

# 2019 Environment Metrics Supplement

The Mosaic Company's 2019 Sustainability Disclosure has been prepared in accordance with the GRI Standards: core option. This supplement provides additional environmental metrics, not covered under the GRI framework, that some stakeholders request as part of their review of our performance. We encourage stakeholders to read this supplement in conjunction with our [2019 Sustainability Disclosure & GRI Index](#) and [2019 Annual Performance Summary](#).

2019 Global Water Withdrawals by Segment Total Water use by Business Segment (,000 m3)						
Business Segment	Municipal	Reclaimed Water	Groundwater	Surface Water	Total	Total Withdrawal Intensity
Phosphate	862	2,175	57,537	157,740	218,313	0.0273
Potash	0	262	6,422	14,491	21,174	0.0027
Mosaic Fertilizantes	94	0	5,901	46,320	52,315	0.0134
Distribution	47	6,205	983	0	7,235	N/A
<b>Mosaic Total</b>	<b>1,003</b>	<b>8,642</b>	<b>70,843</b>	<b>218,550</b>	<b>299,038</b>	<b>0.0151</b>

Note: Phosphate surface water withdrawals include once through cooling water totals. Total water intensity value measured in megaliters per tonne of finished product. Values include all water withdrawals and differ from Mosaic's freshwater intensity reduction target, as reported in Mosaic's State of the Business Report. Phosphate surface water includes seawater withdrawn at our Peru site. Legacy Brazil facilities previously reported under International Distribution segment are now reported under Mosaic Fertilizantes segment. Distribution, as reported here, represents Streamsong Resort and Mosaic-owned facilities involved in warehousing, blending and/or shipping Mosaic's products. Though Distribution is not its own reporting segment, our distribution facilities do consume water in their operations, hence our including the volumes here. Intensity for Distribution facilities is not available using our methodology for calculating intensity since they do not produce finished product tonnes.



# Energy and Emissions

2019 Purchased Energy Intensity by Segment (GJ/Finished Product Tonnes)	
Business Segment	
Phosphate	0.68
Potash	0.53
Mosaic Fertilizantes	0.80
<b>Mosaic Total</b>	<b>0.65</b>
<p>Note: Energy totals in this table include purchased electricity only. Intensity for Distribution facilities is not available using our methodology for calculating intensity since they do not produce finished product tonnes.</p>	

2019 Total Energy Intensity by Segment (GJ/Finished Product Tonnes)	
Business Segment	
Phosphate	2.48
Potash	2.78
Mosaic Fertilizantes	2.44
<b>Mosaic Total</b>	<b>2.60</b>
<p>Note: Energy values in this table are inclusive of energy generated through cogeneration. Companywide values include total energy and differ from Mosaic's energy intensity reduction target, as reported in Mosaic's State of the Business Report. Intensity for Distribution facilities is not available using our methodology for calculating intensity since they do not produce finished product tonnes.</p>	

## GHG Intensity Metrics

2019 GHG Intensity by Segment (tonnes CO <sub>2</sub> e/Finished Product Tonnes)								
Business Segment	Total GHG <sup>1</sup>	Direct GHG <sup>1</sup>	Indirect GHG <sup>1</sup>	Total CO <sub>2</sub>	Direct CO <sub>2</sub>	Indirect CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
Phosphate	0.286	0.209	0.078	0.285	0.208	0.078	0.00	0.00
Potash	0.210	0.116	0.094	0.210	0.116	0.094	0.00	0.00
Mosaic Fertilizantes	0.161	0.140	0.021	0.159	0.139	0.021	0.00	0.00
<b>Mosaic Total</b>	<b>0.232</b>	<b>0.158</b>	<b>0.073</b>	<b>0.231</b>	<b>0.158</b>	<b>0.073</b>	<b>0.00</b>	<b>0.00</b>

Note: <sup>1</sup>Total, Direct and Indirect GHG values are measured in tonnes CO<sub>2</sub>e per tonne of finished product. Summation of parts may be different from total due to rounding. Companywide values differ from Mosaic's GHG reduction target, as reported in Mosaic's State of the Business Report. Intensity for Distribution facilities is not available using our methodology for calculating intensity since they do not produce finished product tonnes.

