

## 1. News Summary (3 page)

2017년 2월 14일

News	
WTI comment	미국 생산량 증가 우려에 '발목'...WTI 1.7%↓
Headline	LG화학, 삼성SDI, 전기차 배터리 글로벌 점유율 하락
News 1.	롯데케미칼, 여수 엘라스토퍼 공장 1,200억원 증액 투자
News 2.	테슬라 중동시장 진출...UAE서 온라인 주문
News 3.	유럽 부타디엔 시장, 공급 타이트 가속화될 것
News 4.	-

Conclusion	
	LREV인 GM Bolt의 판매 호조에 따라 LG화학 점유율 상승 기대
	부타디엔, SBR 등 고무계열 제품 강세로 Capex를 늘리는 것
	테슬라 차량 출고 지연 문제로 단기간에 UAE 보급 어려울 것
	고무 랠리에 정기보수 시즌 겹치며 쏠티지는 당분간 급속화될 것

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

Daily	Unit	Price	1D	1W	1M	3M	12M
			%	%	%	%	%
<b>Refinery</b>							
WTI	\$/bbl	52.9	(1.7)	(0.2)	1.1	22.2	79.8
Dubai	\$/bbl	54.8	1.8	(1.0)	0.8	30.5	87.4
Gasoline	\$/bbl	72.1	0.6	1.3	2.3	28.0	56.9
Diesel	\$/bbl	67.5	1.2	0.8	2.4	22.8	72.6
Complex margin	\$/bbl	8.7	(0.2)	1.2	0.3	(0.1)	0.8
1M lagging	\$/bbl	11.2	1.7	2.4	1.4	9.5	0.2
<b>Petrochemical</b>			%	%	%	%	%
Naphtha	\$/t	521	0.0	0.5	0.0	22.5	78.1
Butadiene	\$/t	3,000	0.0	0.0	3.8	123.0	275.0
HDPE	\$/t	1,195	0.8	0.8	3.9	2.1	11.7
MEG	\$/t	938	0.5	(0.2)	2.7	26.4	53.8
PX	\$/t	901	0.8	(0.7)	5.6	13.9	27.8
SM	\$/t	1,496	0.7	2.2	16.5	26.2	59.8
<b>Commodity</b>			%	%	%	%	%
Natural Gas	\$/mmbtu	2.93	(3.4)	(3.9)	(13.7)	(1.2)	9.1
Natural rubber	\$/t	2,290	6.0	3.6	2.2	38.8	114.0
Cotton	C/lbs	76.6	1.0	1.3	6.0	11.2	30.1

\*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	02/08	\$/kg	16.3	0.0	5.8	15.5	25.8
Module	02/08	\$/W	0.35	(0.3)	(1.1)	(10.8)	(35.9)

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

	Unit	Price	1D	1W	1M	3M	12M
			%	%	%	%	%
<b>E&amp;P</b>							
ExxonMobil	USD	83.0	0.6	(0.4)	(3.9)	(3.1)	2.4
Shell	EUR	2,174	0.3	(0.1)	(4.7)	11.5	42.5
Petrochina	CNY	8.41	(0.4)	(1.6)	0.2	13.6	16.3
Gazprom	RUB	141.2	0.5	(4.9)	(10.6)	(4.5)	7.5
Petrobras	BRL	15.6	0.3	4.4	(0.4)	11.5	251.0
<b>Refinery</b>							
Phillips66	USD	79.9	0.1	1.0	(4.1)	(2.8)	6.3
Valero	USD	67.0	(0.6)	3.0	1.0	7.3	16.1
JX	JPY	543.1	3.3	2.9	3.9	32.5	28.0
Neste Oil	EUR	34.4	(0.7)	4.4	4.2	(5.5)	31.5

	Unit	Price	1D	1W	1M	3M	12M
			%	%	%	%	%
<b>Petrochemical</b>							
BASF	EUR	90.0	1.7	3.1	1.4	11.4	54.8
Dow Chemical	USD	61.6	0.6	2.6	6.5	14.7	33.8
SABIC	SAR	96.6	0.2	0.1	4.2	12.3	51.6
Formosa Pla.	TWD	93.0	0.5	3.6	2.2	9.4	23.5
Shin-Etsu	JPY	9,750	(0.7)	1.7	2.9	18.3	88.2
<b>Renewable</b>							
Wacker	EUR	108.3	(2.6)	0.0	(0.9)	37.9	81.7
First Solar	USD	33.33	1.5	3.7	(6.8)	4.0	(45.4)
Trina Solar	USD	10.2	0.3	0.8	0.4	(1.3)	15.2
Tesla Motors	USD	280.6	4.2	8.9	18.0	48.8	85.8

## 4. Coverage Summary

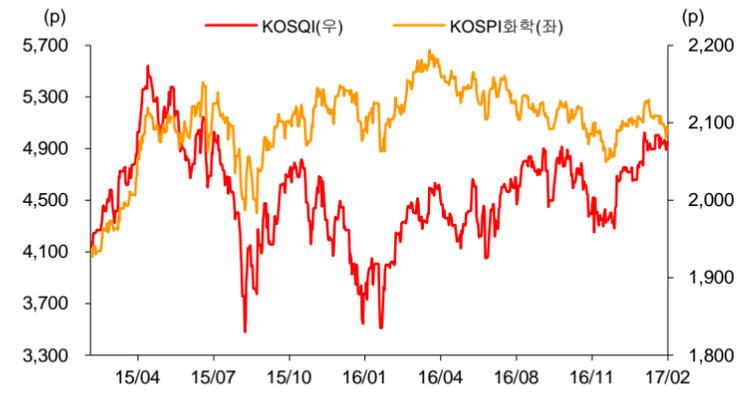
	02/10	1D	1W	1M	3M	6M	12M
KOSPI	2,075	0.4	0.1	(0.0)	4.6	1.3	8.2
KOSPI화학	5,073	1.4	(0.3)	(2.2)	0.9	(4.4)	(3.4)
LG화학	281,000	3.3	2.0	0.4	18.8	7.5	(6.6)
롯데케미칼	407,000	3.8	3.4	4.5	31.1	34.3	41.6
한화케미칼	26,550	2.3	1.0	0.0	10.6	1.7	7.3
금호석유화학	82,100	2.6	2.2	(6.6)	12.8	32.8	45.3
KCC	328,000	0.6	1.9	(8.8)	(15.2)	(22.1)	(24.8)
OCI	91,800	1.4	7.5	17.8	12.5	1.5	33.0
SKC	33,250	6.6	6.1	3.9	14.3	10.8	11.2
국도화학	52,700	1.3	3.3	(2.9)	(5.2)	(10.8)	(6.6)
SK이노베이션	156,000	2.3	(0.3)	(2.2)	(2.2)	2.0	9.9
S-Oil	84,000	2.6	3.8	(2.6)	(1.3)	11.4	0.0
GS	53,800	5.7	5.5	1.3	(1.1)	9.6	3.3
SK가스	108,500	0.5	2.4	(4.8)	6.4	22.2	44.9
포스코대우	25,900	1.0	1.2	(8.8)	0.6	15.9	57.9
LG상사	34,900	2.0	3.6	10.8	12.6	0.3	6.2

