

ligne roset®

green

sustainable development



sustainable development within the ligne roset company  
November 2007

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# introduction

Ligne Roset is based in France, in the heart of the *Ain département*, and more exactly in the southern part known as the Bugey.

During the summer and winter seasons, it is a region perfect for green tourism and known for its outstanding gastronomy and conviviality. It was here that Antoine Roset, great grandfather of Pierre and Michel Roset and Bernard Lipp, the current owners and directors of the company, first set up his small business in 1870.

In this extraordinary setting, surrounded by nature, the business flourished. Today, the same site is occupied by the company's head office and most of its factories.

Currently, Ligne Roset employs 1,400 staff. 787 stores, 212 of which are exclusive, represent the Ligne Roset brand worldwide.



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## editorial

*"The admirable way in which Ligne Roset has evolved since its inception reminds us daily of our duties as eco-conscious citizens. For this, we owe the company our greatest respect."*

Pierre Roset, President of Ligne Roset

*For me, sustainable development begins with the pleasure derived from working in this remarkable location. When one has the good fortune to grow and develop in an environment of such quality, one naturally wants to protect it. I am convinced that the beauty of a site and the proximity of nature all play a part in the blossoming of creativity.*

*In the 1970's, when the ecological movement took off in France, Ligne Roset was already embracing environment-friendly practices.*

*As Ligne Roset further developed, the risk of damaging the environment we hold so dear could have risen in consequence. And yet, our activities are generating less and less pollution. This is explained by our own vigilance and by the demands we make on both our suppliers and ourselves. Every reliable solution that guarantees increased protection of persons and better stewardship of natural resources grabs our attention, regardless of whether it might entail additional costs at the outset.*

*We have never ceased to look for products which marry performance with non-toxic, 'cleaner' solutions. This is how we have managed, more than once, to anticipate legislation for the protection of both the environment and ourselves.*

*Far more than a strategy, we favor a philosophy imprinted with respect for human beings and their environment; whether it is in the training of our staff, our choice of suppliers, or the management of our waste products.*

*Our environmental practice is nurtured by the concepts which have always guided us: creativity, innovation, and quality.*



# sustainable development

## day to day concern

### Ligne Roset at the heart of the matter

Pierre Roset, President of Ligne Roset, is involved at the highest level of the European Commission in his capacity as representative of UNIFA. The French furniture industry is deeply committed to the theme of sustainable development and has achieved a number of interesting results - including the classification of panels of particleboard - but remains divided on many other points. For the present, the cost of 'clean' products is still often an obstacle but is expected to diminish in the years to come. The French government submitted a draft decree on 'the fire performance of upholstered seating' to Brussels in 2006.

*\* Union Nationale des Industriels Fabricants pour l'Ameublement.*

### Non-toxic nature of our products

By virtue of 'clean' manufacturing, our furniture and upholstery do not "off-gas" or create toxic waste in the home of the consumer. We use only products and materials recommended by the FCBA (Forêts, Cellulose, Bois et Ameublement), that comply with all European norms. We can therefore certify that our furniture and upholstery present no health or environmental risks.

### Usage of local wood products

Our products make use of solid wood. And yet, we have no part in the destruction of South American (most notably Amazonian), African or South Asian forests. Conscious of the pressing need to protect this natural heritage, we exclusively use 'bois d'origine PESC\*', that is, European wood products: oak, walnut, ash and beech originating from ecologically-managed forests.

*\* "Bois d'origine PESC" is similar to FSC-certified wood or Forest Stewardship Council-certified woods in the United States.*

### Eco design

Definition: eco design aims to introduce strict environmental criteria to the design of a product when it is first created. This entails:

- identifying the environmental issues associated with the product for the duration of its life cycle
- limiting the impact on the environment at the production stage
- designing the product in such a way that the materials of which it is composed can be recycled whenever possible.

The FCBA (*Forêts, Cellulose, Bois et Ameublement*) has produced several recommendations and proposals to assist manufacturers in formulating their environmental approach. The components of the products we design are increasingly compartmentalized to facilitate breakdown and ultimately, recycling - by doing this, Ligne Roset encourages "cradle to grave" design. This is achieved through the choice of materials used and the limitation of their number, a great deal of research surrounding the products (e.g. easily removable glues), and product improvement to encourage economy of materials and energy with ease of transportation and handling. For example, in the design of our cabinet furniture, thick panels are alveolar, with cardboard honeycombing.



### The environment around our factories

Thanks to our minimal pollution output and constant anticipation of potential problems, we are delighted to say that the activities of our company have no impact at all on the surrounding environment. Sources of waste are reduced as much as possible, and the few waste products that exist can be either recycled or reprocessed.

