

## 1. News Summary (3 page)

2017년 8월 25일

News	
WTI comment	허리케인 변수' 주목 속 하락...WTI 2.0%↓
Headline	美 Gulf Coast가 열대폭풍 Harvey에 대비하는 중
News 1.	삼성전자, '갤럭시S9'에 LG화학 배터리 적용 검토
News 2.	홍수·화재가 호재로...정유·화학 3분기 실적 반전
News 3.	-
News 4.	-

Conclusion	
	정제시설 타격으로 가솔린을 비롯한 정제품 가격 일시적 상승 전망
	LG화학 전지사업부의 소형 파우치 배터리 부문도 성장 전망
	역사적인 정제마진 수준과 고무 계열 수급 문제로 3분기 호실적 전망
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## 2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
<b>Refinery</b>			%	%	%	%	%
WTI	\$/bbl	47.4	(2.0)	0.7	(3.3)	(3.0)	0.2
Dubai	\$/bbl	50.6	1.2	3.9	2.4	(4.2)	10.9
Gasoline	\$/bbl	67.9	2.2	2.6	7.0	2.1	17.5
Diesel	\$/bbl	63.8	2.4	4.3	0.0	(0.3)	13.8
Complex margin	\$/bbl	9.0	0.6	0.1	0.2	2.0	3.5
1M lagging	\$/bbl	13.0	2.8	3.2	(1.0)	4.2	2.3
<b>Petrochemical</b>			%	%	%	%	%
Naphtha	\$/t	473	2.0	4.0	10.6	2.1	18.1
Butadiene	\$/t	1,230	0.0	2.5	35.2	21.8	16.6
HDPE	\$/t	1,140	0.0	1.8	5.1	3.2	1.3
MEG	\$/t	880	1.4	2.7	3.9	18.9	42.2
PX	\$/t	807	0.8	0.5	2.6	0.1	2.3
SM	\$/t	1,218	2.1	3.6	6.7	13.7	18.8
<b>Commodity</b>			%	%	%	%	%
Natural Gas	\$/mmbtu	2.94	0.5	0.5	(0.8)	(10.8)	(2.5)
Natural rubber	\$/t	1,510	(1.3)	(0.7)	0.7	1.3	20.8
Cotton	C/lbs	70.2	0.8	4.0	(0.5)	(9.1)	3.6

\*참고: 정제마진의 변동률은 %가 아닌 \$/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
<b>Petrochemical</b>				%	%	%	%
Ethylene	08/21	\$/t	1,165	3.6	27.3	17.1	8.4
Propylene	08/21	\$/t	775	0.0	2.3	3.7	7.6
Benzene	08/21	\$/t	775	0.3	5.1	(0.6)	14.0
Toluene	08/21	\$/t	655	0.0	4.0	0.0	12.0
Xylene	08/21	\$/t	635	0.0	2.8	0.8	5.8
PP	08/21	\$/t	1,108	0.9	4.7	6.7	13.6
PVC	08/21	\$/t	890	2.3	2.3	1.1	7.2
ABS	08/21	\$/t	1,870	1.1	3.3	14.7	35.5
SBR	08/21	\$/t	1,540	2.0	2.7	(12.0)	9.2
SM	08/21	\$/t	1,193	1.9	1.9	7.2	13.0
BPA	08/21	\$/t	2,023	27.4	32.2	49.8	34.8
Caustic	08/21	\$/t	476	0.7	2.9	6.4	56.1
2-EH	08/21	\$/t	960	0.0	1.1	1.1	26.3
Caprolactam	08/21	\$/t	1,800	0.0	5.9	5.9	32.4
<b>Solar</b>				%	%	%	%
Polysilicon	08/23	\$/kg	15.6	0.0	9.0	15.8	0.6
Module	08/23	\$/W	0.32	(0.6)	(1.8)	(3.6)	(26.9)

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

	Unit	Price	1D	1W	1M	3M	12M
<b>E&amp;P</b>			%	%	%	%	%
ExxonMobil	USD	76.3	(0.4)	0.1	(4.4)	(7.2)	(13.3)
Shell	EUR	2,135	(0.2)	0.4	3.7	0.8	13.6
Petrochina	CNY	7.96	(0.4)	0.4	(0.6)	2.7	7.1
Gazprom	RUB	116.6	0.7	0.3	(2.2)	(4.5)	(14.9)
Petrobras	BRL	13.8	0.3	5.7	7.1	(1.0)	11.3
<b>Refinery</b>							
Phillips66	USD	83.9	1.8	3.7	1.5	7.1	8.0
Valero	USD	67.4	2.6	4.5	(0.4)	5.7	21.1
JX	JPY	540.1	(0.0)	0.9	10.7	9.2	40.8
Neste Oil	EUR	35.1	0.9	0.4	(5.4)	(6.2)	(8.8)

	Unit	Price	1D	1W	1M	3M	12M
<b>Petrochemical</b>			%	%	%	%	%
BASF	EUR	82.6	0.3	2.0	1.7	(2.5)	13.6
Dow Chemical	USD	64.4	(0.4)	1.9	(2.8)	4.7	20.0
SABIC	SAR	98.7	0.3	0.6	(1.4)	0.3	17.4
Formosa Pla.	TWD	93.5	0.5	0.6	1.6	5.1	18.7
Shin-Etsu	JPY	9,610	0.8	(1.6)	(7.4)	(3.6)	31.2
<b>Renewable</b>							
Wacker	EUR	106.2	(0.1)	2.8	5.3	11.2	25.8
First Solar	USD	47.20	1.5	(1.2)	4.9	21.3	26.5
GCL-Poly	HKD	0.91	0.0	1.1	(3.2)	5.8	(22.2)
Tesla Motors	USD	352.9	0.0	0.3	3.0	13.8	58.5

## 4. Coverage Summary

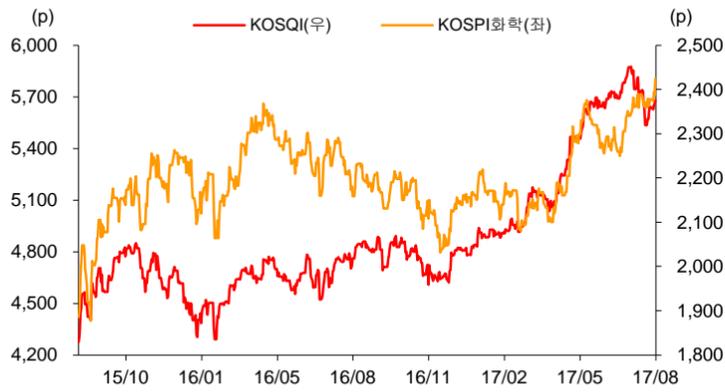
	08/24	1D	1W	1M	3M	6M	12M
KOSPI	2,376	0.4	0.6	(2.6)	0.9	12.8	15.9
KOSPI화학	5,804	1.7	2.3	3.5	2.6	13.3	10.6
LG화학	375,000	2.5	9.2	14.0	23.2	34.2	39.4
롯데케미칼	393,000	0.4	1.6	7.2	4.5	4.4	41.9
한화케미칼	35,200	0.1	(0.3)	7.3	20.3	33.8	34.1
금호석유화학	77,000	(0.8)	2.5	1.2	(6.2)	(1.9)	6.2
KCC	392,500	1.3	(2.0)	(8.9)	(3.8)	14.8	(8.4)
OCI	93,100	0.1	0.5	7.1	3.0	(2.5)	0.5
SKC	37,200	(1.5)	(2.4)	1.6	18.8	13.4	30.5
국도화학	53,600	0.4	(1.7)	0.0	6.1	2.9	(6.0)
SK이노베이션	178,000	4.1	4.7	2.0	6.3	14.8	21.9
S-Oil	117,500	1.3	3.1	6.8	15.2	37.1	63.0
GS	68,000	(0.9)	0.0	(6.3)	(5.6)	25.5	38.4
SK가스	108,000	(1.8)	(1.4)	(4.0)	(11.8)	3.3	10.2
포스코대우	21,800	(0.2)	0.2	(6.4)	(9.2)	(13.3)	(6.2)
LG상사	28,700	1.2	0.0	(4.3)	(13.3)	(12.5)	(15.8)
한국전력	43,950	(0.1)	(0.8)	(3.1)	3.5	1.7	(23.7)
한국가스공사	45,500	(0.4)	(3.3)	(8.7)	(12.0)	(5.7)	6.6

