

FEBRUARY 11, 2016

A GLOBAL OVERVIEW OF THE SPF INDUSTRY

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NAFTA SPRAY FOAM MARKET PERFORMANCE

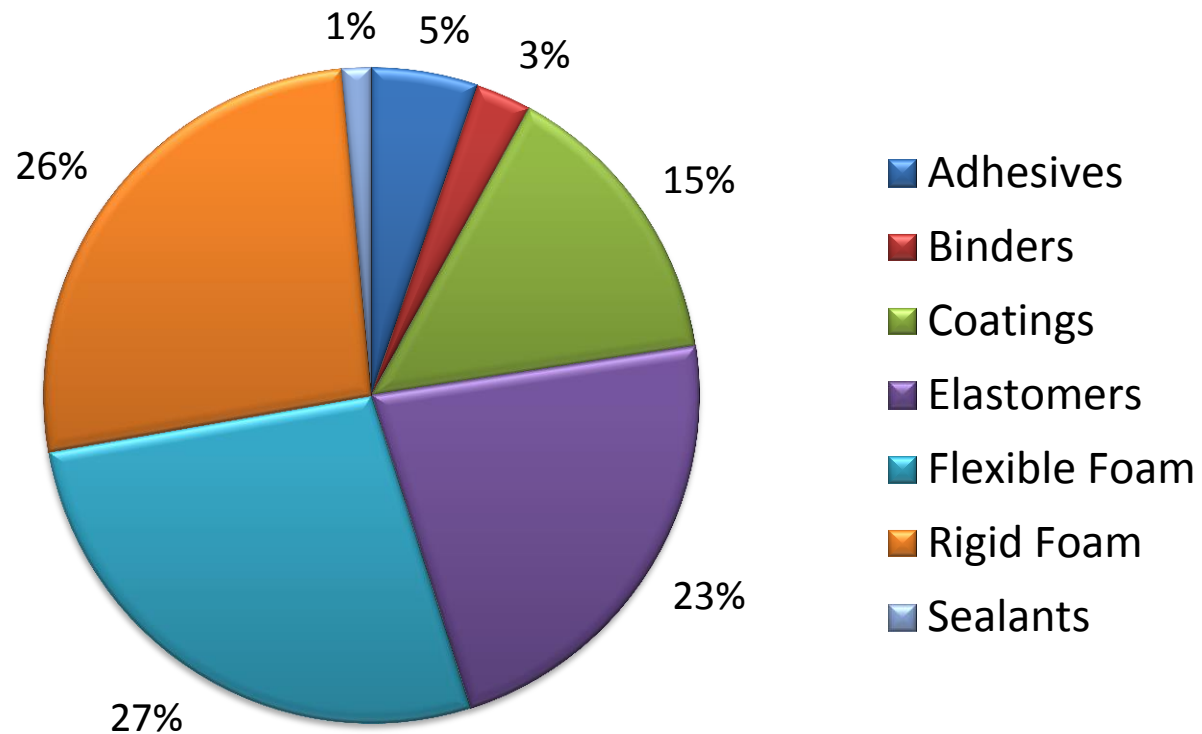
- Growth continued in 2014-2015
- Construction sector the key driver
→ Demand still largely driven by renovation of existing buildings and weatherization projects
- Industrial output improved
- Canadian housing market improved
- Mexican market still remains underdeveloped.

GLOBAL SPRAY FOAM MARKET TRENDS

- Demand for energy efficiency increasingly important
- Difficult economic situation in Europe and China
- Fire regulations and health and safety issues having an impact
- 4th generation blowing agents now available in the market
- Growth potential remains in emerging markets