투자의견	TP	%	P/E	P/B
			* 추정치는 12M fwd 기준임	
			* 모든 coverage 업체의 실적은 연결기준임	
매수	350,000	24.6	10.53	1.46
매수	410,000	0.7	10.32	1.56
매수	28,000	5.5	9.58	0.80
매수	100,000	21.8	13.62	1.53
매수	500,000	52.4	12.89	0.50
매수	100,000	8.9	16.95	0.69
매수	40,000	20.3	10.58	0.81
매수	70,000	32.8	11.08	0.65
매수	180,000	15.4	8.52	0.87
매수	100,000	19.0	10.83	1.42
매수	65,000	20.8	8.50	0.85
매수	130,000	19.8	8.67	0.81
매수	29,000	12.0	10.49	1.19
매수	42,000	20.3	11.99	1.13

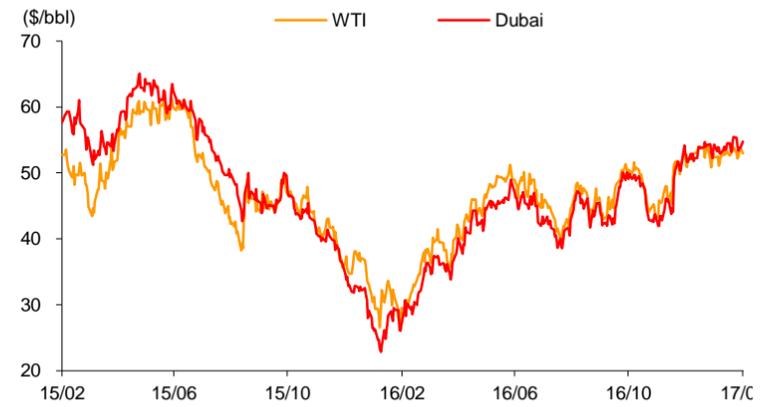
\* 작성자(손지우)는 본 조사분석자료에 게재된 내용들이 본인의 의견을 정확하게 반영하고 있으며, 외부의 부당한 압력이나 간섭없이 신의성실하게 작성되었음을 확인합니다.  
\* 본 보고서에 언급된 종목의 경우 당사 조사분석담당자는 본인의 담당종목을 보유하고 있지 않습니다.  
\* 본 보고서는 기관투자가 또는 제 3자에게 사전 제공된 사실이 없습니다.  
\* 당사는 본 보고서의 발간시점에 해당종목을 1% 이상 보유하고 있지 않습니다.

