

## 1. News Summary (3 page)

2017년 2월 16일

News	
<b>WTI comment</b>	미국 원유재고 급증에 하락...WTI 0.2%↓
<b>Headline</b>	도시가스, LPG 3월 가격인상 불가피
<b>News 1.</b>	베네수엘라 PDVSA, 10.5만b/d 접촉분해기 또다시 셧다운
<b>News 2.</b>	CFR China 메탄올 가격 35개월 내 최고가격 기록
<b>News 3.</b>	미국 Tesoro, Salt Lake City 원재료 공급 문제로 정제시설 셧다운
<b>News 4.</b>	-

Conclusion	
	유가 상승세가 연초에 들며 꺾인 모습을 보여 인상 압력은 단기적 남미지역 정제품 공급 차질 불가피할 것 수요, 공급 측면이 타이트해져 당분간 밸리 이어질 전망 인근 지역 Chevron, Hollyfrontier 등은 가동중이므로 영향 미미할 것

## 2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
<b>Refinery</b>			%	%	%	%	%
WTI	\$/bbl	53.1	(0.2)	1.5	1.2	16.5	73.2
Dubai	\$/bbl	54.0	(0.3)	1.2	0.2	24.3	90.7
Gasoline	\$/bbl	71.0	(0.2)	2.9	0.7	23.3	64.2
Diesel	\$/bbl	66.2	(0.3)	1.3	1.5	18.0	73.3
Complex margin	\$/bbl	8.4	0.0	0.7	0.1	(0.1)	1.2
1M lagging	\$/bbl	8.1	(1.0)	1.3	(2.4)	5.2	(2.7)
<b>Petrochemical</b>			%	%	%	%	%
Naphtha	\$/t	524	(1.0)	0.9	0.6	26.1	58.3
Butadiene	\$/t	3,000	0.0	0.0	3.8	123.0	275.0
HDPE	\$/t	1,195	0.0	0.8	3.9	2.1	11.7
MEG	\$/t	890	(2.7)	(3.8)	(2.5)	26.2	44.7
PX	\$/t	896	(0.4)	(0.4)	5.0	16.5	23.3
SM	\$/t	1,495	0.0	2.4	16.4	33.2	58.2
<b>Commodity</b>			%	%	%	%	%
Natural Gas	\$/mmbtu	2.93	0.8	(6.3)	(11.1)	(1.1)	10.0
Natural rubber	\$/t	2,250	(1.3)	4.2	2.7	32.4	104.5
Cotton	C/lbs	75.7	(0.8)	0.6	4.8	5.0	26.5

\*참고: 정제마진의 변동률은 %가 아닌 \$/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
<b>Petrochemical</b>				%	%	%	%
Ethylene	02/13	\$/t	1,090	0.0	8.5	11.8	22.5
Propylene	02/13	\$/t	975	2.1	12.7	47.7	50.0
Benzene	02/13	\$/t	1,033	1.7	18.0	57.6	87.7
Toluene	02/13	\$/t	775	0.6	9.9	19.2	32.5
Xylene	02/13	\$/t	715	0.0	4.4	9.2	21.7
PP	02/13	\$/t	1,078	1.9	3.4	2.6	28.3
PVC	02/13	\$/t	910	0.0	2.2	(2.2)	25.5
ABS	02/13	\$/t	1,885	3.0	9.0	27.4	68.3
SBR	02/13	\$/t	3,050	0.0	27.1	63.1	155.2
SM	02/13	\$/t	1,565	12.4	26.0	38.8	61.3
BPA	02/13	\$/t	1,663	0.0	9.0	22.7	46.2
Caustic	02/13	\$/t	418	0.0	0.0	11.3	45.2
2-EH	02/13	\$/t	910	2.2	3.4	16.7	33.8
Caprolactam	02/13	\$/t	2,100	0.0	8.2	47.9	89.2
<b>Solar</b>				%	%	%	%
Polysilicon	02/15	\$/kg	16.3	0.0	3.6	12.4	25.8
Module	02/15	\$/W	0.35	(0.3)	(1.1)	(11.3)	(36.1)

## 3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
<b>E&amp;P</b>			%	%	%	%	%
ExxonMobil	USD	83.2	0.4	2.1	(3.7)	(4.2)	2.6
Shell	EUR	2,171	(0.1)	2.3	(4.9)	9.1	40.8
Petrochina	CNY	8.42	0.4	0.1	0.4	13.5	17.3
Gazprom	RUB	139.7	(0.6)	(3.8)	(11.5)	(4.2)	4.7
Petrobras	BRL	15.8	0.1	4.9	1.0	13.1	250.4
<b>Refinery</b>							
Phillips66	USD	80.1	0.1	1.5	(3.9)	(4.3)	6.5
Valero	USD	67.8	0.2	1.0	2.1	7.3	17.3
JX	JPY	539.1	0.8	4.2	3.1	27.5	18.1
Neste Oil	EUR	34.5	0.0	5.6	4.4	(5.8)	28.8

	Unit	Price	1D	1W	1M	3M	12M
<b>Petrochemical</b>			%	%	%	%	%
BASF	EUR	89.7	(0.2)	2.4	1.0	10.1	51.9
Dow Chemical	USD	61.1	(1.0)	2.3	5.7	14.9	32.8
SABIC	SAR	96.8	0.2	1.3	4.2	14.7	45.3
Formosa Pla.	TWD	96.5	4.3	7.0	6.0	13.5	27.3
Shin-Etsu	JPY	9,718	0.9	0.7	2.6	17.4	71.2
<b>Renewable</b>							
Wacker	EUR	108.7	(0.5)	(0.7)	(0.5)	36.6	76.1
First Solar	USD	34.73	2.4	10.1	(2.9)	4.6	(43.1)
Trina Solar	USD	10.2	0.3	1.4	1.1	0.2	16.0
Tesla Motors	USD	279.8	(0.4)	6.7	17.7	52.2	85.2

## 4. Coverage Summary

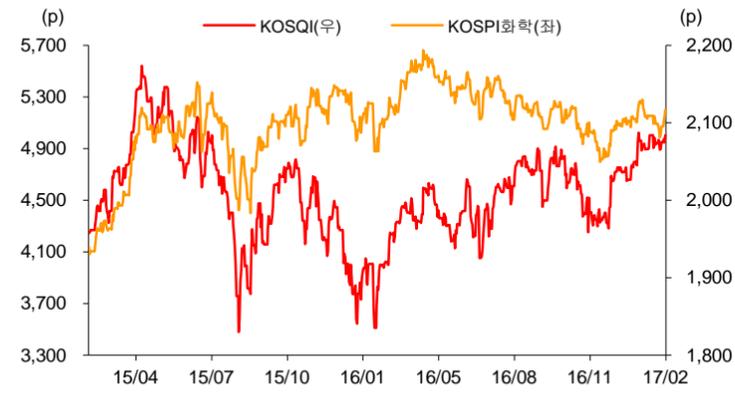
	02/15	1D	1W	1M	3M	6M	12M
KOSPI	2,084	0.4	0.9	1.0	5.2	1.8	11.9
KOSPI화학	5,200	1.1	4.3	(0.9)	3.6	(1.7)	6.3
LG화학	282,000	1.8	4.3	1.3	17.7	7.8	0.4
롯데케미칼	397,500	(0.1)	3.8	3.0	25.8	31.2	47.0
한화케미칼	27,850	2.2	9.2	6.7	11.8	3.1	17.8
금호석유화학	84,800	(0.4)	9.8	(5.8)	15.4	32.7	52.8
KCC	337,000	0.9	4.3	(5.9)	(15.8)	(21.6)	(20.6)
OCI	94,700	(0.1)	4.1	16.2	13.8	3.6	40.7
SKC	33,300	0.2	7.9	5.2	5.4	12.9	13.7
국도화학	53,000	1.3	(0.4)	(2.2)	(7.7)	(9.4)	1.0
SK이노베이션	157,000	1.0	1.9	(3.1)	1.0	1.0	20.8
S-Oil	87,100	0.9	6.7	1.0	5.6	15.2	17.4
GS	55,700	1.5	7.1	3.0	2.0	12.6	11.5
SK가스	111,500	(0.9)	1.8	(0.9)	6.2	19.3	52.3
포스코대우	26,300	(1.3)	6.5	(6.1)	(1.5)	15.1	41.4
LG상사	34,500	(1.6)	(0.9)	7.8	8.5	(1.4)	1.3

투자의견	TP	%	P/E	P/B
			* 추정치는 12M fwd 기준임	
			* 모든 coverage 업체의 실적은 연결기준임	
매수	350,000	24.1	10.57	1.46
매수	410,000	3.1	10.08	1.53
매수	28,000	0.5	10.05	0.84
매수	100,000	17.9	14.07	1.58
매수	500,000	48.4	13.24	0.51
매수	100,000	5.6	17.48	0.71
매수	40,000	20.1	10.60	0.81
매수	70,000	32.1	11.14	0.66
매수	180,000	14.6	8.58	0.88
매수	100,000	14.8	11.23	1.47
매수	65,000	16.7	8.80	0.88
매수	130,000	16.6	8.91	0.83
매수	29,000	10.3	10.65	1.21
매수	42,000	21.7	11.85	1.12

