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1. News Summary (3 page)

2016년 4월 5일

News		Conclusion
WTI comment	생산량 동결 전망에 유가 약세	
Headline	브라질 화학수요, 25년래 최저치	브라질 저가물량수출공세 지속과 이머징 수요우려감은 지속 상황
News 1.	미국 NGL 수출 사상 최대치, 정제유 물량도 처음으로 넘어서	미국의 가스수출 활성화, 특히 프로판/프로필렌의 중국 급수입 주목
News 2.	-	-
News 3.	-	-
News 4.	-	-

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	35.7	(3.0)	(9.4)	(0.6)	(0.8)	(31.5)
Dubai	$/bbl	34.8	(3.8)	(4.0)	8.3	10.0	(35.4)
Gasoline	$/bbl	50.9	(2.7)	(7.8)	4.9	(9.5)	(28.6)
Diesel	$/bbl	42.9	(4.3)	(9.8)	0.6	2.5	(37.3)
Complex margin	$/bbl	6.0	(0.1)	(2.0)	(1.2)	(4.2)	(3.6)
1M lagging	$/bbl	11.2	(1.9)	(2.5)	(2.2)	10.6	3.6
Petrochemical			%	%	%	%	%
Naphtha	$/t	379	(3.3)	(4.4)	10.6	(9.1)	(26.7)
Butadiene	$/t	1,015	0.0	(2.4)	1.0	45.0	20.1
HDPE	$/t	1,145	0.0	(2.1)	2.7	6.5	(12.9)
MEG	$/t	699	0.0	(2.0)	0.1	19.7	(17.0)
PX	$/t	785	(1.6)	(1.2)	4.0	5.7	(3.8)
SM	$/t	1,099	(0.2)	(0.5)	(1.0)	21.0	(5.5)
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	2.00	2.1	3.2	11.7	(17.1)	(33.4)
Natural rubber	$/t	1,300	(0.8)	(1.5)	(3.7)	17.1	(5.8)
Cotton	C/lbs	59.0	(0.4)	2.0	2.8	(7.1)	(9.5)

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	04/04	$/t	1,150	0.0	6.0	5.5	(12.9)
Propylene	04/04	$/t	710	9.2	8.4	9.2	(29.7)
Benzene	04/04	$/t	640	2.8	7.1	10.3	(16.1)
Toluene	04/04	$/t	660	0.8	6.5	4.8	(5.7)
Xylene	04/04	$/t	650	3.2	10.6	4.0	(8.5)
PP	04/04	$/t	1,065	3.9	19.0	27.5	(17.8)
PVC	04/04	$/t	795	0.0	5.3	11.2	(10.7)
ABS	04/04	$/t	1,365	3.0	12.3	20.8	(13.9)
SBR	04/04	$/t	1,445	0.0	15.6	25.7	7.8
SM	04/04	$/t	1,138	(0.9)	2.9	25.0	(4.8)
BPA	04/04	$/t	1,345	(1.1)	13.7	7.0	(33.7)
Caustic	04/04	$/t	285	1.8	0.0	0.0	(5.0)
2-EH	04/04	$/t	813	0.3	14.4	19.5	(21.5)
Caprolactam	04/04	$/t	1,300	4.8	13.0	3.2	(24.2)
Solar				%	%	%	%
Polysilicon	03/30	$/kg	14.4	3.0	5.7	9.6	(14.5)
Module	03/30	$/W	0.54	(0.7)	(2.2)	(3.6)	(8.9)

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	83.2	0.2	(1.3)	1.1	7.4	(1.4)
Shell	EUR	1,678	0.6	0.0	0.0	10.7	(17.1)
Petrochina	CNY	7.66	0.0	0.9	(2.0)	(5.8)	(35.3)
Gazprom	RUB	146.4	(0.6)	0.9	0.2	8.5	1.7
Petrobras	BRL	7.6	(9.3)	(10.2)	5.0	10.3	(29.3)
Refinery							
Phillips66	USD	85.7	0.1	(2.0)	(0.1)	7.1	9.7
Valero	USD	63.3	0.6	(3.0)	(0.9)	(9.5)	5.8
JX	JPY	425.1	0.5	(5.3)	(11.3)	(17.1)	(8.3)
Neste Oil	EUR	28.9	(0.3)	(3.0)	0.2	6.8	20.5

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	64.8	(0.6)	(2.0)	2.7	(4.7)	(30.0)
Dow Chemical	USD	51.1	(0.1)	(1.0)	1.6	2.3	5.9
SABIC	SAR	75.6	1.7	(0.7)	1.7	0.5	(6.0)
Formosa Pla.	TWD	79.5	0.0	(0.6)	(0.6)	9.8	6.3
Shin-Etsu	JPY	5,713	0.6	(3.2)	(5.6)	(11.9)	(25.8)
Renewable							
Wacker	EUR	75.9	(0.7)	2.7	(3.4)	0.4	(30.2)
Yingli	USD	4.77	3.7	5.5	4.8	7.0	(74.4)
Tesla	USD	247.0	4.0	7.3	22.9	10.6	29.3
BYD	CNY	58.3	0.0	0.4	8.6	(0.8)	(5.0)

4. Coverage Summary

	04/04	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	1,979	0.3	(0.2)	1.2	2.5	0.5	(3.2)				* 추정치는 12M fwd 기준임	
KOSPI화학	5,587	1.6	1.7	7.0	5.0	10.3	23.0				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	326,500	2.8	2.2	9.6	(3.8)	18.1	43.5	매수	400,000	22.5	12.96	1.71
롯데케미칼	337,500	0.4	(1.9)	7.7	35.0	26.4	53.8	매수	390,000	15.6	11.41	1.31
한화케미칼	24,200	0.4	3.4	(0.8)	(8.5)	13.1	69.2	매수	30,000	24.0	9.56	0.79
금호석유화학	57,200	1.1	(2.6)	(3.7)	9.6	1.1	(25.7)	매수	70,000	22.4	11.28	1.13
KCC	407,500	0.5	(0.5)	(3.6)	(0.6)	(3.6)	(23.8)	매수	550,000	35.0	14.50	0.62
OCI	101,000	1.0	10.1	5.2	37.2	23.6	(1.5)	매수	100,000	(1.0)	18.98	0.88
SKC	30,200	0.8	(3.5)	(3.7)	(4.6)	(20.2)	(22.3)	매수	43,000	42.4	9.40	0.77
국도화학	69,400	2.8	10.0	11.9	22.6	(1.8)	28.3	매수	100,000	44.1	7.90	0.80
SK이노베이션	163,000	(3.3)	0.6	9.0	28.3	59.0	59.0	매수	180,000	10.4	12.20	0.99
S-Oil	94,500	(2.3)	2.7	12.2	20.2	51.4	40.6	매수	100,000	5.8	13.29	1.64
GS	57,800	0.2	4.3	6.6	16.5	23.1	30.6	매수	65,000	12.5	8.28	0.96
SK가스	83,000	1.0	6.3	13.9	16.7	(2.9)	(7.1)	매수	100,000	20.5	11.77	0.72
대우인터내셔널	20,200	(5.8)	(6.0)	(2.2)	25.1	0.0	(24.1)	매수	24,000	18.8	10.25	0.95
LG상사	33,300	(4.7)	(3.8)	(8.8)	(0.6)	17.5	(9.9)	매수	40,000	20.1	9.83	0.85

