

## 1. News Summary (3 page)

2017년 2월 28일

News	
<b>WTI comment</b>	미국 원유 생산 늘어날 우려에 보험권...WTI 0.1%↑
<b>Headline</b>	유럽 부타디엔, 공급 차질로 4년 반만에 최고치 기록
<b>News 1.</b>	유럽 전기차 판매 호황에 삼성SDI, LG화학 방긋
<b>News 2.</b>	SK이노베이션 전기차 배터리 공장 대폭 증설, 세계시장 공략
<b>News 3.</b>	Tesla Model 3 딜리버리에 대한 의구심 확산으로 5% 하락
<b>News 4.</b>	-

Conclusion	
	글로벌 천연고무 및 고무계열 제품 솟티지는 라니냐 트리거로 지속됨
	유럽 전기차 침투율 증가하며 배터리에 투입되는 니켈 솟티지 가능
	전기차 시장 성장하며 주요 배터리 업체 수혜가 가시권에 진입
	딜리버리 연기와 더불어 부채비율 유지 위한 증자까지 병행할 것

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

Daily	Unit	Price	1D	1W	1M	3M	12M
<b>Refinery</b>			%	%	%	%	%
WTI	\$/bbl	54.1	0.1	1.2	1.7	14.8	60.1
Dubai	\$/bbl	55.2	0.9	1.3	1.3	26.1	84.0
Gasoline	\$/bbl	68.9	0.6	(0.1)	(1.9)	17.6	48.8
Diesel	\$/bbl	67.6	0.5	0.5	2.5	22.4	68.5
Complex margin	\$/bbl	7.3	0.1	(0.4)	(0.2)	(1.0)	(0.0)
1M lagging	\$/bbl	9.1	1.0	0.7	0.9	5.1	(1.2)
<b>Petrochemical</b>			%	%	%	%	%
Naphtha	\$/t	511	0.6	0.1	(1.7)	16.3	57.4
Butadiene	\$/t	3,000	0.0	0.0	0.0	102.7	233.3
HDPE	\$/t	1,160	(1.7)	(2.9)	(1.3)	4.5	4.0
MEG	\$/t	867	(0.3)	1.4	(8.7)	18.4	32.4
PX	\$/t	892	0.2	(0.6)	0.3	14.1	23.3
SM	\$/t	1,384	0.0	(0.8)	(0.7)	20.1	38.9
<b>Commodity</b>			%	%	%	%	%
Natural Gas	\$/mmbtu	2.69	(3.4)	(8.8)	(17.7)	(17.0)	11.9
Natural rubber	\$/t	2,090	3.0	(1.4)	(7.9)	18.8	85.0
Cotton	C/lbs	75.0	(0.6)	2.0	1.1	2.3	29.2

\*참고: 정제마진의 변동률은 %가 아닌 \$/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
<b>Petrochemical</b>				%	%	%	%
Ethylene	02/27	\$/t	1,185	0.0	8.7	28.1	19.7
Propylene	02/27	\$/t	1,043	1.2	9.2	52.2	64.2
Benzene	02/27	\$/t	993	(5.9)	(2.2)	35.5	76.4
Toluene	02/27	\$/t	755	(1.3)	(1.9)	14.0	28.0
Xylene	02/27	\$/t	730	0.7	2.1	11.5	25.9
PP	02/27	\$/t	1,143	3.2	8.0	12.6	29.8
PVC	02/27	\$/t	940	0.0	3.3	(2.1)	26.2
ABS	02/27	\$/t	1,940	0.0	6.0	22.8	68.0
SBR	02/27	\$/t	2,950	(4.8)	(3.3)	64.8	139.8
SM	02/27	\$/t	1,420	(5.0)	2.0	19.3	36.5
BPA	02/27	\$/t	1,420	(8.8)	(14.6)	(0.7)	22.7
Caustic	02/27	\$/t	436	2.0	4.4	11.8	51.7
2-EH	02/27	\$/t	970	(2.0)	9.0	15.5	38.6
Caprolactam	02/27	\$/t	2,305	1.3	9.8	57.9	100.4
<b>Solar</b>				%	%	%	%
Polysilicon	02/22	\$/kg	16.2	(0.2)	(0.2)	11.0	21.5
Module	02/22	\$/W	0.35	(0.6)	(1.4)	(10.9)	(36.5)

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

	Unit	Price	1D	1W	1M	3M	12M
<b>E&amp;P</b>			%	%	%	%	%
ExxonMobil	USD	81.5	0.6	(0.3)	(4.6)	(6.4)	(0.3)
Shell	EUR	2,075	0.1	(0.3)	(5.3)	3.2	26.4
Petrochina	CNY	8.21	(0.6)	(1.7)	(5.1)	8.0	13.1
Gazprom	RUB	135.1	(1.2)	(2.5)	(12.3)	(10.7)	(2.6)
Petrobras	BRL	15.2	0.0	(4.6)	(2.8)	(0.8)	211.7
<b>Refinery</b>							
Phillips66	USD	78.9	1.1	0.3	(4.7)	(7.1)	(0.3)
Valero	USD	67.2	0.8	2.7	(0.1)	3.7	12.7
JX	JPY	524.6	(1.4)	(0.5)	(2.1)	17.9	15.8
Neste Oil	EUR	34.2	0.6	(1.2)	4.6	(10.7)	16.8

	Unit	Price	1D	1W	1M	3M	12M
<b>Petrochemical</b>			%	%	%	%	%
BASF	EUR	87.9	0.5	(1.7)	(3.3)	9.5	44.3
Dow Chemical	USD	62.9	(1.0)	2.7	2.6	16.1	29.1
SABIC	SAR	96.8	(1.0)	(0.5)	(0.1)	6.9	35.5
Formosa Pla.	TWD	92.6	0.0	(1.0)	2.7	5.2	17.2
Shin-Etsu	JPY	9,560	(2.0)	(3.1)	(3.3)	17.2	60.7
<b>Renewable</b>							
Wacker	EUR	104.1	1.9	(4.5)	(8.9)	25.1	41.9
First Solar	USD	37.83	(0.2)	8.6	20.2	23.6	(46.1)
Trina Solar	USD	10.5	(0.2)	2.5	4.4	4.5	1.9
Tesla Motors	USD	246.2	(4.2)	(9.6)	(2.7)	25.2	29.4

## 4. Coverage Summary

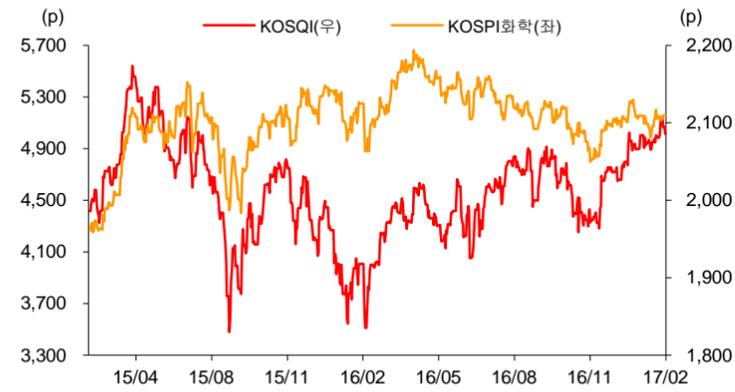
	02/27	1D	1W	1M	3M	6M	12M
KOSPI	2,086	(0.4)	0.1	0.1	5.4	2.4	8.6
KOSPI화학	5,158	0.0	0.7	0.1	5.3	(0.8)	0.6
LG화학	282,500	0.5	1.4	4.6	25.0	5.2	(3.7)
롯데케미칼	365,000	0.7	(3.3)	(7.0)	12.8	29.2	17.4
한화케미칼	25,400	(0.8)	(4.2)	(6.8)	10.0	(3.2)	2.6
금호석유화학	75,700	(1.9)	(5.3)	(9.4)	0.4	8.1	23.5
KCC	346,000	0.4	2.2	0.1	(7.2)	(16.6)	(20.9)
OCI	88,800	(3.1)	(5.0)	0.1	18.2	(1.6)	0.7
SKC	32,050	(2.1)	(1.7)	2.4	3.9	13.5	2.4
국도화학	52,000	0.2	(0.2)	(4.2)	(2.8)	(10.0)	(11.4)
SK이노베이션	153,500	0.3	0.0	(5.2)	(1.9)	7.0	5.9
S-Oil	85,000	1.0	(0.7)	2.4	(0.7)	21.3	6.3
GS	54,300	0.6	(0.4)	5.6	(1.6)	7.7	1.9
SK가스	103,500	(1.9)	(3.3)	(2.8)	(8.8)	4.0	43.4
포스코대우	24,950	(1.4)	(1.4)	(6.7)	(3.1)	4.6	33.1
LG상사	31,950	(0.2)	(3.8)	0.5	5.4	(7.1)	(4.2)

