



Global Trends in the Thermal Insulation Market

PRESENTED BY

Lucintel

DATE

July, 2021

Market Intelligence + Growth Consulting + Opportunity Screening + M&A Due Diligence + Benchmarking = **Your Company's Growth.**

www.lucintel.com

Table of Contents

- **Executive Summary**
- **Thermal Insulation Opportunities**
- **Competitive Landscape**
- **Emerging Trends and Innovation Areas**
- **Recommendation and Industry Support**

Executive Summary

- **In global thermal insulation market is valued at \$50 Billion in 2020 and is expected to reach \$65.3 Billion by 2025 with a CAGR of 5.5%**
 - Building and construction segment accounts for ~54% of the total thermal insulation market, valued at \$27 B in 2020 and is expected to reach \$37.5 B by 2025
- **Emerging economies provide high growth potential for thermal insulation materials**
 - Asia Pacific market is driven by rapid growth in construction and industrial sectors
- **During 2020 global shutdown and lockdown halted many construction work creating supply chain bottleneck for key resources of materials and equipment**
- **Plastic foam holds largest share and is expected to maintain it in the near future**
 - Plastic foam insulation materials provide better performance benefits over other options
- **To drive further growth in the thermal insulation market, industry needs to work in below areas:**
 - Increase awareness of thermal insulation among residential and commercial builders in emerging economies to accelerate adoption
 - Reduce cost of insulation materials and installation
 - Develop energy efficient, fire resistant thermal insulation, and recyclable / sustainable solutions

Table of Contents

- **Executive Summary**
- **Thermal Insulation Opportunities**
- **Competitive Landscape**
- **Emerging Trends and Innovation Areas**
- **Recommendation and Industry Support**

Building and Construction Segment of Thermal Insulation Market is Expected to Grow at a CAGR of 6.8% during the Forecast Period

Thermal Insulation Market	Market Size (\$B)- 2020	CAGR % (2020-2025)	Future Outlook	Major Thermal Insulation Material Suppliers
Building and Construction	~\$27	6.8%	<ul style="list-style-type: none"> Growing construction activities and increasing urbanization in emerging economies are creating healthy demand for energy efficient buildings hence thermal insulation materials 	
Industrial	~\$6	5.3%	<ul style="list-style-type: none"> Demand for thermal insulation materials will be favored by growth in industrialization and increasing regulations for safety and emission norms. 	
Others (Includes oil and gas, marine, automotive, clothing, etc.)	~\$17	3.3%	<ul style="list-style-type: none"> Thermal insulation market would be favored by growing deep water operations, increasing demand in marine, automotive, & clothing industry 	

Thermal Insulations are Used in a Variety of Applications in Various Industries. For Example in Construction, it is Used in Roof, Wall, and Floor

Construction



- Roof
- Wall
- Floor

Industrial



- Industrial Pipes
- HVAC
- Insulation in Industrial Refrigerators
- Storage Tanks
- Etc.

Oil and Gas



- Storage Tank Insulation
- Pipes
- Joints
- Jumpers
- Risers
- Spools
- Manifolds

Aerospace



- Thrust Reversal System
- Ducting and Tubing
- Flight Recorders
- Battery Insulation
- Electrical Insulation

Transportation



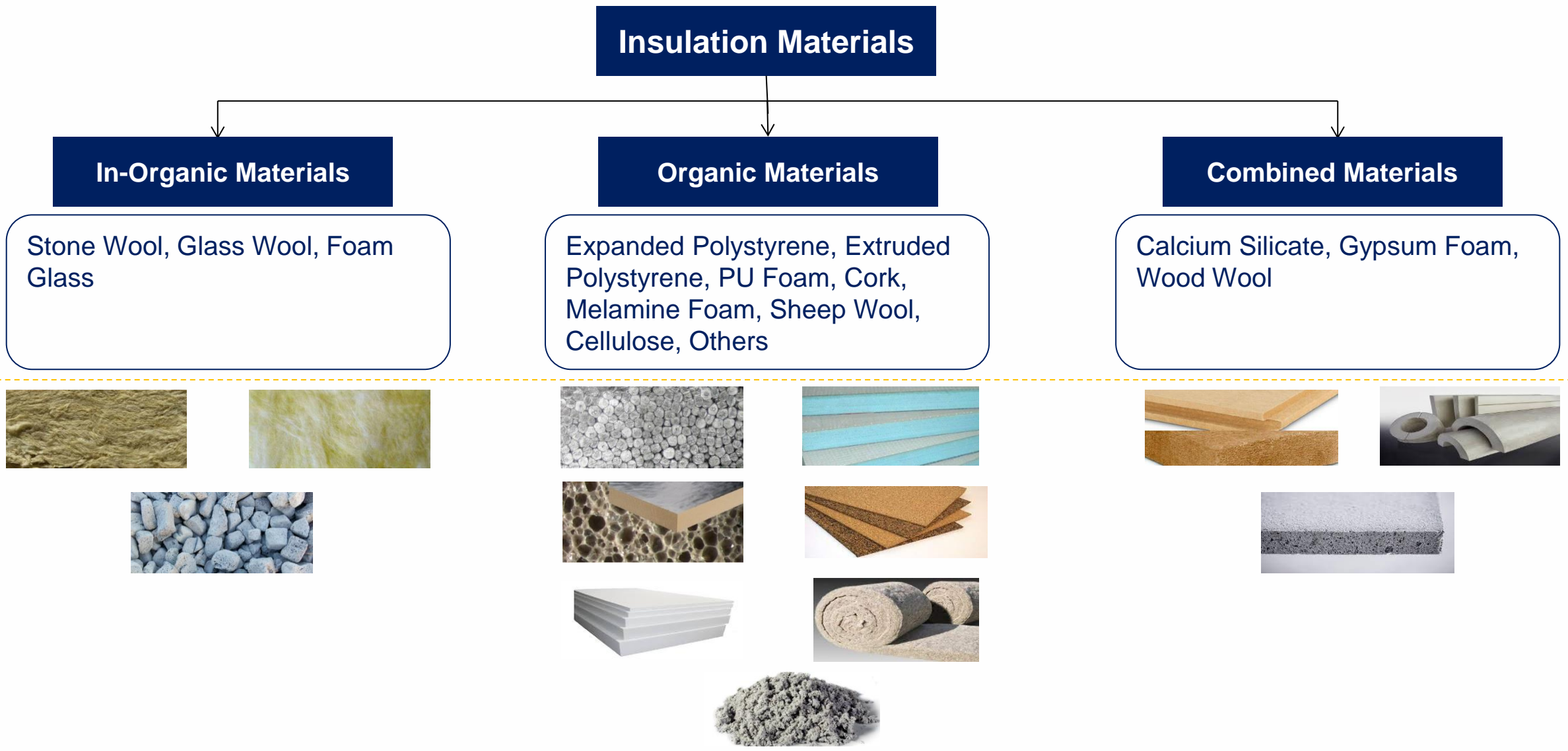
- Sensors
- Batteries
- Engine Compartment Insulation
- Roof
- Floor
- Sidewalls
- Underbody