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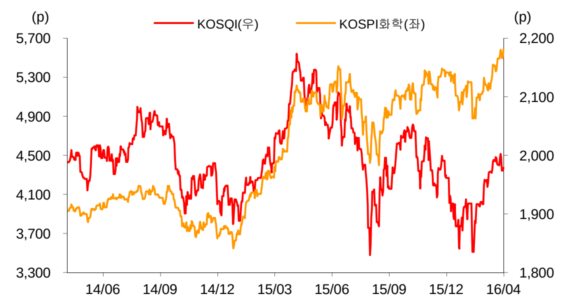
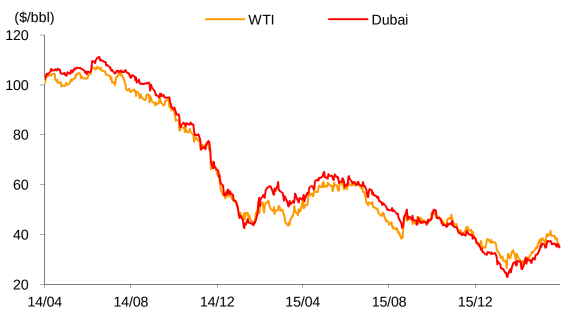
Key Chart

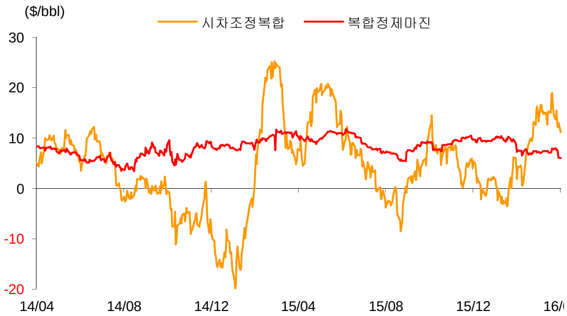
KOSPI/KOSPI화학



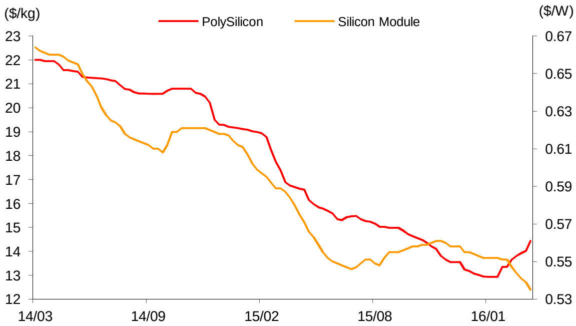
WTI/Dubai



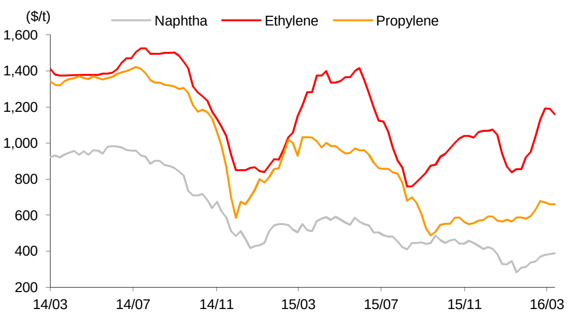
Complex & 1M lagging margin



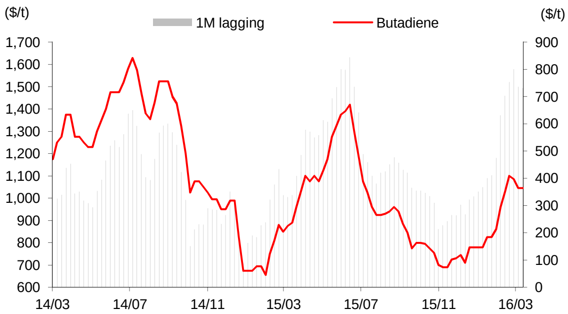
Polysilicon & Module prices



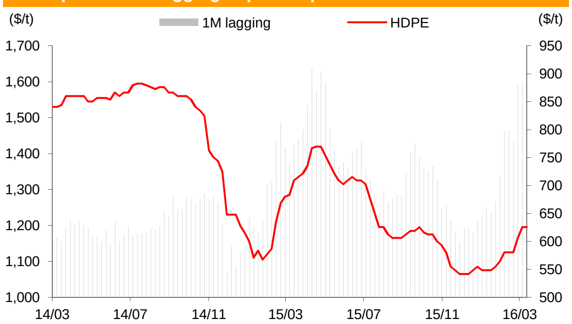
Naphtha/Ethylene/Propylene prices



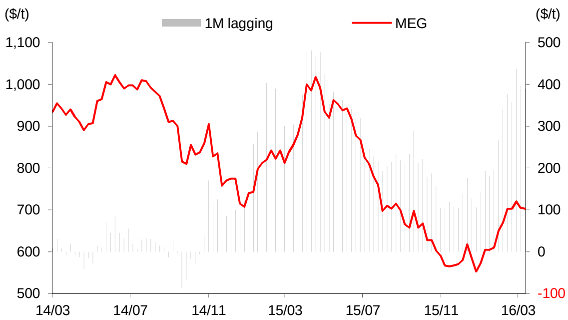
Butadiene price & 1M lagging naphtha spread



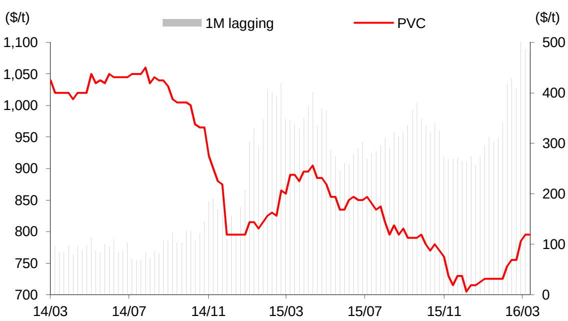
HDPE price & 1M lagging naphtha spread



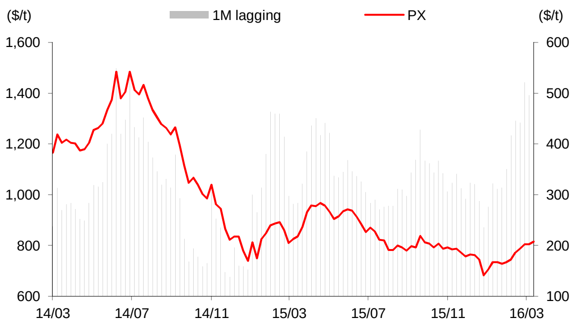
MEG price & 1M lagging naphtha spread



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	브라질 화학수요, 25년래 최저치
결론	브라질 저가물량수출공세 지속과 이머징 수요우려감은 지속 상황
세부	
	1) 브라질 최대 석유화학 트레이딩 협회 ABIQUIM, "브라질 화학수요 최악"
	2) "지난 12개월 화학제품수요 YoY -7.9%, 25년래 최저치"
	3) 원인은 브라질 경제 전체의 불확실성과 정치적 위험성 때문임
	4) "최근 몇 개월 간 생산공장폐쇄가 많이 벌어지고 있음"
	5) 브라질 저가물량수출공세 지속과 이머징 수요우려감은 지속 상황

WTI Comment	(출처: 연합뉴스)
제목	생산량 동결 전망에 유가 약세
상승 요인	
하락 요인	이란 석유장관 잔가네, "경제제재 이전 수준까지 생산/수출량 늘릴 것" 보스턴 연준은행장 에릭 로젠그렌, "예상보다 빨리 금리인상"

Issue 1	(출처: Platts)
제목	미국 NGL 수출 사상 최대치, 정제유 물량도 처음으로 넘어서
결론	미국의 가스수출 활성화, 특히 프로판/프로필렌의 중국 급수입 주목
세부	
	1) 미국 1월 NGL 수출 125만b/d, 사상 최고임과 동시에 정제유 물량도 넘어
	2) NGL 수출의 대다수는 LPG로 105만b/d, 그 중 87만b/d 프로판(프로필렌)
	3) 최대수요처는 499만배럴의 중국, 2위는 476만배럴의 일본이었음
	4) 미국 휴스턴의 터미널 확장공사가 지난해 말 마무리 된 부분이 가장 큼
	5) 미국의 가스수출 활성화, 특히 프로판/프로필렌의 중국 급수입 주목

