Infinity by pioneer
COMPOSITE SLEEPERS

The Infinity sleeper is 100% circular - the next generation high performance composite sleeper

Manufactured from recycled plastics, mainly household waste reducing landfill.

The recycled plastics are processed under a patented manufacturing process to produce a durable and high performance sleeper.

The Infinity is ideally suited for all types of railway track:

- Sleepers (for passenger/metro, freight, heavy haul)
- Turnouts
- Bridges

Features

- 50 year design life
- 100% closed loop circular
- Significantly lower carbon footprint
- No steel or glass fibres
- High performance – tested to 37.5 tonne axle loads and speeds to 160 km/h
- Reference sites in Europe and USA
- High mechanical strength and durable

Benefits

- 100% recyclable to manufacture new sleepers
- Very low life cycle costs
- Environmental and sustainability
- Significant landfill reduction - 113 tonnes per km

Quality Grades	P30		P60		P90	
Application	**Rail**	**Turnout**	**Rail**	**Turnout**	**Rail**	**Turnout**
Material						
Recycled polyolefins [%]	50 - 60	50 - 60	60 - 70	60 - 70	80 - 90	80 - 90
Natural fibres [%]	40 - 50	40 - 50	30 - 40	30 - 40	10 - 20	10 - 20
Other Polymers and minerals [%]	< 10	< 10	< 10	< 10	< 10	< 10
Dimensions/Properties						
Width [cm]	26	26	26	26	26	26
Height [cm]	16	16	16	16	16	16
Length [cm]	200	200 - 530	200	200 - 530	260	220 - 530
Volume [cm³]	83.200	83.200 - 220.480	83.200	83.200 - 220.480	108.160	91.520 - 220.480
Density [kg/m³]	1070	1070	970	970	940	940
Weight [kg]	89	89 - 234	81	81 - 214	102	86 - 207
Colour	light brown	light brown	grey	grey	grey	grey
E-module Height [N/mm²]	3.800	3.800	2.600	2.600	1.800	1.800
Flexural strength [N/mm²]	30,5	30,5	20,5	20,5	18,5	18,5
Screw extraction force [kN]	60	60	58	58	58	58
Coefficient of linear thermal expansion [1/K]	$30^{*}10^{-6}$	$30^{*}10^{-6}$	$60^{*}10^{-6}$	$60^{*}10^{-6}$	$95^{*}10^{-6}$	$95^{*}10^{-6}$
Electrical resistance [Ohm]	20.000	20.000	20.000	20.000	20.000	20.000

Durable

High mechanical strength

50 year design life

Customisable designs

Reduces landfill waste

LOW LIFECYCLE COST

Low life cycle cost

100% Circular

Very low CO^2 footprint

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