## Key Chart

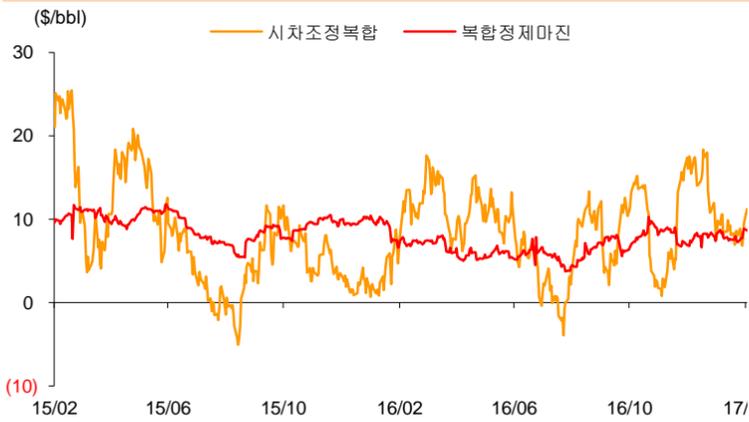
KOSPI/KOSPI화학



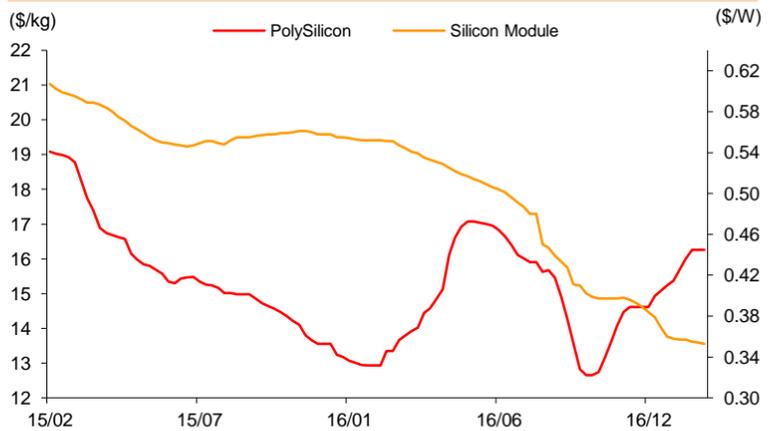
WTI/Dubai



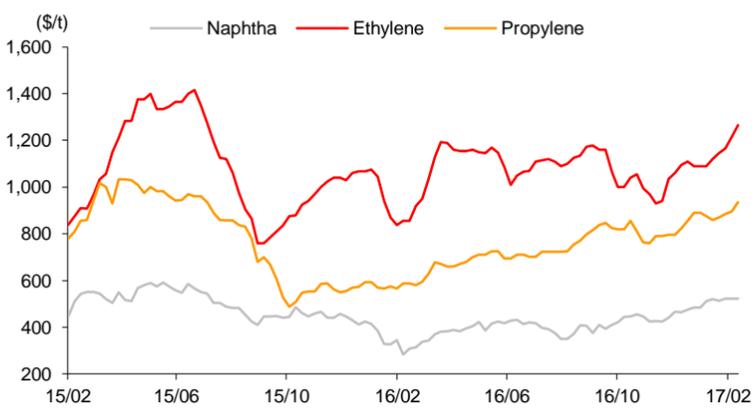
Complex & 1M lagging margin



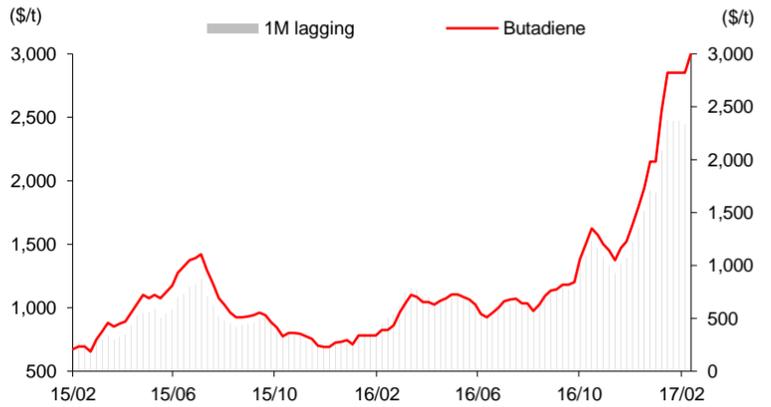
Polysilicon & Module prices



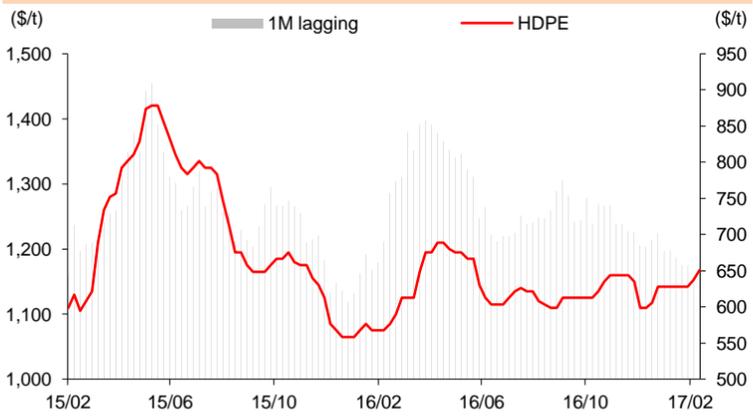
Naphtha/Ethylene/Propylene prices



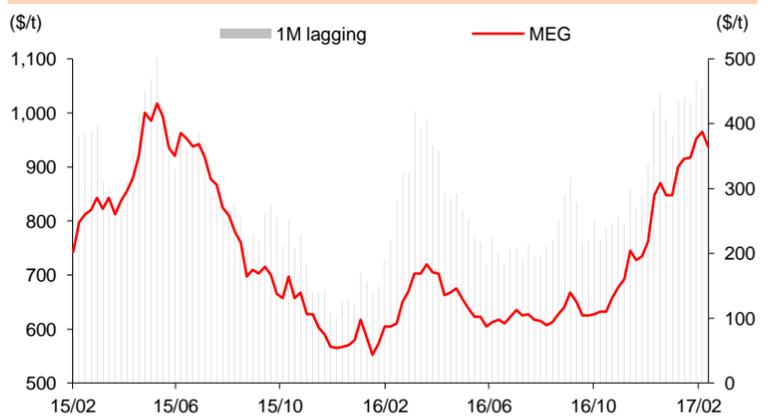
Butadiene price & 1M lagging naphtha spread



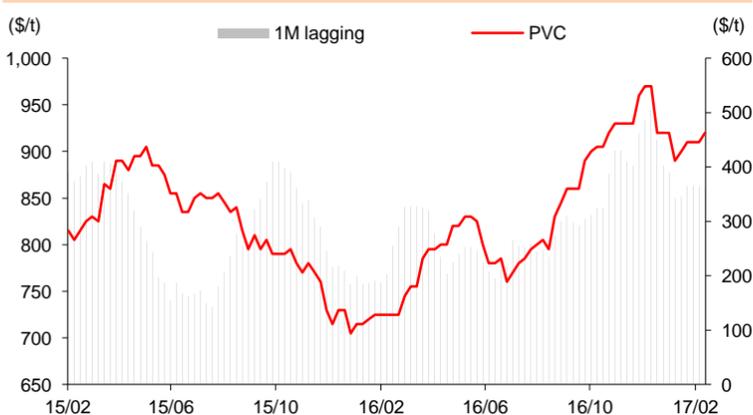
HDPE price & 1M lagging naphtha spread



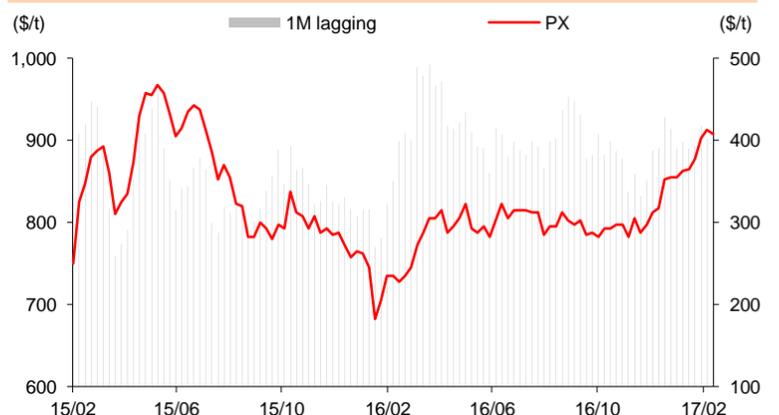
MEG price & 1M lagging naphtha spread



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: EBN)

**제목** LG화학, 삼성SDI, 전기차 배터리 글로벌 점유율 하락

**결론** LREV인 GM Bolt의 판매 호조에 따라 LG화학 점유율 상승 기대

**세부**

- 1) 지난해 글로벌 전기차 배터리 출하량은 42.3GWh를 기록함
- 2) 1위 BYD(7.9GWh), 2위 파나소닉(7.3GWh), 3위 CATL(6.6GWh)
- 3) LG화학(1.9GWh)은 6위, 삼성SDI(1.1GWh)는 9위를 기록함
- 4) 그러나 점유율은 각각 4.8% -> 4.5%, 4.1% -> 2.7%로 감소함
- 5) LREV인 GM Bolt의 판매 호조에 따라 LG화학 점유율 상승 기대

