SK Energy Daily

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1. News Summary (3 page)

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News		Conclusion
WTI comment	미중 무역협상' 기대에 연이틀 강세…WTI 0.7%↑	
Headline	[주간가격] 에틸렌, WoW 보합하며 CFR SEA $1,260/mt로 마감	동남아시아 PE 역마진은 가동률을 낮춰 에틸렌 가격 하락 압력 받을 것
News 1.	[주간가격] MEG, WoW $1/mt 하락해 CFR China $908/mt로 마감	위안화 약세가 MEG 재고 부족으로 인한 중국 내수가 상승 상쇄할 것
News 2.	[주간가격] BD, WoW $25/mt 하락해 FOB Korea $1,715/mt로 마감	유럽 deepsea 카고와 중동 9월 도착 물량들이 수급 완화시켜줄 전망
News 3.	[주간가격] SBR, WoW $45/mt 상승해 CFR SEA $1,875/mt로 마감	정기보수 종료와 SBR-BD 역마진이 지역별 가격 혼조세를 지속시킬 것
News 4.	[주간가격] PX, WoW $68.33/mt 상승해 FOB Korea $1,179/mt로 마감	미중간 관세 부과 품목에서 PX가 부과된다면 방향성 흘어질 수 있음

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	65.9	0.7	(2.5)	(4.1)	(7.5)	35.9
Dubai	$/bbl	70.4	1.1	(0.2)	1.0	(8.7)	42.9
Gasoline	$/bbl	83.5	(0.8)	0.4	5.3	(9.0)	24.2
Diesel	$/bbl	86.1	0.8	0.9	5.2	(6.9)	39.0
Complex margin	$/bbl	8.7	(0.6)	0.3	2.4	0.4	(0.4)
1M lagging	$/bbl	8.7	2.8	5.8	7.0	(8.4)	(2.4)
Petrochemical			%	%	%	%	%
Naphtha	$/t	637	(0.1)	0.2	0.8	(8.8)	40.2
Butadiene	$/t	1,715	(0.3)	(1.4)	3.9	(11.1)	42.9
HDPE	$/t	1,300	0.0	(0.8)	(3.0)	(5.1)	16.1
MEG	$/t	908	0.9	(0.1)	1.5	(3.9)	6.0
PX	$/t	1,179	1.2	6.2	21.0	17.6	46.9
SM	$/t	1,416	0.5	(1.1)	6.3	3.0	20.4
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	2.95	1.3	0.1	8.0	2.5	2.5
Natural rubber	$/t	1,320	(0.8)	(0.8)	0.0	(7.0)	(14.8)
Cotton	C/lbs	81.8	(0.5)	(4.8)	(6.8)	(5.5)	20.6

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	08/13	$/t	1,275	2.6	(1.2)	10.4	13.3
Propylene	08/13	$/t	1,038	1.7	7.0	2.2	33.9
Benzene	08/13	$/t	878	0.6	5.7	2.3	13.6
Toluene	08/13	$/t	830	2.5	4.4	1.8	26.7
Xylene	08/13	$/t	840	1.8	2.1	4.0	32.3
PP	08/13	$/t	1,233	0.8	(1.6)	(2.4)	12.3
PVC	08/13	$/t	945	0.0	1.1	0.5	8.6
ABS	08/13	$/t	1,960	0.8	1.6	(4.4)	5.9
SBR	08/13	$/t	1,830	4.0	4.6	1.7	21.2
SM	08/13	$/t	1,475	0.7	5.2	4.8	26.1
BPA	08/13	$/t	1,815	2.1	1.0	(3.5)	14.3
Caustic	08/13	$/t	369	0.0	(10.0)	(38.3)	(21.9)
2-EH	08/13	$/t	1,120	1.4	2.8	(3.9)	16.7
Caprolactam	08/13	$/t	2,155	0.0	0.5	2.6	19.7
Solar				%	%	%	%
Polysilicon	08/15	$/kg	11.4	0.8	3.2	(25.3)	(26.9)
Module	08/15	$/W	0.25	(0.4)	(1.9)	(14.5)	(21.7)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	78.3	0.3	(1.5)	(4.9)	(4.4)	2.6
Shell	EUR	2,473	(0.1)	(2.3)	(5.3)	(9.4)	16.4
Petrochina	CNY	7.99	0.6	(0.5)	9.5	1.0	0.8
Gazprom	RUB	141.0	0.1	(2.6)	(3.0)	(4.2)	21.3
Petrobras	BRL	18.5	(2.6)	(5.8)	0.9	(28.9)	41.5
Refinery							
Phillips66	USD	115.4	0.4	(5.8)	3.9	(5.3)	42.7
Valero	USD	111.0	(0.3)	(3.8)	4.6	(7.3)	72.0
JX	JPY	751.0	0.3	(6.4)	(1.3)	2.0	40.3
Neste Oil	EUR	72.9	(1.0)	(2.6)	10.1	8.6	108.5

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	77.8	0.4	(1.4)	(6.6)	(12.0)	(3.9)
DowDuPont	USD	67.8	1.1	0.1	1.1	(0.5)	7.3
SABIC	SAR	123.0	0.0	(3.0)	(4.2)	4.8	25.4
Formosa Pla.	TWD	109.0	0.5	(1.4)	1.9	(2.2)	17.3
Shin-Etsu	JPY	10,530	(1.4)	(2.9)	1.2	(8.1)	7.9
Renewable							
Wacker	EUR	120.4	(1.6)	(3.1)	2.6	(22.2)	16.5
First Solar	USD	51.00	0.3	(3.4)	(5.1)	(28.6)	6.8
GCL-Poly	HKD	0.53	6.0	(10.2)	(20.9)	(44.2)	(41.1)
Tesla Motors	USD	305.5	(8.9)	(14.1)	(5.3)	7.4	(13.2)

4. Coverage Summary

	08/17	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	2,247	0.3	(1.6)	(1.9)	(8.7)	(7.2)	(4.3)				* 추정치는 12M fwd 기준임	
KOSPI화학	5,593	0.2	(1.0)	0.1	(6.4)	(5.0)	(1.0)				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	365,500	(0.5)	(2.5)	10.4	6.3	(1.9)	5.8	매수	400,000	9.4	14.44	1.63
롯데케미칼	336,000	(1.2)	(2.5)	(0.7)	(12.5)	(22.8)	(11.7)	매수	400,000	19.0	10.43	0.95
한화케미칼	20,400	2.8	(4.0)	(0.2)	(28.4)	(36.7)	(41.9)	매수	30,000	47.1	9.16	0.50
금호석유화학	102,500	(2.4)	(0.5)	(8.1)	(4.7)	12.5	39.5	매수	150,000	46.3	9.56	1.32
KCC	333,000	(1.8)	(1.0)	5.2	(8.8)	(6.9)	(17.0)	매수	400,000	20.1	28.87	0.51
OCI	110,000	5.8	2.3	14.8	(28.6)	(29.9)	17.0	매수	140,000	27.3	8.37	0.80
SKC	44,650	(0.9)	(1.3)	5.4	10.9	22.7	19.4	매수	50,000	12.0	12.18	1.06
SK이노베이션	201,000	1.0	4.7	5.0	(2.4)	5.5	17.9	매수	230,000	14.4	11.82	1.01
S-Oil	125,000	2.0	6.8	9.2	12.1	10.6	11.1	매수	140,000	12.0	14.27	2.09
GS	53,700	(0.2)	0.0	3.3	(13.9)	(14.6)	(20.3)	매수	80,000	49.0	4.98	0.60
SK가스	85,800	(1.4)	1.2	(2.7)	(13.0)	(6.7)	(21.6)	매수	130,000	51.5	8.11	0.58
포스코대우	18,100	0.3	(1.1)	(11.5)	(29.4)	(12.1)	(17.0)	매수	25,000	38.1	9.49	0.71
LG상사	23,000	0.9	(1.9)	2.7	(20.3)	(16.4)	(19.7)	매수	38,000	65.2	8.52	0.65
한국전력	30,650	(0.3)	(2.9)	(1.6)	(15.3)	(7.4)	(30.3)	매수	45,000	46.8	7.42	0.24
한국가스공사	54,700	(0.2)	(0.7)	(5.9)	(10.3)	23.3	16.1	매수	75,000	37.1	8.48	0.71