Issue 2	
제목	
결론	
세부	
	1)
	2)
	3)
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	5)

Issue 3	
제목	
결론	
세부	
	1)
	2)
	3)
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Issue 4	
제목	
결론	
세부	
	1)
	2)
	3)
	4)
	5)

Issue 5	
제목	
결론	
세부	
	1)
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	5)

Issue 6	
제목	
결론	
세부	
	1)
	2)
	3)
	4)
	5)

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Commodity Price Data

Daily Price		Today	1D	1W	1M	3M	6M	12M	YTD	2013avg.	2014avg.	2015acc.
F/X	USD/EUR	0.878	0.878	0.893	0.909	0.923	0.892	0.911	0.921	0.753	0.754	0.901
	Change, %		0.0	(1.7)	(3.4)	(4.9)	(1.6)	(3.7)	(4.7)	(3.9)	13.7	(2.6)
	USD/JPY	111.3	111.7	113.5	113.7	119.4	119.9	119.0	120.6	97.7	105.9	121.1
	Change, %		(0.3)	(1.9)	(2.1)	(6.8)	(7.1)	(6.4)	(7.6)	21.5	13.8	(8.0)
	USD/KRW	1,146.1	1,154.0	1,165.9	1,203.4	1,187.6	1,180.6	1,093.0	1,172.6	1,094.6	1,053.0	1,131.2
	Change, %		(0.7)	(1.7)	(4.8)	(3.5)	(2.9)	4.9	(2.3)	50.3	3.3	1.3
Agriculture	Corn	354.5	354.0	370.5	354.5	351.5	389.3	386.5	358.8	579.2	415.6	376.8
	Change, %		0.1	(4.3)	0.0	0.9	(8.9)	(8.3)	(1.2)	(39.6)	(5.9)	(5.9)
	Soybean	913.5	918.3	909.0	870.5	864.5	874.3	986.0	871.3	1,407.0	1,245.5	945.4
	Change, %		(0.5)	0.5	4.9	5.7	4.5	(7.4)	4.8	(7.5)	(22.3)	(3.4)
	Wheat	474.8	475.8	471.0	454.8	458.3	513.3	536.3	470.0	684.3	588.0	508.1
	Change, %		(0.2)	0.8	4.4	3.6	(7.5)	(11.5)	1.0	(22.2)	(2.6)	(6.6)
	Rice	9.8	9.8	10.2	10.3	11.5	13.3	10.9	11.6	15.5	14.0	11.1
	Change, %		0.5	(3.8)	(4.5)	(14.9)	(26.0)	(9.8)	(15.3)	4.4	(25.9)	(11.4)
	Oats	187.0	185.0	190.0	170.3	210.5	212.3	269.0	217.3	367.5	373.1	250.2
	Change, %		1.1	(1.6)	9.8	(11.2)	(11.9)	(30.5)	(13.9)	1.9	(14.3)	(25.3)
MYR/mt	Palm Oil	2,739.0	2,717.0	2,705.0	2,464.0	2,290.0	2,319.0	2,178.0	2,398.0	2,405.0	2,415.1	2,190.3
	Change, %		0.8	1.3	11.2	19.6	18.1	25.8	14.2	13.3	(12.8)	25.1
	Cocoa	2,871.0	2,881.0	2,970.0	3,001.0	3,124.0	3,095.0	2,768.0	3,211.0	2,403.9	3,006.8	3,091.6
	Change, %		(0.3)	(3.3)	(4.3)	(8.1)	(7.2)	3.7	(10.6)	21.2	7.4	(7.1)
	Cotton	59.0	59.2	57.8	58.9	62.6	59.2	63.7	63.3	83.3	76.4	63.3
	Change, %		(0.4)	2.0	0.1	(5.8)	(0.4)	(7.4)	(6.8)	12.6	(28.8)	(6.8)
	Sugar	14.6	15.2	15.9	14.8	15.0	13.5	12.7	15.2	17.5	16.3	13.1
	Change, %		(3.6)	(8.2)	(1.3)	(2.2)	8.2	14.9	(3.9)	(15.9)	(11.5)	11.4
	Coffee	122.8	127.3	128.6	118.8	123.9	124.3	140.9	126.7	126.0	177.1	132.6
	Change, %		(3.5)	(4.5)	3.4	(0.9)	(1.2)	(12.8)	(3.1)	(23.0)	50.5	(7.4)
Energy	WTI	35.7	36.8	39.4	35.9	36.8	45.5	49.1	37.0	98.0	92.9	48.8
	Change, %		(3.0)	(9.4)	(0.6)	(2.9)	(21.6)	(27.4)	(3.6)	7.2	(45.9)	(26.9)
	Brent	37.7	38.7	40.3	38.7	37.2	48.1	55.0	37.3	108.7	99.5	53.7
	Change, %		(2.5)	(6.4)	(2.7)	1.3	(21.7)	(31.4)	1.1	(0.3)	(48.3)	(29.8)
	Natural Gas	2.0	2.0	1.8	1.7	2.3	2.5	2.7	2.3	3.7	4.3	2.6
	Change, %		2.1	8.1	19.9	(14.4)	(18.5)	(26.4)	(14.5)	26.2	(31.7)	(24.0)
	Ethanol	1.5	1.4	1.4	1.4	1.4	1.6	1.6	1.4	2.3	2.1	1.5
	Change, %		1.6	2.4	5.9	7.5	(6.8)	(6.1)	4.9	(12.7)	(14.9)	(2.8)
	RBOB Gasoline	137.7	140.2	146.8	133.2	129.1	134.1	176.1	126.7	285.0	262.6	163.6
	Change, %		(1.8)	(6.2)	3.4	6.7	2.7	(21.8)	8.7	(0.9)	(48.5)	(15.8)
	Coal	43.6	43.6	43.5	43.6	43.3	42.1	51.2	43.3	56.1	57.5	45.2
	Change, %		0.1	0.3	0.0	0.6	3.5	(14.8)	0.6	(1.0)	(15.5)	(3.5)
Metal	Gold	1,215.6	1,222.5	1,221.8	1,259.3	1,074.6	1,138.8	1,202.9	1,061.4	1,410.4	1,266.5	1,160.6
	Change, %		(0.6)	(0.5)	(3.5)	13.1	6.7	1.1	14.5	(28.0)	(1.3)	4.7
	Silver	14.9	15.1	15.2	15.5	13.9	15.3	17.3	13.8	23.8	19.1	15.7
	Change, %		(0.9)	(2.1)	(3.9)	7.5	(2.3)	(13.5)	8.0	(35.8)	(18.9)	(5.1)
	Platinum	941.3	957.1	945.8	979.1	883.9	910.2	1,156.8	891.1	1,485.7	1,384.6	1,055.7
	Change, %		(1.6)	(0.5)	(3.9)	6.5	3.4	(18.6)	5.6	(11.2)	(11.5)	(10.8)
	Palladium	550.6	566.4	568.3	555.3	540.0	699.3	745.8	563.0	725.9	803.4	691.9
	Change, %		(2.8)	(3.1)	(0.8)	2.0	(21.3)	(26.2)	(2.2)	1.7	11.4	(20.4)
	Copper	4,760.5	4,835.0	4,945.0	5,027.5	4,609.5	5,100.0	5,980.0	4,705.0	7,352.6	6,828.1	5,503.1
	Change, %		(1.5)	(3.7)	(5.3)	3.3	(6.7)	(20.4)	1.2	(7.2)	(14.4)	(13.5)
	Uranium	27.9	27.8	29.2	31.4	34.5	36.8	39.5	34.4	38.5	33.5	36.9
	Change, %		0.4	(4.3)	(11.1)	(19.0)	(24.2)	(29.3)	(18.9)	(20.9)	2.5	(24.3)
	HR Coil	480.0	480.0	416.0	405.0	395.0	418.0	475.0	391.0	630.4	653.2	461.5
	Change, %		0.0	15.4	18.5	21.5	14.8	1.1	22.8	3.1	(10.4)	4.0
	Scrap	405.0	405.0	405.0	250.0	250.0	245.0	255.0	250.0	396.9	401.3	252.9
	Change, %		0.0	0.0	62.0	62.0	65.3	58.8	62.0	(1.2)	(16.5)	60.1
	Zinc	1,854.0	1,872.0	1,794.0	1,857.0	1,568.0	1,685.0	2,129.0	1,609.0	1,940.3	2,165.0	1,941.9
	Change, %		(1.0)	3.3	(0.2)	18.2	10.0	(12.9)	15.2	(1.2)	6.0	(4.5)