PU PRODUCTION GLOBALLY

Estimated Global PU Production, 2015



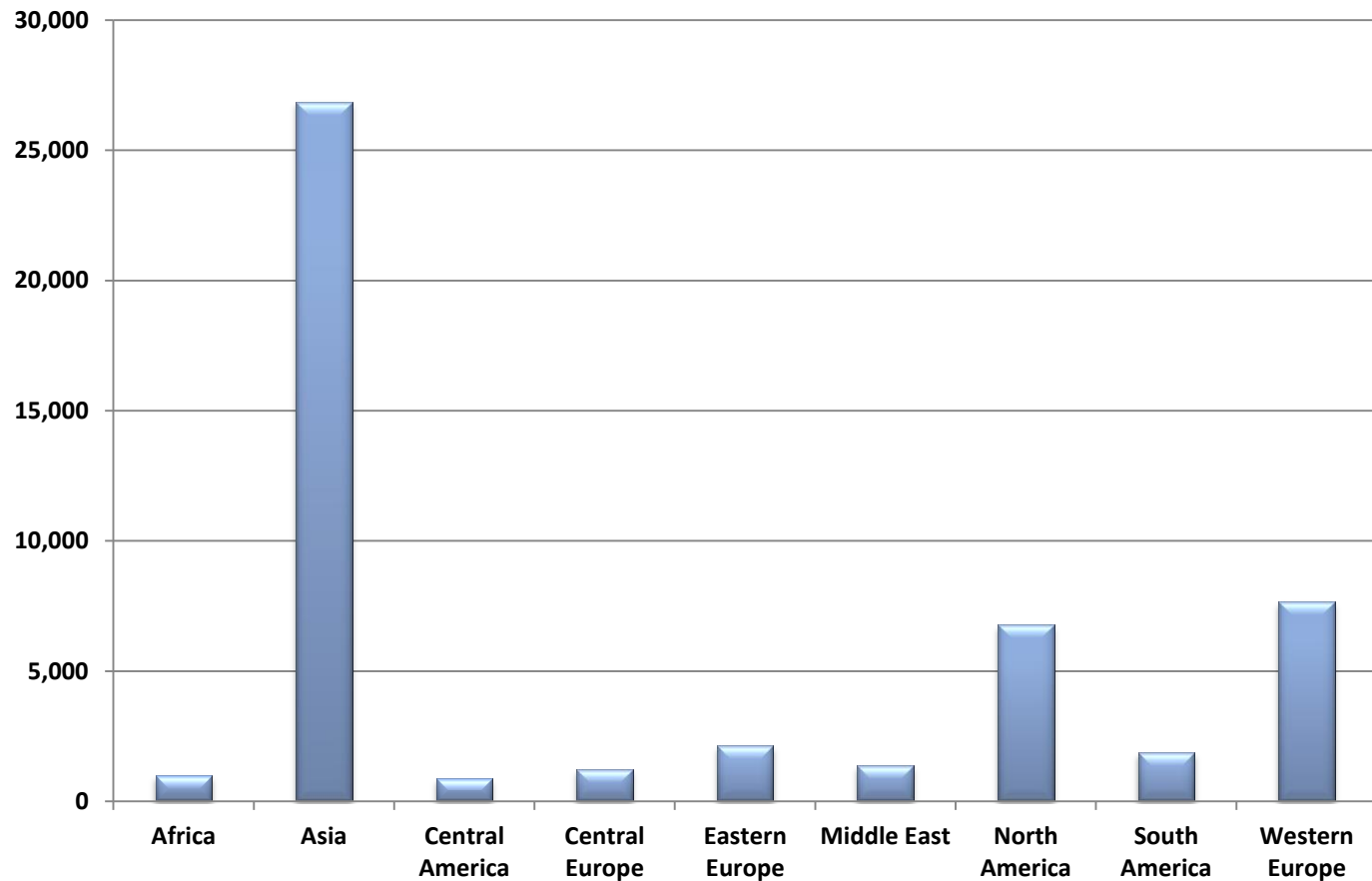
Source: IAL

PU RAW MATERIAL USE



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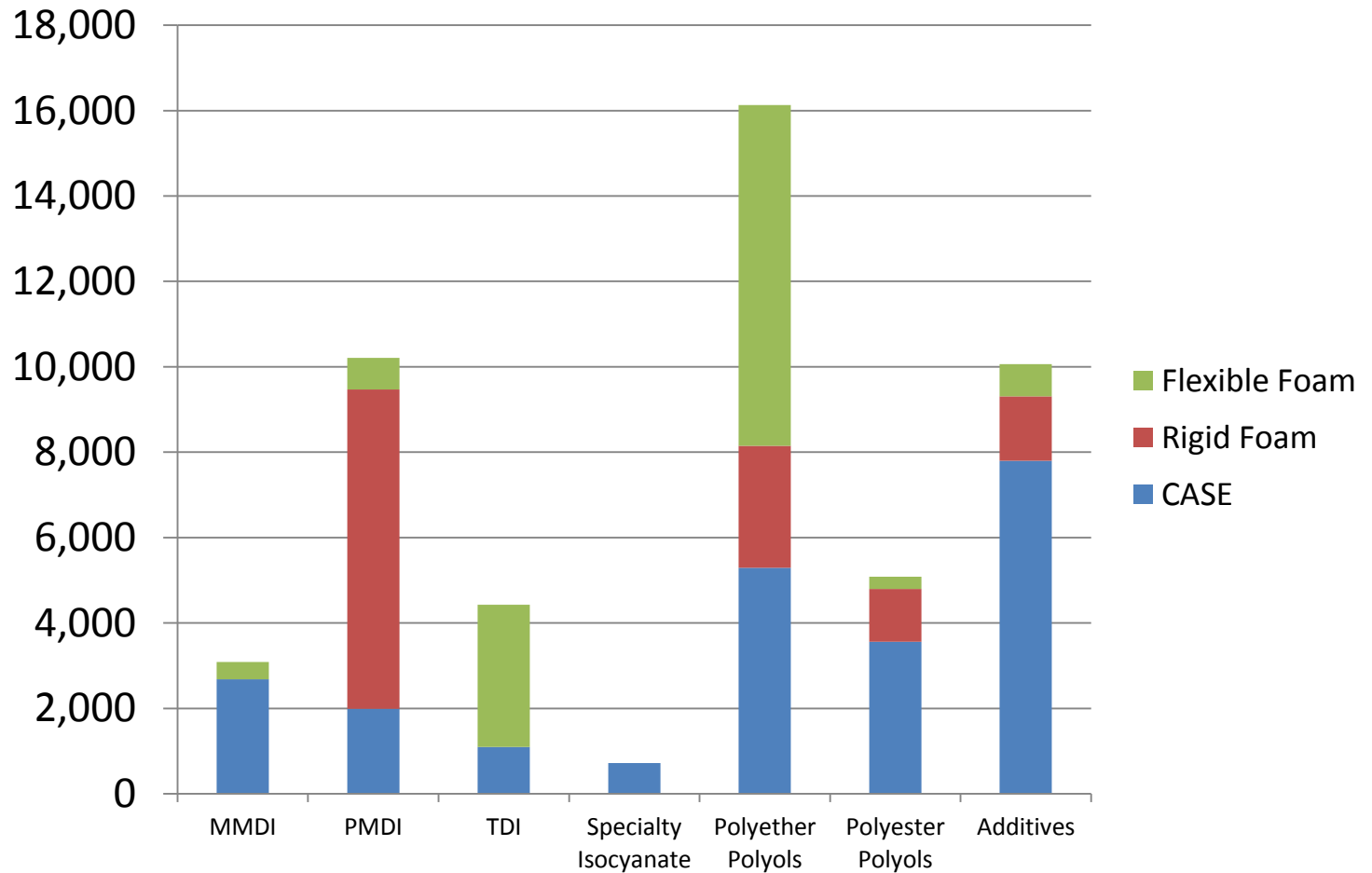
PU Raw Material Consumption, MLbs, 2015



