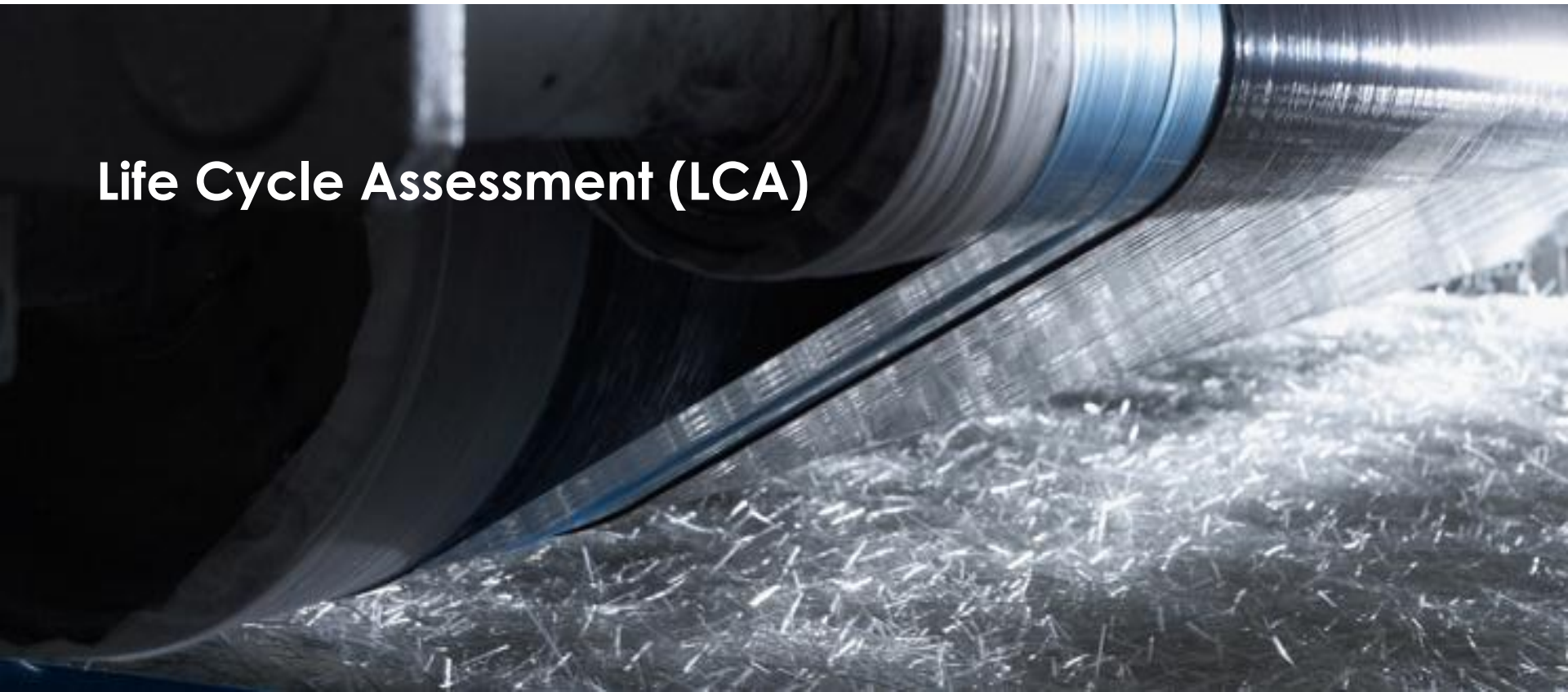


SMC/BMC Light Composite  
materials at Their Best



Life Cycle Assessment (LCA)



# Content

- **What are SMC/BMC light composite materials ?**
- **About Life Cycle Assessment**
- **SMC/BMC Commitment to Sustainability**



# What are SMC/BMC light Composite materials?

- **Sheet Molding Compound (SMC) and Bulk Molding Compound (BMC) are semi-finished materials from which a large variety of products are made through specific processing techniques**
- **SMC/BMC Light Composite Materials provide material solutions for various market segments : automotive & transportation, electrical , construction and household**
- **SMC/BMC materials are Sustainable and Recyclable**



# What is Life Cycle Assessment (LCA)

**LCA is an internationally standardized methodology, helping to quantify the environmental pressures related to products, the environmental benefits, the trade-offs and areas of achieving improvements taking into consideration the full life-cycle of the product.**