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

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Refining Price Data

Daily Price		04/04	1D	1W	1M	3M	6M	12M	YTD	2014avg.	2015avg.	2016acc.
Crude Oil	**WTI**	35.7	36.8	39.4	35.9	36.0	47.8	52.1	37.0	93.1	48.8	33.7
	Change, %		*(3.0)*	*(9.4)*	*(0.6)*	*(0.8)*	*(25.3)*	*(31.5)*	*(3.6)*	*(61.7)*	*(26.8)*	*5.9*
	Dubai	34.8	36.2	36.3	32.2	31.7	49.0	54.0	32.2	96.7	50.8	30.7
	Change, %		*(3.8)*	*(4.0)*	*8.3*	*10.0*	*(28.9)*	*(35.4)*	*8.2*	*(64.0)*	*(31.4)*	*13.4*
Crude Oil Product	**Gasoline(휘발유)**	50.9	52.3	55.2	48.6	56.3	68.9	71.4	54.8	110.9	69.5	49.8
	Change, %		*(2.7)*	*(7.8)*	*4.9*	*(9.5)*	*(26.1)*	*(28.6)*	*(7.0)*	*(54.1)*	*(26.7)*	*2.4*
	Kerosene(등유)	45.7	47.3	49.3	44.6	42.8	63.3	67.7	44.2	112.6	64.7	42.6
	Change, %		*(3.3)*	*(7.2)*	*2.5*	*6.7*	*(27.8)*	*(32.5)*	*3.4*	*(59.4)*	*(29.4)*	*7.3*
	Diesel(경유)	42.9	44.8	47.5	42.6	41.8	63.8	68.4	43.2	112.8	64.8	40.6
	Change, %		*(4.3)*	*(9.8)*	*0.6*	*2.5*	*(32.8)*	*(37.3)*	*(0.9)*	*(62.0)*	*(33.8)*	*5.6*
	Bunker-C	26.7	27.7	28.1	25.1	25.7	39.7	50.5	25.3	86.5	45.3	24.8
	Change, %		*(3.6)*	*(5.0)*	*6.6*	*3.7*	*(32.7)*	*(47.1)*	*5.6*	*(69.1)*	*(41.0)*	*7.6*
	Naphtha	40.3	41.6	41.7	36.5	45.2	50.8	57.4	43.5	94.3	52.6	36.9
	Change, %		*(3.1)*	*(3.2)*	*10.6*	*(10.9)*	*(20.6)*	*(29.7)*	*(7.2)*	*(57.3)*	*(23.4)*	*9.3*
Dubai Spread	**Gasoline(휘발유)**	16.1	16.1	18.9	16.4	24.7	20.0	17.4	22.6	14.2	18.7	19.0
	Change		*(0.0)*	*(2.8)*	*(0.3)*	*(8.6)*	*(3.9)*	*(1.3)*	*(6.5)*	*1.9*	*(2.6)*	*(2.9)*
	Kerosene(등유)	10.9	11.1	13.0	12.4	11.2	14.3	13.7	12.0	15.9	14.0	11.8
	Change		*(0.2)*	*(2.1)*	*(1.5)*	*(0.3)*	*(3.4)*	*(2.8)*	*(1.2)*	*(5.0)*	*(3.1)*	*(1.0)*
	Diesel(경유)	8.0	8.6	11.2	10.5	10.2	14.8	14.5	11.0	16.0	14.0	9.9
	Change		*(0.5)*	*(3.2)*	*(2.4)*	*(2.1)*	*(6.8)*	*(6.4)*	*(3.0)*	*(8.0)*	*(6.0)*	*(1.8)*
	Bunker-C	(8.1)	(8.5)	(8.2)	(7.1)	(5.9)	(9.3)	(3.5)	(6.9)	(10.3)	(5.5)	(5.9)
	Change		*0.4*	*0.1*	*(1.0)*	*(2.2)*	*1.1*	*(4.7)*	*(1.2)*	*2.1*	*(2.6)*	*(2.2)*
	Naphtha	5.5	5.4	5.3	4.3	13.6	1.8	3.4	11.3	(2.4)	1.8	6.1
	Change		*0.1*	*0.1*	*1.2*	*(8.1)*	*3.7*	*2.1*	*(5.8)*	*7.9*	*3.7*	*(0.7)*
Refining Margin	**Simple(단순)**	0.6	0.5	1.8	1.9	3.7	2.0	4.2	3.2	(0.1)	3.3	2.7
	Change		*0.1*	*(1.2)*	*(1.3)*	*(3.1)*	*(1.4)*	*(3.6)*	*(2.6)*	*0.7*	*(2.7)*	*(2.1)*
	Complex(복합)	6.0	6.1	8.0	7.3	10.3	9.1	9.6	9.7	7.1	9.3	8.1
	Change		*(0.1)*	*(2.0)*	*(1.2)*	*(4.2)*	*(3.1)*	*(3.6)*	*(3.7)*	*(1.1)*	*(3.3)*	*(2.1)*
	Complex(lagging)	11.2	13.0	13.7	13.3	0.5	14.5	7.5	2.3	2.2	6.5	7.5
	Change		*(1.9)*	*(2.5)*	*(2.2)*	*10.6*	*(3.4)*	*3.6*	*8.9*	*8.9*	*4.7*	*3.7*

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			04/04	04/01	03/31	03/30	03/29	03/28	03/25	03/24	03/23	03/22
Spot Price	**Naphtha**	CFR Japan	378.6	391.5	387.0	396.0	389.3	396.3	386.0	386.0	394.8	387.0
	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	655.0	655.0	650.0	650.0	650.0	655.0	655.0	655.0	650.0	655.0
	Butadiene	FOB Korea	1,015.0	1,015.0	1,040.0	1,040.0	1,040.0	1,040.0	1,040.0	1,045.0	1,050.0	1,050.0
	HDPE	CFR FE Asia	1,145.0	1,145.0	1,170.0	1,165.0	1,170.0	1,170.0	1,170.0	1,170.0	1,165.0	1,150.0
	LDPE	CFR FE Asia	1,225.0	1,225.0	1,230.0	1,235.0	1,235.0	1,230.0	1,230.0	1,230.0	1,205.0	1,205.0
	LLDPE	CFR FE Asia	1,180.0	1,180.0	1,180.0	1,175.0	1,175.0	1,175.0	1,175.0	1,175.0	1,170.0	1,170.0
	MEG	CFR China	699.0	699.0	698.0	702.0	697.0	713.0	703.0	703.0	698.0	693.0
	PP	CFR FE Asia	1,010.0	1,010.0	1,000.0	1,000.0	995.0	995.0	990.0	990.0	980.0	975.0
	PX	CFR China	785.3	797.8	791.5	795.5	796.0	795.0	789.0	789.0	792.0	788.2
	PTA	CFR China	612.0	612.0	607.0	605.0	603.0	603.0	602.0	602.0	605.0	605.0
	Benzene	FOB Korea	623.5	632.0	629.5	631.5	633.5	641.5	622.5	622.5	633.5	622.5
	Toluene	FOB Korea	621.0	634.5	621.5	624.5	618.5	622.5	614.0	614.0	618.5	622.0
	Xylene	FOB Korea	643.0	651.0	651.0	651.0	657.0	664.0	669.5	669.5	669.5	671.0
	SM	FOB Korea	1,099.0	1,101.0	1,103.5	1,103.5	1,098.0	1,104.0	1,100.5	1,100.5	1,100.5	1,113.5