투자의견	TP	%	P/E	P/B
			* 추정치는 12M fwd 기준임	
			* 모든 coverage 업체의 실적은 연결기준임	
매수	350,000	23.9	10.59	1.46
매수	410,000	12.3	9.26	1.40
매수	28,000	10.2	9.17	0.76
매수	100,000	32.1	12.56	1.41
매수	500,000	44.5	13.59	0.53
매수	100,000	12.6	16.39	0.67
매수	40,000	24.8	10.20	0.78
매수	70,000	34.6	10.93	0.65
매수	180,000	17.3	8.39	0.86
매수	100,000	17.6	10.96	1.44
매수	65,000	19.7	8.57	0.86
매수	130,000	25.6	8.27	0.77
매수	29,000	16.2	10.10	1.15
매수	42,000	31.5	10.98	1.04

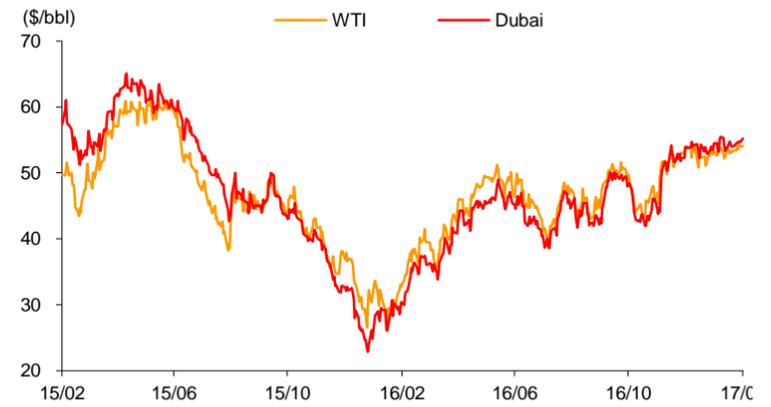
\* 작성자(손지우)는 본 조사분석자료에 게재된 내용들이 본인의 의견을 정확하게 반영하고 있으며, 외부의 부당한 압력이나 간섭없이 신의성실하게 작성되었음을 확인합니다.  
\* 본 보고서에 언급된 종목의 경우 당사 조사분석담당자는 본인의 담당종목을 보유하고 있지 않습니다.  
\* 본 보고서는 기관투자가 또는 제 3자에게 사전 제공된 사실이 없습니다.  
\* 당사는 본 보고서의 발간시점에 해당종목을 1% 이상 보유하고 있지 않습니다.

## Key Chart

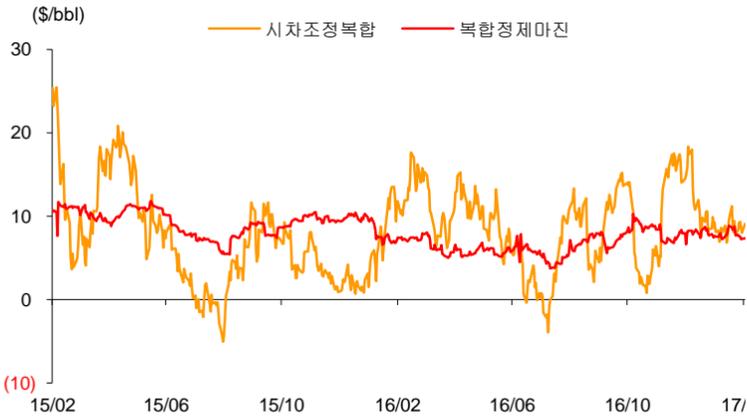
KOSPI/KOSPI화학



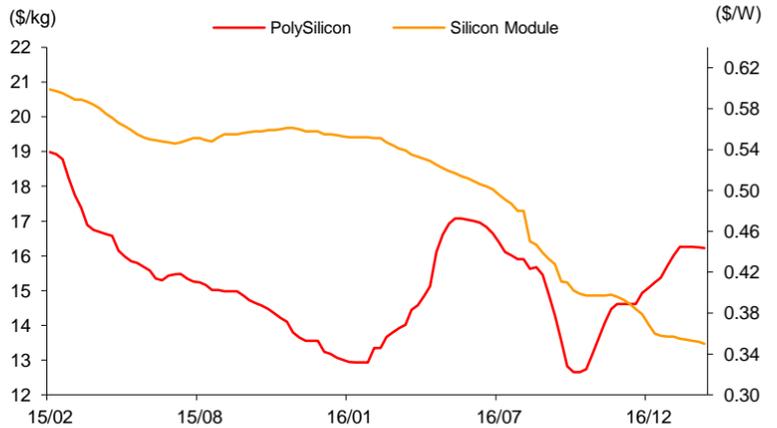
WTI/Dubai



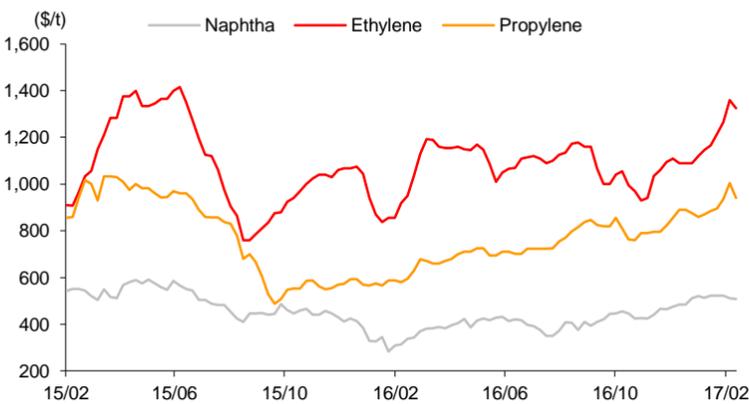
Complex & 1M lagging margin



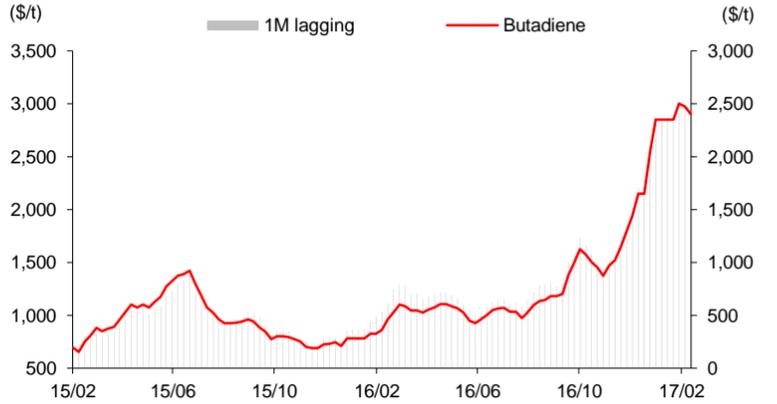
Polysilicon & Module prices



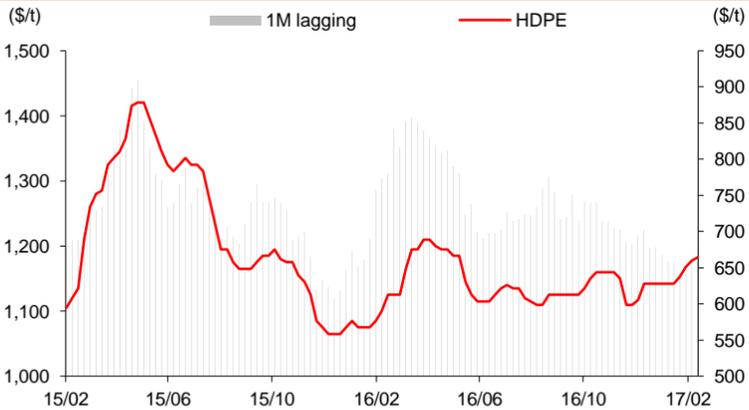
Naphtha/Ethylene/Propylene prices



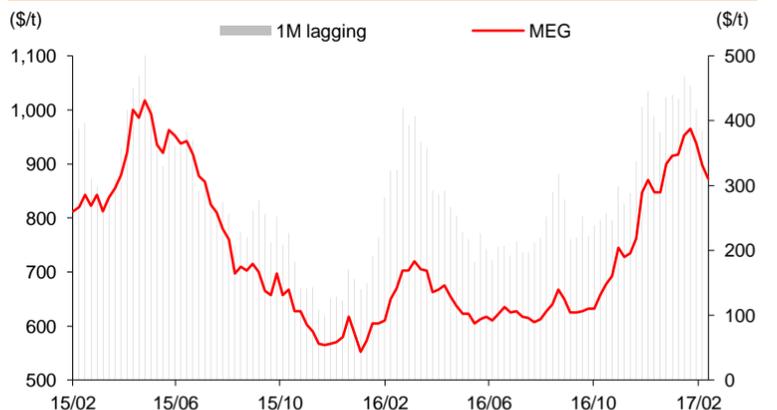
Butadiene price & 1M lagging naphtha spread



