



1. Presentation of the company.

Grupo Alvic FR Mobiliario, S.L. is a Spanish company whose origins date back to the seventies. The Company has:

- Headquarters in Alcahudete (Jaén).
- Industrial plants:
 - Spain: Alcahudete and La Carolina (Jaén), Vic (Barcelona) and Solsona (Lleida).
 - EEUU: Lakeland (Florida), Orlando (Nevada).
- Distribution warehouses: Spain (26), France (3), Portugal (Forthcoming openings).

Currently the business of this company is focused on three basiclines:

- Components for kitchen furniture: These products are mainly intended for carpenters and small industrialists in the sector. In this market the Company has its own distribution network (Alvic center's). The activity is carried out with the Alvic brand.
- Office furniture: The activity is carried out under the ofitres brand.
- Large DIY Surfaces: The activity is carried out under the Alvic brand.

The products and services of the Vic and Solsona plants are:

- **Office Furniture:**
 - Flexible manufacturing plant (lot 1) that allows manufacture on demand with multiple board finishes, in very competitive deadlines.
 - There are several series of office furniture, with tables of metal or melaminicstructures.
 - Complete systems for office furniture (System Office), that is, with all the assembly options demanded by the current market (tables with wings,extensions, double tables, ..., with multipleaccessories such as central screens, 3rd level, top accesses, ...
 - Differentseries of metallic structures areavailable.
 - Several series of complete cabinet andbookletprograms areavailable, compatible with the table series.
 - Several series of drawers are available, as well as counters.
 - The product is distributed disassembled, except for the drawers.
 - Se manufacture the pieces with melamine board base and edged in ABS edge.
 - There are multiple finishes in melamine,luxe, sincron,...
- **Home furniture in kit:**
 - Custom product collections are manufactured for each client.
 - Kitchens assembled using the different components mentioned above. It has a wide technical catalog that allows access to different types of customers-markets.
 - Wardrobes: Built-in and unblesed.
 - Bathroom furniture.
 - Another type of furniture with important demands.

2. Certifications.



Grupo Alvic FR Mobiliario, S.L., and specifically the office furniture manufacturing plant that operates under the Ofitres brand, has the following certifications:

- ISO 9001 for product quality assurance.
- ISO 14001 to comply with environmental requirements and applicable legal regulations.
- PEFC: Forest chain of custody system for wood products.
- ISO 14006 application of ecodesign to reduce the environmental impact of the product (ongoing).

3. Presentation of the product.

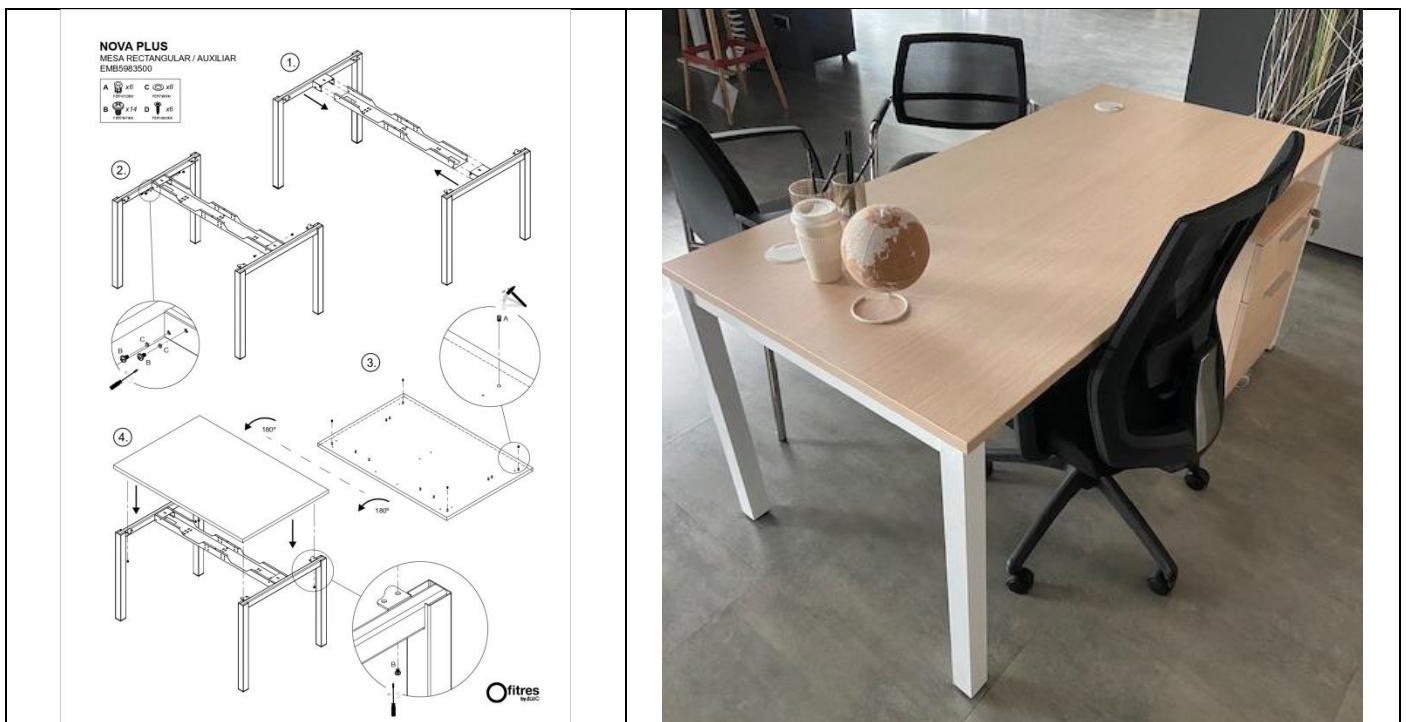
The product evaluated is a model of the Nova Plus (Nova +) series of tables.

