



**華東理工大學**  
EAST CHINA UNIVERSITY OF SCIENCE AND TECHNOLOGY



# OMB Gasification – Industrial Application Updates of Slurry Feeding & Developments of Dry Feeding



**Gasification Technology Conference**  
**Nov.1, 2010 Washington DC**



**OMB Gasification**

# Outline

---

- 1. Industrial Application Updates of OMB Slurry Feeding Gasification in China**
- 2. Developments of Dry Feeding Gasification**



**OMB Gasification**

---

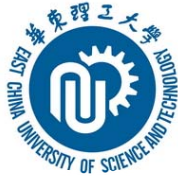
# **Industrial Application Updates of OMB Slurry Feeding Gasification in China**



---

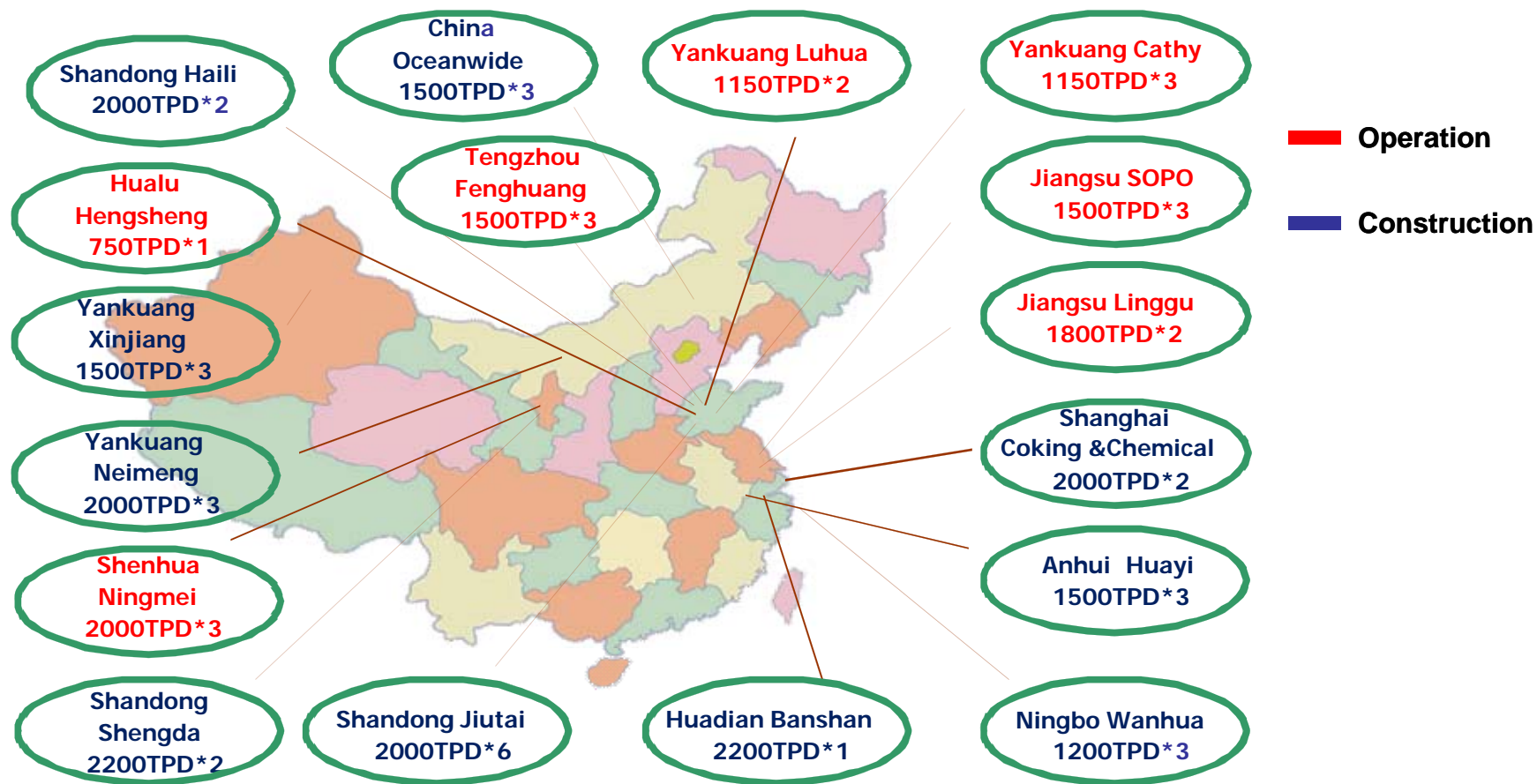
**Gasification Technology conference 2010**

