SK Energy Daily

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SK 증권

1. News Summary (3 page)

2018년 3월 21일

News		Conclusion
WTI comment	중동긴장 우려에 상승…WTI 2.2%↑	
Headline	ExxonMobil, 걸프 연안에 PP 신증설 고려중	지속되는 capa 진입으로 PE, PP를 비롯한 화학제품 peakout 가속화
News 1.	중국, 지난해 천연가스 소비 증가량 사상 최고	Power of Siberia I 가동 개시 전까지 스팟성 LNG 수입으로 수요 충당
News 2.	태양광 가린 폴리실리콘 '먹구름'…중국發 수요부진 맞이한 태양광업계	OCI, 한화케미칼의 수익 악화 가능성이 열려있음
News 3.	-	-
News 4.	-	-

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	63.4	2.2	4.4	2.8	10.3	33.9
Dubai	$/bbl	63.0	0.8	2.8	2.0	2.6	24.9
Gasoline	$/bbl	77.2	0.7	2.6	2.1	3.5	20.9
Diesel	$/bbl	78.1	0.9	2.7	2.4	3.7	26.1
Complex margin	$/bbl	8.2	0.1	(0.1)	0.1	0.3	1.5
1M lagging	$/bbl	9.5	(1.7)	2.2	5.9	0.5	6.4
Petrochemical			%	%	%	%	%
Naphtha	$/t	579	0.5	3.7	3.6	(2.3)	24.4
Butadiene	$/t	1,430	0.0	0.0	5.5	30.0	(31.9)
HDPE	$/t	1,340	0.0	0.0	(0.7)	4.7	16.5
MEG	$/t	908	(0.3)	(0.2)	(10.5)	(2.0)	15.1
PX	$/t	931	(0.2)	(0.5)	(2.2)	4.8	9.5
SM	$/t	1,251	(2.0)	(5.7)	(11.7)	(1.2)	(1.0)
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	2.68	0.9	(4.0)	1.0	2.8	(7.7)
Natural rubber	$/t	1,410	(2.1)	(2.8)	(0.7)	(0.7)	(28.8)
Cotton	C/lbs	83.1	2.3	0.1	7.2	10.7	8.1

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	03/19	$/t	1,250	2.5	6.6	0.4	16.3
Propylene	03/19	$/t	980	(1.5)	(3.4)	10.1	13.3
Benzene	03/19	$/t	868	(1.7)	(3.1)	(5.7)	4.5
Toluene	03/19	$/t	720	0.0	(4.0)	(2.0)	4.3
Xylene	03/19	$/t	763	(0.3)	0.7	7.4	5.9
PP	03/19	$/t	1,298	(0.8)	1.8	12.1	17.2
PVC	03/19	$/t	970	(1.0)	(1.0)	12.1	3.2
ABS	03/19	$/t	2,020	(2.4)	(1.9)	(2.4)	12.2
SBR	03/19	$/t	1,750	0.0	(0.3)	6.1	(36.2)
SM	03/19	$/t	1,338	(4.3)	(7.0)	0.4	3.7
BPA	03/19	$/t	1,875	(4.5)	(1.7)	0.1	30.9
Caustic	03/19	$/t	601	1.9	9.5	(3.2)	34.8
2-EH	03/19	$/t	1,130	0.4	4.6	9.2	12.4
Caprolactam	03/19	$/t	2,180	1.4	5.8	5.8	(5.2)
Solar				%	%	%	%
Polysilicon	03/14	$/kg	14.9	(1.5)	(8.6)	(13.9)	(5.4)
Module	03/14	$/W	0.30	(0.3)	(1.6)	(2.9)	(11.9)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	74.0	(0.2)	(0.7)	(2.3)	(10.7)	(9.8)
Shell	EUR	2,199	1.1	(1.5)	(2.5)	(8.8)	3.9
Petrochina	CNY	8.07	1.3	1.0	0.6	1.6	0.6
Gazprom	RUB	142.5	1.8	(0.2)	0.8	7.5	10.6
Petrobras	BRL	21.2	1.1	(4.3)	3.5	38.8	55.6
Refinery							
Phillips66	USD	95.1	0.7	0.6	4.5	(5.6)	19.8
Valero	USD	94.5	1.6	1.0	3.2	4.8	37.9
JX	JPY	635.2	1.0	0.1	(3.3)	(10.1)	17.1
Neste Oil	EUR	57.4	0.5	(2.0)	(2.4)	7.0	65.7

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	84.6	1.1	1.0	(2.9)	(9.2)	(4.9)
DowDuPont	USD	66.4	(0.3)	(5.9)	(7.3)	(6.8)	2.9
SABIC	SAR	109.6	(0.1)	(1.1)	4.1	7.2	13.6
Formosa Pla.	TWD	105.0	1.9	1.9	4.0	10.8	14.4
Shin-Etsu	JPY	10,925	(0.5)	(5.1)	(3.5)	(6.7)	13.1
Renewable							
Wacker	EUR	132.4	0.4	1.2	(5.8)	(17.3)	32.0
First Solar	USD	73.00	2.4	5.6	9.6	6.3	140.6
GCL-Poly	HKD	1.06	(3.6)	(14.5)	(13.1)	(14.5)	(0.9)
Tesla Motors	USD	310.6	(1.0)	(9.2)	(7.2)	(5.6)	18.6

4. Coverage Summary

	03/20	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	2,486	0.4	(0.4)	2.6	0.5	2.8	14.8				* 추정치는 12M fwd 기준임	
KOSPI화학	6,072	(0.3)	(1.5)	3.2	0.4	6.0	19.4				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	406,500	0.4	(0.7)	9.1	2.1	2.9	45.4	매수	450,000	10.7	13.57	1.92
롯데케미칼	436,000	2.5	(0.1)	0.1	19.3	12.2	16.1	매수	410,000	(6.0)	11.90	1.31
한화케미칼	30,050	(1.3)	(1.8)	(6.8)	(1.0)	(20.9)	20.7	매수	39,000	29.8	11.47	0.78
금호석유화학	91,900	(0.1)	(3.0)	0.9	(7.8)	18.9	19.2	매수	150,000	63.2	11.21	1.47
KCC	347,000	(1.1)	(1.4)	(2.9)	(8.8)	(9.8)	(2.3)	매수	450,000	29.7	12.85	0.51
OCI	144,000	(3.0)	(3.7)	(8.3)	9.9	32.1	70.2	매수	180,000	25.0	13.53	1.01
SKC	38,900	(1.5)	(3.5)	6.9	(11.1)	(10.4)	26.9	매수	55,000	41.4	9.78	0.96
SK이노베이션	211,500	0.2	1.4	11.0	4.7	10.7	28.6	매수	230,000	8.7	11.20	1.07
S-Oil	117,000	(2.5)	(5.3)	3.5	(6.0)	(1.7)	20.9	매수	140,000	19.7	13.38	2.12
GS	63,600	0.0	(2.6)	1.1	3.2	(3.6)	13.0	매수	80,000	25.8	6.21	0.82
SK가스	93,400	(1.3)	(4.0)	1.5	1.3	(12.3)	(20.2)	매수	130,000	39.2	8.09	0.62
포스코대우	20,700	0.7	0.7	0.5	14.4	(4.2)	(12.3)	매수	25,000	20.8	9.44	0.83
LG상사	27,050	(0.6)	1.7	(1.6)	(1.1)	(9.5)	(11.6)	매수	38,000	40.5	9.11	0.78
한국전력	31,650	(0.5)	(3.7)	(4.4)	(19.4)	(23.1)	(28.6)	매수	50,000	58.0	6.80	0.25
한국가스공사	46,200	(0.6)	(4.0)	4.2	6.3	5.7	(1.5)	매수	60,000	29.9	8.73	0.69

