

Benedict SmartMix™2 – 20mm Structural Soil Mix

Product Code	STRUCR
Source	BENEDICT Moorebank
Disclaimer	The product data contained in this Product Data Sheet is applicable to Benedict Sand & Gravel materials and is current at the time of publication. Benedict Sand & Gravel reserves the right to vary product specifications without notice. The data contained within this sheet supersedes all previous information.
Description	Benedict SmartMix™ 2 addresses the dilemma of how to increase soil-rooting volume whilst maintaining sound structural support for pavement. The blend maximises rock-to-rock contact and relies on extremely hard and durable rock. Pore sizes are on average 5mm in size. Approximately 60% of the total pore space of the aggregate is taken up by the filler soil – the horticultural component.
Components	<ul style="list-style-type: none"> > 75% Nominal 20mm Crushed River Gravel. Narrowly graded uniform sized angular clean hard and durable gravel sized approximately 10mm – 25mm. > 25% Filler Soil. Premixed filler soil is a clay loam of uniform composition. It is free of stones greater than 15mm and free of toxic substances harmful to plants. The mix contains less than 1% by mass organic matter. > Additives as recommended by soil testing results, typically: <ul style="list-style-type: none"> • Ammonium Nitrate (500 g/m3) • Gypsum (1000 g/m3) • Iron Sulphate (1000 g/m3) • Magnesium Sulphate (500 g/m3) • Magrilime (1200 g/m3) • Potassium Nitrate (750 g/m3) • Superphosphate (500 g/m3) • Trace Element Mix (300 g/m3) • 8/9 month Controlled Release (1500 g/m3)



Benedict SmartMix™2 – 20mm Structural Soil Mix Contd.

Uses

New tree planting in pavements, courtyards, car parks and kerbsides where maximum soil volume is desirable for tree root expansion without the issues of pavement damage from root heave. 20mm Structural Soil replaces 20mm Roadbase when pavements are being installed around existing trees. Use 20mm Structural Soil when the total soil depth available is 100mm or less. Otherwise 40mm Structural Soil is preferred.

Benefits

- > Increases the volume of soil available to tree roots under pavements
- > Excellent structural properties for pavement support
- > Increased potential root depth
- > Reduced pavement heave
- > High permeability for both air and water
- > Opportunities for the retention and treatment of stormwater
- > Reduced runoff

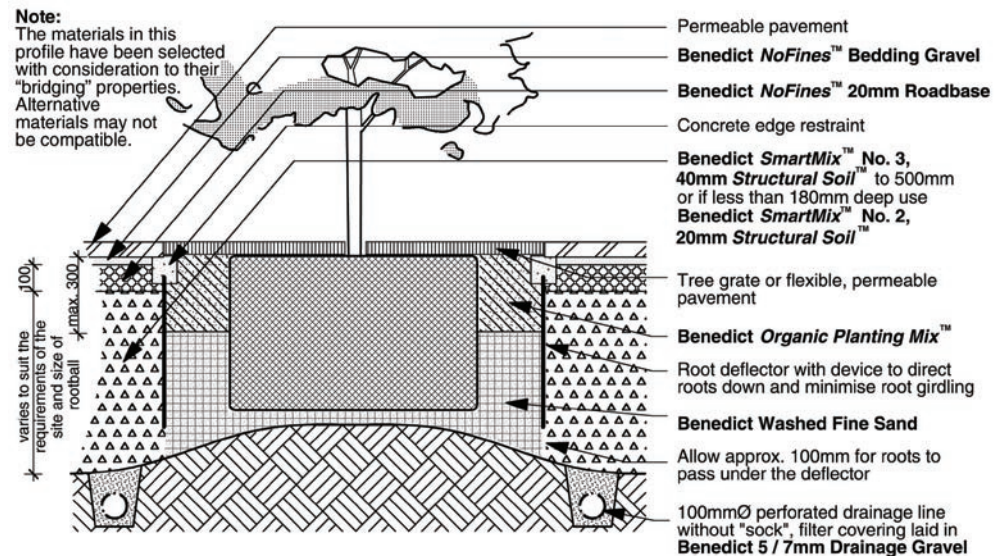


Figure I. Benedict *SmartMix*™ Permeable Pavement Profile for new tree installation

