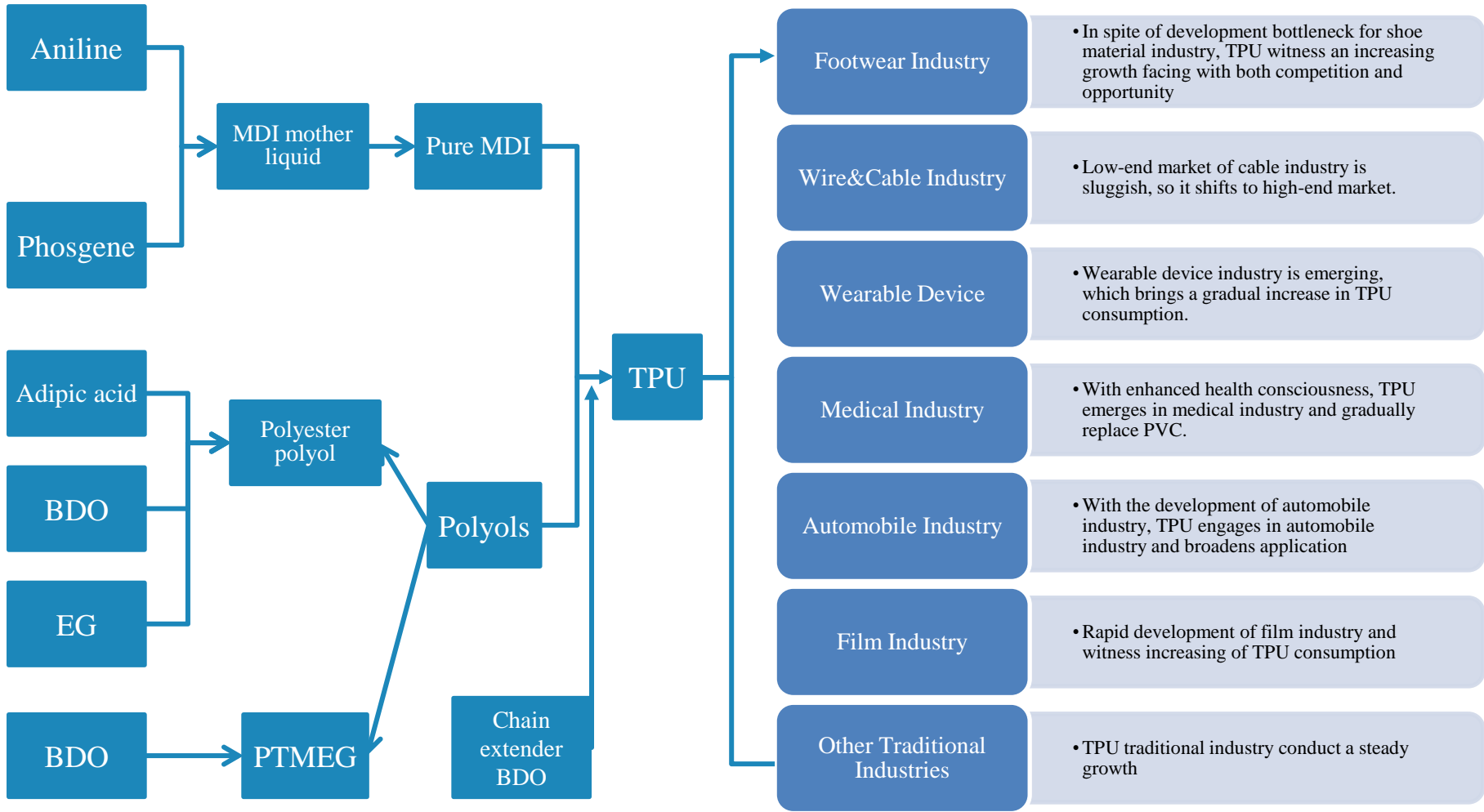




# ORISAGE

## **Annual Briefing of 2016 China Polyurethane TPU Industry Chain**

# High Performance of TPU and Its Diversified Applications Witness Steady Growth in Its Market Utilization Ratio



Footwear Industry

- In spite of development bottleneck for shoe material industry, TPU witness an increasing growth facing with both competition and opportunity

Wire&Cable Industry

- Low-end market of cable industry is sluggish, so it shifts to high-end market.

Wearable Device

- Wearable device industry is emerging, which brings a gradual increase in TPU consumption.

Medical Industry

- With enhanced health consciousness, TPU emerges in medical industry and gradually replace PVC.