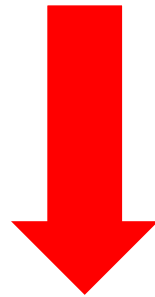
Source: IAL

RAW MATERIAL DEMAND

GLOBAL PICTURE (MLBS)



GLOBAL MARKET DRIVERS AND RESTRAINTS



Economic difficulties – China, Europe
Political turmoil
Health and safety concerns
Overcapacity
Oil prices – reduced investment



Government construction projects –
housing and infrastructure
Consumer spending
Urbanization, higher standard of living
Demand for energy efficiency



GDP GROWTH RATE FOR MAJOR ECONOMIES (%)

	2012	2013	2014	2015*	2016*	2017*	2018*	2019*	2020*
China	7.7	7.7	7.3	6.8	6.3	6.0	6.1	6.3	6.3
India	5.1	6.9	7.3	7.3	7.5	7.5	7.6	7.7	7.7
USA	2.2	1.5	2.4	2.6	2.8	2.8	2.7	2.2	2.0
Canada	1.9	2.0	2.4	1.0	1.7	2.4	2.3	2.1	2.0
Mexico	4.0	1.4	2.1	2.3	2.8	3.1	3.2	3.3	3.3
Brazil	1.8	2.7	0.1	-3.0	-1.0	2.3	2.4	2.5	2.5
Russia	3.4	1.3	0.6	-3.8	-0.6	1.0	1.5	1.5	1.5
Japan	1.7	1.6	-0.1	0.6	1.0	0.4	0.7	0.9	0.7
Eurozone	-0.8	-0.3	0.9	1.5	1.6	1.7	1.6	1.6	1.6
World	3.4	3.3	3.4	3.1	3.6	3.8	3.9	4.0	4.0

Source: IMF

*Forecasts

GLOBAL CONSTRUCTION SECTOR

- Construction market driven by US, China and India
- US and India to grow faster than China
- Emerging markets taking advantage of China slowdown
 - Urbanization, growing middle class, higher standard of living
- Europe still below pre-crisis levels
 - Strong growth in the UK
- China, US, India, Indonesia, UK, Mexico, Canada and Nigeria to account for 70% of global growth in construction



CONSTRUCTION SPENDING IN MAJOR ECONOMIES 2012-2018 (US\$ BILLION)*

	2012	2013	2014**	2015**	2016**	2017**	2018**
China	681	750	803	837	889	943	1,000
India	331	339	355	380	409	440	473
USA	522	582	603	630	648	666	684
Canada	111	109	108	109	111	114	116
Mexico	104	100	99	100	102	106	109
Brazil	53	54	53	51	51	52	54
Russia	139	140	138	129	128	129	131
Japan	241	254	249	249	251	252	259
France	224	221	210	210	217	223	227
Germany	314	313	321	325	327	327	336
Spain	86	73	70	71	74	79	81
UK	193	194	210	220	227	234	236

