STAS TRANSPORTS
Z.I. Villeneuve-S'-Germain 02200 SOISSONS
03 23 73 05 77 - Fax 03 23 73 16 85
Capital : 208 000 €
Siret 390 219 897 00019 - FR : 71 390 219 897 00019

LA30

Composition chimique type

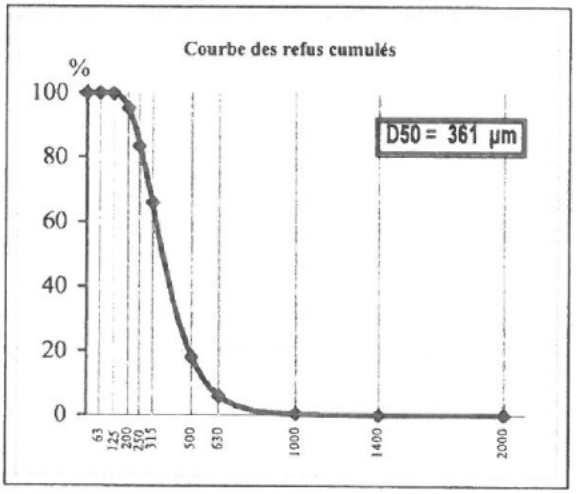
SiO_2 ..... sup. à	100,00	%
Fe_2O_3 .... moy. à	0,015	%
Al_2O_3 ..... moy. à	0,080	%
TiO_2 ..... moy. à	0,015	%
CaO ..... moy. à	0,020	%
K_2O ..... moy. à	0,020	%

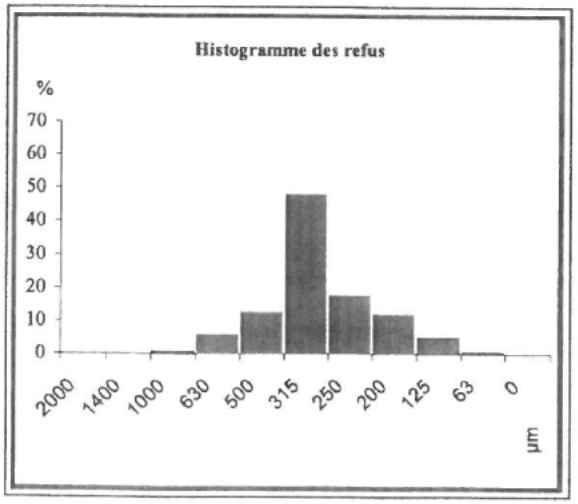
Caractéristiques physiques types

densité réelle (Pycnomètre)	2,65
dureté (Mohs)	7
pH	# 7
densité apparente sable sec ("Prolabo")	1,5
surface spécifique ("G F")	NC
coefficient d'angulosité ("G F")	1,1
perte au feu (à 1000°C)	Maxi 0.20%
résistance pyroscopique (SFC ISO R528) ..	1750 °C

GRANULOMETRIE MOYENNE STATISTIQUE

(% en masse - Valeurs indicatives)





TAMISAGE AFNOR X.11-507

ouverture des mailles µm	refus cumulés %
> 2000 µm	0,0
> 1400 µm	0,0
> 1000 µm	0,3
> 630 µm	5,9
> 500 µm	18,1
> 315 µm	66,1
> 250 µm	83,6
> 200 µm	95,2
> 125 µm	99,9
> 63 µm	100,0
> 0 µm	100,0

CORRESPONDANCE Série R20 ISO 565

ouverture des mailles µm	refus cumulés %
> 2000 µm	0,0
> 1400 µm	0,0
> 1000 µm	0,3
> 630 µm	5,9
> 500 µm	18,1
> 315 µm	66,1
> 250 µm	83,6
> 180 µm	97,3
> 125 µm	99,8
> 63 µm	100,0
passe	0,0

Classe µm	refus par tamis %
> 2000 µm	0,0
2000-1400 µm	0,0
1400-1000 µm	0,3
1000-630 µm	5,6
630-500 µm	12,3
500-315 µm	47,9
315-250 µm	17,5
250-200 µm	11,6
200-125 µm	4,7
125-63 µm	0,1
Passant	0,0

Classe µm	refus par tamis %
> 2000 µm	0,0
2000-1400µm	0,0
1400-1000µm	0,3
1000 - 630µm	5,6
630 - 500 µm	12,3
500-315 µm	47,9
315 - 250 µm	17,5
250 - 180 µm	13,8
180 - 125 µm	2,5
125 - 63 µm	0,2
< 63 µm	0,0

particules < 20 µm : maxi NC % sur sable lavé

EUROPEAN TURFGRASS LABORATORIES

Sand Summary Report

For Use In USGA Putting Green Construction

The sand has been compared to the USGA (2004 version) recommendations for a method of putting green construction.