투자의견	TP	%	P/E	P/B
			* 추정치는 12M fwd 기준임	
			* 모든 coverage 업체의 실적은 연결기준임	
매수	330,000	(12.0)	14.93	2.01
매수	410,000	4.3	8.11	1.43
매수	33,000	(6.3)	8.40	1.04
매수	100,000	29.9	14.64	1.46
매수	450,000	14.6	22.32	0.63
매수	100,000	7.4	18.84	0.72
매수	40,000	7.5	14.02	0.99
매수	70,000	30.6	9.00	0.65
매수	180,000	1.1	8.00	0.97
매수	100,000	(14.9)	15.78	2.29
매수	80,000	17.6	5.65	1.00
매수	150,000	38.9	6.55	0.78
매수	27,000	23.9	7.57	0.90
매수	42,000	46.3	8.87	0.93
매수	60,000	36.5	7.59	0.35
매수	60,000	31.9	7.72	0.54

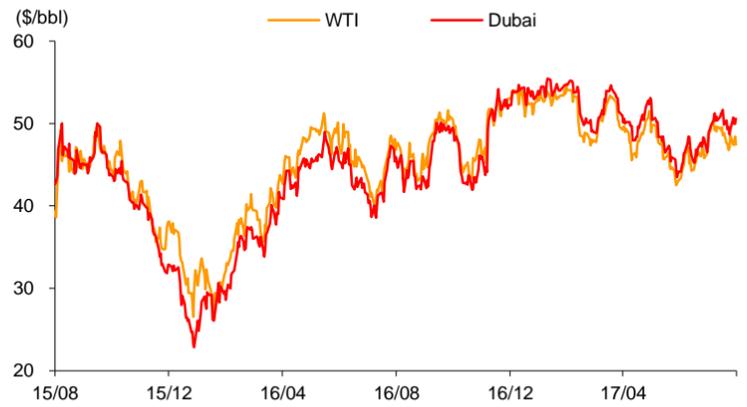
· 작성자(손지우)는 본 조사분석자료에 게재된 내용들이 본인의 의견을 정확하게 반영하고 있으며, 외부의 부당한 압력이나 간섭없이 신의성실하게 작성되었음을 확인합니다.  
· 본 보고서에 언급된 종목의 경우 당사 조사분석담당자는 본인의 담당종목을 보유하고 있지 않습니다.  
· 본 보고서는 기관투자자 또는 제 3자에게 사전 제공된 사실이 없습니다.  
· 당사는 본 보고서의 발간시점에 해당종목을 1% 이상 보유하고 있지 않습니다.

## Key Chart

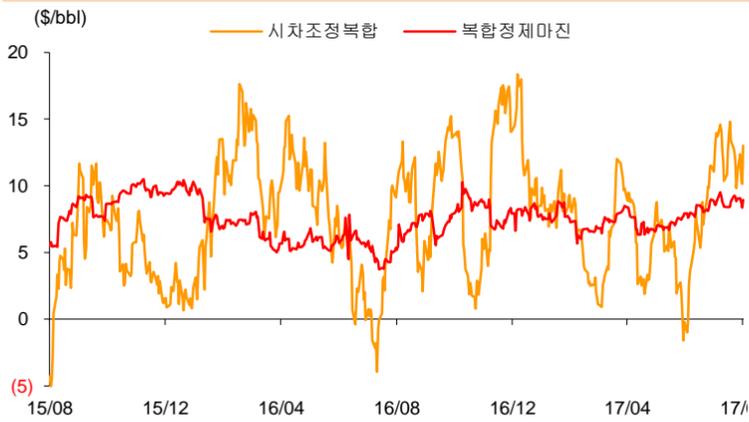
**KOSPI/KOSPI화학**



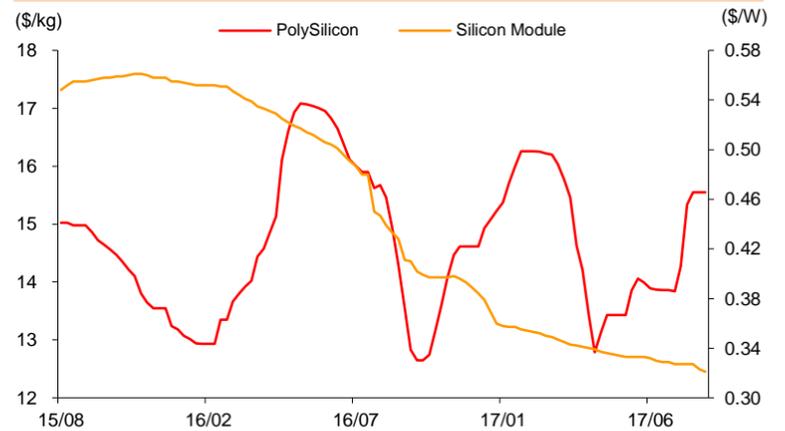
**WTI/Dubai**



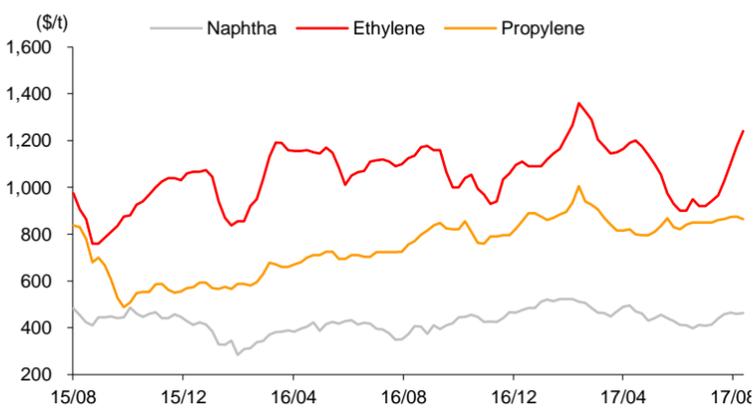
**Complex & 1M lagging margin**



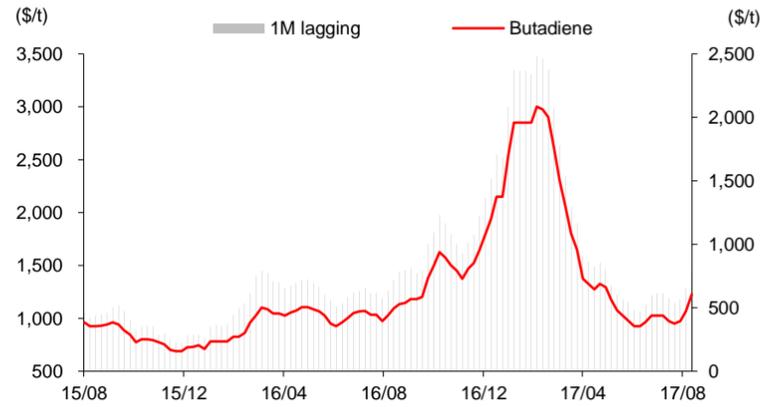
**Polysilicon & Module prices**



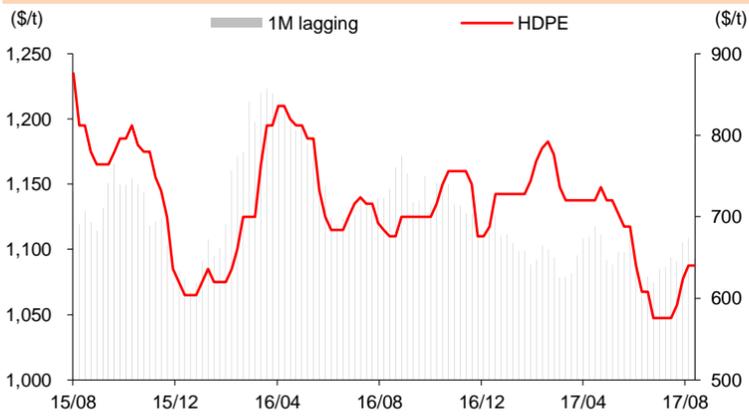
**Naphtha/Ethylene/Propylene prices**



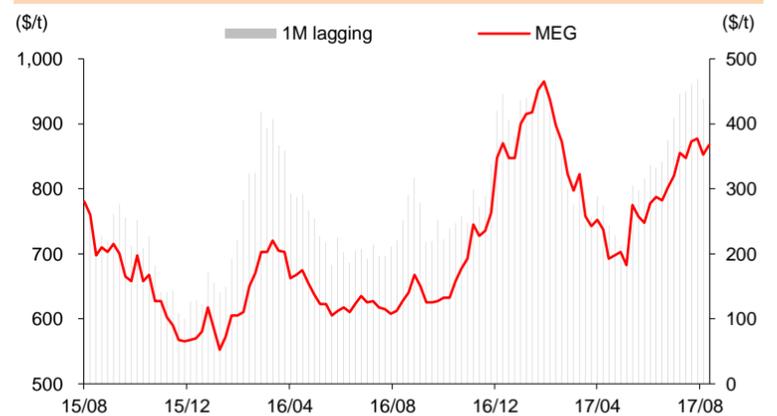
**Butadiene price & 1M lagging naphtha spread**