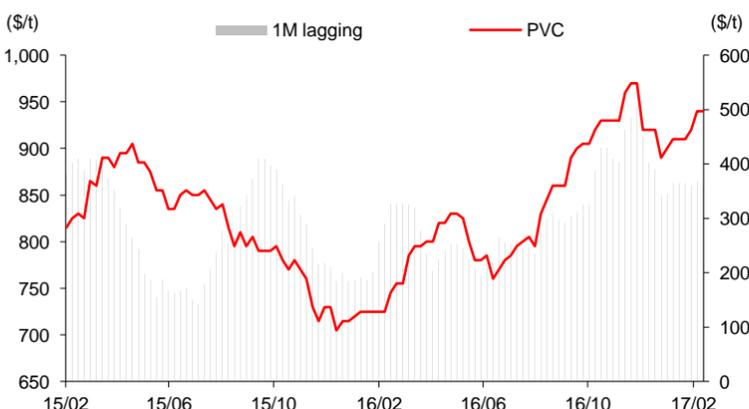
HDPE price & 1M lagging naphtha spread



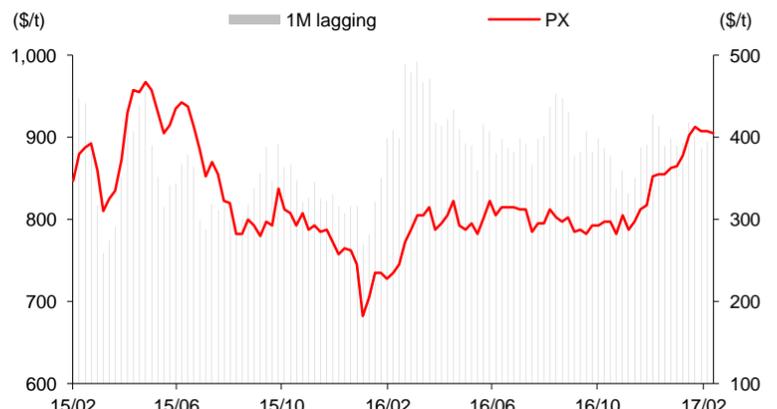
MEG price & 1M lagging naphtha spread



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: Platts)

**제목** 유럽 부타디엔, 공급 차질로 4년 반만에 최고치 기록

**결론** 글로벌 천연고무 및 고무계열 제품 슷티지는 라니냐 트리거로 지속됨

**세부**

- 1) 유럽 부타디엔 현물가격이 250\$ 증가해 톤당 2,750\$에 거래됨
- 2) 3월로 접어들며 크래커 정기보수 시즌 돌입해 수급불균형 심화될 것
- 3) 유럽 지역 에틸렌 크래커의 11%가 정기보수 돌입하며 캐파 7% 멈춤
- 4) 이는 필연적으로 부타디엔 공급 물량 줄일 것
- 5) 글로벌 천연고무 및 고무계열 제품 슷티지는 라니냐 트리거로 지속됨

### Issue 1 (출처: 뉴시스)

**제목** 유럽 전기차 판매 호황에 삼성SDI, LG화학 방긋

**결론** 유럽 전기차 침투율 증가하며 배터리에 투입되는 니켈 슷티지 가능

**세부**

- 1) 독일, 프랑스, 노르웨이 전기차 판매대수 YoY 90%, 30%, 67% 증가
- 2) 독일은 보조금 도입, 노르웨이는 부가세 면제법안이 판매 촉진
- 3) BMW 모델은 삼성SDI, GM 모델은 LG화학이 배터리 공급중
- 4) 삼성SDI 5년간 2조원 투자, LG화학, 2020년 매출 7조 목표
- 5) 유럽 전기차 침투율 증가하며 배터리에 투입되는 니켈 슷티지 가능

### Issue 3 (출처: Bloomberg)

**제목** Tesla Model 3 딜리버리에 대한 의구심 확산으로 5% 하락

**결론** 딜리버리 연기와 더불어 부채비율 유지 위한 증자까지 병행할 것

**세부**

- 1) 딜리버리가 제때에 이루어지지 않을 것이라는 의구심 확산됨
- 2) 게다가 현금도 빠르게 소진하고 있어 연말에 증자할 것이라는 전망
- 3) 일론 머스크, "Model 3는 계획대로 7월에 딜리버리가 이루어질 것"
- 4) 태양광 사업에 대한 일론 머스크의 의지도 의구심에 한 몫
- 5) 딜리버리 연기와 더불어 부채비율 유지 위한 증자까지 병행할 것

### Issue 5 (출처: 동아닷컴)

**제목**

**결론**

**세부**

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

### WTI Comment (출처: MBN)

**제목** 미국 원유 생산 늘어날 우려에 보험권...WTI 0.1%↑

**상승** 산유국이 작년 말에 합의한 데 따라 감산이 순조롭게 진행되고 있음

**요인**

**하락** 쟈스케이프, "미국 쿠싱의 원유재고는 다시 80만 배럴 증가"

**요인** Rig가 '15년 이후 처음으로 600개를 넘었다는 베이커 휴의 지난 주 발표

### Issue 2 (출처: 동아닷컴)

**제목** SK이노베이션 전기차 배터리 공장 대폭 증설, 세계시장 공략

**결론** 전기차 시장 성장하며 주요 배터리 업체 수혜가 가시권에 진입

**세부**

- 1) 서산 공장 설비를 작년 9월 200MWh 추가한데 이어 2공장 건설 결정
- 2) 1공장 설비는 총 1.1GWh에 달하며 2공장은 3GWh 수준이 될 것
- 3) 설비 증설과 동시에 가동율도 100%를 꾸준히 유지하고 있음
- 4) SK이노 배터리는 기아 Soul EV, 베이징자동차 EV200, ES210에 공급
- 5) 전기차 시장 성장하며 주요 배터리 업체 수혜가 가시권에 진입