Client:

Order: **8518**

Sample: **LA30 Sand**

Particle Size Distribution

The table below summarises the particle size distribution results.

Name	Particle Size (mm)	USGA Recommendation (2004)	Result	In Range
Fine Gravel	2.0 – 3.4	Not more than 10% total particles in this range, incl. maximum of 3% fine gravel (preferably none)	**0.1**	in range
Very Coarse Sand	1.0 – 2.0			
Coarse Sand	0.5 – 1.0	Minimum of 60% of particles	**92.2**	in range
Medium Sand	0.25 – 0.5			
Fine Sand	0.15 – 0.25	Not more than 20% particles	**7.2**	in range
Very Fine Sand	0.05 – 0.15	Not more than 5% particles	**0.4**	in range
Silt / Clay	< 0.05	Not more than 8% particles	**0.1**	in range
Total Fines	< 0.15	Not more than 10% particles	**0.5**	in range

Therefore, this sand does satisfy the USGA recommendation for particle size distribution.

Particle Shape & pH

An agronomist may be able to provide further advice particular to your project, as the USGA offer no recommendation for these parameters.

This statement is a direct interpretation of the sample tested compared to the USGA recommendation for putting green construction

Sand Summary

This sand has been compared to the 2004 version of the USGA recommendations and does satisfy the particle size distribution and is suitable for use in mixing with an approved organic/inorganic amendment to form a rootzone.

The final rootzone mix should also satisfy the USGA recommendations for a method of putting green construction.

Signed:

Position: **Laboratory Supervisor, European Turfgrass Laboratories Ltd**

This statement is a direct interpretation of the sample tested compared to the USGA recommendation for putting green construction

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03 23 73 65 77 - Fax 03 23 73 16 85
Capital : 200 000 €
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Continued from Page 1

008518/1			USGA Criteria		Particle Size Distribution (including silt & clay) Test Report. Number: 008518/G page 2 of 2
in range			≤ 10%		Gravel / Very Coarse Sand Criterion
in range			≥ 60%		Coarse / Medium Sand Criterion
in range			≤ 20%		Fine Sand Criterion
in range			≤ 5%		Very Fine Sand Criterion
in range			≤ 10%		Total Fines Criterion

ASTM Method : D4972

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EUROPEAN TURFGRASS LABORATORIES
GEOTECHNICAL (PUTTING GREEN MATERIALS)
Certificate No. 603-01

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008518/1					Particle Size Distribution BS Half-Octave Sieve Set Test Report. Number: 008518/A page 1 of 1
100.0%					LA30 Sand
16/02/09					Sample Received Date
moist					Sample Moisture (very wet, wet, moist, dry, n/a)
friable					Sample Consistency (hard, friable, plastic, n/a)
high					Sample Homogeneity (high, medium, low, n/a)
SR					Angularity (VA, A, SA, SR, R, WR, n/a)
M					Sphericity (H, M, L, n/a)
					% Coarser Small Stones 11.2 mm to 16 mm
					% Finer Small Stones 8 mm to 11.2 mm
					% Coarser Coarse Gravel 5.6 to 8 mm
					% Finer Coarse Gravel 4 to 5.6 mm
					% Coarser Fine Gravel 2.8 to 4 mm
					% Finer Fine Gravel 2 to 2.8 mm
					% Coarser Very Coarse Sand 1.4 to 2 mm
0.1					% Finer Very Coarse Sand 1 to 1.4 mm
4.1					% Coarser Coarse Sand 710 µm to 1mm
29.0					% Finer Coarse Sand 500 µm to 710 µm
39.8					% Coarser Medium Sand-355 µm to 500 µm
19.3					% Finer Medium Sand 250 µm to 355 µm
6.0					% Coarser Fine Sand 180 µm to 250 µm
1.5					% Finer Fine Sand 125 µm to 180 µm
0.1					% Coarser Very Fine Sand 90 µm to 125 µm
					% Finer Very Fine Sand 63 µm to 90 µm
0.1					% Silt and Clay less than 63 µm