

ECO-DESIGN

LACROIX's feedback



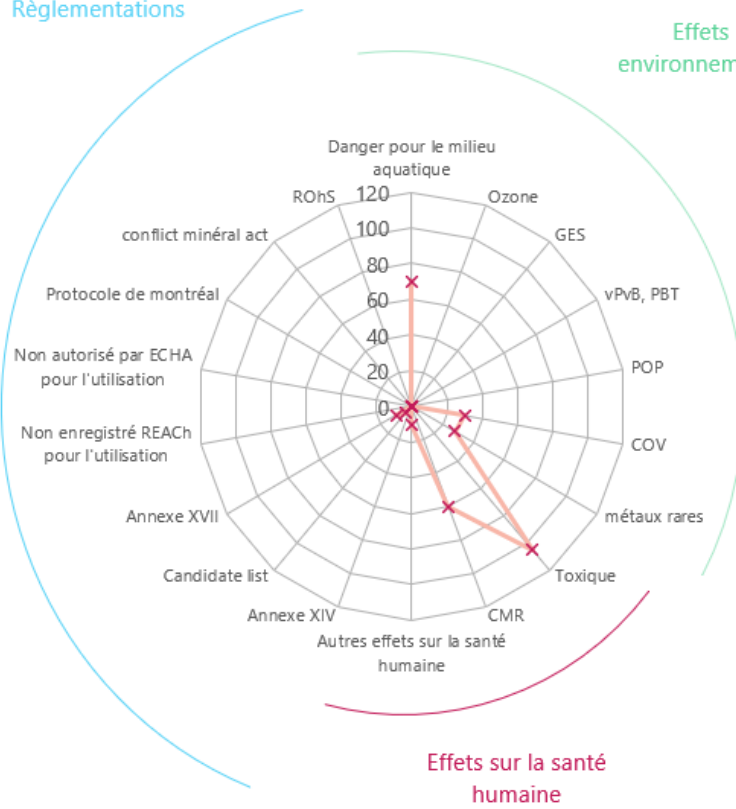
LACROIX

- ❖ **1/ Product update**
- ❖ **2/ Manufacturing activities**
- ❖ **3/ Eco-design and defense**

Raw materials – example

Règlementations

Effets
environnements



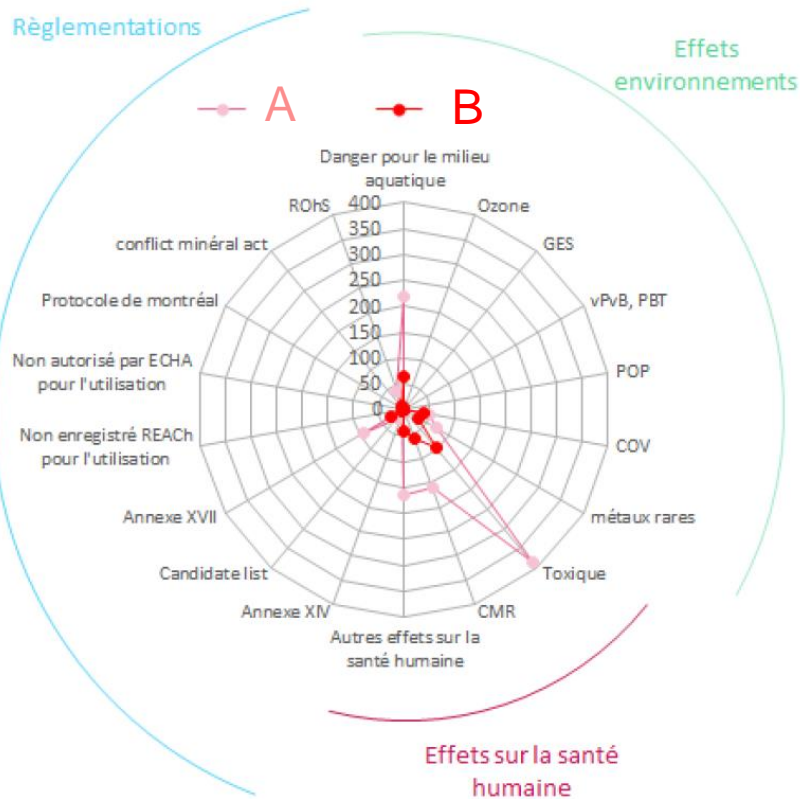
Analysis

- Toxicity : Varnish and pyro
- CMR : Alloy and glue
- Aquatic env. : Alloy and pyro

