SK Energy Daily

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1. News Summary (3 page)

News		Conclusion
WTI comment	달러 강세 속 약보합…WTI 0.3%↓	
Headline	[주간가격] 에틸렌, WoW $15/mt 하락해 CFR SEA $1,215/mt로 마감	동남아시아 PE 역마진은 가동률을 낮춰 에틸렌 가격 하락 압력 받을 것
News 1.	[주간가격] MEG, WoW $22/mt 하락해 CFR China $955/mt로 마감	급등에 따른 단기 조정이 있었지만 국경절 모멘텀으로 상승 가능할 것
News 2.	[주간가격] BD, WoW $110/mt 하락해 FOB Korea $1,620/mt로 마감	하락 전환했지만 국경절 리스탁킹 모멘텀으로 반등 가능하다는 판단
News 3.	[주간가격] SBR, WoW 보합하며 CFR SEA $1,875/mt로 마감	천연고무 가격과의 이격이 있지만 BD 반등 전망으로 강세 전망됨
News 4.	[주간가격] PX, WoW $45.3/mt 하락해 FOB Korea $1,306.3/mt로 마감	아시아 역내 PX 설비들의 9월 정기보수로 기본적으로 강세 보일 것

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	67.8	(0.0)	(2.9)	(2.1)	3.1	42.7
Dubai	$/bbl	74.7	(0.8)	(1.5)	2.9	(0.2)	40.5
Gasoline	$/bbl	86.9	(0.7)	(1.6)	2.8	1.6	22.3
Diesel	$/bbl	90.8	(0.8)	(1.1)	4.4	2.6	30.9
Complex margin	$/bbl	7.6	0.1	(0.2)	(0.2)	1.2	(2.8)
1M lagging	$/bbl	9.7	(1.0)	(0.3)	4.2	0.9	(2.7)
Petrochemical			%	%	%	%	%
Naphtha	$/t	670	(0.3)	(1.5)	1.2	4.4	31.7
Butadiene	$/t	1,620	(4.1)	(6.4)	(6.1)	(6.9)	19.1
HDPE	$/t	1,270	(0.4)	(1.6)	(3.1)	(6.6)	6.3
MEG	$/t	955	(2.7)	(2.3)	1.6	5.4	(1.8)
PX	$/t	1,306	(0.5)	(3.4)	18.5	34.5	58.2
SM	$/t	1,397	(1.3)	(1.8)	(2.4)	(0.6)	1.0
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	2.78	0.1	(4.8)	(5.9)	(3.9)	(5.1)
Natural rubber	$/t	1,300	(0.8)	(2.3)	(2.3)	(7.1)	(20.2)
Cotton	C/lbs	82.1	0.9	(0.2)	(4.3)	(13.5)	8.7

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	09/03	$/t	1,190	(5.2)	(4.2)	(2.9)	0.0
Propylene	09/03	$/t	1,035	(0.7)	1.5	2.0	29.4
Benzene	09/03	$/t	883	(0.6)	1.1	3.5	8.0
Toluene	09/03	$/t	830	1.8	2.5	1.8	25.8
Xylene	09/03	$/t	870	1.2	5.5	2.4	37.0
PP	09/03	$/t	1,238	0.4	1.2	(3.1)	9.8
PVC	09/03	$/t	950	0.0	0.5	3.3	1.6
ABS	09/03	$/t	1,880	(2.1)	(3.3)	(9.6)	(6.5)
SBR	09/03	$/t	1,875	0.0	6.5	(1.3)	10.9
SM	09/03	$/t	1,455	1.0	(0.7)	(3.6)	7.4
BPA	09/03	$/t	1,948	2.2	9.6	12.1	(2.3)
Caustic	09/03	$/t	400	(5.0)	8.4	(27.3)	(15.1)
2-EH	09/03	$/t	1,115	(1.3)	0.9	(4.7)	12.6
Caprolactam	09/03	$/t	2,130	(1.4)	(1.2)	1.2	22.4
Solar				%	%	%	%
Polysilicon	09/05	$/kg	11.2	(0.9)	(1.1)	(14.7)	(33.2)
Module	09/05	$/W	0.25	(0.8)	(2.4)	(13.9)	(23.2)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	81.8	1.7	2.1	0.7	(1.3)	3.5
Shell	EUR	2,444	(0.8)	(2.3)	(5.8)	(6.8)	13.3
Petrochina	CNY	8.20	(0.6)	2.0	3.3	3.4	1.4
Gazprom	RUB	148.8	1.2	(0.8)	4.2	1.9	26.2
Petrobras	BRL	19.0	0.0	(1.4)	(8.3)	20.5	26.4
Refinery							
Phillips66	USD	114.3	(2.1)	(3.6)	(6.9)	(2.7)	36.0
Valero	USD	115.1	(0.9)	(2.4)	(1.4)	(5.3)	67.1
JX	JPY	719.2	(2.4)	(8.1)	(14.3)	(0.6)	33.9
Neste Oil	EUR	71.0	0.7	(5.0)	(4.7)	(0.2)	95.6

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	76.8	(0.5)	(3.5)	(4.6)	(9.4)	(8.4)
DowDuPont	USD	70.0	(0.1)	(0.2)	2.7	0.8	8.2
SABIC	SAR	118.2	0.0	(6.2)	(7.7)	(6.8)	18.7
Formosa Pla.	TWD	111.5	0.0	(0.9)	0.5	1.4	16.4
Shin-Etsu	JPY	9,733	(2.7)	(6.6)	(11.8)	(14.9)	1.1
Renewable							
Wacker	EUR	116.6	0.3	(6.2)	(6.4)	(5.2)	3.9
First Solar	USD	48.51	(3.3)	(6.9)	(9.5)	(9.0)	2.2
GCL-Poly	HKD	0.56	(3.4)	5.7	(8.2)	(32.5)	(35.6)
Tesla Motors	USD	263.2	(6.3)	(12.7)	(30.6)	(16.7)	(24.9)

4. Coverage Summary

	09/07	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	2,282	(0.3)	(1.8)	(0.9)	(6.9)	(6.2)	(1.6)				* 추정치는 12M fwd 기준임	
KOSPI화학	5,528	0.1	(1.7)	(2.6)	(9.1)	(7.8)	(3.6)				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	352,000	0.3	(3.8)	(6.4)	(6.3)	(9.0)	(5.4)	매수	400,000	13.6	13.91	1.57
롯데케미칼	302,500	1.7	(4.3)	(14.2)	(20.6)	(30.3)	(25.1)	매수	400,000	32.2	9.39	0.85
한화케미칼	19,850	0.8	(2.0)	(5.0)	(22.3)	(36.1)	(43.8)	매수	30,000	51.1	8.92	0.48
금호석유화학	96,200	0.2	(5.7)	(6.6)	(3.1)	5.1	20.9	매수	150,000	55.9	8.97	1.24
KCC	345,000	3.8	6.3	0.7	(1.6)	(3.0)	(8.9)	매수	400,000	15.9	29.91	0.53
OCI	115,000	(1.3)	(0.4)	12.7	(2.1)	(26.3)	10.6	매수	140,000	21.7	8.75	0.83
SKC	47,000	0.2	(0.1)	6.2	15.9	20.1	25.8	매수	50,000	6.4	12.82	1.11
SK이노베이션	192,500	0.8	(0.3)	2.1	(8.3)	(4.9)	4.1	매수	230,000	19.5	11.32	0.96
S-Oil	119,000	(1.2)	(0.4)	2.1	6.7	(1.7)	(1.7)	매수	140,000	17.6	13.58	1.99
GS	51,700	1.2	(2.6)	(2.8)	(11.8)	(20.5)	(21.7)	매수	80,000	54.7	4.79	0.58
SK가스	89,500	0.2	5.0	5.9	(6.6)	(3.8)	(16.4)	매수	130,000	45.3	8.46	0.60
포스코대우	18,800	4.4	3.0	0.5	(20.2)	(4.6)	(9.8)	매수	25,000	33.0	9.86	0.73
LG상사	21,700	1.2	1.9	(7.3)	(19.3)	(17.2)	(23.2)	매수	38,000	75.1	8.03	0.61
한국전력	30,250	0.2	(0.8)	(0.3)	(11.2)	(4.4)	(27.6)	매수	45,000	48.8	7.32	0.24
한국가스공사	54,500	0.2	3.6	(1.8)	(14.7)	15.8	25.7	매수	75,000	37.6	8.45	0.71