### Issue 1 (출처: EBN)

**제목** 롯데케미칼, 여수 엘라스토머 공장 1,200억원 증액 투자

**결론** 부타디엔, SBR 등 고무계열 제품 강세로 Capex를 늘리는 것

**세부**

- 1) 롯데베르살리스 엘라스토머스는 2013년과 2015년에 이어 추가 투자
- 2) 총 투자금액은 8,100억원이 되며, 롯데와 베르살리스의 50:50 합작
- 3) 합성고무 및 플라스틱물질의 제조와 판매가 목적
- 4) 올해 상업생산 목표로 여수 산단 내 공장설비 건설 준비 중
- 5) 부타디엔, SBR 등 고무계열 제품 강세로 Capex를 늘리는 것

### Issue 3 (출처: Platts)

**제목** 유럽 부타디엔 시장, 공급 타이트 가속화될 것

**결론** 고무 랠리에 정기보수 시즌 겹치며 솟티지는 당분간 급속화될 것

**세부**

- 1) 크래커 정기보수 시즌에 접어들며 부타디엔 공급이 더 타이트해질 것
- 2) 유럽 부타디엔 현물가는 톤당 2,500달러로 4년래 최고치를 기록중
- 3) 연초부터 유럽 부타디엔 가격은 아시아 부타디엔 가격을 따라감
- 4) 정기보수 시즌동안 전체 유럽 Capacity의 11% 가량이 생산 중단
- 5) 고무 랠리에 정기보수 시즌 겹치며 솟티지는 당분간 급속화될 것

### Issue 5 (출처:Platts)

**제목**

**결론**

**세부**

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

### WTI Comment (출처: 연합뉴스)

**제목** 미국 생산량 증가 우려에 '발목'...WTI 1.7%↓

**상승** 나이지리아, 리비아 포함 모든 OPEC 회원국의 지난달 일 생산량 감소

**요인** 전달보다 89만 배럴 감소한 3천214만 배럴로 집계

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**하락** 미국에서 가동중인 원유채굴장치는 591개로 늘어남

