

Mineral Industry Surveys

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MARKETABLE PHOSPHATE ROCK AND POTASH—CROP YEAR 2016

Because the growth cycles for most agricultural commodities do not coincide with the calendar year, the fertilizer industry tracks fertilizer use by crop year (July 1 - June 30 of 2 consecutive years). Taking that into account, the U.S. Geological Survey compiles phosphate rock and potash data by calendar year and crop year.

Marketable Phosphate Rock

U.S. production of marketable phosphate rock was 26.2 million metric tons (Mt) in crop year 2016, which ended June 30, 2016, compared with 26.1 Mt in crop year 2015.

Marketable phosphate rock used was 26.0 Mt, compared with 26.6 Mt in crop year 2015. No sales of phosphate rock were reported because all phosphate rock is used internally by the companies that mine it. The manufacturing of wet-process phosphoric acid for fertilizers and animal feed supplements was estimated to have accounted for more than 95% of phosphate rock consumption. The remainder was used to produce elemental phosphorus or defluorinated phosphate rock.

Phosphate rock data for this report were collected through semiannual canvasses of U.S. phosphate rock producers. All companies that produced phosphate rock in the United States participated in the voluntary surveys, representing 100% of the production, use, and value data shown in the tables.

Domestic apparent consumption decreased by about 2.4% to 27.7 Mt in crop year 2016, from 28.4 Mt in crop year 2015, because of lower phosphoric acid and fertilizer production. Producers' stocks increased by 36% to 9.34 Mt in crop year 2016.

The average unit value of marketable phosphate rock used in the United States was \$83.78 per metric ton, compared with \$72.94 per metric ton in crop year 2015. Imports of phosphate rock decreased by 2.3% to 1.72 Mt compared with 1.76 Mt in crop year 2015. Mining companies reported no exports of phosphate rock in crop year 2016.

Potash

U.S. production of potash was 680,000 metric tons (t) of K₂O equivalent in crop year 2016 compared with 750,000 t in crop year 2015. Sales of potash were 590,000 t in crop year 2016 compared with 830,000 t in crop year 2015. Production and sales of potash were lower owing in part to Intrepid Potash Inc., the leading U.S. producer, ceasing production of muriate of potash (MOP) from its underground mines in New Mexico. Intrepid will continue to produce higher-value sulfate of potash magnesia from one of its underground mines in New Mexico and produce MOP from solution mines in New Mexico and Utah (Intrepid Potash Inc., 2016).

Exports of potash increased by 21% to 85,000 t of K₂O from 70,000 t in crop year 2015. Imports decreased by 18% to 4.36 Mt of K₂O from 5.32 Mt in crop year 2015. The total customs value of potash imports decreased by 24% to \$2.13 billion from \$2.82 billion in crop year 2015.

Potash data for this report were collected through semi-annual canvasses of U.S. potash producers. All companies that produced potash in the United States participated in the voluntary surveys, representing 100% of the production, use, and value data shown in the tables.

Apparent consumption of all forms of potash decreased by 20% to 4.9 Mt of K₂O from 6.10 Mt in crop year 2015, owing to lower fertilizer use and lower use in oil well fluid additives.

Reference Cited

Intrepid Potash Inc., 2016, Intrepid Potash announces the idling of its West facility; takes next step in business transformation: Denver, CO, Intrepid Potash Inc. press release, May 9, 1 p. (Accessed September 20, 2016 at <http://investors.intrepidpotash.com/phoenix.zhtml?c=218952&p=irol-newsArticle&ID=2166258>.)

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TABLE 1
SALIENT U.S. PHOSPHATE ROCK STATISTICS¹

(Thousand metric tons and thousand dollars)

	Crop year ²	
	2015	2016
Mine production (crude ore)	119,000	127,000
Marketable phosphate rock production	26,100	26,200
P ₂ O ₅ content	7,310	7,410
Value	1,830,000	2,140,000
Average, dollars per metric ton ³	70.09	81.71
Used by producers	26,600	26,000
P ₂ O ₅ content	7,530	7,340
Value	1,940,000	2,180,000
Average, dollars per metric ton ³	72.94	83.78
Imports for consumption: ⁴	1,760	1,720
Cost, insurance, and freight value	193,000	193,000
Average, dollars per metric ton	109.71	112.13
Consumption ⁵	28,400	27,700
Stocks, June 30, producers	6,870	9,340

¹Data are rounded to no more than three significant digits, except prices.

²July 1–June 30.

³Average value is based on used values.

⁴Source: U.S. Census Bureau.

⁵Expressed as used plus imports.