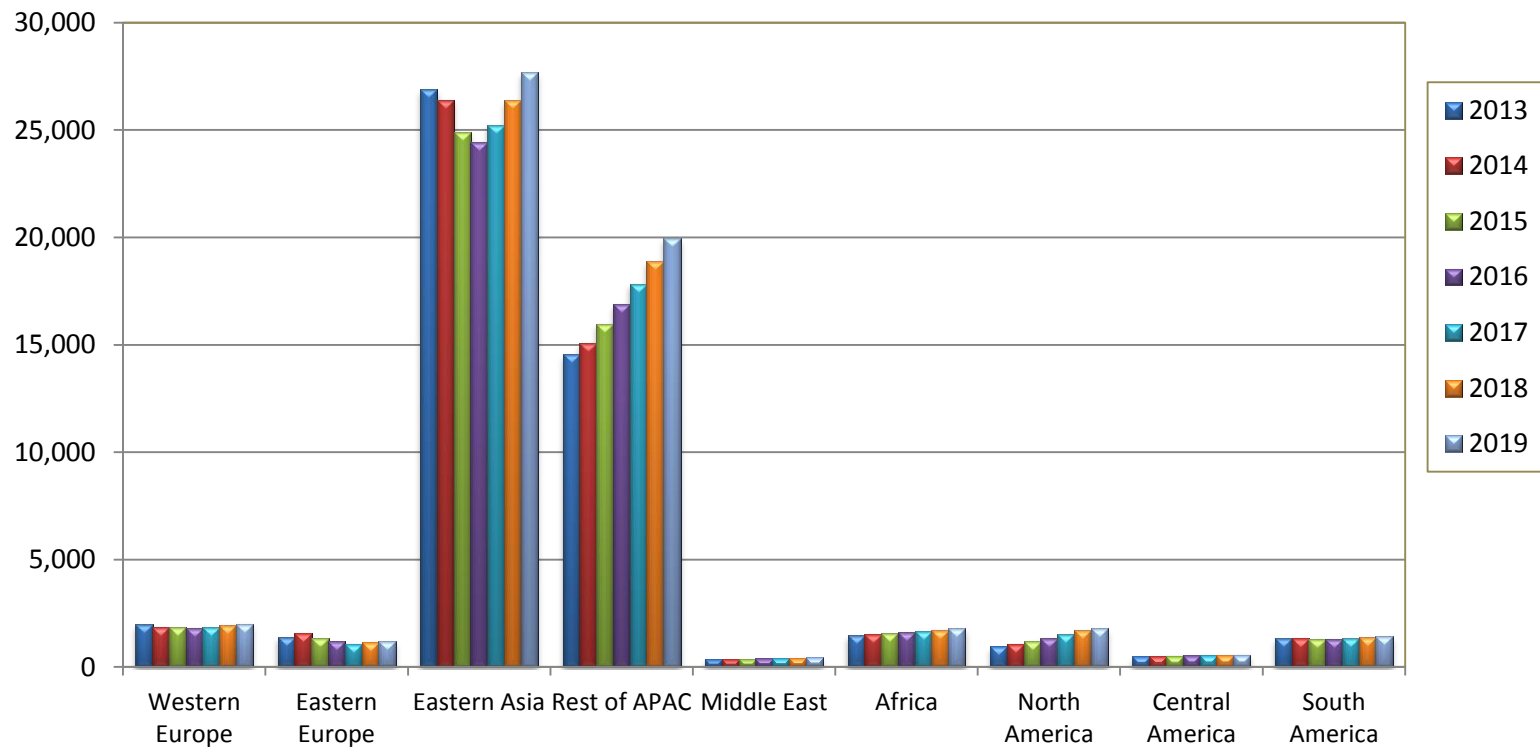
Source: IHS, Euroconstruct, BRG Building Solutions

