

# HUNTSMAN

Enriching lives through innovation



POLIURETANO 4.0

**PIR technology systems:**  
High fire ratings with no compromise  
on energy efficiency

Roma, 10<sup>th</sup> of October 2019

prodotto Easy Wand della ditta Alubel SpA - installatore AT srl

# About Huntsman

A global chemical business leader



Global manufacturer  
& marketer of  
differentiated  
chemicals

~~2018~~ revenues above

**\$ 9  
billion**



**75** manufacturing,  
R&D and operations  
facilities in **30**  
countries

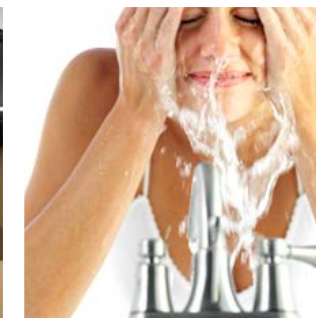


**10,000** employees within four  
business divisions

- Polyurethanes
- Advanced Materials
- Performance Products
- Textile Effects



The Polyurethanes Division is  
the largest, capturing **> 50%**  
of Huntsman revenues



# The sandwich panel market growth

## Reasons of the fast growth:



Modern design



Convenient  
building technique



Lightweight

## PUR/PIR preferred insulation due to some key features like:



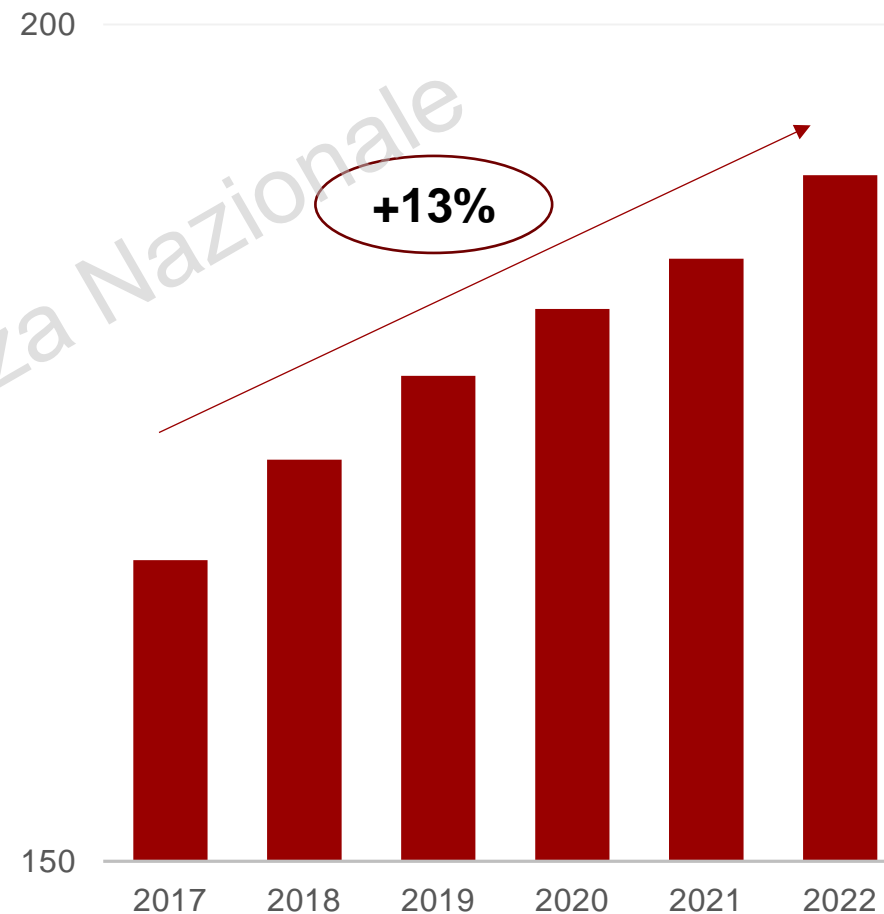
Low thermal  
conductivity



Easy  
manufacturing  
process



Low moisture  
permeation



Source: Sinergy Consulting – Sandwich Panels – Sept 2018 (excl. ME, Africa)

## About sustainability

All 17 2030 UN Sustainable Development Goals are important to our business:



## Building Insulation Key Trends

11 SUSTAINABLE CITIES  
AND COMMUNITIES



Self-supporting panels providing fast-erecting, highly insulated buildings and **fire safe** designs

12 RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION



Superior processability and long-term panel durability to **sustainably** minimize natural resources extraction

