

# Translation of Certificate

Number 10122574  
Revision 1  
Page 1 of 4

Applicant	Inadco Engineering B.V. Meerheide 18 5521 DZ Eersel
Submitted	A device for the determination of the density of soil improver for a calibration. manufacture : Inadco type : SG-Bepaler (Densi-meter) number : prototype parts : PLC SIMATIC S7-300 weighing module SIWAREX M, type 7MH4553-1AA41 load cell Revere, model 652, 50 kg C3 measuring cylinder software : Inadco SG-bepaling Version: 1.0
Method of examination	The Densimeter is examined for the following properties: - weight indication during static loading with weights; - weight indication during eccentric loading with weights; - indication of density by simulation with weights; By weighing the contents of the measuring cylinder: - indication of density with fine sand; - indication of density with 3 varieties of soil improver. Where the material was manually applied on the shovel. The density is also manually determined with a measuring cylinder (number 005/97) as described in standard prEN 12580 of June 1999.
Result	The results are stated on page 2, 3 en 4. The stated measurement uncertainties are based on twice the standard deviation (2s). The total measurement uncertainty of the Densimeter is 0,01 kg/l (mainly caused by the properties of the materials). The total measurement uncertainty of the method according to prEN 12580 is 0,02 kg/l.
Date of examination	The examination has been performed on 29 August 2000 and 13 September 2000.
Traceability	The measuring instruments used for the calibrations and measurements are traceable to primary and/or (inter) national standards.
Remarks	The volume of the measuring cylinder is unknown. 20,20 l is used for calculations (adjustment). During the calibration no parameters are changed or entered. The straight edge was located approximately 5 mm above the measuring cylinder.

Dordrecht, 29 September 2000  
NMI Certin B.V.

  
Ing. P.E. Kok  
Product manager

Indication of the Densimeter loaded with weights in a static situation.

load kg	indication (kg)	
	up	down
0	0,000	0,000
1	1,000	1,000
4	4,001	
5	5,000	5,000
8		8,000
9	9,000	
11		11,000
12	11,998	
13		12,997
16	15,999	

uncertainty 0,003 kg

Indication with different positions of a weight in the measuring cylinder.

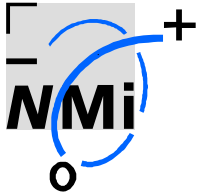
eccentric load	
position	indication (kg)
0	2,000
1	1,999
2	1,999
3	2,001
4	2,000



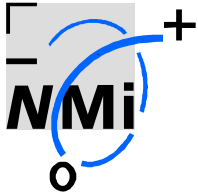
uncertainty 0,001 kg

Performance of process with manual application of material on shovel.

material:	measured mass kg	calculated density kg/l	indication density kg/l	deviation density kg/l
weights (process simulation)	2	0.099	0.099	0.000
	4	0.198	0.198	0.000
	6	0.297	0.297	0.000
	10	0.495	0.495	0.000
	15	0.743	0.742	-0.001
	average uncertainty			
sand	30.637	1.517	1.519	0.002
	30.645	1.517	1.519	0.002
	30.733	1.521	1.523	0.002
	30.684	1.519	1.526	0.007
	30.904	1.530	1.533	0.003
	30.679	1.519	1.522	0.003
	30.666	1.518	1.520	0.002
	30.727	1.521	1.521	0.000
	30.651	1.517	1.520	0.003
	30.700	1.520	1.522	0.002
average uncertainty		1.520 0.008	1.523 0.008	0.003 0.004



material:	measured mass kg	calculated density kg/l	indication density kg/l	deviation density kg/l
Irish peat fraction 2 coarse	2.445	0.121	0.121	0.000
	2.249	0.111	0.109	-0.002
	2.264	0.112	0.111	-0.001
	2.315	0.115	0.113	-0.002
	2.248	0.111	0.111	0.000
	2.201	0.109	0.109	0.000
	2.219	0.110	0.109	-0.001
	2.155	0.107	0.106	-0.001
	2.139	0.106	0.106	0.000
	2.348	0.116	0.116	0.000
	average uncertainty		0.112 0.009	0.111 0.009
consumers soil improver fine	7.500	0.371	0.372	0.001
	7.465	0.370	0.370	0.000
	7.384	0.366	0.366	0.000
	7.307	0.362	0.362	0.000
	7.446	0.369	0.369	0.000
	7.444	0.369	0.369	0.000
	7.410	0.367	0.367	0.000
	7.358	0.364	0.365	0.001
	7.443	0.368	0.369	0.001
	7.474	0.370	0.371	0.001
average uncertainty		0.367 0.006	0.368 0.006	0.001 0.001
Swedish white peat	2.150	0.106	0.106	0.000
	2.202	0.109	0.109	0.000
	2.262	0.112	0.112	0.000
	2.237	0.111	0.111	0.000
	2.230	0.110	0.109	-0.001
	2.193	0.109	0.108	-0.001
	2.267	0.112	0.112	0.000
	2.230	0.110	0.110	0.000
	2.203	0.109	0.109	0.000
	2.240	0.111	0.111	0.000
average uncertainty		0.110 0.003	0.110 0.004	0.000 0.001
weights (process simulation)	2	0.099	0.099	0.000
	4	0.198	0.198	0.000
	6	0.297	0.297	0.000
	10	0.495	0.494	-0.001
	15	0.743	0.742	-0.001
	average uncertainty			



Manual determination of the density according to prEN12580

material:	measured mass kg	calculated density kg/l
sand	29.792	1.475
	29.830	1.477
	29.842	1.477
	29.820	1.476
	29.882	1.479
	29.844	1.477
	29.862	1.478
	29.914	1.481
	29.804	1.475
	29.848	1.478
	average	1.477
uncertainty	0.004	
Irish peat fraction 2 coarse	2.146	0.106
	2.326	0.115
	2.212	0.110
	2.344	0.116
	2.402	0.119
	2.154	0.107
	2.226	0.110
	2.448	0.121
	2.194	0.109
	2.458	0.122
	average	0.113
uncertainty	0.012	
consumers soil improver fine	6.958	0.344
	7.488	0.371
	7.554	0.374
	7.572	0.375
	7.202	0.357
	7.190	0.356
	7.528	0.373
	7.614	0.377
	7.300	0.361
	7.316	0.362
	average	0.365
uncertainty	0.021	
Swedish white peat	2.160	0.107
	2.190	0.108
	2.174	0.108
	2.286	0.113
	2.304	0.114
	2.286	0.113
	2.194	0.109
	2.270	0.112
	2.310	0.114
	2.486	0.123
	average	0.112
uncertainty	0.010	