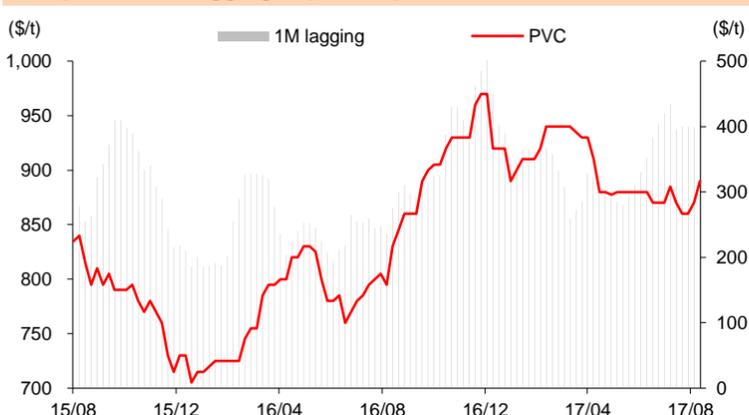
**HDPE price & 1M lagging naphtha spread**



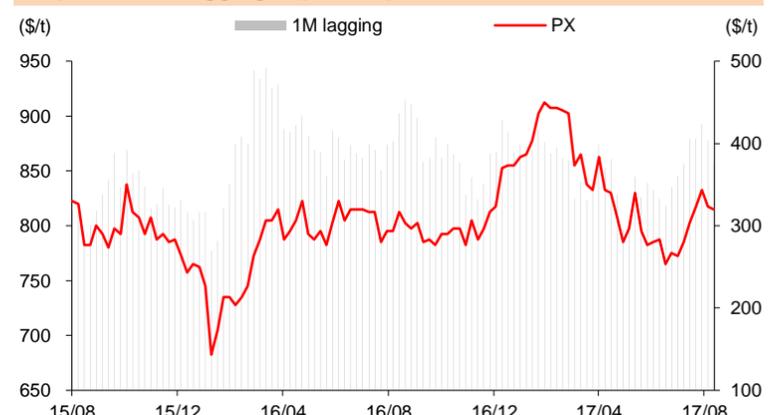
**MEG price & 1M lagging naphtha spread**



**PVC price & 1M lagging naphtha spread**



**PX price & 1M lagging naphtha spread**



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

## News Comment

### Headline (출처: Platts)

**제목** 美 Gulf Coast가 열대폭풍 Harvey에 대비하는 중  
**결론** 정제시설 타격으로 가솔린을 비롯한 정제품 가격 일시적 상승 전망  
**세부**

- 1) 열대폭풍 Harvey가 허리케인으로 격상되며 Texas에 Landfall 우려 커짐
- 2) 이에 ExxonMobil, Anadarko, Shell은 섣다운에 돌입함
- 3) Tennessee Gas Pipeline Company은 force majeure 선언함
- 4) Nustar Energy의 Corpus Christi 터미널도 섣다운 준비중임
- 5) 정제시설 타격으로 가솔린을 비롯한 정제품 가격 일시적 상승 전망

### Issue 1 (출처: KINEWS)

**제목** 삼성전자, '갤럭시S9'에 LG화학 배터리 적용 검토  
**결론** LG화학 전지사업부의 소형 파우치 배터리 부문도 성장 전망  
**세부**

- 1) 노트7 발화 사태 직후 해외 배터리 제조 업체와 갈등을 빚은 것이 원인
- 2) 작년까지 삼성SDI와 중국 ATL의 배터리를 프리미엄급 스마트폰에 적용
- 3) 올해 들어서는 삼성SDI와 소니(무라타) 배터리를 채택했음
- 4) 내년부터는 ATL이 빠진 자리를 LG화학이 대체하게 될 전망
- 5) LG화학 전지사업부의 소형 파우치 배터리 부문도 성장 전망

### Issue 3

**제목**  
**결론**  
**세부**

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

### Issue 5

**제목**  
**결론**  
**세부**

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

### WTI Comment (출처: 연합뉴스)

**제목** 허리케인 변수' 주목 속 하락...WTI 2.0%↓  
**상승** OPEC의 추가 감산 가능성이 제기  
**요인** 열대폭풍 Harvey가 허리케인으로 발달해 텍사스 주에 상륙할 전망

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**하락** 공급 과잉 문제가 쉽게 해결되기 어려울 것이라는 전망  
**요인**

### Issue 2 (출처: 아시아경제)

**제목** 홍수·화재가 화재로...정유·화학 3분기 실적 반전  
**결론** 역사적인 정제마진 수준과 고무 계열 수급 문제로 3분기 호실적 전망  
**세부**

- 1) 관계자, "3Q는 비수기임에도 재해로 인한 숏티지 우려가 화재로 작용"
- 2) 태국 홍수로 천연고무 수급 차질 빚으며 대체제 부타디엔 31.9% 폭등
- 3) 유럽 로열 더치 셸, GS칼텍스 공장 화재로 정제마진 배럴당 8.4달러
- 4) 관계자, "연말에는 호황 때문에 미룬 정기보수에 돌입해 숏티지 지속됨"
- 5) 역사적인 정제마진 수준과 고무 계열 수급 문제로 3분기 호실적 전망

### Issue 4

**제목**  
**결론**  
**세부**

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- 2)
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### Issue 6