### An entire site heated by wood off cuts

The Saint Jean le Vieux site (cabinet department) is equipped with a large wood-fired boiler which uses our off cuts of wood to heat the 484,376 square foot factory floor. Therefore, we have practically no fuel consumption. It goes without saying that all emissions from this boiler are monitored annually to ensure that they are below current guidelines. The resulting ash is also analyzed.

### Fire prevention

The methods employed at our production sites (staff training, installation of sprinklers, etc.), not to mention our collaboration with the local fire department(s) and the companies which insure us, mean that our insurers consider us to be extremely good 'students' in the matter of fire prevention and protection. Everything has been done to avoid catastrophe, not only in personal and financial terms, but also in ecological terms, since the choice of construction materials (notably the laminated building framework) would protect the business from total destruction. Water from the sprinklers is directed through a dedicated independent system and collected in special tanks. It is then analyzed and treated.

### The welfare of our workforce

This is a priority which motivates both our training programs and the constant improvements we make to our sites, both in terms of processes and equipment. Some years ago we improved the wood dust extraction system in our factories, bringing the level of dust expelled into the atmosphere down to 0.2mg/m<sup>3</sup>, pre-empting the European legislation which was to impose a limit of 5 mg/m<sup>3</sup>. Since then, the limit has been further reduced to 1mg/m<sup>3</sup> and we still fall well below this target. Regular checks are made to ensure that we continue to do so.

Monitoring of noise levels on our sites comply 100% with current legislation. Corrective measures above and beyond this have also been put in place, e.g. sound enclosures for machinery, limited suction power, and ear equipment offering more noise protection for individuals.

### Training

Our workforce is highly sensitised to sustainable development and respects the procedures put in place. Our 'P.R.O.' strategy (Propreté, Rangement, Ordre) is both rigorously enforced and continually updated. During the final trimester of 2007, all personnel on the factory floor will be trained in the Japanese '5 S' method: ordering and tidying workspaces, each tool in its place, only taking out what is necessary, regular cleaning, etc.



## materials

### Wood panels

Panels of particleboard are the core construction material in the manufacturing of our cabinet furniture and upholstery. The panels we purchase contain neither fungicides, biocides, heavy metals nor halogenated compounds.

For some years, manufacturers of particleboard have been working to reduce the level of formaldehyde contained in the glues used to manufacture such panels. When the panels of particleboard classed E1 appeared, containing lower levels of formaldehyde, we chose to use these for all of our cabinet furniture and upholstery in lieu of the E2 panels then in use. An even lower threshold, named E0.5 (E0 is still not possible) is currently in development.

### Wood veneers

Our cabinet items are covered in wood veneer on flat surfaces and edges. To further limit the emission of formaldehyde, all edges of our furniture are veneered, even those that are not visible on completed product. We do not use PVC edging as this is very difficult to recycle and emits toxic fumes when burnt.

### Foams

For bedding purposes we use high-quality foams from Recticel, which are guaranteed CFC-free and certified CertiPUR. This mark was created by Europur, the European association of manufacturers of flexible polyurethane foam blocks, whose members include more than 85 manufacturers in 25 countries. The CertiPUR mark was created to establish a standard in terms of safety, hygiene and environment for this type of product. The allocation of this mark notably guarantees either the total absence of heavy metals or their use within strict limits. Foams certified in this way will therefore emit no toxic substances during the course of their life. We chose to work with foams bearing this mark for reasons of safety, hygiene and health both in our workshops and in the homes of our customers. This choice forms part of both the social progress of our business and the qualitative policy of the group. Our foams are transported in 'camions-presse', in order to optimize the number of blocks that can be transported in each truck.

For a product to be awarded the CertiPUR mark, it must be submitted for testing by an independent laboratory and approved by Europur, which makes regular checks on the samples of foam supplied by each manufacturer. Europur can make spot checks at any time on products already on the market that bear the CertiPUR mark.

### Packaging

Our chosen packaging materials are cardboard, polythene film (stamped with the 'recyclable' logo) or polystyrene. At the time of customer product delivery, they are sorted and taken away by our nominated carrier.



## products

### No more 'CMR' products

We have progressively, and now entirely, eliminated CMR\* products (particularly solvents), substituting them with products which are just as reliable and more ecological. Each chemical product which enters our factories must be accompanied by its security slip, detailing its composition and potential dangerousness. In addition, we carry out regular evaluations of the chemical constituents used in our production.