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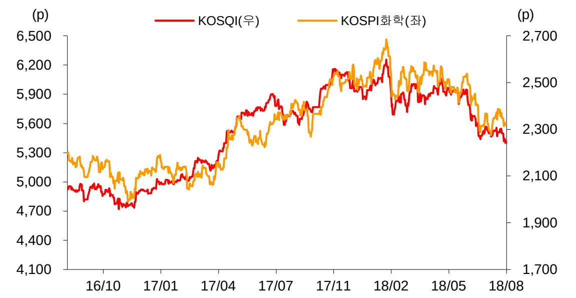
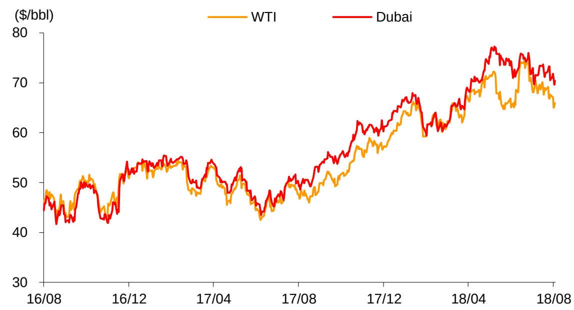
Key Chart

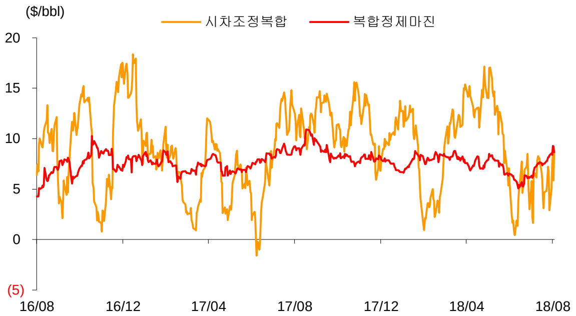
KOSPI/KOSPI화학



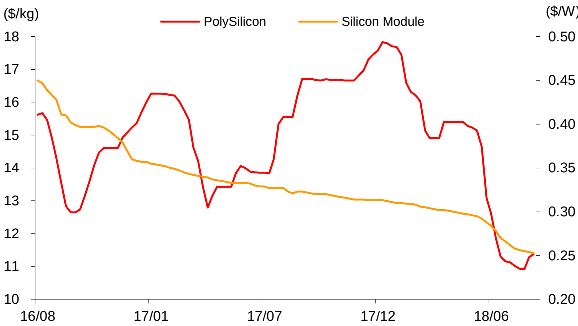
WTI/Dubai



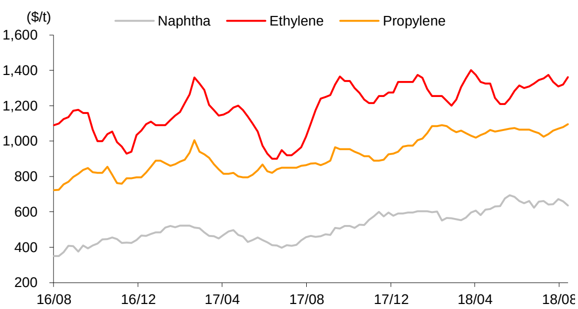
Complex & 1M lagging margin



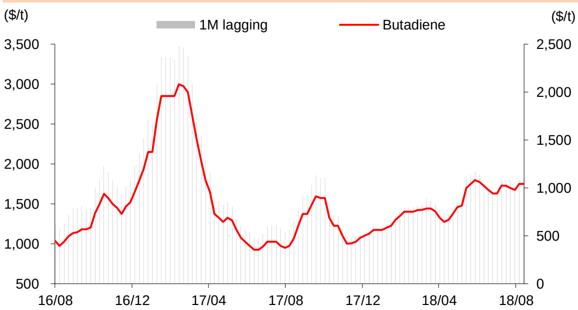
Polysilicon & Module prices



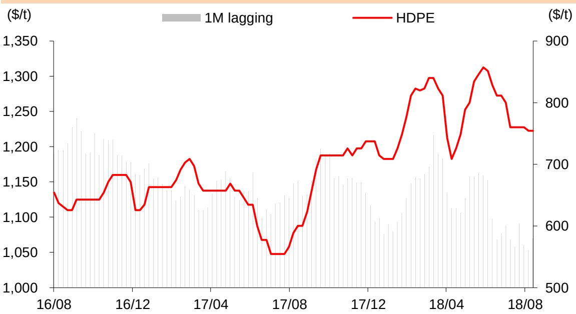
Naphtha/Ethylene/Propylene prices



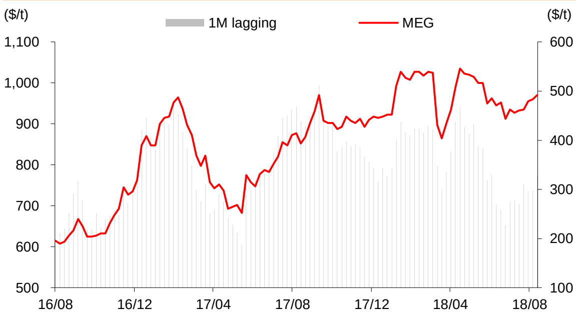
Butadiene price & 1M lagging naphtha spread



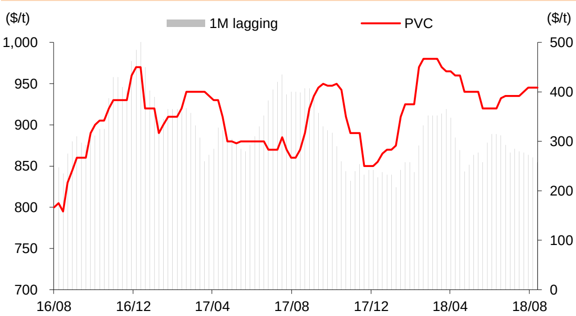
HDPE price & 1M lagging naphtha spread



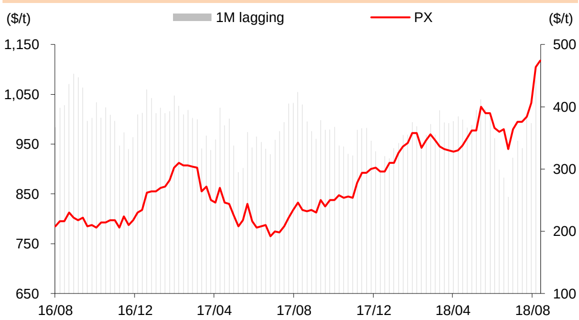
MEG price & 1M lagging naphtha spread



PVC price & 1M lagging naphtha spread



PX price & 1M lagging naphtha spread



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

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News Comment

Headline	(출처: Platts)
제목	[주간가격] 에틸렌, WoW 보합하며 CFR SEA $1,260/mt로 마감
결론	동남아시아 PE 역마진은 가동률을 낮춰 에틸렌 가격 하락 압력 받을 것
세부	
	1) 대한민국과 일본이 휴가철에 접어들며 거래량이 감소했음
	2) 일부 관계자들은 WTI의 급락이 buying sentiment를 꺾었다고 판단함
	3) 또다른 관계자들은 유가 하락이 에틸렌 유도품 가격도 낮췄다고 봄
	4) 그러나 아시아 역내 TA 시즌 돌입으로 에틸렌 가격 하방을 지지해줌
	5) 동남아시아 PE 역마진은 가동률을 낮춰 에틸렌 가격 하락 압력 받을 것

