


PVA/PVB

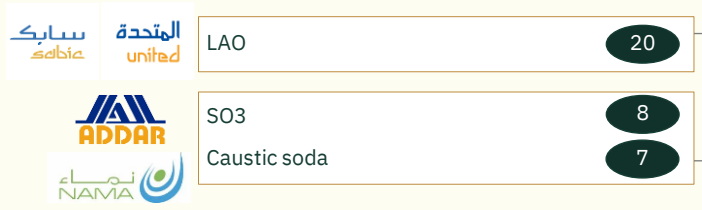
Integrated PVB complex (PVA and PVB)

	Product	Non captive volume, KTA	Total volume, KTA	Location	Key Driver
Key metrics 	Alpha olefine sulfonate	30	30	Yanbu	KSA demand growth for anionic surfactants is expected to be driven by consumer sector
	Total volume	30	30		

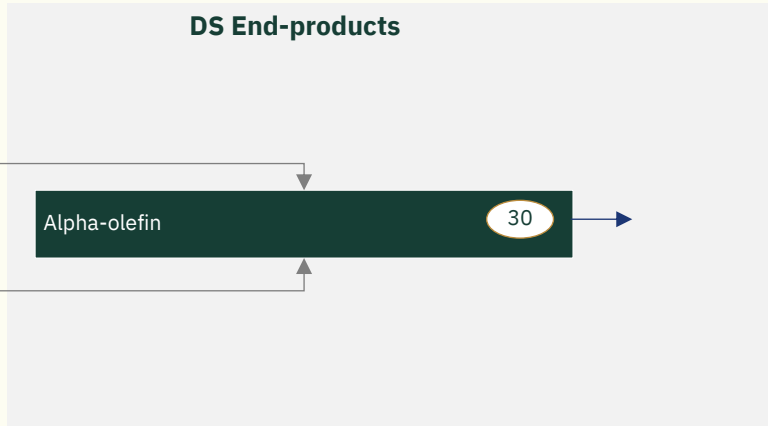
Value chain



Raw Materials



DS End-products



Integrated case
x Raw Materials
 end products
→ Sold to market
 xx Captive capacity
 xx Non-captive capacity