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2014avg.	2015avg.	2016acc.
Spot Price	**Naphtha**	CFR Japan	388.5	383.0	343.5	413.5	446.5	516.0	413.5	865.9	493.0	350.5
	Change, %			*1.4*	*13.1*	*(6.0)*	*(13.0)*	*(24.7)*	*(6.0)*	*(55.1)*	*(21.2)*	*10.8*
	Ethylene	CFR SE Asia	1,150.0	1,150.0	1,085.0	1,090.0	1,075.0	1,320.0	1,090.0	1,401.1	1,103.7	1,026.8
	Change, %			*0.0*	*6.0*	*5.5*	*7.0*	*(12.9)*	*5.5*	*(17.9)*	*4.2*	*12.0*
	Propylene	CFR SE Asia	710.0	650.0	655.0	650.0	615.0	1,010.0	650.0	1,254.2	770.0	608.2
	Change, %			*9.2*	*8.4*	*9.2*	*15.4*	*(29.7)*	*9.2*	*(43.4)*	*(7.8)*	*16.7*
	Butadiene	CFR SE Asia	1,005.0	1,005.0	990.0	720.0	640.0	840.0	720.0	1,281.7	877.5	860.7
	Change, %			*0.0*	*1.5*	*39.6*	*57.0*	*19.6*	*39.6*	*(21.6)*	*14.5*	*16.8*
	Benzene	CFR SE Asia	640.0	622.5	597.5	580.0	617.5	762.5	580.0	1,243.1	690.0	581.3
	Change, %			*2.8*	*7.1*	*10.3*	*3.6*	*(16.1)*	*10.3*	*(48.5)*	*(7.2)*	*10.1*
	Toluene	CFR SE Asia	660.0	655.0	620.0	630.0	655.0	700.0	630.0	1,082.5	700.8	612.5
	Change, %			*0.8*	*6.5*	*4.8*	*0.8*	*(5.7)*	*4.8*	*(39.0)*	*(5.8)*	*7.8*
	Xylene	CFR SE Asia	650.0	630.0	587.5	625.0	675.0	710.0	625.0	1,055.7	699.3	605.0
	Change, %			*3.2*	*10.6*	*4.0*	*(3.7)*	*(8.5)*	*4.0*	*(38.4)*	*(7.0)*	*7.4*
Spread	**Ethylene**	-Naphtha	761.5	767.0	741.5	676.5	628.5	804.0	676.5	535.2	610.6	676.3
	Change, %			*(0.7)*	*2.7*	*12.6*	*21.2*	*(5.3)*	*12.6*	*42.3*	*24.7*	*12.6*
	Propylene	-Naphtha	321.5	267.0	311.5	236.5	168.5	494.0	236.5	388.3	277.0	257.7
	Change, %			*20.4*	*3.2*	*35.9*	*90.8*	*(34.9)*	*35.9*	*(17.2)*	*16.1*	*24.8*
	Butadiene	-Naphtha	616.5	622.0	646.5	306.5	193.5	324.0	306.5	415.9	384.5	510.2
	Change, %			*(0.9)*	*(4.6)*	*101.1*	*218.6*	*90.3*	*101.1*	*48.2*	*60.4*	*20.8*
	Benzene	-Naphtha	251.5	239.5	254.0	166.5	171.0	246.5	166.5	377.3	197.0	230.7
	Change, %			*5.0*	*(1.0)*	*51.1*	*47.1*	*2.0*	*51.1*	*(33.3)*	*27.7*	*9.0*
	Toluene	-Naphtha	271.5	272.0	276.5	216.5	208.5	184.0	216.5	216.6	207.8	262.0
	Change, %			*(0.2)*	*(1.8)*	*25.4*	*30.2*	*47.6*	*25.4*	*25.3*	*30.7*	*3.6*
	Xylene	-Naphtha	261.5	247.0	244.0	211.5	228.5	194.0	211.5	189.9	206.3	254.5
	Change, %			*5.9*	*7.2*	*23.6*	*14.4*	*34.8*	*23.6*	*37.7*	*26.8*	*2.8*

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

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Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2014avg.	2015avg.	2016acc.
Spot Price	HDPE	CFR SE Asia	1,195.0	1,195.0	1,125.0	1,065.0	1,085.0	1,325.0	1,065.0	1,524.9	1,230.1	1,111.8
	Change, %			0.0	6.2	12.2	10.1	(9.8)	12.2	(21.6)	(2.9)	7.5
	MEG	CFR SE Asia	702.5	705.0	702.5	617.5	565.0	855.0	617.5	934.1	780.8	642.9
	Change, %			(0.4)	0.0	13.8	24.3	(17.8)	13.8	(24.8)	(10.0)	9.3
	PVC	CFR SE Asia	795.0	795.0	755.0	715.0	715.0	890.0	715.0	1,013.9	820.8	743.2
	Change, %			0.0	5.3	11.2	11.2	(10.7)	11.2	(21.6)	(3.1)	7.0
	PP	CFR SE Asia	1,065.0	1,025.0	895.0	835.0	885.0	1,295.0	835.0	1,503.0	1,109.8	890.4
	Change, %			3.9	19.0	27.5	20.3	(17.8)	27.5	(29.1)	(4.0)	19.6
	2-EH	CFR Korea	812.5	810.0	710.0	680.0	685.0	1,035.0	680.0	1,397.1	930.1	715.9
	Change, %			0.3	14.4	19.5	18.6	(21.5)	19.5	(41.8)	(12.6)	13.5
	ABS	CFR SE Asia	1,365.0	1,325.0	1,215.0	1,130.0	1,117.5	1,585.0	1,130.0	1,897.7	1,431.1	1,185.0
	Change, %			3.0	12.3	20.8	22.1	(13.9)	20.8	(28.1)	(4.6)	15.2
	SBR	CFR SE Asia	1,445.0	1,445.0	1,250.0	1,150.0	1,105.0	1,340.0	1,150.0		1,332.1	1,269.6
	Change, %			0.0	15.6	25.7	30.8	7.8	25.7		8.5	13.8
	SM	CFR SE Asia	1,137.5	1,147.5	1,105.0	910.0	917.5	1,195.0	910.0	1,547.1	1,100.7	1,021.8
	Change, %			(0.9)	2.9	25.0	24.0	(4.8)	25.0	(26.5)	3.3	11.3
	Caustic	FOB NEA	285.0	280.0	285.0	285.0	290.0	300.0	285.0	310.0	296.8	285.7
	Change, %			1.8	0.0	0.0	(1.7)	(5.0)	0.0	(8.1)	(4.0)	(0.3)
	PX	CFR SE Asia	815.0	805.0	772.5	762.5	787.5	835.0	762.5	1,228.5	842.9	754.1
	Change, %			1.2	5.5	6.9	3.5	(2.4)	6.9	(33.7)	(3.3)	8.1
	PO	CFR China	1,345.0	1,360.0	1,182.5	1,257.5	1,445.0	2,030.0	1,257.5	2,179.2	1,683.4	1,200.7
	Change, %			(1.1)	13.7	7.0	(6.9)	(33.7)	7.0	(38.3)	(20.1)	12.0
	Caprolactam	CFR SE Asia	1,300.0	1,240.0	1,150.0	1,260.0	1,300.0	1,715.0	1,260.0	2,233.4	1,581.5	1,200.7
	Change, %			4.8	13.0	3.2	0.0	(24.2)	3.2	(41.8)	(17.8)	8.3
	PTA	CFR SE Asia	622.5	610.0	585.0	585.0	620.0	640.0	585.0	911.7	648.0	586.4
	Change, %			2.0	6.4	6.4	0.4	(2.7)	6.4	(31.7)	(3.9)	6.2
Spread	HDPE		806.5	812.0	781.5	651.5	638.5	809.0	651.5	659.0	737.1	761.3
	Change, %			(0.7)	3.2	23.8	26.3	(0.3)	23.8	22.4	9.4	5.9
	MEG		314.0	322.0	359.0	204.0	118.5	339.0	204.0	68.2	287.8	292.3
	Change, %			(2.5)	(12.5)	53.9	165.0	(7.4)	53.9	360.2	9.1	7.4
	PVC		406.5	412.0	411.5	301.5	268.5	374.0	301.5	148.0	327.8	392.7
	Change, %			(1.3)	(1.2)	34.8	51.4	8.7	34.8	174.6	24.0	3.5
	PP		676.5	642.0	551.5	421.5	438.5	779.0	421.5	637.1	616.8	539.8
	Change, %			5.4	22.7	60.5	54.3	(13.2)	60.5	6.2	9.7	25.3
	2-EH		424.0	427.0	366.5	266.5	238.5	519.0	266.5	531.3	437.0	365.4
	Change, %			(0.7)	15.7	59.1	77.8	(18.3)	59.1	(20.2)	(3.0)	16.1
	ABS		976.5	942.0	871.5	716.5	671.0	1,069.0	716.5	1,031.9	938.1	834.5
	Change, %			3.7	12.0	36.3	45.5	(8.7)	36.3	(5.4)	4.1	17.0
	SBR	BD spread	440.0	440.0	260.0	430.0	465.0	500.0	430.0		454.7	408.9
	Change, %			0.0	69.2	2.3	(5.4)	(12.0)	2.3		(3.2)	7.6
	SM		749.0	764.5	761.5	496.5	471.0	679.0	496.5	681.2	607.7	671.3
	Change, %			(2.0)	(1.6)	50.9	59.0	10.3	50.9	9.9	23.3	11.6
	Caustic											
	Change, %											
	PX		426.5	422.0	429.0	349.0	341.0	319.0	349.0	362.6	349.9	403.6
	Change, %			1.1	(0.6)	22.2	25.1	33.7	22.2	17.6	21.9	5.7
	PO	propylene sprea	635.0	710.0	527.5	607.5	830.0	1,020.0	607.5	925.0	913.4	592.5
	Change, %			(10.6)	20.4	4.5	(23.5)	(37.7)	4.5	(31.4)	(30.5)	7.2
	Caprolactam	benzene sprea	660.0	617.5	552.5	680.0	682.5	952.5	680.0	990.3	891.6	619.5
	Change, %			6.9	19.5	(2.9)	(3.3)	(30.7)	(2.9)	(33.4)	(26.0)	6.5
	PTA	px spread	52.0	46.5	44.3	51.3	68.8	55.5	51.3	51.8	58.0	58.6
	Change, %			11.8	17.5	1.5	(24.4)	(6.3)	1.5	0.5	(10.4)	(11.2)