**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	0.848	0.847	0.853	0.859	0.891	0.947	0.888	0.951	0.901	0.904	0.908	
	Change, %		0.1	(0.6)	(1.3)	(4.9)	(10.5)	(4.5)	(10.8)	(6.0)	(6.2)	(6.7)	
	USD/JPY	109.6	109.0	109.6	111.1	111.5	112.1	100.5	117.0	121.1	108.8	112.1	
	Change, %		0.5	(0.0)	(1.4)	(1.7)	(2.3)	9.1	(6.3)	(9.5)	0.7	(2.3)	
	USD/KRW	1,127.8	1,131.8	1,137.4	1,114.1	1,126.3	1,131.1	1,122.0	1,205.8	1,131.2	1,160.5	1,140.2	
	Change, %		(0.4)	(0.8)	1.2	0.1	(0.3)	0.5	(6.5)	(0.3)	(2.8)	(1.1)	
	<hr/>												
	Agriculture	Corn	342.0	342.0	350.5	377.3	371.3	364.0	327.5	352.0	376.8	358.5	366.5
Change, %			0.0	(2.4)	(9.3)	(7.9)	(6.0)	4.4	(2.8)	(9.2)	(4.6)	(6.7)	
Soybean		941.3	935.0	930.3	997.5	948.3	1,013.5	1,030.8	996.5	945.4	987.5	978.1	
Change, %			0.7	1.2	(5.6)	(0.7)	(7.1)	(8.7)	(5.5)	(0.4)	(4.7)	(3.8)	
Wheat		409.0	403.3	414.0	488.8	432.5	431.3	404.0	408.0	508.1	436.4	441.7	
Change, %			1.4	(1.2)	(16.3)	(5.4)	(5.2)	1.2	0.2	(19.5)	(6.3)	(7.4)	
Rice		12.4	12.3	12.1	12.1	11.1	9.4	10.1	9.4	11.1	10.3	10.5	
Change, %			0.6	2.1	1.9	11.9	31.2	22.7	32.2	11.9	19.6	17.5	
Oats		239.3	238.8	258.3	288.8	238.5	251.8	169.3	228.5	250.2	196.3	253.7	
Change, %			0.2	(7.4)	(17.1)	0.3	(5.0)	41.4	4.7	(4.4)	21.9	(5.7)	
MYR/mt		Palm Oil	2,750.0	2,723.0	2,649.0	2,589.0	2,861.0	2,977.0	2,841.0	3,218.0	2,190.3	2,653.8	2,861.8
		Change, %		1.0	3.8	6.2	(3.9)	(7.6)	(3.2)	(14.5)	25.6	3.6	(3.9)
	Cocoa	1,924.0	1,908.0	1,904.0	1,968.0	1,894.0	2,028.0	3,015.0	2,126.0	3,091.6	2,854.0	1,995.2	
	Change, %		0.8	1.1	(2.2)	1.6	(5.1)	(36.2)	(9.5)	(37.8)	(32.6)	(3.6)	
	Cotton	70.2	69.6	67.5	69.0	77.5	75.4	67.4	70.7	63.3	65.6	74.7	
	Change, %		0.8	4.0	1.7	(9.5)	(7.0)	4.1	(0.7)	10.9	7.0	(6.0)	
	Sugar	14.0	13.7	13.3	14.4	15.7	19.8	20.2	19.5	13.1	18.2	16.6	
Change, %		2.6	5.5	(2.6)	(10.5)	(29.2)	(30.7)	(28.1)	6.7	(22.8)	(15.5)		
	Coffee	126.7	126.3	128.5	132.6	128.6	144.4	142.2	137.1	132.6	136.1	136.4	
	Change, %		0.4	(1.4)	(4.4)	(1.4)	(12.3)	(10.9)	(7.6)	(4.5)	(6.9)	(7.1)	
<hr/>													
Energy	WTI	47.6	48.4	47.1	46.3	51.4	54.0	46.8	53.7	48.8	43.4	49.5	
	Change, %		(1.6)	1.1	2.8	(7.3)	(11.8)	1.8	(11.4)	(2.5)	9.8	(3.8)	
	Brent	52.2	52.6	51.0	48.6	54.0	56.0	49.1	56.8	53.7	45.1	52.2	
	Change, %		(0.7)	2.3	7.4	(3.3)	(6.8)	6.4	(8.2)	(2.8)	15.8	(0.1)	
	Natural Gas	2.9	2.9	2.9	2.9	3.2	2.6	2.8	3.7	2.6	2.6	3.1	
	Change, %		0.5	0.5	1.5	(8.3)	12.0	5.3	(21.0)	11.9	15.3	(4.1)	
	Ethanol	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	
	Change, %		(0.7)	0.0	(0.5)	2.0	0.4	3.6	(6.0)	0.0	(0.3)	(1.7)	
	RBOB Gasoline	168.4	161.9	158.7	155.7	165.3	151.5	151.0	166.5	163.6	140.0	158.5	
	Change, %		4.0	6.1	8.2	1.9	11.2	11.5	1.1	2.9	20.3	6.2	
	Coal	98.4	98.4	98.1	86.4	74.5	80.0	67.0	88.4	59.0	65.5	83.0	
	Change, %		0.1	0.4	14.0	32.2	23.0	46.9	11.3	66.9	50.3	18.6	
<hr/>													
Metal	Gold	1,286.3	1,291.0	1,288.1	1,255.4	1,258.8	1,257.2	1,324.2	1,152.3	1,160.6	1,248.5	1,242.9	
	Change, %		(0.4)	(0.1)	2.5	2.2	2.3	(2.9)	11.6	10.8	3.0	3.5	
	Silver	17.0	17.1	17.0	16.5	17.2	18.4	18.6	15.9	15.7	17.1	17.1	
	Change, %		(0.7)	(0.3)	3.0	(1.4)	(7.5)	(8.5)	6.7	8.0	(0.7)	(1.0)	
	Copper	6,688.0	6,565.0	6,490.0	6,027.0	5,682.0	5,928.0	4,632.0	5,535.5	5,503.1	4,872.0	5,875.6	
	Change, %		1.9	3.1	11.0	17.7	12.8	44.4	20.8	21.5	37.3	13.8	
	Nickel	748.9	750.5	683.0	625.9	589.8	723.7	667.6	682.0	759.5	646.4	644.9	
	Change, %		(0.2)	9.6	19.7	27.0	3.5	12.2	9.8	(1.4)	15.9	16.1	
	Zinc	3,118.0	3,096.5	3,062.0	2,788.0	2,635.0	2,829.0	2,276.0	2,576.0	1,941.9	2,097.5	2,736.0	
	Change, %		0.7	1.8	11.8	18.3	10.2	37.0	21.0	60.6	48.7	14.0	
	Lead	2,338.8	2,360.5	2,399.3	2,244.5	2,065.8	2,257.5	1,847.8	2,003.5	1,791.2	1,868.3	2,239.9	
	Change, %		(0.9)	(2.5)	4.2	13.2	3.6	26.6	16.7	30.6	25.2	4.4	
	Aluminum	16,475.0	16,135.0	16,375.0	14,330.0	13,935.0	13,640.0	12,535.0	12,765.0	12,184.0	12,373.5	13,987.4	
	Change, %		2.1	0.6	15.0	18.2	20.8	31.4	29.1	35.2	33.1	17.8	
	Cobalt	60,000.0	60,000.0	56,796.0	57,700.0	54,500.0	47,750.0	26,000.0	32,734.0	28,444.4	25,480.1	51,726.0	
	Change, %		0.0	5.6	4.0	10.1	25.7	130.8	83.3	110.9	135.5	16.0	
	HR Coil	621.0	621.0	621.0	617.0	613.0	620.0	591.0	633.0	461.5	519.3	620.6	
Change, %		0.0	0.0	0.6	1.3	0.2	5.1	(1.9)	34.6	19.6	0.1		
Scrap	372.0	372.0	369.0	355.0	350.0	350.0	265.0	302.0	252.9	275.7	342.7		
Change, %		0.0	0.8	4.8	6.3	6.3	40.4	23.2	47.1	34.9	8.6		

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

## Refining Price Data

Daily Price		08/24	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.	
Crude Oil	<b>WTI</b>	47.4	48.4	47.1	49.0	48.9	54.5	47.3	53.7	48.8	43.4	49.4	
	<i>Change, %</i>		(2.0)	0.7	(3.3)	(3.0)	(12.9)	0.2	(11.7)	(2.8)	9.4	(4.1)	
	<b>Dubai</b>	50.6	49.9	48.7	49.4	52.8	54.8	45.6	53.8	50.8	41.3	50.7	
	<i>Change, %</i>		1.2	3.9	2.4	(4.2)	(7.7)	10.9	(6.1)	(0.5)	22.4	(0.4)	
Crude Oil Product	<b>Gasoline(휘발유)</b>	67.9	66.4	66.2	63.4	66.5	68.1	57.8	69.8	69.5	56.3	65.4	
	<i>Change, %</i>		2.2	2.6	7.0	2.1	(0.3)	17.5	(2.8)	(2.4)	20.7	3.7	
	<b>Kerosene(등유)</b>	63.1	61.9	61.0	62.5	64.1	66.8	56.0	66.4	64.7	52.9	62.1	
	<i>Change, %</i>		1.9	3.4	1.0	(1.7)	(5.5)	12.6	(5.1)	(2.6)	19.3	1.6	
	<b>Diesel(경유)</b>	63.8	62.3	61.2	63.8	64.0	67.5	56.1	65.5	64.8	52.1	62.7	
	<i>Change, %</i>		2.4	4.3	0.0	(0.3)	(5.5)	13.8	(2.6)	(1.5)	22.4	1.7	
	<b>Bunker-C</b>	47.3	46.8	45.9	47.4	49.7	49.6	39.1	52.1	45.3	35.5	47.5	
	<i>Change, %</i>		1.2	3.1	(0.1)	(4.8)	(4.7)	21.1	(9.1)	4.6	33.2	(0.4)	
	<b>Naphtha</b>	50.6	49.9	48.7	48.2	49.9	55.4	41.9	53.5	52.6	42.6	50.4	
	<i>Change, %</i>		1.5	4.0	4.9	1.4	(8.7)	20.7	(5.4)	(3.8)	18.8	0.5	
	Dubai Spread	<b>Gasoline(휘발유)</b>	17.3	16.5	17.5	14.1	13.7	13.3	12.2	16.0	18.7	14.9	14.7
		<i>Change</i>		0.9	(0.2)	3.3	3.6	4.0	5.2	1.3	(1.4)	2.4	2.6
<b>Kerosene(등유)</b>		12.5	12.0	12.4	13.1	11.4	12.0	10.4	12.6	14.0	11.6	11.3	
<i>Change</i>			0.5	0.2	(0.6)	1.2	0.5	2.1	(0.1)	(1.4)	0.9	1.2	
<b>Diesel(경유)</b>		13.3	12.4	12.5	14.5	11.2	12.8	10.5	11.7	14.0	10.8	12.0	
<i>Change</i>			0.9	0.7	(1.2)	2.0	0.5	2.8	1.6	(0.7)	2.5	1.3	
<b>Bunker-C</b>		(3.2)	(3.2)	(2.7)	(2.0)	(3.1)	(5.1)	(6.5)	(1.8)	(5.5)	(5.8)	(3.2)	
<i>Change</i>			(0.1)	(0.5)	(1.3)	(0.1)	1.9	3.3	(1.5)	2.3	2.6	0.0	
<b>Naphtha</b>		0.0	(0.1)	0.0	(1.1)	(2.9)	0.7	(3.7)	(0.4)	1.8	1.3	(0.4)	
<i>Change</i>			0.1	0.0	1.2	3.0	(0.6)	3.7	0.4	(1.8)	(1.2)	0.4	
Refining Margin	<b>Simple(단순)</b>	3.8	3.5	3.9	4.3	2.6	2.2	0.7	3.8	3.3	1.9	3.0	
	<i>Change</i>		0.3	(0.1)	(0.5)	1.2	1.6	3.1	(0.0)	0.5	1.9	0.8	
	<b>Complex(복합)</b>	9.0	8.4	8.8	8.8	7.0	7.3	5.5	8.3	9.3	7.0	7.7	
	<i>Change</i>		0.6	0.1	0.2	2.0	1.7	3.5	0.7	(0.3)	2.0	1.3	
	<b>Complex(lagging)</b>	13.0	10.1	9.8	14.0	8.8	8.5	10.7	18.0	7.3	8.5	7.4	
	<i>Change</i>		2.8	3.2	(1.0)	4.2	4.5	2.3	(5.0)	5.7	4.5	5.6	