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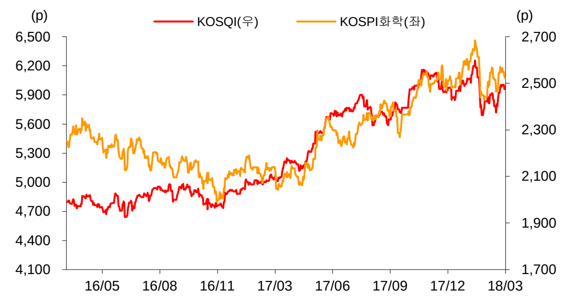
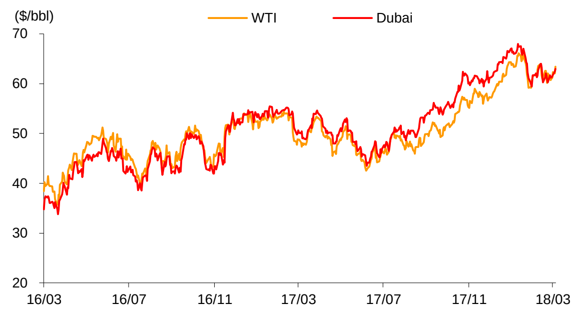
Key Chart

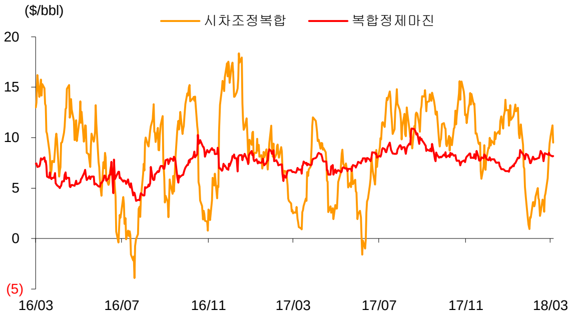
KOSPI/KOSPI화학



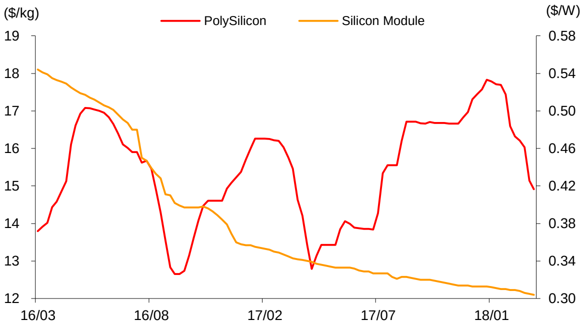
WTI/Dubai



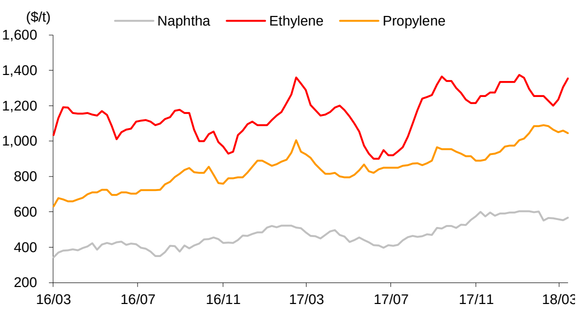
Complex & 1M lagging margin



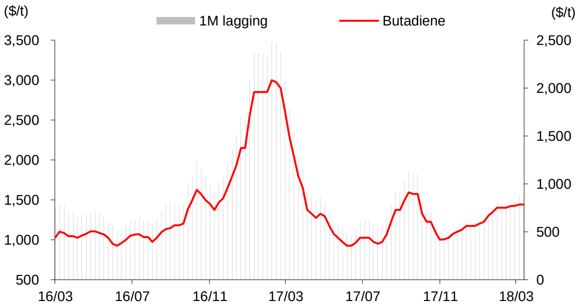
Polysilicon & Module prices



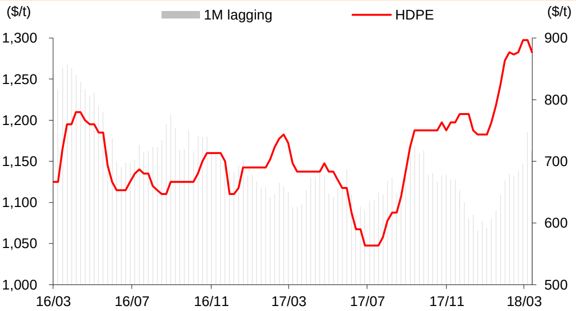
Naphtha/Ethylene/Propylene prices



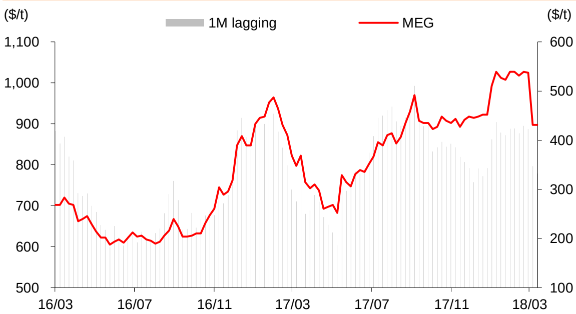
Butadiene price & 1M lagging naphtha spread



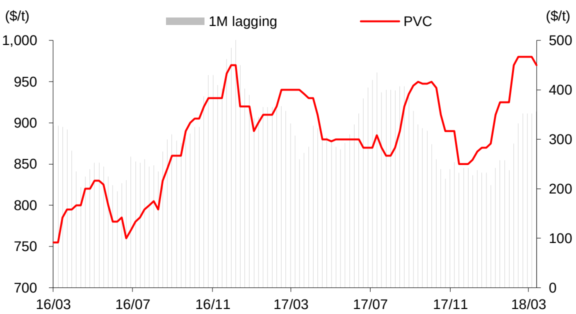
HDPE price & 1M lagging naphtha spread



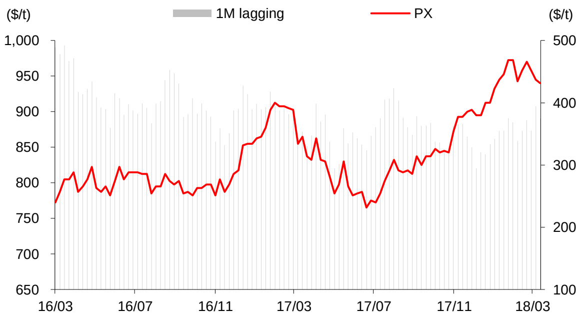
MEG price & 1M lagging naphtha spread



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 ExxonMobil, 걸프 연안에 PP 신증설 고려중