*Excluding civil engineering

** Forecasts BRG Building Solutions

NEW CONSTRUCTION BY REGION

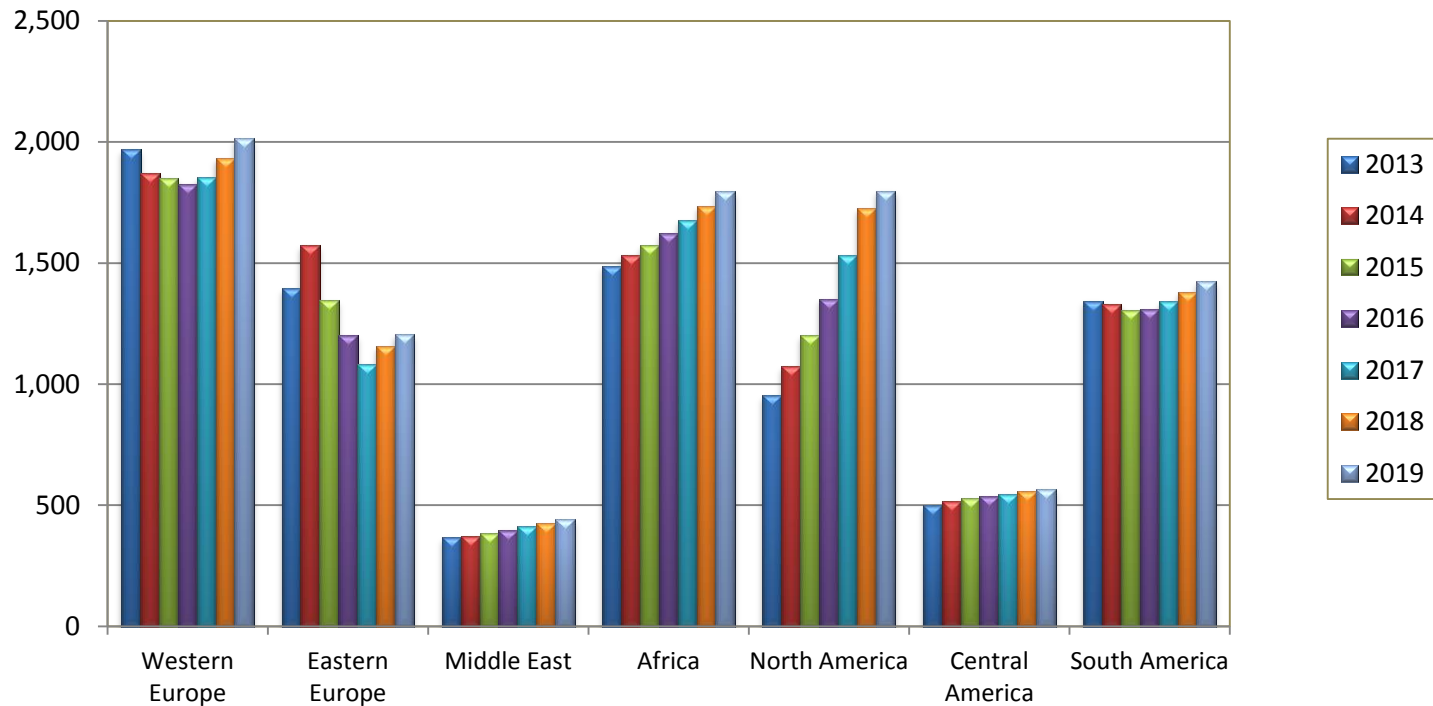
New Construction by Region 2013-2019 ('000s of Units)



Source: IHS, Euroconstruct, BRG Building Solutions

NEW CONSTRUCTION BY REGION

New Construction by Region excl. Asia 2013-2019 ('000s of Units)



Source: IHS, Euroconstruct, BRG Building Solutions

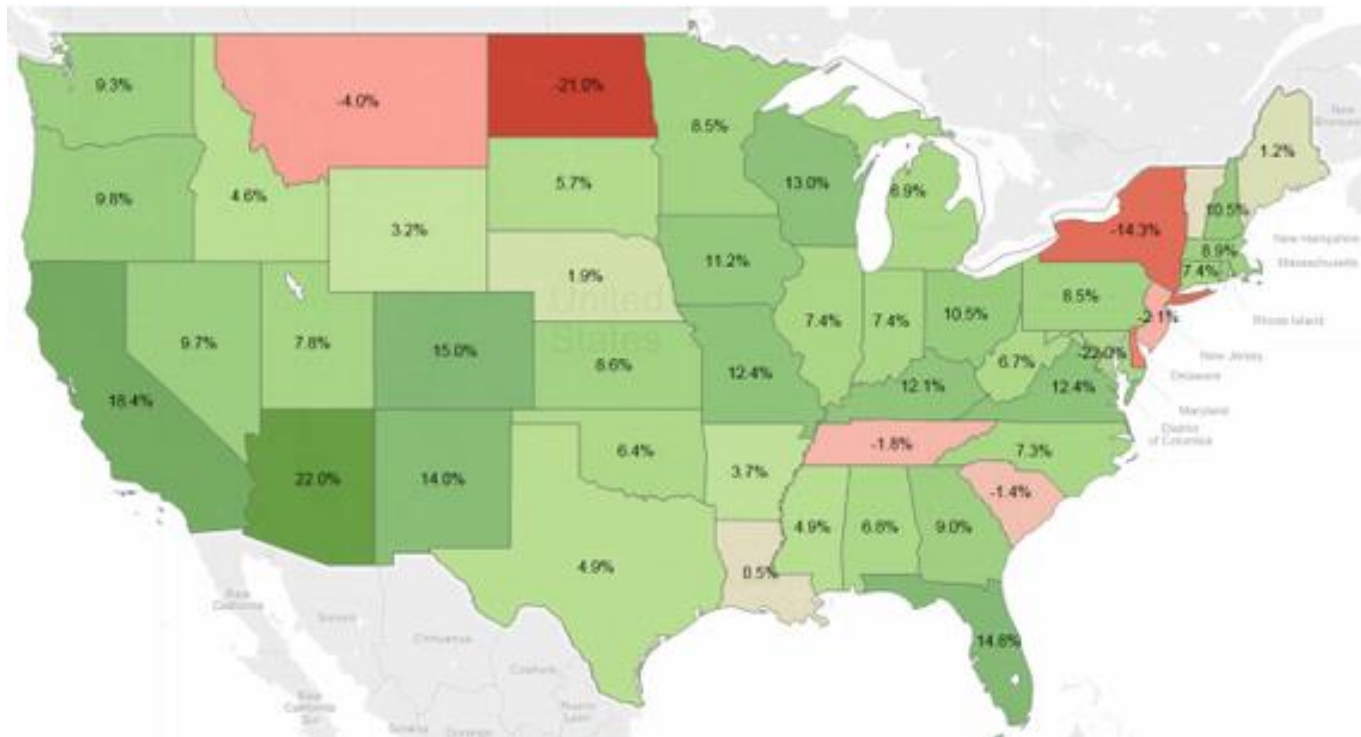
US HOUSING ACTIVITY

('000 UNITS)