Reminder

- No ratio on mass : raw materials are treated equally => careful on the small parts and alloy
- The graphic is a tool to guide the way

Raw materials – comparaison



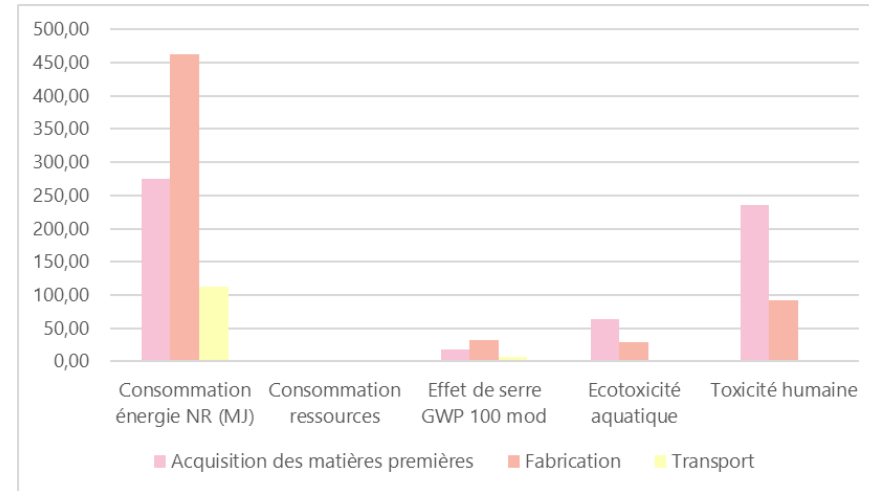
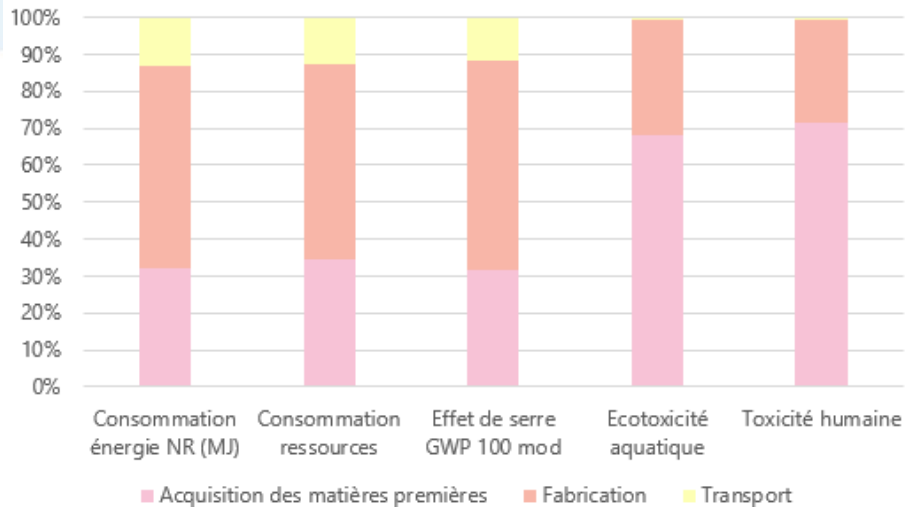
Analysis

- Effort made on alloy and glue
- Change of primer and paint

Reminder

- Analysis with an older product can be a bit longer but show the real impact of the improvement, even for the 0,2% or less

