

HAPPY BLEACH

The INNOVATIVE bleaching product
without any use of peroxide and caustic

NOTHING ELSE

ECOLOGICAL • ECONOMIC • SAFE • FAST



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HAPPY BLEACH

HAPPY BLEACH is an innovative textile auxiliary that revolutionize the cellulosic bleaching process:

HAPPY BLEACH innovation is the consequence of a long and accurate technological study which **radically changes the way of bleaching textile fibers.**

Since decades the **bleaching process** is strongly linked to the use of peroxide and alkali in order to have an effective whitening action.

Although today it is the most ecological and cheaper process its **implementation** leads to inevitable long application times and to the use of **high quantities of water and energy.**

HAPPY BLEACH is the answer to the increasing demand for **water, energy and time saving.**

UNIQUE • SIMPLE • FAST

With **HAPPY BLEACH** hydrogen peroxide and caustic soda **are no longer used.** The new bleaching process is performed with the simple and unique use of **HAPPY BLEACH.** All the other chemical auxiliaries normally dosed in the bleaching process are also eliminated.

ECOLOGICAL

The elaborated and ingenious formulation of **HAPPY BLEACH** is composed of a synergistic blend of raw materials that are easily biodegradable and safe for nature and operators. NO ADR: **HAPPY BLEACH** does not contain dangerous substances, it can be stored easily and for a long time without risk during handling. As **HAPPY BLEACH** doesn't contain peroxide and caustic soda, in the washing phase, at the end of the bleaching process, it saves from 33% to 50% of water, since it is no longer necessary to eliminate their residues. Energy consumption undergoes an evident downsizing, leading to a final saving between 25% and 40%.

SAFE AND RELIABLE

Without the use of peroxide and caustic, bleaching process with **HAPPY BLEACH** is particularly delicate towards all textile fibers.

The **chemical attack** of the cellulosic structure **of cotton** (and of cellulosic fibers in general) is **highly reduced** with consequent improvements in strength, appearance, degree of polymerization and final handfeel.



Possibility to strongly **whitening the protein fibers** (including silk) without any chemical damage of the protein fiber structure. Ideal for protein/cellulosic fiber blends.

FAST

The bleaching bath preparation with **HAPPY BLEACH** is fast and simple and its dissolution in cold water almost immediate. The initial bath preparation time is shortened resulting in about 30% reduction.

SIMPLE

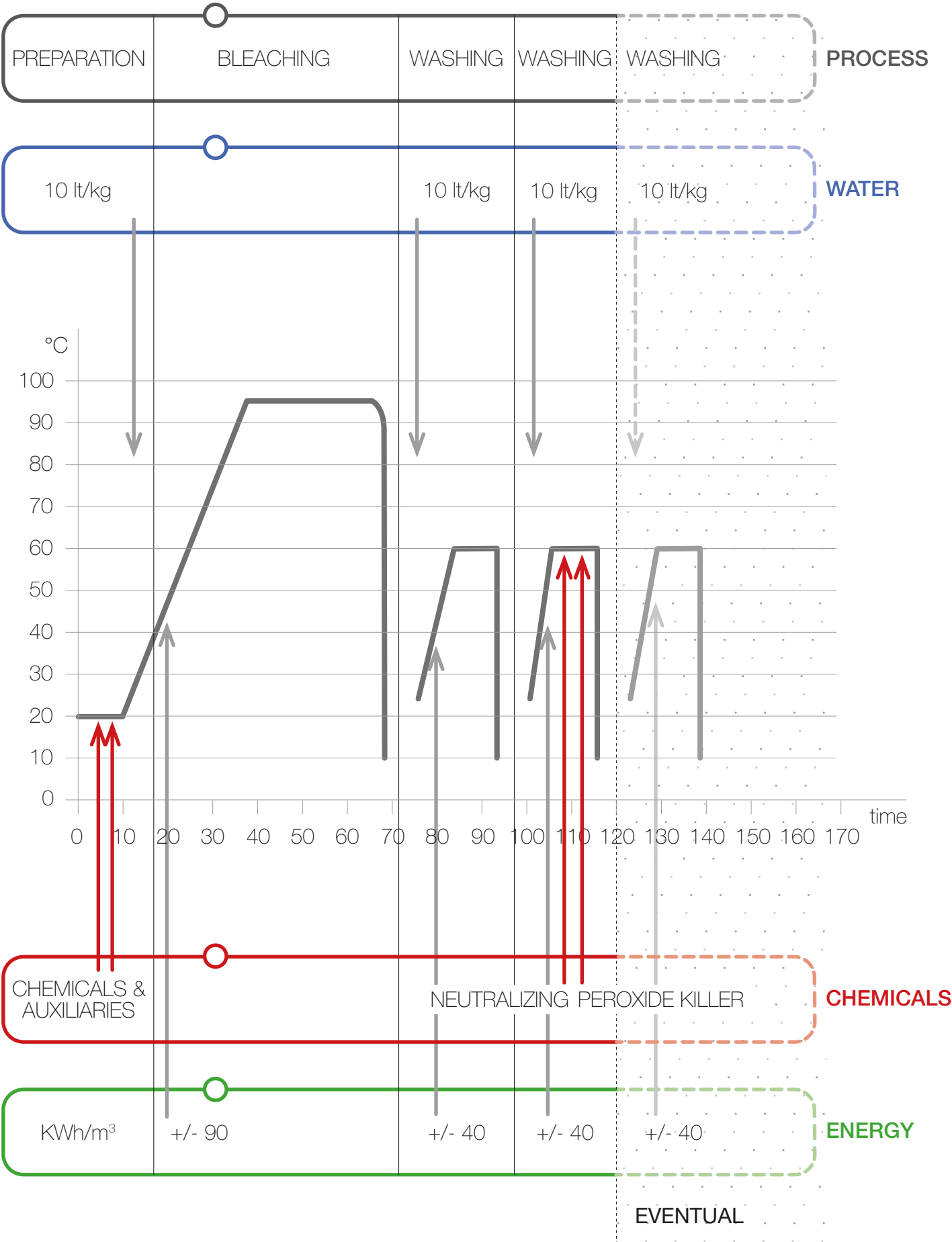
Moreover the absence of peroxide and caustic greatly simplify the subsequent washing process. A simple hot washing is sufficient to remove the bleaching residual without neutralizing the remaining traces of hydrogen peroxide. No need to use a peroxide killer.



