

1. News Summary (3 page)

2017년 10월 23일

News	
WTI comment	중동 우려에 하루만에 반등...WTI 0.6%↑
Headline	[주간가격] 에틸렌, 플랫한 모습 보이며 CFR SEA 1,160\$/mt로 보합
News 1.	[주간가격] MEG, WoW 25\$/mt 상승해 CFR China 915\$/mt로 마감
News 2.	[주간가격] BD, 수요 약세로 9주 최저치인 CFR China 1,215\$/mt 기록
News 3.	[주간가격] SBR, 플랫한 모습 보이며 CFR SEA 1,750\$/mt로 마감
News 4.	[주간가격] PX, WoW 2.34\$/mt 상승해 FOB Korea 834.67\$/mt로 마감

Conclusion	
	공급 증가 기대와 다운스트림 가격 반등으로 보합세로 마감함
	재고 감소로 인한 수요에 전당 대화로 공급이 차질을 빚으며 가격 상승
	Sinopec SBR 공장 섀다운 연장으로 수요 대비 공급 증가 기대로 하락
	원재료인 BD 약세와 중국 SBR 공급 타이트 우려 불거지며 보합 시현
	다운스트림인 PTA 공장 가동 지연 기대로 PX 단기 센티 약화될 것

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	\$/bbl	51.5	0.4	0.0	1.6	12.5	1.2
Dubai	\$/bbl	55.1	(0.7)	(0.5)	0.9	14.4	12.9
Gasoline	\$/bbl	69.9	(0.6)	0.0	0.1	9.6	9.4
Diesel	\$/bbl	67.8	(0.7)	(1.1)	(1.5)	9.4	10.3
Complex margin	\$/bbl	8.1	0.1	(0.0)	(0.7)	(0.9)	0.2
1M lagging	\$/bbl	9.2	(0.2)	(2.2)	(4.4)	(2.4)	(4.4)
Petrochemical			%	%	%	%	%
Naphtha	\$/t	529	(0.0)	0.1	3.4	21.6	17.7
Butadiene	\$/t	1,165	(1.3)	(1.3)	(24.8)	20.7	(27.2)
HDPE	\$/t	1,220	0.4	2.5	3.4	13.0	6.1
MEG	\$/t	915	1.0	2.8	(2.8)	7.4	41.2
PX	\$/t	835	0.1	0.3	0.3	6.0	5.9
SM	\$/t	1,188	0.0	(0.3)	(11.6)	3.0	17.7
Commodity			%	%	%	%	%
Natural Gas	\$/mmbtu	2.92	1.5	(2.8)	(3.5)	(5.1)	(12.6)
Natural rubber	\$/t	1,400	0.7	(3.4)	(6.7)	(9.1)	(0.7)
Cotton	C/lbs	66.9	(0.6)	(2.5)	(3.2)	(3.3)	(3.2)

*참고: 정제마진의 변동률은 %가 아닌 \$/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	10/16	\$/t	1,208	(2.0)	(3.4)	35.3	17.2
Propylene	10/16	\$/t	810	(1.5)	(5.8)	7.3	5.9
Benzene	10/16	\$/t	785	(0.6)	(1.3)	7.2	23.1
Toluene	10/16	\$/t	700	(0.7)	0.0	11.1	6.1
Xylene	10/16	\$/t	653	0.4	(0.8)	6.1	1.6
PP	10/16	\$/t	1,168	0.0	0.0	11.5	16.2
PVC	10/16	\$/t	943	(0.8)	(0.8)	6.5	4.1
ABS	10/16	\$/t	1,970	(1.5)	(4.8)	9.4	38.7
SBR	10/16	\$/t	1,750	0.0	(4.4)	20.7	(5.4)
SM	10/16	\$/t	1,205	(2.8)	(11.2)	0.2	18.1
BPA	10/16	\$/t	1,685	1.7	1.8	10.1	(19.4)
Caustic	10/16	\$/t	503	0.4	4.8	9.9	43.7
2-EH	10/16	\$/t	1,000	0.0	1.0	7.2	28.2
Caprolactam	10/16	\$/t	1,970	2.6	10.7	22.4	37.3
Solar				%	%	%	%
Polysilicon	10/18	\$/kg	16.7	(0.1)	(0.2)	20.5	26.8
Module	10/18	\$/W	0.32	(0.3)	(0.6)	(2.4)	(19.6)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	83.1	0.4	0.8	3.2	2.8	(4.7)
Shell	EUR	2,314	0.1	1.2	7.4	10.5	11.4
Petrochina	CNY	8.15	(1.5)	2.1	2.6	0.5	11.0
Gazprom	RUB	126.7	1.0	(0.1)	3.6	5.1	(6.0)
Petrobras	BRL	16.2	0.4	0.9	2.2	23.8	(8.6)
Refinery							
Phillips66	USD	90.8	0.5	(3.8)	1.9	10.2	13.9
Valero	USD	77.5	(0.1)	(0.7)	6.0	14.8	41.6
JX	JPY	574.0	0.2	2.7	(0.3)	15.5	38.2
Neste Oil	EUR	41.9	3.6	6.9	15.4	10.7	4.3

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	90.4	0.4	1.7	2.6	10.7	13.8
DowDuPont	USD	71.2	0.4	(0.3)	1.1	7.2	32.3
SABIC	SAR	98.4	0.0	(0.4)	(2.4)	(1.5)	17.3
Formosa Pla.	TWD	92.8	0.0	(0.7)	(1.4)	1.2	9.2
Shin-Etsu	JPY	10,965	0.8	7.7	8.6	6.5	47.6
Renewable							
Wacker	EUR	121.5	0.8	1.5	7.3	18.8	45.9
First Solar	USD	47.73	0.2	0.3	(2.3)	3.2	13.4
GCL-Poly	HKD	1.22	3.4	1.7	13.0	31.2	14.0
Tesla Motors	USD	345.1	(1.9)	(2.9)	(7.7)	4.6	73.3

4. Coverage Summary

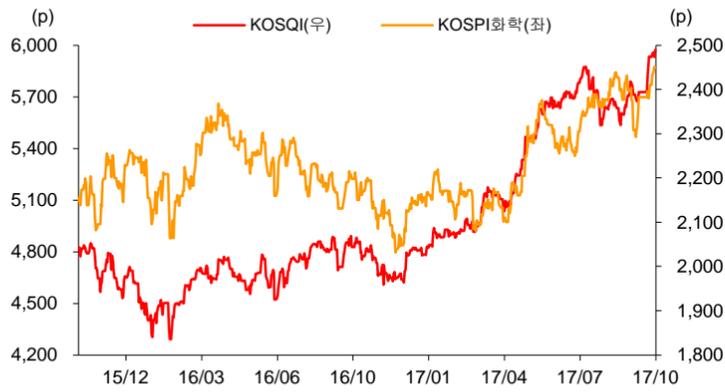
	10/20	1D	1W	1M	3M	6M	12M
KOSPI	2,490	0.7	0.6	3.2	1.6	15.8	22.0
KOSPI화학	5,869	(0.1)	1.7	3.4	5.0	14.1	12.8
LG화학	384,000	(0.3)	2.4	(1.2)	16.7	37.6	57.1
롯데케미칼	399,000	1.4	1.0	4.7	10.1	15.7	29.1
한화케미칼	33,150	1.4	(0.6)	(11.4)	(0.9)	31.5	19.7
금호석유화학	68,000	(0.6)	1.3	(10.4)	(9.0)	(9.2)	(12.1)
KCC	390,000	(0.3)	2.4	1.6	(9.4)	15.2	(4.5)
OCI	106,500	3.9	7.3	(4.1)	21.7	32.3	5.4
SKC	38,950	(0.5)	(3.5)	(8.5)	7.9	36.0	32.3
SK이노베이션	206,000	(0.7)	(1.7)	7.9	20.1	27.6	30.4
S-Oil	132,000	0.0	0.0	10.0	22.2	35.9	60.0
GS	68,300	0.0	1.6	3.3	(6.6)	17.8	30.6
SK가스	97,600	2.7	4.7	(6.6)	(13.2)	(18.7)	(5.2)
포스코대우	19,900	1.5	4.2	(4.8)	(14.6)	(17.6)	(24.3)
LG상사	27,950	2.4	1.6	(5.1)	(8.5)	(7.9)	(12.8)
한국전력	41,100	0.6	5.1	4.4	(9.7)	(7.1)	(21.0)
한국가스공사	42,100	(0.5)	(4.0)	(2.8)	(15.5)	(7.2)	(4.8)

투자 의견	TP	%	P/E	P/B
			* 추정치는 12M fwd 기준임	
			* 모든 coverage 업체의 실적은 연결기준임	
매수	400,000	4.2	12.16	2.01
매수	410,000	2.8	6.27	1.37
매수	39,000	17.6	5.59	0.92
매수	100,000	47.1	11.53	1.26
매수	450,000	15.4	21.65	0.57
매수	120,000	12.7	13.52	0.82
매수	45,000	15.5	10.76	1.06
매수	210,000	1.9	8.31	1.10
매수	140,000	6.1	14.28	2.49
매수	80,000	17.1	6.48	1.01
매수	130,000	33.2	7.37	0.72
매수	25,000	25.6	11.15	0.86
매수	38,000	36.0	10.17	0.90
매수	55,000	33.8	7.88	0.33
매수	60,000	42.5	8.60	0.54