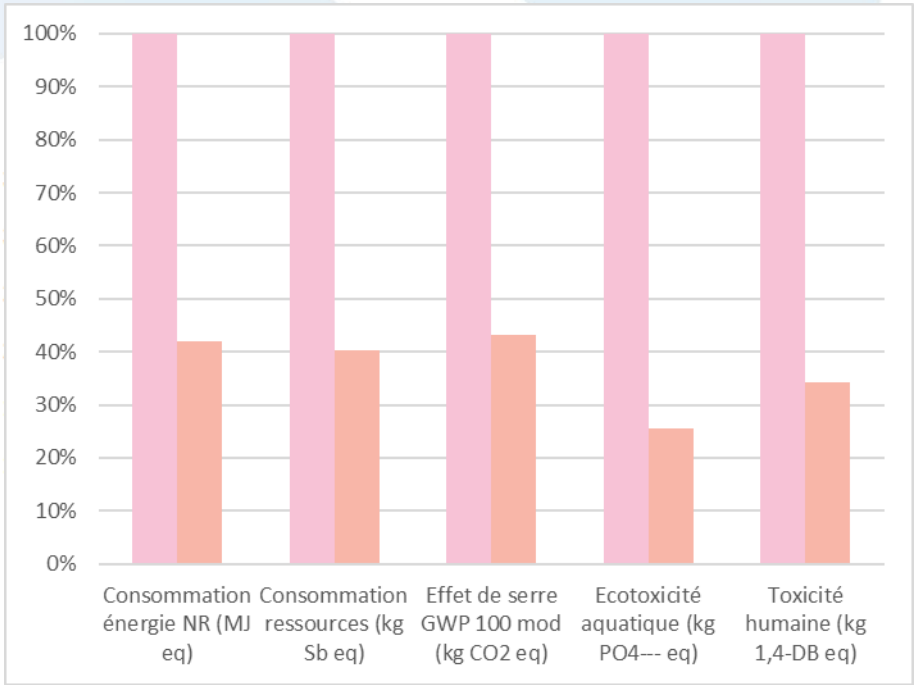
Manufacturing - example



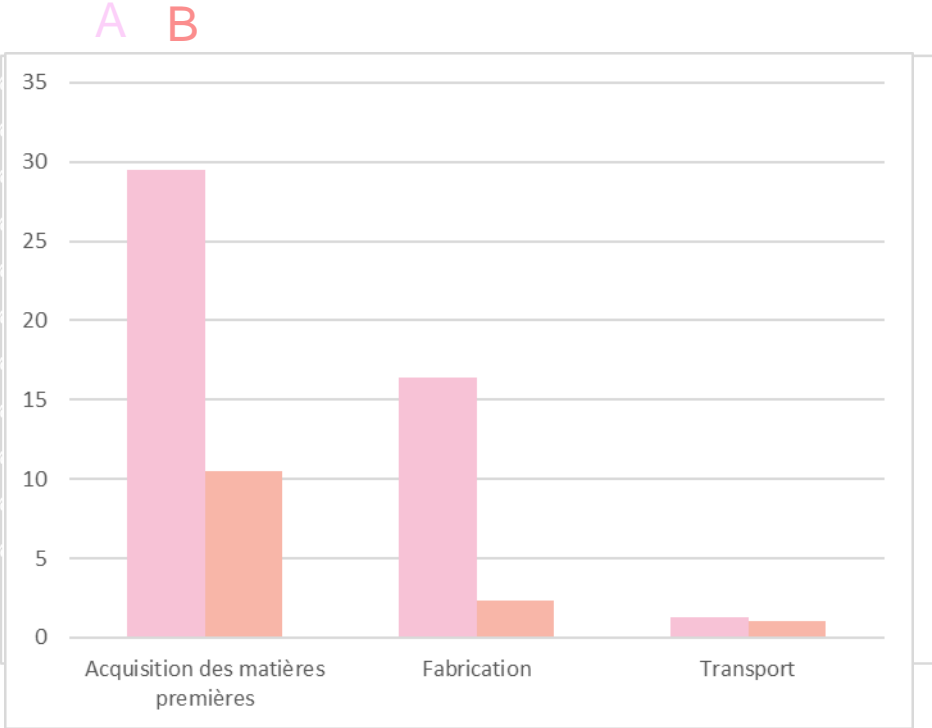
Analysis

- Impact : Mostly raw materials (mass ratio included here)
- Energy consumption for the metallic parts and their machining
- Difficulties to judge the internal manufacturing impact

Manufacturing - comparaison



■ A ■ B



Focus on a modified part

Old version :

Steel part (tube) welded on a steel ring, machined, coated and painted. (1,5kg)

Substance & raw materials :

- Steel alloy
- Paint

Manufacturing & Transport :

- Extrusion
- Welding
- Machining (200g waste)
- Surface treatment
- Paint
- 3 transports (local)

Aquatic env. : 1
Toxicity : 4
other : 2



Focus on a modified part

New version :