**Page3**



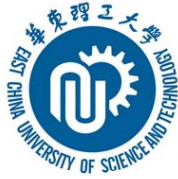
# OMB Slurry Feeding Gasification Updates

OMB Gasification



**17 projects, 45 gasifiers, the largest capacity 2200 TPD**





OMB Gasification

# High Capacity OMB Gasification Updates

Up to Oct. 2010, **7 projects** totally **16 gasifiers** in operation.  
Including **5 gasifiers** with capacity 2000 TPD.





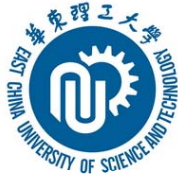
OMB Gasification

## Jiangsu Linggu Chemical Co. Ltd.




- Location: Yixing, Jiangsu
- Gasifier: 2 gasifiers(A#,B#), 1 in operation, 1 in spare
- Pressure: 4.0MPa
- Single gasifier capacity: 2000 TPD





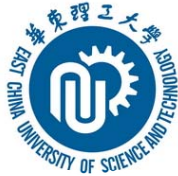
OMB Gasification

# Jiangsu Linggu Chemical Co. Ltd.

<b>Gasification Unit</b>	<b>Up to Jun. 2010</b> 	Gasifier	A#	B#
		First startup	Jun. 15,2009	Aug.21,2009
		Accumulation running time	171 days	147 day
		Operation load	85~95%	

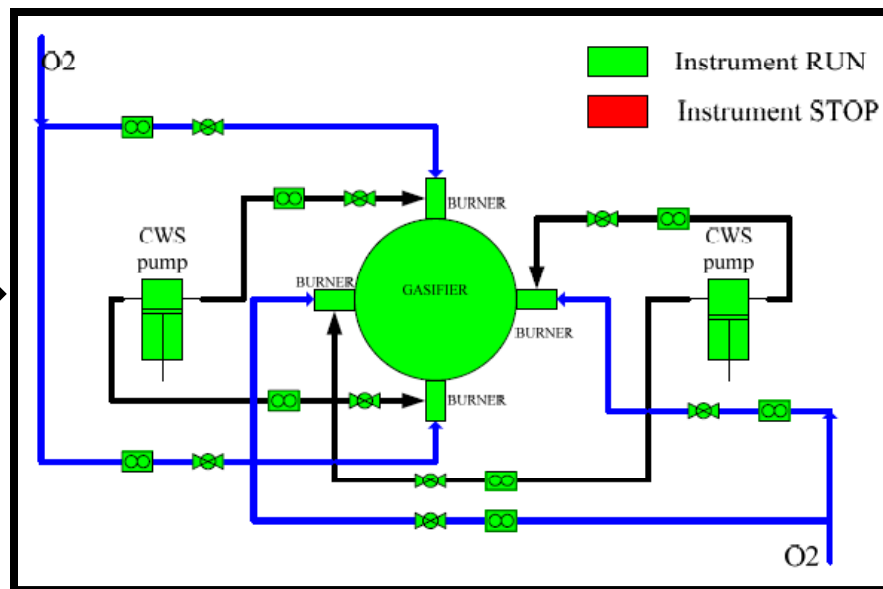
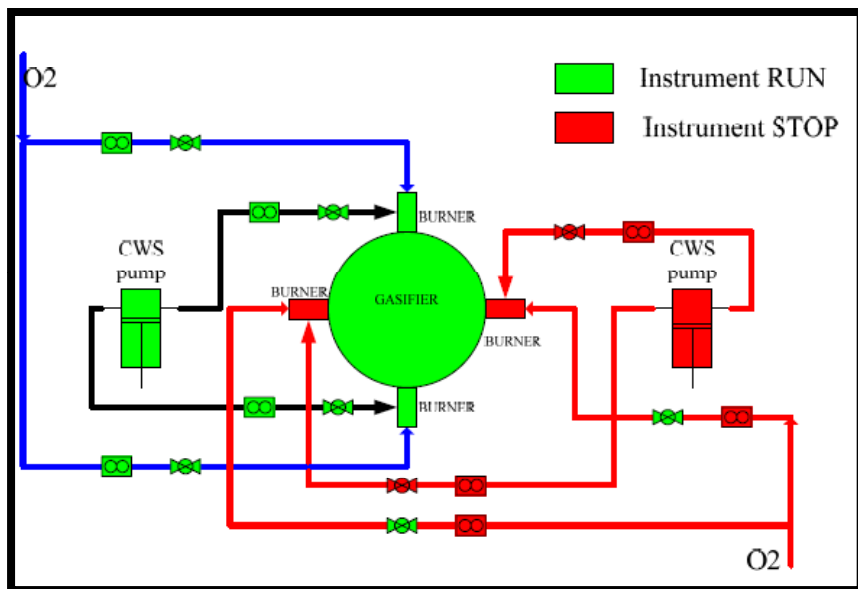
**Gasification unit accumulation running 318 days.**