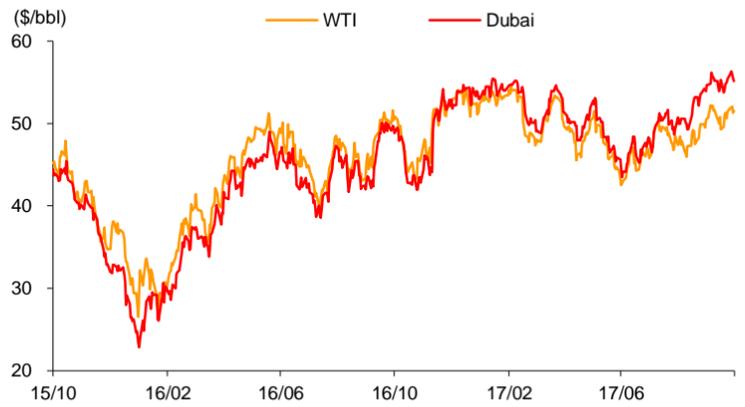
• 작성자(손지우)는 본 조사분석자료에 게재된 내용들이 본인의 의견을 정확하게 반영하고 있으며, 외부의 부당한 압력이나 간섭없이 신의성실하게 작성되었음을 확인합니다.
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Key Chart

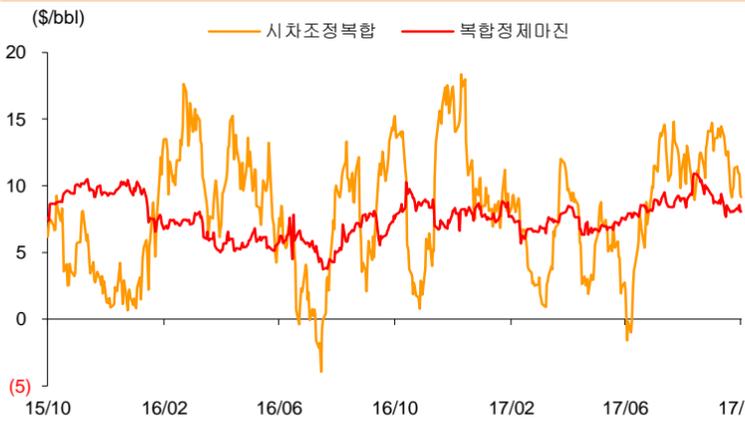
KOSPI/KOSPI화학



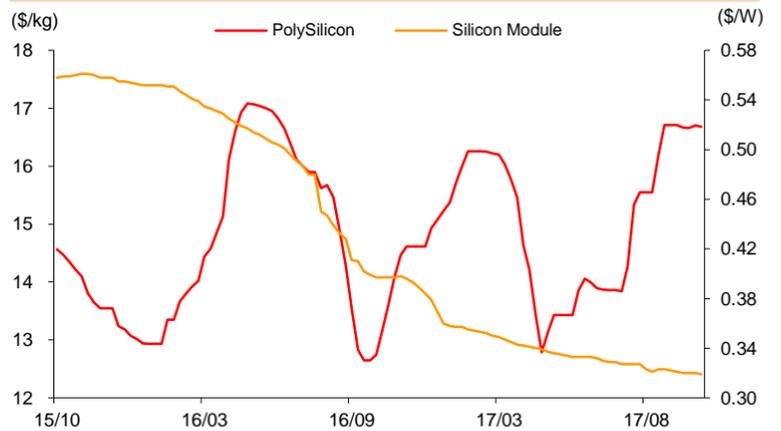
WTI/Dubai



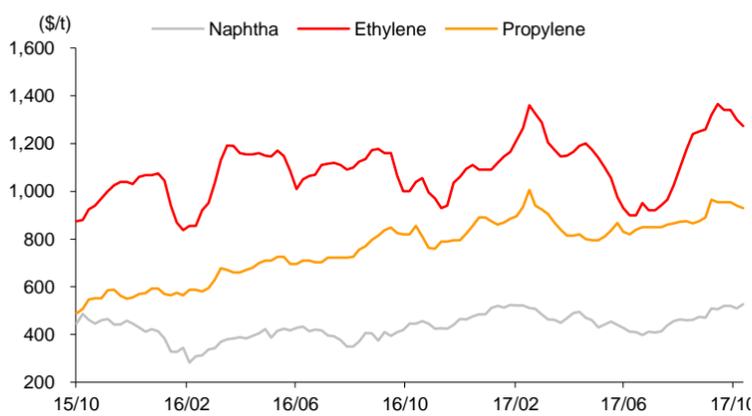
Complex & 1M lagging margin



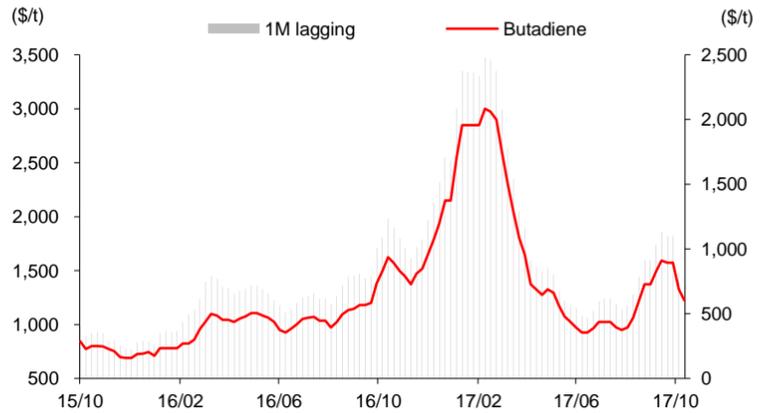
Polysilicon & Module prices



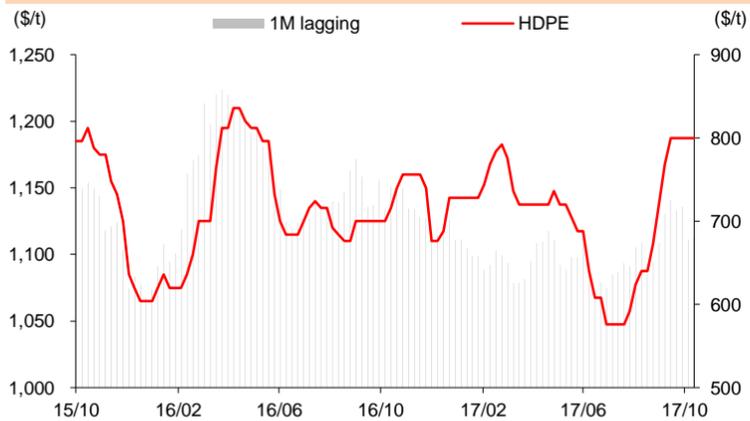
Naphtha/Ethylene/Propylene prices



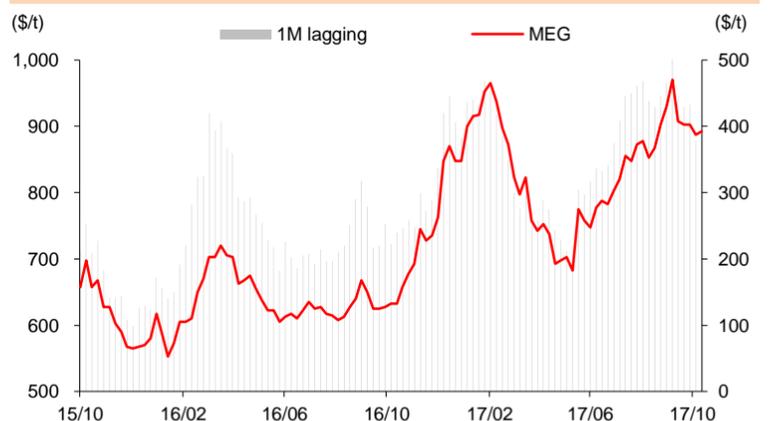
Butadiene price & 1M lagging naphtha spread