결론 지속되는 capa 진입으로 PE, PP를 비롯한 화학제품 peakout 가속화

세부

1) ExxonMobil이 걸프 연안에 45만톤 규모 PP 생산 설비 신증설을 고려중
2) 이미 엔지니어링 작업은 시작됐고, 연내 FID 마치고 2021년 가동 예정
3) ExxonMobil, "풍부한 미국 석유와 가스가 미국 화학 생산 원가를 낮춤"
4) 이번 증설을 포함해 ExxonMobil의 북미, 아시아 화학 capa 40% 증가
5) 지속되는 capa 진입으로 PE, PP를 비롯한 화학제품 peakout 가속화

WTI Comment (출처: 연합뉴스)

제목 중동긴장 우려에 상승…WTI 2.2%↑

상승 요인
- MBS의 미국 방문을 계기로 이란과의 긴장이 높아질 것이라는 전망
- 베네수엘라 산유량이 경제위기로 2005년 이후 절반으로 줄었다는 우려

하락 요인

Issue 1 (출처: 이투뉴스)

제목 중국, 지난해 천연가스 소비 증가량 사상 최고

결론 Power of Siberia I 가동 개시 전까지 스팟성 LNG 수입으로 수요 충당

세부

1) 중국의 지난해 천연가스 소비량이 2352억㎥로 사상 최고치를 기록
2) 지난해보다 340억㎥ 늘어난 규모로, 전년대비 17% 증가한 수치
3) CNPC, "가정·상업부문에서 석탄을 가스로 대체하며 가스 수요 급증"
4) 난방 연료로 가스를 사용하는 인구는 3.1억명에서 3.5억명으로 늘어남
5) Power of Siberia I 가동 개시 전까지 스팟성 LNG 수입으로 수요 충당

Issue 2 (출처: 헤럴드경제)

제목 태양광 가린 폴리실리콘 '먹구름'…중국發 수요부진 맞이한 태양광업계

결론 OCI, 한화케미칼의 수익 악화 가능성이 열려있음

세부

1) 폴리실리콘은 지난 1월 최고 수준이던 $17.83에서 17% 가량 하락함
2) 당초 업계는 태양광 시황이 올해 지속적으로 성장할 것으로 전망함
3) 한국에서 생산되는 폴리실리콘 최대 수입국인 중국의 수요가 부진함
4) 춘절 이전 리스탁킹 수요가 춘절 이후에는 정상치로 회복하지 못함
5) OCI, 한화케미칼의 수익 악화 가능성이 열려있음

Issue 3

제목

결론

세부

1)
2)
3)
4)
5)

Issue 4

제목

결론

세부

1)
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Issue 5

제목

결론

세부

1)
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Issue 6

제목

결론

세부

1)
2)
3)
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5)

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Commodity Price Data

Daily Price		Today	1D	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
F/X	**USD/EUR**	0.817	0.811	0.807	0.811	0.842	0.841	0.931	0.833	0.904	0.887	0.814
	Change, %		*0.8*	*1.2*	*0.8*	*(3.0)*	*(2.8)*	*(12.3)*	*(1.9)*	*(9.6)*	*(7.9)*	*0.3*
	USD/JPY	106.5	106.1	106.6	107.3	113.4	112.2	112.6	112.6	108.8	112.1	108.6
	Change, %		*0.4*	*(0.0)*	*(0.7)*	*(6.1)*	*(5.1)*	*(5.3)*	*(5.4)*	*(2.0)*	*(5.0)*	*(2.0)*
	USD/KRW	1,068.7	1,071.5	1,067.5	1,073.3	1,080.9	1,128.4	1,120.2	1,066.7	1,160.5	1,130.9	1,072.1
	Change, %		*(0.3)*	*0.1*	*(0.4)*	*(1.1)*	*(5.3)*	*(4.6)*	*0.2*	*(7.9)*	*(5.5)*	*(0.3)*
Agriculture	**Corn**	374.5	375.0	385.5	365.5	349.3	350.0	363.5	350.8	358.5	359.4	364.3
	Change, %		*(0.1)*	*(2.9)*	*2.5*	*7.2*	*7.0*	*3.0*	*6.8*	*4.5*	*4.2*	*2.8*
	Soybean	1,028.3	1,022.5	1,040.5	1,026.5	954.0	970.0	999.5	951.8	987.5	975.9	1,002.8
	Change, %		*0.6*	*(1.2)*	*0.2*	*7.8*	*6.0*	*2.9*	*8.0*	*4.1*	*5.4*	*2.5*
	Wheat	453.0	450.8	485.5	449.3	423.5	449.8	430.3	427.0	436.4	436.0	453.0
	Change, %		*0.5*	*(6.7)*	*0.8*	*7.0*	*0.7*	*5.3*	*6.1*	*3.8*	*3.9*	*0.0*
	Rice	12.2	12.3	12.1	11.9	11.8	12.8	9.9	11.7	10.3	11.1	12.1
	Change, %		*(0.7)*	*0.9*	*3.0*	*3.1*	*(4.7)*	*23.8*	*4.5*	*18.0*	*10.3*	*0.8*
	Oats	235.5	235.0	258.0	266.3	245.0	246.3	250.8	241.0	196.3	252.3	259.0
	Change, %		*0.2*	*(8.7)*	*(11.5)*	*(3.9)*	*(4.4)*	*(6.1)*	*(2.3)*	*20.0*	*(6.6)*	*(9.1)*
MYR/mt	**Palm Oil**	2,450.0	2,433.0	2,410.0	2,509.0	2,450.0	2,786.0	2,939.0	2,444.0	2,653.8	2,787.3	2,490.4
	Change, %		*0.7*	*1.7*	*(2.4)*	*0.0*	*(12.1)*	*(16.6)*	*0.2*	*(7.7)*	*(12.1)*	*(1.6)*
	Cocoa	2,480.0	2,445.0	2,551.0	2,146.0	1,931.0	1,998.0	2,116.0	1,892.0	2,854.0	2,005.2	2,133.4
	Change, %		*1.4*	*(2.8)*	*15.6*	*28.4*	*24.1*	*17.2*	*31.1*	*(13.1)*	*23.7*	*16.2*
	Cotton	83.1	81.2	83.0	77.5	75.7	70.0	77.3	78.6	65.6	73.5	80.3
	Change, %		*2.3*	*0.1*	*7.2*	*9.7*	*18.6*	*7.4*	*5.7*	*26.7*	*13.0*	*3.5*
	Sugar	12.6	12.9	12.6	13.4	14.6	14.1	17.7	15.2	18.2	15.8	13.6
	Change, %		*(2.6)*	*(0.5)*	*(6.0)*	*(13.8)*	*(10.7)*	*(29.0)*	*(17.2)*	*(30.8)*	*(20.6)*	*(7.5)*
	Coffee	119.0	118.4	120.5	118.2	123.2	136.6	144.0	126.2	136.1	133.0	121.5
	Change, %		*0.5*	*(1.2)*	*0.6*	*(3.4)*	*(12.9)*	*(17.4)*	*(5.7)*	*(12.6)*	*(10.5)*	*(2.1)*
Energy	**WTI**	63.4	62.1	60.7	61.9	58.1	50.4	48.2	60.4	43.4	51.0	62.7
	Change, %		*2.2*	*4.4*	*2.4*	*9.1*	*25.8*	*31.5*	*4.9*	*46.1*	*24.4*	*1.2*
	Brent	67.4	66.1	64.6	65.3	64.6	56.3	51.6	66.9	45.1	54.9	66.9
	Change, %		*2.1*	*4.3*	*3.3*	*4.4*	*19.8*	*30.6*	*0.8*	*49.6*	*22.9*	*0.8*
	Natural Gas	2.7	2.7	2.8	2.6	2.6	3.1	3.0	3.0	2.6	3.0	2.9
	Change, %		*0.9*	*(4.0)*	*2.3*	*1.4*	*(13.5)*	*(12.0)*	*(9.4)*	*4.8*	*(11.5)*	*(6.7)*
	Ethanol	1.5	1.5	1.5	1.5	1.3	1.5	1.5	1.3	1.5	1.5	1.4
	Change, %		*(0.1)*	*(3.9)*	*(0.9)*	*13.8*	*(4.9)*	*(4.4)*	*10.8*	*(3.5)*	*(2.3)*	*2.9*
	RBOB Gasoline	196.6	192.5	188.6	175.0	173.5	165.5	161.1	179.9	140.0	162.9	184.4
	Change, %		*2.1*	*4.2*	*12.3*	*13.3*	*18.8*	*22.0*	*9.3*	*40.4*	*20.7*	*6.6*
	Coal	97.4	96.8	98.0	105.3	100.3	98.0	80.9	100.8	65.5	88.2	103.5
	Change, %		*0.6*	*(0.7)*	*(7.5)*	*(2.9)*	*(0.6)*	*20.3*	*(3.4)*	*48.7*	*10.4*	*(6.0)*
Metal	**Gold**	1,311.3	1,316.9	1,326.5	1,329.2	1,265.6	1,301.2	1,234.3	1,302.6	1,248.5	1,258.6	1,328.7
	Change, %		*(0.4)*	*(1.1)*	*(1.3)*	*3.6*	*0.8*	*6.2*	*0.7*	*5.0*	*4.2*	*(1.3)*
	Silver	16.2	16.3	16.6	16.4	16.2	17.3	17.4	16.9	17.1	17.1	16.8
	Change, %		*(0.8)*	*(2.4)*	*(1.5)*	*0.1*	*(6.6)*	*(7.0)*	*(4.4)*	*(5.3)*	*(5.1)*	*(3.5)*
	Copper	6,755.0	6,854.0	6,945.0	7,090.0	7,044.0	6,526.0	5,880.0	7,247.0	4,872.0	6,199.4	7,031.1
	Change, %		*(1.4)*	*(2.7)*	*(4.7)*	*(4.1)*	*3.5*	*14.9*	*(6.8)*	*38.7*	*9.0*	*(3.9)*
	Nickel	876.0	878.5	898.1	880.1	765.4	729.3	664.0	809.1	646.4	680.2	855.5
	Change, %		*(0.3)*	*(2.5)*	*(0.5)*	*14.4*	*20.1*	*31.9*	*8.3*	*35.5*	*28.8*	*2.4*
	Zinc	3,203.0	3,261.0	3,295.0	3,550.0	3,218.0	3,132.0	2,864.0	3,319.0	2,097.5	2,888.5	3,403.9
	Change, %		*(1.8)*	*(2.8)*	*(9.8)*	*(0.5)*	*2.3*	*11.8*	*(3.5)*	*52.7*	*10.9*	*(5.9)*
	Lead	2,353.0	2,362.0	2,393.8	2,597.3	2,520.8	2,451.0	2,270.0	2,482.8	1,868.3	2,315.7	2,532.8
	Change, %		*(0.4)*	*(1.7)*	*(9.4)*	*(6.7)*	*(4.0)*	*3.7*	*(5.2)*	*25.9*	*1.6*	*(7.1)*
	Aluminum	13,905.0	13,900.0	13,745.0	14,215.0	14,510.0	16,725.0	13,720.0	15,020.0	12,373.5	14,556.6	14,372.0
	Change, %		*0.0*	*1.2*	*(2.2)*	*(4.2)*	*(16.9)*	*1.3*	*(7.4)*	*12.4*	*(4.5)*	*(3.2)*
	Cobalt	89,608.0	88,605.0	84,500.0	79,253.0	74,705.0	59,339.0	52,750.0	75,205.0	25,480.1	55,906.9	80,408.1
	Change, %		*1.1*	*6.0*	*13.1*	*19.9*	*51.0*	*69.9*	*19.2*	*251.7*	*60.3*	*11.4*
	HR Coil	822.0	822.0	817.0	748.0	634.0	620.0	625.0	662.0	519.3	620.1	737.1
	Change, %		*0.0*	*0.6*	*9.9*	*29.7*	*32.6*	*31.5*	*24.2*	*58.3*	*32.6*	*11.5*
	Scrap	410.0	414.0	425.0	385.0	360.0	347.0	335.0	367.0	275.7	344.7	383.6
	Change, %		*(1.0)*	*(3.5)*	*6.5*	*13.9*	*18.2*	*22.4*	*11.7*	*48.7*	*18.9*	*6.9*