### Issue 4 (출처: 뉴데일리)

**제목**

**결론**

**세부**

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

### Issue 6 (출처: 키뉴스)

**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	0.945	0.947	0.942	0.935	0.944	0.893	0.915	0.951	0.901	0.904	0.940	
	Change, %		(0.2)	0.3	1.1	0.1	5.8	3.3	(0.6)	4.8	4.5	0.5	
	USD/JPY	112.7	112.1	113.1	115.1	113.2	101.8	114.0	117.0	121.1	108.8	114.1	
	Change, %		0.5	(0.4)	(2.1)	(0.5)	10.7	(1.1)	(3.6)	(6.9)	3.6	(1.2)	
	USD/KRW	1,133.7	1,131.1	1,147.5	1,171.1	1,177.3	1,113.8	1,238.1	1,205.8	1,131.2	1,160.5	1,163.8	
	Change, %		0.2	(1.2)	(3.2)	(3.7)	1.8	(8.4)	(6.0)	0.2	(2.3)	(2.6)	
	Agriculture	Corn	360.3	364.0	368.3	362.5	349.3	316.3	354.5	352.0	376.8	358.5	364.8
		Change, %		(1.0)	(2.2)	(0.6)	3.1	13.9	1.6	2.3	(4.4)	0.5	(1.2)
	Soybean	1,011.0	1,013.5	1,032.5	1,049.3	1,046.0	990.8	855.0	996.5	945.4	987.5	1,033.7	
	Change, %		(0.2)	(2.1)	(3.6)	(3.3)	2.0	18.2	1.5	6.9	2.4	(2.2)	
	Wheat	418.8	431.3	441.0	420.5	395.8	383.5	443.3	408.0	508.1	436.4	430.2	
	Change, %		(2.9)	(5.0)	(0.4)	5.8	9.2	(5.5)	2.6	(17.6)	(4.0)	(2.7)	
	Rice	9.4	9.4	9.3	9.8	9.6	9.7	10.4	9.4	11.1	10.3	9.6	
	Change, %		(0.7)	0.2	(4.6)	(2.8)	(3.9)	(10.0)	0.0	(15.4)	(9.5)	(2.2)	
	Oats	249.5	251.8	256.8	253.3	209.0	169.0	171.0	228.5	250.2	196.3	249.2	
	Change, %		(0.9)	(2.8)	(1.5)	19.4	47.6	45.9	9.2	(0.3)	27.1	0.1	
MYR/mt	Palm Oil	2,920.0	2,977.0	3,073.0	3,243.0	3,042.0	2,800.0	2,462.0	3,218.0	2,190.3	2,653.8	3,202.6	
	Change, %		(1.9)	(5.0)	(10.0)	(4.0)	4.3	18.6	(9.3)	33.3	10.0	(8.8)	
	Cocoa	2,016.0	2,028.0	2,034.0	2,095.0	2,419.0	3,012.0	2,882.0	2,126.0	3,091.6	2,854.0	2,103.9	
	Change, %		(0.6)	(0.9)	(3.8)	(16.7)	(33.1)	(30.0)	(5.2)	(34.8)	(29.4)	(4.2)	
	Cotton	75.0	75.4	73.5	74.9	72.7	67.7	57.9	70.7	63.3	65.6	74.2	
	Change, %		(0.6)	2.0	0.2	3.2	10.7	29.4	6.1	18.5	14.3	1.1	
	Sugar	19.1	19.8	20.3	20.3	19.8	20.6	13.9	19.5	13.1	18.2	20.4	
	Change, %		(3.6)	(6.0)	(6.1)	(3.8)	(7.4)	37.2	(2.2)	45.3	5.2	(6.6)	
	Coffee	139.1	144.4	147.8	152.4	152.3	143.9	113.0	137.1	132.6	136.1	147.1	
	Change, %		(3.7)	(5.9)	(8.7)	(8.7)	(3.3)	23.1	1.5	4.9	2.2	(5.4)	
Energy	WTI	54.1	54.0	53.4	53.2	46.1	47.6	32.8	53.7	48.8	43.4	53.1	
	Change, %		0.1	1.2	1.7	17.3	13.5	64.9	0.6	10.7	24.6	1.7	
	Brent	56.0	56.0	56.2	55.5	47.2	49.9	35.1	56.8	53.7	45.1	55.9	
	Change, %		(0.1)	(0.4)	0.8	18.4	12.1	59.4	(1.5)	4.2	24.1	0.2	
	Natural Gas	2.7	2.6	2.8	3.4	3.1	2.9	1.8	3.7	2.6	2.6	3.1	
	Change, %		2.4	(5.1)	(20.7)	(12.8)	(6.3)	50.2	(27.8)	2.3	5.4	(14.1)	
	Ethanol	1.5	1.5	1.5	1.5	1.6	1.4	1.4	1.6	1.5	1.5	1.5	
	Change, %		0.1	(1.0)	2.0	(6.3)	4.4	8.5	(6.3)	(0.3)	(0.6)	(0.7)	
	RBOB Gasoline	153.3	151.5	151.7	152.7	137.3	151.3	101.7	166.5	163.6	140.0	156.2	
	Change, %		1.2	1.1	0.4	11.7	1.3	50.8	(7.9)	(6.3)	9.5	(1.9)	
	Coal	40.0	40.0	40.0	40.0	40.0	39.5	44.2	40.0	45.2	41.3	40.0	
	Change, %		0.0	0.0	0.0	0.0	1.3	(9.4)	0.0	(11.5)	(3.2)	0.0	
Metal	Gold	1,252.8	1,257.2	1,238.5	1,191.3	1,183.9	1,321.2	1,222.7	1,152.3	1,160.6	1,248.5	1,211.6	
	Change, %		(0.3)	1.2	5.2	5.8	(5.2)	2.5	8.7	7.9	0.3	3.4	
	Silver	18.3	18.4	18.1	17.1	16.5	18.7	14.7	15.9	15.7	17.1	17.3	
	Change, %		(0.6)	1.2	6.6	10.5	(2.1)	24.3	14.8	16.2	6.8	5.4	
	Platinum	1,028.6	1,029.3	1,005.5	985.5	908.3	1,072.5	914.0	903.5	1,055.7	988.4	989.4	
	Change, %		(0.1)	2.3	4.4	13.2	(4.1)	12.5	13.8	(2.6)	4.1	4.0	
	Palladium	783.1	771.8	773.6	740.9	744.6	689.1	485.1	681.0	691.9	614.3	760.2	
	Change, %		1.5	1.2	5.7	5.2	13.6	61.4	15.0	13.2	27.5	3.0	
	Copper	5,934.0	5,928.0	6,070.0	5,899.0	5,879.0	4,615.0	4,706.0	5,535.5	5,503.1	4,872.0	5,848.4	
	Change, %		0.1	(2.2)	0.6	0.9	28.6	26.1	7.2	7.8	21.8	1.5	
	Uranium	22.8	22.8	25.0	23.5	18.5	26.0	32.0	20.4	36.9	26.4	23.9	
	Change, %		0.0	(9.0)	(3.2)	23.0	(12.3)	(28.9)	11.5	(38.3)	(13.9)	(4.7)	
	HR Coil	620.0	620.0	615.0	618.0	510.0	591.0	400.0	633.0	461.5	519.3	621.1	
	Change, %		0.0	0.8	0.3	21.6	4.9	55.0	(2.1)	34.4	19.4	(0.2)	
	Scrap	350.0	350.0	310.0	295.0	270.0	265.0	250.0	302.0	252.9	275.7	307.3	
	Change, %		0.0	12.9	18.6	29.6	32.1	40.0	15.9	38.4	27.0	13.9	
	Zinc	2,806.0	2,829.0	2,884.0	2,748.5	2,819.0	2,314.5	1,758.0	2,576.0	1,941.9	2,097.5	2,778.8	
	Change, %		(0.8)	(2.7)	2.1	(0.5)	21.2	59.6	8.9	44.5	33.8	1.0	

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

## Refining Price Data

Daily Price		02/27	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	<b>WTI</b>	54.1	54.0	53.4	53.2	47.1	47.0	33.8	53.7	48.8	43.4	53.0
	<i>Change, %</i>		<i>0.1</i>	<i>1.2</i>	<i>1.7</i>	<i>14.8</i>	<i>15.0</i>	<i>60.1</i>	<i>0.6</i>	<i>10.8</i>	<i>24.7</i>	<i>2.0</i>
	<b>Dubai</b>	55.2	54.7	54.5	54.5	43.8	45.8	30.0	53.8	50.8	41.3	54.0
	<i>Change, %</i>		<i>0.9</i>	<i>1.3</i>	<i>1.3</i>	<i>26.1</i>	<i>20.4</i>	<i>84.0</i>	<i>2.5</i>	<i>8.6</i>	<i>33.6</i>	<i>2.1</i>
Crude Oil Product	<b>Gasoline(휘발유)</b>	68.9	68.5	69.0	70.3	58.6	59.8	46.3	69.8	69.5	56.3	69.8
	<i>Change, %</i>		<i>0.6</i>	<i>(0.1)</i>	<i>(1.9)</i>	<i>17.6</i>	<i>15.2</i>	<i>48.8</i>	<i>(1.3)</i>	<i>(0.9)</i>	<i>22.5</i>	<i>(1.3)</i>
	<b>Kerosene(등유)</b>	67.0	66.6	66.4	65.2	55.9	55.8	42.5	66.4	64.7	52.9	65.7
	<i>Change, %</i>		<i>0.6</i>	<i>0.9</i>	<i>2.7</i>	<i>19.9</i>	<i>19.9</i>	<i>57.4</i>	<i>0.8</i>	<i>3.4</i>	<i>26.6</i>	<i>1.9</i>
	<b>Diesel(경유)</b>	67.6	67.3	67.2	65.9	55.2	55.9	40.1	65.5	64.8	52.1	65.8
	<i>Change, %</i>		<i>0.5</i>	<i>0.5</i>	<i>2.5</i>	<i>22.4</i>	<i>20.9</i>	<i>68.5</i>	<i>3.1</i>	<i>4.3</i>	<i>29.7</i>	<i>2.6</i>
	<b>Bunker-C</b>	50.8	49.6	49.8	49.8	43.2	39.8	23.8	52.1	45.3	35.5	50.2
	<i>Change, %</i>		<i>2.4</i>	<i>2.1</i>	<i>2.1</i>	<i>17.8</i>	<i>27.7</i>	<i>113.4</i>	<i>(2.4)</i>	<i>12.3</i>	<i>43.0</i>	<i>1.1</i>
	<b>Naphtha</b>	55.5	55.2	56.2	56.5	45.7	42.1	34.8	53.5	52.6	42.6	55.8
	<i>Change, %</i>		<i>0.4</i>	<i>(1.3)</i>	<i>(1.9)</i>	<i>21.5</i>	<i>31.8</i>	<i>59.5</i>	<i>3.8</i>	<i>5.5</i>	<i>30.3</i>	<i>(0.6)</i>
Dubai Spread	<b>Gasoline(휘발유)</b>	13.7	13.8	14.5	15.8	14.9	14.0	16.3	16.0	18.7	14.9	15.8
	<i>Change</i>		<i>(0.0)</i>	<i>(0.8)</i>	<i>(2.1)</i>	<i>(1.1)</i>	<i>(0.3)</i>	<i>(2.6)</i>	<i>(2.3)</i>	<i>(5.0)</i>	<i>(1.2)</i>	<i>(2.0)</i>
	<b>Kerosene(등유)</b>	11.8	11.9	11.9	10.7	12.1	10.0	12.5	12.6	14.0	11.6	11.6
	<i>Change</i>		<i>(0.1)</i>	<i>(0.1)</i>	<i>1.1</i>	<i>(0.3)</i>	<i>1.8</i>	<i>(0.8)</i>	<i>(0.8)</i>	<i>(2.2)</i>	<i>0.2</i>	<i>0.1</i>
	<b>Diesel(경유)</b>	12.4	12.6	12.8	11.4	11.5	10.1	10.1	11.7	14.0	10.8	11.8
	<i>Change</i>		<i>(0.2)</i>	<i>(0.4)</i>	<i>1.0</i>	<i>0.9</i>	<i>2.3</i>	<i>2.3</i>	<i>0.7</i>	<i>(1.6)</i>	<i>1.6</i>	<i>0.6</i>
Refining Margin	<b>Bunker-C</b>	(4.4)	(5.1)	(4.7)	(4.7)	(0.6)	(6.0)	(6.2)	(1.8)	(5.5)	(5.8)	(3.8)
	<i>Change</i>		<i>0.7</i>	<i>0.3</i>	<i>0.4</i>	<i>(3.8)</i>	<i>1.7</i>	<i>1.8</i>	<i>(2.6)</i>	<i>1.2</i>	<i>1.4</i>	<i>(0.6)</i>
	<b>Naphtha</b>	0.3	0.5	1.8	2.0	1.9	(3.7)	4.8	(0.4)	1.8	1.3	1.8
	<i>Change</i>		<i>(0.2)</i>	<i>(1.5)</i>	<i>(1.7)</i>	<i>(1.6)</i>	<i>4.0</i>	<i>(4.5)</i>	<i>0.7</i>	<i>(1.5)</i>	<i>(1.0)</i>	<i>(1.5)</i>
Refining Margin	<b>Simple(단순)</b>	2.4	2.2	2.6	2.3	4.5	1.0	2.3	3.8	3.3	1.9	2.9
	<i>Change</i>		<i>0.3</i>	<i>(0.1)</i>	<i>0.2</i>	<i>(2.0)</i>	<i>1.5</i>	<i>0.2</i>	<i>(1.4)</i>	<i>(0.9)</i>	<i>0.5</i>	<i>(0.5)</i>
	<b>Complex(복합)</b>	7.3	7.3	7.7	7.5	8.4	5.9	7.4	8.3	9.3	7.0	7.9
	<i>Change</i>		<i>0.1</i>	<i>(0.4)</i>	<i>(0.2)</i>	<i>(1.0)</i>	<i>1.5</i>	<i>(0.0)</i>	<i>(0.9)</i>	<i>(1.9)</i>	<i>0.4</i>	<i>(0.6)</i>
Refining Margin	<b>Complex(lagging)</b>	9.1	8.0	8.4	8.1	4.0	11.8	10.3	18.0	7.3	8.5	9.3
	<i>Change</i>		<i>1.0</i>	<i>0.7</i>	<i>0.9</i>	<i>5.1</i>	<i>(2.8)</i>	<i>(1.2)</i>	<i>(8.9)</i>	<i>1.8</i>	<i>0.6</i>	<i>(0.3)</i>