Housing Type	2010	2011	2012	2013	2014	2015
Total Housing Starts	529	609	781	925	1,003	1,111
Single Family	415	431	535	618	648	715
Multi Family	114	178	245	307	355	396
New Single Family Home Sales	310	305	369	429	439	501
Existing Single Family Home Sales	4,182	4,263	4,656	5,087	4,935	5,260

Source: National Association of Home Builders

FORECAST % GROWTH IN CONSTRUCTION SPENDING 2015 TO 2016



Source: IHS Insight, September 2015 estimate

CANADA HOUSING STARTS (UNITS)

Year	Number of Units	Percentage Change
2008	211,056	-7.6
2009	149,081	-29.4
2010	189,930	27.4
2011	193,950	2.1
2012	214,827	10.8
2013	187,923	-12.5
2014	189,329	0.7
2015	195,535	3.3



MEXICAN CONSTRUCTION SECTOR

- Growth that started in late 2014 continued in 2015
- Government initiatives such as National Infrastructure Plan aiding growth
- Future prospects cautiously optimistic
- Growing interest in sustainability and eco-friendly buildings
- 139 LEED certified and 460 LEED-registered projects in Mexico



GLOBAL SPF MARKET

MARKET TRENDS



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- **Western Europe:** Regulations continue to drive the demand for energy efficient insulation
- **Eastern Europe:** Still offers much untapped potential
- **Middle East & Africa:** Turbulent political situation
- **South America:** Slowdown in construction market, Brazilian economy in recession
- **Asia Pacific:** Growth in India and South East Asia, decline in China



EMEA SPF MARKET

EUROPE



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- Panels remain the most popular PU product
- Great country specific variation between insulation products used
 - PIR vs. PU
 - Panels preferred in major construction markets of UK and Germany
 - Mineral wool still widely used
- France and Benelux key markets for SPF
- Spain experiencing recovery
- Growth potential in Eastern Europe; Poland a growth market

EMEA SPF MARKET

RUSSIA AND CIS

- Russian market remains the largest in the region, and has great growth potential
 - The sector has been affected by the Ukrainian conflict
- Strict fire regulations – preference for mineral wool
- PU/PIR panels more popular than SPF in construction application
- Traditional materials most common choice in the rest of the CIS
- Many dwellings in desperate need of better insulation



- Turkey, Saudi Arabia, UAE and Iran are key countries for SPF demand in Middle East
- In Saudi Arabia and Iran, SPF often used for roof insulation together with elastomer coating or aggregate covering
- Improved awareness increased demand despite the lack of building codes
- Market affected by war and conflict
- Low oil prices having an impact:
 - Saudi Arabia cutting spending
 - Iran?
 - UAE, Qatar, Kuwait diversified economy



- Demand for SPF declined in 2014, influenced by fire regulations
- Weak construction sector has a further negative impact
- Regional restrictions remain in place
- Use in exterior wall applications declined since the fires in 2010, and has not recovered
- Some demand for open cell foam in bus roof and body insulation, imported products used
- 141b currently used in China
- Demand from cold storage, warehouses, tanks, pipes and containers increased

- Japanese demand impacted by slow economy
 - Regulations increasing demand
 - First country to use 4th generation blowing agents
- Sluggish demand in South Korea despite energy efficiency regulations
- Indian market limited by lack of legislation and acceptance of high quality insulation materials
- SPF competes with cheaper materials in South East Asia
 - Limited local production and product knowhow
 - Some growth in air conditioned buildings in Indonesia
 - Fast growth in industrial applications in Malaysia

