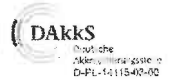


SGS Institut Fresenius GmbH Goerzallee 305A D-14167 Berlin GERMANY

DIN CERTCO
Gesellschaft für Konformitätsbewertung
Alboinstraße 56
12103 Berlin

Test Report 2431131

Order no. 3254323
Client no. 10028880



Mr. Thomas Smyk
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Environmental Services

SGS Institut Fresenius GmbH
Goerzallee 305A
14167 Berlin

Berlin, 29.01.2015

Your project: DIN Plus product test Arno-Bio Sp. z o.o.
Your order no.: 3132767
Date of order: 09.01.2015

Testing period from 15.01.2015 until 29.01.2015
First sample no. 150039902
Sample entry 15.01.2015

SGS Institut Fresenius

Thomas Smyk
Customer Service

Naser Riazati
Customer Service

Sample matrix: Bio fuel, wood pellets
 Sample delivery: Samples were sent by the client
 Sample entry: 15.01.2015
 Testing period: 15.01.2015 until 29.01.2015

Sample no.:

150039903

Sample name:

Sample 2, 6mm wood pellets from production,
 period: 08.01.2015
 without fines

Parameter	Unit	LOQ	Method	Result	Limit DIN plus ¹	Lab ³
Average diameter	millimeter		DIN EN 16127	6,5	6 or 8 ± 1	B1
Average length	millimeter		DIN EN 16127	12,9	3,15 to 40	B1
Pellets < 10 mm	mass % ar		DIN EN 16127	12,8	informational	B1
Overlengths > 40 and ≤ 45 mm	mass % ar		DIN EN 16127	not found	≤ 1	B1
Overlengths > 45 mm	mass % ar		DIN EN 16127	not found	not allowed	B1
Moisture	mass % ar	0,1	DIN EN 14774-2	7,0	≤ 10	B1
Ash (550°C)	mass % d	0,1	DIN EN 14775	0,34	≤ 0,7	B1
Mechanical Durability	mass % ar	0,1	DIN EN 15210-1	99,3	≥ 97,5	B1
Net CV, const. p	MJ/kg ar	0,5	DIN EN 14918	17,8	≥ 16,5 to ≤ 19	B1
Bulk density	kg/m ³ ar	1	DIN EN 15103	639	≥ 600	B1
Nitrogen	mass % d	0,1	DIN EN 15104	< 0,1	≤ 0,3	B1
Sulphur total	mass % d	0,01	DIN EN 15289	< 0,01	≤ 0,03	B1
Chlorine total	mass % d	0,01	DIN EN 15289	0,015	≤ 0,02	B1
Arsenic	mg/kg d	1	DIN EN 15297	< 1	≤ 1	B1
Cadmium	mg/kg d	0,3	DIN EN 15297	< 0,3	≤ 0,5	B1
Chromium	mg/kg d	1	DIN EN 15297	< 1	≤ 10	B1
Copper	mg/kg d	2	DIN EN 15297	3	≤ 10	B1
Lead	mg/kg d	3	DIN EN 15297	< 3	≤ 10	B1
Mercury	mg/kg d	0,1	DIN EN 15297	< 0,1	≤ 0,1	B1
Nickel	mg/kg d	1	DIN EN 15297	< 1	≤ 10	B1
Zinc	mg/kg d	1	DIN EN 15297	9	≤ 100	B1
Shrinkage starting temperature SST	°C		DIN CEN/TS 15370-13	1240	-	B1
Deformation temperature DT	°C		DIN CEN/TS 15370-13	1470	informational	B1
Hemisphere temperature HT	°C		DIN CEN/TS 15370-13	1480	-	B1
Flow temperature FT	°C		DIN CEN/TS 15370-13	1490	-	B1

Sample no.:

150039902

Sample name:

Sample 1, 6mm wood pellets from production,
 period: 08.01.2015
 Fines

Parameter	Unit	LOQ	Method	Result	Limit DIN plus ¹	Lab ³
Fines	mass % ar	0,1	DIN EN 15149-2	0,5	≤ 0,5 (1,0) ²	B1

ar - result calc. to 'as received' state

d - result calc. to 'bone dry' state

LOQ - Limit of quantitation

1) Issue 04/2014 (current program)

2) Value is valid for packing units up to 20kg; Value in parenthesis is valid for bigger packing units and bulk ware

 3) The laboratory locations of the SGS Group Germany and Switzerland according to the above abbreviations are listed at
<http://www.institut-fresenius.de/filestore/89/laborstandortkuerzelsogs2.pdf>