MADE expo – Milano, 18 Ottobre 2012

ACELL

Presents its

PATENTED SMC PROCESS

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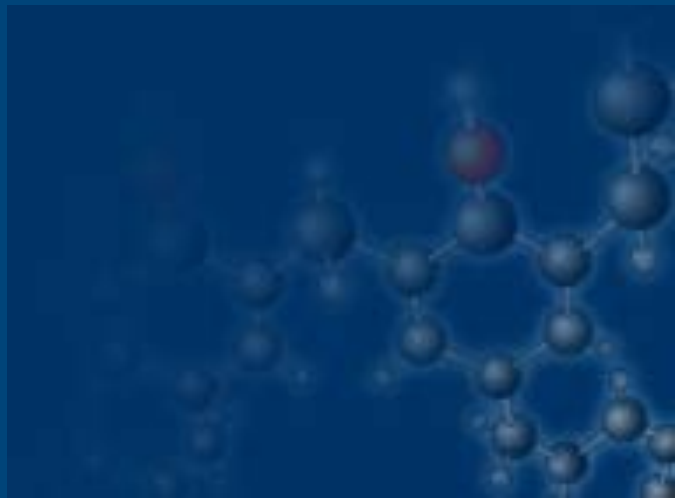

ACELL

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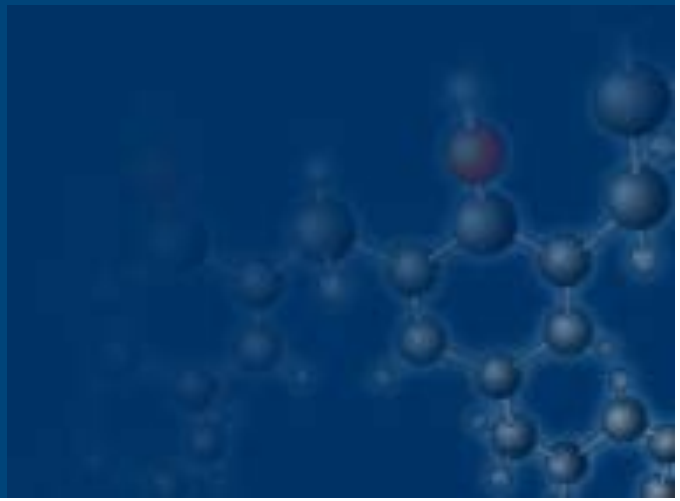
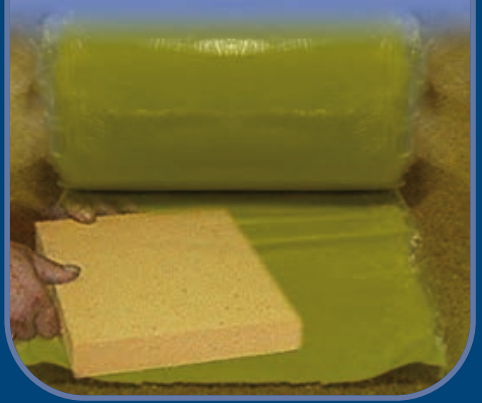


Technology

Material Science

Process Know How



Moulding Expertise

Acell Composite Panel
Made of 3 components

100% recyclable

SMC

Acell foam

In Mould Powder coating

- MONOLITHIC STRUCTURE
- VERY STRONG
- THERMALLY INSULATED
- LIGHT
- MANUFACTURED IN ONE SINGLE OPERATION

ACELL FOAM

ISO 9001:2008

- **PHENOLIC BASED FOAM**

- **FORMULATED TO PROVIDE**

  Fire / Acoustic /Security

- **VARIABLE DENSITY**

  From 70kg/m3 to 800kg/m3

- **FIRE RESISTANT**

  30 min and 60 min with a 45 mm thick panel

NO use of CFC or HCFC as blowing agent or VOC as release agent

SMC (Sheet Moulded Compound)

- Fibre reinforced Polyester skin
- SMC is moulded (using conventional process) to produce for example:

Car body parts

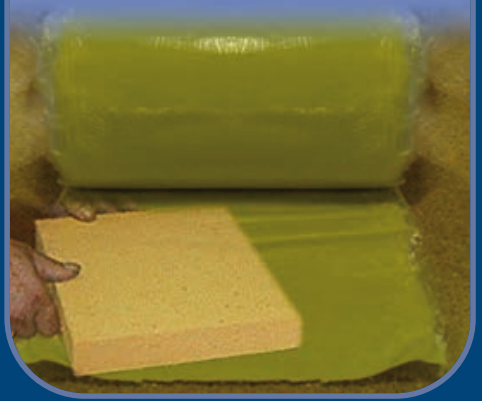
Engine parts

Truck body parts

Technology

Material Science

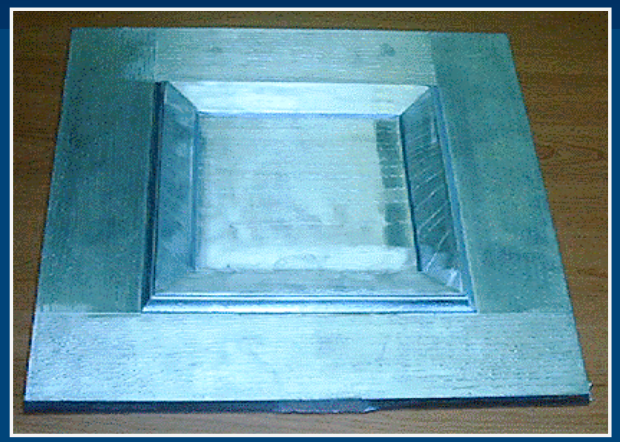
Process Know How



Mouldling Expertise

Process Know-How:

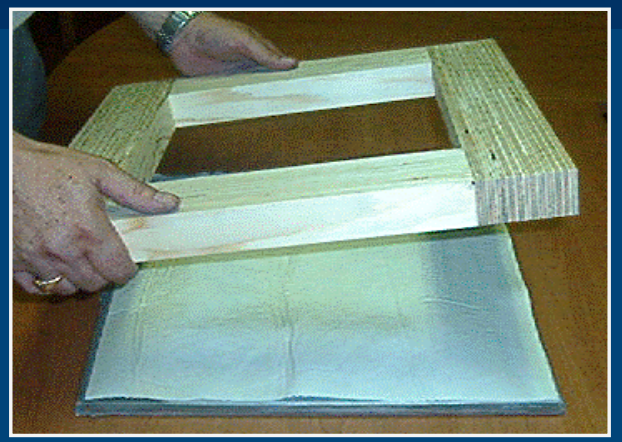
1. Nickel Plated Aluminium
   Heated at 284 Fahrenheit



2. Apply PiMC
(on Top and Bottom mould)

3. Locate Bottom SMC

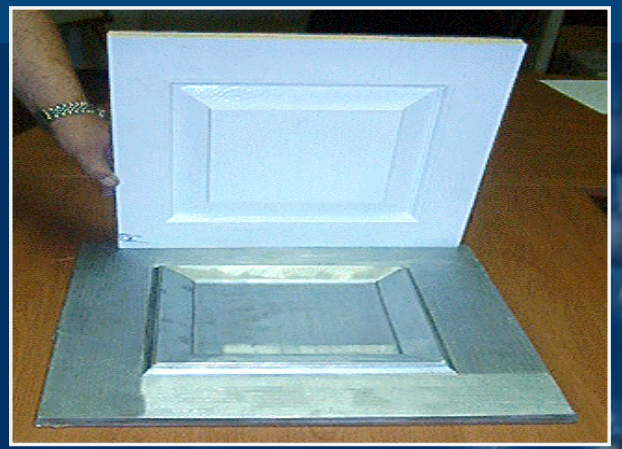
4. Position the frame



5. Insert Acell Foam

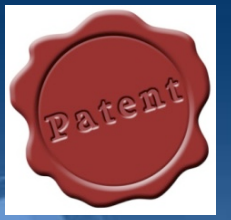
5. Locate Top SMC

6.Press and De-mould



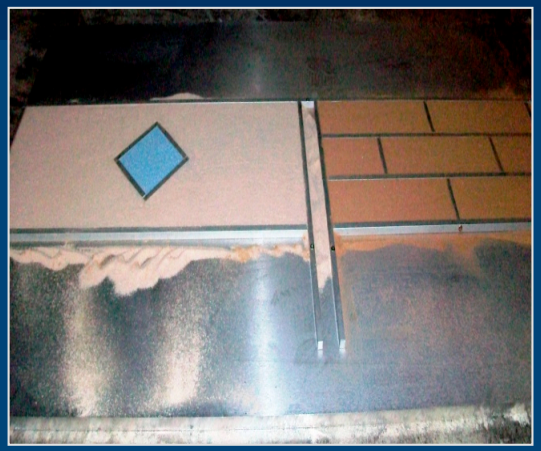
Cycle Time per panel : 6 minutes

Process Know-How:



1. Aluminium mould

2. Display aggregates

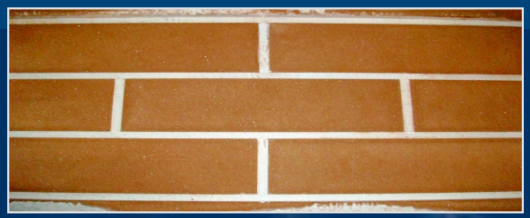


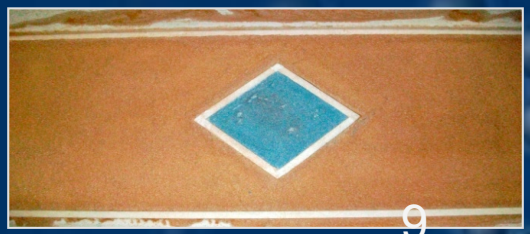
3. Locate bottom SMC + Foam

4. Locate top SMC

5. Pressing

6. De-mould panel





ACELL PATENTED PROCESS AWARDED

COMPO TEC award
Best process '08

1st Price BEST PROCESS
Compotec Italy 2008

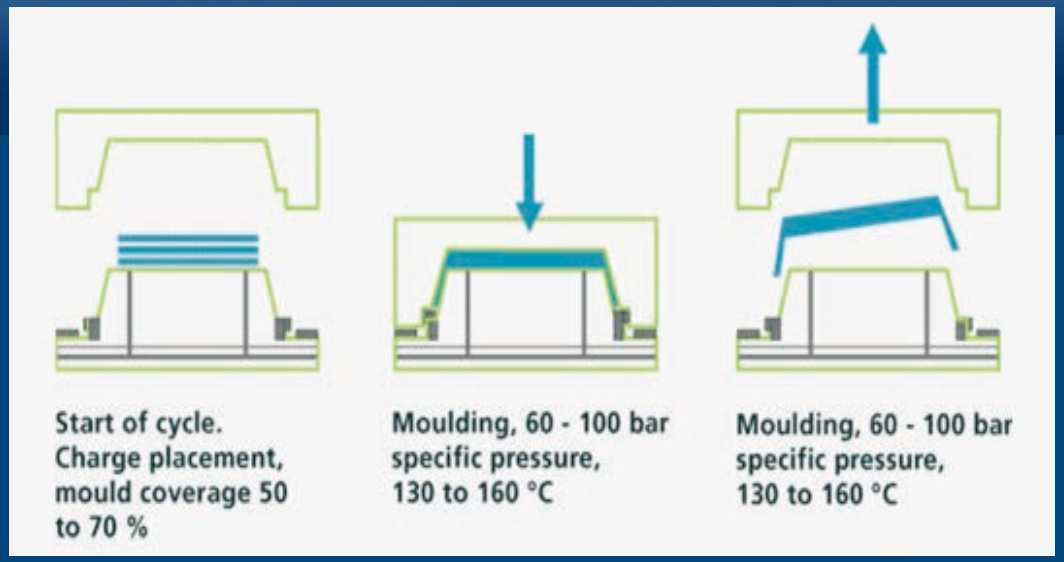
Finalist of 2009
JEC PARIS
Innovation Awards

2nd Price INNOVATION AWARD
JEC France 2009

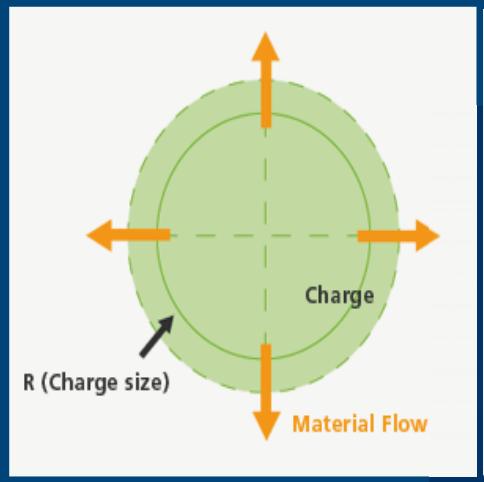
1st Price BEST PROCESS
ACMA Fort Lauderdale USA 2011