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			02/27	02/24	02/23	02/22	02/21	02/20	02/17	02/16	02/15	02/14
Spot Price	<b>Naphtha</b>	CFR Japan	510.8	507.9	512.0	501.4	510.0	511.0	512.8	525.3	523.8	528.9
	<b>Ethylene</b>	CFR SE Asia	1,145.0	1,145.0	1,145.0	1,150.0	1,150.0	1,150.0	1,150.0	1,110.0	1,110.0	1,110.0
	<b>Propylene</b>	FOB Korea	955.0	975.0	975.0	975.0	980.0	999.0	999.0	1,000.0	936.0	935.0
	<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	1,160.0	1,180.0	1,190.0	1,190.0	1,195.0	1,195.0	1,195.0	1,195.0	1,195.0	1,195.0
	<b>LDPE</b>	CFR FE Asia	1,290.0	1,300.0	1,300.0	1,300.0	1,320.0	1,320.0	1,320.0	1,320.0	1,320.0	1,320.0
	<b>LLDPE</b>	CFR FE Asia	1,140.0	1,150.0	1,160.0	1,160.0	1,180.0	1,180.0	1,180.0	1,180.0	1,180.0	1,180.0
	<b>MEG</b>	CFR China	867.0	870.0	860.0	860.0	855.0	870.0	893.0	898.0	890.0	915.0
	<b>PP</b>	CFR FE Asia	1,045.0	1,025.0	1,030.0	1,030.0	1,030.0	1,030.0	1,040.0	1,060.0	1,070.0	1,060.0
	<b>PX</b>	CFR China	892.3	890.7	888.3	897.0	898.0	900.0	895.5	894.7	895.7	899.7
	<b>PTA</b>	CFR China	682.0	677.0	684.0	690.0	692.0	692.0	688.0	688.0	690.0	698.0
	<b>Benzene</b>	FOB Korea	958.5	970.5	926.5	948.5	968.5	996.5	1,005.5	1,024.0	1,043.0	1,051.0
	<b>Toluene</b>	FOB Korea	702.0	703.5	692.5	706.5	719.5	721.5	728.5	731.5	726.0	730.0
	<b>Xylene</b>	FOB Korea	697.0	692.0	677.0	693.0	707.0	704.0	704.0	704.0	715.0	715.0
	<b>SM</b>	FOB Korea	1,383.5	1,383.5	1,348.5	1,359.5	1,394.5	1,429.5	1,444.0	1,492.5	1,495.0	1,495.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.	
Spot Price	<b>Naphtha</b>	CFR Japan	507.0	511.5	523.0	441.0	446.5	338.0	484.5	493.0	399.5	512.7	
	<i>Change, %</i>			(0.9)	(3.1)	15.0	13.5	50.0	4.6	2.8	26.9	(1.1)	
	<b>Ethylene</b>	CFR SE Asia	1,185.0	1,185.0	1,090.0	925.0	995.0	990.0	990.0	990.0	1,103.7	1,040.9	1,078.9
	<i>Change, %</i>			0.0	8.7	28.1	19.1	19.7	19.7	7.4	13.8	9.8	
	<b>Propylene</b>	CFR SE Asia	1,042.5	1,030.0	955.0	685.0	687.5	635.0	815.0	770.0	705.7	906.1	
	<i>Change, %</i>			1.2	9.2	52.2	51.6	64.2	27.9	35.4	47.7	15.1	
	<b>Butadiene</b>	CFR SE Asia	2,850.0	2,925.0	2,800.0	1,470.0	1,450.0	920.0	2,100.0	877.5	1,116.8	2,725.0	
	<i>Change, %</i>			(2.6)	1.8	93.9	96.6	209.8	35.7	224.8	155.2	4.6	
	<b>Benzene</b>	CFR SE Asia	992.5	1,055.0	1,015.0	732.5	655.0	562.5	822.5	690.0	646.7	975.6	
	<i>Change, %</i>			(5.9)	(2.2)	35.5	51.5	76.4	20.7	43.8	53.5	1.7	
	<b>Toluene</b>	CFR SE Asia	755.0	765.0	770.0	662.5	660.0	590.0	690.0	700.8	630.5	742.8	
	<i>Change, %</i>			(1.3)	(1.9)	14.0	14.4	28.0	9.4	7.7	19.7	1.6	
	<b>Xylene</b>	CFR SE Asia	730.0	725.0	715.0	655.0	650.0	580.0	675.0	699.3	627.7	710.6	
	<i>Change, %</i>			0.7	2.1	11.5	12.3	25.9	8.1	4.4	16.3	2.7	

Spread	<b>Ethylene</b>	-Naphtha	678.0	673.5	567.0	484.0	548.5	652.0	505.5	610.6	641.4	566.2
	<i>Change, %</i>			0.7	19.6	40.1	23.6	4.0	34.1	11.0	5.7	19.7
	<b>Propylene</b>	-Naphtha	535.5	518.5	432.0	244.0	241.0	297.0	330.5	277.0	306.2	393.4
	<i>Change, %</i>			3.3	24.0	119.5	122.2	80.3	62.0	93.3	74.9	36.1
	<b>Butadiene</b>	-Naphtha	2,343.0	2,413.5	2,277.0	1,029.0	1,003.5	582.0	1,615.5	384.5	717.3	2,212.3
	<i>Change, %</i>			(2.9)	2.9	127.7	133.5	302.6	45.0	509.4	226.6	5.9
	<b>Benzene</b>	-Naphtha	485.5	543.5	492.0	291.5	208.5	224.5	338.0	197.0	247.2	462.9
	<i>Change, %</i>			(10.7)	(1.3)	66.6	132.9	116.3	43.6	146.5	96.4	4.9
	<b>Toluene</b>	-Naphtha	248.0	253.5	247.0	221.5	213.5	252.0	205.5	207.8	231.0	230.1
	<i>Change, %</i>			(2.2)	0.4	12.0	16.2	(1.6)	20.7	19.4	7.4	7.8
	<b>Xylene</b>	-Naphtha	223.0	213.5	192.0	214.0	203.5	242.0	190.5	206.3	228.2	197.9
	<i>Change, %</i>			4.4	16.1	4.2	9.6	(7.9)	17.1	8.1	(2.3)	12.7

