



1. <u>Presentation of the company.</u>

Grupo Alvic FR Mobiliario, S.L. It 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 (Lérida).
 - USA: Lakeland (Florida), Orlando (Nevada).
- Distribution warehouses : Spain (26), France (3), Portugal (Upcoming openings).

Currently , the company's business is focused on three basic lines:

- 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 under the Alvic brand.
- Office furniture: The activity is carried out under the brand Ofitres.
- DIY Large 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 on-demand manufacturing with multiple board finishes , in very competitive deadlines.
- There are several series of office furniture, with tables of metal or melamine structures.
- Complete systems for office furniture (System Office), that is, with all the mounting options demanded by the current market (tables with wings, extensions, double tables, ..., with multiple accessories such as central screens, 3rd level, top tocces, ...
- Different series of metal structures are available .
- There are several series of complete programs of cabinets and bookcases, compatible with the series of tables.
- There are several series of drawers, and also counters.
- The product is distributed disassembled, except for the drawers.
- The pieces are manufactured with melamine board base and edge edging of ABS.
- There are multiple finishes in melamine, luxe, syncron, ...
- **Home** furnishings **in kit**:
 - Tailor-made product collections are manufactured for each client.
 - Kitchens assembled using the different components mentioned above. There is an extensive technical catalog that allows access to different types of customers-markets.
 - Wardrobes: Built-in and unbuilt.
 - 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.

3. <u>Product presentation.</u>

The product evaluated is a model from the Tono collection: Tono Wardrobe .

It is a series of cabinets, with steel base bed painted with Epoxy powder, and structure of chipboard covered by a melamine plate on both sides (with ABS edges).

The Syncron low buffet cabinet model (18mm) will be analyzed, which omits from the study the other heights and extensions, which are complementary and 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 high durability, allowing without problems, movements and transfers of location 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 collaborate closely with the Aidimme testing laboratory, approved by ENAC (National Certification Entity) for our series to meet the applicable requirements.







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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 (Eco-indicator '99), although extensive, they do not contain all the materials and processes that exist. 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 means that this element can be omitted 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 change the results.

Therefore, the assumptions, estimatesthat have been carried out in this analysis, are set out below:

- In the production phase :
 - The manufacture of the purchasing components has not been taken into account, because there is no information on the processes applied, nor an option to act on them.
 - The manufacturing processes of the pieces, which are applied in our production plant, have been taken into account, assimilating the processing of the pieces derived from wood, to the most equivalent metal processing that is contemplated in the database ortilized (Eco-indicator '99).
- In the customer distribution phase:
 - o We have very atomized sales, as well as customers, so an estimate of an average mileage has been made, as well as an average truck type for the calculation of the impact of the distribution of the product to the end customer, because in fact we supply mainly to distributors, and they transfer the product to the end customer, to whom they perform the installation of the product.
- In the use phase :
 - A shelf life of the product of 20 years has been estimated.
 - o The consumption of water necessary for cleaning the product has been neglected, 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 his possibilities:
 - Standardised waste management system by companies 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:

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• The following figure Sample the impact with detail according to the materials employees:



Legend: MP: Mat. Prima, TR MP: Transport MP, FA: Manufacturing, TR PA: Transp. Prod. Finish, US: Use, GR: Gest. Waste, GL: Global



Product Data Sheet Collection Tone of office: Cupboard Tone Token of Ecodesign



5. <u>Strategies and improvement measures considered.</u>

The following table briefly collects and describes the ecodesign strategies and measures considered for the environmental improvement of the table. This table summarizes both the measures that have been implemented in the improved model, as well as those that have finally been discarded.

STRATEGIES AND IMPROVEMENT MEASURES CONSIDERED IN THE NOVA+ SERIES													
	Obtaining MMPP and components		Factory prod uctio n	Distribution	Use	End of	life	General	Evaluation of the actions			ons	
egy	SELECTING LOW-IMPACT REDUCE MATERIA MATERIALS USAGE		DETECTING ENVIRONMENTALLY EFFICIENT	SELECT ENVIRONMENTALLY EFFICIENT FORMS OF	REDUCE ENVIRONMENTAL	OPTIMIZE THE END-OF- LIFE	OPTIMIZE THE LIFECYCLE		Viability			Description of	
Strat			TECHNIQ UES		INTPACT IN THE USE PHASE	SYSTE M			Techniq ue	Economic	Environme ntal	Applied?	measure
Measure	Use of certified (CE) and low toxicity degreasers and paints •						We optimize the life cycle by obtaining the certification of the products we buy from our supplier.		Ok	Ok	Ok	Ok	We obtain certification (CE) Of degreasers and paints from the
Pros Cons						We ensure certification recycla	and its possible billty.		Optimize lifecycle	reduc tion	Impact reduction		supplier of metal Structures to facilitate the optimization of the life cycle.
Measure	Recyclable HDPE								Ok	Ok	Ok		Use of recyclable HDPE plastic
Pros Cons						Removable K	olugs and feet etal insert		Overinjected insert improves function	reduct	Impact reduction	OK	stoppers and feet by our suppliers for the ends of the structures.
Measure				The distribution reduces the environmental impact since it makes more					Ok	Ok	Ok	Ok	We generate a form Of packaging