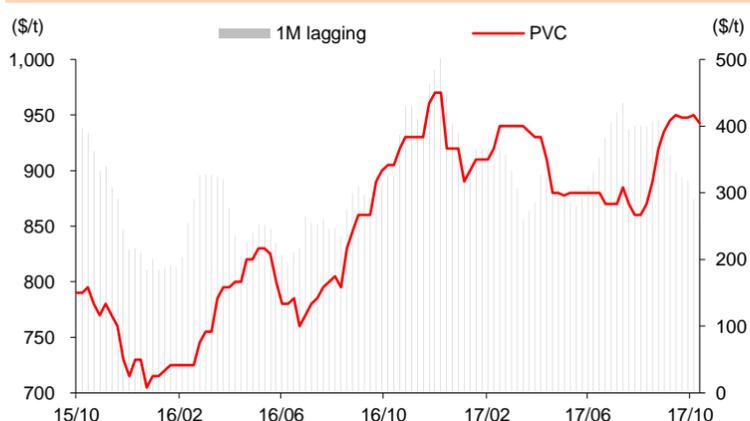
HDPE price & 1M lagging naphtha spread



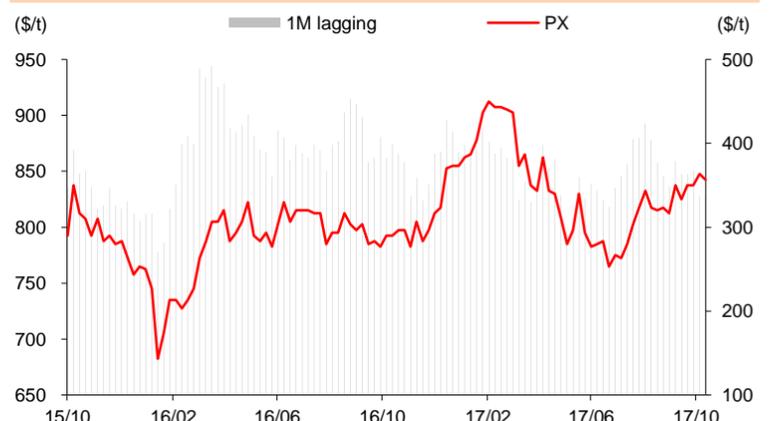
MEG price & 1M lagging naphtha spread



PVC price & 1M lagging naphtha spread



PX price & 1M lagging naphtha spread



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

News Comment

Headline (출처: Platts)

제목 [주간가격] 에틸렌, 플랫폼 모습 보이며 CFR SEA 1,160\$/mt로 보합

결론 공급 증가 기대와 다운스트림 가격 반등으로 보합세로 마감함

세부

- 1) 중국 19차 전당 대회로 중국 바이어들의 거래량이 줄어들었음
- 2) 대만에서는 11월 정기보수 앞두고 스팟 수요가 발생하긴 했음
- 3) 중동에서의 공급 증가로 단기적으로 엔드유저들은 약세장 기대함
- 4) SM, MEG, PE 등의 에틸렌 파생품 가격이 반등하며 오퍼 가격 지지됨
- 5) 공급 증가 기대와 다운스트림 가격 반등으로 보합세로 마감함

Issue 1 (출처: Platts)

제목 [주간가격] MEG, WoW 25\$/mt 상승해 CFR China 915\$/mt로 마감

결론 재고 감소로 인한 수요에 전당 대회로 공급이 차질을 빚으며 가격 상승

세부

- 1) 재고가 WoW 6만톤 감소해 주 후반에 수요가 증가하며 가격 상승함
- 2) 중국 19차 전당 대회로 항구 가동 시간이 짧아지며 재고가 감소함
- 3) 선박들이 스팟 수요에 맞게 카고 물량을 제때에 하역할 수 없었음
- 4) NEA 에틸렌 가격은 WoW 15\$/mt 하락해 MEG 마진이 -3\$/mt까지 오름
- 5) 재고 감소로 인한 수요에 전당 대회로 공급이 차질을 빚으며 가격 상승

Issue 3 (출처: Platts)

제목 [주간가격] SBR, 플랫폼 모습 보이며 CFR SEA 1,750\$/mt로 마감

결론 원재료인 BD 약세와 중국 SBR 공급 타이트 우려 불거지며 보합 시현

세부

- 1) CFR NEA는 1,700\$/mt, CFR SEA는 1,750\$/mt로 각각 보합으로 마감
- 2) CFR China BD가 수요 약세와 deepsea 물량으로 WoW 15\$/mt 하락함
- 3) Sinopec Qilu Petchem이 연 25만톤 규모 SBR 공장 섯다운 연장함
- 4) 이에 따라 SBR 공급 타이트 우려가 불거지며 가격 지지함
- 5) 원재료인 BD 약세와 중국 SBR 공급 타이트 우려 불거지며 보합 시현

Issue 5 (출처: Platts)

제목 [주간가격] PTA, WoW 2\$/mt 하락해 CFR China 646\$/mt로 마감

결론 중국 내 가격과 중국 외 가격 차이로 가격이 조정되는 구간임

세부

- 1) Shaoxing Huabin이 연 1.4백만톤 규모 PTA 공장을 11월에 재가동 예정
- 2) Shaoxing Huabin은 중국 메이저 PTA 공급자로 연 3.2백만톤 capa 보유
- 3) CFR China가 630\$/mt 수준이라 중국 엔드유저들의 수입 수요가 감소함
- 4) 트레이더, "중국 외 지역 스팟 수요도 소폭 감소하는 모습"
- 5) 중국 내 가격과 중국 외 가격 차이로 가격이 조정되는 구간임

WTI Comment (출처: 연합뉴스)

제목 중동 우려에 하루만에 반등...WTI 0.6%↑

상승 KRG에서 터키 송유관으로의 원유 공급이 급감했다는 소식

요인 기존 60만b/d 수준에서 21만b/d 수준으로 감소함

하락

요인

Issue 2 (출처: Platts)

제목 [주간가격] BD, 수요 약세로 9주 최저치인 CFR China 1,215\$/mt 기록

결론 Sinopec SBR 공장 섯다운 연장으로 수요 대비 공급 증가 기대로 하락

세부

- 1) 중국 내 BD 공급이 증가할 것이라는 기대가 약세에 일조함
- 2) Sinopec Qilu Petchem이 연 25만톤 규모 SBR 공장 섯다운 연장함
- 3) 게다가 해당 공장의 연 16.4만톤 규모의 BD 추출기도 가동중임
- 4) 한편, 타이어 회사인 Bridgestone이 스페인과 폴란드에 증설 계획 밝힘
- 5) Sinopec SBR 공장 섯다운 연장으로 수요 대비 공급 증가 기대로 하락

Issue 4 (출처: Platts)

제목 [주간가격] PX, WoW 2.34\$/mt 상승해 FOB Korea 834.67\$/mt로 마감

결론 다운스트림인 PTA 공장 가동 지연 기대로 PX 단기 센터 약화될 것

세부

- 1) GS칼텍스가 BP Singapore에게 12월물 매수 전, OTI가 12-1월 오퍼 철회
- 2) OTI는 이전에 12월물을 SKGC Singapore에 855\$/mt에 판매한 바 있음
- 3) 트레이더들은 Xianglu Petchem의 PTA 공장 단기간 재가동에 비관적임
- 4) Tongkun 그룹의 220만톤 규모 Zhejiang PTA 공장 가동도 소폭 지연됨
- 5) 다운스트림인 PTA 공장 가동 지연 기대로 PX 단기 센터 약화될 것

Issue 6 (출처: PVinsights)

제목 [주간가격] 태양광 제품, 매도세 물리며 전반적 약세 시현

결론 중국내 환경 검사와 정기보수 효과 소멸로 폴리실리콘 가격 하방 열림

세부

- 1) 폴리실리콘 가격이 다운스트림 가격 하락으로 지난주 상승분 반납함
- 2) Multi-crystalline wafer 가격 하락은 cell 시장 약세 심화로 동반 하락
- 3) Multi, mono crystalline cell은 다운스트림 약세에 일조하며 하락 마감
- 4) Multi, mono crystalline module은 중국과 해외 수요 감소로 약세 진입
- 5) 중국내 환경 검사와 정기보수 효과 소멸로 폴리실리콘 가격 하방 열림

