board	184	14	2 200	5.5	2.1
 Batten	40	30	2 800	N/A	1.1

*Coverage includes a 5 mm gap between boards.
**Spans are based on boards in a vertical orientation.

Composition

Substance	Approximate mass	CAS Number	Agency	Exposure limit	Comment
Core					
Polyvinyl chloride (PVC)	50 %	9002-86-2	OSHA-PEL ACGIH-TLV	5 mg/m³ (respirable dust) 10 mg/m³ (as nuisance dust)	Thermoplastic
Calcium Carbonate (CaCO₃)	40 %	471-34-1	OSHA-PEL NIOSH-REL	5 mg/m³ (respirable dust) 5 mg/m³ (respirable dust)	N/A
Bamboo fibre	3 – 10 %	N/A	OSHA-PEL OSHA-REL ACGIH-PEL ACGIH-REL	PEL-TWA 15 mg/m³ (total dust) PEL-TWA 5 mg/m³ (respiratory dust fraction) TLV-TWA 3 mg/m³ (respiratory dust fraction) TLV-STEL 10 mg/m³ (inhabitable particles)	
Foaming agent				Information withheld	
Lubricating agent				Information withheld	
Cap					
Acrylonitrile styrene acrylate (ASA)	70 – 100 %	26299-47-8	N/A	Non-hazardous material	N/A
Additives	1 – 30 %			Information withheld	
Additional additives					
Anti-mould agents, coupling agents, anti-UV agents, colour pigments, etc.				Information withheld	

NOTE

The primary composition of this product is PVC. This product contains a proprietary blend of components encapsulated within a polymer matrix. Trace impurities may be present but are in insignificant quantities to affect the purity of the product.

Bamboo is a species of the grass family which has distinct anatomical differences from that of timber. Therefore bamboo would be regulated as an organic dust in a category known as "Particulates Not Otherwise Regulated" (PNOR), or nuisance dust by OSHA. The ACG IH classifies dust or particulate in this category as "Particulates Not Otherwise Specified".

Typical profile specifications

Width (mm)	140	Mass per meter (kg/m)	2.3
Thickness (mm)	24	Coverage (m/m ²)	6.9
Length (mm)	Vary		
Appearance	Planks are supplied in various colours and finishes		



Mechanical properties (ASTM D790)

Mechanical properties (4 point load at 300 mm span)	Measured value	2000 Hours weathering	Notes
Modulus of elasticity MOE (MPa)	1554	1640	
Modulus of rupture MOR (MPa)	23.6	26.0	
Creep recovery (%)	89		
Unrecoverable deflection (mm)	0.09		Test load of 302 N at a 300 mm span

Weathering effects (ASTM D6109)

Mechanical properties (3 point load)	Conditions at 300 mm spans				
	Control	Freeze-thaw	Moisture	High temperature	Low temperature
Modulus of elasticity MOE (MPa)	1 433	1 368	1644	1 204	2 047
Modulus of rupture MOR (MPa)	22.0	22.6	24.6	19.5	41.4

Surface properties

Finish: L

Physical properties	Measured value	Test standard	Note
Scratch resistance (N)	7.0	FORD FLTM B0 162-01-2009	
Slip resistance	65	AS 4586 2013 Appendix A - Wet pendulum	With grain Class P5
Slip resistance	67	AS 4586 2013 Appendix A - Wet pendulum	Across grain Class P5
Slip resistance	0.95	AS 4586 2013 Appendix B - Dry floor friction	Class D1
Slip resistance (°)	34.0	AS 4586-2013 Appendix A - Wet-barefoot inclining platform	Class C
Slip resistance (°)	27.4	AS 4586-2013 Appendix A - Oil-wet inclining platform	Class R11
Abrasion (mg/r)	0.1	ASTM D4060-14	CS-17/1000 g
Shore hardness	82	ISO 868-2003	HD

Artificial weathering (3000 Hours)	Ash	ΔE 1.096	ASTM G154-7
	Cumaru	ΔE 2.256	ASTM G154-7
	Garapa	ΔE 1.721	ASTM G154-7
Artificial weathering (2000 hours) Garapa	ΔL	0.78	ASTM G154-16
	Δa	0.11	ASTM G154-16
	Δb	0.67	ASTM G154-16
	ΔE	1.04	ASTM G154-16
	Grey scale	4 - 5	ASTM G154-16