**요인** 이는 2015년 10월 이후 가장 많은 숫자

### Issue 2 (출처: 연합뉴스)

**제목** 테슬라 중동시장 진출...UAE서 온라인 주문

**결론** 테슬라 차량 출고 지연 문제로 단기간에 UAE 보급 어려울 것

**세부**

- 1) 일론 머스크, "UAE 고객으로부터 모델 S 세단과 모델 X SUV 주문"
- 2) 9월 두바이에 서비스 센터 개장하고 두바이몰 전시장 입점
- 3) 아부다비에도 매장과 서비스 센터 개설 예정
- 4) 최근 유가 하락으로 정부가 연료 보조금을 삭감해 전기차 수요 증대
- 5) 테슬라 차량 출고 지연 문제로 단기간에 UAE 보급 어려울 것

### Issue 4 (출처:Platts)

**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	0.944	0.940	0.930	0.940	0.921	0.896	0.888	0.951	0.901	0.904	0.939	
	Change, %		0.4	1.5	0.4	2.5	5.3	6.2	(0.7)	4.7	4.4	0.5	
	USD/JPY	113.7	113.2	111.7	114.5	106.7	101.3	113.3	117.0	121.1	108.8	114.4	
	Change, %		0.5	1.8	(0.7)	6.6	12.3	0.4	(2.8)	(6.0)	4.6	(0.6)	
	USD/KRW	1,151.9	1,151.0	1,137.9	1,175.0	1,164.7	1,103.1	1,211.5	1,205.8	1,131.2	1,160.5	1,171.0	
	Change, %		0.1	1.2	(2.0)	(1.1)	4.4	(4.9)	(4.5)	1.8	(0.7)	(1.6)	
	Agriculture	Corn	375.5	374.5	363.8	358.5	340.3	322.3	358.8	352.0	376.8	358.5	363.9
		Change, %		0.3	3.2	4.7	10.4	16.5	4.7	6.7	(0.4)	4.7	3.2
Soybean		1,054.3	1,059.0	1,036.0	1,042.5	978.5	1,003.3	872.8	996.5	945.4	987.5	1,035.9	
Change, %			(0.4)	1.8	1.1	7.7	5.1	20.8	5.8	11.5	6.8	1.8	
	Wheat	452.3	449.0	422.5	426.0	403.0	422.5	457.5	408.0	508.1	436.4	428.0	
	Change, %		0.7	7.0	6.2	12.2	7.0	(1.1)	10.8	(11.0)	3.6	5.7	
	Rice	9.5	9.6	9.5	9.7	9.5	9.7	10.8	9.4	11.1	10.3	9.6	
	Change, %		(0.8)	0.0	(1.7)	0.0	(1.8)	(11.9)	1.4	(14.2)	(8.3)	(1.3)	
	Oats	254.8	254.5	261.3	242.5	224.8	167.0	196.3	228.5	250.2	196.3	247.9	
	Change, %		0.1	(2.5)	5.1	13.3	52.5	29.8	11.5	1.8	29.8	2.8	
	MYR/mt	Palm Oil	3,250.0	3,268.0	3,262.0	3,280.0	2,975.0	2,620.0	2,548.0	3,218.0	2,190.3	2,653.8	3,245.9
		Change, %		(0.6)	(0.4)	(0.9)	9.2	24.0	27.6	1.0	48.4	22.5	0.1
Cocoa		1,889.0	1,939.0	2,047.0	2,213.0	2,453.0	2,993.0	2,827.0	2,126.0	3,091.6	2,854.0	2,122.9	
Change, %			(2.6)	(7.7)	(14.6)	(23.0)	(36.9)	(33.2)	(11.1)	(38.9)	(33.8)	(11.0)	
	Cotton	76.6	75.8	75.6	72.3	68.4	69.9	58.9	70.7	63.3	65.6	74.1	
	Change, %		1.0	1.3	6.0	11.9	9.6	30.1	8.4	21.1	16.8	3.4	
	Sugar	20.0	20.4	21.2	20.5	21.7	19.7	13.2	19.5	13.1	18.2	20.5	
	Change, %		(2.1)	(5.6)	(2.5)	(7.8)	1.5	52.1	2.5	52.2	10.2	(2.5)	
	Coffee	144.3	145.8	144.2	149.3	159.5	136.9	115.6	137.1	132.6	136.1	147.3	
	Change, %		(1.0)	0.0	(3.4)	(9.5)	5.4	24.8	5.3	8.7	6.0	(2.1)	
	Energy	WTI	52.9	53.9	53.0	52.4	43.4	44.5	29.4	53.7	48.8	43.4	52.9
		Change, %		(1.8)	(0.2)	1.0	21.8	18.9	79.6	(1.6)	8.3	21.9	(0.1)
Brent		55.6	56.7	55.7	55.5	44.8	47.0	33.4	56.8	53.7	45.1	55.8	
Change, %			(2.0)	(0.3)	0.2	24.2	18.3	66.6	(2.2)	3.5	23.3	(0.4)	
	Natural Gas	2.9	3.0	3.1	3.4	2.6	2.6	2.0	3.7	2.6	2.6	3.2	
	Change, %		(3.4)	(3.9)	(14.3)	11.9	13.3	49.0	(21.3)	11.4	14.8	(9.8)	
	Ethanol	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.6	1.5	1.5	1.5	
	Change, %		(1.3)	2.6	7.0	3.9	12.1	14.8	(1.6)	4.7	4.3	4.2	
	RBOB Gasoline	154.4	159.0	151.0	161.2	130.5	137.1	104.3	166.5	163.6	140.0	157.5	
	Change, %		(2.9)	2.2	(4.2)	18.3	12.6	48.0	(7.3)	(5.6)	10.3	(2.0)	
	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	1,225.2	1,233.7	1,235.4	1,197.6	1,227.9	1,335.9	1,237.9	1,152.3	1,160.6	1,248.5	1,202.4	
	Change, %		(0.7)	(0.8)	2.3	(0.2)	(8.3)	(1.0)	6.3	5.6	(1.9)	1.9	
	Silver	17.8	18.0	17.7	16.8	17.4	19.7	15.8	15.9	15.7	17.1	17.1	
	Change, %		(0.7)	0.5	6.0	2.6	(9.6)	13.2	12.0	13.4	4.2	4.2	
	Platinum	998.5	1,011.8	1,014.9	985.0	943.5	1,123.3	956.5	903.5	1,055.7	988.4	982.4	
	Change, %		(1.3)	(1.6)	1.4	5.8	(11.1)	4.4	10.5	(5.4)	1.0	1.6	
	Palladium	775.2	785.2	772.9	751.6	676.7	685.9	523.6	681.0	691.9	614.3	755.0	
	Change, %		(1.3)	0.3	3.1	14.6	13.0	48.1	13.8	12.0	26.2	2.7	
	Copper	6,106.0	6,090.0	5,846.0	5,909.0	5,549.0	4,761.0	4,500.0	5,535.5	5,503.1	4,872.0	5,813.3	
	Change, %		0.3	4.4	3.3	10.0	28.3	35.7	10.3	11.0	25.3	5.0	
	Uranium	26.8	26.8	26.2	23.0	18.5	26.0	34.2	20.4	36.9	26.4	23.8	
	Change, %		0.0	2.3	16.3	45.0	2.9	(21.7)	31.1	(27.4)	1.2	12.5	
	HR Coil	623.0	620.0	620.0	622.0	492.0	595.0	397.0	633.0	461.5	519.3	622.3	
	Change, %		0.5	0.5	0.2	26.6	4.7	56.9	(1.6)	35.0	20.0	0.1	
	Scrap	305.7	305.7	300.0	305.0	255.0	260.0	250.0	302.0	252.9	275.7	302.3	
	Change, %		0.0	1.9	0.2	19.9	17.6	22.3	1.2	20.8	10.9	1.1	
	Zinc	2,916.0	2,924.0	2,793.0	2,790.5	2,472.0	2,238.5	1,705.0	2,576.0	1,941.9	2,097.5	2,762.7	
	Change, %		(0.3)	4.4	4.5	18.0	30.3	71.0	13.2	50.2	39.0	5.6	