WTI Comment	(출처: 연합뉴스)
제목	미중 무역협상' 기대에 연이틀 강세…WTI 0.7%↑
상승 요인	다음 주 예정된 미국과 중국의 무역협상을 앞두고 투자심리가 호전
하락 요인	

Issue 1	(출처: Platts)
제목	[주간가격] MEG, WoW $1/mt 하락해 CFR China $908/mt로 마감
결론	위안화 약세가 MEG 재고 부족으로 인한 중국 내수가 상승 상쇄할 것
세부	
	1) 관계자, "현재의 MEG 가격은 수급이 제대로 반영된 것이 아님"
	2) 관계자, "동중국항 MEG 재고는 52만톤 수준으로 상당히 낮은 상황임"
	3) 관계자, "TA시즌을 앞두고 재고가 부족한 가운데 유럽 수요가 좋음"
	4) 합리적 CFR China 가격은 $950/mt 수준으로 평가되고 있음
	5) 위안화 약세가 MEG 재고 부족으로 인한 중국 내수가 상승 상쇄할 것

Issue 2	(출처: Platts)
제목	[주간가격] BD, WoW $25/mt 하락해 FOB Korea $1,715/mt로 마감
결론	유럽 deepsea 카고와 중동 9월 도착 물량들이 수급 완화시켜줄 전망
세부	
	1) 동남아시아 물량이 공급되며 지역별로 가격이 서서히 하락했음
	2) YNCC의 22만톤 설비가 가스 누수로 셧다운되었지만 영향 미미했음
	3) 중국에서는 거래량이 부족했지만 수입 수요가 일부 있는 것으로 확인됨
	4) 한 중국 바이어는 CFR China $1,700/mt 이하의 매수 의사를 피력함
	5) 유럽 deepsea 카고와 중동 9월 도착 물량들이 수급 완화시켜줄 전망

Issue 3	(출처: Platts)
제목	[주간가격] SBR, WoW $45/mt 상승해 CFR SEA $1,875/mt로 마감
결론	정기보수 종료와 SBR-BD 역마진이 지역별 가격 혼조세를 지속시킬 것
세부	
	1) 아시아 SBR 생산자들은 BD 가격이 높아 마진이 적은 것을 한탄함
	2) 관계자, "다운스트림 수요가 안좋은데 SBR 가격은 계속 오르고 있다"
	3) 최근의 SBR 공장 셧다운으로 고객들은 카고가 부족한 상황임
	4) SBR/BD 스프레드는 동북아에서 $60/mt, 동남아에서 $205/mt 수준임
	5) 정기보수 종료와 SBR-BD 역마진이 지역별 가격 혼조세를 지속시킬 것

Issue 4	(출처: Platts)
제목	[주간가격] PX, WoW $68.33/mt 상승해 FOB Korea $1,179/mt로 마감
결론	미중간 관세 부과 품목에서 PX가 부과된다면 방향성 흩어질 수 있음
세부	
	1) 아시아 PX 가격은 2014년 10월 1일 이래 최고치를 기록했음
	2) CFR Japan 납사와의 스프레드는 $563.5/mt로 5년래 최고치 수준임
	3) 9월 PTA 선물 계약의 지속적인 증가로 인한 수요 증가가 주효했음
	4) 실제 중국 PTA 가격도 선물 가격이 Yuan 150/mt의 프리미엄이 부여됨
	5) 미중간 관세 부과 품목에서 PX가 부과된다면 방향성 흩어질 수 있음

Issue 5	(출처: Platts)
제목	[주간가격] PTA, WoW $47/mt 상승해 CFR China $960/mt로 마감
결론	정기보수 종료때까지 공급 부족, PX 강세가 겹쳐 가격 상승 압력 전망
세부	
	1) 중국 내수 가격은 일주일간 13% 가량 상승해 5년 반만에 최고치 기록
	2) 관계자, "왜 이렇게까지 PTA가 강세를 보이는지 알 수가 없다"
	3) 관계자, "태풍때문에 북중국에서 동중국으로의 유입이 줄어 재고 감소"
	4) 현재 재고는 50만톤 수준이며 원재료인 PX 강세도 겹쳐 가격 상승중
	5) 정기보수 종료때까지 공급 부족, PX 강세가 겹쳐 가격 상승 압력 전망

Issue 6	(출처: PVinsights)
제목	[주간가격] 태양광 제품, 공급 과잉이 드리우며 모듈 가격 하락
결론	공급 과잉이 일부 해소되며 제품별로 소폭의 상승세가 전망됨
세부	
	1) 폴리실리콘이 생산 축소와 mono-crystalline wafer 상승 기대로 상승
	2) Multi-crystalline wafer는 폴리실리콘 상승으로 인한 감산 확대로 보합
	3) Multi-crystalline cell은 wafer가 강세였지만 자체 수요 약세로 하락함
	4) 모듈 가격은 중국 업체간 경쟁 격화와 달러 강세로 하락 압력 받음
	5) 공급 과잉이 일부 해소되며 제품별로 소폭의 상승세가 전망됨