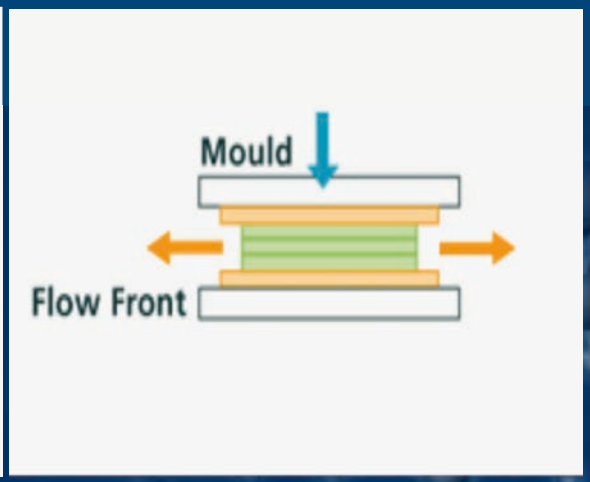
Process Know-How:

Process and facts on the current SMC moulding process



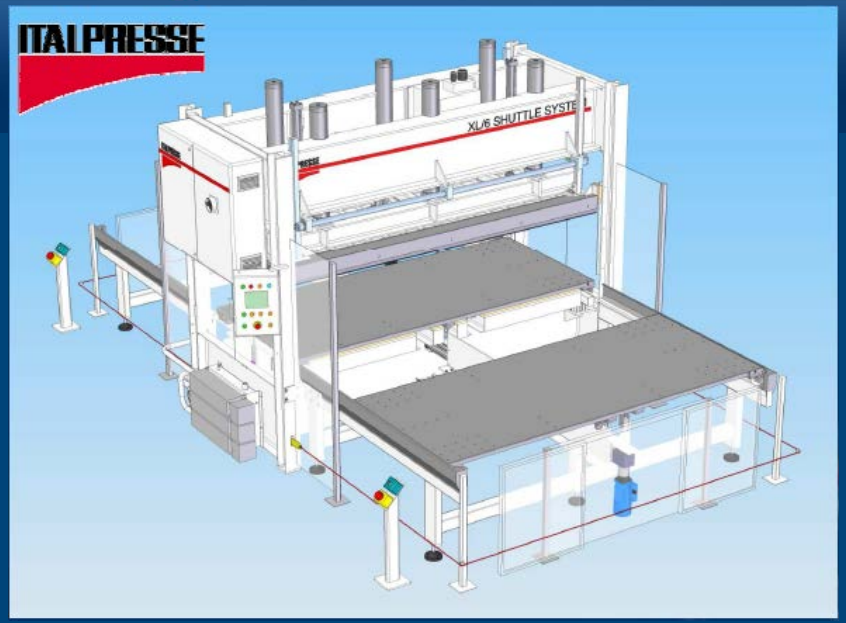
- SMC Material is pressed (High Pressure) and flows in the X and Y axis recovering the mould
- Heavy investment for Press (2,000 Metric ton) and Steel Mould
- Production of a skin only





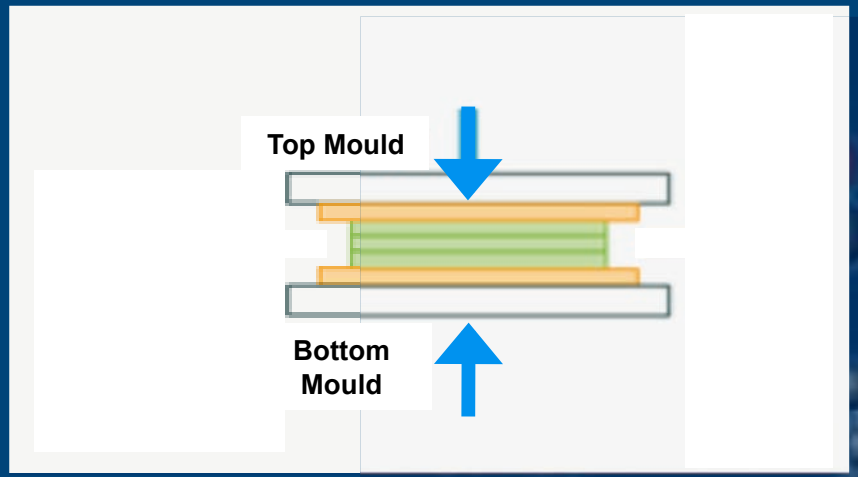
Process Know-How:

Process and facts on the Acell Patented Monolithic SMC process

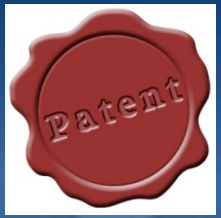


- Lower investment for Press (120 Metric Ton) and Aluminium Mould
- Production of a complete monolithic panel
- Flexible production and short cycle time

- No flow on the X & Y axis
- SMC is located flat on the mould
- Possible to use woven fabrics
- No abrasion on the mould which means that low cost high quality definition moulds can be used



Process Know-How
Surface finish:



With the Acell process a wide range of finishes is possible

Surface texture
(formed by the mould)

- Wood
- Marble
- Stone
- Slate
- Smooth

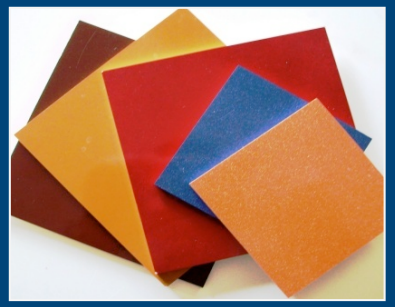
Surface colouring

- SMC + UV Stable scratch resistant PiMC coating
- Or SMC + Printed Veil
- Or SMC + Sand or aggregates

Process Know-How: Surface finishes

Surface texture
(formed by the mould)

❖ **Wood finish mould**

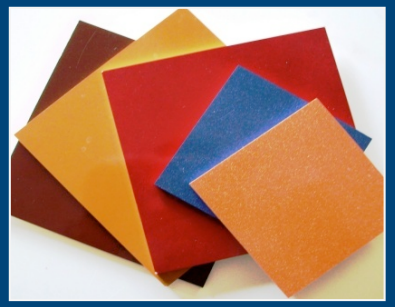


❖ **PiMC coating + SMC**

Process Know-How: Surface finishes

Surface texture
(formed by the mould)

- Slate finish mould



- PiMC coating + SMC

Process Know-How: Surface finishes

Surface colouring

- Smooth finish mould

- Printed veil + SMC

Process Know-How: Surface finishes

Surface with natural sand

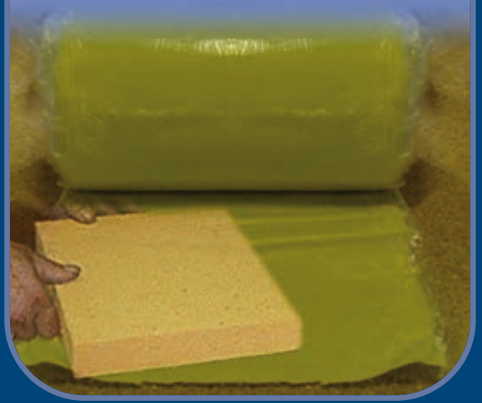
- Flat mould

- Natural sand + SMC

Technology

Material Science

Process Know How



Moulding Expertise

ACELL MOULDING EXPERTISE

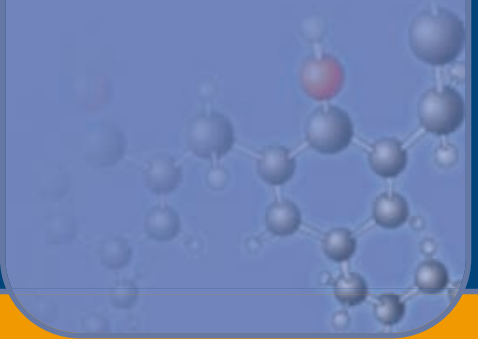
- Step 1: Acell use original materials such as Oak , Marble, Stone etc... to create the master

- Step 2: GRP moulds are created
- Step 3: Moulds are cast in Aluminium
- Step 4: Moulds are nickel plated

