UMANA
Biomechanical Analysis Health Centre

C-36-001498

BIOMECHANICAL QUALITY CERTIFICATE

UMANA
Biomechanical Analysis Health Centre (C-36-001498)

CERTIFIES
that the product

BIONTECH INSOLE
(anatomic, thermoformable)

developed and marketed by

GRUPO MORON (Antonio Morón de Blas S.L.)

provides

EXCELLENT
ergonomics

for the health and comfort of pregnant women (during the whole pregnancy) regarding thermal behaviour and the regularity and stability of the steps
(as described in the technical annex).

UMANA guarantees the accuracy and objectivity of biomechanical tests, which have been carried out under strict study protocols and allow to obtain the values of the analysis parameters in a direct, instrumental way without human intervention.

Tecnical Director
Xavier Alfonso Cornes

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TECHNICAL ANNEX

Broken down evaluation of the biomechanical quality of BIONTECH insole (MORÓN)
for the pregnant women population

Biomechanical Parameter		Value	Explanation of Results
Thermal Evaluation	**Sole**	Excellent	(1) The insoles have an excellent thermal behaviour for pregnant women's feet, as **the temperature produced on plantar surface does not exceed 31.9ºC**. (2) The upper temperature limit is within the range of maximum comfort, and minimises the sweating levels of feet, thus eliminating almost entirely the risk of epithelial damage due to friction and pressure.
Evaluation of Footstep Dynamics	**Regularity**	Correct	(1) The insoles provide a correct regularity of the steps for pregnant users (**varying between -12% and 0.7% in relation to natural regularity**). (2) Such increased regularity enhances users' comfort.
	Stability	Good	(1)) The insoles provide a good improvement of the stability of the steps in the target population (**from 32% up to 46.7% in relation to natural stability**). (2) Such increase in stability leads to a reduced muscle activity to stabilise the steps, and thus reduces the muscle fatigue that may arise during long periods of activity (walking, running, etc.) (3) Furthermore, this increase improves the users' confidence to take a step, thus reducing the risk of falling due to stepping on irregular ground.

Type Of User (by weight range)	Biomechanical evaluation of BIONTECH insole	
	(0-10)	Estimate
<55kg	7,9	Good
55kg/60kg	8,3	Excellent
60kg/65kg	8,3	Excellent
65kg/70kg	7,9	Good
70kg/80kg	7,8	Good
80kg/90kg	7,9	Good
90kg/100kg	8,3	Excellent
>100kg	8,3	Excellent
AVERAGE	8,0	Excellent

Excellent	<8
Good	6,5-8
Correct	5-6,5
Medium	2,5-5
Bad	<2,5