



# Business Highlights For 2014



## 1. Our Current Core Production Capacities

## **Upstream Capacity –**

Our MTO, Ethylene & Propylene production capacity

Designed Annual Production Capacity (MT)	<b>Commercial Operation Time</b>	
Ethylene: 300,000 MT		
Propylene: 390,000 MT	114 0045	
C4: 15,000 MT	H1 2015	
C5: 34,000 MT		

- The strategic advantage of MTO
  - Change the ultimate feedstock of our Group from ethylene to methanol
  - In a long run, methanol (come from coal or natural gas) vs. ethylene (come from naphtha)
- Ethylene output of 300,000 MT can serve 55% directly of our need for EO production purpose

# 1. Our Current Core Production Capacities (con't)

- Propylene output can serve the remaining 45% indirectly of our need for EO production purpose as ethylene price and propylene price are highly correlated and having our own-produced propylene can offset any price fluctuation in respect of those 45% ethylene.
- ROE at around 9% based on the pricings of all inputs & outputs as at 2 March 2015 (our latest assessment date)
  - > As at 2 March 2015:
    - Methanol price at around RMB2,400/MT
    - Ethylene price at around USD1,000/MT
    - Propylene price at around RMB7,400/MT
    - C4 & C5 price at around RMB4,500/MT

## 1. Our Current Core Production Capacities (con't)

Our Ethylene Oxide ("EO") production capacity

Projects of EO production facilities	Designed Annual Production Capacity (MT)	Commercial Operation Time
1st phase	EO: 60,000	January 2006
2nd phase	EO: 60,000	December 2008
3rd phase	EO: 60,000	May 2011
1st phase of JV	EO: 50,000	September 2012
4th phase	EO: 100,000	February 2013
Current - Total	EO:330,000	
5th phase EO/EG	EO: 240,000 EG: 130,000	H1 2015
Total	EO: 570,000 EG: 130,000	

- After the expected ramp-up of the 5th Phase EO/EG by H1 2015
- ➤ Expected EO growth: ↑ 72.7% in terms of annual designed production capacity in 2015, comparing to 2014.
- Expected EG growth: ↑ 100% in terms of polyester-grade annual designed production capacity in 2015 (2014: Nil polyester-grade EG production capacity)

## 2. 2014 Overview

- 2014 vs. 2013, minor volume change in terms of actual production volume of EO (2014: 365,481MT; 2013: 376,003MT)
- No new ramp-up of EO production facility during 2014
- A common phenomenon for chemical sector
  - No volume growth during construction period of production facilities
  - > Strong volume growth after commercial operation of production facilities
- Our way to respond:
  - > MTO production capacity

## 2. 2014 Overview (con't)

- BOTH Ethylene market and EO market:
  - Cyclical this is another common phenomenon in chemical sector profitability of a market shifts vertically among the chemical production chain, usually every five to ten years
  - Now, experiencing a change alternating periods of high-profitability market and low-profitability market

## 2. 2014 Overview (con't)

### Ethylene market :

- Ethylene price remained relatively strong throughout 2014
- During 2014 1H (vs. 2013 1H), average market price ↑ 16.8% or USD200/MT, while crude oil market price is stable (with less than 5% movement)
- used to be a low-profitability market before 2014, now, becomes a highprofitability market.
- > Reason for the shift:
  - no meaningful new supply before 2014: low-profitability → low level of investment in capacity expansion → no meaningful addition of ethylene production capacity in recent years;
  - 2. demand from downstream market (including EO market) accumulated for years → downstream market (including EO market) used to be to high-profitability markets
  - 3. as such, to certain point, the situation reversed.



# Q&A session





# Appendix

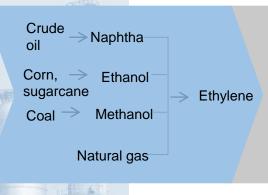


## Overview of Our Main Products

#### **Raw Materials**

### **Company Products**

#### **Downstream Products**



EO

Non-ionic Surfactants



### Ethylene Oxide

- An ethylene derivative product
- Further process into other fine chemical products
- Highly reactive and potentially explosive
- Chemical composition

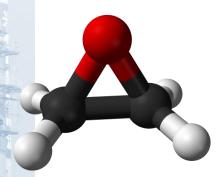
#### Non-ionic Surfactant

- A major type of surfactants, fine chemical product capable of removing dirt
- AEO, largest in the non-ionic family, used in the production of liquid detergents, cosmetics and ointment products



## **Ethylene Oxide Business Overview**

### Technology and Specification of Ethylene Oxide



- Operates under the **perpetual licenses** from Scientific Design Company, Inc., a US leading process technology company, for the know-how and technical information related to:
  - production of purified ethylene oxide
  - engineering design of the three ethylene oxide production lines
- Constantly seeks technological improvement to our production facilities to improve production capacity and efficiency

**Product category** 

ethylene derivative product

Raw materials

ethylene, oxygen

Formula

 $C_2H_4O$ 

**Synonyms** 

oxirane, epoxyethane

CAS number

75-21-8

Characteristics

Highly reactive, colorless, transparent, low-boiling point liquid or gas at room temperature with an ether-like odor; and inflammable and explosive, not suitable for long distance transportation

**Applications** 

Mainly used for production of surfactants, ethylene glycol, ethanolamine and glycol ethers in China