## Absolute GHG Metrics

2019 Absolute GHGs by Segment (million tonnes CO <sub>2</sub> e, except CH <sub>4</sub> and N <sub>2</sub> O)								
Business Segment	Total GHG <sup>1</sup>	Direct GHG <sup>1</sup>	Indirect GHG <sup>1</sup>	Total CO <sub>2</sub>	Direct CO <sub>2</sub>	Indirect CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
Phosphate	2.29	1.67	0.62	2.28	1.66	0.62	6,104	1,875
Potash	1.66	0.91	0.74	1.65	0.91	0.74	2,547	1,639
Mosaic Fertilizantes	0.63	0.55	0.08	0.62	0.54	0.08	1,794	3,167
<b>Mosaic Total</b>	<b>4.58</b>	<b>3.13</b>	<b>1.45</b>	<b>4.57</b>	<b>3.12</b>	<b>1.45</b>	<b>10,499</b>	<b>6,688</b>

Note: <sup>1</sup>Total, Direct and Indirect GHG values are measured in million tonnes CO<sub>2</sub>e; CH<sub>4</sub> and N<sub>2</sub>O are presented in tonnes. Summation of parts may be different from total due to rounding. CO<sub>2</sub> emissions from Biofuels is 0.16 million tonnes CO<sub>2</sub> from our Mosaic Fertilizantes facilities.



## Other Emissions

2018 Other Emissions by Segment (Tonnes)										
Business Segment	NOx	CO	PM	SO2	VOC	NH3	FL	H2S	SAM	HF
Phosphate	1,324	525	509	15,024	178	1,006	104	12	266	137
Potash	1,656	532	4,972	3	102	0	0	0	0	0
Mosaic Fertilizantes	271	0	762	4,279	0	1	176	0	75	0
<b>Mosaic Total</b>	<b>3,251</b>	<b>1,057</b>	<b>6,244</b>	<b>19,306</b>	<b>280</b>	<b>1,007</b>	<b>280</b>	<b>12</b>	<b>341</b>	<b>137</b>

Note: Values are presented in tonnes. Due to regulatory reporting timelines, this information is not available for the reporting year until the third quarter of the year. We will update here, and in our annual sustainability disclosure, when it is available.

2019 Water Discharges– Mosaic Fertilizantes (tonnes)	
<b>Fluoride</b>	164
<b>Biochemical Oxygen Demand</b>	107
<b>Chemical Oxygen Demand</b>	737
<b>Dissolved Solids</b>	3,894

Note: Per location-specific permit conditions, our Brazil operations monitor for various parameters in operational water discharges. We report those values here. See 306-1 for the remainder of our [disclosure](#) on this topic.

2019 Mining Wastes– Mosaic Fertilizantes (tonnes)	
<b>Limestone</b>	1,774,196
<b>Magnetite</b>	1,853,446
<b>Sulfur Sludge (m3)</b>	17,034
<b>Titanium</b>	9,554,511

Note: Due to the composition of mineral deposits in Brazil, our newly acquired Brazil operations handle various mining wastes we have not historically reported for North America operations in MM3 of our [disclosure](#).



# IUCN Red List Least Concern species in areas near our operations

The following species, potentially found in the vicinity of our operations, have been listed by IUCN Red List as least concern – meaning they are abundant and widespread and not considered at risk from extinction. This content supplements information in 304-4 of our [2019 Sustainability Disclosure & GRI Index](#).