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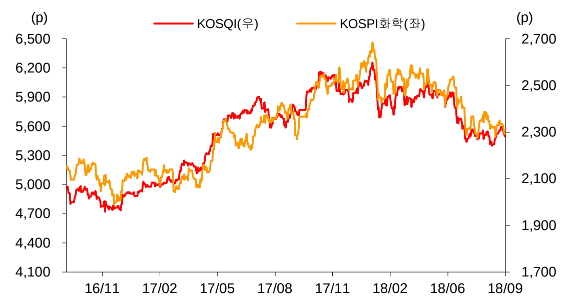
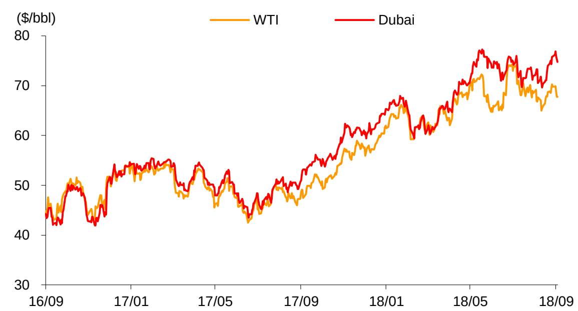
Key Chart

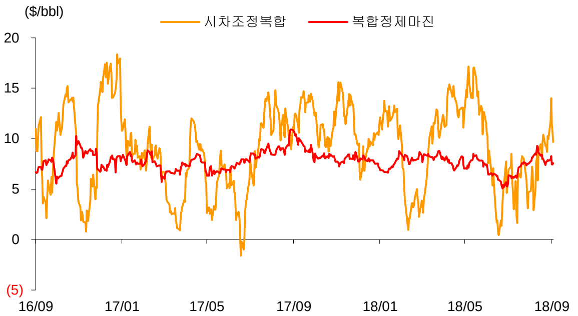
KOSPI/KOSPI화학



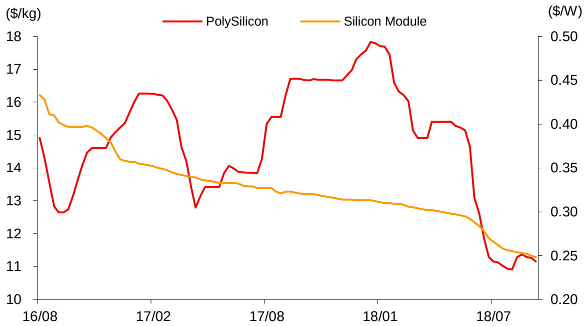
WTI/Dubai



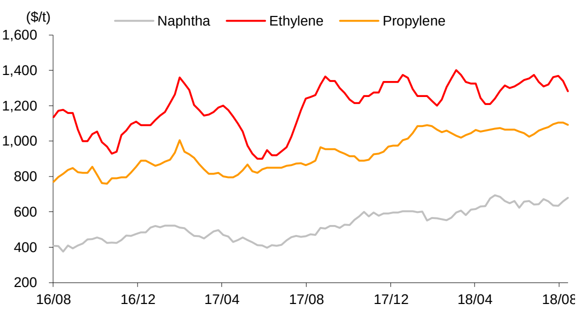
Complex & 1M lagging margin



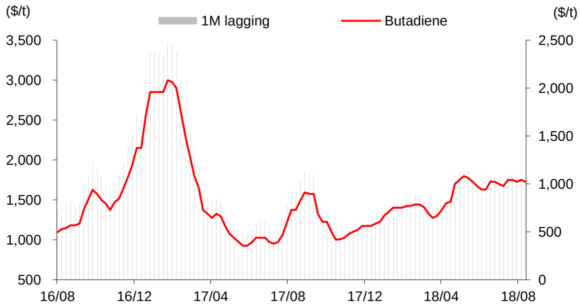
Polysilicon & Module prices



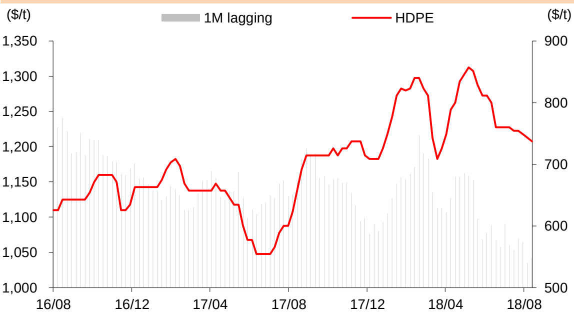
Naphtha/Ethylene/Propylene prices



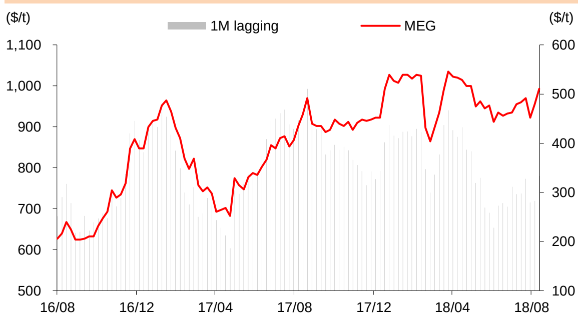
Butadiene price & 1M lagging naphtha spread



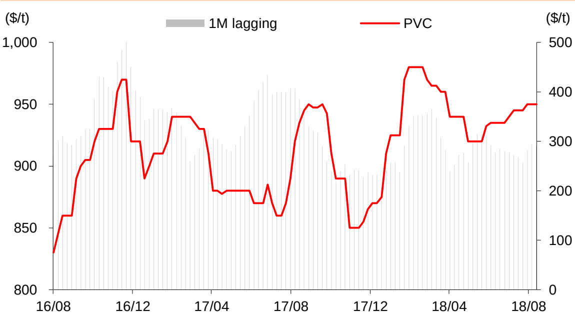
HDPE price & 1M lagging naphtha spread



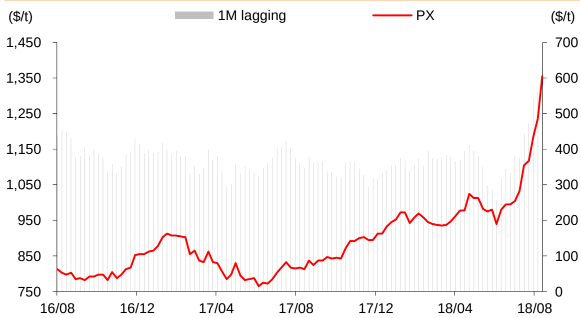
MEG price & 1M lagging naphtha spread



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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SK 증권

News Comment

Headline	(출처: Platts)
제목	[주간가격] 에틸렌, WoW $15/mt 하락해 CFR SEA $1,215/mt로 마감
결론	동남아시아 PE 역마진은 가동률을 낮춰 에틸렌 가격 하락 압력 받을 것
세부	
	1) 유럽, 중동, 동남아시아에서 스팟 공급 물량이 늘어 공급 과잉 조장함
	2) 관계자, "유럽과 중동으로부터 10월물이 2~3번 더 들어올 예정임"
	3) CFR NEA HDPE Film/에틸렌 갭은 -$50/mt로 지난 주 -$35/mt보다 하락
	4) 다운스트림 역마진이 수요 부진의 원인이며 거래량도 줄어들게 함
	5) 동남아시아 PE 역마진은 가동률을 낮춰 에틸렌 가격 하락 압력 받을 것