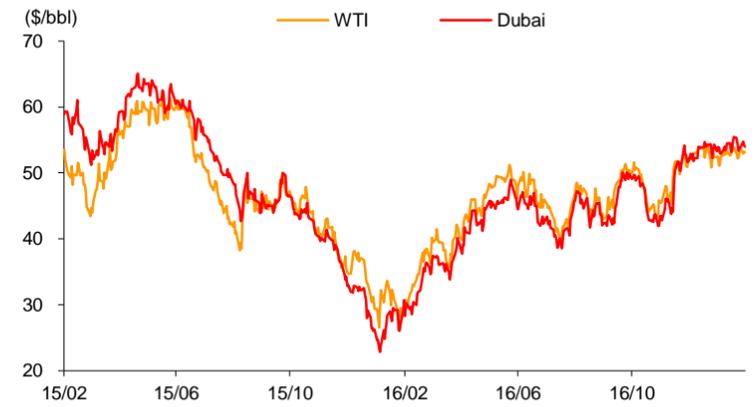
\* 작성자(손지우)는 본 조사분석자료에 게재된 내용들이 본인의 의견을 정확하게 반영하고 있으며, 외부의 부당한 압력이나 간섭없이 신의성실하게 작성되었음을 확인합니다.  
\* 본 보고서에 언급된 종목의 경우 당사 조사분석담당자는 본인의 담당종목을 보유하고 있지 않습니다.  
\* 본 보고서는 기관투자가 또는 제 3자에게 사전 제공된 사실이 없습니다.  
\* 당사는 본 보고서의 발간시점에 해당종목을 1% 이상 보유하고 있지 않습니다.

## Key Chart

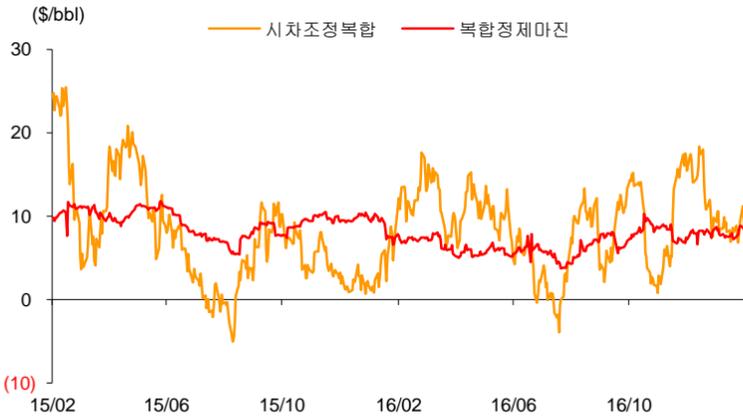
KOSPI/KOSPI화학



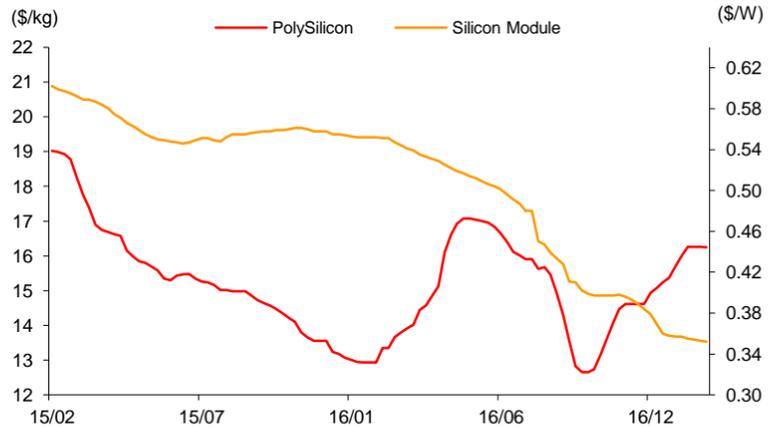
WTI/Dubai



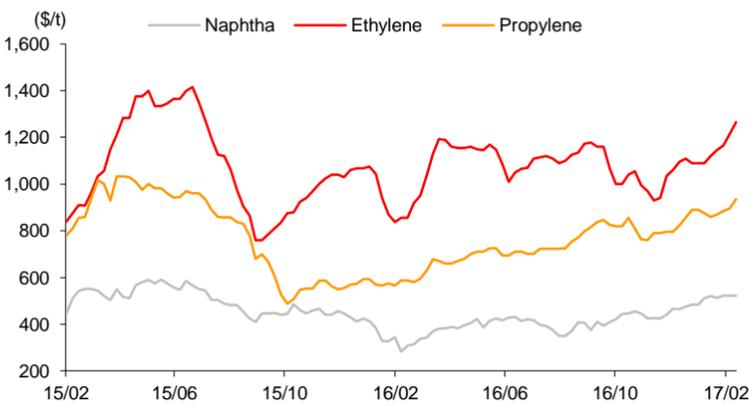
Complex & 1M lagging margin



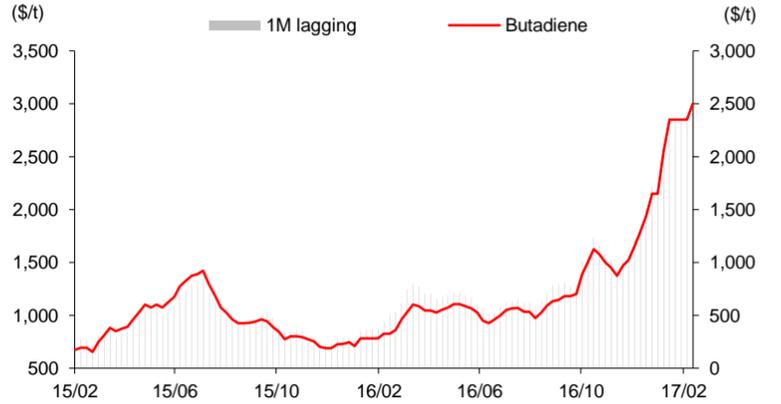
Polysilicon & Module prices



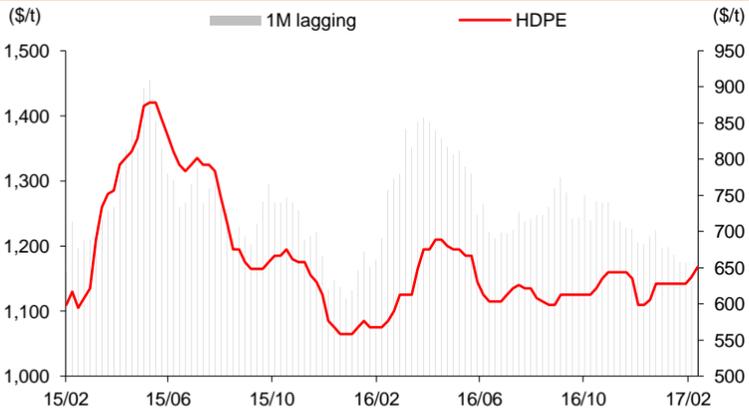
Naphtha/Ethylene/Propylene prices



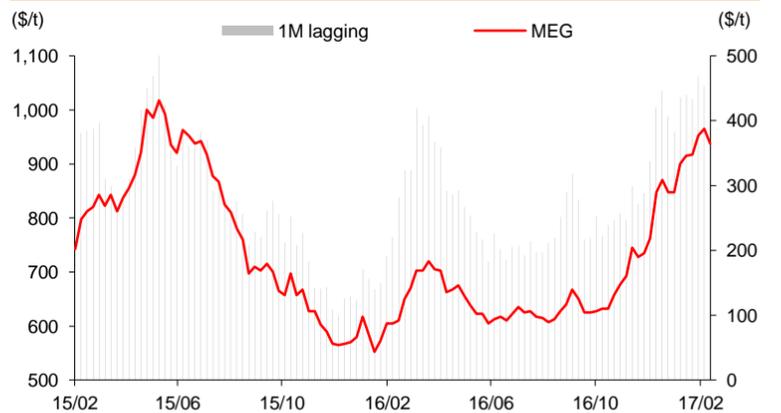
Butadiene price & 1M lagging naphtha spread