\* *Carcinogenic, mutagenic and toxic to the reproductive system of human beings.*

### Finishes and lacquers

For more than eight years now we have favored the use of acrylic products which are dried via ultra-violet (UV) light and contain neither solvents nor volatile organic compounds (VOC's). The cost of these is higher, but they are more durable, more quick-drying, and less energy-consuming in terms of their usage. Each year we submit a *Plan de Gestion des Solvants* (Solvent Management Plan) to Drire\* in support of the good results obtained. Only certain polyurethane lacquers - which are applied with a gun in special cabins - still contain some solvents (their use is very limited in terms of our production and we are working to replace them). We remain both vigilant and demanding and never hesitate, when necessary, to change supplier either temporarily or permanently.

\* *Drire: Direction Régionale de l'Industrie, de la Recherche et de l'Environnement.*

### Glues

#### Adhesives for polyurethane foam

In 2004, we were among the very first in the industry to substitute solvent-based glues with the water-based variety. These 'clean' glues also make it easier to clean equipment and tools, in particular spray guns. And of course, less product cleaning means less residue and therefore less pollution.

#### Adhesives for wood veneer

We use vinyl glues for this purpose which have no impact on the environment and can easily be cleaned off tools and machinery by rinsing with water.

### Products for the cleaning of machinery

These are the only type of products to contain solvents with volatile organic compounds (VOC's). After use, they are collected and recycled. Planning to switch to agro-solvents, we have carried out numerous tests, but the results have been unsatisfactory: the level of toxicity is still too high, the cost too great and the recycling too complicated. We are currently looking into the possibility of evolving our cleaning solvents in terms of their composition, in close collaboration with our associates in Annemasse.



## managing our waste

Waste management is clearly an integral part of our approach to sustainable development. The personnel employed in Ligne Roset factories are extremely conscious of this issue. The Maintenance Department and management instruct the factory personnel to ensure that procedures are respected, while at each of its meetings the Comité d'Hygiène et Sécurité draws up a statement of actions taken.

All waste products generated are rigorously monitored and managed. All waste is sorted and evaluated. We take great pains to keep ourselves abreast of developments in this field, making improvements to our processes where possible, both to reduce our waste and to recycle waste products more consciously and effectively.

With constant and considerable effort we have succeeded in reducing both the amount of our waste and the cost of dealing with it on a year-to-year basis. We are proud of this success and recognize that what is good for the environment becomes equally good for our business. For development to be truly sustainable, it must be economically viable.

## the volume of waste products diminishes year by year

### Cabinet Production Facilities:

- In 2001, the company's cabinet factories sent 500 tons of waste of all types for recycling, at a cost of \$38,000.
- In 2002, this figure was reduced to 400 tons, at a cost of \$33,000.
- In 2006, 300 tons of waste was sent for recycling (approx. 1 ton per staff member), at a cost of \$22,000.

### Upholstery Production Facilities:

- In the 2005-2006 financial year, the budget for "Waste products - removal and recycling" in Ligne Roset's upholstery department had reached \$165,000.
- For the 2006-2007 financial year, it was only \$107,000 - a decrease of 35%.



## each eco-friendly gesture counts in the workshops

In each of our workshop sites there are dedicated receptacles for paper and cards, printer cartridges, and aluminium cans from drinks machines.

### Wood

In the factory of Saint Jean le Vieux (cabinet department) the suction system enables us to transfer wood by-products (off cuts from panels, machine dust, etc.) directly into the bins provided for this purpose.

These waste products are then crushed and stocked in a silo to provide fuel for the wood-fired boiler which heats the 484,376 square foot factory; therefore, not a single piece of particleboard needs to be dealt with externally, and our fuel consumption is virtually zero. Off cuts of solid wood and pallets are still dealt with externally.

### Sorting and recycling of materials

- miscellaneous industrial waste: This is collected in the bins provided.
- cardboard and similar: Cardboard boxes which can be reused are flattened and returned to our supplier for reconditioning. Those which are too badly damaged are collected in bins and recycled.
- polythene packaging film: This type of waste is purchased and collected by a specialist. The removal cost is thus offset against the resale price.
- polystyrene: Those pieces deemed unsuitable for packaging purposes are collected by our suppliers.
- metals (except aluminium): These are collected.
- aluminium: Very little waste is allowed as we assemble our cabinet and upholstery items. Any waste is collected by a specialist.
- cleaning cloths: These are collected, reprocessed and returned to us clean and reusable.
- ash from the wood-fired boiler: This is collected in a special bin, which is emptied twice a year. Ash is regularly analyzed to check that it contains no toxic substances.
- 'douflines' (protective sheets & interleaving for varnished pieces being transported between factories in pallets): These are either reused or destroyed once they are too damaged to reuse.
- fabrics and hides: For a long time now, off cuts of fabric have been teased apart and then rewoven by specialists. Such off cuts are re-produced in even smaller quantities thanks to developments in our positioning software and are sorted and sold to recycling companies. Microfiber off cuts are made into 'feutrine' (thin felt cloth) for flocking. Off cuts of leather are sold to artisans making small leather goods.
- off cuts of foam: These are also declining in quantity each year thanks to developments in our positioning software. They are neither thrown away nor burned but are recycled by a company making tatamis (Japanese mats), exterior carpeting, etc.