13 CLIMATE  
ACTION

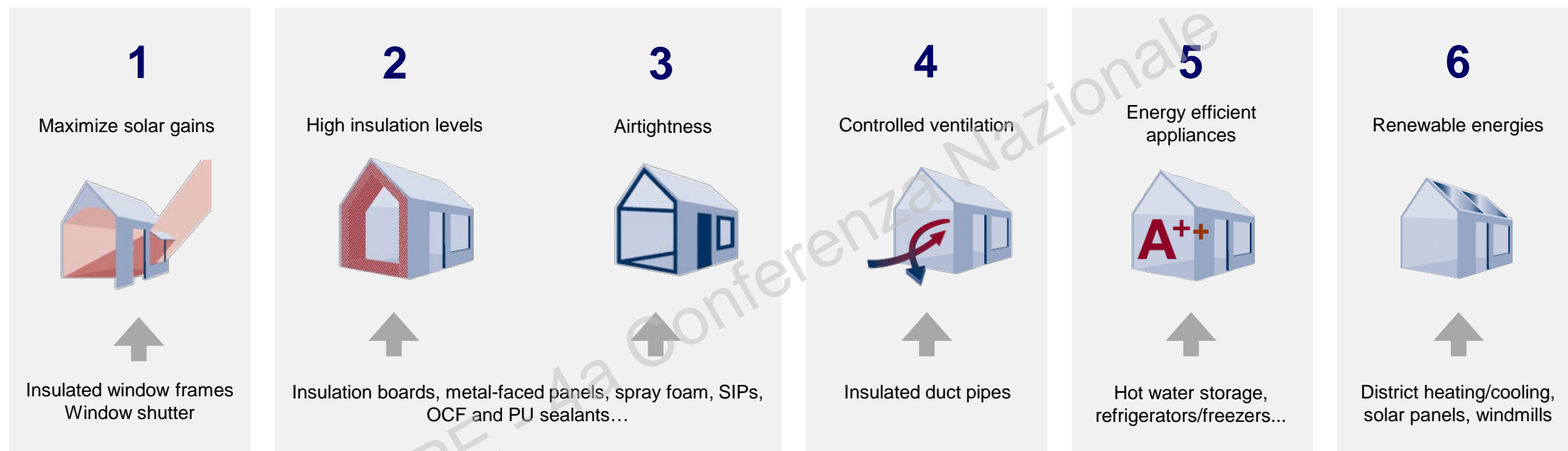


Excellent **thermal performance** to reduce reliance on fossil fuels and CO<sub>2</sub> emissions





# Energy Efficiency



'**Low Lambda**' is a major driver for PU insulation growth in IB&B and Composite Panels

> **2020**: increasing demand for **thin & light solutions for thermal renovations** (prefabricated elements, kits...)

Energy used to produce 1m<sup>2</sup> of PU insulation **1**

**PU insulation saves Energy**

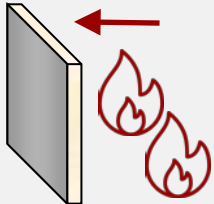
**100**  
Energy saved by using 1 m<sup>2</sup> of PU insulation

# Fire safety

Reaction to fire (SBI)EN-13823



Resistance to fire EN 1364-1, 1365-2



Application Tests e.g. Factory Mutual



ANPE - 4a Conferenza Nazionale



# Sustainable Construction

Increasing interest to allow **credit points for “green” building certification with PU**



Energy efficiency



Recycled and/or bio-based content

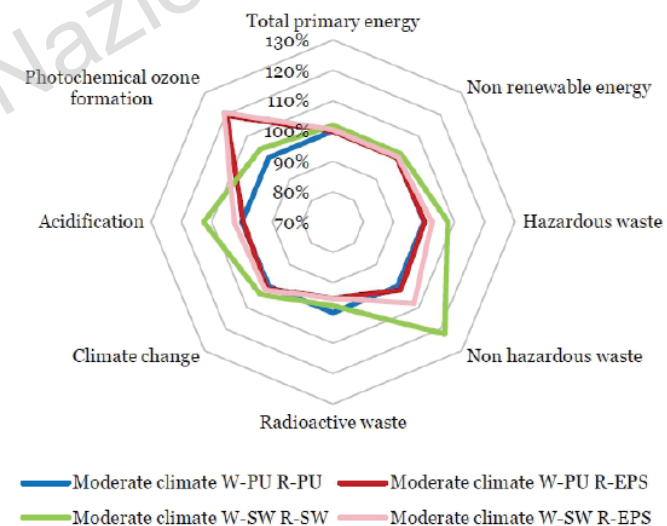


Low VOC for good Indoor Air Quality



Disclosure of material environmental footprint

Remember that PU shows **good overall environmental performance** when measured at the **building level**



**We must promote PU good environmental performance!**



**Huntsman**

**Composite Panels FR product Portfolio**

# Huntsman CP FR product Portfolio

|   | DaltoPUR® FR | DaltoPIR® FR+ | DaltoPIR® FR | DaltoPIR® HFR | DaltoPIR® XHFR |
|---|--------------|---------------|--------------|---------------|----------------|
| Double belt T (°C)                          | 40           | 45            | 50           | 60            | 60             |
| DaltoPIR® PRIM                              | Not required | Required      | Required     | Required      | Required       |
| Overall density (kg/m³)                     | 39 - 41      | 38 - 42       | 38 - 42      | 38 - 42       | 38 - 42        |
| I/P ratio (X/100)                           | 165 - 180    | 165 - 210     | 165 - 210    | 250 - 265     | 250 - 280      |
| SBI (EN 13823)                              | Min Cs3d0    | Bs2d0         | Bs2d0        | Bs2d0         | Bs1d0          |
| FR (100 mm)<br>(EN 1364-1 & 1365-2)         | -            | (R)EI 15      | (R)EI 15     | (R)EI 30      | (R)EI 30       |
| Initial Lambda<br>(mW/mK @ 10 °C)           | 18-22        | 18-21         | 18-21        | 18-21         | 18-21          |
| FM Approvals Listed<br>Identified Component |              |               | ✓            | ✓             | ✓              |

## EUROPEAN HEADQUARTERS

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prodotto Easy Wand della ditta Alubel SpA - installatore AT srl

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