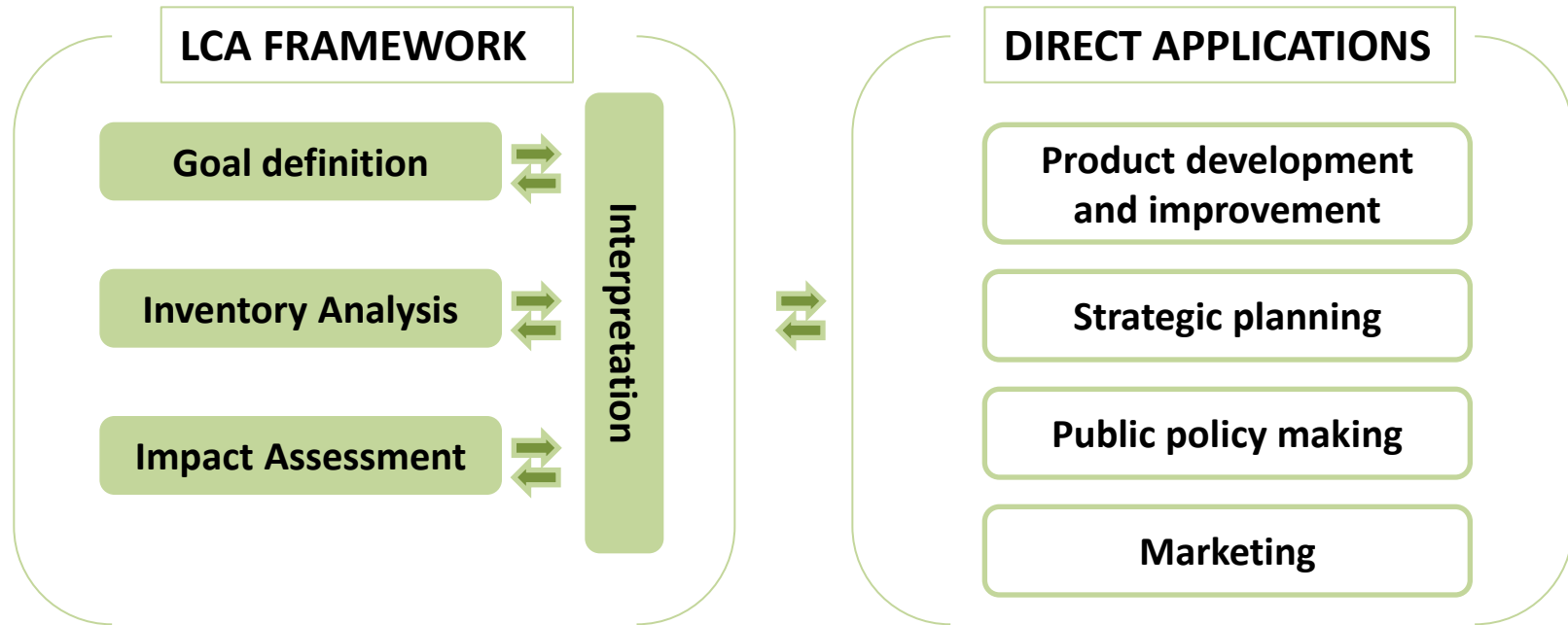
**LCA allows to :**

- **Understand the environmental impact of products and solutions**
- **Benchmark several materials and quantity impacts**
- **Analyze the results to support sustainability**

*European Commission , Communication on Integrated Product Policy (COM (2003)302)*



# LCA according to ISO 14040



*Source : adapted from LCS*

# Committed to Sustainability

The European SMC/BMC Alliance is committed to making Sustainability an integral part of their business strategy, simultaneously taking care of the **environment, society and continued business growth** in the composite value chain.