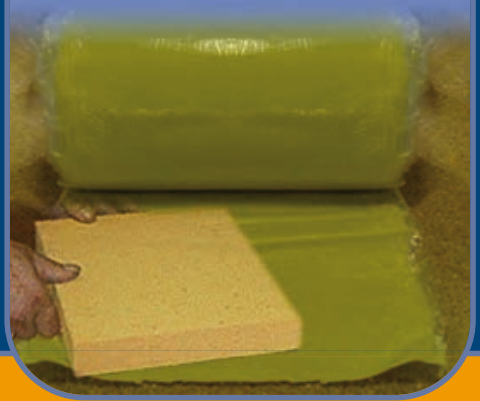
ACELL

Technology

Material Science



Process Know How

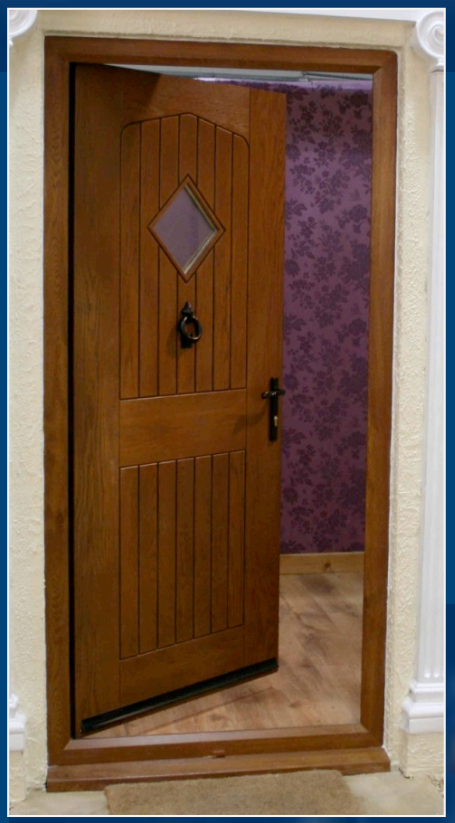


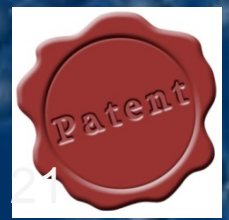
Moulding Expertise

PRODUCT APPLICATION

Product Application Composite Doors:

- Structural
- Impact Resistant
- Thermally Insulated
  - Typical door 'U-value' 1.3 – 1.5
- Acoustically Insulated
- Thermally Stable
  - BRE tested – max 2mm distortion at 140 degrees Fahrenheit differential face temperatures (achieved best classification Class 3)
- Fire Resistant
  - 30 and 60 minutes fire resistance when tested to BS476 part 22
- Shaped and coloured in mould (not subsequently painted)
- Door size can be adjusted





Product Application
Slate Roof Panel:

- Structural
- Impact Resistant
- Thermally Insulated
- Acoustically Insulated
- Thermally Stable
- Fire Resistant
- Shaped and coloured in mould

Product Application
Wall cladding:

- Structural
- Impact Resistant
- Thermally Insulated
- Acoustically Insulated
- Thermally Stable
- Fire Resistant
- Shaped and coloured in mould

Product Application
Wall panel:

- Structural
- Impact Resistant
- Thermally Insulated
- Acoustically Insulated
- Thermally Stable
- Fire Resistant
- Shaped and coloured in mould

ACELL

Wall Panel and joints resistance

80 mm Acell panel

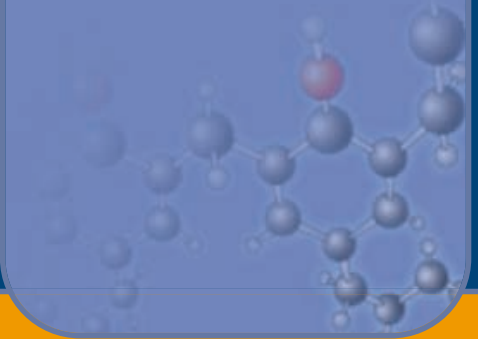
TESTED & APPROVED

- ✓ **AIR & WATER Permeability**
  - •Highest Level 132 Mph wind
- ✓ **Wind loading**
  - •Highest Level 204 Mph wind
- ✓ **Hard body test**
  - • Highest Level
- ✓ **Acoustic (40mm Acell-75mm Fibre-15 GB)**
  - • 52 db
- ✓ **Insulation tailor made to specification**
  - • U=0.25 W/(m2K) or RT 4.82 m2 K/W