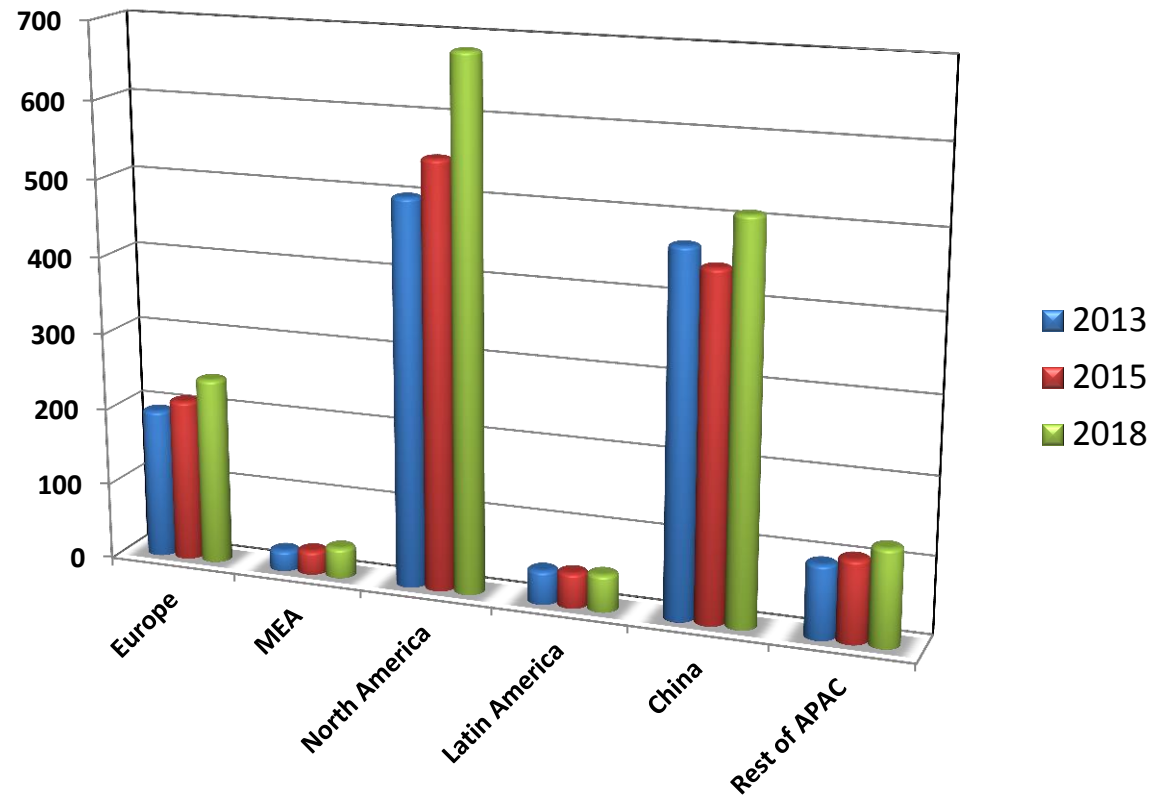
GLOBAL SPF PRODUCTION

BY REGION



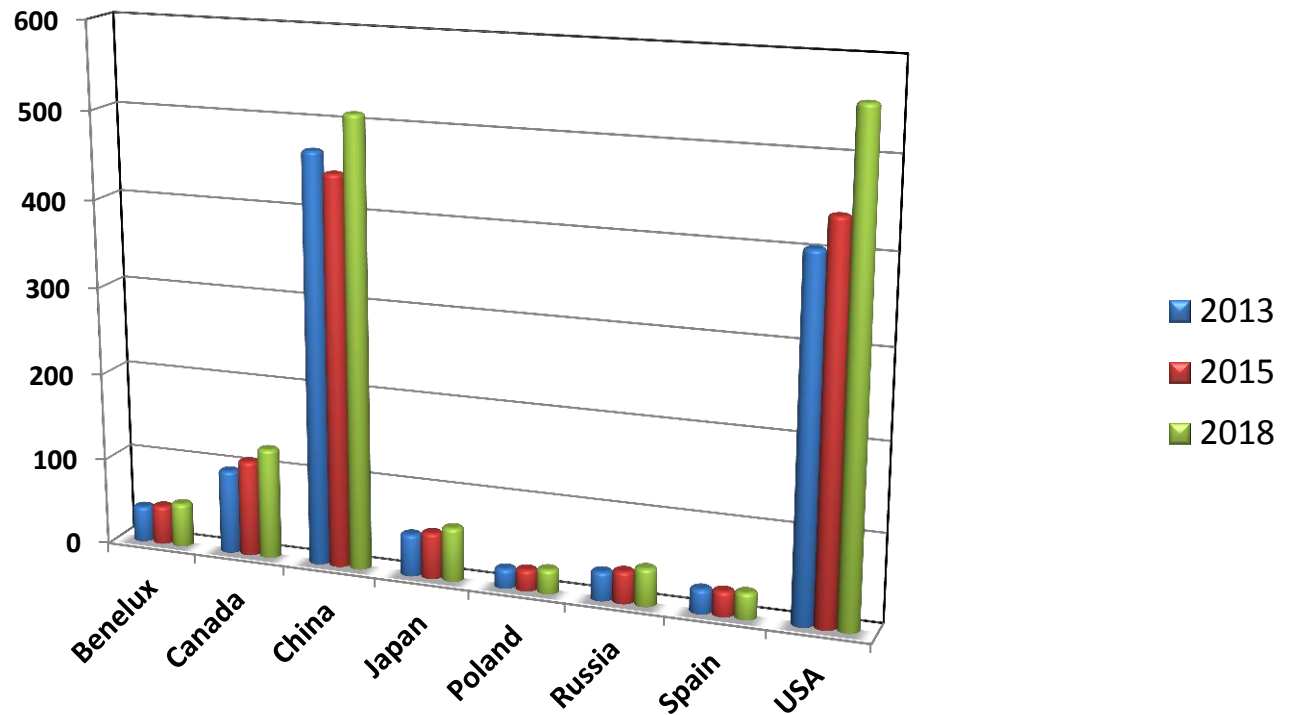
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Global SPF Production in 2013, 2015 and
Forecast Production in 2018 (MLbs)