Material properties

Physical properties	Measured value	Test standard	Note
Linear thermal expansion coefficient (°C ⁻¹)	46.2 × 10 ⁻⁶	ASTM D6341	
Bulk density (kg/m ³)	670		
Water absorption after 24 hours (%)	1.12		Mass change
Swelling after 24 hours (%)	thickness	0.09	Dimensional change
	width	0.00	
	length	0.00	
Water absorption after 28 days (%)	0.6		Mass change
Fire reaction classification	Bfl -s ₁	EN 13501-1	
Critical flux (kW/m ²)	11.0	EN ISO 9239-1	
Smoke (% x minutes)	254.0	EN ISO 11925-1	
Fs ≤ 150 mm	Yes	EN ISO 11925-1	

Fasteners

Appropriate fasteners must be employed depending on the expected worst-case loading conditions, the intended application and the conditions present. Particular attention should be paid to the substrate conditions available and the environmental conditions of the site. All applications should adhere to applicable regional standards. All timber profiles should be treated appropriately. Regular and proactive maintenance should be employed. Refer to the Hulk Fasteners™ Technical Data Sheet for more information.

*Pull out resistance range is based on testing with fasteners in ACQ timber (density of 0.67 g/cm³) to Red oak timber (density of 0.72 g/cm³).

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Appendix A - ASA chemical compatibility table

Test substance	20 °C	50 °C
Acetamide	+	+
Acetic acid (100 %)	-	-
Acetic acid (25 %)	+	+
Acetic acid (50 %)	+	o
Acetone	-	-
Acetophenone	-	-
Acetylsalicylic acid (soln.)	+	+
Allyl alcohol	-	-
Allyl mustard oil	-	-
Almond, bitter, oil of	+	o
Almond, oil of	+	+
Alum (soln.)	+	+
Aluminium chloride (soln.)	+	+
Aluminium sulphate (soln.)	+	+
Ammonia, aqueous (25 %)	+	+
Ammonium carbonate (soln.)	+	+
Ammonium chloride (soln.)	+	+
Ammonium molybdate (soln.)	+	+
Ammonium nitrate (soln.)	+	+
Ammonium rhodanide (soln.)	+	+
Ammonium sulphate (soln.)	+	+
Amyl acetate	-	-
Amyl acetate	-	-
Amyl alcohol	+	o
Amyl cinnamaldehyde	-	-
Amyl mercaptan	-	-
Aniline	-	-
Anise, oil of	-	-
Aniseed	+	+
Apple juice	+	+
Aqua regia	o	-
Atropine sulphate	+	+
Barium bromide (soln.)	+	+
Barium carbonate (soln.)	+	+
Barium chloride (soln.)	+	+
Beef tallow	+	+
Benzaldehyde	-	-
Benzene	-	-
Benzoic acid	+	+
Benzyl acetate	-	-
Benzyl acetate	-	-
Benzyl alcohol	-	-
Bismuth chloride (soln.)	+	+
Bismuth subnitrate (soln.)	+	+
Bone oil	+	+
Borax (soln.)	+	+
Boric acid (soln.)	+	+
Brake fluid (ATE)	-	-
Brandy	+	+
Bromine (liquid)	-	-
Butane	+	+
Butter	+	+
Butyl acetate	-	-
Butyl acetate	-	-
Butyric acid	-	-
Cadmium bromide (soln.)	+	+
Caffeine (soln.)	+	+
Calcium bromide (soln.)	+	+
Calcium chloride (soln.)	+	+

Test substance	20 °C	50 °C
Gallic acid	+	+
Garlic (powder)	+	+
Gasoline (Premium unleaded)	o	-
Gasoline (Standard unleaded)	o	o
Ginger (ground)	o	o
Glucose (30 %)	+	+
Glycerine	+	+
Grapefruit juice	+	+
Gravy	+	+
Heating oil	+	+
Heptane	o	o
Heptyl alcohol	+	o
Hexachlorobenzene	+	+
Hexane	o	o
Hexanediol	+	+
Hexanol	+	o
Honey	+	+
Horse radish	+	+
Household detergent (soln.)	+	+
Hydrochloric acid (15 %)	+	o
Hydrochloric acid (conc.)	+	o
Hydrofluoric acid (40 %)	o	o
Hydrogen peroxide (3 %)	+	+
Hydrogen peroxide (30 %)	+	+
Hydrogen sulphide	+	+
Hydroquinone (soln.)	+	o
Hydroxyacetone	o	o
Ink, writing	+	+
Iodine, tincture of	o	-
Iron (II) chloride (solid)	+	+
Iron (II) chloride (soln.)	+	+
Iron (II) sulphate (solid)	+	+
Iron (III) chloride (soln.)	+	+
Iron ammonium sulphate	+	+
Iron nitrate (soln.)	+	+
Isoamyl alcohol	+	o
Isobutanol	o	-
Isooctane	+	+
Isooctane	+	+
Isopropanol	+	-
Isopropyl acetate	-	-
Lactic acid (10 %)	+	+
Lactic acid (80 %)	+	+
Lactose (soln.)	+	+
Lanolin +	+	+
Laurel (ground)	+	+
Lauryl alcohol	+	+
Lead acetate (soln.)	+	+
Lead nitrate (soln.)	+	+
Lead stearate	+	+
Lead sulphate (soln.)	+	+
Lemon grass, oil of	-	-
Lemon juice	+	+
Lemon, oil of	o	o
Ligroin	+	+
Lime water	+	+
Linseed oil	+	+