Commodity Price Data

Daily Price		Today	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.	
F/X	USD/EUR	0.849	0.844	0.846	0.841	0.860	0.933	0.915	0.951	0.901	0.904	0.895	
	Change, %		0.6	0.3	0.9	(1.3)	(9.0)	(7.2)	(10.7)	(5.8)	(6.1)	(5.2)	
	USD/JPY	113.5	112.5	111.8	112.2	111.9	109.3	104.0	117.0	121.1	108.8	112.0	
	Change, %		0.9	1.5	1.2	1.4	3.8	9.2	(2.9)	(6.2)	4.4	1.4	
	USD/KRW	1,131.4	1,132.2	1,129.0	1,128.4	1,125.8	1,139.8	1,127.3	1,205.8	1,131.2	1,160.5	1,138.8	
	Change, %		(0.1)	0.2	0.3	0.5	(0.7)	0.4	(6.2)	0.0	(2.5)	(0.7)	
	<hr/>												
	Agriculture	Corn	344.5	349.0	352.8	350.0	391.0	357.8	351.0	352.0	376.8	358.5	362.7
Change, %			(1.3)	(2.3)	(1.6)	(11.9)	(3.7)	(1.9)	(2.1)	(8.6)	(3.9)	(5.0)	
Soybean		978.8	986.5	1,000.3	970.0	1,013.3	946.8	975.5	996.5	945.4	987.5	975.6	
Change, %			(0.8)	(2.1)	0.9	(3.4)	3.4	0.3	(1.8)	3.5	(0.9)	0.3	
Wheat		426.0	432.8	439.5	449.8	505.8	406.3	417.0	408.0	508.1	436.4	440.0	
Change, %			(1.6)	(3.1)	(5.3)	(15.8)	4.9	2.2	4.4	(16.2)	(2.4)	(3.2)	
Rice		12.1	11.9	12.2	12.8	12.0	9.9	10.3	9.4	11.1	10.3	10.9	
Change, %			1.2	(0.9)	(5.7)	0.6	22.6	16.9	29.1	9.2	16.7	11.0	
Oats		269.8	269.5	266.8	246.3	295.8	221.8	210.5	228.5	250.2	196.3	252.2	
Change, %			0.1	1.1	9.5	(8.8)	21.6	28.1	18.1	7.8	37.4	7.0	
MYR/mt		Palm Oil	2,724.0	2,714.0	2,716.0	2,786.0	2,621.0	2,639.0	2,755.0	3,218.0	2,190.3	2,653.8	2,838.6
		Change, %		0.4	0.3	(2.2)	3.9	3.2	(1.1)	(15.4)	24.4	2.6	(4.0)
	Cocoa	2,138.0	2,145.0	2,087.0	1,998.0	1,956.0	1,812.0	2,717.0	2,126.0	3,091.6	2,854.0	2,001.3	
	Change, %		(0.3)	2.4	7.0	9.3	18.0	(21.3)	0.6	(30.8)	(25.1)	6.8	
	Cotton	66.9	67.3	68.6	70.0	69.6	80.1	69.8	70.7	63.3	65.6	73.7	
	Change, %		(0.6)	(2.5)	(4.5)	(3.8)	(16.5)	(4.2)	(5.3)	5.7	2.0	(9.3)	
	Sugar	14.0	14.1	14.4	14.1	14.4	16.3	22.6	19.5	13.1	18.2	16.1	
	Change, %		(0.9)	(2.8)	(0.5)	(2.8)	(14.3)	(38.1)	(28.2)	6.5	(22.9)	(12.9)	
Coffee	125.3	126.9	126.5	136.6	135.0	131.7	155.9	137.1	132.6	136.1	135.1		
Change, %		(1.3)	(0.9)	(8.3)	(7.2)	(4.9)	(19.7)	(8.6)	(5.6)	(7.9)	(7.3)		
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Energy	WTI	51.5	51.3	51.5	50.4	46.8	50.3	50.4	53.7	48.8	43.4	49.6	
	Change, %		0.4	0.0	2.1	10.0	2.4	2.1	(4.2)	5.4	18.6	3.8	
	Brent	57.8	57.2	57.2	56.3	49.3	53.0	51.4	56.8	53.7	45.1	52.9	
	Change, %		0.9	1.0	2.6	17.1	9.0	12.4	1.6	7.6	28.1	9.1	
	Natural Gas	2.9	2.9	3.0	3.1	3.0	3.2	3.1	3.7	2.6	2.6	3.0	
	Change, %		1.5	(2.8)	(5.8)	(4.2)	(7.7)	(7.2)	(21.7)	10.9	14.2	(4.4)	
	Ethanol	1.4	1.4	1.4	1.5	1.5	1.6	1.6	1.6	1.5	1.5	1.5	
	Change, %		(0.4)	(3.1)	(9.9)	(9.9)	(14.4)	(12.9)	(13.7)	(8.2)	(8.5)	(9.3)	
	RBOB Gasoline	167.8	164.5	162.2	165.5	160.6	167.1	149.4	166.5	163.6	140.0	160.0	
	Change, %		2.0	3.4	1.4	4.5	0.5	12.3	0.8	2.6	19.9	4.9	
	Coal	97.2	96.8	95.8	98.0	86.7	84.2	91.3	88.4	59.0	65.5	85.9	
	Change, %		0.4	1.5	(0.8)	12.1	15.4	6.4	9.9	64.8	48.4	13.1	
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Metal	Gold	1,280.5	1,290.1	1,304.6	1,301.2	1,244.5	1,281.9	1,265.8	1,152.3	1,160.6	1,248.5	1,254.8	
	Change, %		(0.7)	(1.8)	(1.6)	2.9	(0.1)	1.2	11.1	10.3	2.6	2.1	
	Silver	17.0	17.3	17.4	17.3	16.3	18.0	17.5	15.9	15.7	17.1	17.2	
	Change, %		(1.3)	(2.2)	(1.8)	4.3	(5.5)	(2.8)	7.0	8.3	(0.4)	(0.8)	
	Copper	6,952.0	6,967.0	6,882.0	6,526.0	5,958.5	5,623.0	4,652.0	5,535.5	5,503.1	4,872.0	6,039.4	
	Change, %		(0.2)	1.0	6.5	16.7	23.6	49.4	25.6	26.3	42.7	15.1	
	Nickel	761.1	756.4	756.2	729.3	610.4	612.8	675.2	682.0	759.5	646.4	661.4	
	Change, %		0.6	0.6	4.4	24.7	24.2	12.7	11.6	0.2	17.8	15.1	
	Zinc	3,099.0	3,114.0	3,235.0	3,132.0	2,727.0	2,632.0	2,287.0	2,576.0	1,941.9	2,097.5	2,815.1	
	Change, %		(0.5)	(4.2)	(1.1)	13.6	17.7	35.5	20.3	59.6	47.8	10.1	
	Lead	2,461.5	2,465.0	2,518.8	2,451.0	2,196.5	2,154.8	2,007.0	2,003.5	1,791.2	1,868.3	2,276.8	
	Change, %		(0.1)	(2.3)	0.4	12.1	14.2	22.6	22.9	37.4	31.8	8.1	
	Aluminum	16,185.0	15,995.0	16,365.0	16,725.0	14,380.0	14,115.0	12,875.0	12,765.0	12,184.0	12,373.5	14,447.3	
	Change, %		1.2	(1.1)	(3.2)	12.6	14.7	25.7	26.8	32.8	30.8	12.0	
	Cobalt	61,028.0	60,282.0	59,538.0	59,339.0	58,600.0	54,750.0	28,250.0	32,734.0	28,444.4	25,480.1	53,395.4	
	Change, %		1.2	2.5	2.8	4.1	11.5	116.0	86.4	114.6	139.5	14.3	
	HR Coil	595.0	595.0	595.0	620.0	617.0	650.0	490.0	633.0	461.5	519.3	619.3	
	Change, %		0.0	0.0	(4.0)	(3.6)	(8.5)	21.4	(6.0)	28.9	14.6	(3.9)	
Scrap	330.0	330.0	330.0	347.0	352.0	360.0	225.0	302.0	252.9	275.7	344.3		
Change, %		0.0	0.0	(4.9)	(6.3)	(8.3)	46.7	9.3	30.5	19.7	(4.2)		