Others



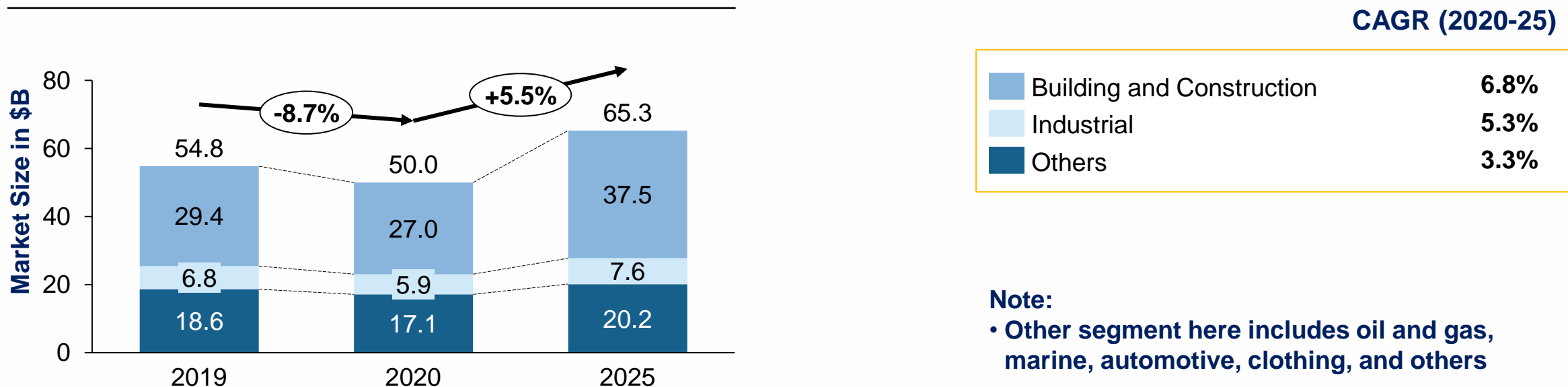
- Clothing
- Mechanical Insulations
- Others

Customers in Each Application Have Several Choices such as In-Organic, Organic and Combined Materials to Meet Their Needs



Future of Thermal Insulation Market Looks Promising with Opportunities in Industrial and Building and Construction Segment

Global Thermal Insulation Market Forecast in \$B



Note:

- Other segment here includes oil and gas, marine, automotive, clothing, and others

Key Insights

- Development of infrastructure in emerging economies driven by rapid industrialization and urbanization is driving demand for thermal insulation materials
- Increasing demand for sustainable technologies, energy efficient buildings are key propelling factors for growth of industry
- Regulatory pressure from government for energy efficiency and sustainability will drive the demand for energy efficient thermal insulation materials