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Commodity Price Data

Daily Price		Today	1D	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
F/X	**USD/EUR**	0.874	0.879	0.876	0.858	0.848	0.806	0.853	0.833	0.904	0.887	0.834
	Change, %		(0.5)	(0.2)	1.9	3.1	8.5	2.5	4.9	(3.3)	(1.4)	4.8
	USD/JPY	110.5	110.9	110.8	112.9	110.8	106.2	109.6	112.6	108.8	112.1	109.3
	Change, %		(0.4)	(0.3)	(2.1)	(0.2)	4.0	0.8	(1.9)	1.6	(1.5)	1.1
	USD/KRW	1,124.9	1,130.0	1,129.0	1,124.1	1,081.1	1,063.1	1,137.4	1,066.7	1,160.5	1,130.9	1,086.3
	Change, %		(0.4)	(0.4)	0.1	4.1	5.8	(1.1)	5.5	(3.1)	(0.5)	3.6
Agriculture	**Corn**	364.3	365.3	357.8	346.3	395.3	367.5	350.5	350.8	358.5	359.4	370.6
	Change, %		(0.3)	1.8	5.2	(7.8)	(0.9)	3.9	3.8	1.6	1.4	(1.7)
	Soybean	881.5	885.5	846.0	839.5	995.0	1,021.5	930.3	951.8	987.5	975.9	970.5
	Change, %		(0.5)	4.2	5.0	(11.4)	(13.7)	(5.2)	(7.4)	(10.7)	(9.7)	(9.2)
	Wheat	560.5	542.3	546.8	497.8	497.5	457.8	414.0	427.0	436.4	436.0	486.7
	Change, %		3.4	2.5	12.6	12.7	22.4	35.4	31.3	28.4	28.5	15.2
	Rice	10.4	10.5	10.6	12.0	12.5	12.0	12.1	11.7	10.3	11.1	12.1
	Change, %		(1.1)	(1.9)	(13.8)	(17.2)	(13.9)	(14.6)	(11.4)	0.1	(6.4)	(14.3)
	Oats	258.8	253.8	256.8	231.5	241.0	267.8	258.3	241.0	196.3	252.3	246.1
	Change, %		2.0	0.8	11.8	7.4	(3.4)	0.2	7.4	31.8	2.6	5.2
MYR/mt	**Palm Oil**	2,204.0	2,191.0	2,206.0	2,162.0	2,420.0	2,505.0	2,649.0	2,444.0	2,653.8	2,787.3	2,376.1
	Change, %		0.6	(0.1)	1.9	(8.9)	(12.0)	(16.8)	(9.8)	(17.0)	(20.9)	(7.2)
	Cocoa	2,115.0	2,104.0	2,086.0	2,395.0	2,639.0	2,138.0	1,904.0	1,892.0	2,854.0	2,005.2	2,365.5
	Change, %		0.5	1.4	(11.7)	(19.9)	(1.1)	11.1	11.8	(25.9)	5.5	(10.6)
	Cotton	81.8	82.1	85.9	89.2	85.0	75.7	67.5	78.6	65.6	73.5	84.3
	Change, %		(0.5)	(4.8)	(8.4)	(3.9)	8.0	21.2	4.0	24.6	11.2	(3.0)
	Sugar	10.2	10.3	10.5	11.1	11.6	13.4	13.3	15.2	18.2	15.8	12.3
	Change, %		(1.2)	(3.4)	(8.5)	(11.9)	(23.9)	(23.4)	(32.8)	(43.9)	(35.6)	(17.3)
	Coffee	101.2	101.7	107.0	105.7	113.9	118.0	128.5	126.2	136.1	133.0	116.7
	Change, %		(0.5)	(5.4)	(4.3)	(11.1)	(14.2)	(21.2)	(19.8)	(25.6)	(23.9)	(13.3)
Energy	**WTI**	65.9	65.5	67.6	68.1	71.5	61.7	47.1	60.4	43.4	51.0	66.3
	Change, %		0.7	(2.5)	(3.2)	(7.8)	6.9	40.0	9.1	51.9	29.3	(0.6)
	Brent	71.8	71.4	72.8	72.2	79.3	64.8	51.0	66.9	45.1	54.9	71.8
	Change, %		0.6	(1.3)	(0.5)	(9.4)	10.8	40.8	7.4	59.3	31.0	0.1
	Natural Gas	2.9	2.9	2.9	2.7	2.9	2.6	2.9	3.0	2.6	3.0	2.8
	Change, %		1.3	0.1	7.5	3.0	15.2	0.6	(0.2)	15.4	(2.5)	3.8
	Ethanol	1.4	1.4	1.3	1.4	1.5	1.5	1.5	1.3	1.5	1.5	1.4
	Change, %		(0.4)	0.9	(3.7)	(6.5)	(8.3)	(9.9)	3.1	(10.1)	(9.1)	(5.0)
	RBOB Gasoline	198.1	198.7	203.9	202.6	224.3	175.1	158.7	179.9	140.0	162.9	200.7
	Change, %		(0.3)	(2.9)	(2.2)	(11.7)	13.1	24.8	10.1	41.5	21.6	(1.3)
	Coal	118.0	118.1	116.7	118.7	104.2	104.7	98.1	100.8	65.5	88.2	106.4
	Change, %		(0.1)	1.2	(0.6)	13.3	12.7	20.3	17.1	80.3	33.8	10.9
Metal	**Gold**	1,185.1	1,174.2	1,211.7	1,227.6	1,290.7	1,347.1	1,288.1	1,302.6	1,248.5	1,258.6	1,297.9
	Change, %		0.9	(2.2)	(3.5)	(8.2)	(12.0)	(8.0)	(9.0)	(5.1)	(5.8)	(8.7)
	Silver	14.8	14.7	15.3	15.6	16.4	16.7	17.0	16.9	17.1	17.1	16.4
	Change, %		1.0	(3.3)	(4.9)	(9.9)	(11.1)	(13.1)	(12.6)	(13.5)	(13.3)	(9.7)
	Copper	5,926.0	5,938.0	6,190.0	6,152.0	6,879.0	7,233.0	6,490.0	7,247.0	4,872.0	6,199.4	6,784.9
	Change, %		(0.2)	(4.3)	(3.7)	(13.9)	(18.1)	(8.7)	(18.2)	21.6	(4.4)	(12.7)
	Nickel	946.6	932.4	952.5	923.6	988.1	887.0	683.0	809.1	646.4	680.2	920.7
	Change, %		1.5	(0.6)	2.5	(4.2)	6.7	38.6	17.0	46.5	39.2	2.8
	Zinc	2,389.5	2,392.0	2,547.0	2,512.0	3,096.0	3,575.0	3,062.0	3,319.0	2,097.5	2,888.5	3,102.5
	Change, %		(0.1)	(6.2)	(4.9)	(22.8)	(33.2)	(22.0)	(28.0)	13.9	(17.3)	(23.0)
	Lead	1,980.0	2,032.0	2,083.5	2,160.5	2,370.5	2,616.0	2,399.3	2,482.8	1,868.3	2,315.7	2,388.5
	Change, %		(2.6)	(5.0)	(8.4)	(16.5)	(24.3)	(17.5)	(20.2)	6.0	(14.5)	(17.1)
	Aluminum	14,390.0	14,330.0	14,520.0	13,975.0	14,795.0	14,215.0	16,375.0	15,020.0	12,373.5	14,556.6	14,341.5
	Change, %		0.4	(0.9)	3.0	(2.7)	1.2	(12.1)	(4.2)	16.3	(1.1)	0.3
	Cobalt	63,847.0	63,847.0	61,650.0	69,750.0	90,750.0	81,326.5	56,796.0	75,205.0	25,480.1	55,906.9	81,099.1
	Change, %		0.0	3.6	(8.5)	(29.6)	(21.5)	12.4	(15.1)	150.6	14.2	(21.3)
	HR Coil	902.0	904.0	901.0	919.0	882.0	751.0	621.0	662.0	519.3	620.1	834.7
	Change, %		(0.2)	0.1	(1.8)	2.3	20.1	45.2	36.3	73.7	45.5	8.1
	Scrap	380.0	380.0	392.0	397.0	395.0	380.0	369.0	367.0	275.7	344.7	389.5
	Change, %		0.0	(3.1)	(4.3)	(3.8)	0.0	3.0	3.5	37.8	10.2	(2.4)

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

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Refining Price Data

Daily Price		08/17	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	65.9	65.5	67.6	68.8	71.3	61.7	48.5	53.7	43.4	50.9	66.3
	Change, %		*0.7*	*(2.5)*	*(4.1)*	*(7.5)*	*6.9*	*35.9*	*22.7*	*52.0*	*29.5*	*(0.6)*
	Dubai	70.4	69.6	70.6	69.7	77.1	61.7	49.3	53.8	41.3	53.1	69.0
	Change, %		*1.1*	*(0.2)*	*1.0*	*(8.7)*	*14.1*	*42.9*	*30.7*	*70.4*	*32.6*	*1.9*
Crude Oil	**Gasoline(휘발유)**	83.5	84.2	83.2	79.3	91.7	74.9	67.2	69.8	56.3	68.0	81.6
Product	*Change, %*		*(0.8)*	*0.4*	*5.3*	*(9.0)*	*11.5*	*24.2*	*19.6*	*48.4*	*22.8*	*2.4*
	Kerosene(등유)	85.6	85.0	85.4	83.4	92.8	77.8	61.8	66.4	52.9	65.2	84.4
	Change, %		*0.6*	*0.2*	*2.6*	*(7.8)*	*10.0*	*38.5*	*28.8*	*61.8*	*31.2*	*1.4*
	Diesel(경유)	86.1	85.4	85.3	81.8	92.4	75.3	61.9	65.5	52.1	65.6	83.4
	Change, %		*0.8*	*0.9*	*5.2*	*(6.9)*	*14.3*	*39.0*	*31.4*	*65.1*	*31.2*	*3.2*
	Bunker-C	67.5	67.0	68.7	66.7	70.8	56.3	46.5	52.1	35.5	49.7	63.6
	Change, %		*0.7*	*(1.7)*	*1.2*	*(4.7)*	*19.9*	*45.1*	*29.7*	*90.0*	*36.0*	*6.1*
	Naphtha	69.3	69.4	69.2	68.4	77.3	60.8	49.7	53.5	42.6	53.7	68.2
	Change, %		*(0.1)*	*0.1*	*1.3*	*(10.3)*	*14.0*	*39.4*	*29.7*	*62.7*	*29.0*	*1.6*
Dubai	**Gasoline(휘발유)**	13.1	14.6	12.6	9.6	14.7	13.2	18.0	16.0	14.9	14.9	12.5
Spread	*Change*		*(1.5)*	*0.5*	*3.5*	*(1.6)*	*(0.1)*	*(4.8)*	*(2.9)*	*(1.8)*	*(1.8)*	*0.6*
	Kerosene(등유)	15.2	15.4	14.8	13.7	15.7	16.1	12.5	12.6	11.6	12.1	15.4
	Change		*(0.2)*	*0.3*	*1.4*	*(0.5)*	*(1.0)*	*2.7*	*2.6*	*3.6*	*3.0*	*(0.2)*
	Diesel(경유)	15.7	15.8	14.8	12.1	15.4	13.6	12.7	11.7	10.8	12.5	14.4
	Change		*(0.1)*	*0.9*	*3.6*	*0.3*	*2.1*	*3.0*	*4.0*	*4.9*	*3.2*	*1.3*
	Bunker-C	(2.9)	(2.6)	(1.9)	(3.0)	(6.3)	(5.4)	(2.7)	(1.8)	(5.8)	(3.4)	(5.4)
	Change		*(0.3)*	*(1.0)*	*0.1*	*3.4*	*2.5*	*(0.1)*	*(1.1)*	*2.9*	*0.6*	*2.5*
	Naphtha	(1.1)	(0.2)	(1.3)	(1.3)	0.2	(0.9)	0.4	(0.4)	1.3	0.6	(0.9)
	Change		*(0.9)*	*0.2*	*0.2*	*(1.3)*	*(0.2)*	*(1.5)*	*(0.7)*	*(2.4)*	*(1.7)*	*(0.2)*
Refining	**Simple(단순)**	3.7	4.2	3.9	2.3	2.3	2.4	4.0	3.8	1.9	3.2	2.3
Margin	*Change*		*(0.4)*	*(0.1)*	*1.5*	*1.5*	*1.3*	*(0.3)*	*(0.1)*	*1.8*	*0.6*	*1.5*
	Complex(복합)	8.7	9.2	8.3	6.3	8.2	7.5	9.0	8.3	7.0	8.0	7.5
	Change		*(0.6)*	*0.3*	*2.4*	*0.4*	*1.2*	*(0.4)*	*0.4*	*1.7*	*0.7*	*1.2*
	Complex(lagging)	8.7	5.9	2.9	1.6	17.1	2.1	11.1	18.0	8.5	8.9	8.9
	Change		*2.8*	*5.8*	*7.0*	*(8.4)*	*6.6*	*(2.4)*	*(9.3)*	*0.2*	*(0.3)*	*(0.2)*