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

Refining Price Data

Daily Price		10/20	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	WTI	51.5	51.3	51.5	50.7	45.8	49.6	50.9	53.7	48.8	43.4	49.5
	<i>Change, %</i>		<i>0.4</i>	<i>0.0</i>	<i>1.6</i>	<i>12.5</i>	<i>3.7</i>	<i>1.2</i>	<i>(4.2)</i>	<i>5.5</i>	<i>18.7</i>	<i>4.0</i>
	Dubai	55.1	55.5	55.4	54.7	48.2	51.4	48.8	53.8	50.8	41.3	51.3
	<i>Change, %</i>		<i>(0.7)</i>	<i>(0.5)</i>	<i>0.9</i>	<i>14.4</i>	<i>7.3</i>	<i>12.9</i>	<i>2.4</i>	<i>8.5</i>	<i>33.5</i>	<i>7.4</i>
Crude Oil Product	Gasoline(휘발유)	69.9	70.3	69.9	69.8	63.8	68.4	63.9	69.8	69.5	56.3	66.3
	<i>Change, %</i>		<i>(0.6)</i>	<i>0.0</i>	<i>0.1</i>	<i>9.6</i>	<i>2.2</i>	<i>9.4</i>	<i>0.1</i>	<i>0.5</i>	<i>24.2</i>	<i>5.3</i>
	Kerosene(등유)	67.9	67.8	67.9	69.3	60.7	63.3	60.7	66.4	64.7	52.9	63.1
	<i>Change, %</i>		<i>0.0</i>	<i>0.0</i>	<i>(2.0)</i>	<i>11.7</i>	<i>7.1</i>	<i>11.7</i>	<i>2.1</i>	<i>4.8</i>	<i>28.3</i>	<i>7.5</i>
	Diesel(경유)	67.8	68.2	68.6	68.8	62.0	64.1	61.5	65.5	64.8	52.1	63.7
	<i>Change, %</i>		<i>(0.7)</i>	<i>(1.1)</i>	<i>(1.5)</i>	<i>9.4</i>	<i>5.7</i>	<i>10.3</i>	<i>3.4</i>	<i>4.6</i>	<i>30.0</i>	<i>6.4</i>
	Bunker-C	51.7	51.8	51.7	51.4	46.5	47.5	44.4	52.1	45.3	35.5	48.1
	<i>Change, %</i>		<i>(0.2)</i>	<i>0.1</i>	<i>0.6</i>	<i>11.3</i>	<i>9.0</i>	<i>16.3</i>	<i>(0.7)</i>	<i>14.2</i>	<i>45.5</i>	<i>7.5</i>
	Naphtha	57.3	57.4	57.1	55.9	47.0	51.4	49.0	53.5	52.6	42.6	51.3
	<i>Change, %</i>		<i>(0.2)</i>	<i>0.3</i>	<i>2.5</i>	<i>21.9</i>	<i>11.3</i>	<i>16.8</i>	<i>7.1</i>	<i>8.8</i>	<i>34.4</i>	<i>11.7</i>
Dubai Spread	Gasoline(휘발유)	14.8	14.8	14.5	15.2	15.6	17.0	15.1	16.0	18.7	14.9	15.0
	<i>Change</i>		<i>(0.1)</i>	<i>0.3</i>	<i>(0.4)</i>	<i>(0.9)</i>	<i>(2.3)</i>	<i>(0.3)</i>	<i>(1.3)</i>	<i>(4.0)</i>	<i>(0.2)</i>	<i>(0.3)</i>
	Kerosene(등유)	12.7	12.3	12.5	14.6	12.6	12.0	11.9	12.6	14.0	11.6	11.8
	<i>Change</i>		<i>0.4</i>	<i>0.3</i>	<i>(1.9)</i>	<i>0.2</i>	<i>0.7</i>	<i>0.8</i>	<i>0.1</i>	<i>(1.2)</i>	<i>1.1</i>	<i>0.9</i>
	Diesel(경유)	12.6	12.7	13.2	14.2	13.8	12.7	12.6	11.7	14.0	10.8	12.4
	<i>Change</i>		<i>(0.1)</i>	<i>(0.5)</i>	<i>(1.5)</i>	<i>(1.2)</i>	<i>(0.1)</i>	<i>0.0</i>	<i>1.0</i>	<i>(1.3)</i>	<i>1.8</i>	<i>0.3</i>
	Bunker-C	(3.4)	(3.7)	(3.8)	(3.3)	(1.7)	(3.9)	(4.4)	(1.8)	(5.5)	(5.8)	(3.2)
	<i>Change</i>		<i>0.3</i>	<i>0.3</i>	<i>(0.2)</i>	<i>(1.7)</i>	<i>0.5</i>	<i>1.0</i>	<i>(1.7)</i>	<i>2.1</i>	<i>2.4</i>	<i>(0.2)</i>
	Naphtha	2.1	1.8	1.7	1.2	(1.2)	0.1	0.2	(0.4)	1.8	1.3	(0.1)
	<i>Change</i>		<i>0.3</i>	<i>0.4</i>	<i>0.9</i>	<i>3.3</i>	<i>2.1</i>	<i>1.9</i>	<i>2.5</i>	<i>0.3</i>	<i>0.8</i>	<i>2.2</i>
Refining Margin	Simple(단순)	3.2	3.1	3.1	3.9	4.4	3.2	2.8	3.8	3.3	1.9	3.2
	<i>Change</i>		<i>0.2</i>	<i>0.1</i>	<i>(0.7)</i>	<i>(1.2)</i>	<i>0.0</i>	<i>0.4</i>	<i>(0.6)</i>	<i>(0.0)</i>	<i>1.3</i>	<i>0.0</i>
	Complex(복합)	8.1	8.0	8.1	8.8	9.0	8.5	7.9	8.3	9.3	7.0	8.0
	<i>Change</i>		<i>0.1</i>	<i>(0.0)</i>	<i>(0.7)</i>	<i>(0.9)</i>	<i>(0.4)</i>	<i>0.2</i>	<i>(0.2)</i>	<i>(1.2)</i>	<i>1.1</i>	<i>0.1</i>
	Complex(lagging)	9.2	9.4	11.3	13.5	11.5	9.8	13.6	18.0	7.3	8.5	8.3
	<i>Change</i>		<i>(0.2)</i>	<i>(2.2)</i>	<i>(4.4)</i>	<i>(2.4)</i>	<i>(0.6)</i>	<i>(4.4)</i>	<i>(8.8)</i>	<i>1.9</i>	<i>0.7</i>	<i>0.8</i>

자료 : Petronet, SK증권

참고 1) Crude Oil 가격은 현물(spot) 기준으로 선물(future) 가격과 다를 수 있음

참고 2) Gasoline은 95RON, 경유는 L/P 0.5%, Bunker-C는 380cst/4.0% 기준임

Petrochemical Price Data

Daily Price			10/20	10/19	10/17	10/16	10/13	10/12	10/11	10/10	10/09	10/06
Spot Price	Naphtha	CFR Japan	529.4	529.5	533.5	534.4	528.6	526.0	521.9	515.5	509.0	522.3
	Ethylene	CFR SE Asia	1,160.0	1,160.0	1,160.0	1,160.0	1,160.0	1,160.0	1,160.0	1,160.0	1,160.0	1,160.0
	Propylene	FOB Korea	948.0	950.0	940.0	940.0	940.0	939.0	940.0	940.0	940.0	947.0
	Butadiene	FOB Korea	1,165.0	1,180.0	1,180.0	1,180.0	1,180.0	1,190.0	1,220.0	1,220.0	1,225.0	1,245.0
	HDPE	CFR FE Asia	1,220.0	1,215.0	1,210.0	1,200.0	1,190.0	1,180.0	1,180.0	1,180.0	1,170.0	1,165.0
	LDPE	CFR FE Asia	1,250.0	1,250.0	1,245.0	1,240.0	1,235.0	1,230.0	1,220.0	1,220.0	1,225.0	1,230.0
	LLDPE	CFR FE Asia	1,185.0	1,185.0	1,180.0	1,180.0	1,170.0	1,160.0	1,160.0	1,160.0	1,160.0	1,160.0
	MEG	CFR China	915.0	906.0	900.0	905.0	890.0	875.0	855.0	855.0	855.0	870.0
	PP	CFR FE Asia	1,130.0	1,120.0	1,110.0	1,105.0	1,105.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0
	PX	CFR China	834.7	833.7	838.2	839.5	832.3	827.0	826.3	826.3	828.0	830.0
	PTA	CFR China	646.0	646.0	646.0	648.0	648.0	649.0	649.0	650.0	653.0	650.0
	Benzene	FOB Korea	788.5	786.5	783.5	789.5	780.0	773.0	762.0	762.0	763.0	769.0
	Toluene	FOB Korea	654.5	649.5	654.5	656.5	652.0	653.0	653.0	653.0	652.0	654.0
	Xylene	FOB Korea	657.0	658.0	659.0	658.5	656.0	657.0	657.0	657.0	657.0	657.0
	SM	FOB Korea	1,188.0	1,188.0	1,192.0	1,194.0	1,191.0	1,178.0	1,148.0	1,148.0	1,147.0	1,177.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Spot Price	Naphtha	CFR Japan	527.0	509.5	506.5	414.0	409.5	446.0	484.5	493.0	399.5	472.1
	<i>Change, %</i>			3.4	4.0	27.3	28.7	18.2	8.8	6.9	31.9	11.6
	Ethylene	CFR SE Asia	1,207.5	1,232.5	1,250.0	892.5	855.0	1,030.0	990.0	1,103.7	1,040.9	1,064.1
	<i>Change, %</i>			(2.0)	(3.4)	35.3	41.2	17.2	22.0	9.4	16.0	13.5
	Propylene	CFR SE Asia	810.0	822.5	860.0	755.0	737.5	765.0	815.0	770.0	705.7	874.8
	<i>Change, %</i>			(1.5)	(5.8)	7.3	9.8	5.9	(0.6)	5.2	14.8	(7.4)
	Butadiene	CFR SE Asia	1,175.0	1,275.0	1,545.0	975.0	875.0	1,575.0	2,100.0	877.5	1,116.8	1,589.2
	<i>Change, %</i>			(7.8)	(23.9)	20.5	34.3	(25.4)	(44.0)	33.9	5.2	(26.1)
	Benzene	CFR SE Asia	785.0	790.0	795.0	732.5	782.5	637.5	822.5	690.0	646.7	832.1
	<i>Change, %</i>			(0.6)	(1.3)	7.2	0.3	23.1	(4.6)	13.8	21.4	(5.7)
	Toluene	CFR SE Asia	700.0	705.0	700.0	630.0	645.0	660.0	690.0	700.8	630.5	683.6
	<i>Change, %</i>			(0.7)	0.0	11.1	8.5	6.1	1.4	(0.1)	11.0	2.4
	Xylene	CFR SE Asia	652.5	650.0	657.5	615.0	620.0	642.5	675.0	699.3	627.7	664.5
	<i>Change, %</i>			0.4	(0.8)	6.1	5.2	1.6	(3.3)	(6.7)	3.9	(1.8)