WTI Comment	(출처: 연합뉴스)
제목	달러 강세 속 약보합…WTI 0.3%↓
상승 요인	
하락 요인	달러화 강세

Issue 1	(출처: Platts)
제목	[주간가격] MEG, WoW $22/mt 하락해 CFR China $955/mt로 마감
결론	급등에 따른 단기 조정이 있었지만 국경절 모멘텀으로 상승 가능할 것
세부	
	1) MEG 선물 계약 가격은 Huaxicun 원자재 시장에서 하단에 거래됨
	2) 중국 내수 가격은 Yuan 7,775/mt까지 하락해 하루만에 Yuan 40/mt 빠짐
	3) 관계자, "미중간 관세전쟁에 따른 우려감이 센티먼트를 악화시켰음"
	4) 트레이더, "MEG는 최근 급등해 금요일에 시장이 숏 포지션 잡았음"
	5) 급등에 따른 단기 조정이 있었지만 국경절 모멘텀으로 상승 가능할 것

Issue 2	(출처: Platts)
제목	[주간가격] BD, WoW $110/mt 하락해 FOB Korea $1,620/mt로 마감
결론	하락 전환했지만 국경절 리스탁킹 모멘텀으로 반등 가능하다는 판단
세부	
	1) 아시아 BD는 공급 과잉과 다운스트림 시황 약세로 하락세를 보였음
	2) 다운스트림인 합성고무 시장은 여전히 저마진을 보여 가동률이 낮음
	3) 이는 결국 원재료인 BD에 대한 수요도 약화시켰음
	4) 동중국 내수 가격은 3일 연속 하락해 Yuan 12,500/mt 수준을 보였음
	5) 하락 전환했지만 국경절 리스탁킹 모멘텀으로 반등 가능하다는 판단

Issue 3	(출처: Platts)
제목	[주간가격] SBR, WoW 보합하며 CFR SEA $1,875/mt로 마감
결론	천연고무 가격과의 이격이 있지만 BD 반등 전망으로 강세 전망됨
세부	
	1) SBR 공장들이 가동률을 낮게 유지하며 SBR, BD 마진도 낮게 유지됨
	2) 관계자, "BD 가격이 하락중이지만 SBR 마진은 여전히 낮은 상황임"
	3) 관계자, "동중국 SBR 내수 가격은 Yuan 13,000/mt 수준을 보였음"
	4) 중국 내 일부 PBR 공장들이 정기보수를 멈춰 BD 수요가 소폭 회복됨
	5) 천연고무 가격과의 이격이 있지만 BD 반등 전망으로 강세 전망됨

Issue 4	(출처: Platts)
제목	[주간가격] PX, WoW $45.3/mt 하락해 FOB Korea $1,306.3/mt로 마감
결론	아시아 역내 PX 설비들의 9월 정기보수로 기본적으로 강세 보일 것
세부	
	1) GS 칼텍스와 BPSG의 11월물 거래는 CFR Taiwan/China $1,305/mt였음
	2) 한편, 2019년 1월 중국 PTA 선물 계약 가격은 Yuan 7,684/mt로 약세
	3) 실제 PTA는 9월 말 도착물이 CFR China $1,070/mt로 수급 타이트함
	4) 중국 폴리에스터 가동률은 90% 수준으로 유지되고 있는 것으로 알려짐
	5) 아시아 역내 PX 설비들의 9월 정기보수로 기본적으로 강세 보일 것

Issue 5	(출처: Platts)
제목	[주간가격] PTA, WoW $5/mt 상승해 CFR China $1,070/mt로 마감
결론	정기보수 종료때까지 공급 부족 상황이 지속되며 가격 강세 지속 전망
세부	
	1) Bid-Offer 스프레드가 크게 유지되며 스팟 거래량이 적은 모습이었음
	2) 폴리에스터 생산자, "PTA 생산자만 이득을 많이 보는 수익 분배구조임"
	3) 태국 폴레에스터 생산자들은 원재료 가격 상승으로 감산 시작함
	4) 중국 폴리에스터 가동률은 90% 수준으로 유지되고 있는 것으로 알려짐
	5) 정기보수 종료때까지 공급 부족 상황이 지속되며 가격 강세 지속 전망

Issue 6	(출처: PVinsights)
제목	[주간가격] 태양광 제품, 공급과잉 우려로 하락세 지속
결론	수요 부진 및 공급 과잉 우려 재차 부각되며 하락세가 지속될 전망
세부	
	1) 폴리실리콘은 수요 부진, 생산 회복에 따른 공급 과잉 우려로 하락 지속
	2) Multi-crystalline wafer는 수요 약세 부담으로 가동이 줄며 하락함
	3) Multi-crystalline cell은 유독 수요가 약해 6주 연속 하락세를 보였음
	4) 모듈은 생산 활동이 전월 대비 커졌으나 글로벌 경쟁 심화 우려 제기중
	5) 수요 부진 및 공급 과잉 우려 재차 부각되며 하락세가 지속될 전망