Automobile Industry

- With the development of automobile industry, TPU engages in automobile industry and broadens application

Film Industry

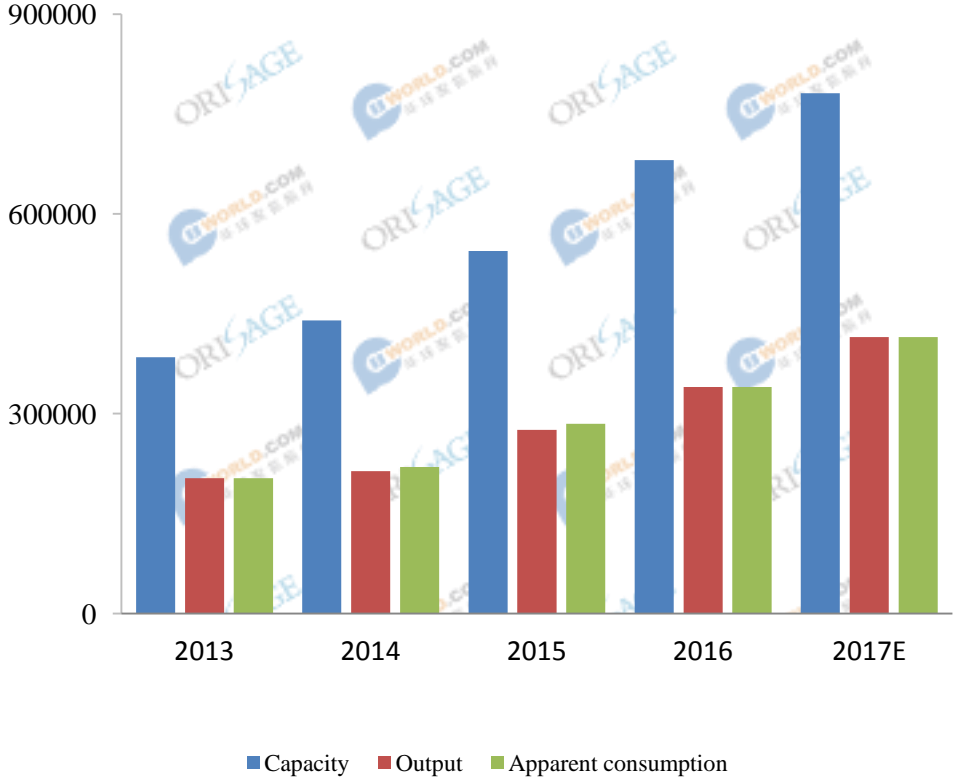
- Rapid development of film industry and witness increasing of TPU consumption

Other Traditional Industries

- TPU traditional industry conduct a steady growth

# TPU Capacity and Output are Increasing Yearly and TPU Apparent Consumption Matches with Increased Yield

TPU Capacity and Output in China during 2013-2017 (unit: ton)

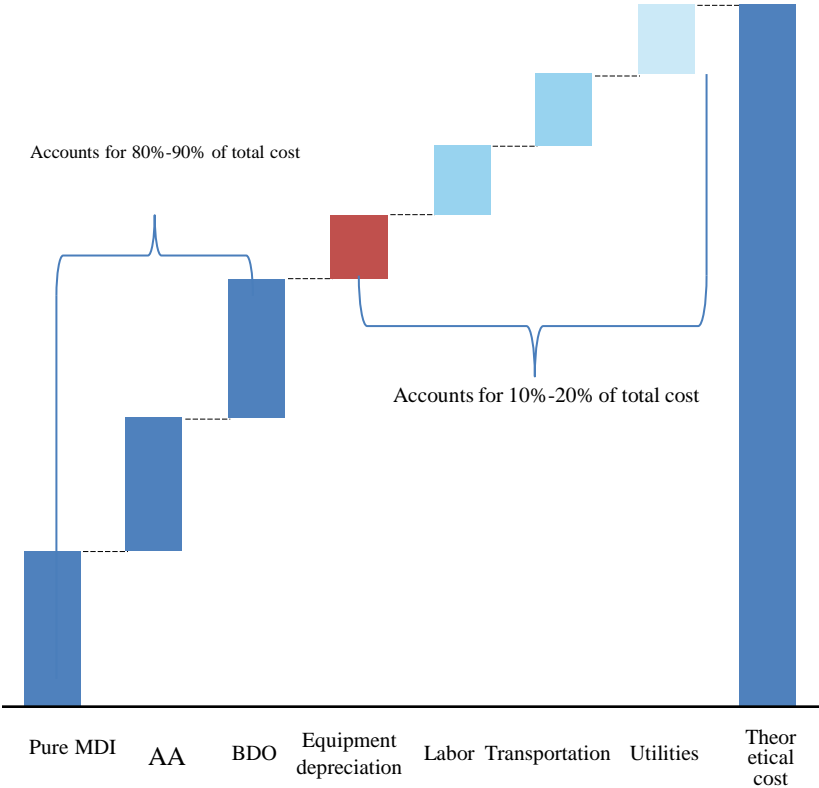


## Industry status

- Compared with 2015, 2016 TPU capacity growth is expected to reach 25.1%
- Compound growth rate of TPU output from 2013 to 2016 is nearly 18.7%
- In recent years, TPU production capacity and output found rapid development in China; its apparent consumption is close to its output and its downstream consumption is abundant. However, under raw material pressure, its price rises significantly.