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

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Refining Price Data

Daily Price		03/20	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	63.4	62.1	60.7	61.7	57.5	49.5	47.3	53.7	43.4	50.9	62.6
	Change, %		*2.2*	*4.4*	*2.8*	*10.3*	*28.1*	*33.9*	*18.0*	*46.2*	*24.6*	*1.2*
	Dubai	63.0	62.5	61.3	61.8	61.4	54.1	50.4	53.8	41.3	53.1	63.8
	Change, %		*0.8*	*2.8*	*2.0*	*2.6*	*16.5*	*24.9*	*17.0*	*52.5*	*18.6*	*(1.2)*
Crude Oil	**Gasoline(휘발유)**	77.2	76.6	75.2	75.6	74.5	70.6	63.8	69.8	56.3	68.0	77.3
Product	*Change, %*		*0.7*	*2.6*	*2.1*	*3.5*	*9.4*	*20.9*	*10.5*	*37.2*	*13.5*	*(0.2)*
	Kerosene(등유)	78.3	77.3	76.7	78.6	75.3	68.1	61.0	66.4	52.9	65.2	79.8
	Change, %		*1.3*	*2.0*	*(0.4)*	*4.0*	*15.0*	*28.4*	*17.8*	*48.0*	*20.0*	*(1.9)*
	Diesel(경유)	78.1	77.4	76.0	76.3	75.3	68.2	61.9	65.5	52.1	65.6	78.4
	Change, %		*0.9*	*2.7*	*2.4*	*3.7*	*14.5*	*26.1*	*19.2*	*49.8*	*19.0*	*(0.4)*
	Bunker-C	57.0	56.8	56.8	56.9	56.6	51.4	45.0	52.1	35.5	49.7	57.5
	Change, %		*0.5*	*0.4*	*0.3*	*0.8*	*10.9*	*26.6*	*9.5*	*60.5*	*14.8*	*(0.9)*
	Naphtha	63.0	62.5	60.7	60.9	64.2	55.0	50.2	53.5	42.6	53.7	63.2
	Change, %		*0.8*	*3.8*	*3.3*	*(1.9)*	*14.5*	*25.4*	*17.8*	*47.8*	*17.1*	*(0.5)*
Dubai	**Gasoline(휘발유)**	14.2	14.2	13.9	13.8	13.1	16.5	13.4	16.0	14.9	14.9	13.5
Spread	*Change*		*0.0*	*0.2*	*0.4*	*1.1*	*(2.3)*	*0.8*	*(1.8)*	*(0.8)*	*(0.7)*	*0.7*
	Kerosene(등유)	15.3	14.8	15.5	16.8	13.9	14.0	10.6	12.6	11.6	12.1	16.1
	Change		*0.5*	*(0.2)*	*(1.5)*	*1.4*	*1.3*	*4.8*	*2.7*	*3.7*	*3.2*	*(0.8)*
	Diesel(경유)	15.1	14.9	14.8	14.5	13.9	14.1	11.5	11.7	10.8	12.5	14.6
	Change		*0.2*	*0.4*	*0.6*	*1.2*	*1.0*	*3.6*	*3.4*	*4.3*	*2.6*	*0.5*
	Bunker-C	(6.0)	(5.7)	(4.5)	(4.9)	(4.8)	(2.7)	(5.4)	(1.8)	(5.8)	(3.4)	(6.2)
	Change		*(0.2)*	*(1.5)*	*(1.0)*	*(1.2)*	*(3.3)*	*(0.6)*	*(4.2)*	*(0.2)*	*(2.5)*	*0.3*
	Naphtha	(0.0)	(0.0)	(0.6)	(0.9)	2.8	0.9	(0.2)	(0.4)	1.3	0.6	(0.5)
	Change		*(0.0)*	*0.6*	*0.8*	*(2.8)*	*(0.9)*	*0.2*	*0.4*	*(1.3)*	*(0.7)*	*0.5*
Refining	**Simple(단순)**	2.6	2.6	3.2	3.0	2.7	4.3	1.7	3.8	1.9	3.2	2.3
Margin	*Change*		*(0.0)*	*(0.6)*	*(0.4)*	*(0.2)*	*(1.7)*	*0.9*	*(1.3)*	*0.6*	*(0.6)*	*0.3*
	Complex(복합)	8.2	8.1	8.3	8.1	7.9	9.3	6.7	8.3	7.0	8.0	7.8
	Change		*0.1*	*(0.1)*	*0.1*	*0.3*	*(1.1)*	*1.5*	*(0.1)*	*1.2*	*0.2*	*0.4*
	Complex(lagging)	9.5	11.2	7.3	3.6	9.0	14.7	3.1	18.0	8.5	8.9	7.9
	Change		*(1.7)*	*2.2*	*5.9*	*0.5*	*(5.2)*	*6.4*	*(8.5)*	*1.0*	*0.6*	*1.6*