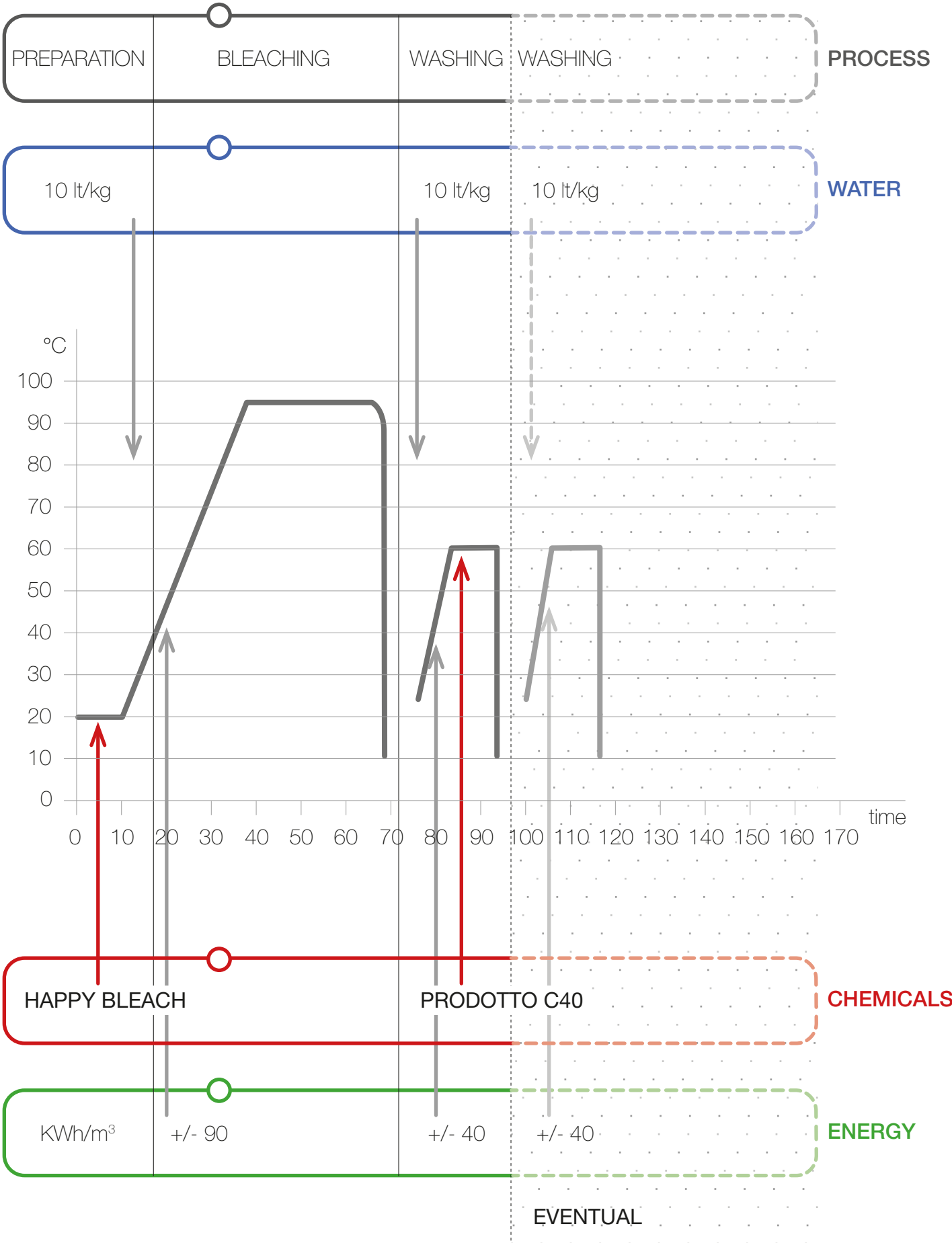
**HAPPY BLEACH
NOTHING ELSE**



STANDARD OPERATING PROCESS



HAPPY BLEACH PROCESS



HAPPY BLEACH

TIME SAVING



- Time for a standard process from 120' to 140'*
- Time for Happy Bleach from 90' to 110'*
- **HAPPY BLEACH time saving: 25%-35%**