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Commodity Price Data

Daily Price		Today	1D	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
F/X	**USD/EUR**	0.866	0.860	0.862	0.862	0.848	0.806	0.832	0.833	0.904	0.887	0.836
	Change, %		*0.6*	*0.4*	*0.4*	*2.1*	*7.4*	*4.1*	*3.9*	*(4.2)*	*(2.4)*	*3.5*
	USD/JPY	111.0	110.8	111.0	111.4	109.7	106.1	108.5	112.6	108.8	112.1	109.4
	Change, %		*0.2*	*(0.0)*	*(0.4)*	*1.2*	*4.6*	*2.3*	*(1.5)*	*2.1*	*(1.0)*	*1.4*
	USD/KRW	1,122.8	1,123.8	1,113.1	1,123.7	1,069.0	1,069.1	1,129.6	1,066.7	1,160.5	1,130.9	1,088.9
	Change, %		*(0.1)*	*0.9*	*(0.1)*	*5.0*	*5.0*	*(0.6)*	*5.3*	*(3.2)*	*(0.7)*	*3.1*
Agriculture	**Corn**	354.3	353.5	351.0	370.8	376.3	379.3	341.8	350.8	358.5	359.4	368.9
	Change, %		*0.2*	*0.9*	*(4.5)*	*(5.8)*	*(6.6)*	*3.7*	*1.0*	*(1.2)*	*(1.4)*	*(4.0)*
	Soybean	832.0	826.8	833.0	889.3	974.3	1,055.0	963.3	951.8	987.5	975.9	959.4
	Change, %		*0.6*	*(0.1)*	*(6.4)*	*(14.6)*	*(21.1)*	*(13.6)*	*(12.6)*	*(15.7)*	*(14.7)*	*(13.3)*
	Wheat	486.3	486.0	518.5	568.3	526.8	493.0	413.5	427.0	436.4	436.0	488.6
	Change, %		*0.1*	*(6.2)*	*(14.4)*	*(7.7)*	*(1.4)*	*17.6*	*13.9*	*11.4*	*11.5*	*(0.5)*
	Rice	10.8	10.8	10.8	10.9	11.2	12.3	12.4	11.7	10.3	11.1	12.0
	Change, %		*0.6*	*0.1*	*(0.6)*	*(3.3)*	*(11.9)*	*(12.7)*	*(7.1)*	*4.9*	*(2.0)*	*(9.4)*
	Oats	234.5	234.3	243.5	255.3	239.0	259.5	235.0	241.0	196.3	252.3	246.1
	Change, %		*0.1*	*(3.7)*	*(8.1)*	*(1.9)*	*(9.6)*	*(0.2)*	*(2.7)*	*19.5*	*(7.0)*	*(4.7)*
MYR/mt	**Palm Oil**	2,213.0	2,224.0	2,200.0	2,195.0	2,396.0	2,459.0	2,768.0	2,444.0	2,653.8	2,787.3	2,361.5
	Change, %		*(0.5)*	*0.6*	*0.8*	*(7.6)*	*(10.0)*	*(20.1)*	*(9.5)*	*(16.6)*	*(20.6)*	*(6.3)*
	Cocoa	2,288.0	2,310.0	2,323.0	2,103.0	2,274.0	2,456.0	1,945.0	1,892.0	2,854.0	2,005.2	2,361.2
	Change, %		*(1.0)*	*(1.5)*	*8.8*	*0.6*	*(6.8)*	*17.6*	*20.9*	*(19.8)*	*14.1*	*(3.1)*
	Cotton	82.1	81.4	82.3	88.2	93.7	84.2	75.0	78.6	65.6	73.5	84.1
	Change, %		*0.9*	*(0.2)*	*(6.9)*	*(12.4)*	*(2.5)*	*9.5*	*4.5*	*25.2*	*11.7*	*(2.4)*
	Sugar	11.0	10.8	10.6	10.9	11.7	12.8	14.0	15.2	18.2	15.8	12.2
	Change, %		*1.9*	*3.9*	*1.2*	*(6.1)*	*(13.9)*	*(21.5)*	*(27.4)*	*(39.3)*	*(30.4)*	*(9.4)*
	Coffee	98.8	98.0	98.1	109.1	115.7	119.3	127.9	126.2	136.1	133.0	115.2
	Change, %		*0.9*	*0.7*	*(9.4)*	*(14.6)*	*(17.2)*	*(22.8)*	*(21.7)*	*(27.4)*	*(25.7)*	*(14.3)*
Energy	**WTI**	67.8	67.8	69.8	69.2	66.0	61.2	49.1	60.4	43.4	51.0	66.5
	Change, %		*(0.0)*	*(2.9)*	*(2.1)*	*2.7*	*10.8*	*38.0*	*12.1*	*56.2*	*32.9*	*1.9*
	Brent	76.8	76.5	77.4	74.7	77.3	64.3	54.5	66.9	45.1	54.9	72.2
	Change, %		*0.4*	*(0.8)*	*2.9*	*(0.6)*	*19.4*	*41.0*	*14.9*	*70.4*	*40.1*	*6.5*
	Natural Gas	2.8	2.8	2.9	2.9	2.9	2.8	3.0	3.0	2.6	3.0	2.8
	Change, %		*0.1*	*(4.8)*	*(4.2)*	*(5.3)*	*(0.0)*	*(6.9)*	*(6.0)*	*8.8*	*(8.1)*	*(2.3)*
	Ethanol	1.3	1.3	1.3	1.4	1.4	1.5	1.5	1.3	1.5	1.5	1.4
	Change, %		*0.1*	*0.9*	*(9.1)*	*(10.7)*	*(14.7)*	*(15.3)*	*(2.1)*	*(14.7)*	*(13.7)*	*(9.1)*
	RBOB Gasoline	197.0	195.1	214.4	210.4	211.5	191.0	166.1	179.9	140.0	162.9	201.1
	Change, %		*1.0*	*(8.1)*	*(6.4)*	*(6.8)*	*3.1*	*18.6*	*9.5*	*40.7*	*20.9*	*(2.0)*
	Coal	114.6	114.8	118.0	116.0	114.1	99.8	97.7	100.8	65.5	88.2	107.2
	Change, %		*(0.2)*	*(2.9)*	*(1.3)*	*0.4*	*14.8*	*17.3*	*13.6*	*75.0*	*29.9*	*6.8*
Metal	**Gold**	1,196.2	1,200.0	1,201.4	1,211.0	1,297.2	1,325.5	1,349.3	1,302.6	1,248.5	1,258.6	1,289.7
	Change, %		*(0.3)*	*(0.4)*	*(1.2)*	*(7.8)*	*(9.8)*	*(11.3)*	*(8.2)*	*(4.2)*	*(5.0)*	*(7.2)*
	Silver	14.2	14.2	14.5	15.4	16.7	16.5	18.1	16.9	17.1	17.1	16.2
	Change, %		*0.1*	*(2.5)*	*(7.8)*	*(15.2)*	*(14.1)*	*(21.8)*	*(16.4)*	*(17.1)*	*(17.0)*	*(12.8)*
	Copper	5,933.0	5,927.5	5,975.0	6,175.0	7,332.0	6,950.0	6,898.5	7,247.0	4,872.0	6,199.4	6,719.7
	Change, %		*0.1*	*(0.7)*	*(3.9)*	*(19.1)*	*(14.6)*	*(14.0)*	*(18.1)*	*21.8*	*(4.3)*	*(11.7)*
	Nickel	888.7	896.2	919.9	950.9	1,040.0	877.8	778.7	809.1	646.4	680.2	920.8
	Change, %		*(0.8)*	*(3.4)*	*(6.5)*	*(14.5)*	*1.2*	*14.1*	*9.8*	*37.5*	*30.6*	*(3.5)*
	Zinc	2,420.0	2,441.0	2,457.0	2,600.0	3,183.0	3,260.0	3,129.0	3,319.0	2,097.5	2,888.5	3,049.4
	Change, %		*(0.9)*	*(1.5)*	*(6.9)*	*(24.0)*	*(25.8)*	*(22.7)*	*(27.1)*	*15.4*	*(16.2)*	*(20.6)*
	Lead	2,061.0	2,017.5	2,064.5	2,139.8	2,527.3	2,374.3	2,314.0	2,482.8	1,868.3	2,315.7	2,360.8
	Change, %		*2.2*	*(0.2)*	*(3.7)*	*(18.4)*	*(13.2)*	*(10.9)*	*(17.0)*	*10.3*	*(11.0)*	*(12.7)*
	Aluminum	14,575.0	14,600.0	14,825.0	14,345.0	14,835.0	14,185.0	16,130.0	15,020.0	12,373.5	14,556.6	14,369.8
	Change, %		*(0.2)*	*(1.7)*	*1.6*	*(1.8)*	*2.7*	*(9.6)*	*(3.0)*	*17.8*	*0.1*	*1.4*
	Cobalt	61,556.0	62,306.0	64,306.0	55,151.5	82,000.0	83,020.0	60,850.0	75,205.0	25,480.1	55,906.9	79,639.2
	Change, %		*(1.2)*	*(4.3)*	*11.6*	*(24.9)*	*(25.9)*	*1.2*	*(18.1)*	*141.6*	*10.1*	*(22.7)*
	HR Coil	865.0	865.0	865.0	892.0	907.0	819.0	638.0	662.0	519.3	620.1	838.4
	Change, %		*0.0*	*0.0*	*(3.0)*	*(4.6)*	*5.6*	*35.6*	*30.7*	*66.6*	*39.5*	*3.2*
	Scrap	379.0	379.0	376.0	392.0	400.0	385.0	380.0	367.0	275.7	344.7	388.4
	Change, %		*0.0*	*0.8*	*(3.3)*	*(5.3)*	*(1.6)*	*(0.3)*	*3.3*	*37.5*	*9.9*	*(2.4)*