## Waste products requiring special treatment

- neon tubes, printer cartridges, batteries: Items in this category are all collected and sorted, then either recycled or destroyed. Depending on the type of material in question, we either pay to have them collected, or they are purchased by companies specialising in the reprocessing of such items.
- solvents: these are used in the cleaning of machines and tools, and in surface treatments for cabinet items or bases of seats. Ten years ago, we replaced our system of water curtain filters (which were too restrictive) with dry filtration cabins which allow air to pass through. The treatment of waste products is much simpler, more reliable, and in particular does not require water.

Approximately fifteen years ago, we also entered into partnership with a company based in Annemasse in Haute-Savoie (France) which specialises in the collection and regeneration of unclean solvents and has an impressive overall approach to cleanliness. Every 15 days, they collect drums of solvents from our factories for distillation. Interestingly, 100 litres of unclean solvents make 70 litres of clean solvents, with the remaining 30% being destroyed.

We are also investigating the possibility of working with this company to potentially transform the composition of solvents.

## ligne roset certificate of non-toxic furniture

In producing our veneered and lacquered furnishings, we use only wood materials and surface treatments recommended by the CTBA (Centre Technique du Bois, Paris) and endorsed by European standards.

We hereby certify, based on information and analysis from our suppliers, that our furniture poses no health or environmental threats.

### Panels of Particleboard (casework and shelves)

Construction: waste wood particles (originating from the Vosges region and certified by the PEFC, the body overseeing the certification of French forests) and urea formaldehyde glue.

All panels meet the requirements of emissions grade E1, meaning that they do not exceed the threshold value of 0.01 ppm set by the French Ministry of Health. Panels have been checked under current standards and carry the CTBA certification dated January 2, 2006. In the case of a finished product, all panels fall well below the prescribed limits, since they are veneered not only on both faces, but also on all four edges.

Panels of particleboard contain no fungicides, BIOCIDES (e.g. PCP-PENTACHLOROPHENOL, HCH Hexachlorocyclohexane), heavy metals (e.g. cadmium, mercury, lead) or halogenated compounds.



They are finished in lacquer or varnish, using products which guarantee stability of composition (based on information from manufacturer and PCP, HCH analysis report from Fraunhofer Institute, Frankfurt).

### MDF panels (drawers)

Composition: Wood fiber and urea formaldehyde glue.

All panels meet the requirements of emissions grade E1, meaning that they do not exceed the threshold value of 0.01 ppm set by the French Ministry of Health (see above). They contain neither fungicides, BIOCIDES (e.g. PCP-PENTACHLOROPHENOL, HCH Hexachlorocyclohexane), heavy metals (e.g. cadmium, mercury, lead) nor halogenated compounds.

Veneers: Oak of French origin, from managed forests.

When attaching a sheet of veneer to the base panel, we use a vinyl-based adhesive which poses no health or environmental risk.

### Varnishes

UV acrylic varnish: 95 % - 97 % of varnished surfaces

Polyurethane varnish: 3 % - 5 % of varnished surfaces (edges of panels only)

The composition of these varnishes contains no:

- fungicides or biocides (e.g. PCP-Pentachlorophenol, HCH Hexachloro-cyclohexane)
- heavy metals (e.g. cadmium, mercury, antimony, arsenic, barium, selenium, chromium VI, phthalates (e.g. BBP Benzylbutylphthalat, DBP Dibutylphthalat))
- formaldehyde
- PBDE Polybromodiphenylether, PBB Polybrombiphenyl
- halogenated compounds

Once completely dry, neither varnish will release materials harmful to health. In the case of UV acrylic varnishes, the monomers contained are only irritants when in liquid form.

After drying and UV polymerisation, only an infinitely weak concentration of monomers remains. These are contained within the film of varnish and therefore cannot escape.

UV acrylic varnishes (which have been used in more than 95% of LIGNE ROSET products for more than 10 years) are therefore particularly sound in environmental terms. Unlike most other furniture manufacturers, our varnishes require no solvents.

They are applied and then hardened rapidly under UV. Hardening takes place after polymerisation of these compounds, with no release of by-products.

UV acrylic varnishes do not contain volatile organic compounds (VOC) and may be disposed of in an incinerator or by a similar manner.

Given that we use solvent-free lacquers almost exclusively, unpleasant odors caused by solvent residues are hardly distinguishable. Varnishes, like many other products or materials, will always have an odor, which will disappear over time and is completely harmless.

\* \* \*