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

## Refining Price Data

Daily Price		02/10	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	<b>WTI</b>	52.9	53.9	53.0	52.4	43.3	45.7	29.4	53.7	48.8	43.4	52.8
	<i>Change, %</i>		(1.7)	(0.2)	1.1	22.2	15.7	79.8	(1.5)	8.5	22.1	0.2
	<b>Dubai</b>	54.8	53.8	55.3	54.3	42.0	44.4	29.2	53.8	50.8	41.3	53.9
	<i>Change, %</i>		1.8	(1.0)	0.8	30.5	23.3	87.4	1.7	7.8	32.6	1.6
Crude Oil Product	<b>Gasoline(휘발유)</b>	72.1	71.6	71.2	70.4	56.3	53.7	46.0	69.8	69.5	56.3	70.0
	<i>Change, %</i>		0.6	1.3	2.3	28.0	34.2	56.9	3.2	3.7	28.1	3.0
	<b>Kerosene(등유)</b>	67.1	66.2	66.9	66.2	54.7	54.5	41.8	66.4	64.7	52.9	65.4
	<i>Change, %</i>		1.4	0.3	1.4	22.7	23.3	60.7	1.0	3.7	26.9	2.6
	<b>Diesel(경유)</b>	67.5	66.7	67.0	65.9	55.0	54.5	39.1	65.5	64.8	52.1	65.5
	<i>Change, %</i>		1.2	0.8	2.4	22.8	23.7	72.6	3.0	4.2	29.5	3.1
	<b>Bunker-C</b>	50.5	49.3	49.9	52.1	40.4	37.2	24.5	52.1	45.3	35.5	50.4
	<i>Change, %</i>		2.4	1.1	(3.2)	25.0	35.5	106.0	(3.1)	11.5	42.0	0.2
	<b>Naphtha</b>	57.6	56.9	57.2	57.0	45.1	39.0	35.1	53.5	52.6	42.6	55.7
	<i>Change, %</i>		1.3	0.7	1.1	27.7	47.7	64.3	7.8	9.5	35.3	3.5
Dubai Spread	<b>Gasoline(휘발유)</b>	17.3	17.8	15.9	16.1	14.4	9.3	16.7	16.0	18.7	14.9	16.0
	<i>Change</i>		(0.5)	1.4	1.2	3.0	8.0	0.6	1.3	(1.4)	2.4	1.3
	<b>Kerosene(등유)</b>	12.4	12.4	11.6	11.9	12.7	10.0	12.6	12.6	14.0	11.6	11.5
	<i>Change</i>		(0.0)	0.8	0.5	(0.4)	2.3	(0.2)	(0.3)	(1.6)	0.8	0.8
	<b>Diesel(경유)</b>	12.7	12.9	11.7	11.6	13.0	10.1	9.9	11.7	14.0	10.8	11.6
	<i>Change</i>		(0.2)	1.1	1.1	(0.3)	2.6	2.9	1.0	(1.3)	1.9	1.2
Dubai Spread	<b>Bunker-C</b>	(4.3)	(4.5)	(5.4)	(2.2)	(1.6)	(7.2)	(4.7)	(1.8)	(5.5)	(5.8)	(3.6)
	<i>Change</i>		0.2	1.1	(2.1)	(2.7)	2.9	0.4	(2.5)	1.2	1.5	(0.7)
	<b>Naphtha</b>	2.9	3.1	1.9	2.7	3.2	(5.4)	5.9	(0.4)	1.8	1.3	1.8
<i>Change</i>		(0.2)	1.0	0.2	(0.3)	8.3	(3.0)	3.3	1.1	1.6	1.1	
Refining Margin	<b>Simple(단순)</b>	3.2	3.2	2.1	3.7	4.5	(0.1)	3.0	3.8	3.3	1.9	3.0
	<i>Change</i>		(0.1)	1.1	(0.5)	(1.4)	3.3	0.2	(0.6)	(0.1)	1.3	0.2
	<b>Complex(복합)</b>	8.7	8.9	7.5	8.4	8.8	4.3	7.8	8.3	9.3	7.0	7.9
	<i>Change</i>		(0.2)	1.2	0.3	(0.1)	4.4	0.8	0.4	(0.6)	1.7	0.7
Refining Margin	<b>Complex(lagging)</b>	11.2	9.5	8.8	9.8	1.7	6.4	11.0	18.0	7.3	8.5	9.5
	<i>Change</i>		1.7	2.4	1.4	9.5	4.8	0.2	(6.8)	4.0	2.7	1.7

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			02/13	02/10	02/09	02/08	02/07	02/06	02/03	02/02	02/01	01/31
Spot Price	<b>Naphtha</b>	CFR Japan	520.5	520.5	519.3	506.0	517.8	527.0	527.5	527.3	514.1	512.8
	<b>Ethylene</b>	CFR SE Asia	1,110.0	1,110.0	1,100.0	1,095.0	1,095.0	1,075.0	1,075.0	1,075.0	1,075.0	1,075.0
	<b>Propylene</b>	FOB Korea	935.0	935.0	925.0	899.0	900.0	905.0	900.0	891.0	891.0	892.0
	<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	1,185.0	1,185.0	1,185.0	1,185.0	1,185.0	1,185.0	1,185.0	1,185.0	1,180.0
	<b>LDPE</b>	CFR FE Asia	1,330.0	1,310.0	1,310.0	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	1,190.0	1,195.0	1,195.0	1,195.0	1,195.0	1,175.0	1,175.0	1,175.0	1,175.0	1,175.0
	<b>MEG</b>	CFR China	938.0	933.0	925.0	935.0	940.0	960.0	960.0	950.0	950.0	950.0
	<b>PP</b>	CFR FE Asia	1,060.0	1,030.0	1,040.0	1,035.0	1,035.0	1,035.0	1,030.0	1,025.0	1,025.0	1,025.0
	<b>PX</b>	CFR China	900.7	893.7	899.7	902.2	906.7	911.7	899.0	894.3	889.3	884.3
	<b>PTA</b>	CFR China	695.0	685.0	675.0	677.0	677.0	680.0	675.0	665.0	665.0	665.0
	<b>Benzene</b>	FOB Korea	1,053.0	1,036.0	1,026.0	1,050.0	1,051.0	1,054.0	1,041.0	999.0	992.0	969.0
	<b>Toluene</b>	FOB Korea	741.0	732.0	740.0	748.0	756.0	766.0	764.0	758.0	752.0	736.5
	<b>Xylene</b>	FOB Korea	715.0	715.0	726.0	734.0	737.0	737.0	735.0	740.0	737.0	735.5
	<b>SM</b>	FOB Korea	1,496.0	1,485.0	1,460.0	1,448.0	1,464.0	1,499.0	1,549.5	1,515.0	1,465.0	1,406.5