Typical operation results	
CO+H2 :	81~84vol%
Combustible in dry slag:	<2%



# Jiangsu Linggu Chemical Co. Ltd.

OMB Gasification

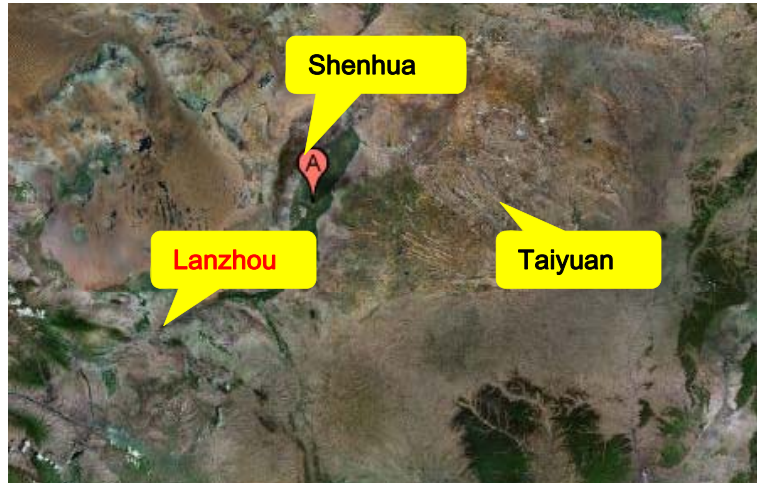


The restart under pressure and on-line switch ensure high reliability of OMB gasification unit.



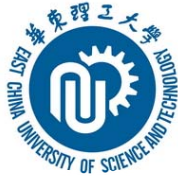


# Shenhua Ningxia Coal Group



- **Location:** Yinchuan, Ningxia
- **Gasifier:** 3 gasifiers (A#,B#,C#), 2 in operation, 1 in spare
- **Single gasifier capacity:** 2000 TPD
- **Pressure:**4.0MPa
- **Startup date:** Mar. 2010





# Shenhua Ningxia Coal Group

Gasifer	A#	B#	C#
First startup	Mar. 18, 2 010		
Accumulation running time (Up to Sep. 2010)	1200 hrs	1100 hrs	600hrs
Operation Load	80~100%		

