



# Declaration of Performance GRA-0/11-0015B 24-07-2017

According to Annex III of the Regulation (EU) No 305/2011 amended by Commissions delegated Regulation (EU) No 574/2014

1. Unique identification code	AEC-granulate 0/11 mm according to Product Specification GRA-0/11-0015B and EN 12620:2002 + A1:2008	
2. Description	GRA-0/11-0015B (Granova® Granulate 0-11 mm type B)	
3. Intended use	Aggregates for concrete	
4. Manufacturer	<b>Heros Sluiskil B.V.</b> Oostkade 5 4541 HH SLUISKIL telephone +31 (0)115-471258 fax: +31(0) 115-472749	 A COMPANY OF THE REMEX GROUP
5. Name and contact address agent	Not applicable	
6. System of assessment and verification of constancy of performance	<b>AoC-level 2+</b> 	<b>Certificate of Conformity of the Factory                  Production Control GB14/91481</b> Date of first issue 03-01-2006
7. Activity of the notified certification body as required by the harmonized standard	The notified certification body SGS United Kingdom Ltd (ID-nr. 0120) carried out, under system 2+, the initial inspection of the installation and the factory production control and will also take care of the continuous surveillance, assessment and evaluation of the production control. On that basis, the certificate of conformity of production control is provided.	
8. European Technical Assessment	Not applicable	
9. Declared Performance		

	Essential characteristics	Performance (1-2017 up to 6-2017)	
4.2	Aggregate size	0/11,2 mm	<b>EN 12620:2002 + A1:2008</b>
4.3	Grading	Zie bijlage	
4.4	Shape of aggregate		
-	Flakiness index	$Fl_{15}$	
-	Shape index	$S_{NR}$	
4.5	Shell content	$SC_{NR}$	
4.6	Fines content	$f_{11}$ (zie bijlage)	
4.7	Fines quality		
-	Methylene blue value 0/2 MBT	0,1 g/kg	
-	Sand equivalent value	$SE_{4NR}$	
5.2	Resistance to fragmentation		
-	Los Angeles-coefficient	$LA_{60}$	
-	Resistance to impact	$SZ_{NR}$	
5.3	Resistance to wear	$M_{DE NR}$	
5.4.1	Resistance to polishing	$PSV_{NR}$	
5.4.2	Resistance to surface abrasion	$AAV_{NR}$	
5.4.3	Resistance to abrasion from studded tyres	$A_{NR}$	
5.5	Particle density (Rho rd)	$2,16 \pm 0,07 * \text{Mg/m}^3$	
5.5	Water absorption ( $WA_{24}$ )	$7,3 \pm 0,95 * \% \text{ mm}$	
5.6	Bulk density	$1,12 \text{ Mg/m}^3$	
5.7.1	Freeze/thaw resistance	$F_{NR}$	
5.7.1	Magnesium sulfate soundness	$MS_{NR}$	
5.7.2	Volume stability – drying shrinkage	NPD	
5.7.3	Alkali-silica reactivity	Potentieel ASR-reactief	
6.2	Chlorides	$0,27 \pm 0,09 \% \text{ m/m} * **$	
6.3.1	Acid-soluble sulfate	$AS_{1,2}$	
6.3.2	Total sulfur	$S_1$	
6.4.1	Constituents which alter the rate of setting and hardening of concrete	$A_{40}$	

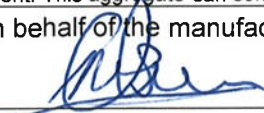
10. The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued in accordance with the Regulation (EU) No 305/2011 under the sole responsibility of the manufacturer identified above.

**Complementary features, not covered by EN 12620:2002 + A1:2008:**

Non-hazardous waste	Eural-code 19 01 12	
Additional information (CUR 116)	Alkali-content (Na <sub>2</sub> O-eq)	$0,42 \pm 0,17 \% \text{ m/m} * **$
	Metallic Al + Zn	$< 1,00 \% \text{ m/m}$
	Loss on ignition	$< 5,00 \% \text{ m/m}$
	Max. allowed percentage in concrete	40%

\* Average value period 1-2017 up to 6-2017 ± 2x standard deviation      \*\* Content per batch on request



Due to the increased Alkali-content of this aggregate the producer of the concrete-mixture has to ensure that the final mixture to which this aggregate is added, meets the criteria as stated in the CUR recommendation 89. Due to the increased Acid soluble sulfate-content of this aggregate the producer of the concrete-mixture to which this aggregate is added, must choose a sulfate resistant cement. This aggregate can contain ferrous particles.

Sluiskil July 24 <sup>th</sup> 2017	Signed for and on behalf of the manufacturer by: M.W. Stouten QHSE Manager 
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## Declaration of Performance GRA-0/11-0015B 24-07-2017

According to Annex III of the Regulation (EU) No 305/2011 amended by Commissions delegated Regulation (EU) No 74/2014

### Annex 1: grading GRA-0/11-0015B 24-07-2017

1. Unique identification code	AEC-granulate 0/11 mm according to Product Specification GRA-0/11-0015B and EN 12620:2002 + A1:2008			
2. Description	GRA-0/11-0015B (Granova® Granulate 0-11 mm type B)			
3. Intended use	Aggregates for concrete			
4. Manufacturer	Heros Sluiskil B.V. Oostkade 5 4541 HH SLUISKIL telephone +31 (0)115-471258 fax: +31(0) 115-472749	 A COMPANY OF THE REMEX GROUP		
5. Name and contact address agent	Not applicable			
6. System of assessment and verification of constancy of performance	AoC-level 2+ 	<b>Certificate of Conformity of the Factory Production Control GB14/91481</b> Date of first issue 03-01-2006		
7. Activity of the notified certification body as required by the harmonized standard	The notified certification body SGS United Kingdom Ltd (ID-nr. 0120) carried out, under system 2+, the initial inspection of the installation and the factory production control and will also take care of the continuous surveillance, assessment and evaluation of the production control. On that basis, the certificate of conformity of production control is provided.			
8. European Technical Assessment	Not applicable			
9. Declared Performance				
<b>Essential characteristics</b>	<b>Performance (1-2017 up to 6-2017)</b>	<b>Harmonised European Standard</b>		
4.3 Grading	See below	EN 12620:2002+ A1:2008		
<b>Sieve size (mm)</b>	<b>Grading requirements – percentage passing by mass</b>			<b>90% of the results comply with the following limits for percentage passing by mass</b>
	General for “all-in” - aggregate (table 2 – G <sub>A90</sub> )	Average	Limits relative to average “all-in”- aggregate (table 6)	
32		100		100-100
22.4	100	100		100-100
16	98-100	100		100-100
14		99,9		99,5-100
12.5		99		98-99,7
11,2	90-99	97		96-98
10		93		91-95
8		82		78-85
6,3		67		62-72
5,6		59	50-90	54-65
5		53		47-58
4		41		36-47
2		18	20-60	14-22
1		11		8-14
0,5		9		7-11
0,25		8		6-10
0,125		6		4-8
fines		5		3-7
10. The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued in accordance with the Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.				
Due to the increased Alkali-content of this aggregate the producer of the concrete-mixture has to ensure that the final mixture to which this aggregate is added, meets the criteria as stated in the CUR recommendation 89. Due to the increased Acid soluble sulfate-content of this aggregate the producer of the concrete-mixture to which this aggregate is added, must choose a sulfate resistant cement. This aggregate can contain ferrous particles.				
Sluiskil July 24 <sup>th</sup> 2017		Signed for and on behalf of the manufacturer by: M.W. Stouten QHSE Manager 