# Marketing LCA by the SMC/BMC Industry

- **Use as a tool to inform/ educate the composites value chain, our customers and stakeholders**
- **Materials comparison and business choices (benchmarking)**
- **Evaluate the environmental cost allocations at company level**
- **Calculate energy consumption and CO2 using various parameters**
- **Consider legislations and standards**
- **Supports reputation and market recognition of environmental efforts of companies**



# LCA in the SMC/BMC industry

- **Our industry has been working on LCA since 2007**
- **Earlier LCA showed SMC/BMC light composite materials having the lowest environmental impact when compared to steel and aluminum**
- **We communicate to the entire composites value chain the sustainability of our materials**
- **In 2010 we performed a certified and independently peer reviewed LCA on SMC/BMC**
- **In 2012 we brought together the private and public sector to show our LCA results and evaluate next challenges together**





# SMC/BMC Life Cycle Assessment Methodology

## LCA for 2 panels (1m<sup>2</sup>)

- Stationary part (control cabinet)

## Materials analyzed

- SMC
- Aluminum
- Steel
- PA6—30

## DATA BASE

- Member companies EA for SMC/BMC
- LCS LCA data base
  - GaBi 4 Professional data base
  - European Life Cycle Data base (ELCD)
  - Ecoinvent data base
  - Approved industrial data base
  - Literature & patents
  - LCS calculations



# Life Cycle Inventory



## Global

- Abiotic resource depletion (ADP)
- Green house warming potential (GWP)