Coal proximate analysis			
M	A	V	FC
7.09	15.96	28.93	55.11

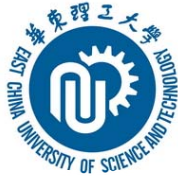
Typical operation results	
CO+H2 :	79~81vol%
Combustible in dry slag:	<5%



**OMB Gasification**

---

## Other Running Projects Updates



OMB Gasification

## Jiangsu SOPO Group



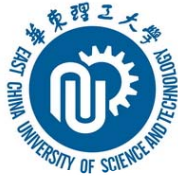
- Location: Zhenjiang, Jiangsu
- Gasifier : 3 gasifiers(A#, B#, C#)  
, 2 in operation, 1 in spare
- Single gasifier capacity: 1500 TPD
- Pressure: 4.0MPa
- Startup date: Sep. 2009

Up to Oct. 2010

- ❑ A# gasifier running for **3000 hrs**
- ❑ B# gasifier running for **3500 hrs**
- ❑ C# gasifier running for **4500 hrs**

CO+H<sub>2</sub>: **80~84vol%**

Combustible in slag: **<5wt%**



# Fenghuang Fertilizer Plant



- Location: Tengzhou, Shandong
- Gasifier : 3 gasifiers, 2 in operation, 1 in spare
- Single gasifier capacity: 1500 TPD
- Pressure: 4.0 MPa
- Startup date: Dec. 2009



**CO+H<sub>2</sub>: 81~82vol%**

**Combustible in slag: <5wt%**



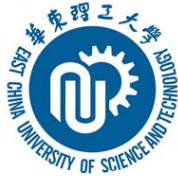
OMB Gasification

## Yankuang Cathay Coal Chemical Co. Ltd.



- Location: Tengzhou, Shandong
- Gasifier : 2+1 gasifiers
- Single gasifier capacity: 1150 TPD
- Pressure: 4.0MPa
- Startup date: Oct. 2005

- ❑ Burner continuous operating lifespan: **125 days.**
- ❑ New record on on-line switch time : **1.5 hrs.**



# Yankuang Lunan Fertilizer Plant



- Location: Tengzhou, Shandong
- Gasifier: 1 gasifier
- Single gasifier capacity: 1150 TPD
- Pressure: 4.0MPa
- Startup date: Jul. 2008

❑ Burner continuous operating  
lifespan: **140 days.**



**OMB Gasification**

---

# Projects Plan to Start up





OMB Gasification

# Ningbo Wanhua Polyurethanes Co. Ltd.



- Location: Ningbo, Zhejiang
- Gasifier: 3 gasifiers, 2 in operation, 1 in spare
- Single gasifier capacity: 1200 TPD
- Pressure: 6.5MPa
- Plan startup date: Nov. 2010



**OMB Gasification**

---

# Dry Feeding Gasification Updates in China



**Nov. 1, 2010**

---

**Gasification Technology conference 2010**

**Page18**

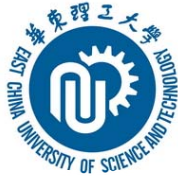


## Pilot Plant of Water Wall Gasifier



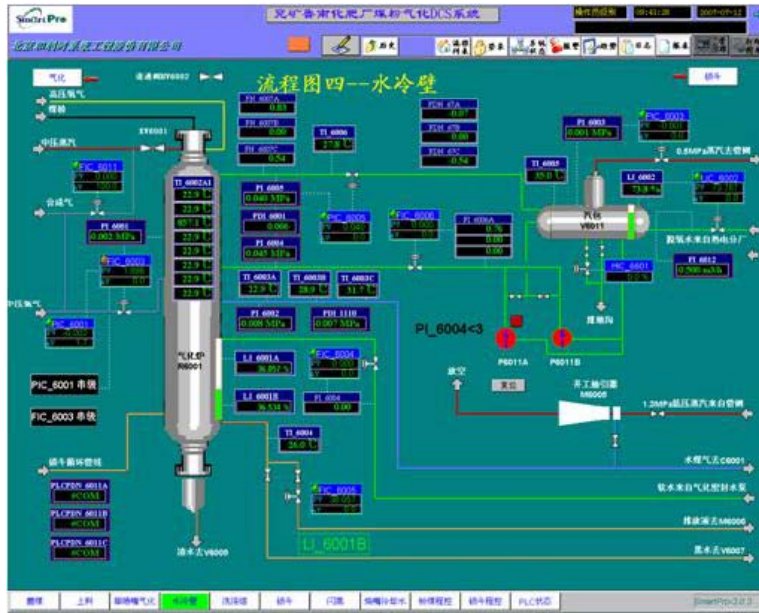
- Location: Tengzhou, Shandong
- Gasifier capacity: 20~30 TPD
- Pressure: 2.0~2.5MPa