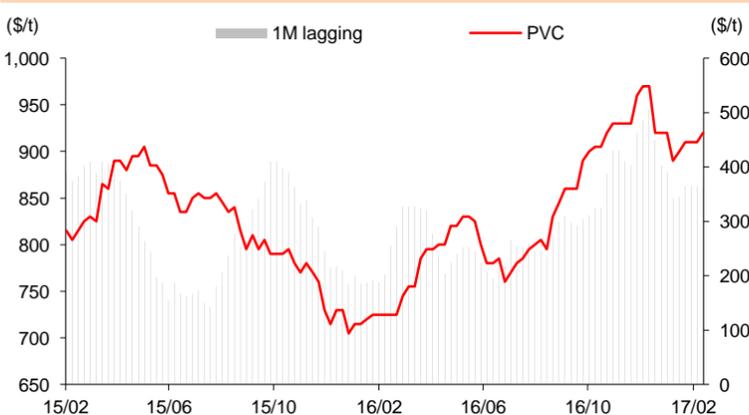
HDPE price & 1M lagging naphtha spread



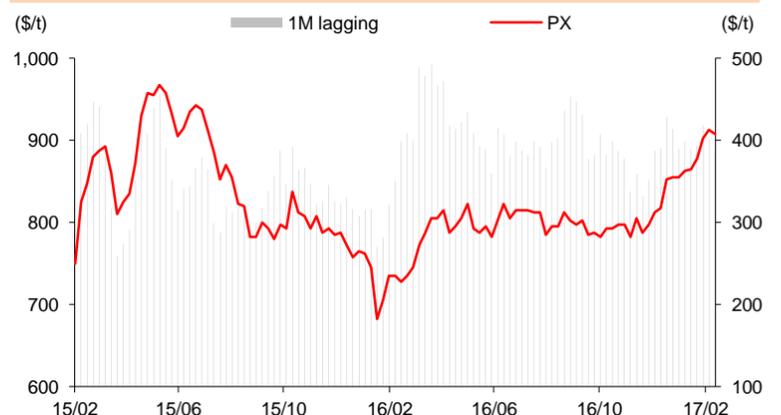
MEG price & 1M lagging naphtha spread



PVC price & 1M lagging naphtha spread



PX price & 1M lagging naphtha spread



자료: Bloomberg, Cischem, Petronet, Platts, Pviewsights, SK증권  
참고: 상기 데이터는 일괄적으로 과거 2년치 적용

## News Comment

### Headline (출처: 이투뉴스)

**제목** 도시가스, LPG 3월 가격인상 불가피

**결론** 유가 상승세가 연초에 들며 꺾인 모습을 보여 인상 압력은 단기적

**세부**

- 1) 국제유가와 국제LPG가격 모두 큰 폭으로 올라 가격 인상 불가피
- 2) 1월에도 한국가스공사가 공급하는 도시가스 요금 인상 유력했음
- 3) 그러나 산자부가 물가부담 등을 고려해 동결조치를 취한 바 있음
- 4) LPG 가격조정 주요인인 CP가 오르며 LPG 공급가격도 인상 압력
- 5) 유가 상승세가 연초에 들며 꺾인 모습을 보여 인상 압력은 단기적

### Issue 1 (출처: Platts)

**제목** 베네수엘라 PDVSA, 10.5만b/d 접촉분해기 또다시 셧다운

**결론** 남미지역 정제품 공급 차질 불가피할 것

**세부**

- 1) 관계자, "Cardon 정제시설 토요일 재가동된 이후로 또다시 셧다운"
- 2) 지난 1월 24일부터 컴프레서 고장으로 셧다운 돌입한 바 있음
- 3) 수요일 가동률은 47.6%, 화요일 가동률은 35.4% 수준이었음
- 4) 증류시설 2기와 4기는 기술 결함으로 여전히 셧다운 상태
- 5) 남미지역 정제품 공급 차질 불가피할 것

### Issue 3 (출처: Platts)

**제목** 미국 Tesoro, Salt Lake City 원재료 공급 문제로 정제시설 셧다운

**결론** 인근 지역 Chevron, Hollyfrontier 등은 가동중이므로 영향 미미할 것

**세부**

- 1) Tesoro의 6.3만b/d Salt Lake City 정제시설이 셧다운
- 2) 원유를 공급하는 파이프라인이 가동하지 않기 때문
- 3) Utah주와, Idaho주에 Tesoro의 정제품 공급이 원활하지 않을 것
- 4) 관계자, "다음주 중으로 파이프라인이 재가동할 전망"
- 5) 인근 지역 Chevron, Hollyfrontier 등은 가동중이므로 영향 미미할 것

### Issue 5 (출처:Platts)

**제목**

**결론**

**세부**

- 1)
- 2)
- 3)
- 4)
- 5)

### WTI Comment (출처: 연합뉴스)

**제목** 미국 원유재고 급증에 하락...WTI 0.2%↓

**상승** 산유국들이 착실하게 원유 감산 약속을 이행하고 있다는 사실

**요인**

**하락** 지난 주 기준 미국의 원유 재고량은 전주보다 950만 배럴 늘어남

**요인** 미국의 원유 재고는 약 5억2천만 배럴로 사상 최고를 기록

### Issue 2 (출처: Platts)

**제목** CFR China 메탄올 가격 35개월 내 최고가격 기록

**결론** 수요, 공급 측면이 타이트해져 당분간 랠리 이어질 전망

**세부**

- 1) 중동으로부터의 공급 문제와 몇몇 MTO 공장 수요로 강세를 보임
- 2) Oman의 Salalah, Iran의 Zagros가 셧다운에 돌입한 영향
- 3) 이란 정부가 난방 연료로 천연가스를 붙잡아두며 셧다운 결정
- 4) 수요 측면에서는 최근 Jiangsu Shenghong이 MTO 공장 재개함
- 5) 수요, 공급 측면이 타이트해져 당분간 랠리 이어질 전망

### Issue 4 (출처:뉴스웨이)

**제목**

**결론**

**세부**

- 1)
- 2)
- 3)
- 4)
- 5)

### Issue 6 (출처:연합뉴스)

**제목**

**결론**

**세부**

- 1)
- 2)
- 3)
- 4)
- 5)