Spread	Ethylene	-Naphtha	680.5	723.0	743.5	478.5	445.5	584.0	505.5	610.6	641.4	592.0
	<i>Change, %</i>			(5.9)	(8.5)	42.2	52.7	16.5	34.6	11.4	6.1	14.9
	Propylene	-Naphtha	283.0	313.0	353.5	341.0	328.0	319.0	330.5	277.0	306.2	402.7
	<i>Change, %</i>			(9.6)	(19.9)	(17.0)	(13.7)	(11.3)	(14.4)	2.2	(7.6)	(29.7)
	Butadiene	-Naphtha	648.0	765.5	1,038.5	561.0	465.5	1,129.0	1,615.5	384.5	717.3	1,117.1
	<i>Change, %</i>			(15.3)	(37.6)	15.5	39.2	(42.6)	(59.9)	68.5	(9.7)	(42.0)
	Benzene	-Naphtha	258.0	280.5	288.5	318.5	373.0	191.5	338.0	197.0	247.2	360.0
	<i>Change, %</i>			(8.0)	(10.6)	(19.0)	(30.8)	34.7	(23.7)	31.0	4.4	(28.3)
	Toluene	-Naphtha	173.0	195.5	193.5	216.0	235.5	214.0	205.5	207.8	231.0	211.5
	<i>Change, %</i>			(11.5)	(10.6)	(19.9)	(26.5)	(19.2)	(15.8)	(16.7)	(25.1)	(18.2)
	Xylene	-Naphtha	125.5	140.5	151.0	201.0	210.5	196.5	190.5	206.3	228.2	192.4
	<i>Change, %</i>			(10.7)	(16.9)	(37.6)	(40.4)	(36.1)	(34.1)	(39.2)	(45.0)	(34.8)

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	1,187.5	1,187.5	1,187.5	1,047.5	1,067.5	1,135.0	1,142.5	1,230.1	1,134.6	1,128.5
	Change, %			0.0	0.0	13.4	11.2	4.6	3.9	(3.5)	4.7	5.2
	MEG	CFR SE Asia	892.5	887.5	907.5	855.0	787.5	632.5	847.5	780.8	660.8	836.4
	Change, %			0.6	(1.7)	4.4	13.3	41.1	5.3	14.3	35.1	6.7
	PVC	CFR SE Asia	942.5	950.0	950.0	885.0	880.0	905.0	920.0	820.8	823.4	906.3
	Change, %			(0.8)	(0.8)	6.5	7.1	4.1	2.4	14.8	14.5	4.0
	PP	CFR SE Asia	1,167.5	1,167.5	1,167.5	1,047.5	1,057.5	1,005.0	1,032.5	1,109.8	978.4	1,085.5
	Change, %			0.0	0.0	11.5	10.4	16.2	13.1	5.2	19.3	7.6
	2-EH	CFR Korea	1,000.0	1,000.0	990.0	932.5	925.0	780.0	865.0	930.1	772.4	957.4
	Change, %			0.0	1.0	7.2	8.1	28.2	15.6	7.5	29.5	4.4
	ABS	CFR SE Asia	1,970.0	2,000.0	2,070.0	1,800.0	1,710.0	1,420.0	1,635.0	1,431.1	1,347.1	1,811.1
	Change, %			(1.5)	(4.8)	9.4	15.2	38.7	20.5	37.7	46.2	8.8
	SBR	CFR SE Asia	1,750.0	1,750.0	1,830.0	1,450.0	1,450.0	1,850.0	2,000.0	1,332.1	1,483.0	2,062.5
	Change, %			0.0	(4.4)	20.7	20.7	(5.4)	(12.5)	31.4	18.0	(15.2)
	SM	CFR SE Asia	1,205.0	1,240.0	1,357.5	1,202.5	1,165.0	1,020.0	1,205.0	1,100.7	1,064.6	1,245.3
	Change, %			(2.8)	(11.2)	0.2	3.4	18.1	0.0	9.5	13.2	(3.2)
	Caustic	FOB NEA	503.0	501.0	480.0	457.5	437.5	350.0	422.5	296.8	316.6	450.1
	Change, %			0.4	4.8	9.9	15.0	43.7	19.1	69.5	58.9	11.7
	PX	CFR SE Asia	842.5	847.5	825.0	785.0	787.5	792.5	855.0	842.9	790.4	833.9
	Change, %			(0.6)	2.1	7.3	7.0	6.3	(1.5)	(0.0)	6.6	1.0
PO	CFR China	1,685.0	1,657.5	1,655.0	1,530.0	1,395.0	2,090.0	1,562.5	1,683.4	1,396.8	1,552.6	
Change, %			1.7	1.8	10.1	20.8	(19.4)	7.8	0.1	20.6	8.5	
Caprolactam	CFR SE Asia	1,970.0	1,920.0	1,780.0	1,610.0	1,600.0	1,435.0	1,850.0	1,581.5	1,344.9	1,896.8	
Change, %			2.6	10.7	22.4	23.1	37.3	6.5	24.6	46.5	3.9	
PTA	CFR SE Asia	667.5	672.5	672.5	665.0	635.0	622.5	642.5	648.0	613.7	659.1	
Change, %			(0.7)	(0.7)	0.4	5.1	7.2	3.9	3.0	8.8	1.3	
Spread	HDPE		660.5	678.0	681.0	633.5	658.0	689.0	658.0	737.1	735.1	656.4
	Change, %			(2.6)	(3.0)	4.3	0.4	(4.1)	0.4	(10.4)	(10.1)	0.6
	MEG		365.5	378.0	401.0	441.0	378.0	186.5	363.0	287.8	261.3	364.3
	Change, %			(3.3)	(8.9)	(17.1)	(3.3)	96.0	0.7	27.0	39.9	0.3
	PVC		415.5	440.5	443.5	471.0	470.5	459.0	435.5	327.8	423.9	434.2
	Change, %			(5.7)	(6.3)	(11.8)	(11.7)	(9.5)	(4.6)	26.8	(2.0)	(4.3)
	PP		640.5	658.0	661.0	633.5	648.0	559.0	548.0	616.8	578.9	613.4
	Change, %			(2.7)	(3.1)	1.1	(1.2)	14.6	16.9	3.8	10.6	4.4
	2-EH		473.0	490.5	483.5	518.5	515.5	334.0	380.5	437.0	372.9	485.3
	Change, %			(3.6)	(2.2)	(8.8)	(8.2)	41.6	24.3	8.2	26.9	(2.5)
	ABS		1,443.0	1,490.5	1,563.5	1,386.0	1,300.5	974.0	1,150.5	938.1	947.6	1,339.0
	Change, %			(3.2)	(7.7)	4.1	11.0	48.2	25.4	53.8	52.3	7.8
	SBR	BD spread	575.0	475.0	285.0	475.0	575.0	275.0	(100.0)	454.7	366.2	473.3
	Change, %			21.1	101.8	21.1	0.0	109.1	(675.0)	26.5	57.0	21.5
	SM		678.0	730.5	851.0	788.5	755.5	574.0	720.5	607.7	665.1	773.2
	Change, %			(7.2)	(20.3)	(14.0)	(10.3)	18.1	(5.9)	11.6	1.9	(12.3)
	Caustic											
	Change, %											
	PX		315.5	338.0	318.5	371.0	378.0	346.5	370.5	349.9	390.9	361.8
	Change, %			(6.7)	(0.9)	(15.0)	(16.5)	(8.9)	(14.8)	(9.8)	(19.3)	(12.8)
PO	propylene spread	875.0	835.0	795.0	775.0	657.5	1,325.0	747.5	913.4	691.1	677.8	
Change, %			4.8	10.1	12.9	33.1	(34.0)	17.1	(4.2)	26.6	29.1	
Caprolactam	benzene spread	1,185.0	1,130.0	985.0	877.5	817.5	797.5	1,027.5	891.6	698.2	1,064.6	
Change, %			4.9	20.3	35.0	45.0	48.6	15.3	32.9	69.7	11.3	
PTA	px spread	77.8	79.3	95.0	115.5	83.8	67.8	44.0	58.0	60.4	75.4	
Change, %			(1.9)	(18.2)	(32.7)	(7.2)	14.8	76.7	34.0	28.7	3.1	