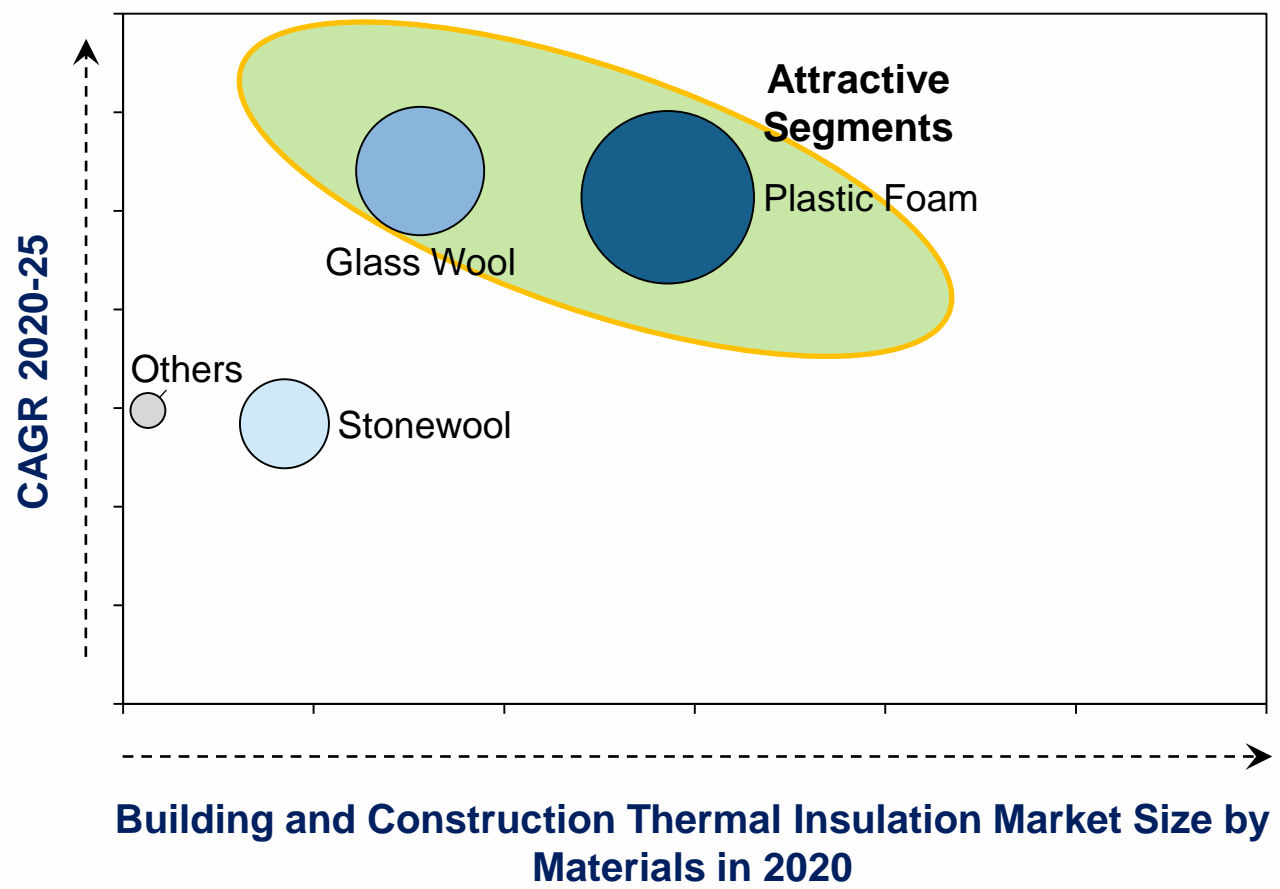
Performance Advantage of Plastic Foam Such as Higher Thermal Conductivity Makes it the Preferred/Dominant Material for Thermal Insulation

Key Insulation Materials		Dominance in Global Thermal Insulation Market	Base Materials	Thermal Conductivity (λ) [W/m-K]	Density [kg/m ³]	Fire Class NEN-EN13 501	Price [€/m ²]
Glass Wool			Cullet, quartz sand, dolomite				
Stone Wool			Diabase, basalt				
Plastic Foam	Expanded polystyrene (EPS)		Benzene, ethylene, Pentane				
	Extruded polystyrene (XPS)		Benzene, ethylene, pentane				
	Polyisocyanurate (PIR)		Isocyanate, (polyether)polyol				
	Polyurethane (PUR)		Polyester polyol, MDI				
Others (Cellulose, Hemp, etc.)			Cellulose, Hemp				



Plastic Foam and Glass Wool are Attractive in Terms of Market Size and Growth Rate Respectively

Growth Attractiveness in Global Building and Construction Thermal Insulation by Materials



Source: Lucintel

Key Insights

- Building and Construction is the largest application segment. Increased industrialization and urbanization are the driving factors
- Plastic foam is mostly utilized followed by glass wool in Building and Construction application
- Glass wool is the fastest growing material in building and construction application such as masonry cavity walls, timber frame walls, etc.
- High performance benefit of plastic foam over other materials has increased its demand

Voice of Market: Plastic Foam is the Largest Material Segment in the Global Thermal Insulation Market and is Expected to Maintain its Share in Near Future

“Plastic foam is the largest material segment in the global thermal insulation market. Emergence of green building technology and high fire resistance properties will also drive the demand of glass and stone wool in future. Glass and stone wool insulation is gradually replacing other kinds of insulation, both in multi-storey and private construction considering its high fire resistance properties. Insulation market is highly correlated with construction industry, and building application represents more than 50% in insulation market. Insulation demand varies according to geographical specific areas.”

Business Analyst, Major Thermal Insulation Manufacturer

“Building is the largest end use industry for thermal insulation. The growth is more than the growth of construction industry. After the fire incidents happened in many high rise buildings including London Grenfell Tower, contactors and builders have decided to prefer glass and stone wool insulation due to its non combustible nature for better fire resistance, smoke resistance, and zero flame properties. The fire resistance properties of PU is low compare to mineral wool. The growing concern for fire safety is leading towards the changing interest of builders towards the mineral wool insulation in near future”