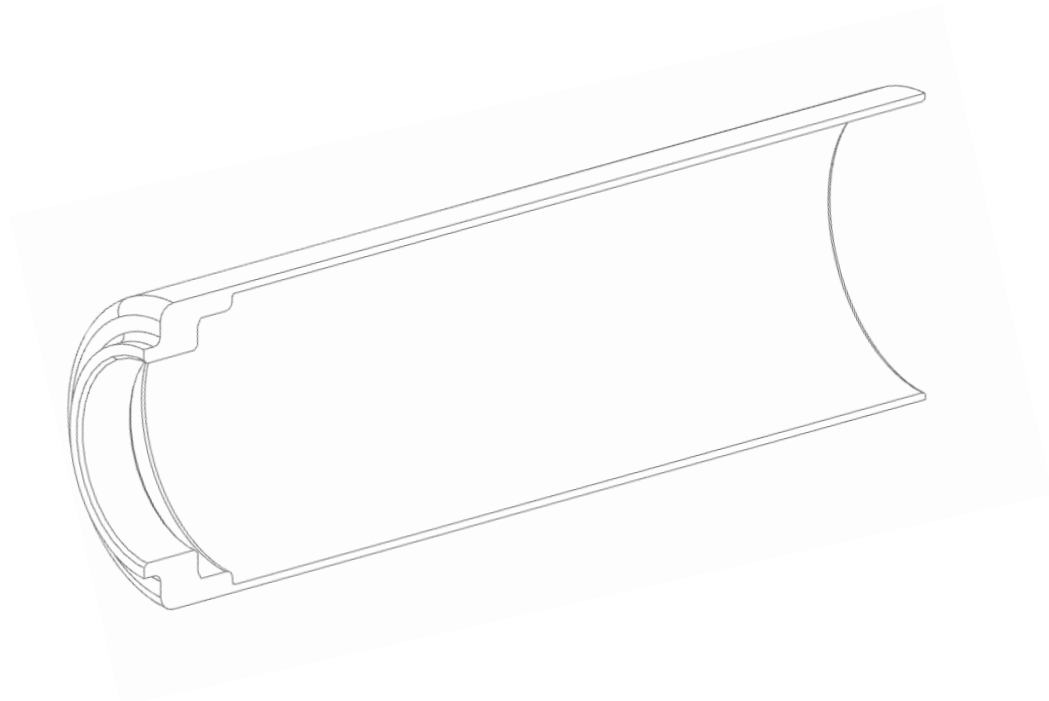
Aluminium part, extruded then machined before coating. (0,5kg)

Substance & matière :

- Aluminium

Fabrication & Transport :

- Extrusion
- Machining (20g waste)
- Surface treatment
- 1 transport (local) & 1 national