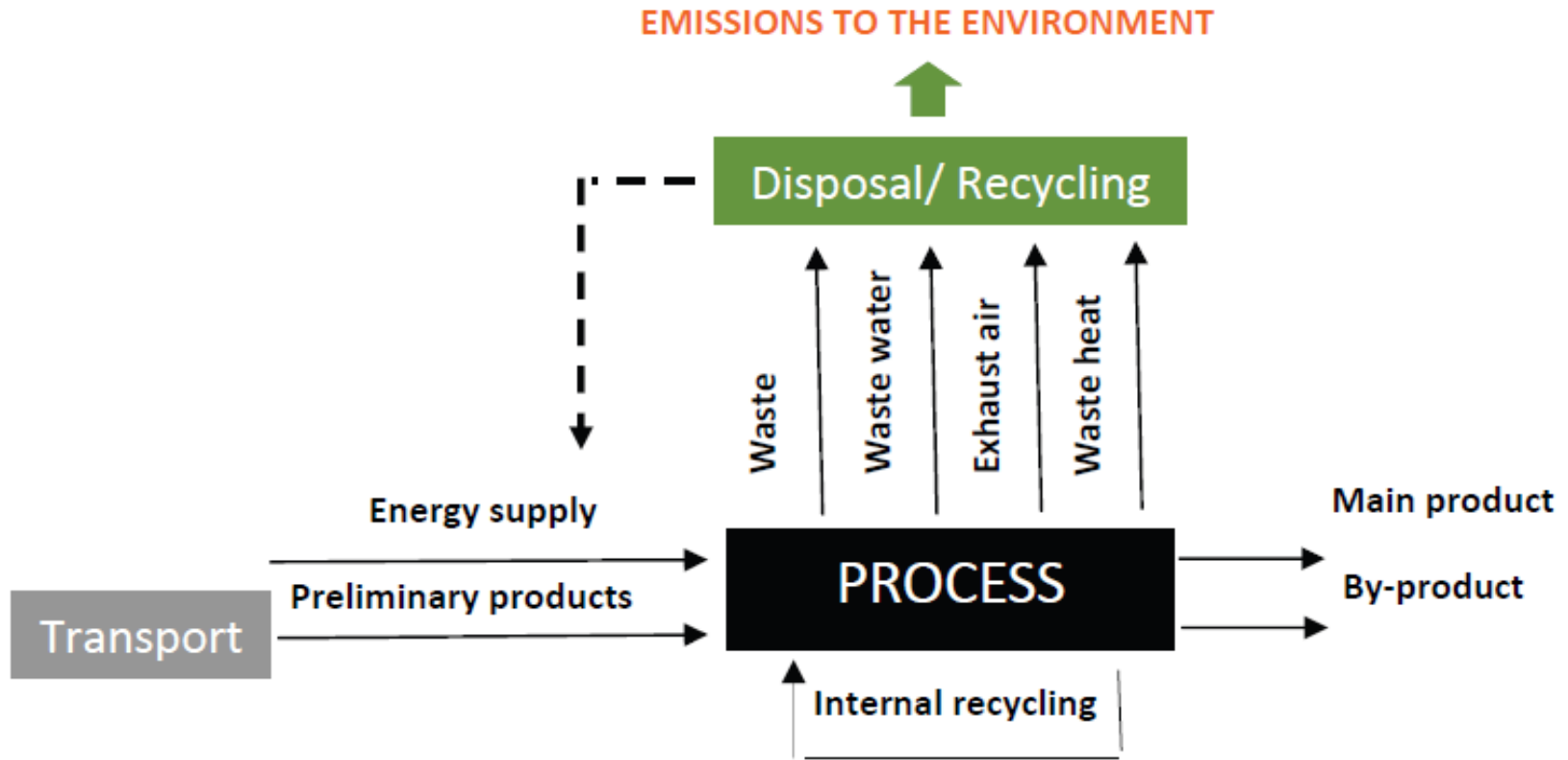
## Regional

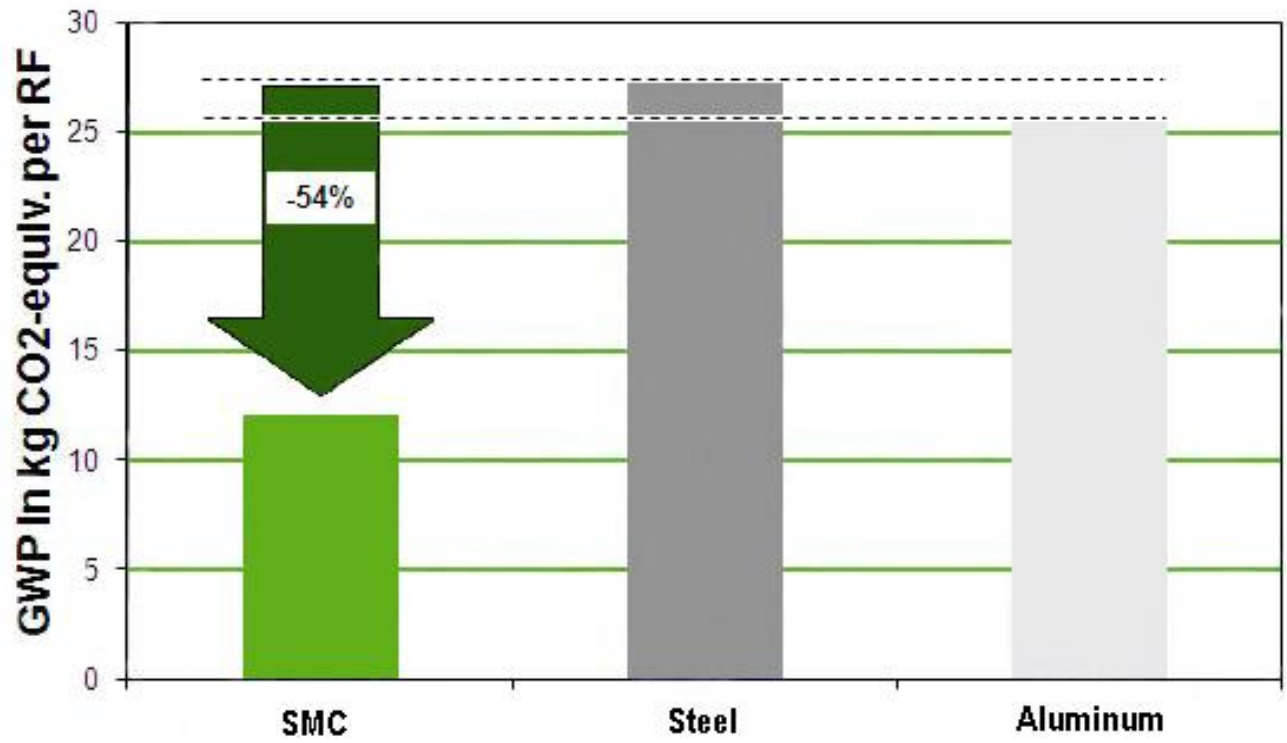
- Emissions to air / acidification potential (AP)