Sales Head, Major Manufacturer of Mineral Wool

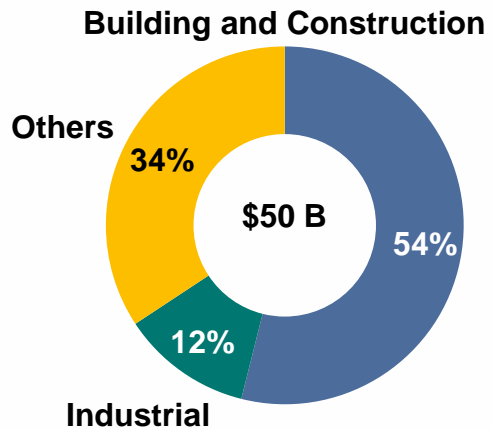
Building and Construction Accounts for 54% of the Global Thermal Insulation Materials, Plastic Foam and Glass Wool Materials will Grow at High Pace

Thermal Insulation

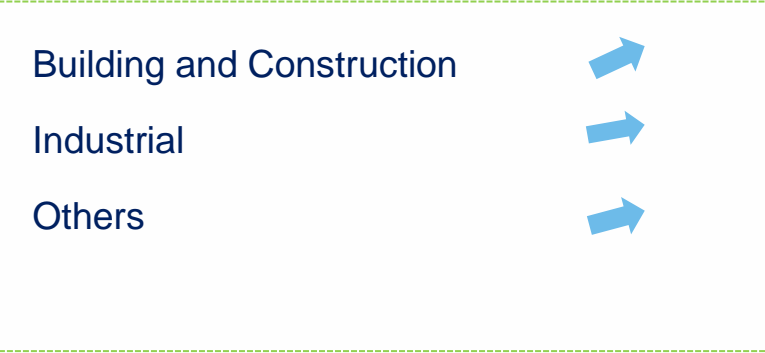


- The thermal insulation market is anticipated to grow at 5.5% CAGR during the forecast period.
- Government initiatives for increasing energy-efficient buildings will benefit the demand for insulation materials
- Major drivers of plastic foam insulation materials are performance benefits over other traditional options like glass wool, stone wool, natural insulation materials
- Demand for glass wool is growing at higher pace driven by its high fire resistance and low cost compared to other materials

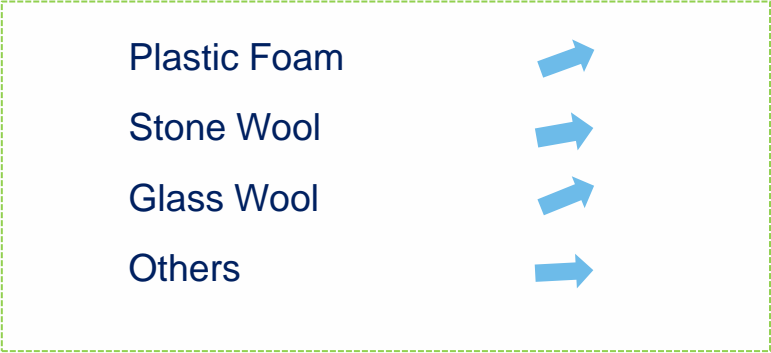
Thermal Insulation Market by End Use



Future Outlook: Thermal Insulation Market by End Use



Future Outlook: Thermal Insulation Market by Material



➔ Note: Position of arrow denotes the future growth potential

Increasing Pressure to Control Green House Gas Emission from Government is the Major Driver of Thermal Insulation

Key Drivers

Growing construction spending, increasing urbanization in emerging economies has led to strong demand of energy efficient buildings with rising consciousness of consumers to control energy consumption across the globe

Pressure from government to increase energy efficiency of buildings to reduce greenhouse gas emissions and address the energy efficiency targets

Increased adoption of sustainable technologies in growing end use industries like aerospace and transportation in order to control GHG emissions

Key Challenges

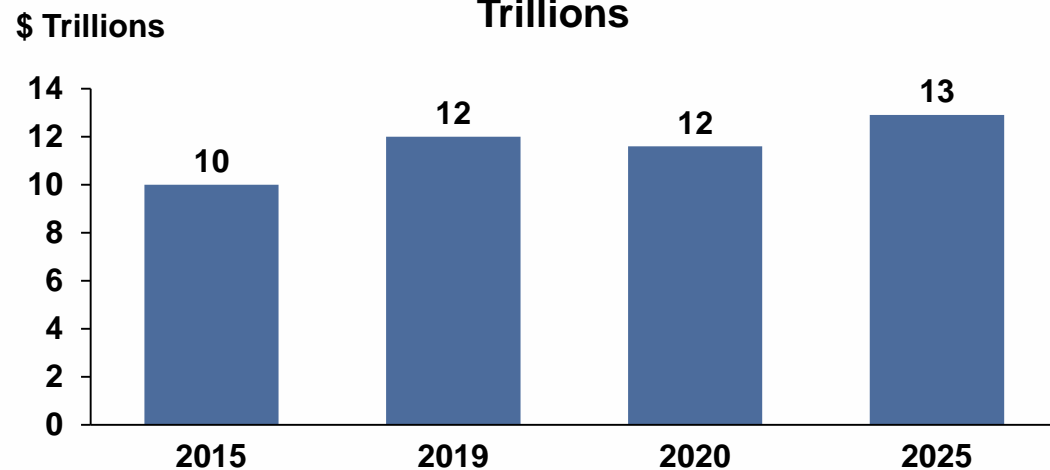
Low awareness about benefits of thermal insulation in emerging economies

High capital cost of installing thermal insulation in buildings restricts its reach in every house