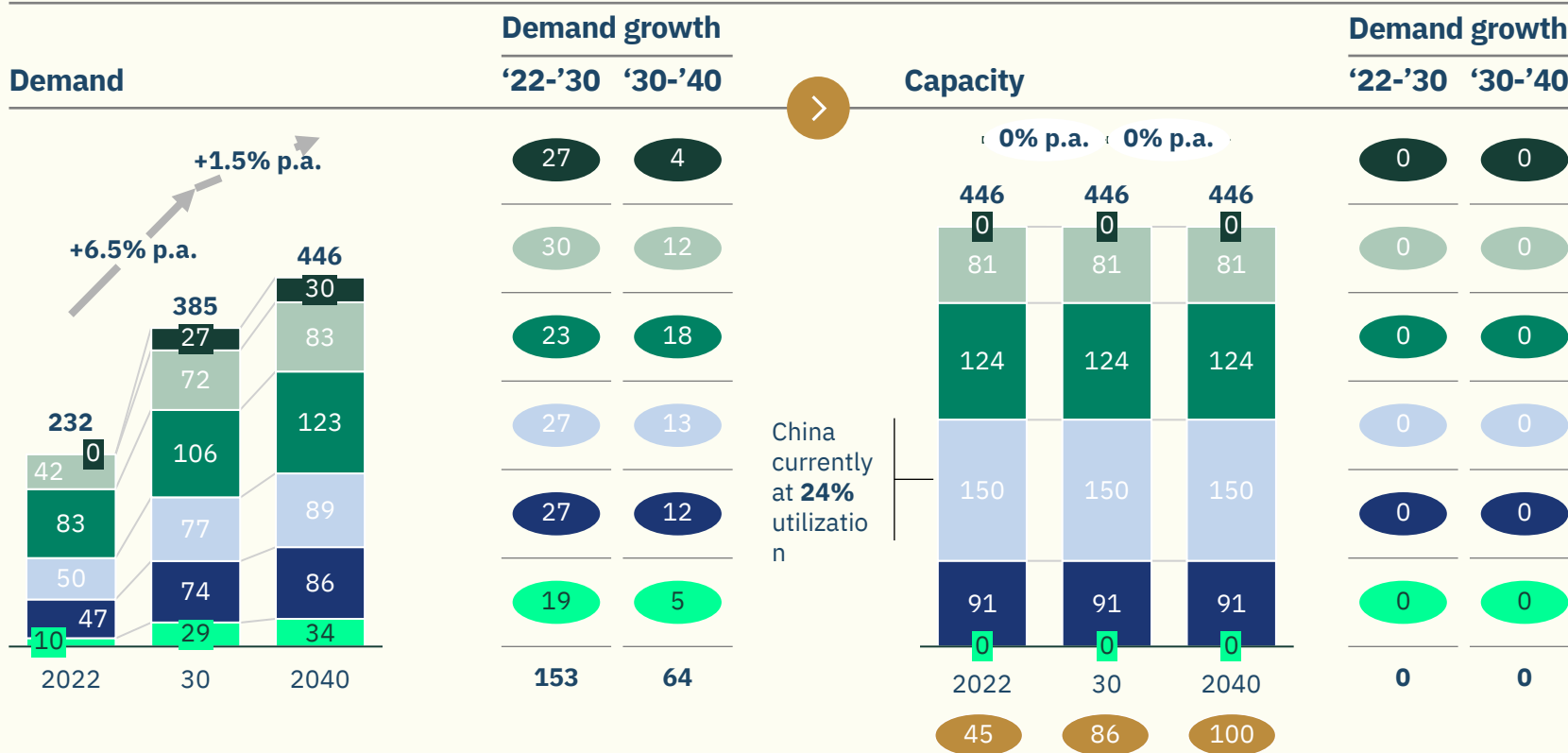
Exemplary players



Global demand for PVB resin is expected to grow faster than capacity in 2022-2040

xx Estimated Utilization rate, % ■ Middle East¹ ■ Asia² ■ Europe ■ China ■ North America ■ RoW

Global PVB Resin demand/capacity, KTA



1. Includes Iran, Israel, Kuwait, Oman, Qatar, KSA, Syria, UAE, Turkey
 2. Excluding China
 3. Calculated as demand growth – capacity growth if demand growth > capacity growth, otherwise 0 (except for Middle East, where KSA growth can always be captured)

Key takeaways

Addressable demand for PVB Resin by 2030 is ~153 KTA

Target demand³ of 98 KTA coming from:

- Middle East 27 KTA
- Asia 30 KTA
- Europe 23 KTA
- RoW 19 KTA

While there are no current announcement of additional capacity, the top 3 players are expected to add more capacity over the next few years

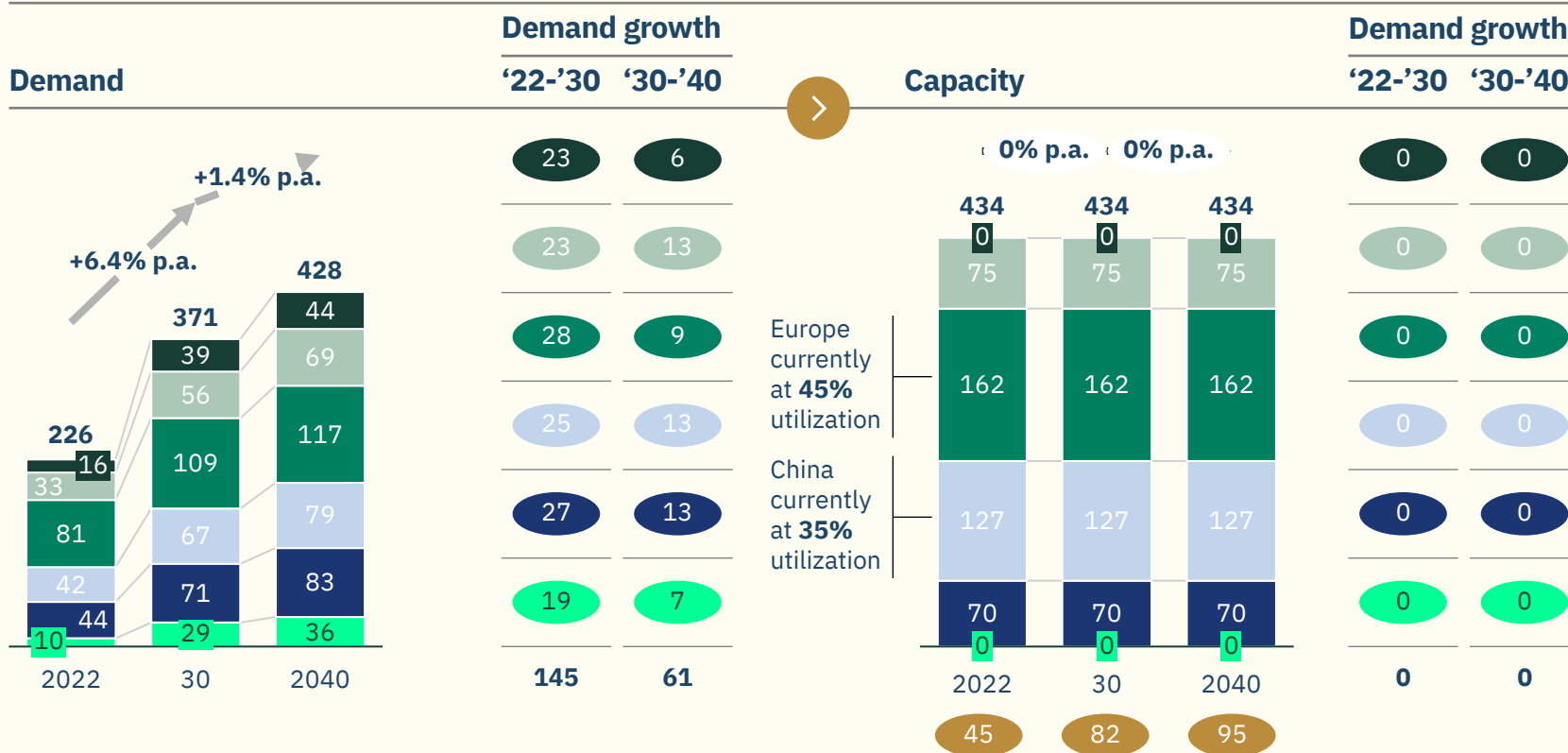
Overcapacity situation expected to end by 2030