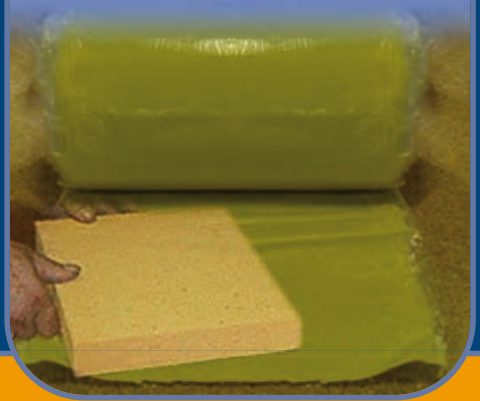
ACELL Composite House Wall Panel

Technology

Material Science



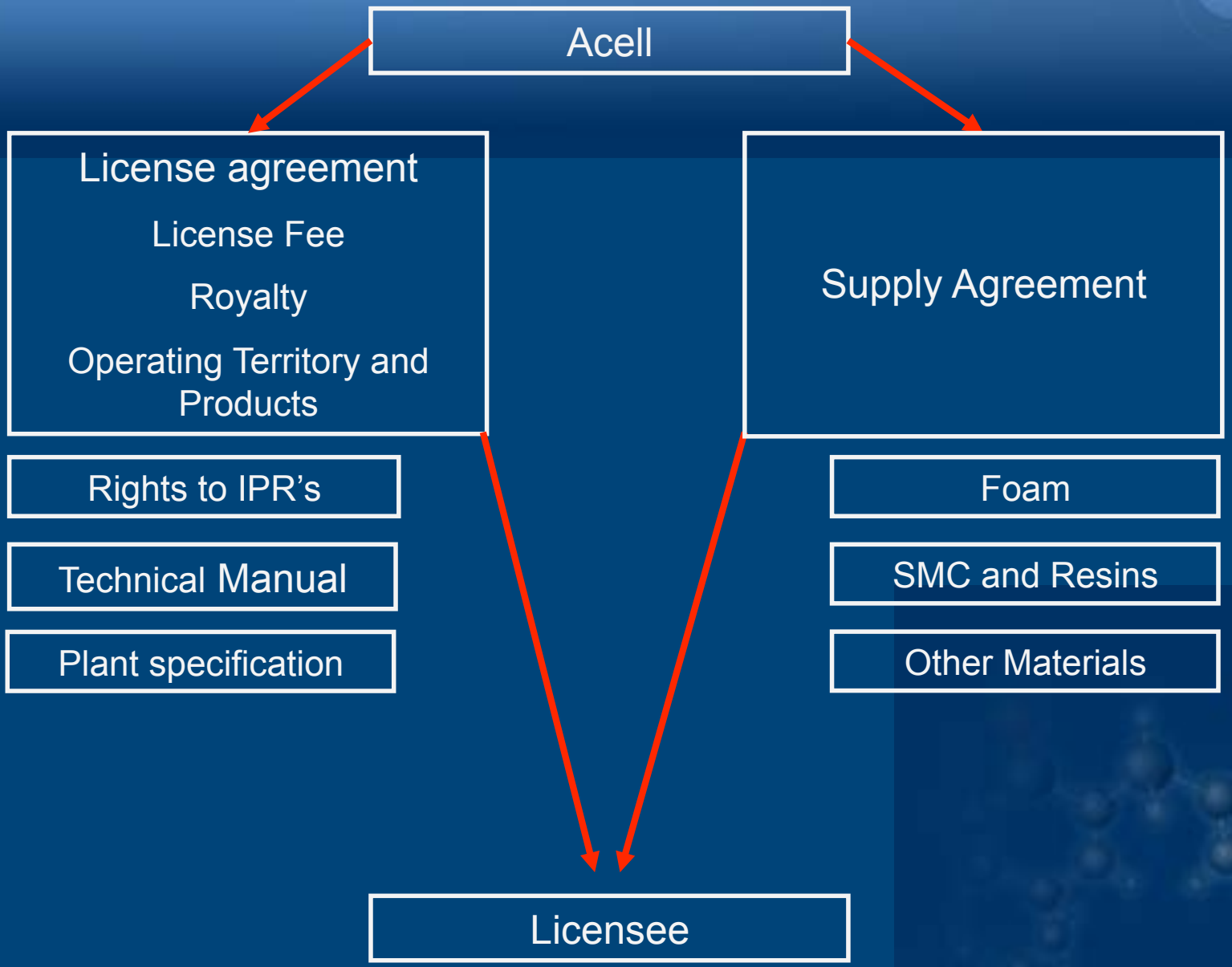
Process Know How



Moulding Expertise

ACELL'S BUSINESS MODEL

Commercial Business Model



ACELL

Thanking you for your attention

Mr. Alessandro BUSSINI

Mr. Marco BELLOTTI

www.acelltec.com