			of	Product Data Sheet Collection To office: Cupboard Tone Token of Ecodesign					e of Page. 6				
				use of the space of the truck and reduces the volume and load of the pallet itself- industrial packaging occupies the minimum % of the final product.									with smaller pallets Of intermediate support tO reduct the cost of transport to the customer.
Pros Cons		Greater type of pallets	We increase references and locations in the plant	Reduced transport impact						reduct	Impact reduction		
Measure		Reduction of the use of raw materials (from 19mm to 18mm)		Increased number of Dashboard packages in a single distribution journey					Ok	Ok	Ok	Ok	Redesign to reduce the thickness of melamine parts
Pros	Lower consumption o	f raw materials.		Reduced transport impact		Reduction of was	te volume		Apply standard thicknesses	Cost reduction .	Impact reduction		from 19mm to 18mm (next standardized We offer the new cabinets With Syncron finishes (melamine thickness 18mm with different textures). This allows us to make cabinets With
													metamine chipboard of thickness 18mm, thus reducing 1mm of thickness per piece (unlike the standard 19mm metamine of Egger)





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6. Evaluation of the final product.

After applying the indicated measures and evaluating the product again, <u>there is a decrease</u> in the <u>associated impact in the phases</u> of raw material, transport of raw material, distribution and <u>waste</u> <u>management</u>, <u>due to the reduction</u> of the <u>weight of the product, and its</u> associated <u>packaging</u>.

MEASURE APPLIED	IMPROVE MENT
Redesign to reduce the thickness of melamine parts from 19mm to 18mm (next standardized). We offer the new cabinets with Syncron finishes (melamine 18mm thick with different textures). This allows us to make cabinets with aminic chipboard of 18mm thickness, thus reducing 1mm of thickness per piece (unlike the standard 19mm melamine of Egger).	The initial material of 19mm weighed 23.75 kg. The final envelope of 25mm weighs 22.53 Kg. The weight reduction has been 1.22 kg.
Redesign to go from stringers and crossmembers of the tubular legs to bent sheet, maintaining functionality (stability). In the same way we remove the nuts embedded from the tube to simple holes to pass direct screws.	The initial tubular weight was 4.54 kg. The edge weight of 28x2mm is 3.78 Kg. The total weight reduction is 0.76 kg.

The most significant reduction is obtained in the reduction of thickness of the melamine components, since it implies 1.22 kg of weight, with all that this implies due to the impact associate.





7. Results and conclusions.

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

As can be seen, the environmental improvement achieved in the new table model is:

Overall reduction achieved through Eco-design: 7.85%

Always assessing the impact through the values of the table of eco-indicators '99, and with the considerations contemplated in the evaluation of the product.

The following measures applied in the tableof improvement strategies are not reflected in any assessment, since the value of this raw material is not contemplated with this level of detail in the table of eco-indicators '99:

- 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 eco-indicators '99.
- We obtain certification(CE) of degreasers and paints from the supplier of metal structures to facilitate the optimization of the life cycle.
- Use of recyclable HDPE plastic stoppers and feet by our suppliers for the ends of the structures.
- Wewere a form of packaging with smaller pallets with intermediate backrest to reduce the cost of transport to the customer.
- We sell the product without entering the assembly instructions in printed form in the hardware, but we give you the option to download them digitally from the company's website.
- We went from 5 types of HDPE stoppers for each type of material, to a single type of paper stoppers of the same diameter with and without texture. In this way we cover all types of machining holes of the furniture and minimize the use of plastic material.
- We eliminate the inserts (ankors) and in this way one of the furniture hardware, simplifying the system of union between pieces and maintaining functionality. Now we only need an expandable shaft and an eccentric one to join the pieces. At the same time we allow the furniture to be easily disassembled and assembled with the same hardware.



The improvements achieved through ecodesign in the stages of the life cycle are:

8. Waste management .

When the product reaches its end of life, its different components are destined to the different waste management plants according to the material of each of them, with the possibility that they are recyclable or not:

COMPONENTES	MATERIALES	
Instrucciones de montaje	PAPEL	
Cantoneras del embalaje	CARTÓN	
Embalajes de protección	PLASTICO	
Sobre de mesa	TABLERO MELAMÍNICO	
Borde perimetral mesa	ABS	
Estructura metalica y componentes ferretería	ACERO	