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	1,182.5	1,177.5	1,142.5	1,150.0	1,160.0	1,125.0	1,142.5	1,230.1	1,134.6	1,154.7
	Change, %			0.4	3.5	2.8	1.9	5.1	3.5	(3.9)	4.2	2.4
	MEG	CFR SE Asia	872.5	897.5	952.5	735.0	677.5	670.0	847.5	780.8	660.8	911.7
	Change, %			(2.8)	(8.4)	18.7	28.8	30.2	2.9	11.7	32.0	(4.3)
	PVC	CFR SE Asia	940.0	940.0	910.0	960.0	930.0	745.0	920.0	820.8	823.4	915.6
	Change, %			0.0	3.3	(2.1)	1.1	26.2	2.2	14.5	14.2	2.7
	PP	CFR SE Asia	1,142.5	1,107.5	1,057.5	1,015.0	1,030.0	880.0	1,032.5	1,109.8	978.4	1,071.4
	Change, %			3.2	8.0	12.6	10.9	29.8	10.7	2.9	16.8	6.6
	2-EH	CFR Korea	970.0	990.0	890.0	840.0	790.0	700.0	865.0	930.1	772.4	916.1
	Change, %			(2.0)	9.0	15.5	22.8	38.6	12.1	4.3	25.6	5.9
	ABS	CFR SE Asia	1,940.0	1,940.0	1,830.0	1,580.0	1,460.0	1,155.0	1,635.0	1,431.1	1,347.1	1,825.6
	Change, %			0.0	6.0	22.8	32.9	68.0	18.7	35.6	44.0	6.3
	SBR	CFR SE Asia	2,950.0	3,100.0	3,050.0	1,790.0	1,900.0	1,230.0	2,000.0	1,332.1	1,483.0	2,847.2
	Change, %			(4.8)	(3.3)	64.8	55.3	139.8	47.5	121.4	98.9	3.6
	SM	CFR SE Asia	1,420.0	1,495.0	1,392.5	1,190.0	1,057.5	1,040.0	1,205.0	1,100.7	1,064.6	1,379.2
	Change, %			(5.0)	2.0	19.3	34.3	36.5	17.8	29.0	33.4	3.0
	Caustic	FOB NEA	436.0	427.5	417.5	390.0	365.0	287.5	422.5	296.8	316.6	421.8
	Change, %			2.0	4.4	11.8	19.5	51.7	3.2	46.9	37.7	3.4
	PX	CFR SE Asia	905.0	907.5	902.5	797.5	797.5	745.0	855.0	842.9	790.4	888.3
	Change, %			(0.3)	0.3	13.5	13.5	21.5	5.8	7.4	14.5	1.9
PO	CFR China	1,420.0	1,557.5	1,662.5	1,430.0	1,475.0	1,157.5	1,562.5	1,683.4	1,396.8	1,585.0	
Change, %			(8.8)	(14.6)	(0.7)	(3.7)	22.7	(9.1)	(15.6)	1.7	(10.4)	
Caprolactam	CFR SE Asia	2,305.0	2,275.0	2,100.0	1,460.0	1,425.0	1,150.0	1,850.0	1,581.5	1,344.9	2,091.7	
Change, %			1.3	9.8	57.9	61.8	100.4	24.6	45.7	71.4	10.2	
PTA	CFR SE Asia	692.5	702.5	677.5	620.0	617.5	580.0	642.5	648.0	613.7	676.7	
Change, %			(1.4)	2.2	11.7	12.1	19.4	7.8	6.9	12.8	2.3	
Spread	HDPE		675.5	666.0	619.5	709.0	713.5	787.0	658.0	737.1	735.1	642.1
	Change, %			1.4	9.0	(4.7)	(5.3)	(14.2)	2.7	(8.4)	(8.1)	5.2
	MEG		365.5	386.0	429.5	294.0	231.0	332.0	363.0	287.8	261.3	399.0
	Change, %			(5.3)	(14.9)	24.3	58.2	10.1	0.7	27.0	39.9	(8.4)
	PVC		433.0	428.5	387.0	519.0	483.5	407.0	435.5	327.8	423.9	402.9
	Change, %			1.1	11.9	(16.6)	(10.4)	6.4	(0.6)	32.1	2.2	7.5
	PP		635.5	596.0	534.5	574.0	583.5	542.0	548.0	616.8	578.9	558.7
	Change, %			6.6	18.9	10.7	8.9	17.3	16.0	3.0	9.8	13.7
	2-EH		463.0	478.5	367.0	399.0	343.5	362.0	380.5	437.0	372.9	403.4
	Change, %			(3.2)	26.2	16.0	34.8	27.9	21.7	5.9	24.2	14.8
	ABS		1,433.0	1,428.5	1,307.0	1,139.0	1,013.5	817.0	1,150.5	938.1	947.6	1,312.9
	Change, %			0.3	9.6	25.8	41.4	75.4	24.6	52.8	51.2	9.1
	SBR	BD spread	100.0	175.0	250.0	320.0	450.0	310.0	(100.0)	454.7	366.2	122.2
	Change, %			(42.9)	(60.0)	(68.8)	(77.8)	(67.7)	(200.0)	(78.0)	(72.7)	(18.2)
	SM		913.0	983.5	869.5	749.0	611.0	702.0	720.5	607.7	665.1	866.5
	Change, %			(7.2)	5.0	21.9	49.4	30.1	26.7	50.2	37.3	5.4
	Caustic											
	Change, %											
	PX		398.0	396.0	379.5	356.5	351.0	407.0	370.5	349.9	390.9	375.7
	Change, %			0.5	4.9	11.6	13.4	(2.2)	7.4	13.8	1.8	5.9
PO	propylene spread	377.5	527.5	707.5	745.0	787.5	522.5	747.5	913.4	691.1	678.9	
Change, %			(28.4)	(46.6)	(49.3)	(52.1)	(27.8)	(49.5)	(58.7)	(45.4)	(44.4)	
Caprolactam	benzene spread	1,312.5	1,220.0	1,085.0	727.5	770.0	587.5	1,027.5	891.6	698.2	1,116.1	
Change, %			7.6	21.0	80.4	70.5	123.4	27.7	47.2	88.0	17.6	
PTA	px spread	59.0	67.3	45.8	61.8	59.3	58.5	44.0	58.0	60.4	54.8	
Change, %			(12.3)	29.0	(4.5)	(0.4)	0.9	34.1	1.7	(2.4)	7.6	

