



# KENAF FIBER

with Kenaf together.....in the environment



with Kenaf.....the utmost sustainability

Natural-fibers products for automotive components, soundproofing systems, thermal insulation, and green building, but above all natural fibers materials to safeguard the environment in which we live and that we want to be increasingly safer for our health and for a sustainable future



- 1998 witnessed the start of cultivation and our industrial project
- 2000 separating process system was created
- 2002 Kenaf panel production system was created
- Today we use the entire Kenaf plant with a rational process able to transform it into natural and ecosustainable products

## The origins of Kenaf

Kenaf, according to *Murdoc*, was domesticated in 3500 B.C. in *Nuclear Mandé*, an agricultural region of Western Africa where agriculture developed independently from Egyptian farming. Indeed, in Egypt, as of 5000 B.C., they had obtained the first domesticated species - vegetable and animal - by migration from the hilly regions of Central Iraq. While the utilization of kenaf originated in Western Africa north of the equator, it is more difficult for researchers to identify the origin of the species. There are three African areas where wild forms are found:



- the upper valleys of the Niger and Bani: this is the area nearest the centre of domestication;
- the Angolan territory, which has the most primitive species. From here the species is believed to have migrated eastwards to then re-enter in the west, after passing the damp tropical band, representing a natural barrier for direct north-south migrations and/or vice versa;
- the territory of Tanzania: from here kenaf could have migrated in a south-western direction, toward Angola and in a north-western direction, toward the territory of Nuclear Mandé.

## TODAY

- **Roundbales:** after preparing the ground, seeding and cutting with special mechanical equipment, they harvest with a roundbaler and transport the bales to the first processing system, preferably located within a radius of 40-50 km, for transport requirements; usually, for the system to be able to work at full pace, it needs at least 1000 hectares of cultivation and roughly fifteen skilled workers.
- **At the plant:** it is designed according to the technologies for flax, modified down to the definition of blades and mechanisms suited to cope with the extraordinary strength of hemp fiber; the material of the bales is analyzed (quality, weight, moisture, impurities, state of maceration) and stored.
- **Separating machine:** after removing the bale rings manually, a special belt transports the bales to the aforesaid machine, which supplies the scutching units with prearranged quantities of material.
- **Scutching units:** the stems are stripped of their cortical and woody parts without being torn; these parts are collected on a second belt and sent to another processing sector.
- **Cleaning station:** the following stage thoroughly cleans the fibers and extractors the remaining dust (fines), which can also be used in other plants.
- **Separating:** they then pass on to a variable sequence of fiber opening and metering devices, along which, according to the industrial requirements, the cycle can be suspended at a specific stage or continued further.
- **Exit:** the fibers are pressed and made up into bales, waiting for transport. Any steeping is always done automatically, preferably enzymatically, to shorten the time. Nevertheless, till now, steeping in water still produces qualitatively better fibers.



## COMPANY PROFILE

In June of 1999 we established the firm EUCHORA s.r.l. to meet the growing need for natural fibers products and their main applications: soundproofing systems, thermal insulation of walls, floors and roofs, automotive components, and ecological building, but above all for a sustainable future, in order to safeguard the environment in which we live on a daily basis and that in which our children will live.



In the heart of the Po valley, on the flood plain of the river Po between the provinces of Mantua and Reggio Emilia, we started cultivating kenaf in 1997 with 10 hectares of land to experiment a new crop so highly appreciated by researchers and ecologists for its high ecological and healthy value for the environment in which we live and to study its manifold uses better. Respect for nature is for us a primary commitment and directing our company's decisions in this direction is the fundamental reason for our work. All factories cause environmental impact on nature in the area where they are located, but this is not our case: we are an ecologically sustainable company.

Kenaf uses carbon dioxide as the raw material in its development, a concurrent cause of the greenhouse effect, and during its development it releases into the environment a considerable quantity of oxygen, a vital element for our existence and our ecosystem. To do this we need the fundamental cooperation of those who work the land and we therefore enter into **contracts for cultivating kenaf and hemp** throughout Italy to achieve our annual requirement, assisting farmers in all phases of cultivation, from seeding to harvesting the end product.



