Fameccanica **Life+** Newsletter

Life+ Newsletter ● Issue 12 ● August 2016

Samples of laminated backsheet with loop frontal tape

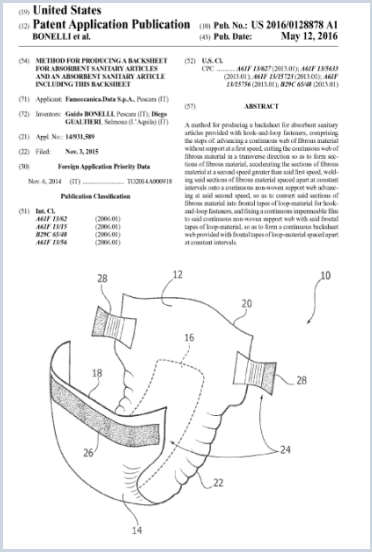
Frontal Tape Glueless™ solution being finalized

The Glueless™ Frontal Tape is considered as one of the most challenging initiatives in this project. The Team has been working on this feature to define a new solution, capable to achieve the result of creating the glueless sealing, without compromising backsheet functionality (impermeability).

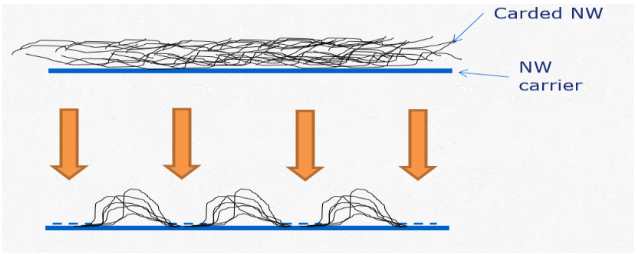
The project included the analysis of the weldability of a family of raw materials (nonwoven backsheet and material for frontal tape) and test of different sealing pattern designs, plus validation of the new solution in the laboratory with several different raw materials and 2 different patterns

The result is the "in line" creation of a backsheet with "loop frontal tape", where the innovation consists in the complete assembly including:
- a "loop" material acting as frontal tape
- a nonwoven carrier (nonwoven backsheet)
- a poly backsheet.

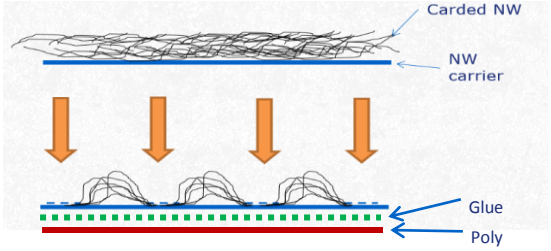
The samples demonstrate that the validity of the initial idea and that the initial expectations are fulfilled. In particular the tests confirmed strength of the welding (peel test) and strength when combined with the fastening tape.



Fameccanica Patent pending



STEP 1: LOOP + NONWOVEN CARRIER are combined together with a mechanical or ultrasonic sealing with a proper pattern



STEP 2: LOOP + NONWOVEN CARRIER are then laminated with POLY BACKSHEET using standard gluing technology

Sequence of creation of the Fameccanica Glueless Frontal Tape

Glueless™ ears application: back and front Ears without glue reinforcement

Fameccanica has completed the qualification of its Glueless Ears application.

The objectives of this project phase were:
- define the product structure
- validate the product concept,
- study the glueless fixing process of back and front ears
- realize samples
- make comparative tests in terms of strength of side seal vs. traditional technologies.

The comparative tests vs. traditional technologies showed that the Glueless™ solution offers equivalent results in terms of strength of side seal, confirming that the welding strength is higher than the breaking point of the ear itself.

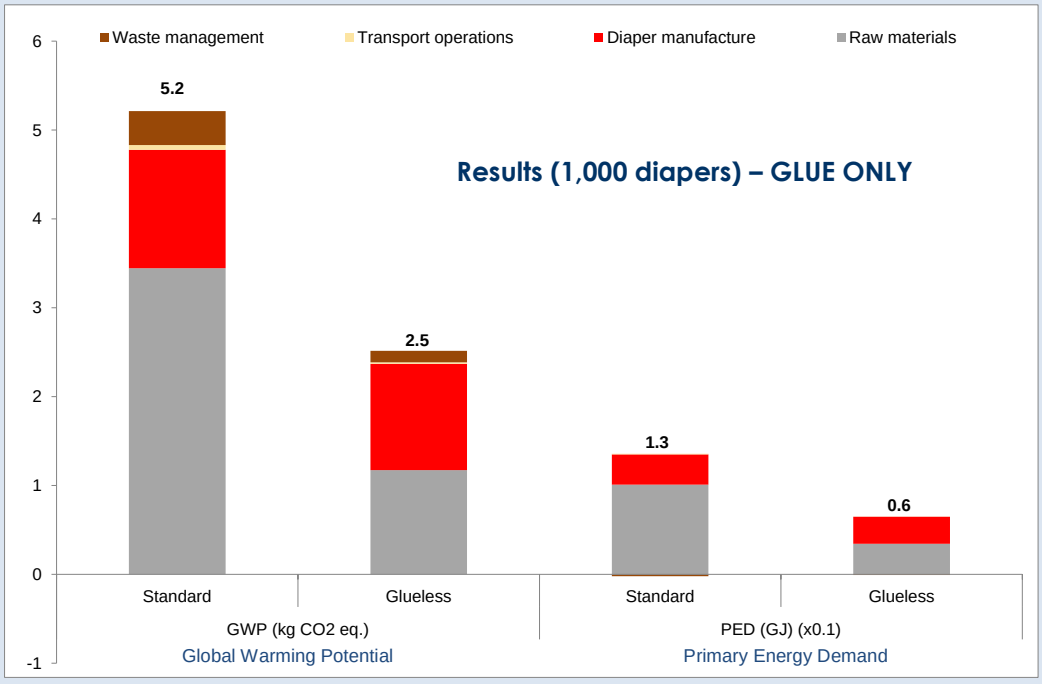
The Glueless Team closed the project by making available a process and machine configuration suitable for Fameccanica high performance converter, making this solution available for the market.

Sample of GLUELESS Ear application

	With Glue	Glueless			
Side seal strength [N]	**Benchmark**	**Asset 1** pattern1=S Pattern2=D Mat=Comm	**Asset 2** pattern1=S Pattern2=D Mat=FLS	**Asset 3** pattern1=S Pattern2=T Mat=Comm	**Asset 4** pattern1=S Pattern2=T Mat=FLS
Average	28,7	28,5	28,2	28,9	28,3
St. dev.	1,4	1,7	2,4	2,5	2,4
Min	24,1	22,9	22,0	23,5	22,0
Max	31,0	31,3	33,0	35,5	33,1

Comparative tests in terms of strength of side seal vs. traditional technologies

Key results from the LCA study realized by the University of Manchester



The study, being carried out by the University of Manchester, pertaining the glue and energy consumption reduction in baby diapers manufacturing show initial results.

According to the study, a reduction of 66% (0,62 kg/1000 diapers) in the glue requirements for the manufacture of glueless diapers entails a reduction of 52% in the GWP and PED of standard glue bonding.

This corresponds to 2,7 kg of CO2 eq. and 69,3 MJ of primary energy savings per 1000 diapers.

Fameccanica Glueless™ solution for the manufacture of diapers has a great potential for achieving the resource, energy and climate change sustainability goals defined by the EU 2020 strategy