**Brazil**

Enyalius perditus, Haddadus binotatus, yellow-chinned spinetail, amazon kingfisher, American black vulture, american kestrel, anhinga, Aplastodiscus perviridis, aplomado falcon, ash-throated crane, bananaquit, barn swallow, barred antshrike, black jacobin, black-and-white tegu, Black-and-white Tegu, black-backed water-tyrant, black-bellied whistling duck, black-capped antwren, black-crowned night-heron, blackish rail, black-throated saltator, blue and yellow macaw, blue dacnis, blue-and-white swallow, blue-and-yellow macaw, blue-black grassquit, blue-winged parrotlet, boama albomarginata, Boana albopunctata, boana raniceps, boat-billed flycatcher, bran-colored flycatcher, Brazilian teal, brown-chested martin, brown-crested flycatcher, buff-breasted wren, buff-necked ibis, burnished-buff tanager, burrowing owl, campo troupial, cattle egret, cattle tyrant, Ceratophrys aurita, chalk-browed mockingbird, chestnut-capped blackbird, chestnut-capped foliage-gleaner, chestnut-vented cone-billed, chopi blackbird, chopi blackbird, cliff flycatcher, cocoi heron, collared peccary, common gallinule, common squirrel-cuckoo, common tody-flycatcher, common vermilion flycatcher, common waxbill, creamy-bellied thrush, crested black-tyrant, curl-crested jay, Cycloramphus dubius, dark-billed cuckoo, Dendrophryniscus brevipollicatus, Dendrophryniscus leucomystax, dendropsophus berthelutzae, dendropsophus werneri, donacobius, double-collared seedeater, Dubois's seedeater, dusky-legged guan, eared dove, epaulet oriole, Euler's flycatcher, firewood-gatherer, flavescent warbler, fork-tailed flycatcher, fork-tailed palm-swift, fork-tailed woodnymph, fuscous flycatcher, glittering-bellied emerald, glittering-throated emerald, grassland sparrow, grassland yellow-finch, great antshrike, great kiskadee, great white egret, greater ani, greater thornbird, green ibis, green kingfisher, green-backed heron, green-barred woodpecker, green-winged saltator, grey monjita, grey-breasted crane, grey-breasted martin, grey-eyed greenlet, grey-fronted dove, grey-necked wood-rail, guira cuckoo, guira tanager, helmeted manakin, highland elaenia, hoary fox, hooded tanager, House sparrow, honed screamer, Humboldt's glass frog, Hylodes phyllodes, Hypsiboas raniceps, Inering's fathead anole, Ischnocnema henselii, Ischnocnema hoehnei, Ischnocnema juipoca, Ischnocnema parva, large elaenia, large-billed antwren, large-billed tern, laughing falcon, least grebe, leptodactylus latrans, leptodactylus notoaktites, lesser elaenia, lesser kiskadee, lesser treefrog, lesser yellow-headed vulture, lesser yellowlegs, lined seedeater, lipkin, little nightjar, little woodpecker, long-tailed tyrant, marbled tropical bullfrog, masked gnatcatcher, masked water-tyrant, masked yellowthroat, mouse-colored tyrannulet, muscovy duck, nacunda nighthawk, narrow-billed woodcreeper, neotropical cormorant, northern red-shouldered macaw, Northern streaked flycatcher, ocellated crane, Ocellated Crane, ocelot, ochre-faced tody-flycatcher, ochre-lobed flatbill, orange-headed tanager, orange-winged Amazon, osprey, pale-breasted spinetail, pale-breasted thrush, pale-throated pampa-finch, pale-vented pigeon, palm tanager, palmcreeper, pauraque, peach-fronted parakeet, pearly-vented tody-tyrant, petropolis treefrog, physalaemus maculiventris, physalaemus olfersii, pileated finch, plain-crested elaenia, planalto hermit, planalto slaty antshrike, pocazuro pigeon, Puma, purple gallinule, purple-throated euphonia, red-bellied macaw, red-crested finch, red-legged seriema, rhinella hoogmoedi, rhinella icterca, rhinella ornata, Rhinella schneideri, ringed kingfisher, roadside hawk, robust woodpecker, rock dove, ruby-crowned tanager, ruddy ground-dove, rufescent tiger-heron, rufous hornero, rufous-bellied thrush, rufous-browed peppershrike, rufous-collared sparrow, rufous-fronted thornbird, rufous-sided crane, rufous-tailed jacamar, rufous-winged antshrike, russet-crowned crane, rusty-backed antwren, rusty-backed spinetail, rusty-collared seedeater, rusty-fronted tody-flycatcher, rusty-margined flycatcher, saffron finch, saffron-billed sparrow, sapphire-spangled emerald, savanna hawk, sayaca tanager, scaled dove, scaly-headed parrot, scarlet-headed blackbird, scinax pererga, scissor-tailed nightjar, shiny cowbird, short-crested flycatcher, silver-beaked tanager, small-billed tinamou, smooth-billed ani, snail kite, snouted treefrog, snowy egret, social flycatcher, solitary sandpiper, sombre hummingbird, sooty-fronted spinetail, southern beardless tyrannulet, Southern caracara, Southern lapwing, southern swift, southernrough-winged swallow, sphaenorhynchus caramaschii, Spix's spinetail, spot-tailed nightjar, spotted nothura, streamcreeper, streamer-tailed tyrant, stripe-breasted starthroat, stripe-crowned warbler, striped cuckoo, suiriri flycatcher, Swainson's flycatcher, swallow tanager, swallow-tailed hummingbird, tataupa tinamou, toco toucan, trachycephalus mesophaeus, tropical kingbird, tropical screech-owl, turkey vulture, turquoise-fronted Amazon, ultramarine grosbeak, variable antshrike, variable oriole, variegated flycatcher, wattled jacana, western black-tailed tityra, whistling heron, white woodpecker, white-bellied seedeater, white-browed blackbird, white-collared swift, white-crested tyrannulet, white-eared puffbird, white-edged tree frog, white-eyed foliage-gleaner, white-eyed parakeet, white-faced whistling duck, white-headed marsh-tyrant, white-lined tanager, white-naped jay, white-rumped monjita, white-rumped swallow, white-striped warbler, white-tailed goldenthrout, white-tailed hawk, white-tailed kite, white-throated hummingbird, white-throated kingbird, white-tipped dove, white-vented violet-ear, white-wedged piculet, white-winged swallow, wing-banded hornero, yellow-bellied elaenia, yellow-bellied seedeater, yellow-chevroned parakeet, yellow-headed caracara, yellowish pipit, yellow-olive flatbill, yellow-rumped marshbird