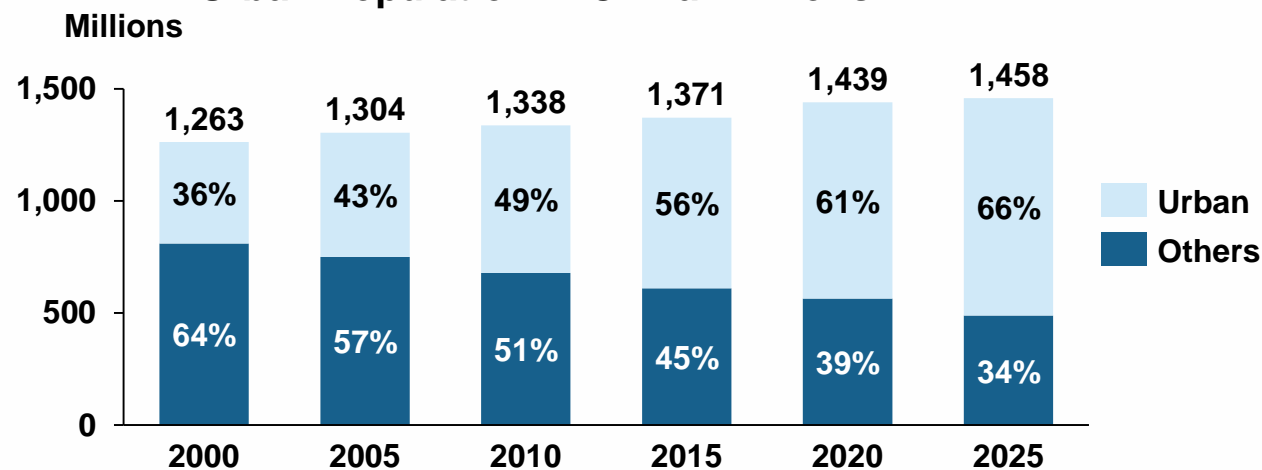
Volatile price of raw materials like styrene is one of the major challenge faced by players of the industry, which affects there cost of manufacturing and profitability

Growing Construction Spending and Increasing Urbanization in Asian Countries Will Drive Construction of Sustainable Buildings

Global Construction Spending Trend and Forecast: \$ Trillions



Urban Population in China: Millions



Key Insights

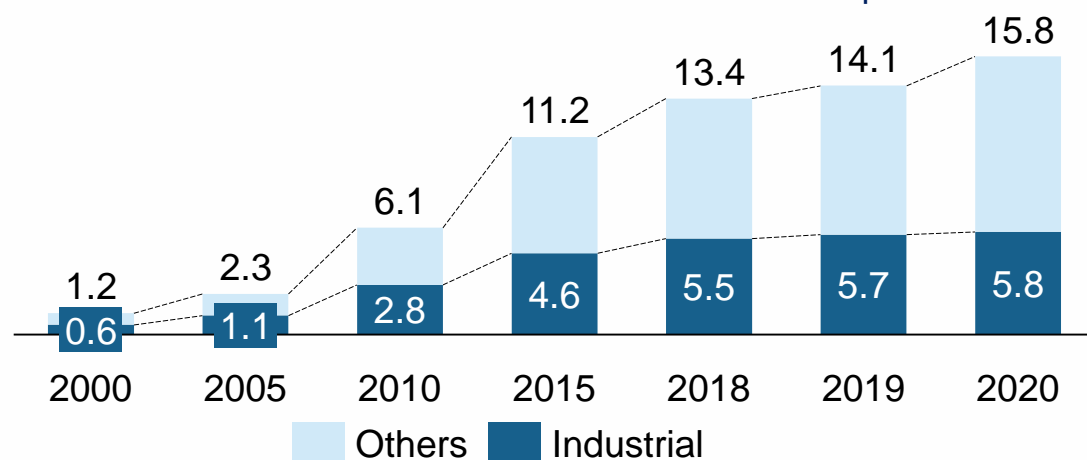
- **APAC has >50% of the global construction industry. Urban population in China is expected to reach 66% by 2025**
- **China construction industry has started to recover after the downfall for 6 months during the COVID outbreak, the industry is expected to grow at 1.5% during 2020**
- **Improving infrastructure development, urbanization & economic development in developing Asian countries are likely to increase demand of energy efficient and sustainable homes, will drive increased usage in the construction industry**

Source: Export Govt. (China), World Bank and Lucintel

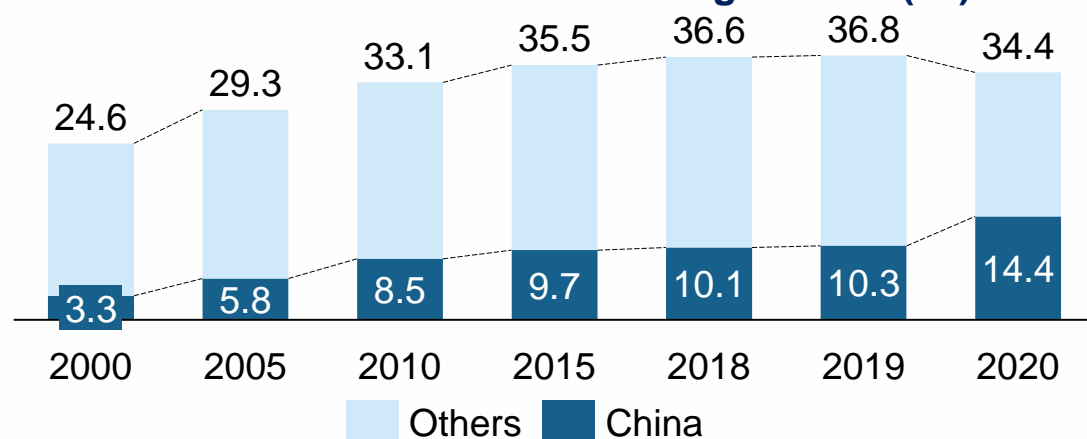
Increasing Industrialization in Growing Economies has Propelled Consumption of Thermal Insulation