# Significant Rise in Upstream Raw Material Price Has Aggravated Enterprise Cost Burden

TPU theoretical cost structure chart



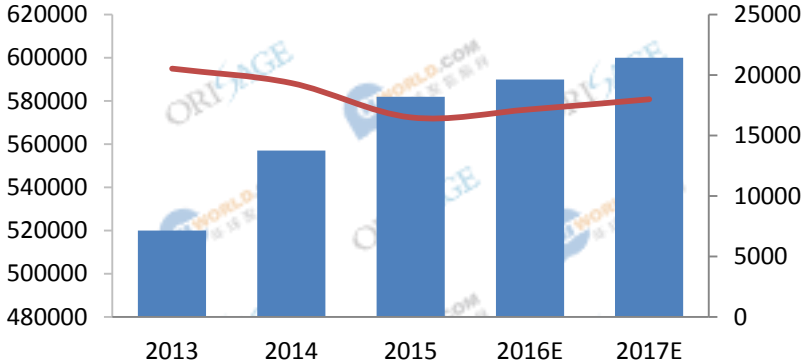
## The reasons for TPU upstream price rise

Pure MDI	Wanhua unit explosion, large amounts of export commodity by Covestro, G20 summit
BDO	Rise in kerosine price, environmental policy, transportation restriction
AA	Rise in pure benzene price and hence rise in manufacturer ex-factory price
EG	Tight market supply brings about the increase in EG price
PTME	Partial capacity shutdown causes raw material price to rise

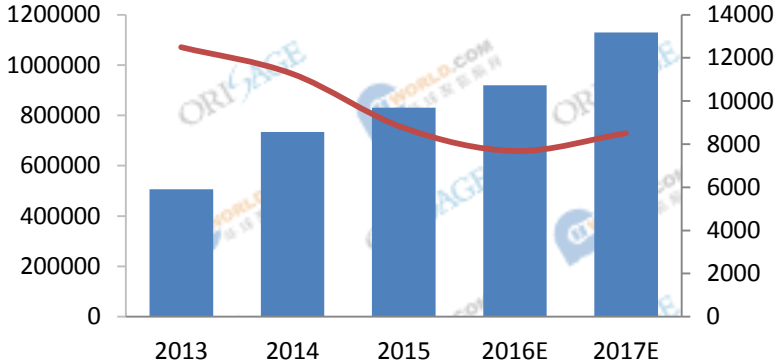
In this year, affected by upstream raw material price rise, TPU production cost witnessed an increase, which leads to a significant rise for TPU. In addition, rigid purchase demand for downstream result in fierce competition among manufactures.

**Affected by Major Chemicals Price Rise, Upstream Raw Material Witness Increasing Cost Pressure, Its Price Has to Raise Constantly.**

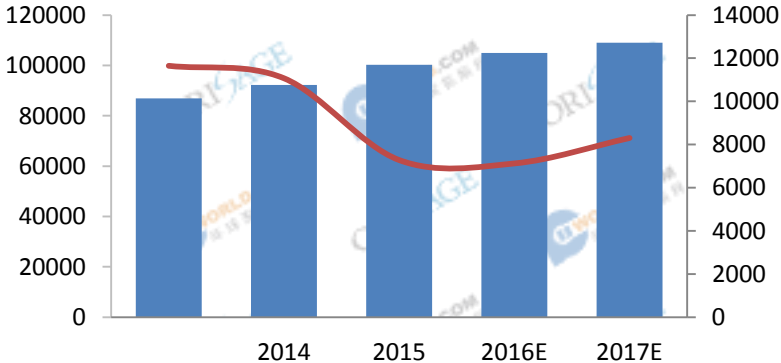
**China pure MDI output and average price during 2013-2017 (unit: ton)**



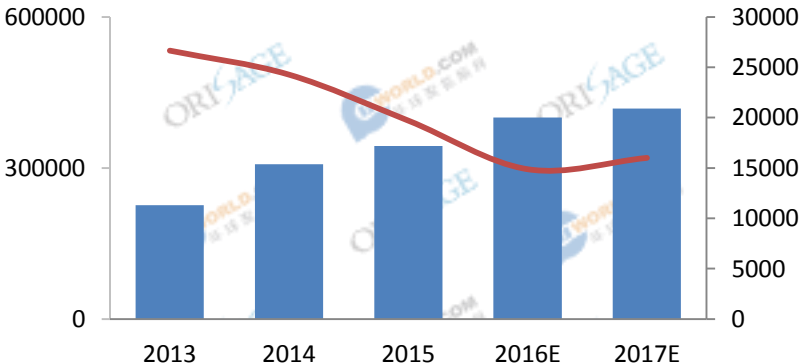
**China BDO output and average price during 2013-2017 (unit: ton)**