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

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Petrochemical Price Data

Daily Price			03/20	03/19	03/16	03/15	03/14	03/13	03/12	03/09	03/08	03/07
Spot Price	**Naphtha**	CFR Japan	578.5	575.5	572.0	570.0	566.0	558.0	564.5	553.5	562.8	565.3
	Ethylene	CFR SE Asia	1,280.0	1,280.0	1,280.0	1,250.0	1,250.0	1,250.0	1,230.0	1,230.0	1,230.0	1,230.0
	Propylene	FOB Korea	1,020.0	1,025.0	1,025.0	1,010.0	1,010.0	1,015.0	1,015.0	1,025.0	1,030.0	1,030.0
	Butadiene	FOB Korea	1,430.0	1,430.0	1,430.0	1,430.0	1,430.0	1,430.0	1,390.0	1,390.0	1,390.0	1,390.0
	HDPE	CFR FE Asia	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,345.0
	LDPE	CFR FE Asia	1,220.0	1,225.0	1,225.0	1,225.0	1,225.0	1,225.0	1,225.0	1,230.0	1,230.0	1,230.0
	LLDPE	CFR FE Asia	1,200.0	1,205.0	1,205.0	1,205.0	1,205.0	1,205.0	1,205.0	1,210.0	1,210.0	1,210.0
	MEG	CFR China	908.0	911.0	865.0	880.0	917.0	910.0	895.0	895.0	935.0	951.0
	PP	CFR FE Asia	1,200.0	1,220.0	1,200.0	1,200.0	1,200.0	1,225.0	1,225.0	1,225.0	1,230.0	1,230.0
	PX	CFR China	931.0	933.0	929.0	932.0	932.5	935.5	935.3	934.3	942.0	944.3
	PTA	CFR China	769.0	770.0	770.0	775.0	775.0	780.0	785.0	785.0	793.0	793.0
	Benzene	FOB Korea	850.3	858.3	835.3	842.7	861.7	864.0	875.0	859.0	857.7	875.0
	Toluene	FOB Korea	677.0	677.0	677.0	677.0	677.0	682.0	686.0	685.0	685.0	695.0
	Xylene	FOB Korea	738.0	738.0	744.0	746.0	749.0	745.0	745.0	748.0	749.0	762.0
	SM	FOB Korea	1,251.0	1,276.0	1,259.0	1,284.0	1,326.0	1,326.0	1,326.0	1,326.0	1,311.0	1,336.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**Naphtha**	CFR Japan	568.0	553.0	565.0	590.5	574.5	462.5	484.5	399.5	493.5	579.0
	Change, %			2.7	0.5	(3.8)	(1.1)	22.8	17.2	42.2	15.1	(1.9)
	Ethylene	CFR SE Asia	1,250.0	1,220.0	1,172.5	1,245.0	1,165.0	1,075.0	990.0	1,040.9	1,090.9	1,239.8
	Change, %			2.5	6.6	0.4	7.3	16.3	26.3	20.1	14.6	0.8
	Propylene	CFR SE Asia	980.0	995.0	1,015.0	890.0	810.0	865.0	815.0	705.7	823.6	1,057.3
	Change, %			(1.5)	(3.4)	10.1	21.0	13.3	20.2	38.9	19.0	(7.3)
	Butadiene	CFR SE Asia	1,390.0	1,390.0	1,350.0	1,125.0	965.0	2,000.0	2,100.0	1,116.8	1,481.1	1,313.6
	Change, %			0.0	3.0	23.6	44.0	(30.5)	(33.8)	24.5	(6.1)	5.8
	Benzene	CFR SE Asia	867.5	882.5	895.0	920.0	860.0	830.0	822.5	646.7	838.8	913.6
	Change, %			(1.7)	(3.1)	(5.7)	0.9	4.5	5.5	34.1	3.4	(5.0)
	Toluene	CFR SE Asia	720.0	720.0	750.0	735.0	715.0	690.0	690.0	630.5	689.5	746.8
	Change, %			0.0	(4.0)	(2.0)	0.7	4.3	4.3	14.2	4.4	(3.6)
	Xylene	CFR SE Asia	762.5	765.0	757.5	710.0	670.0	720.0	675.0	627.7	668.8	754.3
	Change, %			(0.3)	0.7	7.4	13.8	5.9	13.0	21.5	14.0	1.1
Spread	**Ethylene**	-Naphtha	682.0	667.0	607.5	654.5	590.5	612.5	505.5	641.4	597.4	660.8
	Change, %			2.2	12.3	4.2	15.5	11.3	34.9	6.3	14.2	3.2
	Propylene	-Naphtha	412.0	442.0	450.0	299.5	235.5	402.5	330.5	306.2	330.1	478.3
	Change, %			(6.8)	(8.4)	37.6	74.9	2.4	24.7	34.6	24.8	(13.9)
	Butadiene	-Naphtha	822.0	837.0	785.0	534.5	390.5	1,537.5	1,615.5	717.3	987.6	734.7
	Change, %			(1.8)	4.7	53.8	110.5	(46.5)	(49.1)	14.6	(16.8)	11.9
	Benzene	-Naphtha	299.5	329.5	330.0	329.5	285.5	367.5	338.0	247.2	345.3	334.7
	Change, %			(9.1)	(9.2)	(9.1)	4.9	(18.5)	(11.4)	21.2	(13.3)	(10.5)
	Toluene	-Naphtha	152.0	167.0	185.0	144.5	140.5	227.5	205.5	231.0	196.0	167.9
	Change, %			(9.0)	(17.8)	5.2	8.2	(33.2)	(26.0)	(34.2)	(22.4)	(9.5)
	Xylene	-Naphtha	194.5	212.0	192.5	119.5	95.5	257.5	190.5	228.2	175.3	175.4
	Change, %			(8.3)	1.0	62.8	103.7	(24.5)	2.1	(14.8)	10.9	10.9