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Characteristics

CHEMICAL PROPERTIES	TYPICAL RESULT	ACCEPTABLE RANGE
pH in water (1:2)	6.7	5.5 – 7.5
pH in CaCl ₂ (1:2)	6.2	5.5 – 7.5
Electrical conductivity (dS/m)	0.59	<2.5
Soluble Cations		
	% ECEC	
Sodium	2.00	<5
Potassium	1.50	5 – 15
Calcium	69.20	60 – 75
Magnesium	27.40	5 – 25
Calcium: Magnesium	2.50	2 – 6
ECEC (meq%)	15.12	>10
Nutrient		
	mg/kg	
Phosphate	3.3	<30 suitable for P sensitive
Ammonium	7.0	<200
Nitrate	79.1	<100
Sulphate	120	>40<100
Organic matter (% by mass)	<1	<1

Characteristics

Test Method

AS1141.11

PHYSICAL PROPERTIES (Aggregate)	TYPICAL RESULT	ACCEPTABLE RANGE
% Passing A.S. sieve		
26.5mm	100	
19.0mm	96	
13.2mm	46	
9.5mm	16	
6.7mm	5	
4.75mm	2	
2.36mm	1	
1.18mm	1	
AS1141.12	Material finer than 0.075mm	0

contd.

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Characteristics	PHYSICAL PROPERTIES (Aggregate) contd.	TYPICAL RESULT	ACCEPTABLE RANGE
Test Method	Bulk density (t/m3)		
AS1141.4	Uncompacted	1.33	
	Compacted	1.46	Min. 1.2
AS1141.6.1	Particle Density (Dry) (t/m3)	2.61	Min. 2.1
AS1141.22	Wet/Dry Strength		
	Average Dry Strength	540	
	Average Wet Strength	424	Min. 80
	Wet/Dry Strength Variation (%)	22	Max. 35
AS1141.23	Los Angeles Value Grading 'B' (% loss)	14	Max. 25
AS1141.24	Sodium Sulphate Soundness		
	(Total weighted % loss)	0.9	

Transport & Placement

Benedict **SmartMix™ 2** is a uniformly blended mixture of gravel and filler soil. Ensure that the mixture remains moist at all times during transport, storage and placement to prevent particle segregation. If particle segregation occurs the mix must be remixed prior to placement to achieve a homogenous blend of all components.

All subsurface drainage systems should be operational prior to installation of the Structural Soil.

Install 20mm Structural Soil in 100mm lifts and compact each lift.

Compact materials to not less than 95% maximum density (standard) with a non-vibrating roller. In confined spaces, a vibrating plate may be used but ensure that particle segregation does not occur.

Protect the installed Structural Soil from contamination by toxic materials, trash, debris and water containing cement, clay, silt or other foreign materials that will alter the particle size distribution of the mix.

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Safety & Handling

Description

This product may contain organic materials and living microorganisms including bacteria, fungi and protozoa. May also contain mineral and fertiliser additives.

Risk

Inhalation of dust and/or liquid mists may irritate, inflame or sensitise the nose, throat and lungs resulting in illnesses ranging from hay fever or asthma to pneumonia-like illnesses. Direct contact with this material or this dust and/or liquid mists (bioaerosols) may cause skin irritation (dermatitis) and skin or eye infection or irritation. People particularly at risk are those suffering from asthma or allergies, and those with weak immune defence.

Safety

Avoid contact with eyes and skin. Avoid breathing dust/and or liquid mists (bioaerosols). Wear suitable protective clothing and standard duty gloves (AS 2162.2). If exposed to dust and/or liquid mists, wear dust resistant eye protection (AS/NZS 1336) and a particulate respirator (AS/NZS 1715 and 1716). Wash thoroughly immediately after handling. Wash work clothes regularly. Clean up by wet sweeping or vacuuming.

First Aid

Irrigate eyes with plenty of water for 10 minutes. Wash skin with soap and water. For inhalation, remove to fresh air. Seek medical attention for any persistent skin, eye or respiratory symptoms.

Disposal

Follow above safety precautions and collect in containers for disposal as trade waste in accordance with local authority guidelines.

Alternative Products

20DGB, Benedict **SmartMix™ 3**

Technical Enquiries

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