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

Global peers

	Currency	10/20	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA		
											17E	18E	17E	18E	17E	18E	
Petrochemical																	
DowDuPont	USD	71.2	0.4	(0.3)	1.1	7.2	14.9	32.3	24.4	166,275	21.9	17.7	2.5	2.9	11.4	9.7	
Eastman	USD	88.8	0.0	0.2	3.2	3.7	11.5	32.8	18.1	12,868	12.0	10.9	2.6	2.3	9.1	8.5	
BASF	EUR	90.4	0.4	1.7	2.6	10.7	1.9	13.8	2.4	97,837	15.1	15.0	2.4	2.3	8.3	8.1	
Akzo Nobel	EUR	77.6	(0.6)	(1.6)	(1.0)	(0.1)	(1.0)	29.9	30.7	23,046	18.7	17.9	3.2	3.1	10.1	9.8	
Arkema	EUR	106.1	1.9	1.5	6.3	6.2	16.4	25.1	14.1	9,476	15.5	14.3	2.0	1.8	6.9	6.6	
Lanxess	EUR	68.1	2.4	1.1	3.4	0.9	8.7	15.2	9.2	7,340	17.7	15.4	2.3	2.2	7.7	8.1	
Sumitomo Chemical	JPY	705	1.7	0.3	(0.6)	4.0	19.7	42.4	26.8	10,293	10.3	9.9	1.3	1.2	7.6	7.3	
Mitsubishi Chemical	JPY	1,124	1.2	0.1	5.0	12.0	34.5	71.6	48.3	14,931	9.3	9.3	1.3	1.2	6.4	6.2	
Shin-Etsu Chemical	JPY	10,965	0.8	7.7	8.6	6.5	18.0	47.6	20.9	41,785	22.0	19.6	2.0	1.9	9.6	8.4	
Asahi Kasei	JPY	1,337	(1.5)	(1.4)	(3.8)	2.8	29.8	55.4	31.1	16,538	14.7	14.3	1.5	1.4	7.4	7.2	
JSR	JPY	2,145	1.3	4.3	(0.6)	10.3	14.6	27.0	16.4	4,278	15.8	15.0	1.2	1.2	8.3	7.8	
Nitto Denko	JPY	9,729	0.3	2.5	(2.0)	(2.0)	19.6	34.9	8.5	14,909	18.7	17.2	2.3	2.1	8.3	7.7	
SABIC	SAR	98.4	0.0	(0.4)	(2.4)	(1.5)	1.3	17.3	7.5	78,680	14.7	14.0	1.8	1.7	7.4	7.2	
Yansab	SAR	54.8	0.0	(4.6)	(6.6)	1.0	(6.3)	16.8	0.6	8,221	13.9	12.8	2.3	2.2	8.6	8.2	
Formosa Plastics	TWD	92.8	0.0	(0.7)	(1.4)	1.2	2.0	9.2	4.0	19,517	13.6	14.2	1.8	1.7	19.5	19.3	
Formosa Fiber	TWD	94.0	0.4	0.1	0.0	2.4	2.2	1.1	(2.4)	18,202	12.4	12.8	1.7	1.6	10.4	10.5	
Nan Ya Plastics	TWD	75.0	0.4	1.1	(2.0)	0.0	5.3	15.4	5.3	19,652	14.5	15.0	1.7	1.7	15.4	15.1	
Sinopec Shanghai	CNY	6.21	(0.2)	(1.1)	(2.2)	(6.2)	(3.7)	4.0	(3.6)	9,045	11.9	11.5	2.4	2.1	6.7	6.6	
Sinopec Yizheng(Fiber)	CNY	3.09	0.7	(1.9)	(3.4)	(1.6)	(14.9)	(22.4)	(24.6)	5,984	#N/A	#N/A	48.3	6.8	7.5	33.8	17.2
Reliance	INR	910	0.0	3.8	7.4	19.0	32.9	67.3	68.1	90,959	17.2	14.0	1.9	1.7	11.7	9.8	
Industries Qatar	QAR	94.0	0.0	(4.0)	5.6	(6.0)	(13.4)	(12.3)	(20.0)	15,045	15.4	13.5	1.7	1.6	52.8	48.4	
PTT Chemical	THB	79.5	0.3	(2.2)	0.0	13.6	8.5	32.0	26.2	10,761	10.4	10.5	1.4	1.3	5.6	5.4	
Petronas	MYR	7.5	0.0	2.7	3.4	8.5	0.3	8.5	8.0	14,277	16.3	16.4	2.1	2.0	9.0	8.9	
LG화학	KRW	384,000	(0.3)	2.4	(1.2)	17.8	37.6	53.0	47.1	23,931	14.4	13.7	1.9	1.7	6.4	5.9	
롯데케미칼	KRW	399,000	1.4	1.0	4.7	10.2	15.7	30.0	8.1	12,073	6.0	6.0	1.2	1.0	4.0	3.6	
한화케미칼	KRW	33,150	1.4	(0.6)	(11.4)	(1.9)	31.5	15.9	34.2	4,823	5.4	5.9	0.9	0.8	7.2	7.0	
금호석유	KRW	68,000	(0.6)	1.3	(10.4)	(9.1)	(9.2)	(11.8)	(17.1)	1,829	12.9	11.8	1.3	1.2	9.3	8.3	
SKC	KRW	38,950	(0.5)	(3.5)	(8.5)	3.7	36.0	34.5	18.0	1,291	10.4	9.4	1.0	0.9	9.3	7.8	
국도화학	KRW	56,700	(0.2)	1.6	5.6	3.1	17.6	2.2	3.3	291	0.0	0.0	0.0	0.0	0.0	0.0	
효성	KRW	8,000	2.6	11.9	17.6	29.9	1.0	38.2	17.6	4,480	8.8	7.5	1.3	1.1	7.0	6.2	
Average			0.5	0.8	0.6	4.9	11.1	24.2	14.4								
Refinery																	
Valero	USD	77.5	(0.1)	(0.7)	6.0	14.8	21.0	41.6	13.5	34,247	16.2	12.9	1.7	1.7	7.0	6.1	
Conoco Phillips	USD	50.3	1.1	1.7	4.0	16.2	4.8	21.1	0.2	61,152	174.5	38.1	2.0	2.0	9.7	7.5	
Formosa Petrochemical	TWD	105.0	(0.9)	(0.5)	(0.5)	0.0	(0.9)	0.0	(6.3)	33,046	14.9	18.0	3.1	3.1	9.4	10.9	
Andeavor	USD	106.6	1.5	1.1	2.8	9.2	39.5	31.8	21.9	16,719	16.1	13.6	1.6	1.6	9.0	7.2	
Marathon Petroleum	USD	57.5	0.7	2.0	5.6	3.8	18.4	33.5	14.2	29,105	17.5	15.0	2.2	2.1	8.5	7.6	
Devon Energy	USD	34.9	(0.1)	(2.6)	0.1	9.2	(12.0)	(18.7)	(23.5)	18,356	20.6	16.9	2.6	2.2	8.8	7.9	
Hollyfrontier	USD	36.7	1.6	0.9	8.3	33.0	36.7	57.2	12.1	6,508	21.5	14.9	1.4	1.4	8.9	7.1	
Phillips 66	USD	90.8	0.5	(3.8)	1.9	10.2	19.9	13.9	5.1	46,445	20.5	15.1	2.1	2.1	10.2	8.6	
Murphy Oil	USD	25.7	(0.1)	0.4	(1.4)	(0.4)	(3.9)	(12.3)	(17.3)	4,440	#N/A	#N/A	151.4	1.0	1.0	4.8	4.5
JX Holdings	JPY	574.0	0.2	2.7	(0.3)	15.5	19.7	38.2	16.0	17,348	9.0	8.4	0.8	0.8	7.9	7.4	
Idemitsu	JPY	3,105.0	0.8	(1.1)	5.8	16.1	(9.3)	30.7	0.0	5,696	7.0	7.0	0.8	0.8	8.5	8.2	
Nesteoil	EUR	41.9	3.6	6.9	15.4	10.7	10.2	4.3	14.7	0	15.4	15.4	2.6	2.4	8.8	9.4	
Ashland	USD	66.7	0.8	0.4	4.2	0.2	8.7	21.4	24.8	4,164	15.5	20.2	1.3	1.2	7.8	9.7	
Fuchs Petrolub	EUR	49.9	(0.3)	(0.9)	1.0	0.4	7.7	22.3	25.2	7,650	25.6	24.2	5.1	4.6	14.8	14.0	
SK이노베이션	KRW	206,000	(0.7)	(1.7)	7.9	19.8	27.6	28.0	40.6	16,816	8.3	8.0	1.0	1.0	4.9	4.5	
S-Oil	KRW	132,000	0.0	0.0	10.0	22.2	35.9	57.7	55.8	13,119	13.3	10.2	2.3	2.1	10.2	7.5	
GS	KRW	68,300	0.0	1.6	3.3	(6.9)	17.8	29.1	26.2	5,602	6.5	6.2	0.8	0.7	7.2	6.9	
Average			0.5	0.4	4.4	10.2	14.2	23.5	13.1								