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	1,282.5	1,297.5	1,280.0	1,187.5	1,197.5	1,137.5	1,142.5	1,134.6	1,142.5	1,257.7
	Change, %			(1.2)	0.2	8.0	7.1	12.7	12.3	13.0	12.3	2.0
	MEG	CFR SE Asia	897.5	897.5	1,017.5	917.5	892.5	822.5	847.5	660.8	850.6	996.4
	Change, %			0.0	(11.8)	(2.2)	0.6	9.1	5.9	35.8	5.5	(9.9)
	PVC	CFR SE Asia	970.0	980.0	980.0	865.0	850.0	940.0	920.0	823.4	899.9	947.3
	Change, %			(1.0)	(1.0)	12.1	14.1	3.2	5.4	17.8	7.8	2.4
	PP	CFR SE Asia	1,297.5	1,307.5	1,275.0	1,157.5	1,147.5	1,107.5	1,032.5	978.4	1,099.6	1,257.4
	Change, %			(0.8)	1.8	12.1	13.1	17.2	25.7	32.6	18.0	3.2
	2-EH	CFR Korea	1,130.0	1,125.0	1,080.0	1,035.0	990.0	1,005.0	865.0	772.4	970.0	1,082.7
	Change, %			0.4	4.6	9.2	14.1	12.4	30.6	46.3	16.5	4.4
	ABS	CFR SE Asia	2,020.0	2,070.0	2,060.0	2,070.0	1,930.0	1,800.0	1,635.0	1,347.1	1,844.7	2,049.1
	Change, %			(2.4)	(1.9)	(2.4)	4.7	12.2	23.5	49.9	9.5	(1.4)
	SBR	CFR SE Asia	1,750.0	1,750.0	1,755.0	1,650.0	1,590.0	2,745.0	2,000.0	1,483.0	1,980.5	1,729.1
	Change, %			0.0	(0.3)	6.1	10.1	(36.2)	(12.5)	18.0	(11.6)	1.2
	SM	CFR SE Asia	1,337.5	1,397.5	1,437.5	1,332.5	1,280.0	1,290.0	1,205.0	1,064.6	1,253.8	1,404.1
	Change, %			(4.3)	(7.0)	0.4	4.5	3.7	11.0	25.6	6.7	(4.7)
	Caustic	FOB NEA	601.0	590.0	549.0	621.0	700.0	446.0	422.5	316.6	491.2	579.4
	Change, %			1.9	9.5	(3.2)	(14.1)	34.8	42.2	89.8	22.4	3.7
	PX	CFR SE Asia	940.0	945.0	957.5	895.0	892.5	865.0	855.0	790.4	844.4	953.4
	Change, %			(0.5)	(1.8)	5.0	5.3	8.7	9.9	18.9	11.3	(1.4)
	PO	CFR China	1,875.0	1,962.5	1,907.5	1,872.5	1,782.5	1,432.5	1,562.5	1,396.8	1,601.2	1,941.6
	Change, %			(4.5)	(1.7)	0.1	5.2	30.9	20.0	34.2	17.1	(3.4)
	Caprolactam	CFR SE Asia	2,180.0	2,150.0	2,060.0	2,060.0	2,040.0	2,300.0	1,850.0	1,344.9	1,936.4	2,073.6
	Change, %			1.4	5.8	5.8	6.9	(5.2)	17.8	62.1	12.6	5.1
	PTA	CFR SE Asia	790.0	810.0	777.5	727.5	707.5	667.5	642.5	613.7	667.8	772.7
	Change, %			(2.5)	1.6	8.6	11.7	18.4	23.0	28.7	18.3	2.2
Spread	HDPE		714.5	744.5	715.0	597.0	623.0	675.0	658.0	735.1	649.0	678.8
	Change, %			(4.0)	(0.1)	19.7	14.7	5.9	8.6	(2.8)	10.1	5.3
	MEG		329.5	344.5	452.5	327.0	318.0	360.0	363.0	261.3	357.1	417.4
	Change, %			(4.4)	(27.2)	0.8	3.6	(8.5)	(9.2)	26.1	(7.7)	(21.1)
	PVC		402.0	427.0	415.0	274.5	275.5	477.5	435.5	423.9	406.4	368.3
	Change, %			(5.9)	(3.1)	46.4	45.9	(15.8)	(7.7)	(5.2)	(1.1)	9.1
	PP		729.5	754.5	710.0	567.0	573.0	645.0	548.0	578.9	606.1	678.4
	Change, %			(3.3)	2.7	28.7	27.3	13.1	33.1	26.0	20.4	7.5
	2-EH		562.0	572.0	515.0	444.5	415.5	542.5	380.5	372.9	476.5	503.8
	Change, %			(1.7)	9.1	26.4	35.3	3.6	47.7	50.7	17.9	11.6
	ABS		1,452.0	1,517.0	1,495.0	1,479.5	1,355.5	1,337.5	1,150.5	947.6	1,351.2	1,470.1
	Change, %			(4.3)	(2.9)	(1.9)	7.1	8.6	26.2	53.2	7.5	(1.2)
	SBR	BD spread	360.0	360.0	405.0	525.0	625.0	745.0	(100.0)	366.2	499.4	415.5
	Change, %			0.0	(11.1)	(31.4)	(42.4)	(51.7)	(460.0)	(1.7)	(27.9)	(13.3)
	SM		769.5	844.5	872.5	742.0	705.5	827.5	720.5	665.1	760.3	825.1
	Change, %			(8.9)	(11.8)	3.7	9.1	(7.0)	6.8	15.7	1.2	(6.7)
	Caustic											
	Change, %											
	PX		372.0	392.0	392.5	304.5	318.0	402.5	370.5	390.9	351.0	374.5
	Change, %			(5.1)	(5.2)	22.2	17.0	(7.6)	0.4	(4.8)	6.0	(0.7)
	PO	propylene sprea	895.0	967.5	892.5	982.5	972.5	567.5	747.5	691.1	777.6	884.3
	Change, %			(7.5)	0.3	(8.9)	(8.0)	57.7	19.7	29.5	15.1	1.2
	Caprolactam	benzene spread	1,312.5	1,267.5	1,165.0	1,140.0	1,180.0	1,470.0	1,027.5	698.2	1,097.6	1,160.0
	Change, %			3.6	12.7	15.1	11.2	(10.7)	27.7	88.0	19.6	13.1
	PTA	px spread	132.0	148.5	107.3	101.0	82.8	62.0	44.0	60.4	76.7	105.3
	Change, %			(11.1)	23.1	30.7	59.5	112.9	200.0	118.5	72.1	25.3

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

에너지/Commodity/정유화학. 손지우 | 3773-8827, jwshon@sk.com
R.A. 유승우 | 3773-9180, yswbest@sk.com

