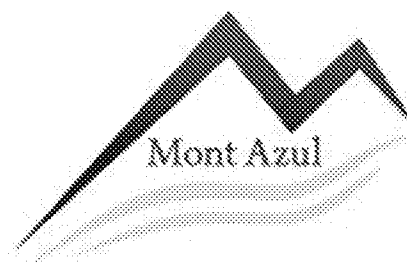


Declaration of Performance

No. PDV002



In accordance with EU Regulation 305/2011 and EN 12326-1/2.

1. Unique identification code of the product type:	Lom PC
2. Type, batch or serial number or any other element allowing identification of the construction product pursuant to 11(4):	Mont Azul - Lombeiro MA 12
3. Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer:	Slate for discontinuous roofing and cladding
4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11(5):	Natural Slate Supply Ltd 7 Avoncourt Drive Didsbury Manchester M20 2QD
5. Where applicable, name and contact address of the authorised representative whose mandate covers the tasks specified in Article 12(2):	N/A
6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:	System 4
7. In case of the declaration of performance concerning a construction product covered by a harmonised standard:	The manufacturer performed determination of the product-type on the basis of type testing, type calculation, tabulated values or descriptive documentation of the product and factory production control under system 4 and issued certificate of conformity of the factory production control and test/calculation reports.
8. In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued:	N/A



EN 12326–1:2014						
Number of this commercial document		Lom-MA 12		Date of Issue		012/07/2017
Commercial document issued by: Natural Slate Supply Ltd. 7 Avoncourt Drive, Didsbury, Manchester M20 2QD						
Location of the mine or quarry: Carballeda, Ourense, Spain						
This document records the conformity of the product described below and is incomplete without the explanation of the meaning of the test results and the requirements of EN 12326–1:2014. The tests referred to and the criteria are contained in EN 12326–1:2014 and EN 12326–2:2011.						
Date of sampling: June 2016			Date of testing: June 2017			
Essential characteristics		Performance				Harmonized technical specification
Relation between bedding and cleavage		Perpendicular				Pass
1) Dimensional tolerances						
Format		Rectangular				
Deviation from declared length		Less than ±5mm				Pass
Deviation from declared width		Less than ±5mm				Pass
Deviation from square		Less than 1%				Pass
Deviation from straightness of edges		Slate length < 500mm: max deviation of 5mm Slate length >5mm: max deviation of 1%				Pass
Slate type for deviation from flatness		Very Flat	Flat	Normal	Non-flat	Special
Deviation from flatness		<0.9%				-
2) Thickness						
Nominal thickness and surface variation					5mm (±25%)	Conforms
3) Strength						
Characteristic MOR		Transverse	45 N/mm ²		Longitudinal	57.1 N/mm ²
4) Water Absorption		0.31%, W1(≤0,6)				Conforms
5) Freeze thaw		Not required				Conforms
6) Thermal cycle test		T ₁ /T ₂ [*]				Conforms
7) Apparent calcium carbonate content		0.1%				Conforms
Sulphur dioxide exposure tests	≤20% apparent calcium carbonate	S1				Conforms
	>20% apparent calcium carbonate	S1				Conforms
9) Non-carbonate carbon content		0.30%				Conforms
10) External fire exposure		Deemed to satisfy class B _{ROOF}				Conforms
11) Reaction to fire		Deemed to satisfy class A1				Conforms
12) Release of dangerous substances		None in conditions of use as roofing or external cladding				Conforms
* May contain a proportion of T ₂ slates. For further information on test see below or consult our technical department.						