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

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Refining Price Data

Daily Price		09/07	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	67.8	67.8	69.8	69.2	65.7	62.0	47.5	53.7	43.4	50.9	66.5
	Change, %		*(0.0)*	*(2.9)*	*(2.1)*	*3.1*	*9.2*	*42.7*	*26.1*	*56.2*	*33.1*	*1.9*
	Dubai	74.7	75.3	75.9	72.7	74.9	60.3	53.2	53.8	41.3	53.1	69.5
	Change, %		*(0.8)*	*(1.5)*	*2.9*	*(0.2)*	*24.0*	*40.5*	*38.8*	*80.9*	*40.8*	*7.5*
Crude Oil Product	**Gasoline(휘발유)**	86.9	87.5	88.3	84.5	85.5	74.3	71.0	69.8	56.3	68.0	82.0
	Change, %		*(0.7)*	*(1.6)*	*2.8*	*1.6*	*16.9*	*22.3*	*24.4*	*54.4*	*27.7*	*6.0*
	Kerosene(등유)	89.7	90.4	90.3	87.7	88.4	76.8	68.2	66.4	52.9	65.2	84.8
	Change, %		*(0.8)*	*(0.7)*	*2.2*	*1.4*	*16.7*	*31.5*	*35.0*	*69.5*	*37.4*	*5.7*
	Diesel(경유)	90.8	91.6	91.8	87.0	88.5	75.3	69.3	65.5	52.1	65.6	84.0
	Change, %		*(0.8)*	*(1.1)*	*4.4*	*2.6*	*20.5*	*30.9*	*38.6*	*74.2*	*38.4*	*8.1*
	Bunker-C	68.2	67.7	70.2	69.8	69.8	55.3	50.1	52.1	35.5	49.7	64.1
	Change, %		*0.7*	*(2.8)*	*(2.3)*	*(2.3)*	*23.3*	*36.0*	*30.9*	*91.9*	*37.3*	*6.4*
	Naphtha	72.6	73.2	74.1	71.7	71.4	60.3	54.7	53.5	42.6	53.7	68.5
	Change, %		*(0.8)*	*(2.1)*	*1.3*	*1.7*	*20.5*	*32.9*	*35.9*	*70.5*	*35.1*	*5.9*
Dubai Spread	**Gasoline(휘발유)**	12.2	12.2	12.4	11.8	10.7	14.1	17.9	16.0	14.9	14.9	12.5
	Change		*(0.1)*	*(0.3)*	*0.3*	*1.5*	*(1.9)*	*(5.7)*	*(3.9)*	*(2.8)*	*(2.8)*	*(0.3)*
	Kerosene(등유)	14.9	15.1	14.5	15.0	13.6	16.6	15.0	12.6	11.6	12.1	15.3
	Change		*(0.1)*	*0.5*	*(0.1)*	*1.4*	*(1.6)*	*(0.1)*	*2.3*	*3.3*	*2.8*	*(0.4)*
	Diesel(경유)	16.1	16.2	15.9	14.4	13.6	15.0	16.2	11.7	10.8	12.5	14.5
	Change		*(0.2)*	*0.1*	*1.7*	*2.4*	*1.0*	*(0.1)*	*4.4*	*5.3*	*3.5*	*1.5*
	Bunker-C	(6.6)	(7.6)	(5.7)	(2.9)	(5.1)	(5.0)	(3.1)	(1.8)	(5.8)	(3.4)	(5.4)
	Change		*1.0*	*(0.9)*	*(3.7)*	*(1.4)*	*(1.6)*	*(3.5)*	*(4.8)*	*(0.8)*	*(3.1)*	*(1.2)*
	Naphtha	(2.1)	(2.1)	(1.7)	(1.0)	(3.4)	(0.0)	1.5	(0.4)	1.3	0.6	(0.9)
	Change		*(0.0)*	*(0.4)*	*(1.2)*	*1.3*	*(2.1)*	*(3.6)*	*(1.7)*	*(3.4)*	*(2.8)*	*(1.2)*
Refining Margin	**Simple(단순)**	1.8	1.4	2.2	3.2	1.5	3.2	4.9	3.8	1.9	3.2	2.3
	Change		*0.4*	*(0.3)*	*(1.4)*	*0.3*	*(1.3)*	*(3.0)*	*(2.0)*	*(0.1)*	*(1.3)*	*(0.4)*
	Complex(복합)	7.6	7.4	7.8	7.8	6.4	8.4	10.4	8.3	7.0	8.0	7.5
	Change		*0.1*	*(0.2)*	*(0.2)*	*1.2*	*(0.8)*	*(2.8)*	*(0.7)*	*0.6*	*(0.4)*	*0.1*
	Complex(lagging)	9.7	10.6	10.0	5.5	8.8	4.5	12.4	18.0	8.5	8.9	9.0
	Change		*(1.0)*	*(0.3)*	*4.2*	*0.9*	*5.2*	*(2.7)*	*(8.3)*	*1.2*	*0.7*	*0.7*

자료 : Petronet, SK증권
참고 1) Crude Oil 가격은 현물(spot) 기준으로 선물(future) 가격과 다를 수 있음
참고 2) Gasoline은 95RON, 경유는 L/P 0.5%, Bunker-C는 380cst/4.0% 기준임

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Petrochemical Price Data

Daily Price			09/07	09/06	09/05	09/04	09/03	08/31	08/30	08/29	08/28	08/27
Spot Price	**Naphtha**	CFR Japan	670.1	672.4	681.0	695.0	680.1	680.1	679.6	666.5	667.0	659.5
	Ethylene	CFR SE Asia	1,215.0	1,225.0	1,230.0	1,230.0	1,230.0	1,230.0	1,240.0	1,270.0	1,270.0	1,270.0
	Propylene	FOB Korea	1,090.0	1,085.0	1,085.0	1,085.0	1,085.0	1,090.0	1,090.0	1,090.0	1,090.0	1,095.0
	Butadiene	FOB Korea	1,620.0	1,690.0	1,690.0	1,690.0	1,720.0	1,730.0	1,740.0	1,740.0	1,740.0	1,750.0
	HDPE	CFR FE Asia	1,270.0	1,275.0	1,275.0	1,280.0	1,285.0	1,290.0	1,290.0	1,290.0	1,290.0	1,290.0
	LDPE	CFR FE Asia	1,110.0	1,110.0	1,110.0	1,120.0	1,120.0	1,120.0	1,120.0	1,120.0	1,120.0	1,120.0
	LLDPE	CFR FE Asia	1,090.0	1,095.0	1,095.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0
	MEG	CFR China	955.0	981.0	993.0	981.0	983.0	977.0	952.0	940.0	940.0	935.0
	PP	CFR FE Asia	1,215.0	1,215.0	1,215.0	1,205.0	1,205.0	1,210.0	1,210.0	1,220.0	1,210.0	1,210.0
	PX	CFR China	1,306.3	1,312.3	1,315.3	1,334.3	1,348.7	1,351.7	1,352.0	1,317.7	1,303.3	1,250.7
	PTA	CFR China	1,070.0	1,065.0	1,065.0	1,065.0	1,065.0	1,065.0	1,050.0	1,050.0	1,050.0	990.0
	Benzene	FOB Korea	854.0	867.7	868.7	869.7	875.0	877.7	881.7	881.0	882.7	883.7
	Toluene	FOB Korea	818.0	821.0	821.0	826.0	821.0	819.5	814.5	804.5	804.5	795.5
	Xylene	FOB Korea	890.0	904.0	908.0	908.0	908.0	911.5	930.5	930.5	945.5	945.5
	SM	FOB Korea	1,397.0	1,415.0	1,415.0	1,417.0	1,414.0	1,422.0	1,412.0	1,412.0	1,405.0	1,392.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**Naphtha**	CFR Japan	680.0	659.0	659.0	662.0	633.0	470.0	484.5	399.5	493.5	624.1
	Change, %			*3.2*	*3.2*	*2.7*	*7.4*	*44.7*	*40.4*	*70.2*	*37.8*	*9.0*
	Ethylene	CFR SE Asia	1,190.0	1,255.0	1,242.5	1,225.0	1,182.5	1,190.0	990.0	1,040.9	1,090.9	1,239.6
	Change, %			*(5.2)*	*(4.2)*	*(2.9)*	*0.6*	*0.0*	*20.2*	*14.3*	*9.1*	*(4.0)*
	Propylene	CFR SE Asia	1,035.0	1,042.5	1,020.0	1,015.0	1,017.5	800.0	815.0	705.7	823.6	1,060.4
	Change, %			*(0.7)*	*1.5*	*2.0*	*1.7*	*29.4*	*27.0*	*46.7*	*25.7*	*(2.4)*
	Butadiene	CFR SE Asia	1,675.0	1,700.0	1,700.0	1,725.0	1,430.0	1,325.0	2,100.0	1,116.8	1,481.1	1,488.1
	Change, %			*(1.5)*	*(1.5)*	*(2.9)*	*17.1*	*26.4*	*(20.2)*	*50.0*	*13.1*	*12.6*
	Benzene	CFR SE Asia	882.5	887.5	872.5	852.5	835.0	817.5	822.5	646.7	838.8	868.4
	Change, %			*(0.6)*	*1.1*	*3.5*	*5.7*	*8.0*	*7.3*	*36.5*	*5.2*	*1.6*
	Toluene	CFR SE Asia	830.0	815.0	810.0	815.0	775.0	660.0	690.0	630.5	689.5	777.1
	Change, %			*1.8*	*2.5*	*1.8*	*7.1*	*25.8*	*20.3*	*31.6*	*20.4*	*6.8*
	Xylene	CFR SE Asia	870.0	860.0	825.0	850.0	772.5	635.0	675.0	627.7	668.8	793.8
	Change, %			*1.2*	*5.5*	*2.4*	*12.6*	*37.0*	*28.9*	*38.6*	*30.1*	*9.6*
Spread	**Ethylene**	-Naphtha	510.0	596.0	583.5	563.0	549.5	720.0	505.5	641.4	597.4	615.4
	Change, %			*(14.4)*	*(12.6)*	*(9.4)*	*(7.2)*	*(29.2)*	*0.9*	*(20.5)*	*(14.6)*	*(17.1)*
	Propylene	-Naphtha	355.0	383.5	361.0	353.0	384.5	330.0	330.5	306.2	330.1	436.3
	Change, %			*(7.4)*	*(1.7)*	*0.6*	*(7.7)*	*7.6*	*7.4*	*16.0*	*7.6*	*(18.6)*
	Butadiene	-Naphtha	995.0	1,041.0	1,041.0	1,063.0	797.0	855.0	1,615.5	717.3	987.6	864.0
	Change, %			*(4.4)*	*(4.4)*	*(6.4)*	*24.8*	*16.4*	*(38.4)*	*38.7*	*0.8*	*15.2*
	Benzene	-Naphtha	202.5	228.5	213.5	190.5	202.0	347.5	338.0	247.2	345.3	244.2
	Change, %			*(11.4)*	*(5.2)*	*6.3*	*0.2*	*(41.7)*	*(40.1)*	*(18.1)*	*(41.4)*	*(17.1)*
	Toluene	-Naphtha	150.0	156.0	151.0	153.0	142.0	190.0	205.5	231.0	196.0	153.0
	Change, %			*(3.8)*	*(0.7)*	*(2.0)*	*5.6*	*(21.1)*	*(27.0)*	*(35.1)*	*(23.5)*	*(2.0)*
	Xylene	-Naphtha	190.0	201.0	166.0	188.0	139.5	165.0	190.5	228.2	175.3	169.7
	Change, %			*(5.5)*	*14.5*	*1.1*	*36.2*	*15.2*	*(0.3)*	*(16.7)*	*8.4*	*12.0*