Key Insights

Industrial Contribution in GDP of China: \$ Trillion



Global Annual CO2 Emission: Gigatonnes (Gt)



- **Contribution of the Industrial Sector for the total GDP of China** has increased at CAGR of 12% in the past 20 years
- **Rapid industrialization in China** positively contributed to the GDP but has led to an **increase in Green House Emissions**
- **Increasing rate of industrialization, Increasing GHG emissions** and mandatory regulations will drive **future demand** of thermal insulation. Global CO2 emission reduction in 2020 was the result of lockdown in several countries due to Corona virus outbreak

Source: Global Carbon Project, World Bank and Lucintel

Table of Contents

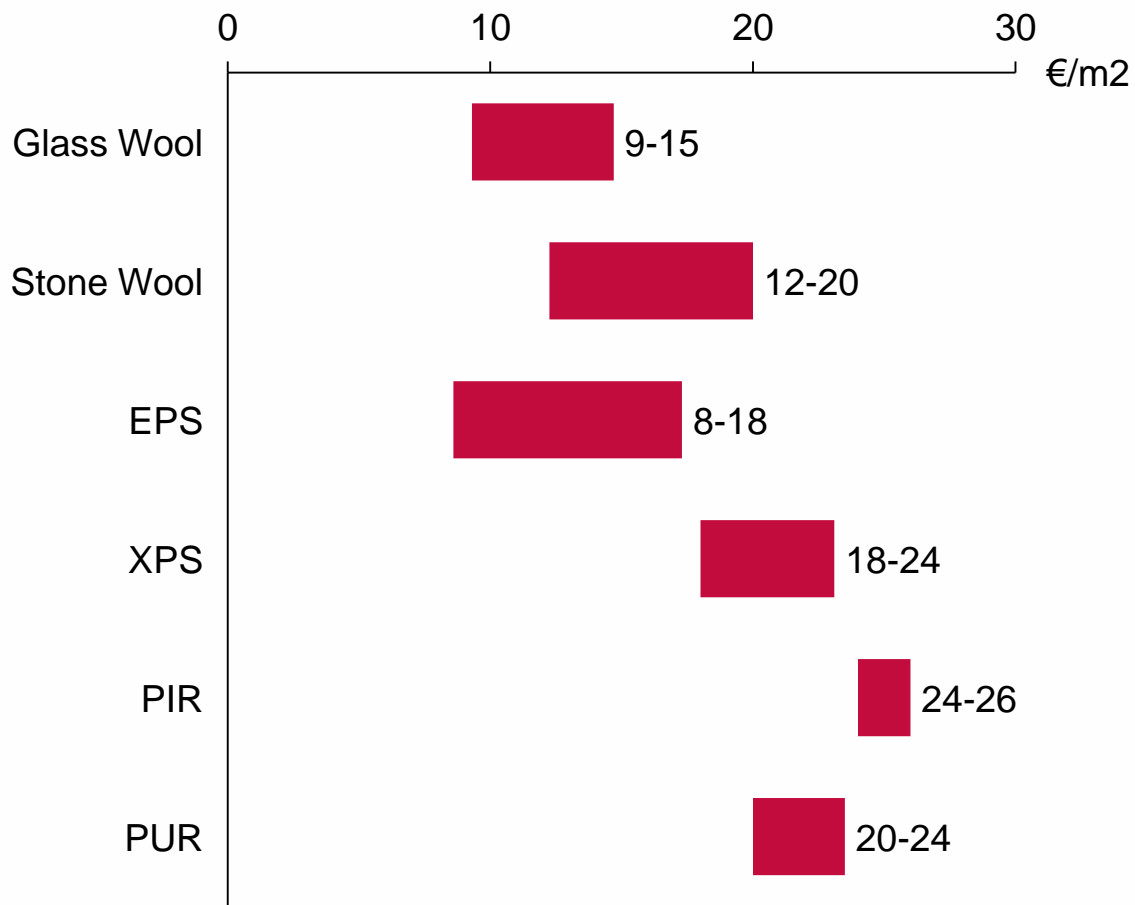
- **Executive Summary**
- **Thermal Insulation Opportunities**
- **Competitive Landscape**
- **Emerging Trends and Innovation Areas**
- **Recommendation and Industry Support**