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임

* 국내업체의 multiple은 Dataguidepro 기준임

Global peers

	Currency	10/20	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA	
											17E	18E	17E	18E	17E	18E
E&P/Shale																
Exxon Mobil	USD	83	0.4	0.8	3.2	2.8	2.6	(4.7)	(7.9)	352,146	23.8	21.1	2.0	1.9	10.1	9.1
BP	GBP	492	(0.1)	0.2	7.1	9.3	10.1	0.4	(3.5)	128,531	22.5	17.2	1.3	1.3	6.4	5.8
Shell	EUR	2,314	0.1	1.2	7.4	10.5	15.6	11.4	3.2	254,982	17.3	15.5	1.3	1.3	6.8	6.2
Chevron	USD	119	0.4	(0.4)	2.0	13.4	13.1	16.5	0.8	224,823	29.0	23.9	1.5	1.5	8.5	7.5
Total	EUR	46	0.3	0.4	0.6	6.0	(2.4)	3.4	(5.7)	136,825	13.3	12.7	1.2	1.2	6.3	5.6
Sinopec	CNY	6	(1.0)	0.9	0.5	(5.3)	1.9	17.4	8.3	103,400	13.5	12.7	1.0	0.9	4.4	4.3
Petrochina	CNY	8	(1.5)	2.1	2.6	0.5	6.0	11.0	2.5	213,071	54.7	34.1	1.2	1.2	6.8	6.6
CNOOC	CNY	11	0.3	(3.8)	(2.7)	(0.1)	(6.9)	(10.8)	(14.0)	56,995	12.9	11.4	1.0	0.9	4.0	3.8
Gazprom	RUB	127	1.0	(0.1)	3.6	5.1	3.9	(6.0)	(18.0)	52,154	4.5	4.0	0.3	0.2	3.8	3.4
Rosneft	RUB	322	0.1	0.6	2.2	1.2	1.6	(6.1)	(20.1)	59,301	10.1	7.3	0.9	0.8	5.2	4.4
Anadarko	USD	49	0.7	2.6	9.4	11.8	(16.9)	(23.1)	(29.7)	27,463	#N/A	#N/A	#N/A	#N/A	1.9	1.8
Petrobras	BRL	16	0.4	0.9	2.2	23.8	16.9	(8.6)	9.1	67,183	12.9	9.8	0.7	0.7	5.6	5.1
Lukoil	USD	2,994	0.3	(0.8)	0.3	3.4	4.8	(1.4)	(13.2)	44,331	6.4	5.9	0.7	0.6	N/A	N/A
Kinder	USD	18	(1.2)	(1.8)	(6.8)	(10.4)	(11.1)	(13.1)	(11.1)	47,497	28.7	26.7	1.1	1.2	11.3	10.9
Statoil	NOK	163	1.6	1.7	5.7	15.0	15.0	20.5	3.0	67,506	16.7	18.4	1.7	1.7	3.6	3.5
BHP	AUD	27	0.5	1.2	1.9	6.8	12.8	16.8	6.5	105,581	15.3	17.8	1.8	1.8	6.1	6.4
PTT E&P	THB	86	(4.4)	(6.8)	(5.2)	2.1	(9.7)	0.9	(10.4)	10,315	12.4	12.0	0.8	0.8	3.1	2.9
Petronas gas	MYR	18	(0.6)	(3.9)	(2.6)	(4.3)	(2.5)	(17.9)	(16.1)	8,374	20.0	18.7	2.8	2.7	11.4	10.6
Chesapeake	USD	4	(1.0)	(2.1)	(9.3)	(21.5)	(31.7)	(45.0)	(45.9)	3,452	5.7	5.0	#N/A	#N/A	19.7	7.4
Noble Energy	USD	28	1.4	2.2	3.4	(3.4)	(18.8)	(22.7)	(27.1)	13,506	#N/A	#N/A	#N/A	#N/A	1.4	1.4
Average		0	(0.1)	(0.2)	1.3	3.3	0.2	(3.1)	(9.5)							
PV																
WACKER	EUR	121.5	0.8	1.5	7.3	18.8	28.1	45.9	22.9	7,467	31.6	23.6	2.0	2.0	7.4	7.0
GCL-Poly	HKD	1.2	3.4	1.7	13.0	31.2	28.4	14.0	31.2	2,906	9.1	8.7	0.8	0.8	6.5	6.0
SunPower	USD	6.7	(0.1)	(4.0)	(15.0)	(39.4)	(0.7)	(26.7)	1.1	932	#N/A	#N/A	1,670.0	1.2	1.2	35.2
Canadian Solar	USD	15.9	1.2	(2.0)	(0.5)	(6.3)	18.0	1.5	30.9	925	9.3	5.9	1.0	0.9	9.5	7.9
JA Solar	USD	7.4	(1.9)	0.3	(10.2)	11.9	12.7	13.6	54.4	350	10.1	14.7	1.7	1.7	3.7	3.3
Yingli	USD	2.2	(0.9)	(3.4)	(9.3)	(9.7)	(18.2)	(44.3)	(13.8)	41	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
First Solar	USD	47.7	0.2	0.3	(2.3)	3.2	78.5	13.4	48.7	4,984	21.4	36.0	0.9	0.9	8.2	9.1
한화큐셀	USD	7.8	2.6	(2.7)	(4.9)	(14.2)	10.6	(34.7)	(4.4)	649	91.8	43.3	#N/A	#N/A	#N/A	#N/A
OCI	KRW	106,500	3.9	7.3	(4.1)	22.0	32.3	2.9	35.3	2,242	15.9	21.3	0.8	0.7	8.0	7.1
웅진에너지	KRW	7,540	(3.3)	6.8	(21.5)	(11.6)	48.4	16.5	59.2	167	N/A	0.8	0.7	8.0	7.1	8.8
신성솔라에너지	KRW	1,730	(1.7)	1.8	(16.8)	(21.4)	(4.7)	(39.1)	(21.7)	264	N/A	0.7	8.0	7.1	8.8	7.5
Average			0.4	0.7	(5.8)	(1.4)	21.2	(3.3)	22.2							
Gas Company																
Towngas China	HKD	6.0	0.0	7.1	13.2	7.9	27.9	32.5	47.1	2,129	13.9	12.7	1.1	1.0	12.5	11.5
Kulun	HKD	7.4	1.0	0.1	(0.3)	(4.5)	2.4	23.2	27.1	7,625	11.5	10.5	1.3	1.2	5.8	5.5
Beijing Enterprise	HKD	48.0	3.0	4.9	11.0	16.9	21.2	26.5	31.0	7,764	9.2	8.5	1.0	0.9	16.3	15.1
ENN Energy	HKD	59.2	1.2	0.8	10.9	14.5	40.3	45.3	85.6	8,212	15.8	13.9	3.1	2.6	9.6	8.6
China Resources Gas	HKD	29.1	0.3	1.7	7.8	(1.5)	12.1	11.3	33.5	8,295	16.6	14.8	3.2	2.8	9.8	8.9
China Gas Holdings	HKD	24.3	1.5	(2.2)	5.2	32.1	92.5	96.5	130.5	15,442	21.1	17.7	4.8	4.0	16.4	14.0
Shenzen Gas	HKD	15.4	0.1	(0.8)	4.5	13.4	18.8	26.1	36.6	4,011	12.6	12.1	1.4	1.4	9.3	8.7
Shann Xi	CNY	8.4	0.7	(1.4)	(1.6)	(0.9)	(9.8)	(19.6)	(12.2)	1,416	17.8	16.0	1.7	1.6	#N/A	#N/A
Suntien	HKD	2.3	5.9	11.0	18.9	35.5	40.4	113.8	133.0	1,109	8.8	7.6	0.8	0.8	10.3	8.8
China Oil & Gas	HKD	0.6	0.0	(3.5)	3.8	0.0	(6.8)	(3.5)	(9.8)	411	9.5	8.2	0.9	0.8	6.3	5.6
Average			1.4	1.8	7.3	11.3	23.9	35.2	50.2							
EV																
LG화학	KRW	384,000	(0.3)	2.4	(1.2)	17.8	37.6	53.0	47.1	23,931	13.5	13.2	1.8	1.6	6.5	6.3
삼성SDI	KRW	199,500	1.3	(7.6)	(8.9)	12.4	44.6	113.4	83.0	12,111	20.4	13.0	1.2	1.1	22.9	14.3
Panasonic	JPY	1637.0	(0.5)	1.8	(1.7)	8.7	31.2	51.5	37.6	35,414	21.5	16.3	2.2	2.0	6.9	6.0
GS Yuasa	JPY	597.0	0.0	1.4	5.7	16.1	21.8	33.6	22.8	2,177	18.1	16.4	1.4	1.4	7.9	7.3
NEC	JPY	3090.0	(0.5)	0.8	3.7	4.0	18.8	13.6	(0.3)	7,098	18.2	16.6	0.9	0.9	7.1	6.3
BYD Auto	CNY	68.6	5.2	1.2	10.9	36.9	32.0	20.6	38.0	27,681	37.6	26.8	3.4	3.1	15.6	12.6
Tesla Motors	USD	345.1	(1.9)	(2.9)	(7.7)	4.6	14.1	73.3	61.5	57,593	#N/A	#N/A	#N/A	#N/A	11.5	10.6
Kandi Technologies	USD	8.0	(1.2)	(3.6)	48.6	91.6	105.2	55.9	62.2	382	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Average			0.3	(0.8)	6.2	24.0	38.2	51.9	44.0							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임