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

SK Energy Daily

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Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**HDPE**	CFR SE Asia	1,207.5	1,212.5	1,222.5	1,307.5	1,262.5	1,137.5	1,142.5	1,134.6	1,142.5	1,249.6
	Change, %			(0.4)	(1.2)	(7.6)	(4.4)	6.2	5.7	6.4	5.7	(3.4)
	MEG	CFR SE Asia	992.5	955.0	960.0	962.5	1,015.0	930.0	847.5	660.8	850.6	972.9
	Change, %			3.9	3.4	3.1	(2.2)	6.7	17.1	50.2	16.7	2.0
	PVC	CFR SE Asia	950.0	950.0	945.0	920.0	940.0	935.0	920.0	823.4	899.9	943.1
	Change, %			0.0	0.5	3.3	1.1	1.6	3.3	15.4	5.6	0.7
	PP	CFR SE Asia	1,237.5	1,232.5	1,222.5	1,277.5	1,242.5	1,127.5	1,032.5	978.4	1,099.6	1,255.7
	Change, %			0.4	1.2	(3.1)	(0.4)	9.8	19.9	26.5	12.5	(1.5)
	2-EH	CFR Korea	1,115.0	1,130.0	1,105.0	1,170.0	1,145.0	990.0	865.0	772.4	970.0	1,116.4
	Change, %			(1.3)	0.9	(4.7)	(2.6)	12.6	28.9	44.4	14.9	(0.1)
	ABS	CFR SE Asia	1,880.0	1,920.0	1,945.0	2,080.0	2,010.0	2,010.0	1,635.0	1,347.1	1,844.7	2,008.1
	Change, %			(2.1)	(3.3)	(9.6)	(6.5)	(6.5)	15.0	39.6	1.9	(6.4)
	SBR	CFR SE Asia	1,875.0	1,875.0	1,760.0	1,900.0	1,750.0	1,690.0	2,000.0	1,483.0	1,980.5	1,766.7
	Change, %			0.0	6.5	(1.3)	7.1	10.9	(6.3)	26.4	(5.3)	6.1
	SM	CFR SE Asia	1,455.0	1,440.0	1,465.0	1,510.0	1,405.0	1,355.0	1,205.0	1,064.6	1,253.8	1,408.9
	Change, %			1.0	(0.7)	(3.6)	3.6	7.4	20.7	36.7	16.1	3.3
	Caustic	FOB NEA	400.0	421.0	369.0	550.0	598.0	471.0	422.5	316.6	491.2	533.6
	Change, %			(5.0)	8.4	(27.3)	(33.1)	(15.1)	(5.3)	26.4	(18.6)	(25.0)
	PX	CFR SE Asia	1,355.0	1,235.0	1,105.0	982.5	977.5	812.5	855.0	790.4	844.4	1,002.7
	Change, %			9.7	22.6	37.9	38.6	66.8	58.5	71.4	60.5	35.1
	PO	CFR China	1,947.5	1,905.0	1,777.5	1,737.5	2,007.5	1,992.5	1,562.5	1,396.8	1,601.2	1,868.6
	Change, %			2.2	9.6	12.1	(3.0)	(2.3)	24.6	39.4	21.6	4.2
	Caprolactam	CFR SE Asia	2,130.0	2,160.0	2,155.0	2,105.0	2,170.0	1,740.0	1,850.0	1,344.9	1,936.4	2,127.3
	Change, %			(1.4)	(1.2)	1.2	(1.8)	22.4	15.1	58.4	10.0	0.1
	PTA	CFR SE Asia	1,075.0	990.0	882.5	857.5	820.0	657.5	642.5	613.7	667.8	832.2
	Change, %			8.6	21.8	25.4	31.1	63.5	67.3	75.2	61.0	29.2
Spread	**HDPE**		527.5	553.5	563.5	645.5	629.5	667.5	658.0	735.1	649.0	625.4
	Change, %			(4.7)	(6.4)	(18.3)	(16.2)	(21.0)	(19.8)	(28.2)	(18.7)	(15.7)
	MEG		312.5	296.0	301.0	300.5	382.0	460.0	363.0	261.3	357.1	348.8
	Change, %			5.6	3.8	4.0	(18.2)	(32.1)	(13.9)	19.6	(12.5)	(10.4)
	PVC		270.0	291.0	286.0	258.0	307.0	465.0	435.5	423.9	406.4	318.9
	Change, %			(7.2)	(5.6)	4.7	(12.1)	(41.9)	(38.0)	(36.3)	(33.6)	(15.3)
	PP		557.5	573.5	563.5	615.5	609.5	657.5	548.0	578.9	606.1	631.6
	Change, %			(2.8)	(1.1)	(9.4)	(8.5)	(15.2)	1.7	(3.7)	(8.0)	(11.7)
	2-EH		435.0	471.0	446.0	508.0	512.0	520.0	380.5	372.9	476.5	492.3
	Change, %			(7.6)	(2.5)	(14.4)	(15.0)	(16.3)	14.3	16.7	(8.7)	(11.6)
	ABS		1,200.0	1,261.0	1,286.0	1,418.0	1,377.0	1,540.0	1,150.5	947.6	1,351.2	1,384.0
	Change, %			(4.8)	(6.7)	(15.4)	(12.9)	(22.1)	4.3	26.6	(11.2)	(13.3)
	SBR	BD spread	200.0	175.0	60.0	175.0	320.0	365.0	(100.0)	366.2	499.4	278.6
	Change, %			14.3	233.3	14.3	(37.5)	(45.2)	(300.0)	(45.4)	(60.0)	(28.2)
	SM		775.0	781.0	806.0	848.0	772.0	885.0	720.5	665.1	760.3	784.7
	Change, %			(0.8)	(3.8)	(8.6)	0.4	(12.4)	7.6	16.5	1.9	(1.2)
	Caustic											
	Change, %											
	PX		675.0	576.0	446.0	320.5	344.5	342.5	370.5	390.9	351.0	378.6
	Change, %			17.2	51.3	110.6	95.9	97.1	82.2	72.7	92.3	78.3
	PO	propylene sprea	912.5	862.5	757.5	722.5	990.0	1,192.5	747.5	691.1	777.6	808.2
	Change, %			5.8	20.5	26.3	(7.8)	(23.5)	22.1	32.0	17.3	12.9
	Caprolactam	benzene spreac	1,247.5	1,272.5	1,282.5	1,252.5	1,335.0	922.5	1,027.5	698.2	1,097.6	1,258.9
	Change, %			(2.0)	(2.7)	(0.4)	(6.6)	35.2	21.4	78.7	13.7	(0.9)
	PTA	px spread	126.5	125.5	109.0	169.8	135.8	88.8	44.0	60.4	76.7	130.3
	Change, %			0.8	16.1	(25.5)	(6.8)	42.5	187.5	109.4	64.9	(2.9)