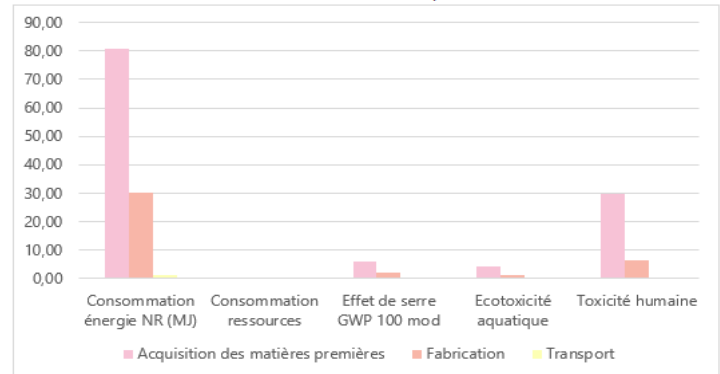


❖ Product update

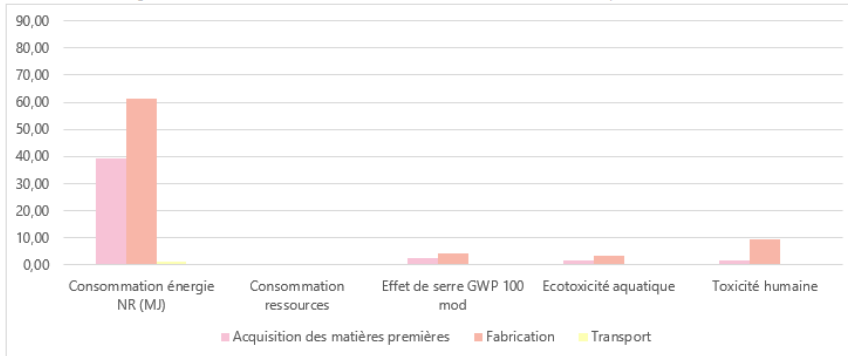


Caractérisation

Consommatio Consommatio Effet de serre C Ecotoxicité aq Toxicité humaine



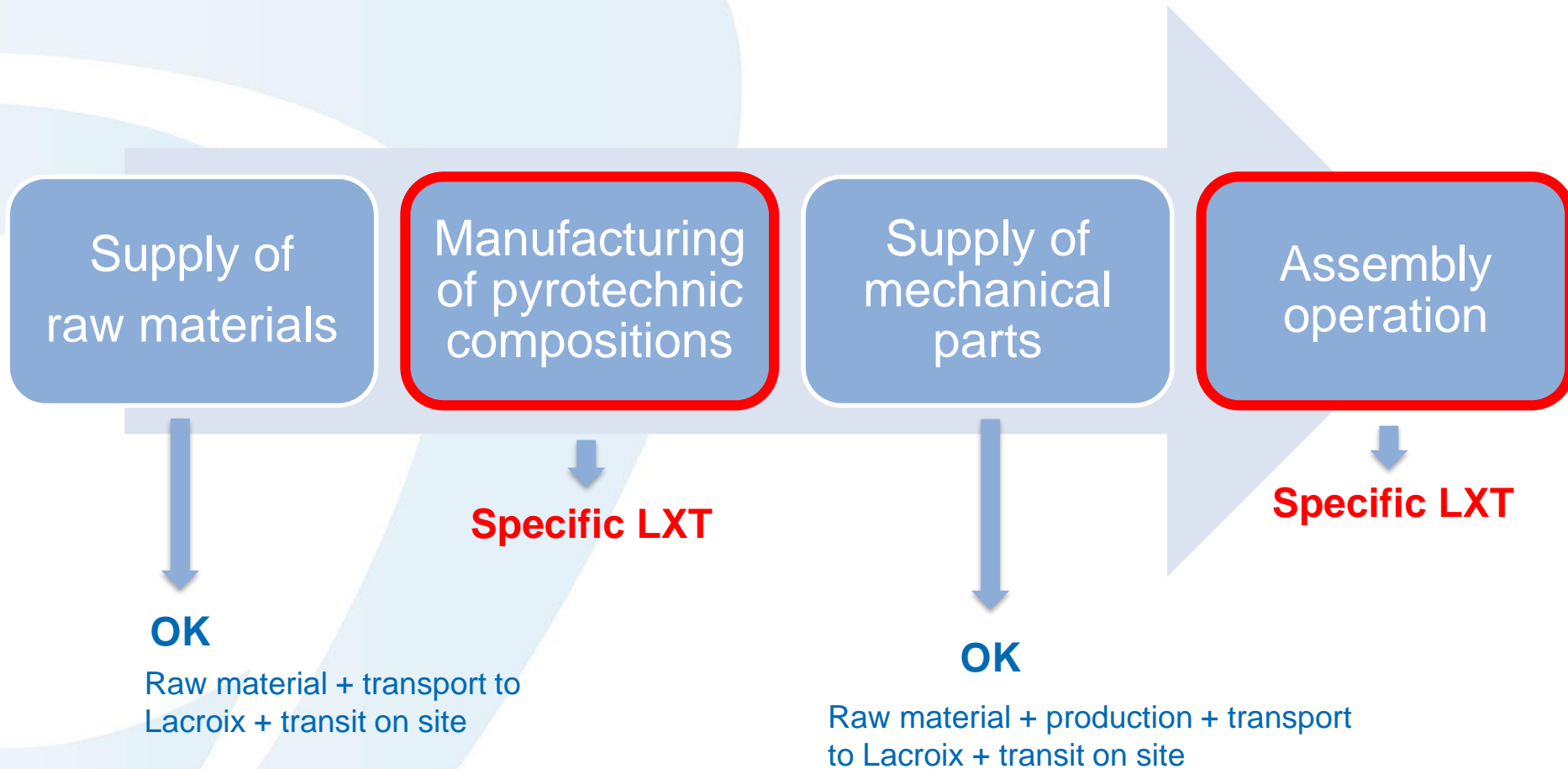
Consommation énergie NR (MJ) Consommation ressources Effet de serre C Ecotoxicité aq Toxicité humaine



- 😊 Less machining and waste
- 😊 Less chemicals and paint
- 😊 Lighter (-1kg)
- ☹️ Aluminium has a higher impact on the environment