Most of the Key Players Have Presence in Multiple Thermal Insulation Materials

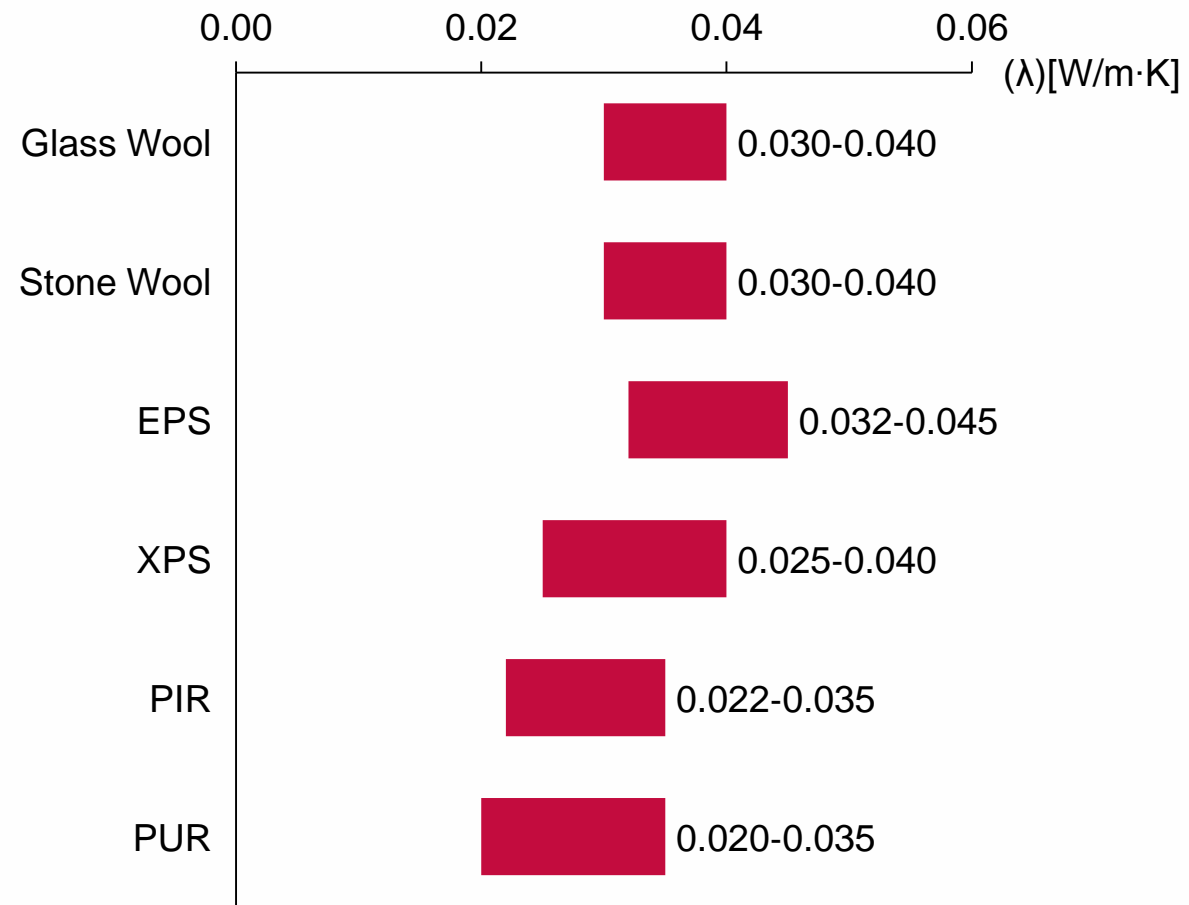
S.No	Company Name	Key Materials			
		Glass Wool	Stone/Mineral Wool	Plastic Foam	Others
1	Saint Gobain	✓	✓	✓	✓
2	BASF	✓	x	✓	✓
3	Dow Chemicals	✓	x	✓	✓
4	Asahi Kasei Corp.	✓	x	✓	x
5	Covestro AG	x	x	✓	x
6	Owens Corning	✓	x	✓	x
7	Kingspan Group	✓	✓	✓	x
8	Rockwool	x	✓	x	x
9	John's Manville	✓	✓	✓	✓
10	Armacell	✓	✓	✓	✓

Polyisocyanurate (PIR) and Polyurethane (PUR) Insulation Materials Outperform Others with Low Thermal Conductivity but at High Price