It is a rectangular table, with steel structure painted with Epoxy powder, and chipboard boards covered by a melamine plate on both sides (with ABS thing).

The standard model will be analyzed, which omits from the study the chest of drawers and the separator panels, which are optional complements applicable to several series.

The products are supplied in Kit, which makes it possible to assemble and disassemble them. The product has a high resistance and offers a high durability, allowing without problems, movements and relocations of said furniture, and considering from the design parameters of quality and respect for the environment.

Ergonomics, quality and respect for the environment have always been a constant in the design and development of Ofitres products. We work closely with the Aidimetestinglaboratory, approved by ENAC (National Certification Body) for our series to meet the applicable requirements.



4. Evaluation of the initial product.



Sometimes it happens that it is not possible to define exactly certain elements used in the product to be analyzed because in the databases used (Ecoindicator '99), although extensive, they do not contain all the existing materials and processes. That is why in these cases it is necessary to take a series of assumptions and approximations to be able to simulate the element in question based on the data present in the database.

Other times, the amount of material used in a piece or the nature of it make it possible to omit this element from the analysis, always seeking the greatest efficiency and simplification of the study.

The technician who carries out the analysis in advance presupposes, since his experience in the field allows it, that the omission of such data will not significantly vary the results.

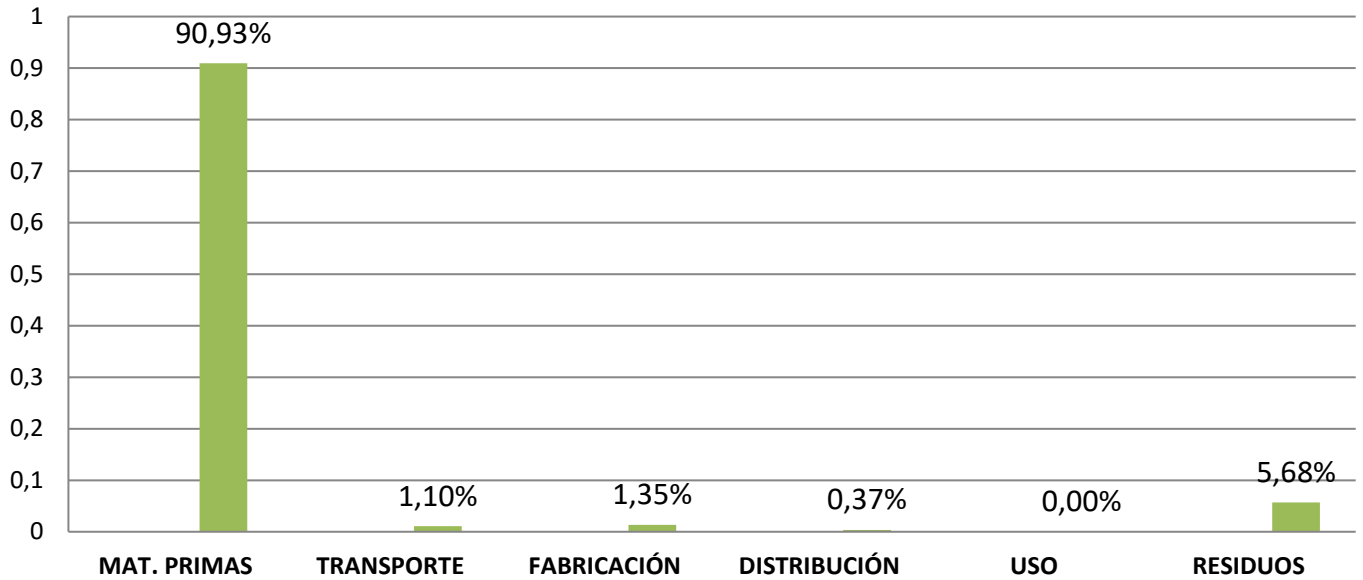
Therefore, below are the assumptions, estimates that have been carried out in this analysis:

- In the production phase:
 - The manufacture of the purchasing components has not been taken into account, because it does not have information on the processes applied, nor the option to act on them.
 - The manufacturing processes of the pieces have been taken into account, which are applied in our production plant, assimilating the processing of the pieces derived from the wood, to the more equivalent metal processing that is contemplated in the database used (Ecoindicator '99).
- In the distribution phase to the customer:
 - We have the sale very atomized, as well as the customers, so an estimate of an average mileage has been made, as well as a type of average truck for the calculation of the impact of the distribution of the product to the final customer, because in fact we supply mainly to distributors, and these move the product to the final customer, to the one who performs the installation of the product.
- In the use phase:
 - A shelf life of the product of 20 years has been estimated.
 - The consumption of water necessary for cleaning the table has been disregarded, since this will be done only with a dry or slightly moistened cloth.
- In the end-of-life phase:
 - It has been estimated as the end of life of the product, the most appropriate option, according to the best possible destination for the product or component, for its possible reuse or recycling, although there is no logistics of collection of the product by the company.
 - It is understood that the end user will perform the appropriate material separation tasks according to their possibilities:
 - Standardised waste management system by undertakings or,
 - Through the public system applicable according to the area for individuals.

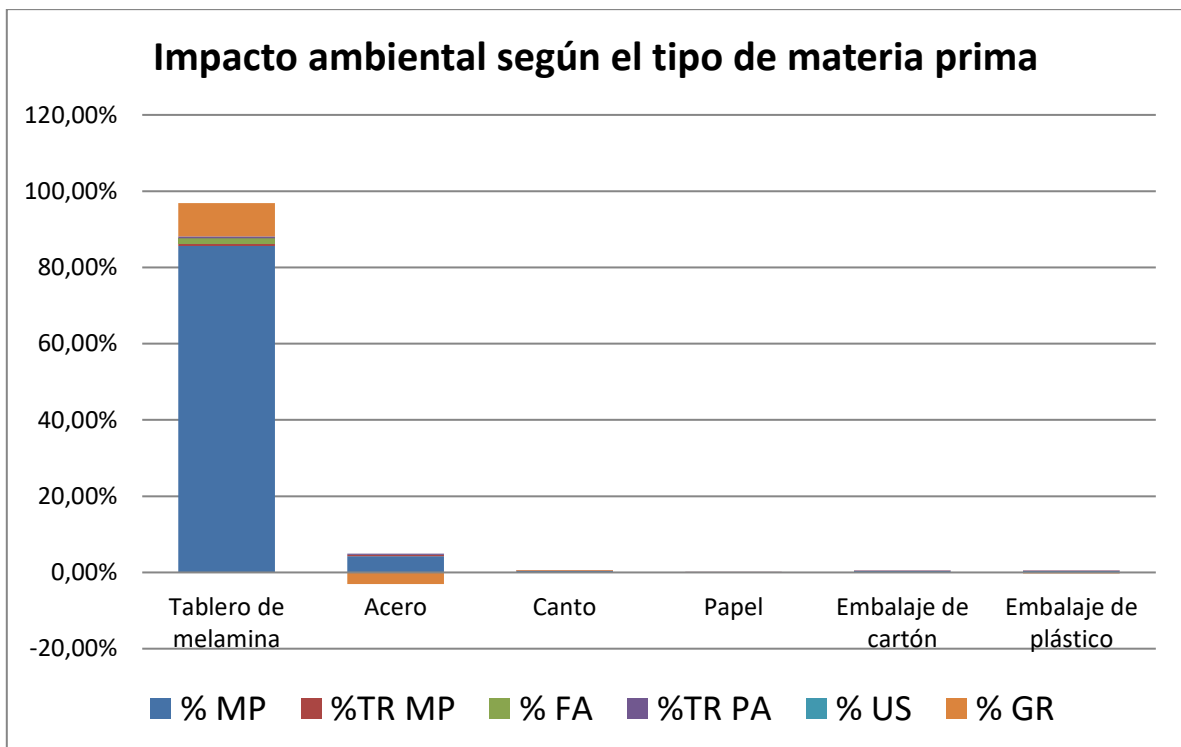
The following figure shows the environmental impact of the different phases of the product life cycle, depending on its environmental profile.



