

# HollyFrontier Corporation Regional Crack Spread Index



**HOLLYFRONTIER**®

Crude Charge	2Q17	3Q17	4Q17	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19*
		467,000	455,000	461,000	415,000	463,000	442,000	406,000	400,000

\*Anticipated crude charge based on guidance given on 5/2/19

## Refining Index

WTI Based 321 Crack	1Q 2019				2Q 2019				3Q 2019				4Q 2019			
	Jan	Feb	Mar	1Q19	Apr	May	Jun	2Q19	Jul	Aug	Sep	3Q19	Oct	Nov	Dec	4Q19
MidCon	\$9.32	\$14.48	\$20.42	\$14.74	\$20.76	\$21.38										
Rockies	\$13.82	\$13.16	\$19.54	\$15.51	\$28.01	\$36.78										
Southwest	\$15.56	\$18.30	\$23.59	\$19.15	\$30.71	\$35.35										

WTI Based 321 Crack	1Q 2018				2Q 2018				3Q 2018				4Q 2018			
	Jan	Feb	Mar	1Q18	Apr	May	Jun	2Q18	Jul	Aug	Sep	3Q18	Oct	Nov	Dec	4Q18
MidCon	\$16.05	\$15.12	\$15.50	\$15.56	\$16.36	\$19.47	\$18.61	\$18.15	\$16.78	\$19.20	\$20.72	\$18.90	\$17.21	\$14.95	\$12.19	\$14.78
Rockies	\$13.94	\$15.49	\$17.55	\$15.66	\$25.55	\$28.66	\$31.65	\$28.62	\$28.25	\$31.87	\$26.12	\$28.75	\$27.09	\$31.82	\$21.09	\$26.67
Southwest	\$11.51	\$10.69	\$18.90	\$13.70	\$27.32	\$30.78	\$32.58	\$30.23	\$19.93	\$22.91	\$24.75	\$22.53	\$26.29	\$30.10	\$25.09	\$27.16

## Base Oil Index

VGO Based Base Oil Crack	1Q 2019				2Q 2019				3Q 2019				4Q 2019			
	Jan	Feb	Mar	1Q19	Apr	May	Jun	2Q19	Jul	Aug	Sep	3Q19	Oct	Nov	Dec	4Q19
Group I	\$19.95	\$13.34	\$9.77	\$14.35	\$8.23	\$8.29										
Group II	\$18.13	\$10.54	\$7.14	\$11.94	\$5.66	\$6.26										
Group III	\$51.03	\$47.99	\$44.17	\$47.73	\$40.96	\$41.65										

VGO Based Base Oil Crack	1Q 2018				2Q 2018				3Q 2018				4Q 2018			
	Jan	Feb	Mar	1Q18	Apr	May	Jun	2Q18	Jul	Aug	Sep	3Q18	Oct	Nov	Dec	4Q18
Group I	\$18.06	\$25.73	\$33.23	\$25.67	\$23.42	\$22.42	\$22.47	\$22.77	\$18.74	\$16.88	\$8.87	\$14.83	\$6.09	\$18.01	\$23.78	\$15.96
Group II	\$15.47	\$23.84	\$31.71	\$23.67	\$21.53	\$19.95	\$19.52	\$20.33	\$16.91	\$14.53	\$6.40	\$12.61	\$3.95	\$15.82	\$21.77	\$13.85
Group III	\$42.14	\$49.88	\$54.32	\$48.78	\$47.46	\$46.59	\$45.75	\$46.60	\$43.02	\$42.03	\$35.74	\$40.26	\$34.05	\$46.90	\$51.31	\$44.09

The preceding data is for informational purposes only and is not reflective or intended to be an indicator of HollyFrontier's past or future financial results. This data is general industry information and does not reflect prices paid or received by HFC. The data was compiled from publicly available information, various industry publications, other published industry sources, including OPIS and Argus, and our own internal data and estimates. Although this data is believed to be reliable, HFC has not had this information verified by independent sources. HFC does not make any representation as to the accuracy of the data and does not undertake any obligation to update, revise or continue to provide the data.