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

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Petrochemical Price Data

Daily Price			08/17	08/16	08/15	08/14	08/13	08/10	08/09	08/08	08/07	08/06
Spot Price	**Naphtha**	CFR Japan	636.8	637.3	644.3	647.5	643.0	635.6	662.5	664.8	662.5	664.0
	Ethylene	CFR SE Asia	1,260.0	1,260.0	1,260.0	1,260.0	1,260.0	1,260.0	1,260.0	1,260.0	1,255.0	1,235.0
	Propylene	FOB Korea	1,100.0	1,100.0	1,090.0	1,090.0	1,075.0	1,075.0	1,070.0	1,070.0	1,070.0	1,070.0
	Butadiene	FOB Korea	1,715.0	1,720.0	1,735.0	1,735.0	1,755.0	1,740.0	1,725.0	1,725.0	1,725.0	1,715.0
	HDPE	CFR FE Asia	1,300.0	1,300.0	1,300.0	1,300.0	1,300.0	1,310.0	1,310.0	1,310.0	1,310.0	1,310.0
	LDPE	CFR FE Asia	1,140.0	1,140.0	1,140.0	1,140.0	1,140.0	1,150.0	1,150.0	1,150.0	1,150.0	1,140.0
	LLDPE	CFR FE Asia	1,120.0	1,120.0	1,120.0	1,120.0	1,120.0	1,120.0	1,120.0	1,120.0	1,120.0	1,100.0
	MEG	CFR China	908.0	900.0	903.0	914.0	914.0	909.0	940.0	940.0	940.0	950.0
	PP	CFR FE Asia	1,220.0	1,230.0	1,230.0	1,235.0	1,225.0	1,230.0	1,220.0	1,220.0	1,220.0	1,200.0
	PX	CFR China	1,179.0	1,165.3	1,139.3	1,132.8	1,116.7	1,110.7	1,106.7	1,106.7	1,102.7	1,109.7
	PTA	CFR China	960.0	940.0	930.0	917.0	913.0	913.0	910.0	910.0	905.0	905.0
	Benzene	FOB Korea	880.3	884.7	892.3	894.3	882.5	874.7	874.0	874.0	868.3	877.0
	Toluene	FOB Korea	777.0	782.0	785.0	788.0	793.0	797.0	805.0	805.0	798.0	805.0
	Xylene	FOB Korea	924.0	923.0	901.0	895.0	895.0	895.0	895.0	895.0	895.0	899.0
	SM	FOB Korea	1,415.5	1,409.0	1,420.0	1,438.0	1,446.0	1,431.0	1,434.0	1,434.0	1,432.0	1,455.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**Naphtha**	CFR Japan	635.5	659.0	642.5	676.0	613.0	459.0	484.5	399.5	493.5	621.0
	Change, %			(3.6)	(1.1)	(6.0)	3.7	38.5	31.2	59.1	28.8	2.3
	Ethylene	CFR SE Asia	1,275.0	1,242.5	1,290.0	1,155.0	1,275.0	1,125.0	990.0	1,040.9	1,090.9	1,239.5
	Change, %			2.6	(1.2)	10.4	0.0	13.3	28.8	22.5	16.9	2.9
	Propylene	CFR SE Asia	1,037.5	1,020.0	970.0	1,015.0	977.5	775.0	815.0	705.7	823.6	1,056.6
	Change, %			1.7	7.0	2.2	6.1	33.9	27.3	47.0	26.0	(1.8)
	Butadiene	CFR SE Asia	1,700.0	1,700.0	1,675.0	1,650.0	1,250.0	1,015.0	2,100.0	1,116.8	1,481.1	1,469.8
	Change, %			0.0	1.5	3.0	36.0	67.5	(19.0)	52.2	14.8	15.7
	Benzene	CFR SE Asia	877.5	872.5	830.0	857.5	832.5	772.5	822.5	646.7	838.8	866.6
	Change, %			0.6	5.7	2.3	5.4	13.6	6.7	35.7	4.6	1.3
	Toluene	CFR SE Asia	830.0	810.0	795.0	815.0	740.0	655.0	690.0	630.5	689.5	773.0
	Change, %			2.5	4.4	1.8	12.2	26.7	20.3	31.6	20.4	7.4
	Xylene	CFR SE Asia	840.0	825.0	822.5	807.5	760.0	635.0	675.0	627.7	668.8	787.7
	Change, %			1.8	2.1	4.0	10.5	32.3	24.4	33.8	25.6	6.6
Spread	**Ethylene**	-Naphtha	639.5	583.5	647.5	479.0	662.0	666.0	505.5	641.4	597.4	618.6
	Change, %			9.6	(1.2)	33.5	(3.4)	(4.0)	26.5	(0.3)	7.0	3.4
	Propylene	-Naphtha	402.0	361.0	327.5	339.0	364.5	316.0	330.5	306.2	330.1	435.7
	Change, %			11.4	22.7	18.6	10.3	27.2	21.6	31.3	21.8	(7.7)
	Butadiene	-Naphtha	1,064.5	1,041.0	1,032.5	974.0	637.0	556.0	1,615.5	717.3	987.6	848.9
	Change, %			2.3	3.1	9.3	67.1	91.5	(34.1)	48.4	7.8	25.4
	Benzene	-Naphtha	242.0	213.5	187.5	181.5	219.5	313.5	338.0	247.2	345.3	245.7
	Change, %			13.3	29.1	33.3	10.3	(22.8)	(28.4)	(2.1)	(29.9)	(1.5)
	Toluene	-Naphtha	194.5	151.0	152.5	139.0	127.0	196.0	205.5	231.0	196.0	152.0
	Change, %			28.8	27.5	39.9	53.1	(0.8)	(5.4)	(15.8)	(0.8)	28.0
	Xylene	-Naphtha	204.5	166.0	180.0	131.5	147.0	176.0	190.5	228.2	175.3	166.8
	Change, %			23.2	13.6	55.5	39.1	16.2	7.3	(10.4)	16.6	22.6