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

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Global peers

	Currency	04/04	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER 15	PER 16E	PBR 15	PBR 16E	EV/EBITDA 15	EV/EBITDA 16E
Petrochemical																
Dow Chemical	USD	51.1	(0.1)	(1.0)	1.6	2.3	14.9	5.9	(0.8)	57,292	15.0	12.9	2.4	2.3	7.9	7.1
Du Pont	USD	63.8	(0.2)	(0.6)	1.0	1.2	29.5	(5.9)	(4.2)	55,708	21.1	18.2	6.0	4.9	11.7	10.3
Eastman	USD	72.5	(1.6)	(0.5)	4.1	8.8	9.3	6.5	7.4	10,726	10.3	9.4	2.4	2.1	7.9	7.6
BASF	EUR	64.8	(0.6)	(2.0)	2.7	(4.7)	(3.4)	(30.0)	(8.3)	67,837	14.7	13.1	1.9	1.9	7.4	6.8
Akzo Nobel	EUR	59.0	0.1	0.1	6.1	(1.8)	2.9	(17.2)	(4.4)	16,730	14.3	13.5	2.2	2.0	7.5	7.2
Arkema	EUR	66.1	0.3	2.4	5.8	6.0	13.4	(10.7)	2.3	5,609	13.5	11.3	1.3	1.2	5.8	5.3
Lanxess	EUR	43.0	0.1	4.6	3.8	4.0	3.8	(13.8)	0.7	4,484	18.0	14.2	1.6	1.5	5.7	5.2
Sumitomo Chemical	JPY	471	(2.5)	(9.4)	(9.1)	(29.2)	(28.2)	(23.5)	(32.8)	7,013	8.4	7.4	0.9	0.8	6.6	6.1
Mitsubishi Chemical	JPY	558	(0.9)	(8.9)	(11.1)	(25.1)	(12.1)	(21.5)	(27.9)	7,564	8.9	7.8	0.8	0.7	5.6	5.4
Shin-Etsu Chemical	JPY	5,713	0.6	(3.2)	(5.6)	(11.9)	(10.2)	(25.8)	(13.7)	22,204	16.1	14.8	1.1	1.1	5.5	5.0
Asahi Kasei	JPY	728	(2.0)	(2.8)	5.1	(11.3)	(14.3)	(37.2)	(11.5)	9,189	10.7	9.6	0.8	0.8	5.3	5.1
JSR	JPY	1,573	0.4	(5.5)	(8.4)	(15.0)	(10.8)	(27.3)	(17.2)	3,199	11.6	10.9	0.9	0.9	4.7	4.4
Nitto Denko	JPY	5,925	(0.1)	(8.7)	(11.5)	(31.1)	(25.3)	(24.5)	(33.5)	9,260	11.9	11.5	1.4	1.3	5.0	4.8
SABIC	SAR	75.6	1.7	(0.7)	1.7	0.5	(3.0)	(6.0)	(1.2)	60,482	16.0	13.5	1.3	1.3	7.5	6.6
Yansab	SAR	38.0	1.7	(2.0)	3.6	22.4	(13.4)	(12.1)	17.3	5,703	16.5	13.3	1.4	1.4	8.7	8.1
Formosa Plastics	TWD	79.5	0.0	(0.6)	(0.6)	9.8	12.3	6.3	3.2	15,682	16.6	15.4	1.6	1.5	24.2	22.2
Formosa Fiber	TWD	81.1	0.0	2.8	5.2	18.9	17.2	14.2	9.6	14,729	17.7	16.9	1.5	1.5	14.1	13.5
Nan Ya Plastics	TWD	66.9	0.0	(0.1)	1.4	16.6	16.6	(3.7)	9.7	16,441	15.7	15.1	1.5	1.5	15.1	14.5
Sinopec Shanghai	CNY	7.42	0.0	14.9	16.9	26.0	16.3	31.6	14.5	10,120	20.9	21.9	3.6	3.2	10.0	10.2
Sinopec Yizheng(Fibe	CNY	5.08	0.0	1.6	(10.2)	(31.2)	(47.1)	(42.9)	(37.7)	9,901	#N/A N/A	211.7	2.9	2.9	17.1	14.0
Reliance	INR	1,035	0.1	1.4	2.8	4.0	19.7	23.8	1.9	50,773	11.3	10.0	1.2	1.1	8.5	7.2
Industries Qatar	QAR	107.1	0.1	0.1	(0.5)	1.2	(11.9)	(23.7)	(3.6)	17,794	14.5	13.3	1.9	1.9	55.0	52.7
PTT Chemical	THB	59.5	(2.5)	2.1	6.7	19.0	12.8	10.2	19.0	7,530	10.6	9.5	1.0	1.0	5.4	5.1
Petronas	MYR	6.7	0.1	0.4	(3.6)	(4.7)	11.1	21.0	(7.4)	13,797	18.7	17.2	2.1	1.9	9.3	8.5
LG화학	KRW	326,500	2.8	2.2	9.6	(4.4)	18.1	43.5	(0.6)	18,775	0.0	15.9	0.0	1.7	0.0	6.5
롯데케미칼	KRW	337,500	0.4	(1.9)	7.7	37.8	26.4	53.8	38.6	10,038	0.0	9.0	0.0	1.3	0.0	4.8
한화케미칼	KRW	24,200	0.4	3.4	(0.8)	(9.4)	13.1	69.2	(11.0)	3,461	0.0	9.9	0.0	0.8	0.0	9.0
금호석유	KRW	57,200	1.1	(2.6)	(3.7)	9.4	1.1	(25.7)	9.8	1,512	0.0	14.0	0.0	1.1	0.0	9.4
SKC	KRW	30,200	0.8	(3.5)	(3.7)	(8.1)	(20.2)	(22.3)	(10.7)	965	0.0	8.2	0.0	0.7	0.0	7.2
국도화학	KRW	69,400	2.8	10.0	11.9	22.2	(1.8)	28.3	17.0	350	0.0	8.0	0.0	0.9	0.0	4.9
효성	KRW	2,990	(0.7)	3.8	1.7	15.9	6.0	(25.1)	14.6	4,312	0.0	9.1	0.0	1.3	0.0	7.2
Average			**0.1**	**(0.1)**	**1.0**	**1.2**	**1.4**	**(2.7)**	**(2.0)**							
Refinery																
Valero	USD	63.3	0.6	(3.0)	(0.9)	(9.5)	0.3	5.8	(10.5)	29,732	8.9	8.6	1.3	1.2	4.7	4.7
Conoco Phillips	USD	39.1	(1.7)	(1.5)	(4.9)	(16.6)	(23.6)	(38.1)	(16.3)	48,420	#N/A N/A	67.0	1.3	1.3	11.1	6.4
Formosa Petrochemi	TWD	92.9	0.0	1.2	6.1	20.8	18.3	36.8	17.9	27,422	20.3	19.7	3.2	3.1	13.1	13.1
Tesoro	USD	83.8	1.1	(6.9)	(1.1)	(21.7)	(17.4)	(3.2)	(20.4)	10,050	10.1	10.6	1.6	1.5	5.7	5.7
Marathon Petroleum	USD	36.7	0.7	(0.9)	(1.1)	(28.5)	(24.5)	(24.5)	(29.3)	19,396	8.7	8.3	1.4	1.3	6.1	5.8
Devon Energy	USD	26.1	(2.1)	0.8	11.8	(19.4)	(36.0)	(58.4)	(18.6)	13,647	#N/A N/A	44.1	1.8	1.7	13.5	8.3
Hollyfrontier	USD	34.6	1.0	(3.2)	(1.0)	(14.1)	(31.7)	(8.7)	(13.4)	6,101	11.6	9.6	1.1	1.1	5.9	5.4
Phillips 66	USD	85.7	0.1	(2.0)	(0.1)	7.1	7.9	9.7	4.8	45,113	13.7	11.6	1.9	1.7	7.7	7.1
Murphy Oil	USD	23.8	(1.8)	(1.1)	0.5	3.8	(8.1)	(50.8)	6.1	4,102	#N/A N/A	#N/A N/A	0.8	0.9	7.5	5.1
JX Holdings	JPY	425.1	0.5	(5.3)	(11.3)	(17.1)	(3.1)	(8.3)	(16.4)	9,542	7.9	7.2	0.6	0.6	9.9	9.5
Cosmo Oil	JPY	164.0	0.0	0.0	0.0	0.0	0.0	(3.0)	0.0	1,151	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Idemitsu	JPY	1,915.0	(0.2)	(2.9)	1.4	(2.1)	5.3	(8.8)	(1.2)	2,756	5.9	5.5	0.5	0.5	8.0	8.0
Tonengeneral	JPY	973.0	(0.9)	(2.8)	4.3	(6.0)	(18.6)	(8.6)	(4.8)	3,203	10.8	8.9	1.4	1.3	12.6	7.1
Nesteoil	EUR	28.9	(0.3)	(3.0)	0.2	6.8	38.5	20.5	4.7	0	10.9	11.8	2.1	1.9	6.9	7.3
Ashland	USD	110.7	0.5	2.5	9.9	8.3	7.0	(13.0)	7.7	6,996	15.5	13.9	2.7	2.4	9.0	8.7
Fuchs Petrolub	EUR	39.0	(0.8)	0.0	1.6	(9.5)	(4.1)	2.8	(10.5)	5,761	21.6	20.6	4.5	4.0	12.4	11.8
SK이노베이션	KRW	163,000	(3.3)	0.6	9.0	29.4	59.0	59.0	25.4	13,078	0.0	9.6	0.0	0.9	0.0	5.9
S-Oil	KRW	94,500	(2.3)	2.7	12.2	21.2	51.4	40.6	19.0	9,232	0.0	10.4	0.0	1.8	0.0	7.2
GS	KRW	57,800	0.2	4.3	6.6	17.7	23.1	30.6	14.0	4,660	0.0	8.0	0.0	0.8	0.0	7.5
Average			**(0.5)**	**(1.1)**	**2.3**	**(1.6)**	**2.3**	**(1.0)**	**(2.2)**							