## Local

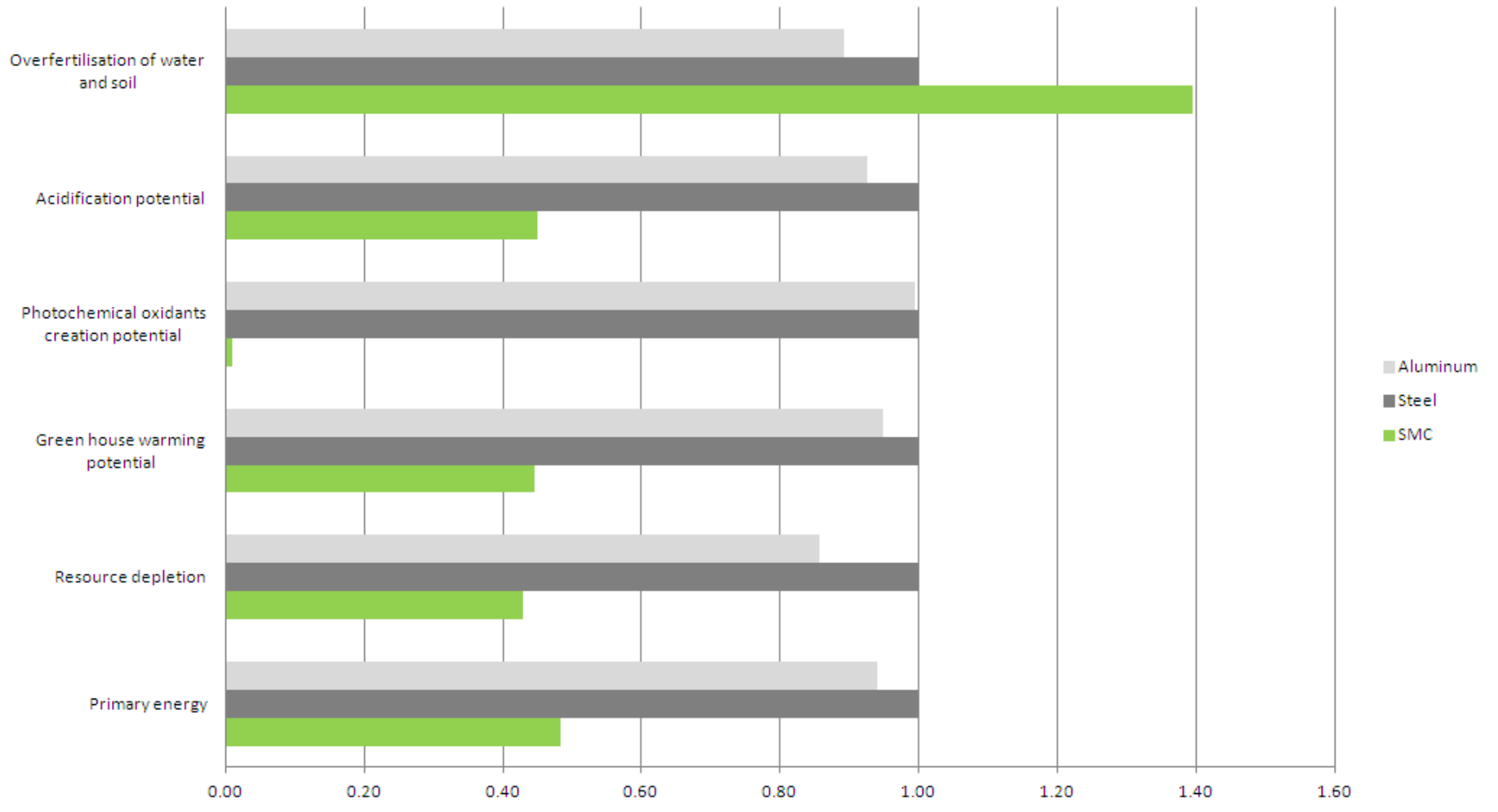
- Photochemical oxidants creation potential (POCP)
- Overfertilisation of water and soil / eutrophication potential (EP)

# The SMC Supply Chain – data collection





# LCA for SMC stationary part (30 years)



# SMC/BMC a light sustainable & recyclable material

- **SMC/BMC Light Composites outperform steel and aluminum when it comes to Greenhouse Warming Potential in kg CO<sub>2</sub>-equivalent per Functional Unit**
- **SMC Light Composites provide strength, excellent resistance to corrosion, and design freedom**
- **40 to 50 % lower CO<sub>2</sub> emissions for stationary functions throughout the lifecycle (cradle-to-grave)**
- **Lower maintenance compared to other materials : the equivalent part made in steel would require new layers of coatings every 5-10 years**



# Leading companies & institutions involved in SMC/BMC



# The European Alliance for SMC/BMC

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