자료 : Cischem, Platts, Bloomberg, SK증권
참고 : Spread는 Polymer와 Naphtha의 가격차이임

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Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	HDPE	CFR SE Asia	1,222.5	1,222.5	1,227.5	1,292.5	1,197.5	1,087.5	1,142.5	1,134.6	1,142.5	1,253.0
	Change, %			*0.0*	*(0.4)*	*(5.4)*	*2.1*	*12.4*	*7.0*	*7.7*	*7.0*	*(2.4)*
	MEG	CFR SE Asia	970.0	960.0	932.5	1,000.0	1,035.0	852.5	847.5	660.8	850.6	974.5
	Change, %			*1.0*	*4.0*	*(3.0)*	*(6.3)*	*13.8*	*14.5*	*46.8*	*14.0*	*(0.5)*
	PVC	CFR SE Asia	945.0	945.0	935.0	940.0	960.0	870.0	920.0	823.4	899.9	942.4
	Change, %			*0.0*	*1.1*	*0.5*	*(1.6)*	*8.6*	*2.7*	*14.8*	*5.0*	*0.3*
	PP	CFR SE Asia	1,232.5	1,222.5	1,252.5	1,262.5	1,247.5	1,097.5	1,032.5	978.4	1,099.6	1,257.8
	Change, %			*0.8*	*(1.6)*	*(2.4)*	*(1.2)*	*12.3*	*19.4*	*26.0*	*12.1*	*(2.0)*
	2-EH	CFR Korea	1,120.0	1,105.0	1,090.0	1,165.0	1,155.0	960.0	865.0	772.4	970.0	1,115.6
	Change, %			*1.4*	*2.8*	*(3.9)*	*(3.0)*	*16.7*	*29.5*	*45.0*	*15.5*	*0.4*
	ABS	CFR SE Asia	1,960.0	1,945.0	1,930.0	2,050.0	1,990.0	1,850.0	1,635.0	1,347.1	1,844.7	2,016.4
	Change, %			*0.8*	*1.6*	*(4.4)*	*(1.5)*	*5.9*	*19.9*	*45.5*	*6.3*	*(2.8)*
	SBR	CFR SE Asia	1,830.0	1,760.0	1,750.0	1,800.0	1,630.0	1,510.0	2,000.0	1,483.0	1,980.5	1,760.2
	Change, %			*4.0*	*4.6*	*1.7*	*12.3*	*21.2*	*(8.5)*	*23.4*	*(7.6)*	*4.0*
	SM	CFR SE Asia	1,475.0	1,465.0	1,402.5	1,407.5	1,365.0	1,170.0	1,205.0	1,064.6	1,253.8	1,404.5
	Change, %			*0.7*	*5.2*	*4.8*	*8.1*	*26.1*	*22.4*	*38.5*	*17.6*	*5.0*
	Caustic	FOB NEA	369.0	369.0	410.0	598.0	626.0	472.5	422.5	316.6	491.2	544.8
	Change, %			*0.0*	*(10.0)*	*(38.3)*	*(41.1)*	*(21.9)*	*(12.7)*	*16.6*	*(24.9)*	*(32.3)*
	PX	CFR SE Asia	1,117.5	1,105.0	995.0	1,025.0	947.5	817.5	855.0	790.4	844.4	978.8
	Change, %			*1.1*	*12.3*	*9.0*	*17.9*	*36.7*	*30.7*	*41.4*	*32.3*	*14.2*
	PO	CFR China	1,815.0	1,777.5	1,797.5	1,880.0	1,915.0	1,587.5	1,562.5	1,396.8	1,601.2	1,865.0
	Change, %			*2.1*	*1.0*	*(3.5)*	*(5.2)*	*14.3*	*16.2*	*29.9*	*13.4*	*(2.7)*
	Caprolactam	CFR SE Asia	2,155.0	2,155.0	2,145.0	2,100.0	2,220.0	1,800.0	1,850.0	1,344.9	1,936.4	2,125.3
	Change, %			*0.0*	*0.5*	*2.6*	*(2.9)*	*19.7*	*16.5*	*60.2*	*11.3*	*1.4*
	PTA	CFR SE Asia	920.0	882.5	855.0	825.0	792.5	657.5	642.5	613.7	667.8	815.3
	Change, %			*4.2*	*7.6*	*11.5*	*16.1*	*39.9*	*43.2*	*49.9*	*37.8*	*12.8*
Spread	HDPE		587.0	563.5	585.0	616.5	584.5	628.5	658.0	735.1	649.0	632.1
	Change, %			*4.2*	*0.3*	*(4.8)*	*0.4*	*(6.6)*	*(10.8)*	*(20.1)*	*(9.6)*	*(7.1)*
	MEG		334.5	301.0	290.0	324.0	422.0	393.5	363.0	261.3	357.1	353.5
	Change, %			*11.1*	*15.3*	*3.2*	*(20.7)*	*(15.0)*	*(7.9)*	*28.0*	*(6.3)*	*(5.4)*
	PVC		309.5	286.0	292.5	264.0	347.0	411.0	435.5	423.9	406.4	321.5
	Change, %			*8.2*	*5.8*	*17.2*	*(10.8)*	*(24.7)*	*(28.9)*	*(27.0)*	*(23.8)*	*(3.7)*
	PP		597.0	563.5	610.0	586.5	634.5	638.5	548.0	578.9	606.1	636.8
	Change, %			*5.9*	*(2.1)*	*1.8*	*(5.9)*	*(6.5)*	*8.9*	*3.1*	*(1.5)*	*(6.2)*
	2-EH		484.5	446.0	447.5	489.0	542.0	501.0	380.5	372.9	476.5	494.7
	Change, %			*8.6*	*8.3*	*(0.9)*	*(10.6)*	*(3.3)*	*27.3*	*29.9*	*1.7*	*(2.1)*
	ABS		1,324.5	1,286.0	1,287.5	1,374.0	1,377.0	1,391.0	1,150.5	947.6	1,351.2	1,395.4
	Change, %			*3.0*	*2.9*	*(3.6)*	*(3.8)*	*(4.8)*	*15.1*	*39.8*	*(2.0)*	*(5.1)*
	SBR	BD spread	130.0	60.0	75.0	150.0	380.0	495.0	(100.0)	366.2	499.4	290.3
	Change, %			*116.7*	*73.3*	*(13.3)*	*(65.8)*	*(73.7)*	*(230.0)*	*(64.5)*	*(74.0)*	*(55.2)*
	SM		839.5	806.0	760.0	731.5	752.0	711.0	720.5	665.1	760.3	783.6
	Change, %			*4.2*	*10.5*	*14.8*	*11.6*	*18.1*	*16.5*	*26.2*	*10.4*	*7.1*
	Caustic											
	Change, %											
	PX		482.0	446.0	352.5	349.0	334.5	358.5	370.5	390.9	351.0	357.8
	Change, %			*8.1*	*36.7*	*38.1*	*44.1*	*34.4*	*30.1*	*23.3*	*37.3*	*34.7*
	PO	propylene sprea	777.5	757.5	827.5	865.0	937.5	812.5	747.5	691.1	777.6	808.4
	Change, %			*2.6*	*(6.0)*	*(10.1)*	*(17.1)*	*(4.3)*	*4.0*	*12.5*	*(0.0)*	*(3.8)*
	Caprolactam	benzene spreac	1,277.5	1,282.5	1,315.0	1,242.5	1,387.5	1,027.5	1,027.5	698.2	1,097.6	1,258.7
	Change, %			*(0.4)*	*(2.9)*	*2.8*	*(7.9)*	*24.3*	*24.3*	*83.0*	*16.4*	*1.5*
	PTA	px spread	137.8	109.0	158.5	107.5	129.3	85.3	44.0	60.4	76.7	130.2
	Change, %			*26.4*	*(13.1)*	*28.1*	*6.6*	*61.6*	*213.1*	*128.0*	*79.6*	*5.8*