Test substance	20 °C	50 °C
Potassium bromide (soln.)	+	+
Potassium chloride (soln.)	+	+
Potassium chromate (soln.)	+	+
Potassium dichromate (soln.)	+	o
Potassium ferricyanide	+	+
Potassium fluoride (soln.)	+	+
Potassium hydroxide (10 %)	+	+
Potassium hydroxide (50 %)	+	+
Potassium hydroxide (concentrated soln.)	+	o
Potassium iodate (soln.)	+	+
Potassium iodide (soln.)	+	+
Potassium nitrate (soln.)	+	+
Potassium permanganate (soln.)	+	o
Potassium persulfate (soln.)	+	+
Potassium sulphate (soln.)	+	+
Potassium sulphide (soln.)	+	+
Prontosil	+	+
Propane (liquid)	+	+
Propane (liquid) chloride	-	-
Propane glycol	+	+
Propylene glycol methyl ether	-	-
Propylene oxide	-	-
Pyridine	-	-
Pyrogallol (soln.)	+	o
Resorcin (soln.)	o	o
Rongalite (soln.)	+	+
Roses, oil of	o	o
Rum	+	+
Rum essence	+	+
Salicylic acid (soln.)	+	+
Salt, common (dry)	+	+
Sandalwood, oil of	-	-
Sassafras oil	-	-
Sea water	+	+
Sebacic acid dibutyl ester	-	-
Silicone fluid	+	+
Silver nitrate (soln.)	+	+
Sodium acetate (soln.)	+	+
Sodium benzoate (soln.)	+	+
Sodium bicarbonate (soln.)	+	+
Sodium bisulfite (soln.)	+	+
Sodium borate (soln.)	+	+
Sodium bromate (soln.)	+	+
Sodium bromide (soln.)	+	+
Sodium carbonate (soln.)	+	+
Sodium chloride (dry)	+	+
Sodium chloride (soln.)	+	+
Sodium chromate (soln.)	+	+
Sodium fluoride (soln.)	+	+
Sodium hydrogen sulfite	+	+
Sodium hydroxide (50 %)	+	+
Sodium hypochlorite (soln. with 12 % Cl)	+	+
Sodium hypochlorite (soln., 12 % chlorine)	+	+
Sodium nitrate	+	+
Sodium nitrite	+	+
Sodium perborate (soln.)	+	+
Sodium phosphate (sec.) (soln.)	+	+
Sodium phosphate (tert.) (soln.)	+	+
Sodium sulphate (soln.)	+	+