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

## Global peers

	Currency	02/27	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	62.9	(1.0)	2.7	2.6	16.1	17.3	29.1	9.9	76,329	17.3	15.4	2.8	2.7	9.6	8.6	
Du Pont	USD	79.2	(0.7)	2.2	2.0	11.6	13.8	28.8	7.9	68,500	24.3	21.3	7.2	4.2	13.3	12.0	
Eastman	USD	80.0	(0.2)	(0.3)	2.9	6.4	18.9	22.7	6.3	11,664	11.9	10.9	2.5	2.3	8.5	8.3	
BASF	EUR	87.9	0.5	(1.7)	(3.3)	9.5	22.0	44.3	(0.5)	85,617	18.3	16.6	2.7	2.5	9.3	8.6	
Akzo Nobel	EUR	63.1	0.6	0.1	(1.2)	6.9	4.6	18.3	6.2	16,873	15.0	15.0	2.4	2.4	8.3	8.0	
Arkema	EUR	91.8	0.8	(4.7)	(3.8)	3.4	15.2	64.3	(1.2)	7,374	16.7	14.7	1.7	1.7	7.0	6.4	
Lanxess	EUR	64.1	0.2	(5.0)	(6.1)	10.4	33.5	68.4	2.7	6,217	25.7	20.8	2.2	2.1	7.3	6.3	
Sumitomo Chemical	JPY	626	(2.5)	(1.9)	6.3	17.9	43.9	25.2	12.6	9,231	14.5	11.8	1.3	1.2	8.5	7.7	
Mitsubishi Chemical	JPY	864	(1.4)	0.5	7.8	20.4	45.4	48.5	14.0	11,592	8.8	10.2	1.2	1.1	6.9	6.5	
Shin-Etsu Chemical	JPY	9,560	(2.0)	(3.1)	(3.3)	17.2	31.4	60.7	5.4	36,795	23.8	20.2	1.9	1.8	10.1	8.7	
Asahi Kasei	JPY	1,085	(2.0)	(1.0)	(0.4)	9.6	28.0	69.0	6.4	13,549	14.7	14.0	1.4	1.3	7.1	6.6	
JSR	JPY	1,919	(2.4)	(5.0)	(7.3)	17.9	33.7	20.4	4.1	3,864	18.0	16.3	1.2	1.1	8.4	7.0	
Nitto Denko	JPY	9,455	(0.7)	(0.8)	1.8	19.8	41.4	59.7	5.4	14,633	26.6	21.5	2.4	2.2	10.8	9.3	
SABIC	SAR	96.8	(1.0)	(0.5)	(0.1)	6.9	17.4	35.5	5.8	77,462	17.4	15.8	1.8	1.7	8.1	7.6	
Yansab	SAR	55.9	(0.5)	(1.9)	(4.8)	13.1	30.0	72.1	2.7	8,391	14.6	14.6	2.0	1.9	8.7	8.8	
Formosa Plastics	TWD	92.6	0.0	(1.0)	2.7	5.2	16.9	17.2	3.8	19,228	17.7	15.9	2.0	1.9	28.7	25.8	
Formosa Fiber	TWD	97.2	0.0	(0.6)	0.4	(0.4)	17.0	29.9	0.9	18,583	14.6	14.1	1.9	1.8	12.7	12.4	
Nan Ya Plastics	TWD	74.6	0.0	(0.9)	1.5	12.5	20.5	16.9	4.8	19,299	16.6	17.5	1.8	1.7	20.0	16.9	
Sinopec Shanghai	CNY	6.63	(1.0)	(3.5)	(2.5)	8.5	8.5	13.3	3.0	9,166	12.9	11.8	3.0	2.5	6.8	7.6	
Sinopec Yizheng(Fiber)	CNY	3.90	(1.3)	0.0	1.3	(6.0)	0.8	(40.3)	(4.9)	7,279	#N/A	N/A	#N/A	N/A	#N/A	N/A	
Reliance	INR	1,239	4.7	15.2	20.9	24.7	20.5	30.4	14.5	60,237	13.2	13.1	1.4	1.3	11.4	9.5	
Industries Qatar	QAR	119.5	(0.4)	1.7	(0.3)	14.7	5.8	14.9	1.7	19,855	19.6	18.3	2.2	2.1	47.0	61.4	
PTT Chemical	THB	71.8	(2.0)	2.9	5.5	14.3	17.1	31.1	13.9	9,187	12.1	11.1	1.4	1.3	5.9	5.6	
Petronas	MYR	7.3	(1.5)	(2.4)	2.4	7.5	9.0	7.7	4.6	13,158	21.0	17.7	2.2	2.1	10.8	9.2	
LG화학	KRW	282,500	0.5	1.4	4.6	27.0	5.2	(3.7)	8.2	17,628	0.0	0.0	0.0	0.0	0.0	0.0	
롯데케미칼	KRW	365,000	0.7	(3.3)	(7.0)	13.4	29.2	17.4	(1.1)	11,059	0.0	0.0	0.0	0.0	0.0	0.0	
한화케미칼	KRW	25,400	(0.8)	(4.2)	(6.8)	6.1	(3.2)	2.6	2.8	3,700	0.0	0.0	0.0	0.0	0.0	0.0	
금호석유	KRW	75,700	(1.9)	(5.3)	(9.4)	(0.3)	8.1	23.5	(7.7)	2,039	0.0	0.0	0.0	0.0	0.0	0.0	
SKC	KRW	32,050	(2.1)	(1.7)	2.4	2.2	13.5	2.4	(2.9)	1,063	0.0	0.0	0.0	0.0	0.0	0.0	
국도화학	KRW	52,000	0.2	(0.2)	(4.2)	(2.4)	(10.0)	(11.4)	(5.3)	267	0.0	0.0	0.0	0.0	0.0	0.0	
효성	KRW	8,110	0.1	(4.3)	(4.3)	55.1	45.9	202.6	19.3	4,004	0.0	0.0	0.0	0.0	0.0	0.0	
<b>Average</b>			<b>(0.6)</b>	<b>(0.8)</b>	<b>0.0</b>	<b>11.9</b>	<b>19.4</b>	<b>33.0</b>	<b>4.6</b>								
<b>Refinery</b>																	
Valero	USD	67.2	0.8	2.7	(0.1)	3.7	21.6	12.7	(1.6)	30,329	18.3	12.9	1.5	1.5	7.1	5.8	
Conoco Phillips	USD	47.4	0.7	(0.3)	(4.2)	3.5	12.0	38.8	(5.5)	58,529	#N/A	N/A	68.3	1.7	1.7	16.1	7.4
Formosa Petrochemical	TWD	107.0	0.0	(0.9)	0.5	1.9	12.0	26.8	(4.5)	33,248	16.9	17.5	3.5	3.3	11.3	11.9	
Tesoro	USD	88.3	0.4	2.0	7.7	2.1	19.4	9.9	1.0	10,333	21.6	14.5	1.9	1.5	8.4	6.0	
Marathon Petroleum	USD	50.8	1.5	1.5	3.4	5.3	21.3	48.3	0.8	26,790	26.0	16.3	2.0	1.9	10.3	8.0	
Devon Energy	USD	43.1	0.6	(2.5)	(7.7)	(2.6)	(3.1)	112.2	(5.7)	22,589	#N/A	N/A	22.8	3.7	3.3	14.1	9.4
Hollyfrontier	USD	28.5	(1.5)	(4.7)	(2.0)	1.5	11.0	(13.3)	(13.0)	5,057	56.5	15.4	1.1	1.1	11.1	6.1	
Phillips 66	USD	78.9	1.1	0.3	(4.7)	(7.1)	0.3	(0.3)	(8.7)	40,835	25.7	16.9	1.8	1.8	12.1	9.0	
Murphy Oil	USD	28.8	2.2	2.4	(4.0)	(6.4)	(0.2)	67.9	(7.6)	4,960	#N/A	N/A	61.1	0.9	1.0	8.5	5.0
JX Holdings	JPY	524.6	(1.4)	(0.5)	(2.1)	17.9	40.8	15.8	6.0	11,661	9.0	8.3	0.8	0.7	8.1	7.7	
Idemitsu	JPY	3,515.0	(2.1)	(1.1)	0.1	36.8	94.5	98.8	13.2	5,009	8.6	7.6	1.0	0.9	8.6	7.7	
Tonengeneral	JPY	1,313.0	(1.4)	(0.3)	(1.7)	20.2	51.8	46.9	6.6	4,280	11.8	10.6	1.9	1.7	6.6	6.0	
Nesteoil	EUR	34.2	0.6	(1.2)	4.6	(10.7)	(11.2)	16.8	(6.2)	0	11.5	13.2	2.4	2.1	6.7	7.7	
Ashland	USD	121.0	(0.7)	(0.7)	1.7	5.1	4.8	26.1	10.7	7,528	17.6	27.7	2.7	2.2	8.8	11.9	
Fuchs Petrolub	EUR	43.7	0.4	(0.5)	0.0	15.4	7.2	16.1	9.6	6,143	24.0	23.0	5.1	4.5	14.0	13.5	
SK이노베이션	KRW	153,500	0.3	0.0	(5.2)	(1.6)	7.0	5.9	4.8	12,546	0.0	0.0	0.0	0.0	0.0	0.0	
S-Oil	KRW	85,000	1.0	(0.7)	2.4	(0.5)	21.3	6.3	0.4	8,459	0.0	0.0	0.0	0.0	0.0	0.0	
GS	KRW	54,300	0.6	(0.4)	5.6	(2.2)	7.7	1.9	0.4	4,460	0.0	0.0	0.0	0.0	0.0	0.0	
<b>Average</b>			<b>0.2</b>	<b>(0.3)</b>	<b>(0.3)</b>	<b>4.3</b>	<b>16.8</b>	<b>28.3</b>	<b>0.0</b>								

\* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임

\* 국내업체의 multiple은 Dataguidepro 기준임

## Global peers

	Currency	02/27	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	82	0.6	(0.3)	(4.6)	(6.4)	(6.6)	(0.3)	(9.7)	338,107	37.8	19.7	2.0	2.0	12.2	8.0
BP	GBP	452	1.0	1.4	(7.3)	(0.8)	3.8	29.2	(11.4)	109,554	30.7	15.4	1.2	1.2	7.2	5.3
Shell	EUR	2,075	0.1	(0.3)	(5.3)	3.2	9.4	26.4	(7.5)	215,867	25.0	14.3	1.1	1.1	8.7	6.3
Chevron	USD	112	1.5	1.3	(1.8)	0.7	10.3	32.5	(5.1)	211,554	80.6	24.0	1.4	1.5	12.3	7.1
Total	EUR	47	(1.0)	(0.7)	0.0	7.1	8.8	15.7	(3.0)	122,913	14.9	11.9	1.2	1.2	7.3	5.8
Sinopec	CNY	6	(1.4)	(2.6)	(5.0)	12.4	15.8	31.4	5.9	99,670	16.7	13.3	1.0	0.9	5.5	5.0
Petrochina	CNY	8	(0.6)	(1.7)	(5.1)	8.0	10.9	13.1	3.3	209,986	186.6	31.5	1.3	1.2	7.7	6.6
CNOOC	CNY	13	(0.8)	(1.4)	1.9	(1.9)	6.9	4.9	2.3	7,477	#N/A N/A	485.9	1.7	1.7	#N/A N/A	17.4
Gazprom	RUB	135	(1.2)	(2.5)	(12.3)	(10.7)	(0.8)	(2.6)	(12.6)	55,119	3.3	3.6	0.3	0.3	4.0	3.6
Rosneft	RUB	331	(3.5)	(5.1)	(17.6)	(3.1)	(5.6)	16.9	(17.8)	60,478	18.1	6.8	1.2	0.9	5.2	4.3
Anadarko	USD	65	0.2	(2.8)	(7.3)	1.8	17.4	70.7	(6.9)	36,278	#N/A N/A	128.3	2.2	2.4	13.1	8.1
Petrobras	BRL	15	0.0	(4.6)	(2.8)	(0.8)	21.0	211.7	2.1	65,677	#N/A N/A	12.5	0.8	0.8	6.8	5.7
Lukoil	USD	3,135	(1.5)	(1.4)	(10.1)	(0.6)	3.6	21.2	(9.1)	45,973	7.5	5.6	0.6	0.6	N/A	N/A
Kinder	USD	21	0.8	(1.7)	(4.4)	(1.9)	(0.3)	20.5	3.3	47,497	31.6	31.5	1.4	1.4	11.9	12.0
Statoil	NOK	148	0.4	0.1	(6.6)	1.8	11.3	18.8	(6.8)	57,349	125.3	16.7	1.4	1.5	5.1	3.2
BHP	AUD	25	(0.3)	(5.6)	(9.2)	(5.7)	19.7	60.3	(0.3)	96,541	13.5	16.2	1.7	1.7	5.7	6.3
PTT E&P	THB	92	0.0	(1.6)	(5.6)	11.8	14.2	37.2	(4.2)	10,513	22.7	15.6	0.9	0.9	3.3	3.1
Petronas gas	MYR	20	(1.3)	(1.7)	(3.1)	(5.1)	(8.6)	(8.6)	(4.8)	9,041	23.0	22.3	3.4	3.2	13.1	12.7
Chesapeake	USD	6	(0.7)	(7.9)	(18.8)	(14.7)	(12.2)	108.1	(19.9)	4,987	#N/A N/A	7.3	#N/A N/A	#N/A N/A	12.0	7.4
Noble Energy	USD	37	(0.1)	(0.8)	(8.7)	2.2	4.0	23.6	(3.4)	15,822	#N/A N/A	#N/A N/A	1.6	1.7	10.1	7.9
<b>Average</b>		<b>0</b>	<b>(0.4)</b>	<b>(2.0)</b>	<b>(6.7)</b>	<b>(0.1)</b>	<b>6.2</b>	<b>36.5</b>	<b>(5.3)</b>							
<b>PV</b>																
WACKER	EUR	104.1	1.9	(4.5)	(8.9)	25.1	24.0	41.9	5.3	5,757	31.7	19.8	2.3	2.2	6.1	5.4
GCL-Poly	HKD	1.1	0.0	1.9	5.9	5.9	(4.5)	(9.3)	15.1	2,563	7.7	7.5	0.8	0.8	6.0	5.5
SunPower	USD	9.0	1.0	13.8	36.7	27.7	(9.5)	(60.3)	35.9	1,245	#N/A N/A	#N/A N/A	1.0	1.2	13.7	28.3
Canadian Solar	USD	15.1	2.2	7.2	20.3	30.7	15.2	(32.4)	24.2	869	9.5	7.7	0.9	0.8	10.8	8.2
JA Solar	USD	5.2	(1.9)	2.8	11.3	(6.5)	(31.8)	(41.5)	9.5	248	6.5	#N/A N/A	0.3	0.3	3.7	5.5
Trina Solar	USD	10.5	(0.2)	2.5	4.4	4.5	(0.7)	1.9	12.6	968	10.2	30.6	0.7	0.7	6.8	8.4
Solar City	USD	20.3	0.0	0.0	0.0	0.0	(7.8)	8.2	0.0	2,049	#N/A N/A	#N/A N/A				
Yingli	USD	2.7	0.0	0.7	(4.6)	(20.5)	(29.1)	(36.9)	4.2	49	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	13.0	66.3
First Solar	USD	37.8	(0.2)	8.6	20.2	23.6	0.8	(46.1)	17.9	3,936	8.0	103.9	0.7	0.7	3.8	9.3
한화큐셀	USD	8.9	(6.5)	0.7	7.7	(4.9)	(29.1)	(46.8)	9.1	748	6.4	29.2	#N/A N/A	#N/A N/A	6.0	9.3
OCI	KRW	88,800	(3.1)	(5.0)	0.1	15.8	(1.6)	0.7	12.8	1,872	0.0	0.0	0.0	0.0	0.0	0.0
웅진에너지	KRW	4,800	2.2	0.7	(4.0)	10.9	(43.2)	(64.0)	1.4	97	N/A	0.0	0.0	0.0	0.0	0.0
신성솔라에너지	KRW	1,910	(0.5)	0.5	(7.3)	3.0	(18.0)	9.7	(13.6)	292	N/A	0.0	0.0	0.0	0.0	0.0
<b>Average</b>			<b>(0.4)</b>	<b>2.1</b>	<b>5.8</b>	<b>8.2</b>	<b>(9.7)</b>	<b>(19.6)</b>	<b>9.6</b>							
<b>Gas Company</b>																
Towngas China	HKD	4.3	(0.2)	(3.2)	0.2	7.3	(7.4)	10.4	4.2	1,485	9.3	9.0	0.8	0.7	10.7	10.2
Kulun	HKD	6.8	0.9	0.6	9.3	19.3	18.7	20.6	17.2	7,073	13.0	12.2	1.1	1.0	5.0	5.0
Beijing Enterprise	HKD	40.4	(1.3)	(0.4)	4.1	12.5	(11.1)	9.8	10.2	6,570	8.2	7.5	0.8	0.8	15.8	14.4
ENN Energy	HKD	37.9	(3.2)	(1.6)	(1.3)	12.6	(11.7)	5.3	18.8	5,286	12.1	11.1	2.3	2.0	7.7	7.2
China Resources Gas	HKD	23.5	(2.1)	(2.9)	(4.5)	2.8	(10.0)	17.5	7.8	6,734	14.6	13.2	2.6	2.3	9.8	8.9
China Gas Holdings	HKD	11.7	(1.5)	1.9	4.3	8.9	(10.1)	15.3	11.6	7,543	14.4	12.7	2.7	2.3	11.9	10.7
Shenzen Gas	HKD	11.1	(1.9)	(1.9)	(0.4)	(3.0)	(8.8)	(6.5)	(1.4)	2,810	11.1	10.6	1.1	1.0	8.3	8.0
Shann Xi	CNY	9.6	(1.0)	0.5	2.1	(6.1)	(8.6)	11.2	0.3	1,558	19.1	17.2	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Suntien	HKD	1.3	(0.8)	(1.5)	9.2	23.6	19.1	42.4	31.0	627	8.9	7.6	0.6	0.5	9.9	8.2
China Oil & Gas	HKD	0.6	(3.2)	(1.6)	1.7	0.0	0.0	37.1	0.0	458	9.0	8.7	1.1	1.0	5.8	5.2
<b>Average</b>			<b>(1.4)</b>	<b>(1.0)</b>	<b>2.5</b>	<b>7.8</b>	<b>(3.0)</b>	<b>16.3</b>	<b>10.0</b>							
<b>EV</b>																
LG화학	KRW	282,500	0.5	1.4	4.6	27.0	5.2	(3.7)	8.2	17,628	14.7	12.5	1.4	1.4	6.3	5.5
삼성SDI	KRW	127,000	1.6	2.8	9.5	40.0	6.7	28.3	16.5	7,720	52.9	18.7	0.8	0.8	#N/A N/A	10.4
Panasonic	JPY	1229.5	(2.3)	(1.4)	1.6	11.0	21.0	29.9	3.4	26,864	18.4	14.9	1.6	1.5	5.5	4.9
GS Yuasa	JPY	507.0	(1.6)	1.2	6.5	6.5	29.7	9.0	4.3	1,868	16.8	14.7	1.3	1.2	7.0	6.6
NEC	JPY	279.0	(0.7)	1.1	(11.7)	(7.6)	6.5	(3.1)	(10.0)	6,473	14.8	13.8	0.9	0.9	8.3	6.9
BYD Auto	CNY	50.3	0.1	2.3	3.3	(9.2)	(13.8)	(4.0)	1.2	18,734	27.4	24.1	2.6	2.5	13.2	11.9
Tesla Motors	USD	246.2	(4.2)	(9.6)	(2.7)	25.2	11.9	29.4	15.2	39,665	#N/A N/A	#N/A N/A	9.5	6.0	63.6	45.4
Kandi Technologies	USD	4.0	(3.6)	(3.6)	(11.1)	(13.0)	(36.7)	(44.1)	(18.4)	191	#N/A N/A	#N/A N/A				
<b>Average</b>			<b>(1.3)</b>	<b>(0.7)</b>	<b>0.0</b>	<b>10.0</b>	<b>3.8</b>	<b>5.2</b>	<b>2.6</b>							

\* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임