In addition, we have obtained the recognition of "First Transformer" from AGEA, a necessary qualification to permit farmers to utilize the contribution for "set aside" in accordance with EEC regulations, since kenaf is a no-food plant. Great commitment and vitality for a brand new economic reality have been our points of departure to design a fully computerized kenaf separating line, currently the biggest one in Europe, that could be able to meet the requirements of our clients for both quantity of product obtained and purity of the fibre obtained, maintaining the dogma of being ecologically sustainable.

## ISOLKENAF

Soundproofing and thermal insulation material made of kenaf natural fibers



Isolkenaf is available in handy felt rolls of different thickness, of 20 kg/m<sup>3</sup>, and in panels of higher density, 40 kg/m<sup>3</sup>. Isolkenaf contains no polluting additives. It is a product that can easily be reused and as a result it is fully recyclable even after removal. Isolkenaf is fast and easy to install, making it particularly suited to DIY too. Isolkenaf resolves all soundproofing and thermal insulation problems, whether on walls, floors or for roof insulation. Isolkenaf is ideal in both new constructions and in renovation work. Isolkenaf needs no special treatment when handling, its use is clean without producing any dust. Its excellent features set it among the natural insulation materials of the finest quality.

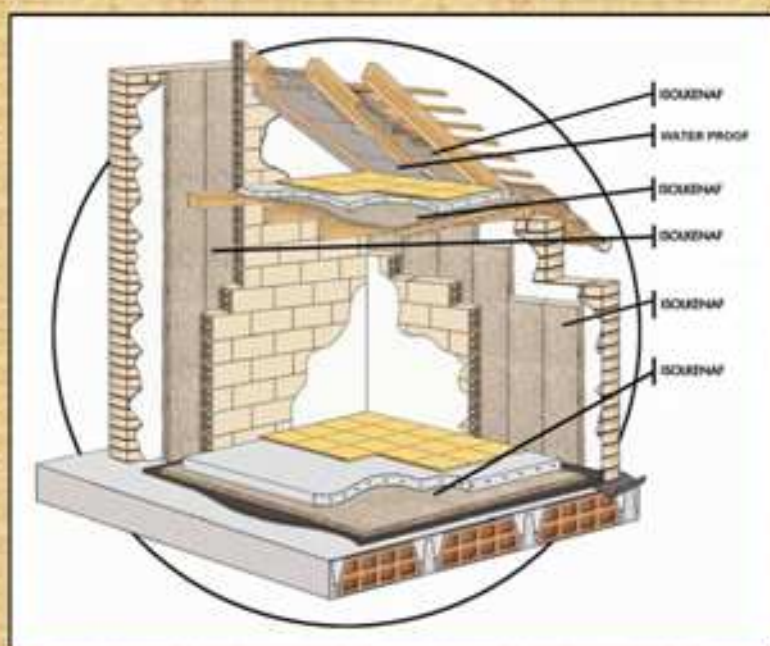
Isolkenaf is composed of fibers of kenaf straight from the cultivation, to which is added a certain amount of polyester fibers for strengthening and a natural fireproof product.

Kenaf fibers contain no protein substances and as a result it is not necessary to carry out any treatment against insects, such as moths or beetles.

Kenaf products used as soundproofing or thermal insulation materials soon convinced a high number of experts. In countries that are extremely sensitive to the criteria of bio-architecture and green building, it has obtained the certification of "Material recommended for green building".

### Morphological and physical-mechanical characteristics

Parameter	Unit	Isolkenaf
Structure	-	Heat-bound panels with no added adhesives
Raw material	-	Natural hemp fibers, polyester backing fibers
Sheet thickness	mm	20, 30, 40, 50, 60, 80, 100, 120
Density	Kg/m <sup>3</sup>	Panels 40; rolls 20; others available upon request
Thermal conductivity	W/m <sup>2</sup> K	0,039 ISO 8302/91
Panel dimensions	m	0,6x1,2 - x1,4 - others available upon request
Rolls dimensions	m	length 5+25 depending upon thickness
Reaction to the fire	class	Euroclass F
Absorption moisture	%	7
Tensile strength	N/mm <sup>2</sup>	0,180
Water vapour transpiration H <sub>2</sub> O	μ	1,7
Mothproof treatment	-	Not required



**EUCHORA S.r.l.**

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