

## II Chinese flame retardants nowadays

### II-2-1 Brominated Compounds

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Among the [redacted] major producers in China, [redacted] are still active in 2009 while the other [redacted] stopped productions in 2008.

Table II-2-1-1 Major TBBPA producers in China, 2009

No.	Name	Status'09	Capacity'09, t/a	Output'09, tonne	Export ratio, %
1	Shandong Moris Chemical Co., Ltd.	Active	[redacted]	[redacted]	[redacted]
2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
3	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
4	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
5	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
6	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
7	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
8	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
9	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
10	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
11	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
12	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
13	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Others		[redacted]	[redacted]	[redacted]
	<b>Total</b>		[redacted]	[redacted]	[redacted]

Source: CCM International

Note: Export ratio is a self-proclaimed data from the producers, and CCM does not purchase detailed customs data to verify its accuracy.

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Table II-2-1-3 Capacity and output of major derivatives of TBBPA in China.

Products	2008		2009	
	Capacity, t/a	Output, tonne	Output'08, tonne	Output'08, tonne
TBBPA-BDBPE	[redacted]	[redacted]	[redacted]	[redacted]
BEPO	[redacted]	[redacted]	[redacted]	[redacted]
BPCO	[redacted]	[redacted]	[redacted]	[redacted]
<b>Total</b>	[redacted]	[redacted]	[redacted]	[redacted]

Source: CCM International

Table II-2-1-7 Ex-factory price of major TBBPA derivatives in China, Nov. 2009

Product	Ex-factory price, USD/t	Gross profit margin
TBBPA-BDBPE	[redacted]	[redacted]

BEPO	[REDACTED]	[REDACTED]
BPCO	[REDACTED]	[REDACTED]

Source: CCM International

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Table II-2-1-9 Major BPS producers in China, 2009

No.	Name	Capacity'09, t/a	Output'09, tonne	Export ratio, %
1	Shandong Shouguang LongFa Chemicals Co., Ltd.	[REDACTED]	[REDACTED]	[REDACTED]
2	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
5	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
6	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
7	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	Others	[REDACTED]	[REDACTED]	[REDACTED]
	<b>Total</b>	[REDACTED]	[REDACTED]	[REDACTED]

Source: CCM International

Note: Export ratio is a self-proclaimed data from the producers, and CCM does not purchase detailed customs data to verify its accuracy.

[REDACTED] is the leader in Chinese BPS production.  
[REDACTED] is good at synthesis technique and product quality.

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Table II-2-1-16 SWOT analysis of BFRs in China

Strengths		Weaknesses	
✓	[REDACTED]	✓	[REDACTED]
✓	[REDACTED]	✓	[REDACTED]
✓	[REDACTED]	✓	[REDACTED]
✓	[REDACTED]	✓	[REDACTED]
✓	[REDACTED]		
Opportunities		Threats	
✓	[REDACTED]	✓	[REDACTED]
✓	[REDACTED]	✓	[REDACTED]
✓	[REDACTED]	✓	[REDACTED]
		✓	[REDACTED]

Source: CCM International

## II-2-3 Phosphorus Compounds

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Table II-2-3-1 Comparison of halogenated phosphate flame retardant and non-halogenated PFRs

Name	Advantage	Disadvantage	Price	Major product	Application	Current situation	Trend
Non-halogenated phosphate							
Halogenated PFRs							

Source: CCM International

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Table II-2-3-9 SWOT analysis of PFRs in China

Strengths		Weaknesses	
✓		✓	
✓		✓	
✓		✓	
✓		✓	
✓		✓	
Opportunities		Threats	
✓		✓	
✓		✓	
✓		✓	
✓		✓	
✓		✓	

Source: CCM International

Table II-2-3-6 Major BDP producers in China, 2009

No.	Name	Status' 09	Ownership	Capacity '09, t/a	Output '09, tonne	Export ratio, %
1	Zhejiang Wansheng Chemical Co., Ltd.	Active	Private-owned			
2	Jiangsu Yoke Technology Co., Ltd.	Active	Private-owned			
3		Active	Foreign-owned			
4		Active	Private-owned			
5		Active	Private-owned			
6		Active	Private-owned			
7		Stopped	Foreign-owned			
10	Others	N/A	N/A			
	Total	N/A	N/A			

Source: CCM International

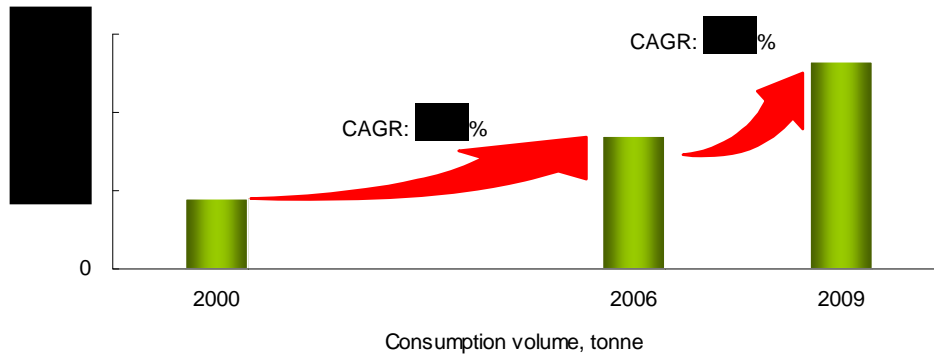
### III End-use market of flame retardants

#### III-1 Flame retardants consumption overview

##### III-1-1 Market growth

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Figure III-1-1-1 Consumption of flame retardants in China in recent years.



Source: CCM International

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#### IV Technology innovation in flame retardants in China

Table IV-1 Comparison of production technologies for major flame retardants

Type	Current situation	Major innovation	Likely outcome to 2014	Impact of developments
BFRs	[redacted]	[redacted]	[redacted]	[redacted]
PFRs	[redacted]	[redacted]	[redacted]	[redacted]
ATH and MH	[redacted]	[redacted]	[redacted]	[redacted]
CFRs	[redacted]	[redacted]	[redacted]	[redacted]
ATO	[redacted]	[redacted]	[redacted]	[redacted]

Source: CCM International