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## Light Product Index Appendix

### Product Yield by Region

	Average Product Yield 2018			
	Index	MidCon	Rockies	Southwest
Gasoline	67%	51%	55%	50%
Distillate	33%	39%	33%	40%
Asphalt		3%	5%	4%
Base Oils		4%	0%	0%
LPG & other		3%	7%	6%

Other products include Fuel Oil and Gas Oil

Numbers are rounded and may not sum to 100%

### Feedstocks by Region

	Average Crude Slate 2018			
	Index	MidCon	Rockies	Southwest
Sweet	100%	54%	28%	27%
Sour		24%	0%	65%
Heavy		16%	42%	0%
Black Wax		0%	21%	0%
Other		6%	9%	8%

Other feedstocks include butane, natural gasoline, propane, and olefins

Numbers are rounded and may not sum to 100%

### Upcoming Turnarounds

Refinery	Timing	Length	Units
Cheyenne	4Q19	50 days	Crude/Coker
El Dorado	4Q19	45 days	FCC/Alky

HFC's actual pricing and margins may differ from benchmark indicators due to many factors. For example:

- Crude Slate differences – HFC runs a wide variety of crude oils across its refining system and crude slate may vary quarter to quarter.
- Product Yield differences – HFC's product yield differs from indicator and can vary quarter to quarter as a result of changes in economics, crude slate, and operational downtime.
- Other differences including but not limited to secondary costs such as product and feedstock transportation costs, purchases of environmental credits, quality differences, location of purchase or sale, and hedging gains/losses.

Moreover, the presented indicators are generally based on spot sales, which may differ from realized contract prices.

Market prices are available from a variety of sources, each of which may vary slightly. Please note that this data may differ from other sources due to adjustments made by data providers and due to differing data definitions. Below are indicator definitions used for purposes of this data.

MidCon Indicator: (100% Group 3: Sub octane and ULSD) – WTI

Rockies Indicator as of July 1, 2016: 50% Cheyenne: ((100% Denver Regular Gasoline; 100% Denver ULSD) – WTI)

50% Woods Cross: ((60% Salt Lake City Regular Gasoline, 40% Las Vegas Regular Gasoline; 80% Salt Lake City ULSD, 20% Las Vegas ULSD) – WTI)

Rockies Indicator 2011- July-2016: 60% Cheyenne: ((100% Denver Regular Gasoline; 100% Denver ULSD) – WTI)

40% Woods Cross: ((60% Salt Lake City Regular Gasoline, 40% Las Vegas Regular Gasoline; 80% Salt Lake City ULSD, 20% Las Vegas ULSD) – WTI)

Southwest Indicator 2013-Current: (50% El Paso Subgrade, 50% Phoenix CBG; 50% El Paso ULSD, 50% Phoenix ULSD) – WTI

Southwest Indicator 2011-2012: (50% El Paso Regular, 50% Phoenix CBG; 50% El Paso ULSD, 50% Phoenix ULSD) – WTI

## Lubricants Index Appendix

HFC's actual pricing and margins differ from benchmark indicators due to many factors. For example:

- Retail/Distribution- HFC and PCLI use commodity base oils to produce finished lubricants, specialty products and white oils that are sold into the retail market worldwide and have a wide variety of price ranges.
- Feedstock differences – HFC runs a variety of vacuum gas oil streams and hydrocracker bottoms across its refining system and feedstock slate may vary quarter to quarter.
- Product Yield differences – HFC's product yield differs from indicator and can vary quarter to quarter as a result of changes in economics and feedstocks.
- Other differences including, but not limited to secondary costs such as product and feedstock transportation costs, quality differences and location of purchase or sale. Moreover, the presented indicators are generally based on spot commodity base oil sales, which may differ from realized contract prices.

Market prices are available from a variety of sources, each of which may vary slightly. Please note that this data may differ from other sources due to adjustments made by data providers and due to differing data definitions. Below are indicator definitions used for purposes of this data.

Group I Base Oil Indicator (50% Group I SN150, 50% Group I SN500)-VGO

Group II Base Oil Indicator (33.3% Group II N100, 33.3% Group II N220, 33.3% Group II N600)-VGO

Group III Base Oil Indicator (33.3% Group III 4cst, 33.3% Group III 6cst, 33.3% Group III 8cst)-VGO

VGO (US Gulf Coast Low Sulfur Vacuum Gas Oil)

Statements made and information that are not historical facts are "forward looking statements" within the meaning of the U.S. Private Securities Litigation Reform Act of 1995. Forward-looking statements are inherently uncertain and necessarily involve risks that may affect the business prospects and performance of HFC, and actual results may differ materially from estimates. Such risks and uncertainties include but are not limited to actual crude charge differing from the Company's expectations, the demand for and supply of crude oil and refined products and the spread between market prices for refined products and market prices for crude oil. Additional information on risks and uncertainties that could affect the business prospects and performance of HFC is provided in the most recent reports of HFC filed with the Securities and Exchange Commission. All forward-looking statements included herein are expressly qualified in their entirety by the foregoing cautionary statements. HFC undertakes no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.