Global peers

	Currency	03/20	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	66.4	(0.3)	(5.9)	(7.3)	(6.8)	(5.7)	2.9	(6.8)	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	106.1	(0.4)	(3.0)	5.8	14.0	23.3	34.6	14.5	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	84.6	1.1	1.0	(2.9)	(9.2)	(4.0)	(4.9)	(7.8)	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	79.9	0.8	(0.1)	1.2	9.3	1.9	6.4	9.4	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	109.1	0.5	1.2	6.4	6.5	9.3	19.0	7.4	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	65.1	2.1	(4.4)	(4.6)	1.6	(1.1)	3.0	(1.8)	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	614	0.3	(1.9)	(8.6)	(25.5)	(13.4)	(6.3)	(24.2)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	1,017	(0.3)	(4.4)	(6.7)	(18.7)	(5.0)	17.2	(17.8)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	10,925	(0.5)	(5.1)	(3.5)	(6.7)	8.2	13.1	(4.6)	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,403	(0.5)	(0.5)	4.6	(4.1)	0.9	28.5	(3.5)	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	2,420	(1.9)	(2.7)	1.7	8.2	12.1	24.2	9.1	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	8,088	(2.6)	(8.3)	(3.5)	(22.0)	(18.5)	(8.1)	(19.2)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	109.6	(0.1)	(1.1)	4.1	7.2	8.8	13.6	8.1	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	68.4	(2.4)	(2.2)	3.4	17.8	16.7	20.2	16.0	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	105.0	1.9	1.9	4.0	10.8	11.6	14.4	6.4	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	110.5	0.9	3.3	4.7	12.4	17.6	17.4	7.3	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	82.5	0.6	1.9	8.3	8.8	7.8	14.9	5.9	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	6.09	1.5	1.5	5.2	(3.3)	(4.1)	(6.3)	(3.8)	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	2.32	2.2	0.9	2.2	(13.8)	(27.5)	(39.1)	(13.1)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	890	(0.6)	(4.5)	(3.4)	(3.1)	5.0	38.9	(2.2)	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	107.8	1.2	0.7	0.1	10.9	21.1	(5.8)	11.1	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	98.3	0.3	1.6	5.1	17.3	23.6	38.9	15.6	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	8.2	0.5	0.5	1.1	9.5	12.3	9.9	6.4	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	406,500	0.4	(0.7)	8.0	2.1	4.6	43.6	0.4	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	436,000	2.5	(0.1)	(3.8)	19.3	14.4	18.5	18.5	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	30,050	(1.3)	(1.8)	(10.2)	(1.0)	(19.7)	20.7	(4.9)	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	91,900	(0.1)	(3.0)	1.1	(7.8)	21.1	18.4	(7.6)	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	38,900	(1.5)	(3.5)	3.0	(11.1)	(8.6)	28.2	(17.2)	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	62,200	0.0	2.6	3.5	(3.7)	15.8	29.0	(1.4)	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	9,990	6.2	4.4	10.6	30.8	46.9	18.2	31.8	4,595	8.2	7.3	1.1	1.0	7.2	6.8
Average			**0.3**	**(1.1)**	**1.0**	**1.7**	**5.8**	**14.1**	**1.1**							
Refinery																
Valero	USD	94.5	1.6	1.0	3.2	4.8	29.1	37.9	2.8	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	54.7	2.1	1.4	(0.3)	0.8	13.2	19.3	(0.3)	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemic	TWD	115.5	(0.4)	(1.7)	3.6	1.3	9.5	7.9	0.0	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	100.5	1.8	1.9	6.7	(9.4)	(3.1)	19.3	(12.1)	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	71.5	3.3	3.2	7.9	8.8	31.3	41.5	8.3	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	31.6	1.3	(3.8)	(8.9)	(20.8)	(9.6)	(22.2)	(23.8)	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	48.0	3.8	4.1	4.4	(2.9)	41.6	68.2	(6.3)	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	95.1	0.7	0.6	4.5	(5.6)	6.8	19.8	(6.0)	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	25.2	0.9	(1.8)	(4.4)	(15.4)	(3.4)	(7.8)	(18.8)	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	635.2	1.0	0.1	(3.3)	(10.1)	10.3	17.1	(12.6)	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	3,940.0	0.3	(3.4)	(1.7)	(9.4)	34.2	2.6	(12.9)	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	57.4	0.5	(2.0)	(2.4)	7.0	58.2	65.7	7.5	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	71.8	(1.3)	0.2	1.2	1.3	12.2	19.4	0.9	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	48.1	1.0	1.0	5.3	7.6	(2.6)	10.6	8.8	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	211,500	0.2	1.4	8.7	4.7	10.7	30.6	3.4	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	117,000	(2.5)	(5.3)	(2.1)	(6.0)	(2.5)	21.1	0.0	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	63,600	0.0	(2.6)	0.0	3.2	(3.8)	13.8	2.3	5,467	6.0	5.5	0.7	0.6	6.9	6.3
Average			**0.8**	**(0.3)**	**1.3**	**(2.4)**	**13.7**	**21.4**	**(3.5)**							