LEADING SPF PRODUCING COUNTRIES

SPF Production by Country in 2013, 2015 and Forecast in 2018 (MLbs)



SPF IN AMERICAS

UNITED STATES



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- US has resumed its position as the fastest growing SPF producer
 - Building codes
 - Continuous insulation
 - Air barrier requirement
- Most growth within wall insulation but roofing also increasing
- PIR Boards growth > SPF
- Regional differences
- More contractors
- Safety concerns

Application	Demand 2015 (MLbs)
Wall Applications	240
Roofing	115
Other Applications	87

SPF IN AMERICAS

CANADA

- Canadian demand also growing
 - Slower than US
- New market entrants
 - Price decreases
- New systems suppliers
- Demand from residential construction growing
- External wall insulation systems common
- Pipe insulation

Application	Demand 2015 (MLbs)
Wall Applications	74
Roofing	8
Other Applications	35

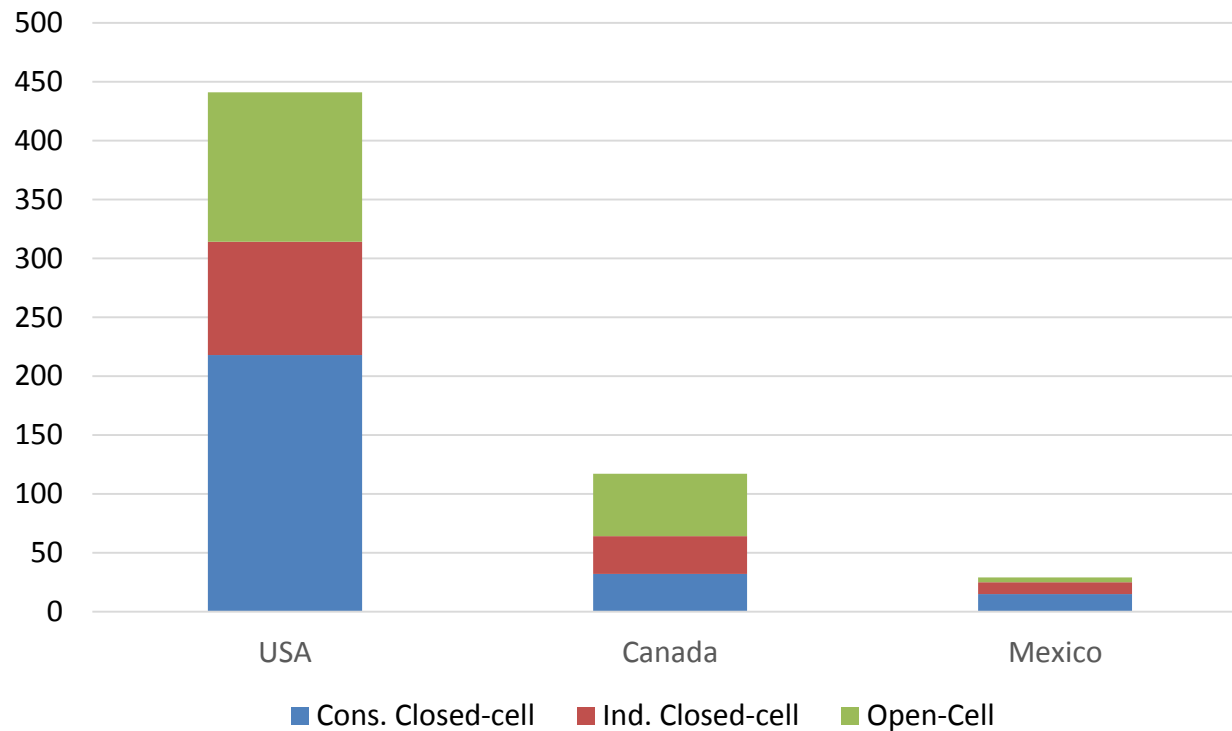
- Mexican demand remains small
 - Commercial and residential roofing
 - Increase in demand for wall insulation
- Lack of awareness and extreme weather
 - Use of heat insulation often not considered necessary
- Poor reputation an issue
- 141b was to be pushed out by 2015.

Application	Demand 2015 (MLbs)
Wall Applications	9
Roofing	12
Other Applications	10

AMERICAS

PRODUCTION

Open-Cell vs. Closed-Cell Foam in 2015, MLbs



GLOBAL SPF INDUSTRY

CHALLENGES



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- Health and safety issues
- Poor application
 - Homeowner complaints
 - Contractor problems
- Increased competition
- Competition from alternative materials that are cheaper and have a better fire performance

GLOBAL SPF INDUSTRY

OPPORTUNITIES



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- Promotion of energy efficiency
- Continuous growth of housing market
- Emerging markets and untapped global markets
- Rising installation standards
 - Improved reputation
- Versatility and adaptability
- Excellent performance

Thank You!

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