## Commodity Price Data

Daily Price		Today	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.	
F/X	USD/EUR	0.943	0.945	0.935	0.940	0.933	0.894	0.896	0.951	0.901	0.904	0.939	
	Change, %		(0.2)	0.9	0.4	1.1	5.5	5.2	(0.8)	4.7	4.4	0.4	
	USD/JPY	114.1	114.3	111.9	114.5	109.2	101.3	114.6	117.0	121.1	108.8	114.4	
	Change, %		(0.1)	2.0	(0.3)	4.5	12.7	(0.4)	(2.4)	(5.7)	4.9	(0.2)	
	USD/KRW	1,142.2	1,137.4	1,147.2	1,175.0	1,170.3	1,101.7	1,208.0	1,205.8	1,131.2	1,160.5	1,169.4	
	Change, %		0.4	(0.4)	(2.8)	(2.4)	3.7	(5.5)	(5.3)	1.0	(1.6)	(2.3)	
	Agriculture	Corn	378.8	374.3	370.8	358.5	341.5	326.5	358.8	352.0	376.8	358.5	364.5
		Change, %		1.2	2.2	5.6	10.9	16.0	5.6	7.6	0.5	5.6	3.9
Soybean		1,061.3	1,045.0	1,058.8	1,042.5	989.5	1,023.8	872.8	996.5	945.4	987.5	1,036.8	
Change, %			1.6	0.2	1.8	7.3	3.7	21.6	6.5	12.2	7.5	2.4	
	Wheat	454.8	449.5	432.5	426.0	399.0	422.0	457.5	408.0	508.1	436.4	429.1	
	Change, %		1.2	5.1	6.7	14.0	7.8	(0.6)	11.5	(10.5)	4.2	6.0	
	Rice	9.4	9.4	9.6	9.7	9.4	10.2	10.8	9.4	11.1	10.3	9.6	
	Change, %		(0.5)	(1.7)	(2.7)	0.0	(8.3)	(12.8)	0.4	(15.1)	(9.2)	(2.2)	
	Oats	250.5	254.0	254.0	242.5	233.0	172.0	196.3	228.5	250.2	196.3	248.0	
	Change, %		(1.4)	(1.4)	3.3	7.5	45.6	27.6	9.6	0.1	27.6	1.0	
	MYR/mt	Palm Oil	3,306.0	3,282.0	3,301.0	3,280.0	2,856.0	2,620.0	2,510.0	3,218.0	2,190.3	2,653.8	3,249.1
		Change, %		0.7	0.2	0.8	15.8	26.2	31.7	2.7	50.9	24.6	1.8
Cocoa		2,022.0	1,929.0	1,993.0	2,213.0	2,378.0	3,030.0	2,827.0	2,126.0	3,091.6	2,854.0	2,119.5	
Change, %			4.8	1.5	(8.6)	(15.0)	(33.3)	(28.5)	(4.9)	(34.6)	(29.2)	(4.6)	
	Cotton	75.7	76.3	75.3	72.3	70.7	68.1	58.9	70.7	63.3	65.6	74.2	
	Change, %		(0.8)	0.6	4.8	7.1	11.2	28.5	7.2	19.7	15.4	2.1	
	Sugar	20.5	20.5	20.8	20.5	21.2	20.0	13.2	19.5	13.1	18.2	20.5	
	Change, %		0.0	(1.3)	(0.2)	(3.2)	2.5	55.7	5.0	55.9	12.8	(0.2)	
	Coffee	144.5	143.7	142.9	149.3	161.8	137.0	115.6	137.1	132.6	136.1	147.2	
	Change, %		0.6	1.1	(3.2)	(10.7)	5.5	25.1	5.4	8.9	6.2	(1.8)	
	Energy	WTI	53.0	53.2	52.3	52.4	45.8	45.7	29.4	53.7	48.8	43.4	53.0
		Change, %		(0.4)	1.3	1.2	15.7	15.9	80.1	(1.3)	8.5	22.2	0.1
Brent		55.7	56.0	55.1	55.5	47.0	48.4	33.4	56.8	53.7	45.1	55.8	
Change, %			(0.5)	1.0	0.4	18.6	15.2	66.8	(2.0)	3.7	23.5	(0.2)	
	Natural Gas	2.9	2.9	3.1	3.4	2.7	2.6	2.0	3.7	2.6	2.6	3.2	
	Change, %		0.9	(6.3)	(14.3)	8.2	13.1	49.0	(21.3)	11.4	14.8	(9.5)	
	Ethanol	1.6	1.5	1.6	1.5	1.5	1.4	1.4	1.6	1.5	1.5	1.5	
	Change, %		0.7	(3.2)	5.2	1.4	8.5	12.9	(3.3)	2.9	2.5	2.3	
	RBOB Gasoline	154.9	154.7	155.3	161.2	133.5	140.1	104.3	166.5	163.6	140.0	157.4	
	Change, %		0.1	(0.2)	(3.9)	16.0	10.6	48.5	(7.0)	(5.3)	10.7	(1.6)	
	Coal	40.0	40.0	40.0	40.0	40.0	39.5	43.2	40.0	45.2	41.3	40.0	
	Change, %		0.0	0.0	0.0	0.0	1.3	(7.4)	0.0	(11.5)	(3.2)	0.0	
Metal	Gold	1,232.9	1,228.2	1,241.5	1,197.6	1,228.8	1,339.5	1,209.4	1,152.3	1,160.6	1,248.5	1,203.8	
	Change, %		0.4	(0.7)	2.9	0.3	(8.0)	1.9	7.0	6.2	(1.3)	2.4	
	Silver	18.0	18.0	17.8	16.8	17.1	19.8	15.3	15.9	15.7	17.1	17.1	
	Change, %		0.1	1.1	6.9	5.3	(9.4)	17.2	12.9	14.3	5.1	4.9	
	Platinum	1,010.5	1,001.7	1,017.0	985.0	939.6	1,110.9	935.3	903.5	1,055.7	988.4	983.7	
	Change, %		0.9	(0.6)	2.6	7.5	(9.0)	8.0	11.8	(4.3)	2.2	2.7	
	Palladium	789.5	781.5	770.8	751.6	708.0	693.3	513.7	681.0	691.9	614.3	756.6	
	Change, %		1.0	2.4	5.0	11.5	13.9	53.7	15.9	14.1	28.5	4.4	
	Copper	6,067.0	6,021.0	5,895.0	5,909.0	5,525.0	4,767.0	4,562.0	5,535.5	5,503.1	4,872.0	5,822.3	
	Change, %		0.8	2.9	2.7	9.8	27.3	33.0	9.6	10.2	24.5	4.2	
	Uranium	25.9	25.9	26.5	23.0	18.7	26.0	34.2	20.4	36.9	26.4	23.9	
	Change, %		0.0	(2.3)	12.6	38.9	(0.4)	(24.2)	27.0	(29.7)	(2.0)	8.6	
	HR Coil	623.0	623.0	620.0	622.0	492.0	595.0	397.0	633.0	461.5	519.3	622.3	
	Change, %		0.0	0.5	0.2	26.6	4.7	56.9	(1.6)	35.0	20.0	0.1	
	Scrap	303.0	305.0	305.0	305.0	255.0	260.0	250.0	302.0	252.9	275.7	302.2	
	Change, %		(0.7)	(0.7)	(0.7)	18.8	16.5	21.2	0.3	19.8	9.9	0.3	
	Zinc	2,870.0	2,903.0	2,848.0	2,790.5	2,613.0	2,266.0	1,685.0	2,576.0	1,941.9	2,097.5	2,766.9	
	Change, %		(1.1)	0.8	2.8	9.8	26.7	70.3	11.4	47.8	36.8	3.7	

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

## Refining Price Data

Daily Price		02/15	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	<b>WTI</b>	53.1	53.2	52.3	52.5	45.6	46.8	30.7	53.7	48.8	43.4	52.8
	<i>Change, %</i>		(0.2)	1.5	1.2	16.5	13.5	73.2	(1.1)	8.9	22.5	0.5
	<b>Dubai</b>	54.0	54.1	53.4	53.9	43.5	45.9	28.3	53.8	50.8	41.3	53.9
	<i>Change, %</i>		(0.3)	1.2	0.2	24.3	17.8	90.7	0.3	6.3	30.7	0.1
Crude Oil Product	<b>Gasoline(휘발유)</b>	71.0	71.1	69.0	70.5	57.6	55.7	43.2	69.8	69.5	56.3	70.0
	<i>Change, %</i>		(0.2)	2.9	0.7	23.3	27.5	64.2	1.6	2.1	26.2	1.4
	<b>Kerosene(등유)</b>	65.8	66.0	64.9	65.6	55.8	55.4	40.4	66.4	64.7	52.9	65.5
	<i>Change, %</i>		(0.3)	1.4	0.3	18.0	18.9	63.1	(0.9)	1.7	24.5	0.6
	<b>Diesel(경유)</b>	66.2	66.5	65.4	65.3	56.1	55.4	38.2	65.5	64.8	52.1	65.5
	<i>Change, %</i>		(0.3)	1.3	1.5	18.0	19.5	73.3	1.1	2.2	27.1	1.1
	<b>Bunker-C</b>	49.7	49.6	48.5	51.5	42.0	39.0	23.3	52.1	45.3	35.5	50.3
	<i>Change, %</i>		0.2	2.4	(3.4)	18.3	27.6	113.6	(4.5)	9.8	39.9	(1.2)
	<b>Naphtha</b>	57.4	57.6	55.2	55.6	46.1	40.7	33.1	53.5	52.6	42.6	55.8
	<i>Change, %</i>		(0.5)	4.0	3.2	24.3	40.8	73.3	7.3	9.0	34.7	2.7
Dubai Spread	<b>Gasoline(휘발유)</b>	17.0	17.0	15.6	16.6	14.1	9.8	14.9	16.0	18.7	14.9	16.1
	<i>Change</i>		0.0	1.3	0.4	2.9	7.2	2.1	1.0	(1.8)	2.0	0.9
	<b>Kerosene(등유)</b>	11.8	11.9	11.5	11.8	12.4	9.5	12.1	12.6	14.0	11.6	11.5
	<i>Change</i>		(0.0)	0.3	0.1	(0.5)	2.3	(0.2)	(0.8)	(2.1)	0.3	0.3
	<b>Diesel(경유)</b>	12.2	12.3	12.0	11.4	12.7	9.6	9.9	11.7	14.0	10.8	11.6
	<i>Change</i>		(0.1)	0.2	0.8	(0.5)	2.6	2.3	0.5	(1.8)	1.4	0.6
Dubai Spread	<b>Bunker-C</b>	(4.3)	(4.6)	(4.8)	(2.4)	(1.5)	(6.9)	(5.0)	(1.8)	(5.5)	(5.8)	(3.6)
	<i>Change</i>		0.3	0.5	(1.9)	(2.8)	2.6	0.7	(2.5)	1.2	1.5	(0.7)
	<b>Naphtha</b>	3.4	3.5	1.8	1.7	2.7	(5.1)	4.8	(0.4)	1.8	1.3	1.9
	<i>Change</i>		(0.1)	1.6	1.7	0.7	8.5	(1.4)	3.7	1.5	2.1	1.5
Refining Margin	<b>Simple(단순)</b>	3.0	2.9	2.5	3.5	4.4	(0.1)	2.6	3.8	3.3	1.9	3.0
	<i>Change</i>		0.1	0.5	(0.5)	(1.4)	3.2	0.4	(0.8)	(0.3)	1.1	0.0
	<b>Complex(복합)</b>	8.4	8.4	7.7	8.3	8.5	4.3	7.2	8.3	9.3	7.0	8.0
	<i>Change</i>		0.0	0.7	0.1	(0.1)	4.1	1.2	0.1	(0.9)	1.4	0.4
Refining Margin	<b>Complex(lagging)</b>	8.1	9.1	6.8	10.5	2.9	6.7	10.9	18.0	7.3	8.5	9.5
	<i>Change</i>		(1.0)	1.3	(2.4)	5.2	1.4	(2.7)	(9.9)	0.9	(0.4)	(1.4)