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

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Global peers

	Currency	08/17	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER 18E	PER 19E	PBR 18E	PBR 19E	EV/EBITDA 18E	EV/EBITDA 19E
Petrochemical																
DowDuPont	USD	67.8	1.1	0.1	1.1	(0.5)	(5.8)	7.3	(4.8)	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	97.7	0.4	(2.2)	(3.0)	(9.9)	(2.4)	18.0	5.5	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	77.8	0.4	(1.4)	(6.6)	(12.0)	(10.5)	(3.9)	(15.2)	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	79.5	0.0	(2.1)	6.2	4.2	1.4	2.7	8.8	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	105.4	0.6	(0.1)	0.8	(4.3)	5.1	10.4	3.7	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	67.2	(0.8)	(2.8)	(2.4)	(4.4)	(0.6)	6.7	1.3	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	614	0.3	(2.5)	(1.4)	(6.8)	(7.9)	(7.0)	(24.2)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	957	0.3	(2.7)	0.4	(8.1)	(10.9)	0.1	(22.6)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	10,530	(1.4)	(2.9)	1.2	(8.1)	(6.2)	7.9	(8.0)	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,555	0.4	(0.8)	6.9	2.0	17.5	21.3	7.0	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	2,120	0.6	(1.1)	8.9	(2.8)	(8.5)	2.7	(4.4)	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	8,355	0.4	(0.9)	5.0	(1.1)	3.0	(15.4)	(16.5)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	123.0	0.0	(3.0)	(4.2)	4.8	16.8	25.4	21.3	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	72.4	0.0	(2.2)	(5.7)	0.3	11.6	31.7	22.7	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	109.0	0.5	(1.4)	1.9	(2.2)	7.9	17.3	10.4	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	118.0	(0.4)	(0.8)	4.9	0.4	11.8	28.0	14.6	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	83.3	1.5	(1.5)	(1.0)	(4.5)	9.3	11.8	6.9	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	5.17	(0.8)	(3.5)	(0.8)	(13.4)	(10.7)	(22.6)	(18.3)	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	1.91	0.0	(2.6)	1.1	(8.6)	(15.9)	(40.3)	(28.5)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	1,204	0.2	(0.0)	10.2	27.3	30.7	53.6	32.3	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	119.5	0.0	(3.6)	0.6	10.7	13.7	28.2	23.2	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	81.8	1.2	(0.3)	9.4	(15.3)	(12.8)	10.8	(3.8)	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	9.1	(1.1)	(0.8)	3.9	5.3	12.8	25.5	18.7	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	365,500	(0.5)	(2.5)	13.7	5.8	(1.9)	6.4	(9.8)	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	336,000	(1.2)	(2.5)	1.1	(11.0)	(22.8)	(13.2)	(8.7)	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	20,400	2.8	(4.0)	0.0	(26.9)	(36.7)	(42.2)	(35.4)	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	102,500	(2.4)	(0.5)	(7.2)	(4.2)	12.5	36.5	3.0	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	44,650	(0.9)	(1.3)	4.7	14.3	22.7	17.2	(5.0)	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	58,700	1.2	0.5	4.1	(8.7)	6.7	7.7	(7.0)	359	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
효성	KRW	6,180	2.5	(2.4)	1.6	(9.3)	(31.8)	(6.4)	(18.5)	4,595	8.2	7.3	1.1	1.0	7.2	6.8
Average			**0.2**	**(1.7)**	**1.8**	**(2.9)**	**(0.1)**	**7.5**	**(1.7)**							
Refinery																
Valero	USD	111.0	(0.3)	(3.8)	4.6	(7.3)	19.0	72.0	20.8	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	69.8	0.5	(3.0)	(0.7)	(1.3)	27.7	62.3	27.1	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemic	TWD	121.0	0.4	0.4	2.1	(3.6)	8.5	17.5	4.8	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	144.8	0.4	(3.6)	6.8	(1.3)	50.6	56.2	26.7	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	77.1	0.5	(4.7)	7.5	(4.5)	13.5	55.2	16.9	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	40.6	(0.2)	(5.2)	(7.9)	(4.2)	19.0	34.5	(1.9)	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	68.6	1.3	(0.6)	(2.7)	(5.2)	47.9	150.3	34.0	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	115.4	0.4	(5.8)	3.9	(5.3)	25.5	42.7	14.1	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	29.5	(1.5)	(5.2)	(7.4)	(7.6)	10.8	22.3	(5.1)	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	751.0	0.3	(6.4)	(1.3)	2.0	12.9	40.3	3.3	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	5,180.0	2.2	(0.8)	13.2	31.8	33.0	97.6	14.5	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	72.9	(1.0)	(2.6)	10.1	8.6	23.7	108.5	36.6	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	84.8	0.3	(0.7)	4.8	9.8	17.4	39.4	19.1	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	48.8	(0.1)	(1.1)	12.5	6.5	7.1	1.8	10.3	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	201,000	1.0	4.7	4.1	(1.5)	5.5	18.2	(1.7)	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	125,000	2.0	6.8	8.2	16.3	10.6	9.6	6.8	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	53,700	(0.2)	0.0	4.9	(12.0)	(14.6)	(21.0)	(13.7)	5,467	6.0	5.5	0.7	0.6	6.9	6.3
Average			**0.4**	**(1.9)**	**3.7**	**1.3**	**18.7**	**47.5**	**12.5**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임
* 국내업체의 multiple은 Dataguidepro 기준임