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

Global peers

	Currency	03/20	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	74	(0.2)	(0.7)	(2.3)	(10.7)	(8.1)	(9.8)	(11.5)	313,530	15.8	15.9	1.7	1.6	7.3	7.1
BP	GBP	464	0.9	(2.1)	(2.3)	(8.8)	1.0	0.6	(11.2)	129,425	14.3	13.5	1.3	1.3	5.2	4.9
Shell	EUR	2,199	1.1	(1.5)	(2.5)	(8.8)	2.0	3.9	(11.4)	258,551	13.0	12.0	1.3	1.3	5.7	5.5
Chevron	USD	115	0.5	(1.7)	3.2	(5.3)	(1.6)	6.4	(8.5)	218,724	18.5	18.2	1.5	1.5	6.5	6.3
Total	EUR	46	0.1	(1.4)	(0.8)	0.0	1.2	0.4	0.4	149,308	11.9	11.6	1.2	1.2	5.2	4.9
Sinopec	CNY	7	3.6	7.2	8.2	14.4	17.2	20.2	11.4	124,457	12.7	12.0	1.1	1.0	4.6	4.5
Petrochina	CNY	8	1.3	1.0	0.6	1.6	1.6	0.6	(0.2)	220,631	28.1	18.2	1.2	1.1	6.0	5.6
CNOOC	CNY	11	(0.4)	(1.2)	5.4	7.9	(2.3)	(13.6)	4.9	64,997	9.0	8.9	1.0	0.9	3.6	3.6
Gazprom	RUB	142	1.8	(0.2)	0.8	7.5	16.5	10.6	9.2	58,574	3.8	3.9	0.3	0.2	3.6	3.5
Rosneft	RUB	318	0.5	1.8	(1.4)	8.3	0.8	2.1	8.9	58,455	7.6	6.6	0.8	0.7	4.8	4.4
Anadarko	USD	58	2.6	(0.1)	(1.3)	15.3	30.5	(6.9)	9.0	31,140	41.4	38.3	2.5	2.4	6.3	5.8
Petrobras	BRL	21	1.1	(4.3)	3.5	38.8	33.3	55.6	31.4	87,534	10.2	8.2	0.9	0.8	5.4	5.0
Lukoil	USD	3,860	1.2	2.3	3.1	14.4	29.3	24.8	15.8	56,852	6.1	6.1	0.8	0.7	N/A	N/A
Kinder	USD	16	(2.4)	(5.4)	(8.2)	(12.1)	(21.0)	(26.3)	(13.6)	47,497	19.2	17.4	1.0	1.0	10.0	9.6
Statoil	NOK	179	1.6	(0.4)	0.5	4.7	15.8	20.5	2.0	76,746	15.5	14.7	1.8	1.7	3.5	3.3
BHP	AUD	29	(1.9)	0.0	(8.4)	0.8	9.5	15.2	(3.0)	112,451	15.6	16.2	1.9	1.8	6.0	6.1
PTT E&P	THB	115	(1.7)	(0.9)	1.3	15.7	25.8	27.2	14.5	14,569	13.1	12.4	1.2	1.1	3.7	3.6
Petronas gas	MYR	18	0.4	0.2	0.8	9.5	(2.3)	(9.8)	2.6	9,062	18.8	18.5	2.7	2.6	10.5	10.3
Chesapeake	USD	3	3.3	(0.3)	12.3	(17.7)	(25.8)	(40.0)	(21.5)	2,828	4.0	4.3	#N/A N/A	5.1	6.0	5.9
Noble Energy	USD	29	1.6	(3.1)	0.4	5.0	9.0	(13.8)	0.4	14,397	37.2	24.1	1.4	1.3	7.3	6.4
Average		**0**	**0.7**	**(0.5)**	**0.6**	**4.0**	**6.6**	**3.4**	**1.5**							
PV																
WACKER	EUR	132.4	0.4	1.2	(5.8)	(17.3)	16.9	32.0	(18.4)	8,464	18.9	16.1	2.0	1.9	6.6	6.3
GCL-Poly	HKD	1.1	(3.6)	(14.5)	(13.1)	(14.5)	(1.9)	(0.9)	(24.3)	2,512	6.6	5.9	0.6	0.6	6.3	5.8
SunPower	USD	8.0	7.6	11.8	7.3	(9.7)	2.3	22.6	(4.6)	1,125	#N/A N/A	49.6	4.7	4.1	13.4	9.1
Canadian Solar	USD	16.7	0.7	3.7	6.3	(2.5)	4.4	23.4	(0.8)	970	11.1	10.0	1.0	0.9	8.7	9.0
JA Solar	USD	6.9	(0.3)	(5.9)	(6.9)	(6.1)	(15.8)	30.5	(7.6)	328	13.1	10.9	1.5	1.5	3.9	3.6
Yingli	USD	1.7	(0.6)	(2.6)	4.7	(4.0)	(32.8)	(23.1)	(1.8)	30	#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	73.0	2.4	5.6	9.6	6.3	49.4	140.6	8.1	7,627	44.5	22.0	1.4	1.3	13.4	8.0
한화큐셀	USD	8.0	(1.4)	(2.1)	(0.5)	10.3	(2.3)	9.4	14.1	667	36.4	25.8	#N/A N/A	#N/A N/A	8.4	7.6
OCI	KRW	144,000	(3.0)	(3.7)	(8.6)	9.9	29.7	69.0	5.9	3,206	0.0	13.3	0.0	0.9	0.0	6.4
웅진에너지	KRW	6,800	(3.7)	(5.8)	(9.9)	(20.5)	(29.2)	38.2	(17.3)	188	N/A	0.0	0.9	0.0	6.4	0.0
신성솔라에너지	KRW	1,800	0.0	(1.4)	(2.4)	(8.2)	(13.5)	(3.7)	(6.0)	291	N/A	0.9	0.0	6.4	0.0	8.3
Average			**(0.1)**	**(1.2)**	**(1.8)**	**(5.1)**	**0.7**	**30.7**	**(4.8)**							
Gas Company																
Towngas China	HKD	7.0	8.7	10.8	8.0	13.6	32.1	54.5	11.5	2,471	13.9	12.5	1.2	1.1	12.1	11.0
Kulun	HKD	7.4	1.5	2.2	1.2	(8.8)	(0.4)	4.7	(9.6)	7,574	9.9	8.7	1.1	1.1	5.4	5.1
Beijing Enterprise	HKD	44.2	1.5	2.2	1.0	(2.3)	2.2	3.5	(4.7)	7,111	7.7	6.9	0.8	0.7	13.3	13.0
ENN Energy	HKD	66.9	7.9	7.4	4.5	21.5	25.3	52.2	20.0	9,249	14.9	12.7	2.9	2.5	9.0	7.9
China Resources Gas	HKD	27.1	3.8	5.0	1.5	(3.7)	0.4	(2.7)	(4.4)	7,683	14.3	12.9	2.5	2.2	8.4	7.8
China Gas Holdings	HKD	27.6	9.1	17.2	11.3	25.2	19.7	118.0	27.8	17,481	18.9	16.0	4.6	3.8	14.5	12.5
Shenzen Gas	HKD	16.2	1.9	2.3	1.3	13.5	9.3	38.6	8.6	4,186	11.1	10.1	1.3	1.2	8.0	8.0
Shann Xi	CNY	7.3	1.1	(1.3)	2.9	(13.5)	(14.3)	(22.7)	(13.0)	1,288	13.9	15.8	1.4	1.3	#N/A N/A	#N/A N/A
Suntien	HKD	2.1	7.6	8.2	11.0	11.0	8.2	39.5	2.4	1,004	6.1	5.4	0.7	0.6	8.2	7.1
China Oil & Gas	HKD	0.7	1.4	(2.8)	(1.4)	1.4	32.1	14.8	(17.6)	520	10.8	9.3	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Average			**4.5**	**5.1**	**4.1**	**5.8**	**11.5**	**30.0**	**2.1**							
EV																
LG화학	KRW	406,500	0.4	(0.7)	8.0	2.1	4.6	43.6	0.4	26,788	14.2	13.2	1.7	1.6	6.5	6.0
삼성SDI	KRW	208,500	1.2	3.2	16.2	(1.2)	(4.8)	55.6	2.0	13,384	15.9	12.0	1.2	1.1	13.4	10.8
Panasonic	JPY	1647.0	(0.1)	(2.7)	(0.3)	(0.9)	(1.1)	31.1	(0.2)	37,975	15.6	13.5	2.1	1.9	6.0	5.6
GS Yuasa	JPY	576.0	0.9	(2.9)	(2.5)	4.2	1.9	8.1	2.7	2,239	16.4	14.7	1.3	1.2	7.1	6.5
NEC	JPY	3190.0	(0.3)	(1.7)	(0.8)	3.4	7.0	11.5	4.9	7,810	21.6	15.1	0.9	0.9	6.9	6.2
BYD Auto	CNY	62.8	(2.3)	(4.8)	3.8	3.3	1.6	27.7	(3.5)	26,524	26.9	21.5	2.8	2.5	12.8	11.3
Tesla Motors	USD	310.6	(1.0)	(9.2)	(7.2)	(5.6)	(16.9)	18.6	(0.3)	52,458	#N/A N/A	123.6	11.4	10.3	45.4	17.6
Kandi Technologies	USD	4.8	(2.1)	(6.9)	(12.0)	(34.0)	(11.2)	31.9	(30.1)	256	#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			**(0.4)**	**(3.2)**	**0.6**	**(3.6)**	**(2.4)**	**28.5**	**(3.0)**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임