Price Comparison of Various Thermal Insulation Materials



Thermal Conductivity Comparison of Various Thermal Insulation Materials

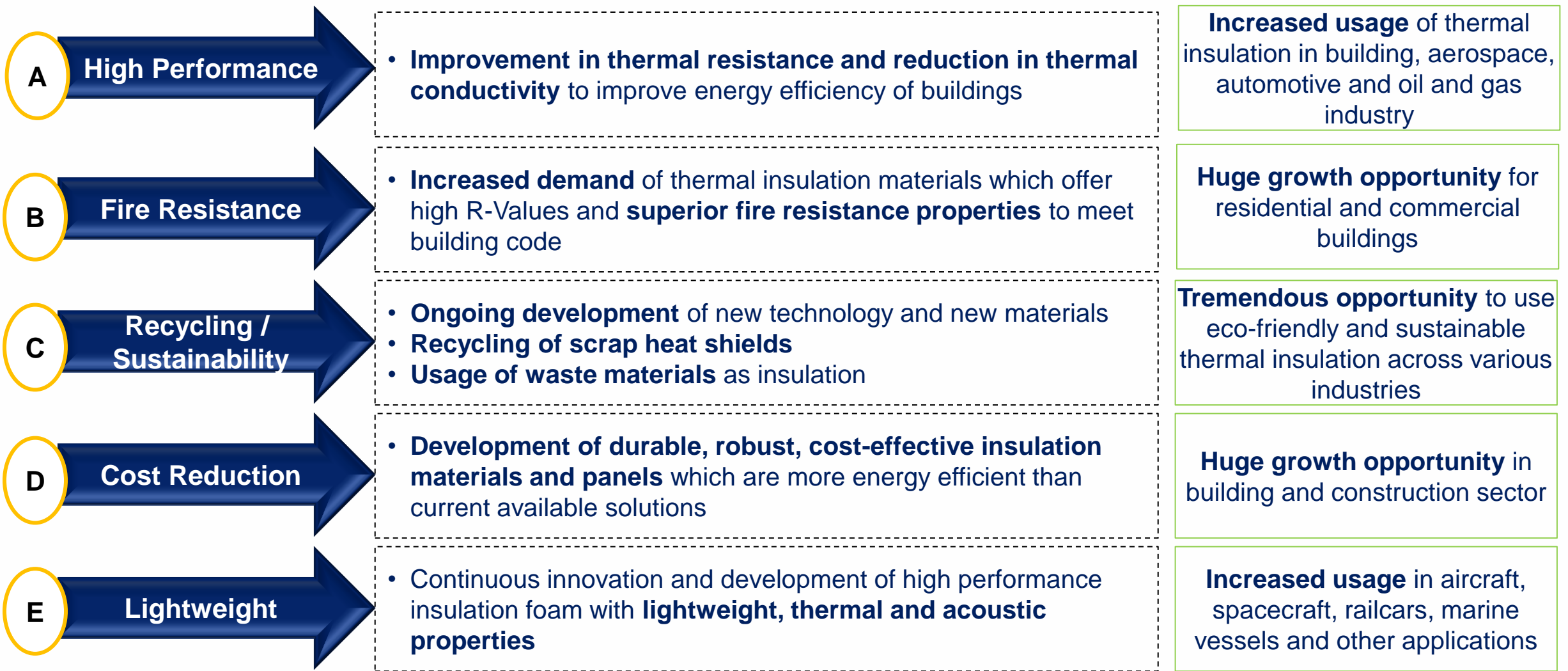


Source: Lucintel

Table of Contents

- **Executive Summary**
- **Thermal Insulation Opportunities**
- **Competitive Landscape**
- **Emerging Trends and Innovation Areas**
- **Recommendation and Industry Support**

High Performance and Fire Resistance are the Key Innovation Areas for Thermal Insulation Materials



Recent Innovation: Development of High Performance, and Sustainable Glass Wool Insulation Materials

Lightweight Fiberglass



Supplier: Evonik

Innovative Product: CALOSTAT

“The material possesses extremely low thermal conductivity of $\lambda = 0.019$ W/mK and is 50% thin”

Value Proposition

- Lightweight as its 50% thin compared to available options
- Very low thermal conductivity

Bio-Sourced Glass Wool



Supplier: Saint Gobain

Innovative Product: ISOVER

“Glass wool which has 100% bio-sourced binder, two in one solution of acoustic as well as thermal insulation”

Value Proposition

- 100% bio-sourced binder
- Sustainable and green

Recycled Fiberglass



Supplier: Owens Corning

Innovative Product: EcoTouch PINK FIBERGLAS

“Formaldehyde fiberglass insulation material with minimum 73% recycled content”

Value Proposition

- Sustainable and green
- 73% recycled content

Source: Lucintel

Table of Contents

- **Executive Summary**
- **Thermal Insulation Opportunities**
- **Competitive Landscape**
- **Emerging Trends and Innovation Areas**
- **Recommendation and Industry Support**

Recommendation and Industry Support

- **Demand for thermal insulation materials is expected to continue to grow based upon Building and Construction growth in emerging economies and due to innovations in materials, technologies and applications in combination with continued cost reductions**
- **To succeed in the thermal insulation market, the Industry needs to focus on:**
 - Development of transformative technologies for cost effective installation of insulation materials
 - Increase awareness and develop eco-friendly and sustainable insulation solutions
 - Development of durable, cost-effective insulation materials and panels which are more energy efficient than current solutions
- **Lucintel's Market Reports and Consulting Services can help the Thermal Insulation Industry in China define and implement a strategy designed to grow your business, more specifically to:**
 - **Identify and evaluate attractive opportunities:** Develop dynamic understanding of the relevant market segments where you should compete, broken down by segment, application, technology and region. What gaps exist to realize full potential?
 - **M & A for Growth:** Help you identify partner or finance to implement your strategy

Lucintel - At a Glance

- Premier management consulting and market research firm. Founded in 1998.
- Deep global insights into major industries. Team of over 120 analysts / consultants across globe
- Management comprised of PhDs, MBAs, and subject matter experts. Head quarter in Dallas, USA.

Conducted 500+ consulting projects across industries for 3M, Audi, Dupont, Carlyle, GE, etc.

Consulting Services



Why Lucintel

Trusted insights: Reliable insights. Widely cited in Wall Street Journal, Financial Times, Forbes, etc.

Clients we serve: Over 1000 clients from 70 countries – Fortune 500 companies

Strategic advice: Over 20 years of proven global strategic management consulting experience

Industries Served



1000+ Clients in 70 Countries Value Our Service



Contact Us



Sanjay Mazumdar, Ph.D.

CEO, Author, & Strategist

Email: sanjay.mazumdar@Lucintel.com

Tel.: 972-636-5056



Eric Dahl

Senior Executive Advisor

Email: eric.dahl@lucintel.com

Tel.: +1-323-388-6971



Brandon Fitzgerald

Director of Client Engagement

Email: brandon.fitzgerald@lucintel.com

Tel.: +1-303-775-0751



Nigel O'Dea

Business Development Manager

Email: nigel.odea@lucintel.com

Tel.: +44 (0) 7413571716