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

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Global peers

	Currency	04/04	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER 15	PER 16E	PBR 15	PBR 16E	EV/EBITDA 15	EV/EBITDA 16E
E&P/Shale																
Exxon Mobil	USD	83	0.2	(1.3)	1.1	7.4	9.6	(1.4)	6.7	345,343	34.5	19.3	2.1	2.0	10.9	7.9
BP	GBP	345	0.3	(2.4)	(6.3)	(0.8)	(1.9)	(22.2)	(2.6)	91,713	28.6	12.8	1.0	1.0	5.6	4.4
Shell	EUR	1,678	0.6	0.0	0.0	10.7	4.3	(17.1)	9.9	192,778	21.5	12.1	0.9	0.9	5.8	4.3
Chevron	USD	93	(0.9)	(1.3)	6.3	5.2	14.6	(11.3)	3.9	175,943	69.6	19.1	1.2	1.2	8.3	5.7
Total	EUR	39	1.0	(2.5)	(8.2)	(3.3)	(5.0)	(14.5)	(5.1)	109,547	15.7	11.0	1.1	1.1	6.7	5.2
Sinopec	CNY	5	0.0	7.9	4.5	2.5	3.4	(24.0)	(1.2)	88,920	19.0	13.2	0.9	0.8	5.7	4.9
Petrochina	CNY	8	0.0	0.9	(2.0)	(5.8)	(6.9)	(35.3)	(8.3)	205,243	55.5	24.1	1.2	1.1	7.9	6.8
CNOOC	CNY	13	0.0	1.7	(2.0)	(8.2)	(17.0)	(41.8)	(15.9)	7,339	55.6	30.2	1.3	1.3	13.0	11.0
Gazprom	RUB	146	(0.6)	0.9	0.2	8.5	11.3	1.7	7.6	50,688	3.2	2.9	0.3	0.3	3.3	2.8
Rosneft	RUB	310	2.6	2.3	2.4	23.3	31.9	17.4	22.2	47,979	8.8	5.9	0.9	0.7	4.2	3.6
Anadarko	USD	45	(2.7)	(2.3)	(1.5)	(9.2)	(30.4)	(47.3)	(8.2)	23,008	#N/A N/A	#N/A N/A	1.7	1.9	11.7	7.7
Petrobras	BRL	8	(9.3)	(10.2)	5.0	10.3	(2.4)	(29.3)	13.1	31,739	23.0	5.4	0.4	0.4	6.3	5.0
Lukoil	USD	2,692	2.6	4.7	(3.0)	16.5	25.8	(4.7)	14.8	33,678	8.9	5.6	0.3	0.3	N/A	N/A
Kinder	USD	17	(0.7)	(3.5)	(7.2)	12.6	(42.0)	(58.8)	15.2	47,497	24.2	21.1	1.0	1.0	10.8	10.2
Statoil	NOK	125	(1.0)	(6.0)	(6.8)	1.0	(1.3)	(13.4)	0.8	47,865	34.1	14.9	1.2	1.1	3.4	2.7
BHP	AUD	17	(2.7)	(2.8)	(6.5)	(7.2)	(26.9)	(41.5)	(7.5)	63,613	35.3	18.3	1.2	1.2	7.7	6.2
PTT E&P	THB	68	(2.2)	0.7	(5.9)	22.4	(2.8)	(39.9)	19.2	7,688	25.6	14.9	0.7	0.7	2.8	2.5
Petronas gas	MYR	22	0.2	0.2	(1.7)	1.4	(0.5)	(4.7)	(3.3)	11,125	23.6	23.1	3.7	3.5	13.6	13.2
Chesapeake	USD	4	(2.9)	(10.4)	(26.8)	(24.8)	(52.9)	(74.5)	(17.3)	2,532	#N/A N/A	11.4	1.4	1.2	14.9	9.8
Noble Energy	USD	30	(2.8)	1.0	(7.5)	(10.4)	(5.1)	(39.9)	(8.9)	13,008	#N/A N/A	#N/A N/A	1.3	1.4	10.0	8.8
Average		**0**	**(0.9)**	**(1.1)**	**(3.3)**	**2.6**	**(4.7)**	**(25.1)**	**1.8**							
PV																
WACKER	EUR	75.9	(0.7)	2.7	(3.4)	0.4	11.4	(30.2)	(2.1)	4,512	27.0	15.4	1.5	1.4	5.2	4.7
GCL-Poly	HKD	1.3	0.0	0.8	4.9	13.3	(16.2)	(40.5)	10.3	3,068	8.0	7.2	0.9	0.8	6.2	5.5
REC	NOK	107.5	0.0	0.0	0.0	0.0	0.0	5.9	0.0	519	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
SunEdison	USD	0.2	(50.9)	(83.3)	(88.1)	(96.3)	(97.4)	(99.2)	(95.9)	78	#N/A N/A	#N/A N/A	0.0	0.0	20.3	10.6
Canadian Solar	USD	18.0	(5.4)	(3.4)	(20.2)	(35.7)	(4.2)	(46.9)	(37.9)	1,007	9.7	6.6	1.1	0.9	6.6	5.2
JA Solar	USD	8.8	1.9	4.0	(3.9)	(8.4)	5.1	(8.9)	(9.2)	445	5.5	5.0	0.4	0.4	2.7	2.3
Trina Solar	USD	9.8	(1.7)	(1.8)	(7.1)	(10.1)	2.2	(21.1)	(11.5)	899	6.9	6.2	0.7	0.6	6.1	5.1