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

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Global peers

	Currency	09/07	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	70.0	(0.1)	(0.2)	2.7	0.8	(0.2)	8.2	(1.7)	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	97.1	(0.4)	0.1	(4.5)	(10.3)	(8.5)	14.5	4.8	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	76.8	(0.5)	(3.5)	(4.6)	(9.4)	(9.1)	(8.4)	(16.3)	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	82.2	0.8	2.1	2.2	7.7	4.4	4.6	12.6	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	103.9	(0.3)	(3.7)	(3.1)	0.8	(3.8)	10.9	2.3	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	65.7	0.0	(3.0)	(2.3)	(5.0)	(2.7)	4.4	(1.0)	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	601	(0.8)	(4.8)	(5.9)	(11.1)	(0.8)	(8.7)	(25.8)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	951	(1.6)	(4.5)	(4.5)	(6.4)	(7.7)	(4.7)	(23.1)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	9,733	(2.7)	(6.6)	(11.8)	(14.9)	(8.5)	1.1	(15.0)	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,566	(0.4)	(4.0)	(1.1)	3.4	21.2	23.1	7.7	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	2,020	(2.2)	(6.4)	(5.7)	(4.0)	(19.3)	(3.7)	(8.9)	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	8,084	(2.6)	(6.3)	(5.0)	(9.9)	(4.5)	(14.8)	(19.2)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	118.2	0.0	(6.2)	(7.7)	(6.8)	11.2	18.7	16.5	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	71.9	0.0	0.3	(2.8)	(2.0)	5.4	27.5	21.9	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	111.5	0.0	(0.9)	0.5	1.4	9.9	16.4	13.0	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	120.0	0.4	(2.4)	0.0	3.0	13.7	25.5	16.5	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	83.4	(0.7)	(2.3)	(0.4)	(4.0)	5.0	10.5	7.1	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	5.60	(0.2)	1.8	4.5	(2.3)	(5.1)	(12.4)	(11.5)	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	1.96	0.5	(0.5)	2.1	(5.3)	(14.4)	(38.8)	(26.6)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	1,279	1.4	3.0	8.0	31.6	43.7	56.3	40.5	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	124.0	0.0	0.0	(3.9)	13.9	30.5	40.1	27.8	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	78.5	0.0	(4.0)	(6.8)	(12.5)	(14.2)	1.9	(7.6)	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	9.4	0.1	(0.3)	4.2	12.7	18.5	27.4	22.5	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	352,000	0.3	(3.8)	(8.1)	(4.5)	(8.6)	(4.9)	(13.1)	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	302,500	1.7	(4.3)	(12.9)	(18.7)	(32.0)	(25.5)	(17.8)	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	19,850	0.8	(2.0)	(7.0)	(21.5)	(35.6)	(44.4)	(37.2)	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	96,200	0.2	(5.7)	(7.1)	(6.1)	8.3	22.2	(3.3)	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	47,000	0.2	(0.1)	7.1	13.7	21.9	23.4	0.0	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	55,700	0.4	(5.1)	(5.6)	(15.1)	(5.9)	8.2	(11.7)	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	6,530	(0.9)	(2.1)	3.0	(13.5)	(29.4)	(6.7)	(13.9)	4,595	8.2	7.3	1.1	1.0	7.2	6.8
Average			**(0.2)**	**(2.5)**	**(2.6)**	**(3.1)**	**(0.6)**	**5.7**	**(2.0)**							
Refinery																
Valero	USD	115.1	(0.9)	(2.4)	(1.4)	(5.3)	25.0	67.1	25.2	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	70.2	(0.5)	(4.4)	(3.7)	1.1	29.9	55.7	27.9	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemic	TWD	123.5	(0.4)	(2.0)	3.8	(0.8)	9.3	15.4	6.9	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	153.3	(0.3)	0.3	1.6	5.9	58.5	52.1	34.1	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	82.5	(0.4)	0.3	1.5	4.2	21.9	56.8	25.1	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	40.5	(0.4)	(5.7)	(6.9)	(3.5)	30.8	24.9	(2.2)	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	70.8	(1.7)	(5.0)	2.5	(7.7)	57.5	122.0	38.2	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	114.3	(2.1)	(3.6)	(6.9)	(2.7)	21.3	36.0	13.0	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	29.7	(0.3)	(3.6)	(11.0)	(11.5)	18.0	19.8	(4.3)	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	719.2	(2.4)	(8.1)	(14.3)	(0.6)	10.6	33.9	(1.1)	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	5,500.0	(1.3)	(2.0)	5.8	46.1	34.0	98.1	21.5	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	71.0	0.7	(5.0)	(4.7)	(0.2)	20.0	95.6	33.2	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	83.9	(0.7)	(0.4)	(2.2)	5.3	16.0	36.8	17.8	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	48.5	(0.1)	(3.9)	(0.2)	6.7	2.4	1.3	9.6	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	192,500	0.8	(0.3)	1.6	(7.5)	(5.4)	2.9	(5.9)	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	119,000	(1.2)	(0.4)	1.3	5.3	(2.9)	(2.9)	1.7	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	51,700	1.2	(2.6)	(3.2)	(11.9)	(21.7)	(21.7)	(16.9)	5,467	6.0	5.5	0.7	0.6	6.9	6.3
Average			**(0.6)**	**(2.9)**	**(2.1)**	**1.3**	**19.1**	**40.8**	**13.2**							