자료 : Petronet, SK증권

참고 1) Crude Oil 가격은 현물(spot) 기준으로 선물(future) 가격과 다를 수 있음

참고 2) Gasoline은 95RON, 경유는 L/P 0.5%, Bunker-C는 380cst/4.0% 기준임

## Petrochemical Price Data

Daily Price			02/15	02/14	02/13	02/10	02/09	02/08	02/07	02/06	02/03	02/02	
Spot Price	<b>Naphtha</b>	CFR Japan	523.8	528.9	522.0	520.5	519.3	506.0	517.8	527.0	527.5	527.3	
	<b>Ethylene</b>	CFR SE Asia	1,110.0	1,110.0	1,110.0	1,110.0	1,100.0	1,095.0	1,095.0	1,075.0	1,075.0	1,075.0	
	<b>Propylene</b>	FOB Korea	936.0	935.0	935.0	935.0	925.0	899.0	900.0	905.0	900.0	891.0	
	<b>Butadiene</b>	FOB Korea	3,000.0	3,000.0	3,000.0	3,000.0	3,000.0	3,000.0	3,000.0	3,000.0	3,000.0	3,000.0	
	<b>HDPE</b>	CFR FE Asia	1,195.0	1,195.0	1,195.0	1,185.0	1,185.0	1,185.0	1,185.0	1,185.0	1,185.0	1,185.0	
	<b>LDPE</b>	CFR FE Asia	1,320.0	1,320.0	1,330.0	1,310.0	1,310.0	1,310.0	1,310.0	1,310.0	1,310.0	1,310.0	
	<b>LLDPE</b>	CFR FE Asia	1,180.0	1,180.0	1,190.0	1,195.0	1,195.0	1,195.0	1,195.0	1,175.0	1,175.0	1,175.0	
	<b>MEG</b>	CFR China	890.0	915.0	938.0	933.0	925.0	935.0	940.0	960.0	960.0	950.0	
	<b>PP</b>	CFR FE Asia	1,070.0	1,060.0	1,060.0	1,030.0	1,040.0	1,035.0	1,035.0	1,035.0	1,035.0	1,030.0	1,025.0
	<b>PX</b>	CFR China	895.7	899.7	900.7	893.7	899.7	902.2	906.7	911.7	899.0	894.3	
	<b>PTA</b>	CFR China	690.0	698.0	695.0	685.0	675.0	677.0	677.0	680.0	675.0	665.0	
	<b>Benzene</b>	FOB Korea	1,043.0	1,051.0	1,053.0	1,036.0	1,026.0	1,050.0	1,051.0	1,054.0	1,041.0	999.0	
	<b>Toluene</b>	FOB Korea	726.0	730.0	741.0	732.0	740.0	748.0	756.0	766.0	764.0	758.0	
	<b>Xylene</b>	FOB Korea	715.0	715.0	715.0	715.0	726.0	734.0	737.0	737.0	735.0	740.0	
	<b>SM</b>	FOB Korea	1,495.0	1,495.0	1,496.0	1,485.0	1,460.0	1,448.0	1,464.0	1,499.0	1,549.5	1,515.0	

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Spot Price	<b>Naphtha</b>	CFR Japan	522.5	523.0	511.0	425.0	445.0	283.5	484.5	493.0	399.5	512.3
	<i>Change, %</i>			<i>(0.1)</i>	<i>2.3</i>	<i>22.9</i>	<i>17.4</i>	<i>84.3</i>	<i>7.8</i>	<i>6.0</i>	<i>30.8</i>	<i>2.0</i>
	<b>Ethylene</b>	CFR SE Asia	1,090.0	1,090.0	1,005.0	975.0	1,040.0	890.0	990.0	1,103.7	1,040.9	1,035.8
	<i>Change, %</i>			<i>0.0</i>	<i>8.5</i>	<i>11.8</i>	<i>4.8</i>	<i>22.5</i>	<i>10.1</i>	<i>(1.2)</i>	<i>4.7</i>	<i>5.2</i>
	<b>Propylene</b>	CFR SE Asia	975.0	955.0	865.0	660.0	765.0	650.0	815.0	770.0	705.7	879.2
	<i>Change, %</i>			<i>2.1</i>	<i>12.7</i>	<i>47.7</i>	<i>27.5</i>	<i>50.0</i>	<i>19.6</i>	<i>26.6</i>	<i>38.2</i>	<i>10.9</i>
	<b>Butadiene</b>	CFR SE Asia	2,800.0	2,800.0	2,500.0	1,400.0	1,500.0	785.0	2,100.0	877.5	1,116.8	2,633.3
	<i>Change, %</i>			<i>0.0</i>	<i>12.0</i>	<i>100.0</i>	<i>86.7</i>	<i>256.7</i>	<i>33.3</i>	<i>219.1</i>	<i>150.7</i>	<i>6.3</i>
	<b>Benzene</b>	CFR SE Asia	1,032.5	1,015.0	875.0	655.0	630.0	550.0	822.5	690.0	646.7	942.9
	<i>Change, %</i>			<i>1.7</i>	<i>18.0</i>	<i>57.6</i>	<i>63.9</i>	<i>87.7</i>	<i>25.5</i>	<i>49.6</i>	<i>59.7</i>	<i>9.5</i>
	<b>Toluene</b>	CFR SE Asia	775.0	770.0	705.0	650.0	640.0	585.0	690.0	700.8	630.5	731.7
	<i>Change, %</i>			<i>0.6</i>	<i>9.9</i>	<i>19.2</i>	<i>21.1</i>	<i>32.5</i>	<i>12.3</i>	<i>10.6</i>	<i>22.9</i>	<i>5.9</i>
	<b>Xylene</b>	CFR SE Asia	715.0	715.0	685.0	655.0	637.5	587.5	675.0	699.3	627.7	703.3
	<i>Change, %</i>			<i>0.0</i>	<i>4.4</i>	<i>9.2</i>	<i>12.2</i>	<i>21.7</i>	<i>5.9</i>	<i>2.3</i>	<i>13.9</i>	<i>1.7</i>

Spread	<b>Ethylene</b>	-Naphtha	567.5	567.0	494.0	550.0	595.0	606.5	505.5	610.6	641.4	523.6
	<i>Change, %</i>			<i>0.1</i>	<i>14.9</i>	<i>3.2</i>	<i>(4.6)</i>	<i>(6.4)</i>	<i>12.3</i>	<i>(7.1)</i>	<i>(11.5)</i>	<i>8.4</i>
	<b>Propylene</b>	-Naphtha	452.5	432.0	354.0	235.0	320.0	366.5	330.5	277.0	306.2	366.9
	<i>Change, %</i>			<i>4.7</i>	<i>27.8</i>	<i>92.6</i>	<i>41.4</i>	<i>23.5</i>	<i>36.9</i>	<i>63.4</i>	<i>47.8</i>	<i>23.3</i>
	<b>Butadiene</b>	-Naphtha	2,277.5	2,277.0	1,989.0	975.0	1,055.0	501.5	1,615.5	384.5	717.3	2,121.1
	<i>Change, %</i>			<i>0.0</i>	<i>14.5</i>	<i>133.6</i>	<i>115.9</i>	<i>354.1</i>	<i>41.0</i>	<i>492.4</i>	<i>217.5</i>	<i>7.4</i>
	<b>Benzene</b>	-Naphtha	510.0	492.0	364.0	230.0	185.0	266.5	338.0	197.0	247.2	430.7
	<i>Change, %</i>			<i>3.7</i>	<i>40.1</i>	<i>121.7</i>	<i>175.7</i>	<i>91.4</i>	<i>50.9</i>	<i>158.9</i>	<i>106.3</i>	<i>18.4</i>
	<b>Toluene</b>	-Naphtha	252.5	247.0	194.0	225.0	195.0	301.5	205.5	207.8	231.0	219.4
	<i>Change, %</i>			<i>2.2</i>	<i>30.2</i>	<i>12.2</i>	<i>29.5</i>	<i>(16.3)</i>	<i>22.9</i>	<i>21.5</i>	<i>9.3</i>	<i>15.1</i>
	<b>Xylene</b>	-Naphtha	192.5	192.0	174.0	230.0	192.5	304.0	190.5	206.3	228.2	191.1
	<i>Change, %</i>			<i>0.3</i>	<i>10.6</i>	<i>(16.3)</i>	<i>0.0</i>	<i>(36.7)</i>	<i>1.0</i>	<i>(6.7)</i>	<i>(15.7)</i>	<i>0.7</i>