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			08/24	08/23	08/22	08/21	08/18	08/17	08/16	08/15	08/14	08/11
Spot Price	<b>Naphtha</b>	CFR Japan	472.5	463.4	466.0	470.3	464.0	454.3	460.5	460.8	468.8	459.8
	<b>Ethylene</b>	CFR SE Asia	1,125.0	1,125.0	1,125.0	1,110.0	1,110.0	1,100.0	1,100.0	1,100.0	1,100.0	1,075.0
	<b>Propylene</b>	FOB Korea	867.0	865.0	860.0	858.0	859.0	861.0	858.0	858.0	858.0	858.0
	<b>Butadiene</b>	FOB Korea	1,230.0	1,230.0	1,200.0	1,200.0	1,200.0	1,200.0	1,090.0	1,070.0	1,051.0	1,051.0
	<b>HDPE</b>	CFR FE Asia	1,140.0	1,140.0	1,140.0	1,130.0	1,125.0	1,120.0	1,110.0	1,110.0	1,110.0	1,120.0
	<b>LDPE</b>	CFR FE Asia	1,180.0	1,180.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,160.0	1,160.0	1,170.0
	<b>LLDPE</b>	CFR FE Asia	1,130.0	1,130.0	1,130.0	1,125.0	1,120.0	1,110.0	1,100.0	1,100.0	1,100.0	1,110.0
	<b>MEG</b>	CFR China	880.0	868.0	875.0	875.0	865.0	857.0	845.0	840.0	825.0	850.0
	<b>PP</b>	CFR FE Asia	1,100.0	1,080.0	1,070.0	1,055.0	1,040.0	1,040.0	1,025.0	1,020.0	1,020.0	1,030.0
	<b>PX</b>	CFR China	807.0	800.7	803.7	808.0	805.0	802.7	799.7	793.3	804.3	804.7
	<b>PTA</b>	CFR China	633.0	633.0	630.0	630.0	630.0	631.0	629.0	635.0	635.0	634.0
	<b>Benzene</b>	FOB Korea	771.5	768.0	770.0	766.0	761.0	757.0	753.0	754.0	755.0	757.0
	<b>Toluene</b>	FOB Korea	623.5	622.5	622.5	628.5	624.5	620.5	622.5	619.0	624.0	625.0
	<b>Xylene</b>	FOB Korea	649.5	648.5	651.5	651.5	650.5	650.5	647.0	649.0	651.0	651.0
	<b>SM</b>	FOB Korea	1,218.0	1,193.0	1,203.0	1,187.0	1,171.0	1,175.5	1,151.5	1,144.0	1,141.0	1,149.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Spot Price	<b>Naphtha</b>	CFR Japan	462.0	459.0	438.5	455.0	470.5	407.5	484.5	493.0	399.5	464.4
		<i>Change, %</i>		0.7	5.4	1.5	(1.8)	13.4	(4.6)	(6.3)	15.6	(0.5)
	<b>Ethylene</b>	CFR SE Asia	1,165.0	1,125.0	915.0	995.0	1,095.0	1,075.0	990.0	1,103.7	1,040.9	1,026.3
		<i>Change, %</i>		3.6	27.3	17.1	6.4	8.4	17.7	5.6	11.9	13.5
	<b>Propylene</b>	CFR SE Asia	775.0	775.0	757.5	747.5	725.0	720.0	815.0	770.0	705.7	861.0
		<i>Change, %</i>		0.0	2.3	3.7	6.9	7.6	(4.9)	0.6	9.8	(10.0)
	<b>Butadiene</b>	CFR SE Asia	1,175.0	1,015.0	925.0	1,025.0	1,225.0	1,055.0	2,100.0	877.5	1,116.8	1,635.3
		<i>Change, %</i>		15.8	27.0	14.6	(4.1)	11.4	(44.0)	33.9	5.2	(28.1)
	<b>Benzene</b>	CFR SE Asia	775.0	772.5	737.5	780.0	802.5	680.0	822.5	690.0	646.7	839.3
		<i>Change, %</i>		0.3	5.1	(0.6)	(3.4)	14.0	(5.8)	12.3	19.8	(7.7)
	<b>Toluene</b>	CFR SE Asia	655.0	655.0	630.0	655.0	680.0	585.0	690.0	700.8	630.5	682.5
		<i>Change, %</i>		0.0	4.0	0.0	(3.7)	12.0	(5.1)	(6.5)	3.9	(4.0)
	<b>Xylene</b>	CFR SE Asia	635.0	635.0	617.5	630.0	670.0	600.0	675.0	699.3	627.7	668.7
		<i>Change, %</i>		0.0	2.8	0.8	(5.2)	5.8	(5.9)	(9.2)	1.2	(5.0)

Spread	<b>Ethylene</b>	-Naphtha	703.0	666.0	476.5	540.0	624.5	667.5	505.5	610.6	641.4	561.8
		<i>Change, %</i>		5.6	47.5	30.2	12.6	5.3	39.1	15.1	9.6	25.1
	<b>Propylene</b>	-Naphtha	313.0	316.0	319.0	292.5	254.5	312.5	330.5	277.0	306.2	396.6
		<i>Change, %</i>		(0.9)	(1.9)	7.0	23.0	0.2	(5.3)	13.0	2.2	(21.1)
	<b>Butadiene</b>	-Naphtha	713.0	556.0	486.5	570.0	754.5	647.5	1,615.5	384.5	717.3	1,170.9
		<i>Change, %</i>		28.2	46.6	25.1	(5.5)	10.1	(55.9)	85.5	(0.6)	(39.1)
	<b>Benzene</b>	-Naphtha	313.0	313.5	299.0	325.0	332.0	272.5	338.0	197.0	247.2	374.9
		<i>Change, %</i>		(0.2)	4.7	(3.7)	(5.7)	14.9	(7.4)	58.9	26.6	(16.5)
	<b>Toluene</b>	-Naphtha	193.0	196.0	191.5	200.0	209.5	177.5	205.5	207.8	231.0	218.1
		<i>Change, %</i>		(1.5)	0.8	(3.5)	(7.9)	8.7	(6.1)	(7.1)	(16.5)	(11.5)
	<b>Xylene</b>	-Naphtha	173.0	176.0	179.0	175.0	199.5	192.5	190.5	206.3	228.2	204.3
		<i>Change, %</i>		(1.7)	(3.4)	(1.1)	(13.3)	(10.1)	(9.2)	(16.1)	(24.2)	(15.3)