Appendix A - ASA chemical compatibility table

Test substance	20 °C	50 °C
Calcium hypochlorite (solid)	+	+
Calcium hypochlorite (soln.)	+	+
Calcium oxide	+	+
Camphor	+	+
Caraway seed (ground)	+	+
Carbazole	+	+
Carbon dioxide	+	+
Carbon sulphide	-	-
Cardamom	+	+
Carnauba wax	+	+
Carrot juice	+	+
Castor oil	+	+
Cellosolve (methyl-, ethyl-, propyl-, butyl-)	-	-
Cesium bromide (soln.)	+	+
Cetyl alcohol	+	+
Chamomile extract	+	+
Chlorinated lime	+	+
Chlorine (liquid or gaseous)	-	-
Chlorine water	o	o
Chloroacetic acid	o	-
Chlorobenzene	-	-
Chloroform	-	-
Chlorosulfonic acid	-	-
Chromic acid (soln.)	o	o
Chromosulfuric acid	o	o
Cider (apple)	-	-
Cinnamic aldehyde	-	-
Cinnamon (ground)	+	+
Cinnamon (sticks)	+	+
Citric acid (soln.)	+	+
Citronella, oil of	-	-
Cloves	-	-
Cloves, oil of	-	-
Cocoa butter	+	+
Coconut oil	+	+
Cod-liver oil	+	+
Coffee (ground)	+	+
Coffee extract	+	+
Copper sulphate (soln.)	+	+
Corn oil	+	+
Cottonseed oil	+	+
Cresol (para)	o	-
Curry	+	+
Cyclohexane	+	o
Cyclohexanol	+	o
Cyclohexanone	-	-
Dairy products	+	+
Dehydroacetic acid	+	+
Dekalin (R)	o	o
Diacetone alcohol	-	-
Dibutyl phthalate	-	-
Dichlorobenzene	-	-
Diesel oil	+	+
Diethanolamine	+	+
Diethyl ether	-	-
Diethyl hexyl phthalate	+	o
Diethyl ketone	+	+
Diethyl phthalate	-	-
Diethylene glycol	+	+
Diisodecyl phthalate	o	o
Dimethyl diglycol phthalate	o	o
Dimethyl phthalate	-	-
Dimethylformamide	-	-

Test substance	20 °C	50 °C
Mace (ground)	+	o
Magnesium bromide	+	+
Magnesium carbonate	+	+
Magnesium chloride (soln.)	+	+
Magnesium sulphate (soln.)	+	+
Maize oil	+	+
Malic acid (10 %)	+	+
Mandarin orange, oil of	o	o
Margarine	+	+
Marjoram (ground)	+	+
Marmelade	+	+
Mayonnaise	+	+
Menthol (10 % in ethanol)	o	o
Mercury	+	+
Mercury chloride (soln.)	+	+
Mesityl oxide	-	-
Methanol	o	-
Methyl acetate	-	-
Methyl butanol	+	o
Methyl chloride	-	-
Methyl cyclohexane	+	+
Methyl ethyl ketone	-	-
Methyl isobutyl ketone	-	-
Methyl isopropyl ketone	-	-
Methyl propyl ketone	-	-
Methyl salicylate	-	-
Methylene chloride	-	-
Methylene chlorobromide	-	-
Milk	+	+
Milk powder	+	+
Milk powder (moist)	+	+
Monoamyl phthalate	-	-
Motor oil (automotive)	+	+
Mustard	+	+
n-Butanol	+	o
n-Nonanol	+	+
n-Octanol	+	+
n-Propanol	+	o
Naphthalene (solid)	+	-
Naphthalene (soln. in ethanol)	o	-
Naphthol (beta) (soln. in ethanol)	o	-
Nickel sulphate (soln.)	+	+
Nitric acid (30 %)	+	o
Nitric acid (conc.)	-	-
Nitrobenzene	-	-
Nutmeg, dark (ground)	o	o
Nutmeg, light (ground)	+	o
Nutmeg, oil of	o	-
Oleic acid	+	o
Olive oil	+	+
Onion (powder)	+	+
Orange juice	+	+
Orange, oil of	o	o
Oxalic acid (soln.)	+	+
Oxymethylfurfural	-	-
Ozone (<0,5 ppm)	+	+
Palamoll 644 und 646 (polyesters based on adipic acid, BASF)	-	-
Palm oil	+	+
Palmitic acid	+	+
Paprika (ground)	+	+
Paraffin oil	+	+
Peanut oil	+	+
Peanut oil	+	+
Pectin (soln.)	+	+
Penicillin	+	+
Pentane	o	o
Pepper (black or white, ground)	+	o
Peppermint, oil of	-	-