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Global peers

	Currency	08/17	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER 18E	PER 19E	PBR 18E	PBR 19E	EV/EBITDA 18E	EV/EBITDA 19E
E&P/Shale																
Exxon Mobil	USD	78	0.3	(1.5)	(4.9)	(4.4)	2.2	2.6	(6.4)	331,338	16.7	14.3	1.7	1.6	7.5	6.7
BP	GBP	549	0.0	(1.3)	(2.1)	(6.1)	15.9	23.8	5.0	139,515	12.7	11.4	1.4	1.3	5.0	4.6
Shell	EUR	2,473	(0.1)	(2.3)	(5.3)	(9.4)	9.3	16.4	(0.3)	263,881	11.6	9.9	1.3	1.3	5.5	5.1
Chevron	USD	118	0.1	(4.5)	(3.4)	(9.0)	5.0	11.2	(5.9)	225,722	14.9	13.7	1.5	1.4	6.2	5.7
Total	EUR	52	0.1	(2.9)	(0.7)	(3.9)	14.2	22.5	13.8	159,383	11.2	10.1	1.3	1.2	5.5	5.0
Sinopec	CNY	6	(0.9)	(4.5)	2.1	(11.0)	0.3	6.6	3.3	111,384	9.8	9.4	1.0	1.0	3.7	3.7
Petrochina	CNY	8	0.6	(0.5)	9.5	1.0	(0.4)	0.8	(1.2)	203,460	24.4	20.3	1.2	1.2	5.5	5.3
CNOOC	CNY	10	(3.3)	(2.0)	11.7	(7.2)	(3.7)	(8.8)	(4.2)	68,141	8.5	8.2	1.2	1.1	3.7	3.6
Gazprom	RUB	141	0.1	(2.6)	(3.0)	(4.2)	2.9	21.3	8.1	49,490	3.1	3.1	0.2	0.2	2.5	2.5
Rosneft	RUB	426	0.8	(1.7)	6.6	11.5	31.3	41.1	46.1	66,902	8.0	6.6	1.0	0.9	4.7	4.3
Anadarko	USD	62	(0.4)	(7.1)	(13.1)	(12.8)	4.8	48.7	15.7	31,774	21.0	15.3	2.6	2.2	6.3	5.4
Petrobras	BRL	18	(2.6)	(5.8)	0.9	(28.9)	(4.9)	41.5	14.7	65,866	6.5	5.5	0.7	0.6	4.5	4.2
Lukoil	USD	4,375	(0.5)	(4.4)	2.6	0.5	16.6	54.0	31.2	55,287	5.4	5.7	0.8	0.7	N/A	N/A
Kinder	USD	18	0.7	(1.2)	1.5	10.1	5.2	(2.4)	(0.7)	47,497	22.8	18.1	1.2	1.2	10.6	10.4
Equinor ASA	NOK	212	0.6	(1.3)	(0.4)	(2.6)	20.9	46.6	21.1	83,553	12.7	11.7	1.9	1.7	3.3	3.1
BHP	AUD	33	(0.3)	(2.9)	0.7	(4.9)	3.9	26.3	10.7	120,376	13.9	15.4	2.1	2.1	6.0	6.3
PTT E&P	THB	135	(0.4)	(2.9)	3.5	(8.8)	19.6	59.6	34.5	16,071	13.0	11.9	1.3	1.3	4.2	3.8
Petronas gas	MYR	18	(0.7)	(3.9)	(0.9)	2.4	4.3	(2.1)	4.5	8,807	19.0	19.0	2.8	2.7	10.4	10.4
Chesapeake	USD	4	1.4	(7.5)	(9.6)	0.5	57.9	11.1	8.8	3,932	5.5	5.6	#N/A N/A	6.6	6.5	6.4
Noble Energy	USD	29	(1.6)	(5.9)	(16.5)	(20.6)	9.5	25.0	(1.3)	13,899	26.9	20.9	1.3	1.3	6.9	5.9
Average		**0**	**(0.3)**	**(3.3)**	**(1.0)**	**(5.4)**	**10.7**	**22.3**	**9.9**							
PV																
WACKER	EUR	120.4	(1.6)	(3.1)	2.6	(22.2)	(14.6)	16.5	(25.8)	7,164	17.3	15.6	1.9	1.8	6.5	6.2
GCL-Poly	HKD	0.5	6.0	(10.2)	(20.9)	(44.2)	(56.6)	(41.1)	(62.1)	1,240	4.9	4.3	0.3	0.3	6.4	5.9
SunPower	USD	6.6	0.6	(7.5)	(11.7)	(28.4)	(13.1)	(27.0)	(21.2)	936	#N/A N/A	#N/A N/A	6.6	7.1	16.4	10.0
Canadian Solar	USD	13.1	0.0	(8.2)	3.5	(24.9)	(16.7)	(20.1)	(22.2)	768	8.5	8.9	0.7	0.7	6.5	7.3
JA Solar	USD	7.5	0.0	0.0	0.0	4.5	1.8	22.0	0.4	356	#N/A N/A	#N/A N/A	1.8	2.0	4.9	7.1
Yingli	USD	0.3	(6.3)	(9.1)	(26.8)	(82.5)	(81.4)	(87.9)	(82.2)	5	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
First Solar	USD	51.0	0.3	(3.4)	(5.1)	(28.6)	(22.6)	6.8	(24.5)	5,345	31.3	16.5	1.0	0.9	7.4	3.9
한화큐셀	USD	8.2	1.0	(1.3)	43.4	7.2	1.4	11.6	16.7	682	14.6	30.3	#N/A N/A	#N/A N/A	8.8	9.0
OCI	KRW	110,000	5.8	2.3	13.6	(28.1)	(29.9)	18.8	(19.1)	2,335	0.0	12.4	0.0	0.7	0.0	5.3
웅진에너지	KRW	3,025	1.5	(6.5)	(13.3)	(48.1)	(58.4)	(63.2)	(63.2)	80	N/A	0.0	0.7	0.0	5.3	0.0
신성솔라에너지	KRW	1,415	1.8	1.1	4.0	(17.5)	(21.2)	(33.6)	(26.1)	218	N/A	0.7	0.0	5.3	0.0	2.2
Average			**0.8**	**(4.2)**	**(1.0)**	**(28.4)**	**(28.3)**	**(17.9)**	**(30.0)**							
Gas Company																
Towngas China	HKD	7.1	(0.3)	(9.5)	(10.1)	(5.0)	11.0	38.2	12.3	2,524	13.7	12.2	1.2	1.1	12.1	10.9
Kulun	HKD	6.8	(0.7)	(11.6)	(0.6)	(1.5)	(3.7)	(9.0)	(16.7)	6,973	9.9	8.6	1.1	1.0	5.7	5.1
Beijing Enterprise	HKD	34.7	(0.1)	(6.7)	(8.7)	(15.9)	(20.4)	(13.9)	(25.2)	5,579	6.1	5.5	0.6	0.5	11.3	10.8
ENN Energy	HKD	72.2	1.2	(6.4)	(13.2)	(5.9)	13.3	39.9	29.5	10,351	16.5	13.9	3.4	2.9	10.1	8.8
China Resources Gas	HKD	33.7	0.9	(5.2)	(5.6)	16.4	27.2	12.9	18.9	9,548	17.3	15.4	3.0	2.6	9.5	8.5
China Gas Holdings	HKD	25.5	(1.9)	(16.3)	(27.3)	(14.5)	4.9	34.9	17.8	16,465	16.3	13.8	3.8	3.2	13.2	11.1
Shenzen Gas	HKD	13.4	(1.2)	(4.6)	(9.8)	(23.5)	(13.8)	(4.0)	(9.8)	3,606	7.8	6.8	1.0	1.0	5.0	4.4
Shann Xi	CNY	7.2	(0.3)	(9.2)	(0.6)	(5.8)	1.1	(15.8)	(14.6)	1,166	16.7	14.7	1.4	1.3	#N/A N/A	#N/A N/A
Suntien	HKD	2.1	0.0	(11.1)	(10.0)	(21.5)	10.6	18.2	0.5	984	5.5	4.9	0.7	0.6	8.1	7.0
China Oil & Gas	HKD	0.6	(3.2)	(7.7)	(1.6)	3.4	(16.7)	11.1	(29.4)	446	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Average			**(0.6)**	**(8.8)**	**(8.7)**	**(7.4)**	**1.4**	**11.3**	**(1.7)**							
EV																
LG화학	KRW	365,500	(0.5)	(2.5)	13.7	5.8	(1.9)	6.4	(9.8)	22,965	14.0	12.6	1.6	1.4	6.8	6.1
삼성SDI	KRW	213,500	(1.4)	0.0	(6.6)	6.7	18.3	19.9	4.4	13,067	20.4	14.4	1.2	1.1	12.7	10.0
Panasonic	JPY	1369.0	0.6	(3.8)	(5.1)	(15.0)	(14.7)	(8.4)	(17.0)	30,419	12.4	11.0	1.7	1.5	5.0	4.6
GS Yuasa	JPY	503.0	0.4	0.2	0.0	(10.7)	(13.0)	(6.7)	(10.3)	1,884	15.2	14.0	1.1	1.1	6.9	6.3
NEC	JPY	2951.0	(0.6)	(2.1)	(2.1)	(2.9)	(6.8)	(0.6)	(2.9)	6,962	23.2	12.7	0.8	0.8	7.0	5.3
BYD Auto	CNY	42.5	0.4	1.8	(2.5)	(19.6)	(29.8)	(12.1)	(34.7)	16,250	27.0	20.1	2.0	1.9	12.6	10.8
Tesla Motors	USD	305.5	(8.9)	(14.1)	(5.3)	7.4	(8.9)	(13.2)	(1.9)	52,116	#N/A N/A	102.7	9.2	8.7	41.2	18.5
Kandi Technologies	USD	4.1	(1.2)	(3.6)	(6.9)	(33.6)	(29.6)	12.5	(40.4)	208	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Average			**(1.4)**	**(3.0)**	**(1.9)**	**(7.7)**	**(10.8)**	**(0.3)**	**(14.1)**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임