- ❑ Demonstration of OMB gasification technology feed with high ash fusion point coal(2007~2010)  
—HI-TECH R&D Program of China(863 Program)
- ❑ Currently the only pulverized coal entrained-flow gasification pilot plant in china.



# Pilot Performance of Water Wall Gasifier

OMB Gasification

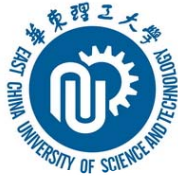


In 2009~2010 **Tianba** and **Nantun** coal been gasified to provide data for PDP design.



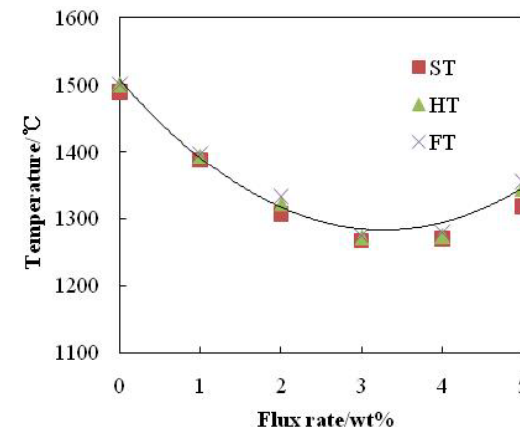
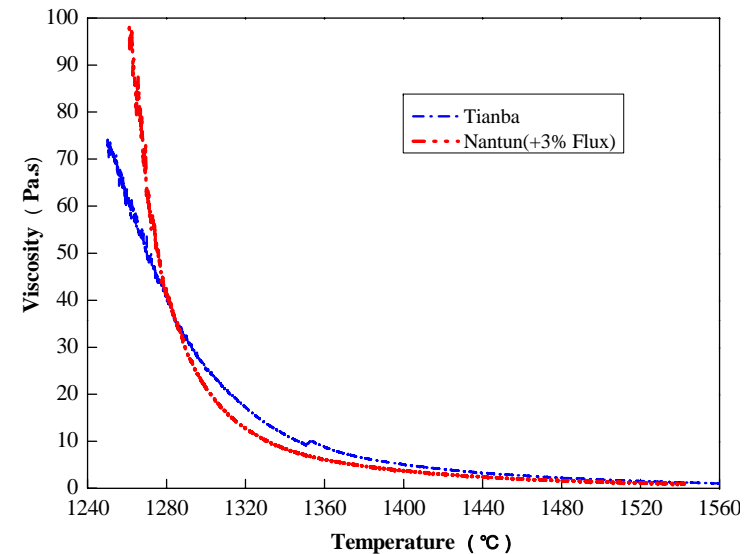
Gasification Technology conference 2010

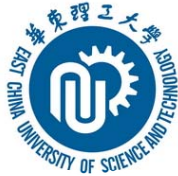
Page20



# Pilot Performance of Water Wall Gasifier

Coal		Tianba	Nantun
Proximate analysis /wt%	M	1.1	3.35
	V	25.68	7.65
	A	16.07	33.46
	FC	57.10	55.54
Ultimate analysis /wt%	C	64.26	75.62
	H	3.12	4.92
	O	4.76	5.84
	N	0.01	1.32
	St	1.0	1.3
AFT/°C	FT	1269	1534