WATER SAVING



- Water consumption with standard process 30-40 lt/kg fabric**
- Water consumption with Happy Bleach 20-30 lt/kg fabric**
- **Water saving with HAPPY BLEACH: 33%-50%**

NOTE: Average cost for withdraw, depuration and discharge of 1 cubic meter of water in Italy is around 1,50 - 1,80 € (in other countries might be even more).

ENERGY SAVING



- Energy consumption with standard process 170-210 kWh
- Energy consumption with Happy Bleach 130-170 kWh
- **Energy saving with HAPPY BLEACH: 25%-40%**

Considering that: to heat 1 cubic meter of water of 1°C we need 1000 Kcal (1,163 kWh)
with 1 Std. m³ of methane gas = ab. 8000 Kcal (with boiler yield +/- 86%)
8000 Kcal of methane gas = 9,30 kWh

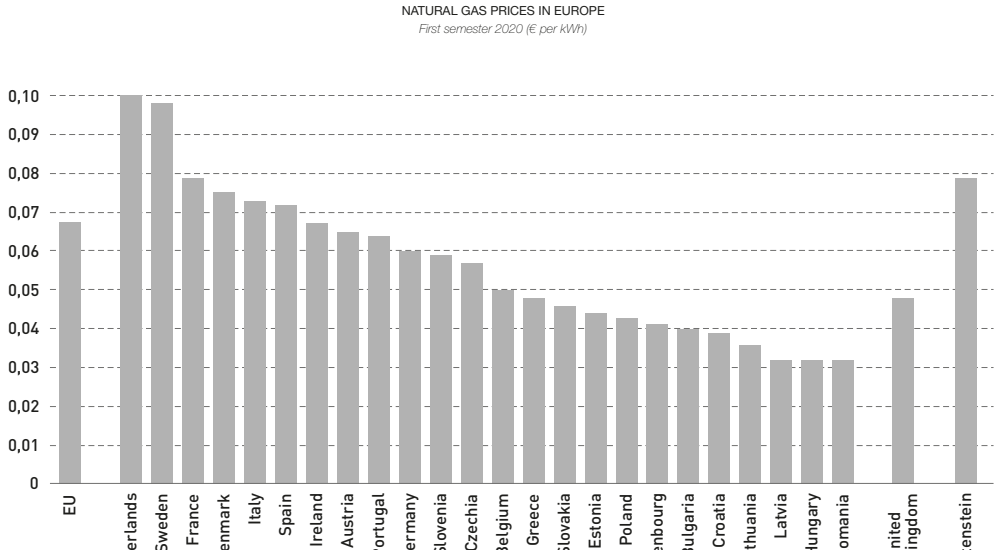
Ex.: to heat 1 m³ of water from 20°C to 98°C we need about 9,75 m³ of methane gas (90 kWh)

Therefore to produce: 130 kWh need about 14,0 m³ of methane gas
170 kWh need about 18,4 m³ of methane gas
210 kWh need about 22,3 m³ of methane gas

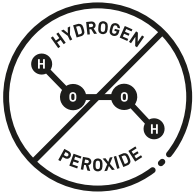
* Calculated time is according to type of machinery, type of plant, dosage of water and chemicals and, in some cases, can have considerable variations.
** The quantity of water is closely related to the type of material and machinery used.

NATURAL GAS PRICES IN EUROPE

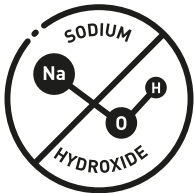
First semester 2020 (€ per kWh)



With HAPPY BLEACH:



The use of **hydrogen peroxide**, a strongly oxidizing chemical product, which requires an adequate structure for storage and maintenance, **is no longer required**.



The use of **caustic soda**, a highly corrosive and reactive chemical product, which requires an adequate structure for storage and maintenance, **is no longer required**.



No other auxiliaries are needed.
Chemicals like stabilizers, detergents, wetting and sequestering agents, defoamer and peroxide neutralizer (catalase) do not have to be added to bleaching bath.



HAPPY BLEACH contains less than 3% of surfactants, with a BiAS value (Bismuth Active Substance) estimated around 30 mg/g.

HAPPY BLEACH performs an effective sequestering action towards Ca, Mg and Fe ions and doesn't contain any phosphorus-based compounds (it is Phosphorus Free).