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	1,087.5	1,087.5	1,047.5	1,127.5	1,137.5	1,110.0	1,142.5	1,230.1	1,134.6	1,119.0
	Change, %			0.0	3.8	(3.5)	(4.4)	(2.0)	(4.8)	(11.6)	(4.1)	(2.8)
	MEG	CFR SE Asia	867.5	852.5	847.5	775.0	692.5	627.5	847.5	780.8	660.8	818.7
	Change, %			1.8	2.4	11.9	25.3	38.2	2.4	11.1	31.3	6.0
	PVC	CFR SE Asia	890.0	870.0	870.0	880.0	880.0	830.0	920.0	820.8	823.4	897.9
	Change, %			2.3	2.3	1.1	1.1	7.2	(3.3)	8.4	8.1	(0.9)
	PP	CFR SE Asia	1,107.5	1,097.5	1,057.5	1,037.5	1,067.5	975.0	1,032.5	1,109.8	978.4	1,069.4
	Change, %			0.9	4.7	6.7	3.7	13.6	7.3	(0.2)	13.2	3.6
	2-EH	CFR Korea	960.0	960.0	950.0	950.0	965.0	760.0	865.0	930.1	772.4	949.2
	Change, %			0.0	1.1	1.1	(0.5)	26.3	11.0	3.2	24.3	1.1
	ABS	CFR SE Asia	1,870.0	1,850.0	1,810.0	1,630.0	1,665.0	1,380.0	1,635.0	1,431.1	1,347.1	1,763.8
	Change, %			1.1	3.3	14.7	12.3	35.5	14.4	30.7	38.8	6.0
	SBR	CFR SE Asia	1,540.0	1,510.0	1,500.0	1,750.0	2,050.0	1,410.0	2,000.0	1,332.1	1,483.0	2,132.8
	Change, %			2.0	2.7	(12.0)	(24.9)	9.2	(23.0)	15.6	3.8	(27.8)
	SM	CFR SE Asia	1,192.5	1,170.0	1,170.0	1,112.5	1,127.5	1,055.0	1,205.0	1,100.7	1,064.6	1,228.3
	Change, %			1.9	1.9	7.2	5.8	13.0	(1.0)	8.3	12.0	(2.9)
	Caustic	FOB NEA	476.0	472.5	462.5	447.5	447.5	305.0	422.5	296.8	316.6	442.2
	Change, %			0.7	2.9	6.4	6.4	56.1	12.7	60.4	50.4	7.6
	PX	CFR SE Asia	815.0	817.5	802.5	830.0	830.0	812.5	855.0	842.9	790.4	834.3
	Change, %			(0.3)	1.6	(1.8)	(1.8)	0.3	(4.7)	(3.3)	3.1	(2.3)
PO	CFR China	2,022.5	1,587.5	1,530.0	1,350.0	1,330.0	1,500.0	1,562.5	1,683.4	1,396.8	1,506.4	
Change, %			27.4	32.2	49.8	52.1	34.8	29.4	20.1	44.8	34.3	
Caprolactam	CFR SE Asia	1,800.0	1,800.0	1,700.0	1,700.0	1,970.0	1,360.0	1,850.0	1,581.5	1,344.9	1,914.9	
Change, %			0.0	5.9	5.9	(8.6)	32.4	(2.7)	13.8	33.8	(6.0)	
PTA	CFR SE Asia	652.5	657.5	672.5	647.5	647.5	617.5	642.5	648.0	613.7	657.4	
Change, %			(0.8)	(3.0)	0.8	0.8	5.7	1.6	0.7	6.3	(0.7)	
Spread	HDPE		625.5	628.5	609.0	672.5	667.0	702.5	658.0	737.1	735.1	654.6
	Change, %			(0.5)	2.7	(7.0)	(6.2)	(11.0)	(4.9)	(15.1)	(14.9)	(4.4)
	MEG		405.5	393.5	409.0	320.0	222.0	220.0	363.0	287.8	261.3	354.3
	Change, %			3.0	(0.9)	26.7	82.7	84.3	11.7	40.9	55.2	14.5
	PVC		428.0	411.0	431.5	425.0	409.5	422.5	435.5	327.8	423.9	433.5
	Change, %			4.1	(0.8)	0.7	4.5	1.3	(1.7)	30.6	1.0	(1.3)
	PP		645.5	638.5	619.0	582.5	597.0	567.5	548.0	616.8	578.9	605.0
	Change, %			1.1	4.3	10.8	8.1	13.7	17.8	4.7	11.5	6.7
	2-EH		498.0	501.0	511.5	495.0	494.5	352.5	380.5	437.0	372.9	484.8
	Change, %			(0.6)	(2.6)	0.6	0.7	41.3	30.9	13.9	33.6	2.7
	ABS		1,408.0	1,391.0	1,371.5	1,175.0	1,194.5	972.5	1,150.5	938.1	947.6	1,299.4
	Change, %			1.2	2.7	19.8	17.9	44.8	22.4	50.1	48.6	8.4
	SBR	BD spread	365.0	495.0	575.0	725.0	825.0	355.0	(100.0)	454.7	366.2	497.5
	Change, %			(26.3)	(36.5)	(49.7)	(55.8)	2.8	(465.0)	(19.7)	(0.3)	(26.6)
	SM		730.5	711.0	731.5	657.5	657.0	647.5	720.5	607.7	665.1	763.9
	Change, %			2.7	(0.1)	11.1	11.2	12.8	1.4	20.2	9.8	(4.4)
	Caustic											
	Change, %											
	PX		353.0	358.5	364.0	375.0	359.5	405.0	370.5	349.9	390.9	369.9
	Change, %			(1.5)	(3.0)	(5.9)	(1.8)	(12.8)	(4.7)	0.9	(9.7)	(4.6)
PO	propylene spread	1,247.5	812.5	772.5	602.5	605.0	780.0	747.5	913.4	691.1	645.4	
Change, %			53.5	61.5	107.1	106.2	59.9	66.9	36.6	80.5	93.3	
Caprolactam	benzene spread	1,025.0	1,027.5	962.5	920.0	1,167.5	680.0	1,027.5	891.6	698.2	1,075.6	
Change, %			(0.2)	6.5	11.4	(12.2)	50.7	(0.2)	15.0	46.8	(4.7)	
PTA	px spread	82.0	85.3	110.8	66.5	66.5	48.8	44.0	58.0	60.4	73.4	
Change, %			(3.8)	(26.0)	23.3	23.3	68.2	86.4	41.4	35.7	11.7	