Perfil ambiental del ciclo de vida del producto (Inicial)



- The following figure shows the impact in detail according to the materials used:



Legend: MP: Raw Material, TR MP: Transport MP, FA: Manufacturing, TR PA: Transport Finished Product, US: Use, GR: Waste Management, GL: Global



6. Evaluation of the final product.

After applying the indicated measures and re-evaluating the product, *there is a decrease in the impact associated with the raw material phases, raw material transport, distribution and waste management, due to the reduction in the weight of the product, and its associated packaging.*

MEASURE APPLIED	IMPROVEMENT
<p>The thickness of the board has been modified. It has gone from a board with a thickness of 30mm to one of 25mm (next normalized thickness).</p>	<p>The initial envelope of 30mm weighed 25,728 Kg. The final envelope of 25mm weighs 21,440 Kg. <u>The weight reduction was 4,288 Kg.</u></p>
<p>Changing the thickness of the board implies a reduction of the edge applied to its contour. It goes from a edge of 33mm wide x 3mm thick, going to a edge of 28x2mm (normalized edge). Nature (application of betas in the thickness of the edge) has also been suppressed.</p>	<p>The edge weight of 33x3mm was 0.403 Kg. The edge weight of 25x2mm is 0.368 Kg. The total weight reduction is 0.035 kg.</p>
<p>The change of thickness of the table top, implies the application of corners of an adequate thickness, which goes from corners of 30mm thickness to ones with 25mm thickness.</p>	<p>4 side corners of 160x110x30mm (30grs) that pass to 160x110x25mm (27grs); - 12 gr. 4 intermediate corners of 160x110x30 (14gr) that go to 160x110x25mm (12gr); - 8 gr. Total weight reduction = 12 + 8 = 20 grs.</p>
<p>The amount of retractable plastic used to shrink the piece is also reduced based on the lower thickness of the table top. The coil width used is maintained, as it is a standardized width applied in other parts that remain in force.</p>	<p>The weight of applied plastic is maintained, since the excess plastic of the width of the coil is not cut, and is used as perimeter protection of the piece. There has been no weight reduction.</p>
<p>The profile of the side of the metal structure has been reduced from 60x60 to 50x50</p>	<p>2x initial side of 60x60mm weighed 6,809Kg. 2x initial side of 50x50mm weighed 5,870 Kg. The total weight reduction is 1,878Kg</p>



The most significant reduction is obtained in the reduction of thickness of the components, since it implies more than 6.16 kg of weight, with all that this implies due to the associated impact.

7. Results and conclusions.

The following table shows, for each phase of the life cycle, the reduction obtained with the improvements applied by applying ecodesign.

As can be seen, the environmental improvement achieved in the new table model is 16.39%, always assessing the impact through the values of the table of ecoindicators '99, and with the considerations contemplated in the evaluation of the product.

We comment that one of the measures applied, specifically the change of melamine board to E1 (low formaldehyde content), is not reflected in any valuation, since the value of this raw material is not contemplated with this level of detail in the table of ecoindicators '99.