Solar City	USD	25.0	3.0	15.3	11.7	(52.6)	(46.1)	(52.2)	(51.0)	2,448	#N/A N/A	#N/A N/A	10.9	#N/A N/A	#N/A N/A	#N/A N/A
Yingli	USD	4.8	3.7	5.5	4.8	7.0	13.8	(74.4)	5.3	87	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	9.0	8.9
First Solar	USD	67.2	(0.4)	(1.7)	(3.3)	0.8	47.9	9.9	1.9	6,843	15.7	17.9	1.2	1.1	9.8	9.2
한화솔라원	USD	14.3	(4.8)	(3.4)	(17.9)	(35.9)	3.8	(27.0)	(34.8)	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
OCI	KRW	101,000	1.0	10.1	5.2	38.9	23.6	(1.5)	34.7	2,090	0.0	14.1	0.0	0.8	0.0	11.1
웅진에너지	KRW	1,330	(3.6)	(11.6)	(20.4)	(21.8)	(15.3)	(21.8)	(23.1)	125	N/A	0.0	0.8	0.0	11.1	0.0
신성솔라에너지	KRW	1,520	(3.2)	(4.1)	(12.5)	(13.8)	31.8	19.0	(18.1)	133	N/A	0.8	0.0	11.1	0.0	9.1
Average			**(4.4)**	**(5.1)**	**(10.7)**	**(15.3)**	**(2.8)**	**(27.8)**	**(16.5)**							
Gas Company																
Towngas China	HKD	3.9	0.0	1.3	(11.5)	(9.7)	(21.0)	(48.6)	(13.1)	1,344	7.8	7.7	0.7	0.7	9.8	9.2
Kulun	HKD	6.7	0.0	2.1	8.4	(0.6)	15.2	(12.9)	(3.2)	6,953	13.8	10.8	1.0	0.9	5.5	5.1
Beijing Enterprise	HKD	39.3	0.0	(2.2)	0.3	(14.4)	(16.8)	(36.1)	(16.3)	6,501	7.9	7.4	0.8	0.7	12.5	11.2
ENN Energy	HKD	42.1	0.0	1.3	5.0	5.4	10.6	(16.9)	1.8	5,877	13.1	11.6	2.4	2.1	8.4	7.6
China Resources Gas	HKD	21.6	0.0	(2.7)	(3.8)	(3.1)	5.9	(9.4)	(6.7)	6,194	13.9	12.4	2.4	2.1	8.8	7.9
China Gas Holdings	HKD	11.3	0.0	0.4	1.1	6.0	3.1	(14.1)	1.3	7,168	12.6	11.1	2.3	2.0	10.4	9.2
Shenzen Gas	HKD	12.5	0.0	2.5	1.6	(10.8)	13.8	4.0	(12.7)	3,066	11.5	10.3	1.1	1.1	7.1	6.4
Shann Xi	CNY	10.4	0.0	9.2	19.4	(11.0)	(9.6)	(31.5)	(17.8)	1,778	15.6	12.6	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Suntien	HKD	0.9	0.0	(6.5)	(14.7)	(27.5)	(38.7)	(58.0)	(29.8)	417	7.9	6.3	0.3	0.3	6.9	5.7
China Oil & Gas	HKD	0.5	0.0	(1.1)	1.1	(13.2)	(3.2)	(46.8)	(13.2)	346	7.5	6.8	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Average			**0.0**	**0.4**	**0.7**	**(7.9)**	**(4.1)**	**(27.0)**	**(11.0)**							
EV																
LG화학	KRW	326,500	2.8	2.2	9.6	(4.4)	18.1	43.5	(0.6)	18,775	15.2	13.5	1.6	1.5	6.6	6.1
삼성SDI	KRW	99,300	1.6	(0.7)	2.0	(11.7)	(5.9)	(26.7)	(12.9)	5,925	8.2	21.2	0.6	0.6	10.0	7.3
Panasonic	JPY	907.1	(3.0)	(10.1)	(10.7)	(25.5)	(26.4)	(42.1)	(26.9)	20,014	9.9	8.9	1.0	0.9	3.0	2.8
GS Yuasa	JPY	478.0	3.5	(3.0)	(3.4)	7.7	(0.4)	(11.0)	5.8	1,778	13.0	11.5	1.1	1.0	6.3	5.9
NEC	JPY	272.0	(0.7)	(4.2)	1.5	(27.9)	(28.0)	(25.3)	(29.4)	6,372	9.8	8.8	0.8	0.7	5.8	5.7
BYD Auto	CNY	58.3	0.0	0.4	8.6	(0.8)	(2.8)	(5.0)	(9.5)	19,150	41.5	28.9	4.1	3.7	13.9	11.8
Tesla Motors	USD	247.0	4.0	7.3	22.9	10.6	(0.2)	29.3	2.9	32,617	212.6	81.5	25.6	19.7	42.6	28.0
Kandi Technologies	USD	7.0	(2.1)	0.9	(1.5)	(34.2)	22.7	(42.7)	(35.5)	331	#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			**0.8**	**(0.9)**	**3.6**	**(10.8)**	**(2.9)**	**(10.0)**	**(13.3)**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임