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

## Global peers

	Currency	08/24	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA		
											17E	18E	17E	18E	17E	18E	
<b>Petrochemical</b>																	
Dow Chemical	USD	64.4	(0.4)	1.9	(2.8)	4.7	1.3	20.0	12.5	78,729	15.8	14.5	2.9	2.7	8.9	8.3	
Du Pont	USD	82.4	(0.4)	1.9	(2.3)	5.1	3.2	17.1	12.2	71,499	21.0	19.8	6.5	5.5	13.5	12.7	
Eastman	USD	84.8	0.5	2.5	(1.1)	6.7	5.8	25.9	12.8	12,289	11.3	10.4	2.5	2.3	8.7	8.3	
BASF	EUR	82.6	0.3	2.0	1.7	(2.5)	(5.6)	13.6	(6.5)	89,498	14.2	14.0	2.2	2.1	7.8	7.6	
Akzo Nobel	EUR	78.3	(0.1)	1.2	4.0	2.4	24.7	30.4	31.8	23,496	18.2	17.6	3.1	3.1	10.1	9.7	
Arkema	EUR	94.3	(0.9)	(1.2)	(3.5)	(1.4)	3.5	18.9	1.5	8,413	13.8	12.8	1.7	1.6	6.2	5.9	
Lanxess	EUR	64.9	0.9	3.0	(1.3)	1.3	1.5	34.8	4.0	7,007	17.0	14.7	2.2	2.1	7.5	7.4	
Sumitomo Chemical	JPY	653	(0.8)	(1.1)	(3.7)	7.8	1.7	50.1	17.4	9,888	10.3	9.6	1.2	1.1	7.4	7.1	
Mitsubishi Chemical	JPY	975	0.7	2.0	(1.4)	16.5	11.2	62.1	28.6	13,433	9.2	9.1	1.2	1.1	6.2	6.1	
Shin-Etsu Chemical	JPY	9,610	0.8	(1.6)	(7.4)	(3.6)	(1.5)	31.2	6.0	37,985	19.4	17.4	1.8	1.7	8.2	7.3	
Asahi Kasei	JPY	1,264	1.4	(1.4)	(2.0)	18.2	14.2	48.5	23.9	16,211	15.0	14.2	1.4	1.3	7.2	6.9	
JSR	JPY	2,060	0.0	(0.2)	6.4	8.6	4.7	40.8	11.8	4,261	15.9	14.9	1.2	1.1	8.1	7.6	
Nitto Denko	JPY	9,601	0.1	(2.8)	(2.7)	6.8	0.8	40.5	7.0	15,260	19.4	17.8	2.2	2.1	8.6	8.0	
SABIC	SAR	98.7	0.3	0.6	(1.4)	0.3	1.3	17.4	7.9	78,940	14.8	14.3	1.8	1.7	7.5	7.3	
Yansab	SAR	55.8	(0.4)	1.5	1.3	0.5	(2.1)	26.7	2.5	8,370	14.3	13.5	2.3	2.3	8.8	8.4	
Formosa Plastics	TWD	93.5	0.5	0.6	1.6	5.1	1.0	18.7	4.8	19,690	14.5	14.8	1.8	1.8	19.2	19.6	
Formosa Fiber	TWD	93.8	0.3	1.7	2.4	4.2	(3.5)	12.3	(2.6)	18,187	12.9	13.5	1.7	1.6	10.3	10.7	
Nan Ya Plastics	TWD	76.0	0.3	2.0	1.2	7.2	1.9	25.0	6.7	19,939	15.9	16.4	1.8	1.7	17.0	16.2	
Sinopec Shanghai	CNY	6.42	(4.7)	(3.9)	(6.7)	(1.8)	(4.2)	4.1	(0.3)	9,118	13.3	12.4	2.5	2.1	6.9	6.9	
Sinopec Yizheng(Fiber)	CNY	3.20	0.0	0.0	0.6	(15.1)	(19.0)	(17.9)	(22.0)	6,149	#N/A	N/A	47.1	6.9	7.2	37.8	17.5
Reliance	INR	1,568	(0.9)	0.1	(2.9)	20.8	32.6	53.7	44.9	79,632	17.4	14.3	1.7	1.5	11.6	9.3	
Industries Qatar	QAR	92.5	(1.5)	(0.8)	(7.8)	(11.5)	(23.6)	(18.9)	(21.3)	15,367	14.9	13.0	1.6	1.5	53.0	48.4	
PTT Chemical	THB	74.3	0.0	0.7	6.1	0.7	1.4	21.7	17.9	9,937	10.2	10.2	1.3	1.2	5.4	5.2	
Petronas	MYR	7.2	0.3	(1.4)	2.6	(3.4)	(3.1)	7.5	2.9	13,422	15.8	15.8	2.0	1.9	8.6	8.5	
LG화학	KRW	375,000	2.5	9.2	11.9	29.3	33.5	40.4	43.7	23,441	14.6	14.2	1.9	1.7	6.4	6.0	
롯데케미칼	KRW	393,000	0.4	1.6	8.0	8.0	8.4	42.4	6.5	11,928	6.2	6.0	1.2	1.0	4.1	3.6	
한화케미칼	KRW	35,200	0.1	(0.3)	6.3	20.5	37.5	30.6	42.5	5,137	6.0	6.3	1.0	0.8	7.5	7.1	
금호석유	KRW	77,000	(0.8)	2.5	3.2	(0.9)	(0.3)	7.8	(6.1)	2,077	15.0	13.4	1.4	1.3	9.9	8.7	
SKC	KRW	37,200	(1.5)	(2.4)	0.7	20.8	13.6	31.7	12.7	1,236	10.5	9.1	0.9	0.9	9.0	7.6	
국도화학	KRW	53,600	0.4	(1.7)	(2.4)	11.2	3.3	(6.5)	(2.4)	276	8.8	9.4	0.7	0.7	5.1	5.2	
효성	KRW	7,060	(1.4)	7.0	13.3	1.0	(12.8)	28.1	3.8	4,882	9.2	8.0	1.4	1.2	7.4	6.6	
<b>Average</b>			<b>(0.1)</b>	<b>0.8</b>	<b>0.7</b>	<b>5.4</b>	<b>4.2</b>	<b>24.5</b>	<b>9.8</b>								
<b>Refinery</b>																	
Valero	USD	67.4	2.6	4.5	(0.4)	5.7	1.1	21.1	(1.3)	29,786	16.4	12.3	1.5	1.6	6.7	5.7	
Conoco Phillips	USD	43.3	(0.9)	0.7	1.6	(7.2)	(8.0)	0.8	(13.6)	52,694	235.3	33.5	1.8	1.8	8.8	6.5	
Formosa Petrochemical	TWD	104.0	2.0	1.0	(0.5)	(1.9)	(2.8)	10.6	(7.1)	32,773	15.7	18.4	3.2	3.1	9.7	10.9	
Andeavor	USD	95.1	1.2	2.5	(1.7)	14.4	8.1	25.2	8.7	14,913	18.6	12.9	1.5	1.3	9.0	6.8	
Marathon Petroleum	USD	51.1	1.9	2.9	(8.0)	(3.8)	2.2	21.8	1.5	25,885	19.0	15.1	2.0	2.0	8.7	7.5	
Devon Energy	USD	31.1	0.5	3.1	(2.0)	(16.2)	(27.3)	(30.1)	(31.9)	16,357	18.3	15.0	2.3	2.0	8.2	7.3	
Hollyfrontier	USD	28.9	2.8	5.4	4.8	10.5	(0.1)	9.8	(11.8)	5,123	23.1	13.7	1.1	1.1	8.5	6.4	
Phillips 66	USD	83.9	1.8	3.7	1.5	7.1	7.5	8.0	(2.9)	42,900	20.4	15.2	1.9	1.9	10.0	8.4	
Murphy Oil	USD	23.3	0.0	(3.2)	(6.6)	(11.1)	(17.2)	(19.6)	(25.1)	4,024	#N/A	N/A	180.8	0.9	0.9	4.4	4.3
JX Holdings	JPY	540.1	(0.0)	0.9	10.7	9.2	1.5	40.8	9.2	16,931	8.5	8.0	0.8	0.8	8.4	7.9	
Idemitsu	JPY	2,725.0	1.6	4.0	0.9	(17.9)	(24.1)	46.6	(12.2)	5,185	5.8	5.8	0.7	0.6	7.9	7.6	
Nesteoil	EUR	35.1	0.9	0.4	(5.4)	(6.2)	3.1	(8.8)	(3.8)	0	13.6	13.4	2.2	2.0	7.7	8.1	
Ashland	USD	61.3	(0.5)	0.8	(7.8)	(7.6)	2.8	8.7	14.7	3,827	15.4	18.6	1.0	1.0	8.5	9.2	
Fuchs Petrolub	EUR	47.4	(0.1)	(1.1)	(2.8)	(3.4)	8.9	16.6	18.9	7,325	24.3	23.0	4.9	4.4	14.2	13.4	
SK이노베이션	KRW	178,000	4.1	4.7	3.5	4.7	16.3	20.3	21.5	14,575	7.4	7.4	0.9	0.8	4.4	4.0	
S-Oil	KRW	117,500	1.3	3.1	8.3	13.0	39.5	62.1	38.7	11,714	12.6	9.8	2.1	1.9	9.6	7.2	
GS	KRW	68,000	(0.9)	0.0	(6.8)	(1.2)	25.9	37.4	25.7	5,595	6.3	6.0	0.8	0.7	7.3	6.9	
<b>Average</b>			<b>1.1</b>	<b>2.0</b>	<b>(0.6)</b>	<b>(0.7)</b>	<b>2.2</b>	<b>16.0</b>	<b>1.7</b>								

\* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임

\* 국내업체의 multiple은 Dataguidepro 기준임

## Global peers

	Currency	08/24	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA	
											17E	18E	17E	18E	17E	18E
<b>E&amp;P/Shale</b>																
Exxon Mobil	USD	76	(0.4)	0.1	(4.4)	(7.2)	(5.9)	(13.3)	(15.4)	323,418	22.3	19.3	1.8	1.8	9.4	8.5
BP	GBP	443	(0.3)	(0.0)	0.8	(7.4)	(0.9)	3.3	(13.0)	111,996	20.0	15.2	1.2	1.2	5.8	5.3
Shell	EUR	2,135	(0.2)	0.4	3.7	0.8	3.0	13.6	(4.8)	226,800	15.8	13.9	1.2	1.2	6.2	5.7
Chevron	USD	107	0.8	1.4	4.1	1.1	(2.4)	5.1	(8.7)	203,599	26.5	21.5	1.4	1.4	7.8	7.0
Total	EUR	43	(0.5)	1.6	1.9	(9.8)	(9.0)	1.7	(10.8)	128,288	12.9	11.8	1.2	1.1	6.0	5.4
Sinopec	CNY	6	0.2	0.3	(1.8)	(0.3)	2.6	20.2	10.2	104,213	14.0	12.8	1.0	0.9	4.7	4.6
Petrochina	CNY	8	(0.4)	0.4	(0.6)	2.7	(3.6)	7.1	0.1	206,632	54.1	31.0	1.2	1.2	6.7	6.4
CNOOC	CNY	11	0.4	1.8	1.1	(6.4)	(14.6)	(8.6)	(11.9)	51,987	14.5	12.1	0.9	0.9	3.7	3.4
Gazprom	RUB	117	0.7	0.3	(2.2)	(4.5)	(14.8)	(14.9)	(24.6)	46,562	4.2	3.7	0.2	0.2	3.5	3.2
Rosneft	RUB	301	(0.7)	(0.2)	(3.9)	(2.0)	(12.2)	(14.0)	(25.3)	53,830	9.3	6.5	0.8	0.7	4.9	4.1
Anadarko	USD	43	(0.8)	2.2	(3.5)	(20.1)	(34.2)	(21.3)	(38.8)	23,899	#N/A	#N/A	1.6	1.6	6.8	6.1
Petrobras	BRL	14	0.3	5.7	7.1	(1.0)	(9.1)	11.3	(7.2)	58,845	10.1	8.3	0.5	0.6	5.0	4.6
Lukoil	USD	2,894	0.0	1.9	2.4	3.2	(9.1)	(4.6)	(16.1)	41,422	5.9	5.2	0.6	0.6	N/A	N/A
Kinder	USD	19	0.2	3.5	(6.3)	(1.7)	(10.3)	(12.7)	(8.0)	47,497	29.4	27.0	1.2	1.2	11.4	11.0
Statoil	NOK	146	0.3	1.0	4.4	(4.3)	(0.6)	10.3	(7.7)	61,247	16.4	17.3	1.6	1.6	3.3	3.2
BHP	AUD	27	2.2	2.6	9.0	9.9	6.1	24.2	6.1	105,835	18.2	19.0	1.9	1.8	6.6	6.6
PTT E&P	THB	86	0.3	1.8	1.8	(9.3)	(7.0)	5.9	(10.9)	10,214	12.9	11.9	0.8	0.8	3.1	2.8
Petronas gas	MYR	19	(0.1)	1.7	1.0	(0.9)	(7.6)	(14.4)	(10.9)	8,776	21.2	19.8	3.0	2.9	12.1	11.2
Chesapeake	USD	4	(0.8)	(0.5)	(17.2)	(30.5)	(31.8)	(38.3)	(45.0)	3,506	5.5	4.9	#N/A	#N/A	16.8	7.2
Noble Energy	USD	24	(0.8)	2.3	(16.5)	(22.7)	(36.0)	(34.2)	(38.2)	11,453	#N/A	#N/A	1.2	1.2	8.0	6.6
<b>Average</b>		<b>0</b>	<b>0.0</b>	<b>1.4</b>	<b>(1.0)</b>	<b>(5.5)</b>	<b>(9.9)</b>	<b>(3.7)</b>	<b>(14.0)</b>							
<b>PV</b>																
WACKER	EUR	106.2	(0.1)	2.8	5.3	11.2	3.9	25.8	7.4	6,538	29.1	21.6	1.8	1.7	6.7	6.3
GCL-Poly	HKD	0.9	0.0	1.1	(3.2)	5.8	(15.0)	(22.2)	(2.2)	2,162	7.5	7.0	0.6	0.6	5.7	5.2
SunPower	USD	9.2	1.8	1.3	(16.7)	11.4	3.6	(7.2)	39.3	1,285	#N/A	#N/A	1.8	1.8	41.1	13.6
Canadian Solar	USD	15.6	2.6	(5.1)	(6.9)	17.1	5.2	20.8	27.8	903	11.8	7.5	0.9	0.8	9.6	8.9
JA Solar	USD	6.3	(0.5)	2.6	(1.3)	(9.4)	18.6	(16.8)	32.4	300	#N/A	#N/A	1.6	1.5	4.3	3.0
Yingli	USD	2.5	0.0	1.6	10.5	16.1	(7.0)	(36.8)	(3.1)	46	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
First Solar	USD	47.2	1.5	(1.2)	4.9	21.3	24.5	26.5	47.1	4,929	22.6	42.7	0.9	0.9	8.2	9.3
한화큐셀	USD	7.3	(2.7)	(0.5)	(20.3)	4.1	(23.3)	(43.1)	(10.5)	608	66.4	56.2	#N/A	#N/A	7.4	7.4
OCI	KRW	93,100	0.1	0.5	6.9	6.6	1.6	1.6	18.3	1,966	15.1	20.3	0.7	0.7	7.7	7.2
웅진에너지	KRW	8,750	0.1	6.6	(2.5)	39.1	86.4	3.6	84.8	193	N/A	0.7	0.7	7.7	7.2	9.2
신성솔라에너지	KRW	2,115	(1.6)	(0.7)	(7.0)	5.8	10.2	(7.8)	(4.3)	324	N/A	0.7	7.7	7.2	9.2	8.0
<b>Average</b>			<b>0.1</b>	<b>0.8</b>	<b>(2.7)</b>	<b>11.7</b>	<b>9.9</b>	<b>(5.1)</b>	<b>21.6</b>							
<b>Gas Company</b>																
Towngas China	HKD	5.2	0.2	2.0	(6.8)	10.2	22.1	13.3	27.5	1,840	11.9	11.0	1.0	0.9	11.3	10.5
Kulun	HKD	7.0	(6.9)	(5.8)	(9.4)	(0.6)	4.2	20.2	21.0	7,243	11.1	10.8	1.3	1.2	5.9	5.7
Beijing Enterprise	HKD	41.0	1.1	1.7	0.4	11.3	0.1	(9.7)	11.9	6,614	8.0	7.6	0.8	0.8	13.6	13.1
ENN Energy	HKD	49.8	0.0	(3.6)	(4.4)	22.7	27.1	17.2	56.0	6,878	13.4	11.9	2.6	2.2	8.5	7.7
China Resources Gas	HKD	26.8	(1.7)	(10.2)	(9.9)	11.0	11.7	1.3	22.9	7,618	15.3	13.6	2.9	2.5	9.1	8.3
China Gas Holdings	HKD	18.6	(1.0)	(1.5)	0.4	60.2	55.9	43.6	76.6	11,799	17.0	14.5	3.7	3.1	13.7	11.8
Shenzen Gas	HKD	14.7	2.5	5.0	9.6	16.0	29.2	24.0	29.9	3,793	12.1	11.6	1.4	1.3	9.4	8.9
Shann Xi	CNY	8.5	0.0	(0.2)	(2.5)	3.3	(12.1)	(19.4)	(10.9)	1,427	18.1	16.2	1.7	1.6	#N/A	#N/A
Suntien	HKD	1.7	(1.7)	(1.1)	4.2	15.2	31.8	48.7	74.0	826	7.1	6.1	0.6	0.6	9.0	7.7
China Oil & Gas	HKD	0.5	0.0	(5.6)	(10.5)	(8.9)	(19.0)	(13.6)	(16.4)	380	8.8	7.6	0.8	0.8	5.8	5.2
<b>Average</b>			<b>(0.7)</b>	<b>(1.9)</b>	<b>(2.9)</b>	<b>14.0</b>	<b>15.1</b>	<b>12.6</b>	<b>29.2</b>							
<b>EV</b>																
LG화학	KRW	375,000	2.5	9.2	11.9	29.3	33.5	40.4	43.7	23,441	13.9	13.7	1.8	1.6	6.6	6.4
삼성SDI	KRW	191,000	1.1	7.3	6.1	20.9	52.8	57.9	75.2	11,630	20.0	13.1	1.2	1.1	22.9	14.4
Panasonic	JPY	1454.5	(0.3)	(2.7)	(2.7)	4.5	15.6	40.9	22.3	32,638	18.9	14.5	2.0	1.8	6.1	5.3
GS Yuasa	JPY	529.0	(1.3)	(1.9)	3.7	6.7	2.7	31.6	8.8	2,001	16.0	14.7	1.3	1.2	7.2	6.7
NEC	JPY	290.0	(1.0)	(2.4)	(2.4)	3.9	3.2	12.0	(6.5)	6,910	18.1	16.3	0.9	0.8	6.9	6.1
BYD Auto	CNY	48.0	(0.6)	(0.7)	(3.8)	(1.6)	(4.4)	(18.8)	(3.4)	18,700	23.8	17.2	2.4	2.1	13.3	10.7
Tesla Motors	USD	352.9	0.0	0.3	3.0	13.8	37.3	58.5	65.2	58,899	#N/A	#N/A	11.8	10.3	74.8	26.3
Kandi Technologies	USD	3.6	0.0	(1.4)	(13.9)	(17.4)	(14.5)	(42.6)	(27.6)	170	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
<b>Average</b>			<b>0.0</b>	<b>1.0</b>	<b>0.2</b>	<b>7.5</b>	<b>15.8</b>	<b>22.5</b>	<b>22.2</b>							

\* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임