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	02/10	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	61.6	0.6	2.6	6.5	14.7	17.6	33.8	7.6	74,691	16.9	15.1	2.7	2.7	9.4	8.5	
Du Pont	USD	77.8	0.8	2.0	5.7	12.4	15.0	33.3	6.0	67,281	23.8	21.0	7.1	4.1	13.1	11.8	
Eastman	USD	80.1	0.9	2.1	2.8	6.4	23.6	32.0	6.4	11,749	11.9	11.0	2.5	2.3	8.6	8.3	
BASF	EUR	90.0	1.7	3.1	1.4	11.4	23.8	54.8	1.9	87,590	18.9	17.2	2.7	2.6	9.3	8.5	
Akzo Nobel	EUR	64.6	0.0	2.4	6.9	9.8	9.3	28.7	8.7	17,248	15.3	15.3	2.4	2.4	8.4	8.1	
Arkema	EUR	94.1	1.4	2.0	3.4	9.3	18.2	90.6	1.2	7,550	17.8	15.3	1.9	1.8	7.1	6.6	
Lanxess	EUR	67.6	0.8	3.1	1.8	16.6	44.6	97.7	8.3	6,551	26.8	21.7	2.4	2.3	7.6	6.5	
Sumitomo Chemical	JPY	633	0.0	4.5	13.6	31.9	47.2	42.9	13.8	9,211	15.0	12.2	1.3	1.2	8.7	7.9	
Mitsubishi Chemical	JPY	829	0.3	8.4	4.7	22.1	44.0	52.5	9.3	10,969	9.4	10.7	1.2	1.1	6.9	6.5	
Shin-Etsu Chemical	JPY	9,750	(0.7)	1.7	2.9	18.3	37.8	88.2	7.5	37,031	24.4	21.0	2.0	1.9	10.3	9.0	
Asahi Kasei	JPY	1,099	(0.0)	6.7	7.5	13.4	36.1	70.0	7.7	13,543	15.1	14.4	1.4	1.3	7.2	6.8	
JSR	JPY	2,042	0.5	2.7	4.0	35.4	42.2	40.2	10.8	4,058	19.7	17.8	1.3	1.2	9.1	7.6	
Nitto Denko	JPY	9,594	1.5	3.0	8.2	23.7	36.3	84.0	7.0	14,653	27.4	22.3	2.5	2.3	11.1	9.6	
SABIC	SAR	96.6	0.2	0.1	4.2	12.3	15.5	51.6	5.6	77,262	17.3	15.8	1.8	1.7	8.1	7.6	
Yansab	SAR	57.2	0.5	(3.3)	6.0	21.8	31.6	114.9	5.1	8,585	14.9	15.4	2.0	2.0	8.9	9.2	
Formosa Plastics	TWD	93.0	0.5	3.6	2.2	9.4	16.3	23.5	4.3	19,119	17.7	16.3	2.0	1.9	28.6	25.7	
Formosa Fiber	TWD	99.7	0.7	3.1	1.0	4.8	16.9	41.4	3.5	18,872	14.8	14.5	2.0	1.8	12.9	12.6	
Nan Ya Plastics	TWD	78.1	1.2	5.0	6.4	20.7	24.8	32.8	9.7	20,003	17.4	18.6	1.8	1.8	20.0	17.6	
Sinopec Shanghai	CNY	6.65	0.2	(1.5)	(0.4)	10.8	7.1	21.4	3.3	9,234	13.4	14.5	3.0	2.6	7.1	7.9	
Sinopec Yizheng(Fiber)	CNY	3.89	0.8	1.0	(5.6)	(1.8)	0.3	(38.4)	(5.1)	7,245	#N/A	#N/A	3.1	3.2	#N/A	30.5	
Reliance	INR	1,030	(0.0)	(1.1)	(5.6)	2.8	(0.6)	13.6	(4.9)	49,855	11.1	10.8	1.2	1.1	10.0	8.3	
Industries Qatar	QAR	115.6	0.8	4.6	(3.7)	14.3	3.7	15.7	(1.6)	19,206	19.0	17.8	2.1	2.1	45.3	56.7	
PTT Chemical	THB	67.5	0.0	(3.2)	6.3	14.9	10.7	31.1	7.1	8,587	12.0	11.1	1.4	1.3	6.1	5.7	
Petronas	MYR	7.2	0.1	(0.8)	0.4	6.0	8.1	4.6	3.4	12,984	20.8	18.1	2.2	2.1	10.5	9.2	
LG화학	KRW	279,500	(0.5)	0.7	(1.2)	18.2	5.5	(1.2)	7.1	17,133	0.0	0.0	0.0	0.0	0.0	0.0	
롯데케미칼	KRW	405,000	(0.5)	2.9	4.2	30.4	33.0	50.6	9.8	12,054	0.0	0.0	0.0	0.0	0.0	0.0	
한화케미칼	KRW	27,300	2.8	4.0	1.5	13.8	5.0	21.1	10.5	3,907	0.0	5.6	0.0	0.8	0.0	6.3	
금호석유	KRW	84,400	2.8	7.4	(6.2)	15.9	35.7	62.6	2.9	2,233	0.0	0.0	0.0	0.0	0.0	0.0	
SKC	KRW	33,750	1.5	5.6	4.2	16.0	12.5	21.4	2.3	1,100	0.0	0.0	0.0	0.0	0.0	0.0	
국도화학	KRW	52,700	0.0	1.3	(2.9)	(5.2)	(10.4)	2.5	(4.0)	266	0.0	0.0	0.0	0.0	0.0	0.0	
효성	KRW	8,150	1.0	0.1	1.9	46.3	43.0	239.6	19.9	3,980	0.0	0.0	0.0	0.0	0.0	0.0	
<b>Average</b>			<b>0.6</b>	<b>2.4</b>	<b>2.6</b>	<b>15.4</b>	<b>21.1</b>	<b>47.0</b>	<b>5.7</b>								
<b>Refinery</b>																	
Valero	USD	67.0	(0.6)	3.0	1.0	7.3	23.4	16.1	(1.9)	30,347	18.2	12.7	1.5	1.5	7.1	5.8	
Conoco Phillips	USD	49.7	(0.9)	(0.8)	(1.8)	13.1	20.1	51.1	(0.9)	61,492	#N/A	#N/A	72.8	1.8	1.8	16.8	7.9
Formosa Petrochemical	TWD	106.5	(0.9)	0.0	(1.4)	4.9	6.8	32.5	(4.9)	32,763	16.7	17.6	3.5	3.3	11.2	11.9	
Tesoro	USD	87.4	0.0	4.8	9.7	2.3	15.9	22.9	(0.1)	10,209	21.4	14.1	1.9	1.5	7.0	5.0	
Marathon Petroleum	USD	50.3	0.3	3.9	3.9	14.4	20.5	58.5	(0.1)	26,539	25.7	15.9	2.0	1.9	10.3	7.9	
Devon Energy	USD	45.3	(0.3)	(0.0)	(2.5)	8.1	8.6	108.7	(0.9)	23,698	#N/A	#N/A	26.5	3.9	3.5	14.8	9.9
Hollyfrontier	USD	29.7	(1.6)	3.7	(1.2)	14.1	9.3	(3.4)	(9.5)	5,236	92.7	14.0	1.1	1.2	11.9	6.2	
Phillips 66	USD	79.9	0.1	1.0	(4.1)	(2.8)	1.4	6.3	(7.5)	41,468	26.0	17.0	1.8	1.8	12.1	9.0	
Murphy Oil	USD	28.4	(0.2)	(2.3)	(8.7)	3.7	(0.8)	69.3	(8.7)	4,894	#N/A	#N/A	60.2	0.9	0.9	8.4	4.9
JX Holdings	JPY	543.1	3.3	2.9	3.9	32.5	44.1	28.0	9.8	11,913	9.6	8.8	0.8	0.7	8.4	8.0	
Idemitsu	JPY	3,490.0	2.6	(2.2)	3.6	45.7	87.0	112.2	12.4	4,908	8.5	8.0	1.0	0.9	8.8	8.0	
Tonengeneral	JPY	1,355.0	2.8	2.5	3.8	33.6	45.1	51.6	10.0	4,359	12.2	11.3	2.0	1.8	7.5	6.8	
Nesteoil	EUR	34.4	(0.7)	4.4	4.2	(5.5)	(10.6)	31.5	(5.8)	0	11.6	13.3	2.4	2.2	6.7	7.8	
Ashland	USD	120.6	1.7	2.5	8.4	12.2	7.0	31.2	10.4	7,506	17.6	27.7	2.7	2.2	8.8	11.9	
Fuchs Petrolub	EUR	43.6	0.3	3.8	5.8	16.2	6.9	25.8	9.3	6,159	24.0	23.0	5.1	4.5	14.1	13.5	
SK이노베이션	KRW	157,500	1.0	3.6	(2.8)	(1.3)	3.6	21.6	7.5	12,646	0.0	0.0	0.0	0.0	0.0	0.0	
S-Oil	KRW	85,900	2.3	5.7	(1.5)	0.9	14.4	15.9	1.4	8,398	0.0	0.0	0.0	0.0	0.0	0.0	
GS	KRW	54,200	0.7	6.5	0.0	(0.4)	8.9	9.5	0.2	4,373	0.0	0.0	0.0	0.0	0.0	0.0	
<b>Average</b>			<b>0.5</b>	<b>2.3</b>	<b>1.1</b>	<b>10.5</b>	<b>16.4</b>	<b>36.3</b>	<b>1.1</b>								

\* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임

\* 국내업체의 multiple은 Dataguidepro 기준임

## Global peers

	Currency	02/10	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	0.6	(0.4)	(3.9)	(3.1)	(5.5)	2.4	(8.0)	344,176	38.5	20.1	2.0	2.0	12.5	8.2
BP	GBP	460	0.0	(3.6)	(11.3)	5.6	6.2	38.2	(9.8)	111,913	31.5	15.5	1.2	1.2	7.3	5.4
Shell	EUR	2,174	0.3	(0.1)	(4.7)	11.5	13.3	42.5	(3.1)	226,913	26.4	15.0	1.2	1.2	9.0	6.4
Chevron	USD	114	0.8	0.8	(2.1)	6.8	11.5	33.3	(3.2)	215,036	82.1	24.5	1.5	1.5	12.4	7.1
Total	EUR	48	0.3	2.1	(1.6)	13.3	10.9	26.5	(1.3)	124,991	15.1	12.2	1.3	1.2	7.5	5.9
Sinopec	CNY	6	0.0	(1.3)	(0.3)	17.2	19.3	35.3	8.5	101,856	17.0	13.5	1.0	1.0	5.6	5.1
Petrochina	CNY	8	(0.4)	(1.6)	0.2	13.6	14.6	16.3	5.8	214,645	215.6	29.5	1.3	1.3	7.8	6.7
CNOOC	CNY	13	(0.3)	0.6	0.3	4.6	5.8	2.8	1.7	7,546	#N/A N/A	383.8	1.7	1.7	#N/A N/A	17.4
Gazprom	RUB	141	0.5	(4.9)	(10.6)	(4.5)	2.4	7.5	(8.6)	57,513	3.4	3.8	0.3	0.3	4.1	3.7
Rosneft	RUB	379	0.4	(3.8)	(2.3)	10.8	14.6	40.0	(5.9)	69,109	14.5	7.7	1.2	1.1	5.2	3.9
Anadarko	USD	68	(1.7)	(1.4)	(4.4)	11.6	25.5	80.2	(2.3)	38,084	#N/A N/A	134.1	2.3	2.5	13.6	8.3
Petrobras	BRL	16	0.3	4.4	(0.4)	11.5	30.2	251.0	5.0	67,683	#N/A N/A	13.6	0.8	0.8	6.8	5.8
Lukoil	USD	3,279	1.0	(1.8)	(0.3)	6.0	14.3	36.9	(4.9)	47,887	7.9	5.8	0.7	0.6	N/A	N/A
Kinder	USD	23	0.3	0.2	0.6	9.2	7.0	50.7	8.9	47,497	33.3	33.0	1.4	1.4	12.3	12.3
Statoil	NOK	151	0.1	(3.6)	(7.3)	10.4	12.9	32.0	(4.8)	58,315	127.4	16.8	1.4	1.5	5.1	3.3
BHP	AUD	26	2.2	2.1	0.5	6.1	27.9	75.3	5.5	101,349	14.8	16.6	1.8	1.8	6.3	6.9
PTT E&P	THB	94	0.0	(5.1)	(2.6)	15.8	15.4	68.5	(2.9)	10,586	23.0	15.8	0.9	0.9	3.4	3.1
Petronas gas	MYR	21	0.6	0.0	(1.0)	(5.1)	(7.1)	(7.4)	(3.3)	9,163	23.3	22.8	3.4	3.3	13.2	13.1
Chesapeake	USD	6	(0.8)	(0.8)	(8.5)	16.6	26.1	298.1	(9.8)	5,617	#N/A N/A	8.0	#N/A N/A	#N/A N/A	14.0	8.5
Noble Energy	USD	38	(1.1)	(3.5)	2.9	6.4	9.3	33.9	1.1	16,526	#N/A N/A	#N/A N/A	1.7	1.8	10.4	8.2
<b>Average</b>		<b>0</b>	<b>0.2</b>	<b>(1.1)</b>	<b>(2.8)</b>	<b>8.2</b>	<b>12.7</b>	<b>58.2</b>	<b>(1.6)</b>							
<b>PV</b>																
WACKER	EUR	108.3	(2.6)	0.0	(0.9)	37.9	31.6	81.7	9.6	5,985	33.0	20.8	2.4	2.3	6.3	5.7
GCL-Poly	HKD	1.1	1.0	5.0	10.5	5.0	(4.5)	4.0	12.9	2,515	7.8	7.4	0.8	0.7	6.0	5.6
SunPower	USD	7.1	(0.3)	2.1	(4.2)	9.8	(34.2)	(66.4)	8.0	988	#N/A N/A	#N/A N/A	0.8	0.9	15.1	12.6
Canadian Solar	USD	13.1	5.1	8.3	5.3	11.3	1.5	(20.0)	7.6	753	8.3	6.5	0.8	0.7	11.0	8.1
JA Solar	USD	4.9	5.1	6.7	0.8	(10.0)	(34.0)	(40.5)	3.8	235	6.1	#N/A N/A	0.3	0.3	3.6	5.4
Trina Solar	USD	10.2	0.3	0.8	0.4	(1.3)	(3.1)	15.2	9.2	939	9.7	42.3	0.7	0.7	6.8	9.2
Solar City	USD	20.3	0.0	0.0	0.0	0.6	(14.2)	17.0	0.0	2,049	#N/A N/A	#N/A N/A				
Yingli	USD	2.7	(2.5)	(0.4)	(1.8)	(25.2)	(31.8)	(26.6)	5.0	50	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	12.4	28.3
First Solar	USD	33.3	1.5	3.7	(6.8)	4.0	(14.1)	(45.4)	3.9	3,463	7.1	83.7	0.6	0.6	3.8	7.8
한화큐셀	USD	8.1	1.6	2.1	(3.8)	(14.1)	(32.7)	(41.9)	(0.4)	683	5.8	26.7	#N/A N/A	#N/A N/A	5.8	8.9
OCI	KRW	94,600	3.1	13.0	16.2	15.9	4.2	44.9	20.2	1,959	0.0	0.0	0.0	0.0	0.0	0.0
웅진에너지	KRW	4,790	(0.2)	2.4	(2.5)	(2.2)	(43.3)	(63.0)	1.2	95	N/A	0.0	0.0	0.0	0.0	0.0
신성솔라에너지	KRW	1,930	4.3	(1.3)	(10.6)	(19.1)	(14.6)	19.7	(12.7)	290	N/A	0.0	0.0	0.0	0.0	0.0
<b>Average</b>			<b>1.2</b>	<b>3.0</b>	<b>0.2</b>	<b>0.9</b>	<b>(13.5)</b>	<b>(8.7)</b>	<b>4.9</b>							
<b>Gas Company</b>																
Towngas China	HKD	4.3	(0.5)	0.5	(2.1)	7.6	(6.4)	20.0	4.4	1,489	9.4	9.1	0.8	0.8	10.9	10.5
Kulun	HKD	6.6	0.6	8.4	8.9	16.4	10.4	13.0	13.8	6,866	11.8	11.7	1.1	1.0	4.8	4.9
Beijing Enterprise	HKD	40.5	0.7	4.4	8.9	17.7	(14.7)	23.9	10.5	6,588	8.2	7.6	0.8	0.8	15.8	14.4
ENN Energy	HKD	38.2	1.3	(1.7)	4.8	11.0	(6.4)	18.3	19.7	5,329	12.3	11.4	2.3	2.0	7.8	7.3
China Resources Gas	HKD	24.2	1.0	(3.0)	(4.5)	3.6	3.4	23.3	10.8	6,922	15.0	13.6	2.7	2.3	10.0	9.1
China Gas Holdings	HKD	11.2	(1.8)	(1.4)	(2.1)	1.8	(13.2)	18.6	6.5	7,037	13.7	12.1	2.6	2.2	11.4	10.2
Shenzen Gas	HKD	11.5	0.0	2.5	2.9	(2.2)	(1.2)	(1.5)	1.8	2,901	11.6	10.9	1.1	1.0	8.5	8.1
Shann Xi	CNY	9.7	0.9	2.2	1.9	(4.0)	(9.5)	7.8	0.6	1,559	19.1	17.2	2.0	1.8	10.4	9.5
Suntien	HKD	1.4	6.2	8.7	17.1	28.0	41.2	77.9	37.0	656	10.3	8.3	0.6	0.6	9.9	8.1
China Oil & Gas	HKD	0.7	4.8	6.5	10.0	13.8	15.8	48.3	8.2	496	9.7	9.4	1.2	1.1	6.0	5.3
<b>Average</b>			<b>1.3</b>	<b>2.7</b>	<b>4.6</b>	<b>9.4</b>	<b>1.9</b>	<b>25.0</b>	<b>11.3</b>							
<b>EV</b>																
LG화학	KRW	279,500	(0.5)	0.7	(1.2)	18.2	5.5	(1.2)	7.1	17,133	14.6	12.4	1.4	1.4	6.2	5.5
삼성SDI	KRW	124,000	(0.8)	1.6	5.5	34.3	3.8	34.5	13.8	7,404	52.5	18.4	0.8	0.8	#N/A N/A	10.0
Panasonic	JPY	1242.5	2.0	5.3	2.3	24.1	23.6	55.0	4.5	26,790	18.6	15.1	1.6	1.5	5.6	5.0
GS Yuasa	JPY	488.0	0.2	3.0	2.1	9.4	19.3	18.2	0.4	1,774	16.3	14.4	1.2	1.2	6.7	6.3
NEC	JPY	272.0	0.7	3.0	(16.8)	(5.9)	6.3	8.8	(12.3)	6,227	12.5	12.5	0.9	0.9	7.2	6.5
BYD Auto	CNY	49.7	0.2	2.2	1.7	(9.8)	(16.1)	(0.7)	0.1	18,455	26.7	23.0	2.6	2.5	13.0	11.6
Tesla Motors	USD	280.6	4.2	8.9	18.0	48.8	24.4	85.8	31.3	45,201	#N/A N/A	#N/A N/A	15.5	14.2	81.1	43.0
Kandi Technologies	USD	4.3	4.3	(1.2)	(15.8)	9.0	(37.7)	(33.1)	(13.3)	203	#N/A N/A	#N/A N/A				
<b>Average</b>			<b>1.3</b>	<b>2.9</b>	<b>(0.5)</b>	<b>16.0</b>	<b>3.6</b>	<b>20.9</b>	<b>4.0</b>							

\* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임