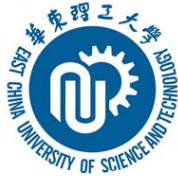




## Pilot Performance of Water Wall Gasifier

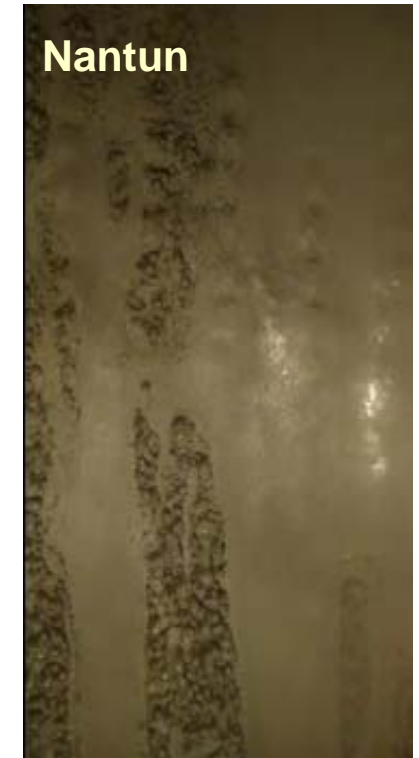
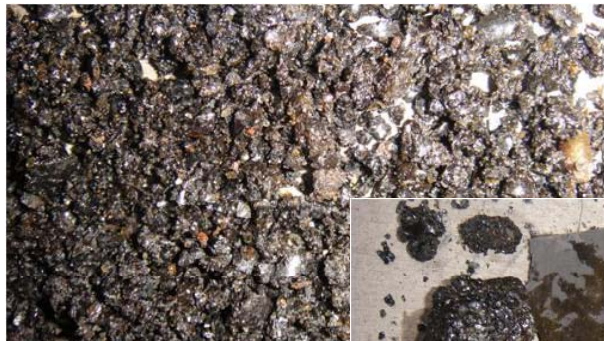
Coal	Operation temperature/°C
Tianba	1350~1450
Nantun (+3wt% flux)	1350~1450

Coal	Syngas composition vol% (dry base)					Feed Rate t/d
	CO	H2	CO2	N2	CO+H2	
Tianba	64.97	24.16	5.89	4.98	89.13	~30
Nantun (+3wt% flux)	62.29	28.18	4.27	5.26	90.47	



OMB Gasification

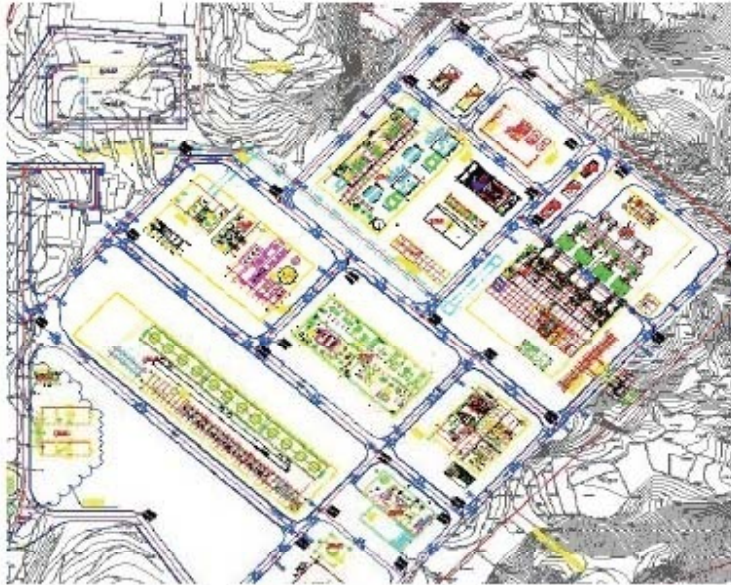
# Pilot Performance of Water Wall Gasifier





# OMB Dry feeding Demonstration Updates

## OMB Gasification



- Location: kaiyang, Guizhou
- Gasifier: 2 gasifiers
- Single gasifier capacity: 1100 TPD
- Pressure: 4.0MPa
- Temperature:~1600 °C
- Planned startup date: 2011

❑ Gasification trial of operating coal finished in pilot plant.