TABLE 2
PRODUCTION OF PHOSPHATE ROCK IN THE UNITED STATES¹

(Thousand metric tons and thousand dollars)

Period	Mine production, crude ore		Marketable production, beneficiated			Stocks, End of period rock
	Rock	P ₂ O ₅ content	Rock	P ₂ O ₅ content	Value ²	
Crop Year 2015	119,000	14,000	26,100	7,310	1,830,000	6,870
Crop Year 2016:						
July–December 2015	62,500	8,340	13,600	3,830	1,140,000	6,730
January–June 2016	64,300	7,090	12,600	3,580	999,000	9,340
Total	127,000	15,400	26,200	7,410	2,140,000	9,340

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Based on the per ton sold or used values.

TABLE 3
PHOSPHATE ROCK SOLD OR USED BY PRODUCERS
IN THE UNITED STATES¹

(Thousand metric tons and thousand dollars)

Period	Rock	P ₂ O ₅ content	Value ²
Crop Year 2015	26,600	7,530	1,940,000
Crop Year 2016:			
July–December 2015	13,400	3,770	1,130,000
January–June 2016	12,600	3,580	1,050,000
Total	26,000	7,340	2,180,000

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Free on board mine.

TABLE 4
SALIENT POTASH STATISTICS^{1,2}

(Thousand metric tons and thousand dollars unless otherwise specified)

	Year ending June 30	
	2015	2016
United States:		
Production: ³		
Gross weight	1,800 ^r	1,700
K ₂ O equivalent	750 ^r	680
Sales by producers:		
Quantity: ³		
Gross weight	1,900 ^r	1,500
K ₂ O equivalent	830 ^r	590
Value ^{3,4}	670,000 ^r	450,000
Average value: ⁵		
Gross weight dollars per metric ton	360	305
K ₂ O equivalent do.	810 ^r	765
Exports:		
Gross weight	289 ^r	314
K ₂ O equivalent	70 ^r	85
Imports for consumption: ^{6,7}		
Quantity:		
Gross weight	8,780 ^r	7,190
K ₂ O equivalent	5,320 ^r	4,360
Value, customs	2,820,000 ^r	2,130,000
Consumption, apparent: ^{3,8}		
Gross weight	10,000 ^r	8,400
K ₂ O equivalent	6,100 ^r	4,900

^rRevised. do. Ditto.

¹Includes muriate of potash, sulfate of potash, potassium magnesium sulfate, and some parent salts. Excludes other chemical compounds that contain potassium.

²Data are rounded to no more than three significant digits unless otherwise specified.

³Data are rounded to no more than two significant digits.

⁴Free on board mine.

⁵Rounded to the nearest \$5 to avoid disclosing proprietary data.

⁶Excludes potassium chemicals and mixed fertilizers.

⁷Includes nitrate of potash.

⁸Calculated from sales plus imports minus exports.

TABLE 5
PRICES OF U.S. POTASH, BY TYPE AND GRADE^{1,2}

(Dollars per metric ton of K₂O equivalent)

Type and grade	Crop Year 2015		Crop Year 2016	
	July– December 2014	January– June 2015	July– December 2015	January– June 2016
Muriate, 60% K ₂ O minimum:				
Standard	595	610 ^r	585	395
Granular	555	610 ^r	465	395

^rRevised.

¹Average prices, free on board mine, based on sales.

²Data rounded to nearest \$5.

TABLE 6
U.S. EXPORTS OF POTASH¹

(Metric tons, unless otherwise specified)

Type	Approximate average K ₂ O content (percent)	July-December 2015		January-June 2016		Year ending June 30, 2016	
		Product	K ₂ O equivalent ^c	Product	K ₂ O equivalent ^c	Product	K ₂ O equivalent ^c
Potassium chloride, all grades	61	11,300	6,870	11,200	6,840	22,500	13,700
Potassium nitrate	45	4,520	2,030	4,210	1,900	8,730	3,800
Potassium sulfate	24	165,000	39,600	118,000	28,400	283,000	68,000
Total	XX	181,000	48,500	134,000	37,100	314,000	85,500

^cEstimated. XX Not applicable.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF POTASH¹

(Metric tons, unless otherwise specified)

Type	Approximate average K ₂ O content (percent)	July–December 2015			January–June 2016			Year ending June 30, 2016		
		Product	K ₂ O equivalent ^c	Customs value (thousands)	Product	K ₂ O equivalent ^c	Customs value (thousands)	Product	K ₂ O equivalent ^c	Customs value (thousands)
Potassium chloride	61	3,350,000	2,040,000	\$1,090,000	3,640,000	2,220,000	\$942,000	7,000,000	4,270,000	\$2,040,000
Potassium sulfate	51	53,500	27,300	24,300	60,500	30,900	22,500	114,000	58,200	46,800
Potassium nitrate	45	51,300	23,100	33,100	24,400	11,000	16,100	75,700	34,100	49,200
Potassium nitrate mixtures	14	623	87	131	2,170	303	986	2,790	391	1,120
Total	XX	3,460,000	2,090,000	1,150,000	3,730,000	2,270,000	981,000	7,190,000	4,360,000	2,130,000

^cEstimated. XX Not applicable.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.