Biorefinery for high value cosmetics products
To meet these consumer needs...

Soliance creates, manufactures and sells natural ingredients for cosmetic industry.
…an Innovative and sustainable firm

Created in 1994  82 employees  CA = 19.3 M €  60% export sales

Member of the Poles of Competitiveness:

Partners:
The innovation comes from valorization of renewable raw materials by advanced technologies.

All made in France.

One vision: Creator of innovations and plant valorization.
Integrated in a biorefinery strategy. (Bazancourt- Pomacle, 51, France)

Innovative system of industrial metabolism.
Resource: Microalgae

Technologies: Blue Biotechnology Extraction

Valorization of marine diversity
**Soliance Blue**

**Resource:** Microalgae

**Technologies:**
- Blue Biotechnology
- Extraction

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**Soliance White**

**Resource:** Sugars

**Technologies:**
- White biotechnology (fermentation)
- Separation techniques

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**Valorization of marine diversity**

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**Valorization of biosourced materials**
**Soliance Blue**

Resource: Microalgae

Technologies: Blue Biotechnology
Extraction

Valorization of marine diversity

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**Soliance White**

Resource: Sugars

Technologies: White biotechnology (fermentation)
Separation techniques

Valorization of biosourced materials

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**Soliance Green**

Resource: Vegetable

Technologies: Extraction
Fractionation
Green Chemistry

Valorization of plant diversity
Objective
Full use of plant materials
Diversification & Optimization of energy sources
Reduction of waste and water use

Biorefining, a concept based on biomass conversion

Soliance’s business model
Valorisation of whole biomass

Environmental friendly synthesis of bio products

USE OF THE ENTIRE PLANT

1. Farming crop management → Plant RM
2. Processing Industry → Plant cracking
3. Processed RM Functionalization → Biotechnology Green Chemistry
4. Cosmetic Uses

R&D

Valorisation of whole biomass

from the plants to the earth

from by-products to the products
Valorisation of wheat: An example

WHEAT
- Grain
- Flour
- Peptide
- Glucose
- Ethanol
- Bran
- Straw

FUNCTIONALISATION FOR COSMETIC
- HA
- Sophorolipids
- DHA
- Oligosaccharides
- APP

SOLIANCE White
SOLIANCE Green

Peptide Hydrolysis

O2, CO2
Fermentation

Hydrolysis
PrimalHyal 300
Reinforcement of the skin natural defense and wound healing

SOLIANCE White

Wheat

Glucose Proteins

Lactic bacteria

Fermentation

Acid

Wheat - Sugarbeet

Bio-éthanol

Purification

PRIMALHYAL 300 powder Approved by Ecocert
Natural self-tanning powder reference

SOLIANCE White

- Wheat
- Sorbitol
  - Nitrogen source
- Selected bacteria
- Rapeseed
- Glycerol

Fermentation

Bioconversion

VEGETAN

Vegetan

DHA reaction with the amino acids of the Stratum Corneum

Amines, peptides and amino acids

Brown melanoids

Maillard reaction
SOLIANCE White

WHEAT

GLUCOSE

GLUCIDIC SUBSTRATE + LIPIDIC SUBSTRATE

YEAST

FERMENTATION

BIOCONVERSION

SEPARATION

PURIFICATION

Sophogreen

Acidic sophorolipids

SOPHOGREEN
**Glucose Fermentations**

- **Sugar cane (Bagasse)**
- **Lemon (Zest)**

**Purification**

- **Malic acid**
- **Lactic acid**
- **Citric acid**

**Maceration**

**Purification**

**SOLIANCE Green**

**Ultimate shine active ingredient**

**Glossyliance**

**Placebo**

**Glossyliance**
Valorisation of whole biomass

Use of the marine biodiversity

1. Culture management
2. Processing Industry
3. Processed RM Functionalization
4. Cosmetic applications

From the algae:
- Algae
- Algae cracking
- Biotechnology Green Chemistry

To the products:
- Cosmetic applications

From by-products:
- Processed RM Functionalization

To the earth and the sea:
- R&D
Valorisation of whole biomass

Spring Sea Water

Microalgae Library

Filtrate

O₂, CO₂
Selection and Culture

Biomass

FONCTIONALISATION FOR COSMETIC

Active solution

Lipidic Extract

Peptidic Extract

Other Extracts (pigments, polysaccharides)
Solvent-free aqueous extraction

- MICROALGAE CULTURE
- Pond or photo-bioreactor
  (Dysmorphococcus globosus)
- CENTRIFUGATION
- CONTROLLED HYDROLYSIS
- SEPARATION PURIFICATION
- PRO-DG

CO₂ → MICROALGAE CULTURE → CENTRIFUGATION → CONTROLLED HYDROLYSIS → SEPARATION PURIFICATION → PRO-DG

O₂ → WATER

SOLIANCE Bleu

Slimming revolution active ingredient
**SOLIANCE**, a member of IAR

A world class industrial cluster dedicated to **biobased products** and **Biorefinery**

- 210 members
- 40% SMEs
- 135 R&I projects
- Total R&I budget: > 1,2 bn €

**Agronomy**

- Biobased feedstock
  - Logistic & pre-treatment
  - Green Chemistry
  - Industrial Biotech

**Sustainable Development**

- Lab Industrial
- Pilot plant demonstration

**Markets**

- Biobased products
  - biofuels, chemicals, materials, ingredients

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International presence

All around the world, we accompany our customers in their successes.