❑ Preliminary Process Design Package (PDP) finished in 2010.





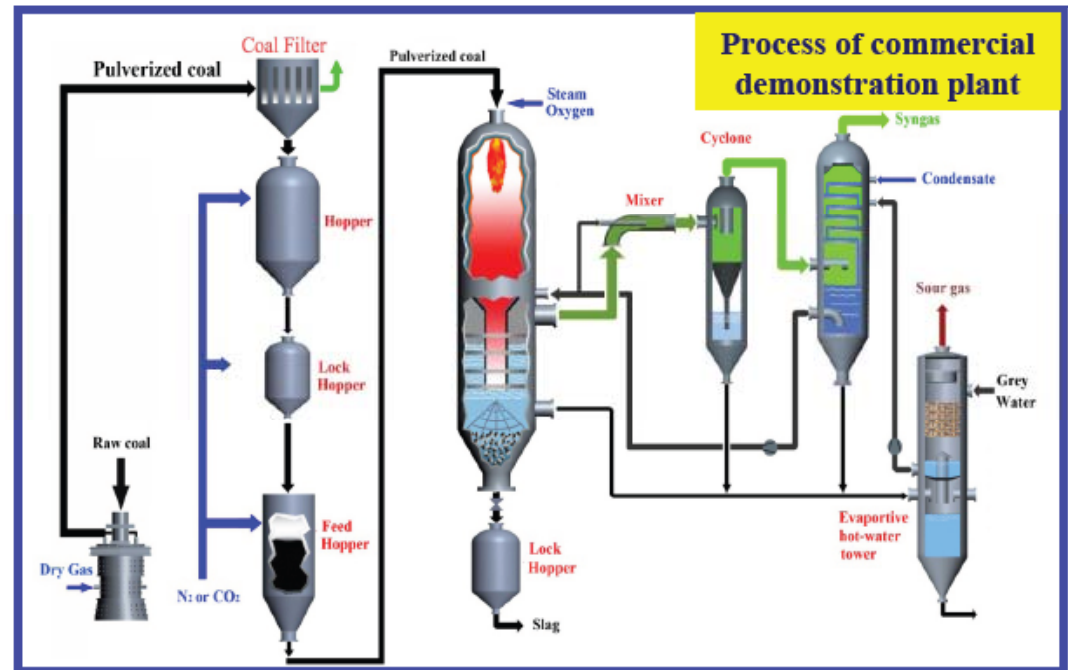


# Single Burner Dry feeding Demonstration Updates

OMB Gasification

- Company: China Blue Chemical Co.
- Location: Inner Mongolia
- Gasifier: 2 gasifiers
- Single gasifier capacity: 1200 TPD
- Pressure: 4.0MPa
- Planned startup date: 2011

- ❑ Simple gasifier structure
- ❑ Low investment
- ❑ More simple operation





## Sum Up

---

- OMB slurry feeding gasification employed in **17 projects** in china, totally **45 gasifiers**.
- **16 gasifiers** in operation including **5 gasifiers** with capacity 2000 TPD.
- **2** dry feeding gasification demonstration projects in structure, totally **4 gasifiers**.



**OMB Gasification**

---

**Thanks for your attention**

**Email: [hfliu@ecust.edu.cn](mailto:hfliu@ecust.edu.cn)**

**Phone: 86-21-64251418**

**Fax: 86-21-64251312**

**Web: <http://icct.ecust.edu.cn>**



**Nov. 1, 2010**

---

**Gasification Technology conference 2010**

**Page27**