자료 : Cischem, Platts, Bloomberg, SK증권

참고 : Spread는 Polymer와 Naphtha의 가격차이임

Weekly Price		Last Week	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.	
Spot Price	HDPE	CFR SE Asia	1,152.5	1,142.5	1,142.5	1,160.0	1,125.0	1,075.0	1,142.5	1,230.1	1,134.6	1,147.5
	Change, %			0.9	0.9	(0.6)	2.4	7.2	0.9	(6.3)	1.6	0.4
	MEG	CFR SE Asia	965.0	952.5	900.0	692.5	632.5	605.0	847.5	780.8	660.8	919.3
	Change, %			1.3	7.2	39.4	52.6	59.5	13.9	23.6	46.0	5.0
	PVC	CFR SE Asia	910.0	910.0	890.0	930.0	905.0	725.0	920.0	820.8	823.4	908.6
	Change, %			0.0	2.2	(2.2)	0.6	25.5	(1.1)	10.9	10.5	0.2
	PP	CFR SE Asia	1,077.5	1,057.5	1,042.5	1,050.0	985.0	840.0	1,032.5	1,109.8	978.4	1,056.1
	Change, %			1.9	3.4	2.6	9.4	28.3	4.4	(2.9)	10.1	2.0
	2-EH	CFR Korea	910.0	890.0	880.0	780.0	775.0	680.0	865.0	930.1	772.4	897.9
	Change, %			2.2	3.4	16.7	17.4	33.8	5.2	(2.2)	17.8	1.4
	ABS	CFR SE Asia	1,885.0	1,830.0	1,730.0	1,480.0	1,380.0	1,120.0	1,635.0	1,431.1	1,347.1	1,792.9
	Change, %			3.0	9.0	27.4	36.6	68.3	15.3	31.7	39.9	5.1
	SBR	CFR SE Asia	3,050.0	3,050.0	2,400.0	1,870.0	1,600.0	1,195.0	2,000.0	1,332.1	1,483.0	2,796.4
	Change, %			0.0	27.1	63.1	90.6	155.2	52.5	129.0	105.7	9.1
	SM	CFR SE Asia	1,565.0	1,392.5	1,242.5	1,127.5	1,005.0	970.0	1,205.0	1,100.7	1,064.6	1,356.8
	Change, %			12.4	26.0	38.8	55.7	61.3	29.9	42.2	47.0	15.3
	Caustic	FOB NEA	417.5	417.5	417.5	375.0	330.0	287.5	422.5	296.8	316.6	418.9
	Change, %			0.0	0.0	11.3	26.5	45.2	(1.2)	40.7	31.9	(0.3)
	PX	CFR SE Asia	912.5	902.5	862.5	782.5	792.5	735.0	855.0	842.9	790.4	883.2
	Change, %			1.1	5.8	16.6	15.1	24.1	6.7	8.3	15.5	3.3
PO	CFR China	1,662.5	1,662.5	1,525.0	1,355.0	2,110.0	1,137.5	1,562.5	1,683.4	1,396.8	1,612.5	
Change, %			0.0	9.0	22.7	(21.2)	46.2	6.4	(1.2)	19.0	3.1	
Caprolactam	CFR SE Asia	2,100.0	2,100.0	1,940.0	1,420.0	1,425.0	1,110.0	1,850.0	1,581.5	1,344.9	2,035.0	
Change, %			0.0	8.2	47.9	47.4	89.2	13.5	32.8	56.2	3.2	
PTA	CFR SE Asia	687.5	677.5	657.5	612.5	617.5	580.0	642.5	648.0	613.7	670.7	
Change, %			1.5	4.6	12.2	11.3	18.5	7.0	6.1	12.0	2.5	
Spread	HDPE		630.0	619.5	631.5	735.0	680.0	791.5	658.0	737.1	735.1	633.9
	Change, %			1.7	(0.2)	(14.3)	(7.4)	(20.4)	(4.3)	(14.5)	(14.3)	(0.6)
	MEG		442.5	429.5	389.0	267.5	187.5	321.5	363.0	287.8	261.3	405.6
	Change, %			3.0	13.8	65.4	136.0	37.6	21.9	53.8	69.4	9.1
	PVC		387.5	387.0	379.0	505.0	460.0	441.5	435.5	327.8	423.9	394.9
	Change, %			0.1	2.2	(23.3)	(15.8)	(12.2)	(11.0)	18.2	(8.6)	(1.9)
	PP		555.0	534.5	531.5	625.0	540.0	556.5	548.0	616.8	578.9	542.4
	Change, %			3.8	4.4	(11.2)	2.8	(0.3)	1.3	(10.0)	(4.1)	2.3
	2-EH		387.5	367.0	369.0	355.0	330.0	396.5	380.5	437.0	372.9	384.2
	Change, %			5.6	5.0	9.2	17.4	(2.3)	1.8	(11.3)	3.9	0.9
	ABS		1,362.5	1,307.0	1,219.0	1,055.0	935.0	836.5	1,150.5	938.1	947.6	1,279.2
	Change, %			4.2	11.8	29.1	45.7	62.9	18.4	45.2	43.8	6.5
	SBR	BD spread	250.0	250.0	(100.0)	470.0	100.0	410.0	(100.0)	454.7	366.2	117.9
	Change, %			0.0	(350.0)	(46.8)	150.0	(39.0)	(350.0)	(45.0)	(31.7)	112.1
	SM		1,042.5	869.5	731.5	702.5	560.0	686.5	720.5	607.7	665.1	843.1
	Change, %			19.9	42.5	48.4	86.2	51.9	44.7	71.5	56.7	23.6
	Caustic											
	Change, %											
	PX		390.0	379.5	351.5	357.5	347.5	451.5	370.5	349.9	390.9	369.6
	Change, %			2.8	11.0	9.1	12.2	(13.6)	5.3	11.5	(0.2)	5.5
PO	propylene spread	687.5	707.5	660.0	695.0	1,345.0	487.5	747.5	913.4	691.1	725.4	
Change, %			(2.8)	4.2	(1.1)	(48.9)	41.0	(8.0)	(24.7)	(0.5)	(5.2)	
Caprolactam	benzene spread	1,067.5	1,085.0	1,065.0	765.0	795.0	560.0	1,027.5	891.6	698.2	1,073.2	
Change, %			(1.6)	0.2	39.5	34.3	90.6	3.9	19.7	52.9	(0.5)	
PTA	px spread	48.8	45.8	53.8	64.8	62.8	65.5	44.0	58.0	60.4	52.5	
Change, %			6.6	(9.3)	(24.7)	(22.3)	(25.6)	10.8	(16.0)	(19.3)	(7.1)	