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

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Global peers

	Currency	09/07	1D	1W	1M	3M	6M	12M	YTD	MKT CAP	PER		PBR		EV/EBITDA	
										(mil USD)	18E	19E	18E	19E	18E	19E
E&P/Shale																
Exxon Mobil	USD	82	1.7	2.1	0.7	(1.3)	10.2	3.5	(2.2)	346,453	17.6	14.8	1.8	1.7	7.9	6.9
BP	GBP	537	(0.8)	(1.9)	(6.8)	(8.9)	13.8	19.3	2.7	138,637	12.5	11.3	1.4	1.3	4.9	4.5
Shell	EUR	2,444	(0.8)	(2.3)	(5.8)	(6.8)	7.5	13.3	(1.5)	264,316	11.6	9.9	1.3	1.3	5.5	5.0
Chevron	USD	115	(0.5)	(3.3)	(8.5)	(9.7)	0.7	2.5	(8.5)	219,590	14.4	12.9	1.4	1.4	6.0	5.4
Total	EUR	52	(0.1)	(3.5)	(7.1)	(2.6)	12.8	17.3	12.9	160,243	11.1	10.1	1.3	1.2	5.5	5.0
Sinopec	CNY	7	(0.3)	(2.3)	(1.6)	2.5	3.7	12.1	9.0	117,018	10.2	9.8	1.1	1.0	3.9	3.8
Petrochina	CNY	8	(0.6)	2.0	3.3	3.4	2.2	1.4	1.4	209,169	25.2	21.0	1.2	1.2	5.4	5.3
CNOOC	CNY	11	(0.6)	2.3	11.9	0.4	(2.2)	(6.6)	(0.2)	78,831	9.7	9.0	1.3	1.2	3.8	3.7
Gazprom	RUB	149	1.2	(0.8)	4.2	1.9	7.4	26.2	14.0	50,438	3.1	3.1	0.2	0.2	2.4	2.5
Rosneft	RUB	440	0.8	0.9	2.7	15.7	39.5	43.6	50.8	66,701	8.2	6.7	1.0	0.9	4.7	4.3
Anadarko	USD	64	(0.2)	(1.3)	(1.5)	(11.3)	10.1	50.7	18.5	32,537	21.8	15.6	2.6	2.3	6.4	5.5
Petrobras	BRL	19	0.0	(1.4)	(8.3)	20.5	(12.4)	26.4	18.0	65,012	6.8	5.6	0.7	0.6	4.5	4.1
Lukoil	USD	4,623	0.3	(1.6)	2.3	8.8	24.2	60.7	38.6	56,750	5.6	5.7	0.8	0.7	N/A	N/A
Kinder	USD	18	0.8	0.7	(0.9)	4.5	11.0	(6.9)	(1.4)	47,497	20.6	18.0	1.2	1.2	10.6	10.4
Equinor ASA	NOK	209	(0.7)	(2.7)	(4.8)	(3.7)	17.0	40.5	19.5	82,669	12.6	11.5	1.9	1.7	3.3	3.1
BHP	AUD	31	(0.3)	(5.8)	(6.9)	(8.2)	6.4	14.5	5.9	112,960	12.6	14.0	2.1	2.1	5.7	6.0
PTT E&P	THB	139	(1.1)	(2.5)	(2.5)	(0.4)	24.7	53.6	39.0	16,814	13.4	12.2	1.4	1.3	4.3	3.9
Petronas gas	MYR	19	(0.2)	(0.7)	(2.3)	2.2	6.7	2.0	6.2	8,846	19.3	19.3	2.8	2.7	10.6	10.6
Chesapeake	USD	4	(0.7)	(9.0)	(14.3)	(14.3)	32.6	4.1	1.8	3,676	5.2	5.1	#N/A N/A	6.5	6.4	6.3
Noble Energy	USD	29	(0.9)	(2.2)	(6.9)	(16.6)	(5.3)	15.5	(0.2)	14,049	28.2	21.9	1.3	1.3	7.0	6.1
Average		**0**	**(0.2)**	**(1.7)**	**(2.7)**	**(1.2)**	**10.5**	**19.7**	**11.2**							
PV																
WACKER	EUR	116.6	0.3	(6.2)	(6.4)	(5.2)	(12.1)	3.9	(28.1)	7,030	16.6	14.9	1.8	1.7	6.3	6.0
GCL-Poly	HKD	0.6	(3.4)	5.7	(8.2)	(32.5)	(53.7)	(35.6)	(60.0)	1,308	8.3	6.3	0.4	0.4	7.2	6.4
SunPower	USD	6.4	(2.5)	(5.2)	(13.6)	(12.5)	(13.3)	(32.4)	(24.4)	898	#N/A N/A	#N/A N/A	91.0	910.0	16.2	10.1
Canadian Solar	USD	14.7	2.3	2.0	1.2	19.7	(10.7)	(10.4)	(13.1)	858	10.2	10.3	0.8	0.8	6.8	7.6
JA Solar	USD	7.5	0.0	0.0	0.0	5.9	1.5	1.2	0.4	356	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Yingli	USD	0.3	0.0	0.0	(9.7)	(82.8)	(82.8)	(88.2)	(83.4)	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	48.5	(3.3)	(6.9)	(9.5)	(9.0)	(28.6)	2.2	(28.2)	5,084	29.7	15.9	0.9	0.9	6.5	3.4
한화큐셀	USD	8.5	0.8	0.5	1.9	23.3	3.2	16.0	20.7	705	15.1	31.4	#N/A N/A	#N/A N/A	8.9	9.1
OCI	KRW	115,000	(1.3)	(0.4)	12.7	(1.3)	(25.3)	11.7	(15.4)	2,432	0.0	12.9	0.0	0.8	0.0	5.6
웅진에너지	KRW	2,855	(2.2)	(4.0)	(9.4)	(46.1)	(59.3)	(70.7)	(65.3)	75	N/A	0.0	0.8	0.0	5.6	0.0
신성솔라에너지	KRW	1,390	0.4	0.4	1.8	(19.0)	(21.2)	(32.9)	(27.4)	213	N/A	0.8	0.0	5.6	0.0	2.2
Average			**(0.8)**	**(1.3)**	**(3.5)**	**(14.5)**	**(27.5)**	**(21.4)**	**(29.5)**							
Gas Company																
Towngas China	HKD	7.2	(1.1)	(0.7)	(7.6)	(3.6)	14.5	39.1	14.3	2,570	13.9	12.4	1.2	1.1	12.5	11.4
Kulun	HKD	8.4	(3.1)	2.7	15.7	16.5	22.4	10.9	3.4	8,659	11.2	9.8	1.4	1.3	5.7	5.2
Beijing Enterprise	HKD	39.1	2.1	3.7	5.1	(10.8)	(6.2)	(6.4)	(15.8)	6,278	6.6	6.0	0.7	0.6	13.2	12.5
ENN Energy	HKD	74.5	2.1	4.1	(1.8)	(6.7)	26.1	40.6	33.5	10,673	16.8	14.5	3.5	3.0	10.4	9.1
China Resources Gas	HKD	37.1	(2.0)	3.8	6.0	22.4	45.5	36.9	30.9	10,511	18.2	16.2	3.2	2.8	10.0	9.0
China Gas Holdings	HKD	24.0	(2.4)	(4.0)	(21.3)	(34.3)	0.8	19.5	10.9	15,503	15.2	13.0	3.5	2.9	12.5	10.6
Shenzen Gas	HKD	14.5	0.3	(1.6)	3.7	(16.3)	(6.8)	1.1	(2.7)	3,896	9.4	7.8	1.1	1.0	7.2	6.3
Shann Xi	CNY	7.3	0.7	2.0	(8.0)	(9.7)	(2.3)	(16.4)	(13.6)	1,182	17.6	15.4	1.4	1.3	#N/A N/A	#N/A N/A
Suntien	HKD	2.1	(2.7)	(9.3)	(8.2)	(19.5)	16.3	21.6	3.4	1,013	5.6	4.9	0.7	0.6	8.3	7.2
China Oil & Gas	HKD	0.6	0.0	(1.6)	(6.3)	(6.3)	(10.4)	7.1	(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)**	**(0.1)**	**(2.3)**	**(6.8)**	**10.0**	**15.4**	**3.5**							
EV																
LG화학	KRW	352,000	0.3	(3.8)	(8.1)	(4.5)	(8.6)	(4.9)	(13.1)	22,033	13.4	12.1	1.5	1.4	6.5	5.9
삼성SDI	KRW	239,000	(1.2)	1.3	5.5	7.7	34.3	23.8	16.9	14,572	22.2	15.7	1.4	1.3	13.9	10.9
Panasonic	JPY	1273.5	(1.5)	(2.7)	(12.2)	(19.3)	(20.9)	(14.1)	(22.8)	28,141	11.6	10.3	1.6	1.4	4.7	4.3
GS Yuasa	JPY	523.0	0.2	(4.6)	(1.5)	(1.9)	(7.8)	(2.6)	(6.8)	1,948	15.8	14.6	1.2	1.1	7.1	6.5
NEC	JPY	3005.0	(1.0)	(2.1)	(0.8)	(2.4)	(4.9)	4.0	(1.2)	7,051	22.2	12.4	0.9	0.8	7.4	5.4
BYD Auto	CNY	42.8	0.5	(3.7)	12.7	(15.9)	(33.6)	(13.6)	(34.2)	16,547	27.8	20.8	2.0	1.9	12.3	10.6
Tesla Motors	USD	263.2	(6.3)	(12.7)	(30.6)	(16.7)	(20.8)	(24.9)	(15.5)	44,907	#N/A N/A	82.1	7.9	7.6	34.2	15.6
Kandi Technologies	USD	4.0	(0.6)	(4.2)	(3.0)	(5.4)	(23.6)	0.6	(41.5)	205	#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			**(1.2)**	**(4.1)**	**(4.8)**	**(7.3)**	**(10.7)**	**(4.0)**	**(14.8)**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임