Date of sampling and testing		If more than one date is applicable to sampling or testing they should be indicated against the individual test results				
Product description		Slate for roofing and external cladding or carbonate slate for roofing and external cladding				
1) Dimensional tolerances						
Length and width		Maximum deviation + 5mm				
Deviation from squareness		Maximum deviation + 1% of the length				
Deviation from straightness of edges		Slate length < 500mm permitted deviation < 5mm				
		Slate length > 500mm permitted deviation < 1% of the length				
Flatness: The limits of deviation from flatness are defined for four types of slate. The bevelled edges shall be applied to the convex face. Slates with deviation from flatness in excess of the limit may be used for special applications.		Slate type	Maximum deviation from flatness as a % of the slate length			
		Very flat	< 0,9			
		Flat	< 1,0			
		Normal	< 1,5			
		Non-flat	< 2,0			
2) Thickness: The basic nominal thickness is determined as a function of the bending strength using the equations given in 3, local climate conditions and traditional construction techniques. The basic nominal thickness is increased in relation to the slate's performance in the appropriate sulphur dioxide test (if required) as shown in 7 and 8 below						
3) Strength: Longitudinal and transverse characteristic modulus of rupture; there is no limit for characteristic modulus. However the basic nominal thickness is determined as a function of the bend strength using the formulae given below, local climate conditions and traditional construction techniques.						
$e_l = X \sqrt{\frac{l}{R_{cl}}}$ and $e_t = X \sqrt{\frac{b}{R_{ct}}}$		Where: e_l is the longitudinal thickness, in millimetres (mm); e_t is the transverse thickness, in millimetres (mm); l is the length of the slate, in millimetres (mm); b is the width of the slate, in millimetres (mm); R_{cl} is the characteristic longitudinal modulus of rupture, (in N/mm²); R_{ct} is the characteristic transverse modulus of , (in N/mm²) X Is a constant determined as a function of climate and the traditional construction techniques in root Newton millimetres (N^{1/2}.mm^{1/2}). NOTE It may be different for each formula and is selected for country of use according to the table below.				
National X Factors:	Country	Transverse	Longitudinal	Country	Transverse	Longitudinal
	Belgium	1,0	1,0	Czech Republic	1,2	1,2
	Ireland	0,9	1,1	Italy	1,2	1,2
	France	1,0	1, 0	Spain	1,0	1,0
	Germany	1,2	1,2	UK	0,9	1,1
Those Member States that have not declared a national value should select a value or a pair of values in relation to their countries climate and traditional construction techniques. It should not be less than the minimum value or pair of values given above.						
e_l and e_t are determined by using the length l and the width b of the slates. The maximum value determined is basic individual thickness of the slate, e_{bi} . The basic individual thickness is increased in relation to the slates performance in the appropriate sulphur dioxide test as shown in 7 and 8 below.						

4) Water absorption: Code W1($\leq 0,6$), W1($>0,6$) or W2			
5) Freeze-thaw test: tested slates indicate the mean value of modulus of rupture after 50 cycles in transverse and longitudinal directions before and after the freeze/thaw test, if relevant, (test (if W1($>0,6$)), or not required.)			
6) Thermal cycle test: The following table explains the meaning of the test codes:			
Code	Observation in the test		Conformity to the standard
T1	No changes in appearance. Surface oxidation of metallic minerals. Colour changes that neither affect the structure nor form runs of discolouration.		Acceptable
T2	Oxidation or appearance changes of the metallic inclusions with runs of discolouration but without structural changes.		Acceptable
T3	Oxidation or appearance changes of metallic minerals which penetrate the slate and risk the formation of holes.		Acceptable subject to the note below
NOTE It is best only to use slates within Code T3, which potentially may result in water penetration selectively with suitable methods of construction that avoid such penetration. Slates showing exfoliation splitting or other structural changes in this test are not acceptable.			
7) Carbonate content: There is no limit on carbonate content. However, the carbonate content determines which sulphur dioxide exposure test procedure should be carried out and, together with the strength, the minimum nominal thickness of the product. If the carbonate content is less than or equal to 20 % then the sulphur dioxide exposure test procedure in EN 12326-2:2011, 14.1, applies. If the carbonate content is more than 20 %, the sulphur dioxide exposure test procedure in EN 12326-2:2011, 14.2 applies. The minimum thickness is calculated using the table below.			
8) Minimal nominal thickness in relation to apparent calcium carbonate content and sulphur dioxide exposure code			
Carbonate content %	SO ₂ exposure test code from EN 12326-2:2011, 14.1	Depth of softened layer from EN 12326-2:2011, 14.2	Thickness adjustment
$\leq 5,0$	S1		None
	S2		$e_{bi} + 5\%$
	S3		$e_{bi} \geq 8,0\text{mm}$ or switch to the test in EN 12326-42:2011, 15.2
$> 5,0$ $\leq 20,0$	S1		$e_{bi} + 5\%$
	S2		$e_{bi} + 10\%$
	S3		$e_{bi} \geq 8,0\text{mm}$ or switch to the test in EN 12326-2:2000, 15.2
$> 20,0$		0 – 0,70mm	$e_{bi} + 0,50\text{mm} + 7t^2$
e_{bi} is the basic individual thickness obtained from 3 above in millimetres t is the thickness of the softened layer obtained from EN 12326-2:2011, 15.2 in millimetres			
9) Non carbonate carbon content: The non-carbonate carbon content should be less than 2%			