Additional gap of ~64 KTA by 2040 expected considering projected growth

Global demand for PVB sheets is expected to grow faster than capacity in 2022-2040

xx Estimated Utilization rate, % ■ Middle East¹ ■ Asia² ■ Europe ■ China ■ North America ■ RoW

Global PVB Sheets demand/capacity, KTA



1. Includes Iran, Israel, Kuwait, Oman, Qatar, KSA, Syria, UAE, Turkey
 2. Excluding China
 3. Calculated as demand growth – capacity growth if demand growth > capacity growth, otherwise 0 (except for Middle East, where KSA growth can always be captured)

Key takeaways

Addressable demand for PVB sheets by 2030 is ~145 KTA

Target demand³ of 93 KTA coming from:

- Middle East 23 KTA
- Asia 23 KTA
- Europe 28 KTA
- RoW 19 KTA

While there are no current announcement of additional capacity, the top 3 players are expected to add more capacity over the next few years

Market considered to be tight due to low utilization

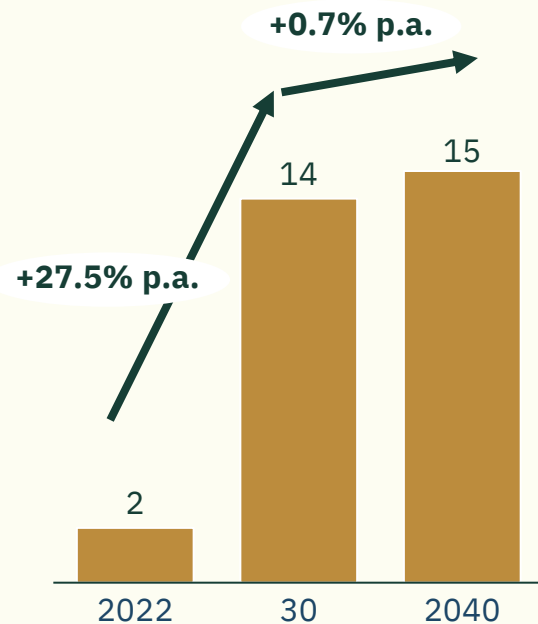
Additional gap of ~61 KTA by 2040 expected considering projected growth

KSA demand for PVB films & sheets is expected to be driven by construction and automotive sectors

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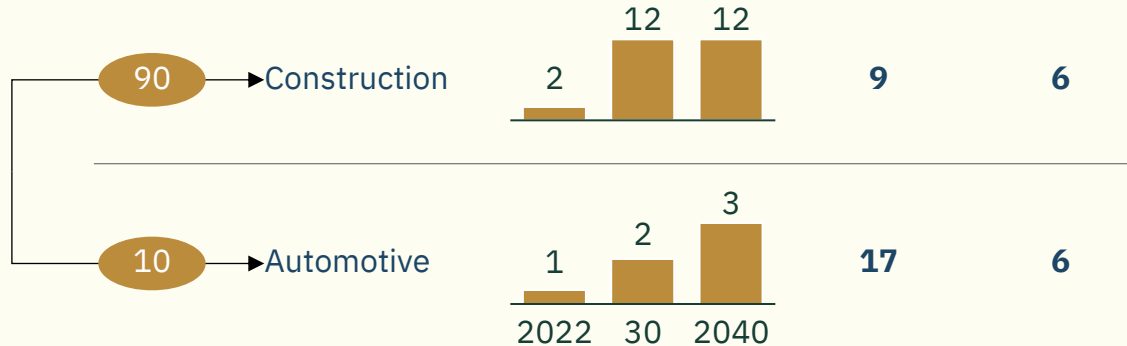
Share of demand covered by the application¹, %

KSA PVB demand projection, KTA Demand drivers



End market (application)	Demand outlook, KTA	CAGR '22-'30, %	CAGR '30-'40, %
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Construction demand expected to remain constant until 2045



PVB is being substituted in LSG² by blend of PP/PVC or PC

Key takeaways

KSA represents <1% of global demand but is expected to represent 3% by 2030

KSA demand will continue to well into 2040 and beyond

Key driver of growth in KSA is:

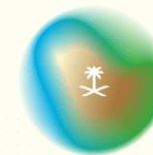
- **Construction of giga projects** with a total annual demand of 745 KTA of Laminated Safety Glass. **Uniformity of glass product is key to proper implementation of these projects**
- **Automotive Industry:** manufacture of windshields for new cars and replacement for existing

Size of the local market makes PVB a local play

1. Estimated bottom up assuming 339,000 annual car production by 2030; and 745 KTA annual requirement of LSG for giga projects such as The Line
 2. LSG: Laminated Safety Glass

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Thank You