**China AA output and average price during 2013-2017 (unit: ton)**



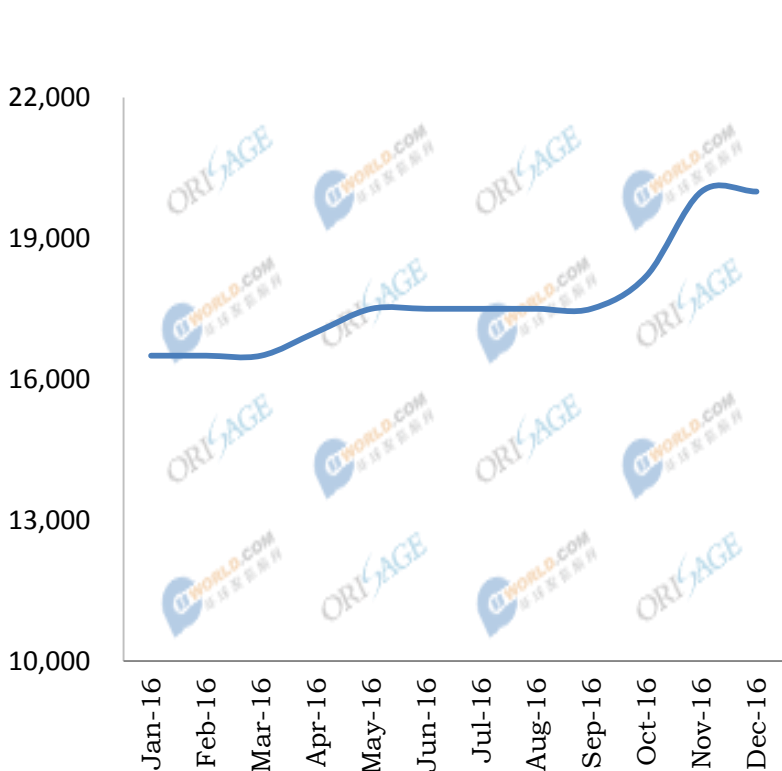
**China PTMEG output and average price during 2013-2017 (unit: ton)**



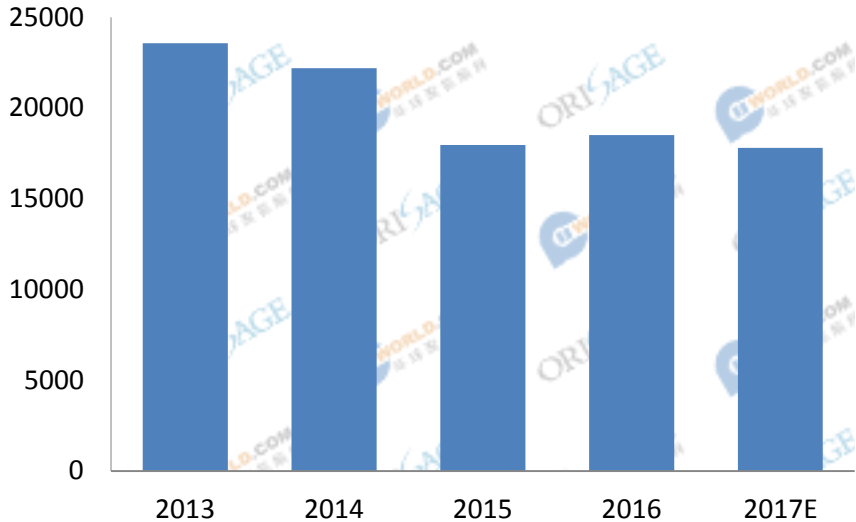
Data resource: Orisage Consulting Co., Ltd.

**Increasingly Rising of Upstream Raw Material Price, TPU Price Has to Go Up Under Cost Pressure**

**2016 low-end BG type TPU price in East China (unit: RMB/ton)**



**BG type TPU Price trend during 2013-2017 (unit :RMB/ton)**



In recent 4 years, TPU price tends to fall: from 2013 to 2016, TPU price is lowered by nearly RMB 5000/ton. This year, due to feverish rise in pure MDI rise in and other raw material price, TPU price witnesses an increase of about 20%. It is estimated that by 2017, upstream raw material will remain volatile and TPU price will slightly fall.