Test substance	20 °C	50 °C
Sodium sulphide (soln.)	+	+
Sodium sulfite (soln.)	+	+
Sodium thiosulfate (soln.)	+	+
Soy oil	+	+
Sperm oil	+	+
Stearic acid	+	+
Strontium bromide	+	+
Strychnine	+	+
Sugar (soln, 30 %)	+	+
Sulphur	+	+
Sulphur hexafluoride	+	+
Sulfuric acid (10 %)	+	+
Sulfuric acid (38 %, battery acid)	+	+
Sulfuric acid (50 %)	+	+
Sulfuric acid (conc.)	-	-
Tannic acid	+	+
Tartaric acid (soln.)	+	+
Tea leaves (moist)	+	+
Tea, instant	+	+
Tetrachlorethane	-	-
Tetrachloromethane	-	-
Tetrahydrofuran	-	-
Tetrahydrofurfural	-	-
Tetralin (R)	-	-
Thionyl chloride	-	-
Thiophene	-	-
Thymol	-	-
Tin (II) chloride (soln.)	+	+
Tin (IV) chloride (soln.)	-	-
Titanium tetrachloride	-	-
Toluene	-	-
Tomato juice	+	+
Tragacanth (gum tragacanth)	+	+
Transformer oil	+	o
Trichlorobenzene	-	-
Trichloroethane	-	-
Trichloroethylene	-	-
Trichlorophenol	-	-
Tricresyl phosphate	-	-
Triethanolamine	+	+
Triethylene glycol	+	+
Triglycol acetate	-	-
Trypflavin (R)	+	+
Tryptophane (d or l)	+	+
Turpentine	o	o
Turpentine substitute	+	o
Tyrosine (d or l)	+	+
Undecanol	+	+
Urea (soln.)	+	+
Urotropin (soln.)	+	+
Valerian drops	+	+
Verbena oil	-	-
Vinegar	+	+
Water	+	+
Water colors	+	+
Water glass	+	+
Wax (bleached)	+	+
White oil	+	+
Xylene	-	-
Zinc bromide	+	+
Zinc carbonate	+	+
Zinc chloride (soln.)	+	+
Zinc nitrate	+	+
Zinc ointment	+	+
Zinc oxide	+	+

Appendix A - ASA chemical compatibility table

Test substance	20 °C	50 °C
Dinonyl phthalate	o	o
Dioxane (1,4 dioxane)	-	-
Diphenyl ether	-	-
Diphenylamine	-	-
Ethanol (40 %)	+	+
Ethanol (95 %)	+	o
Ether (Diethyl ether)	-	-
Ethyl acetate	-	-
Ethyl benzene	-	-
Ethyl benzoate	-	-
Ethyl chloride	-	-
Ethylene chloride	-	-
Ethylene glycol	+	+
Eucalyptus, oil of	o	o
Fertilizer salts	+	+
Formaldehyde (30 %)	+	o
Formic acid (40 %)	+	o
Formic acid (85 %)	o	o
Frigen/Freon 11 (Monofluoro- trichloromethane)	o	o
Frigen/Freon 113 (Trifluoro-trichloroethane)	o	o
Frigen/Freon 114 (Tetrafluoro-dichloroethane)	o	o
Frigen/Freon 12 (Difluoro-dichloromethane)	o	o
Frigen/Freon 21 (Monofluoro- dichloromethane)	-	-
Frigen/Freon 22 (Difluoro-monochloro- methane)	-	-
Furfural	-	-
Furfuryl alcohol	o	-

Test substance	20 °C	50 °C
Perchloroethylene (Tetrachloroethylene)	o	o
Petroleum ether	o	o
Petroleum jelly	o	-
Petroleum jelly	+	+
Phenacetin	+	+
Phenol	-	-
Phenylethanol	-	-
Phosphoric acid (1 %)	+	+
Phosphoric acid (30 %)	+	+
Phosphoric acid (85 %)	+	+
Phthalic acid (soln.) Pimento (ground)	+	+
Pine needles, oil of	o	-
Pineapple juice	+	+
Plastomoll DOA (di-(2-ethyl-hexyl) adipate, BASF)	o	o
Pork lard	+	+
Potassium aluminium sulphate (soln.)	+	+
Potassium bisulfate	+	+
Potassium bromate (soln.)	+	+

Test substance	20 °C	50 °C
Zinc stearate	+	+
Zinc sulphate (soln.)	+	+

Symbol legend

The symbols and abbreviations used have the following meanings

+ = resistant over a period of months to years

o = limited resistance: some swelling, solvation or environmental stress cracking is possible

- = not resistant: severe swelling, decomposition, solvation or environmental stress cracking

soln. = saturated aqueous solution

Resistance definition

Good resistance	Water, aqueous salt solutions, detergent solutions, dilute acids and alkalis.
Limited resistance	Alcohols, aliphatic hydrocarbons, oils and fats.
Not resistant	Concentrated mineral acids, aromatic and/or halogenated hydrocarbons, esters, ethers, ketones.
Solvents	Examples are methyl ethyl ketone, tetrahydrofuran, toluene, dimethyl-formamide.

Source data:

BASF - Chemical resistance of styrene co-polymers

www.basf.de/plastics