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

## Global peers

	Currency	02/15	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA		
											16	17E	16	17E	16	17E	
<b>Petrochemical</b>																	
Dow Chemical	USD	61.1	(1.0)	2.3	5.7	14.9	15.7	32.8	6.8	74,133	16.8	15.0	2.7	2.7	9.4	8.5	
Du Pont	USD	77.9	(0.1)	2.6	5.9	13.5	13.5	33.5	6.2	67,385	23.9	21.0	7.1	4.1	13.1	11.8	
Eastman	USD	80.9	0.4	3.9	3.8	8.1	22.5	33.3	7.5	11,869	12.0	11.1	2.6	2.3	8.6	8.3	
BASF	EUR	89.7	(0.2)	2.4	1.0	10.1	23.1	51.9	1.6	87,230	18.8	17.1	2.7	2.6	9.3	8.5	
Akzo Nobel	EUR	62.9	(2.3)	(1.4)	4.3	7.7	5.8	20.3	6.0	16,799	14.9	14.9	2.4	2.4	8.3	8.0	
Arkema	EUR	93.8	(0.0)	3.7	3.0	6.5	17.7	85.0	0.9	7,516	17.7	15.2	1.9	1.8	7.1	6.6	
Lanxess	EUR	67.4	0.5	3.3	1.6	15.7	44.1	90.8	8.2	6,533	27.0	21.7	2.4	2.3	7.6	6.5	
Sumitomo Chemical	JPY	629	0.8	1.5	12.9	27.1	47.3	31.0	13.1	9,116	14.8	12.0	1.3	1.2	8.6	7.8	
Mitsubishi Chemical	JPY	840	2.1	3.1	6.1	22.3	49.2	37.6	10.8	11,074	9.6	10.8	1.2	1.1	7.0	6.5	
Shin-Etsu Chemical	JPY	9,718	0.9	0.7	2.6	17.4	38.6	71.2	7.2	36,764	24.2	20.9	2.0	1.8	10.3	9.0	
Asahi Kasei	JPY	1,104	1.1	2.8	8.0	11.7	36.4	56.8	8.2	13,551	15.2	14.5	1.4	1.3	7.2	6.8	
JSR	JPY	2,086	1.8	3.0	6.2	37.0	46.3	31.4	13.2	4,129	20.2	18.1	1.3	1.2	9.3	7.7	
Nitto Denko	JPY	9,774	1.7	4.9	10.2	24.0	39.8	72.0	9.0	14,869	27.7	22.3	2.5	2.3	11.3	9.7	
SABIC	SAR	96.8	0.2	1.3	4.2	14.7	14.4	45.3	5.8	77,458	17.4	15.9	1.8	1.7	8.1	7.6	
Yansab	SAR	57.6	0.7	(0.5)	7.1	23.8	25.6	102.2	5.7	8,633	15.0	15.5	2.0	2.0	8.9	9.2	
Formosa Plastics	TWD	96.5	4.3	7.0	6.0	13.5	20.6	27.3	8.2	20,008	18.3	16.9	2.1	2.0	29.7	26.7	
Formosa Fiber	TWD	99.5	0.5	2.2	0.8	5.4	16.6	39.6	3.3	18,994	14.8	14.5	2.0	1.8	12.9	12.6	
Nan Ya Plastics	TWD	79.0	1.5	5.1	7.6	22.5	25.8	33.2	11.0	20,406	17.6	18.8	1.9	1.8	20.2	17.8	
Sinopec Shanghai	CNY	6.68	1.1	1.2	0.0	11.5	5.5	22.1	3.7	9,247	13.5	14.5	3.0	2.6	7.1	7.9	
Sinopec Yizheng(Fiber)	CNY	3.88	0.3	1.3	(5.8)	(3.0)	(1.5)	(38.2)	(5.4)	7,261	#N/A	N/A	#N/A	N/A	#N/A	N/A	
Reliance	INR	1,051	0.1	2.6	(3.6)	6.7	1.5	11.0	(2.9)	50,983	11.3	11.1	1.2	1.1	10.1	8.4	
Industries Qatar	QAR	118.0	2.1	4.9	(1.7)	17.8	2.3	14.6	0.4	19,606	19.3	18.1	2.1	2.1	46.4	58.1	
PTT Chemical	THB	70.0	3.7	(0.4)	10.2	17.6	12.9	32.1	11.1	8,915	12.0	11.1	1.4	1.3	6.1	5.6	
Petronas	MYR	7.2	0.3	0.0	0.3	5.4	8.1	3.6	3.3	12,965	20.8	18.2	2.2	2.1	10.5	9.3	
LG화학	KRW	282,000	1.8	4.3	(0.4)	17.3	6.4	0.4	8.0	17,519	0.0	0.0	0.0	0.0	0.0	0.0	
롯데케미칼	KRW	397,500	(0.1)	3.8	2.3	24.8	30.5	47.0	7.7	11,990	0.0	0.0	0.0	0.0	0.0	0.0	
한화케미칼	KRW	27,850	2.2	9.2	3.5	12.1	7.1	17.8	12.8	4,039	0.0	5.9	0.0	0.9	0.0	6.4	
금호석유	KRW	84,800	(0.4)	9.8	(5.8)	17.9	36.3	52.8	3.4	2,274	0.0	0.0	0.0	0.0	0.0	0.0	
SKC	KRW	33,300	0.2	7.9	2.8	7.2	11.0	13.7	0.9	1,100	0.0	0.0	0.0	0.0	0.0	0.0	
국도화학	KRW	53,000	1.3	(0.4)	(2.4)	(7.7)	(9.9)	1.0	(3.5)	271	0.0	0.0	0.0	0.0	0.0	0.0	
효성	KRW	8,030	0.0	(1.7)	0.4	46.5	40.9	231.1	18.1	4,033	0.0	0.0	0.0	0.0	0.0	0.0	
<b>Average</b>			<b>0.8</b>	<b>2.9</b>	<b>3.1</b>	<b>15.2</b>	<b>21.1</b>	<b>42.1</b>	<b>6.1</b>								
<b>Refinery</b>																	
Valero	USD	67.8	0.2	1.0	2.1	7.3	24.3	17.3	(0.8)	30,673	18.4	12.8	1.5	1.5	7.1	5.9	
Conoco Phillips	USD	49.4	(1.6)	(0.5)	(2.4)	9.0	17.0	50.0	(1.6)	61,072	#N/A	N/A	72.3	1.8	1.8	16.8	7.9
Formosa Petrochemical	TWD	109.0	0.9	4.8	0.9	9.5	10.9	35.2	(2.7)	33,819	17.1	18.0	3.6	3.4	11.5	12.2	
Tesoro	USD	88.0	0.0	3.2	10.6	2.3	15.2	23.8	0.6	10,286	21.5	14.2	1.9	1.5	7.0	5.0	
Marathon Petroleum	USD	50.6	(0.6)	3.1	4.7	15.5	22.9	59.6	0.6	26,729	25.9	16.0	2.0	1.9	10.3	8.0	
Devon Energy	USD	44.2	(3.7)	0.4	(4.7)	(1.7)	5.4	103.9	(3.2)	23,203	#N/A	N/A	24.4	3.8	3.4	14.4	9.6
Hollyfrontier	USD	30.2	0.8	2.0	0.4	11.3	10.2	(1.8)	(8.0)	5,322	94.2	14.3	1.1	1.2	12.1	6.2	
Phillips 66	USD	80.1	0.1	1.5	(3.9)	(4.3)	1.9	6.5	(7.3)	41,562	26.1	17.0	1.8	1.8	12.1	9.0	
Murphy Oil	USD	28.2	(0.9)	(0.3)	(9.4)	(8.8)	(3.2)	67.9	(9.4)	4,854	#N/A	N/A	61.7	0.9	0.9	8.4	4.9
JX Holdings	JPY	539.1	0.8	4.2	3.1	27.5	44.5	18.1	9.0	11,778	9.5	8.8	0.8	0.7	8.3	7.9	
Idemitsu	JPY	3,540.0	1.0	3.8	5.0	44.1	91.7	101.1	14.0	4,959	8.6	8.1	1.0	0.9	8.9	8.0	
Tonengeneral	JPY	1,350.0	0.9	4.4	3.4	28.2	52.9	36.8	9.6	4,326	12.2	10.9	2.0	1.8	6.7	6.1	
Nesteoil	EUR	34.5	0.0	5.6	4.4	(5.8)	(10.3)	28.8	(5.6)	0	11.6	13.3	2.4	2.2	6.7	7.8	
Ashland	USD	120.8	0.2	2.7	8.5	11.5	6.0	31.4	10.5	7,515	17.6	27.7	2.7	2.2	8.8	11.9	
Fuchs Petrolub	EUR	43.6	0.2	1.5	5.8	16.6	7.1	22.4	9.3	6,188	23.9	23.0	5.1	4.5	14.2	13.6	
SK이노베이션	KRW	157,000	1.0	1.9	(3.1)	(2.5)	3.3	20.8	7.2	12,775	0.0	0.0	0.0	0.0	0.0	0.0	
S-Oil	KRW	87,100	0.9	6.7	(0.1)	3.0	16.0	17.4	2.8	8,629	0.0	0.0	0.0	0.0	0.0	0.0	
GS	KRW	55,700	1.5	7.1	2.8	1.6	12.0	11.5	3.0	4,554	0.0	0.0	0.0	0.0	0.0	0.0	
<b>Average</b>			<b>0.1</b>	<b>2.8</b>	<b>1.5</b>	<b>8.7</b>	<b>17.2</b>	<b>34.3</b>	<b>1.5</b>								

\* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임

\* 국내업체의 multiple은 Dataguidepro 기준임

## Global peers

	Currency	02/15	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA	
											16	17E	16	17E	16	17E
<b>E&amp;P/Shale</b>																
Exxon Mobil	USD	83	0.4	2.1	(3.7)	(4.2)	(5.3)	2.6	(7.9)	344,839	38.5	20.1	2.0	2.0	12.5	8.2
BP	GBP	458	(0.4)	0.4	(11.7)	2.9	4.7	37.5	(10.2)	110,933	31.1	15.4	1.2	1.2	7.2	5.3
Shell	EUR	2,171	(0.1)	2.3	(4.9)	9.1	12.3	40.8	(3.2)	225,744	26.2	14.9	1.2	1.2	9.0	6.4
Chevron	USD	113	0.0	0.9	(3.3)	3.3	9.5	31.8	(4.4)	212,506	81.2	24.2	1.4	1.5	12.3	7.1
Total	EUR	48	0.0	2.4	(1.8)	10.2	10.5	24.2	(1.6)	124,538	15.1	12.2	1.3	1.2	7.4	5.8
Sinopec	CNY	6	0.2	0.0	(0.7)	17.2	16.8	36.0	8.1	101,513	16.9	13.4	1.0	1.0	5.6	5.1
Petrochina	CNY	8	0.4	0.1	0.4	13.5	13.0	17.3	5.9	215,416	215.9	29.5	1.3	1.3	7.8	6.7
CNOOC	CNY	13	1.1	2.1	0.8	4.2	4.6	2.8	2.3	7,562	#N/A N/A	385.9	1.7	1.7	#N/A N/A	17.4
Gazprom	RUB	140	(0.6)	(3.8)	(11.5)	(4.2)	1.2	4.7	(9.6)	57,710	3.4	3.7	0.3	0.3	4.1	3.6
Rosneft	RUB	360	(2.7)	(4.8)	(7.2)	6.5	6.2	32.8	(10.6)	66,568	14.0	7.3	1.2	1.0	5.1	3.8
Anadarko	USD	68	(1.2)	0.6	(5.2)	7.9	23.7	78.6	(3.2)	37,737	#N/A N/A	129.1	2.3	2.4	13.5	8.3
Petrobras	BRL	16	0.1	4.9	1.0	13.1	28.7	250.4	6.5	69,985	#N/A N/A	13.8	0.8	0.8	6.9	5.8
Lukoil	USD	3,211	(1.2)	(2.7)	(2.4)	5.5	9.9	32.2	(6.9)	47,376	7.7	5.7	0.6	0.6	N/A	N/A
Kinder	USD	22	(1.2)	(0.6)	(0.7)	2.0	4.6	48.9	7.5	47,497	32.9	32.6	1.4	1.4	12.2	12.2
Statoil	NOK	148	(1.2)	0.0	(9.3)	6.7	10.1	25.1	(6.9)	57,299	125.5	16.6	1.4	1.5	5.1	3.3
BHP	AUD	27	1.3	3.1	0.8	8.1	31.6	66.1	5.9	102,925	14.8	16.9	1.8	1.8	6.4	6.9
PTT E&P	THB	93	1.6	(2.6)	(3.1)	14.8	13.4	60.3	(3.4)	10,541	22.9	15.7	0.9	0.9	3.4	3.1
Petronas gas	MYR	21	0.0	(0.5)	(1.0)	(4.5)	(7.1)	(9.0)	(3.3)	9,162	23.4	22.9	3.4	3.3	13.2	13.1
Chesapeake	USD	6	(1.9)	3.3	(8.7)	4.5	14.9	297.5	(10.0)	5,608	#N/A N/A	8.2	#N/A N/A	#N/A N/A	14.0	8.5
Noble Energy	USD	37	(0.5)	(2.0)	0.2	0.0	6.0	30.4	(1.6)	16,132	#N/A N/A	#N/A N/A	1.7	1.7	10.2	8.0
<b>Average</b>		<b>0</b>	<b>(0.3)</b>	<b>0.3</b>	<b>(3.6)</b>	<b>5.8</b>	<b>10.5</b>	<b>55.5</b>	<b>(2.3)</b>							
<b>PV</b>																
WACKER	EUR	108.7	(0.5)	(0.7)	(0.5)	36.6	33.4	76.1	10.0	6,000	33.1	20.8	2.4	2.3	6.3	5.6
GCL-Poly	HKD	1.1	1.0	5.0	11.6	7.1	(3.6)	6.0	14.0	2,539	7.8	7.5	0.8	0.7	6.0	5.6
SunPower	USD	7.3	0.4	3.9	(2.7)	0.8	(32.7)	(65.9)	9.7	1,004	#N/A N/A	#N/A N/A	0.8	0.9	15.0	12.7
Canadian Solar	USD	13.8	1.2	15.4	10.8	17.6	4.1	(15.9)	13.2	792	8.6	6.7	0.8	0.7	10.5	7.8
JA Solar	USD	5.0	2.0	7.3	1.6	(9.6)	(35.6)	(40.0)	4.6	237	6.2	#N/A N/A	0.3	0.3	3.6	5.4
Trina Solar	USD	10.2	0.3	1.4	1.1	0.2	(3.1)	16.0	10.0	946	10.1	29.9	0.7	0.7	6.7	8.4
Solar City	USD	20.3	0.0	0.0	0.0	2.6	(15.2)	17.0	0.0	2,049	#N/A N/A	#N/A N/A				
Yingli	USD	2.8	0.7	4.1	0.7	(22.0)	(36.2)	(24.7)	7.7	51	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	12.4	28.3
First Solar	USD	34.7	2.4	10.1	(2.9)	4.6	(9.4)	(43.1)	8.2	3,609	7.4	87.3	0.7	0.7	4.0	8.3
한화큐셀	USD	8.5	4.0	8.8	0.8	(7.9)	(34.4)	(39.1)	4.4	716	6.1	27.9	#N/A N/A	#N/A N/A	5.9	9.1
OCI	KRW	94,700	(0.1)	4.1	16.3	13.7	4.3	40.7	20.3	1,988	0.0	0.0	0.0	0.0	0.0	0.0
웅진에너지	KRW	4,835	0.5	2.9	(1.6)	0.2	(42.8)	(63.3)	2.1	97	N/A	0.0	0.0	0.0	0.0	0.0
신성솔라에너지	KRW	1,975	0.0	3.9	(8.6)	(14.5)	(12.6)	22.4	(10.6)	301	N/A	0.0	0.0	0.0	0.0	0.0
<b>Average</b>			<b>0.9</b>	<b>4.7</b>	<b>1.9</b>	<b>2.1</b>	<b>(13.1)</b>	<b>(8.1)</b>	<b>6.7</b>							
<b>Gas Company</b>																
Towngas China	HKD	4.4	0.2	2.3	0.9	9.7	(3.1)	16.8	7.6	1,534	9.7	9.4	0.8	0.8	11.1	10.7
Kulun	HKD	6.7	0.9	4.7	9.7	19.4	9.9	9.7	14.7	6,917	11.9	11.8	1.1	1.0	4.8	4.9
Beijing Enterprise	HKD	40.7	(2.4)	2.4	9.4	18.8	(14.0)	20.2	11.1	6,619	8.2	7.6	0.8	0.8	15.9	14.4
ENN Energy	HKD	38.1	0.5	(4.0)	4.5	10.4	(5.9)	9.0	19.4	5,315	12.2	11.3	2.3	2.0	7.8	7.3
China Resources Gas	HKD	24.5	(0.2)	(3.4)	(3.2)	5.6	3.8	22.6	12.4	7,021	15.2	13.8	2.7	2.4	10.2	9.2
China Gas Holdings	HKD	11.5	0.9	0.0	0.2	9.8	(11.3)	16.8	8.9	7,200	14.0	12.4	2.7	2.3	11.6	10.4
Shenzen Gas	HKD	11.4	(0.9)	0.7	1.6	(2.4)	(3.6)	(3.9)	0.5	2,866	11.5	10.8	1.1	1.0	8.4	8.0
Shann Xi	CNY	9.6	0.1	1.6	1.3	(6.5)	(11.6)	8.2	0.0	1,555	19.0	17.1	2.0	1.8	10.3	9.4
Suntien	HKD	1.3	(1.5)	6.3	14.5	26.4	34.0	67.5	34.0	642	10.0	8.1	0.6	0.5	9.8	8.1
China Oil & Gas	HKD	0.7	0.0	10.0	10.0	10.0	13.8	43.5	8.2	495	9.7	9.4	1.2	1.1	6.0	5.3
<b>Average</b>			<b>(0.2)</b>	<b>2.1</b>	<b>4.9</b>	<b>10.1</b>	<b>1.2</b>	<b>21.1</b>	<b>11.7</b>							
<b>EV</b>																
LG화학	KRW	282,000	1.8	4.3	(0.4)	17.3	6.4	0.4	8.0	17,519	14.7	12.5	1.4	1.4	6.2	5.5
삼성SDI	KRW	127,000	1.2	3.7	8.1	34.0	6.3	36.1	16.5	7,685	53.8	18.3	0.8	0.8	#N/A N/A	10.3
Panasonic	JPY	1275.0	3.2	7.0	4.9	24.7	28.0	43.7	7.2	27,383	19.0	15.5	1.7	1.5	5.7	5.2
GS Yuasa	JPY	498.0	2.0	4.8	4.2	9.5	23.0	11.9	2.5	1,803	16.5	14.5	1.3	1.2	6.9	6.5
NEC	JPY	271.0	0.4	1.5	(17.1)	(8.4)	5.9	0.0	(12.6)	6,180	12.5	12.5	0.9	0.8	7.2	6.5
BYD Auto	CNY	48.8	(1.6)	(3.5)	(0.3)	(12.3)	(18.8)	(2.5)	(1.9)	18,108	26.2	22.5	2.6	2.4	12.8	11.4
Tesla Motors	USD	279.8	(0.4)	6.7	17.7	52.2	24.0	85.2	30.9	45,066	#N/A N/A	#N/A N/A	13.5	11.6	75.8	43.0
Kandi Technologies	USD	4.3	3.7	3.7	(15.8)	13.3	(38.4)	(33.1)	(13.3)	203	#N/A N/A	#N/A N/A				
<b>Average</b>			<b>1.3</b>	<b>3.5</b>	<b>0.2</b>	<b>16.3</b>	<b>4.5</b>	<b>17.7</b>	<b>4.7</b>							

\* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임