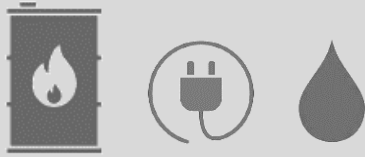
❖ **Manufacturing activities**

❖ Manufacturing activities



❖ Manufacturing activities

Consumption
(1 year)



Production
(1 Year)



Package / 1h



Addition to Eco-pyro data base

Classes		Sous-classes	
Procédés		Produits chimiques - Acides	
Energies		Produits chimiques - autres	
Matériaux		Produits chimiques - Bases	
Transports		Produits chimiques - Solvants	
		Produits chimiques Gaz	
		Produits chimiques inorganiques	
		Produits chimiques organiques	
		Pyrotechniques	
		-	

Classe:	Sous-classes	Nom	Unité
Procédés	Pyrotechniques	Fabrication générale Etienne Lacroix	tu (h)

❖ Manufacturing activities

Fabrication forfaitaire : 1^{er} STEP : global approach

➤ Consumption Mazères

- Based on energy audit 2021 (numbers of 2019)
- All the building are taken into account
- Analysis for water, electricity and fuel consumption



➤ Production

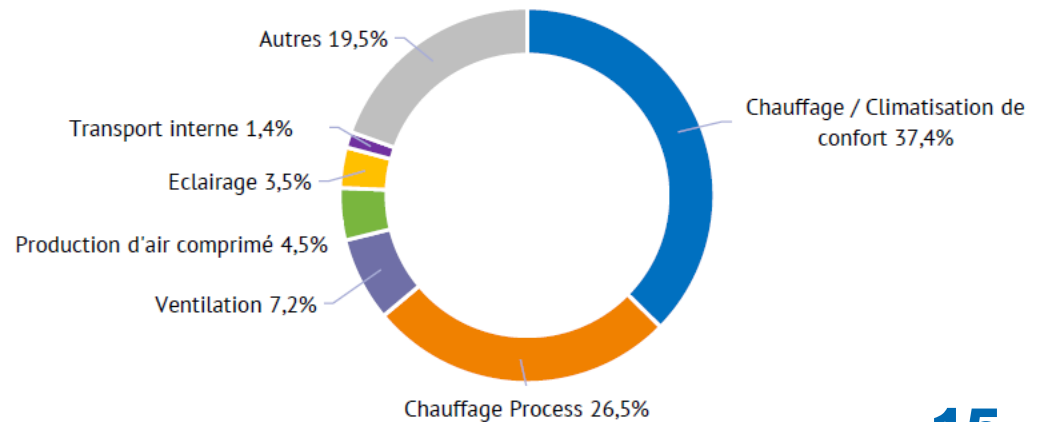
- Annual breakdown of production worker via the attendance system (2019)
- Only one package « Global LXT manufacturing » per Hour.
- Analysis of the assembly timer of the product to add the manufacturing package

Indicateur	Facteur d'influence	Référence 2019
Consommation totale d'électricité / heure de production	Nombre d'heure d'activité	29,8 kWh / h de production
Consommation totale de fioul / heure de production	Nombre d'heure d'activité	8,1 kWh / h de production

❖ Manufacturing activities



- Production site,
- Test facility,
- Laboratory,
- Research and development,
- Administration,
- 66 hectares
 - ½ prod & storage
 - ½ test & administration



❖ Manufacturing activities

What's next

- Energy analysis

- Energy audit 2025
- Building break down (production, administratif & tests)

- Production analysis

- Separation between products and building (air, land & sea)
- Distinction of the different activities (compression, drying, assembly)



❖ **Eco-design and defense**

Development lever

- The consumer market example
 - Recycled material
 - No dyed yarn for the lining of clothes,
 - Less waste,
 - Change of packaging

VERSUS

- The challenges of defense
 - Tracability
 - Qualification of new material
 - Reliability
 - Long life product (and development)

Lacroix

- Work on energy supply
 - Less fuel and more electricity
 - New heat pumps
 - Insulation of dryer & storage
 - Transport using HVO fuel (France & Europe)

- Approach on CMR
 - No new CMR product on site
 - Goal to have less CMR product (replace the ones already in use)

- Product
 - Redesign of parts
 - Work with suppliers
 - Local supply

Thank You