# IUCN Red List Least Concern species continued

<b>Canada</b>	alder flycatcher, American avocet, American bittern, American coot, American crow, American goldfinch, American kestrel, American redstart, American robin, American white pelican, American wigeon, bald eagle, Baltimore oriole, bank swallow, barn swallow, bay-breasted warbler, black-and-white warbler, black-billed magpie, black-capped chickadee, black-crowned night heron, black-necked grebe, black tern, blue jay, blue-winged teal, bobolink, Brewer's blackbird, brown-headed cowbird, bufflehead, California gull, Canada goose, canvasback, cedar waxwing, chestnut-sided warbler, chipping sparrow, clay-colored sparrow, cliff swallow, common goldeneye, common nighthawk, common raven, common yellowthroat, dark-eyed junco, double-crested cormorant, downy woodpecker, eastern kingbird, eastern phoebe, European starling, Franklin's gull, gadwall, grasshopper sparrow, gray catbird, gray partridge, great blue heron, great crested flycatcher, great horned owl, greater yellowlegs, green-winged teal, hairy woodpecker, hermit thrush, horned lark, house sparrow, house wren, killdeer, lark sparrow, Le Conte's sparrow, least flycatcher, least sandpiper, lesser scaup, lesser yellowlegs, Lincoln's sparrow, long-eared owl, magnolia warbler, mallard, marbled godwit, marsh wren, merlin, mountain bluebird, mourning dove, myrtle warbler, Nelson's sparrow, northern harrier, northern pintail, northern shoveler, northern waterthrush, orange-crowned warbler, orchard oriole, ovenbird, Philadelphia vireo, pied-billed grebe, purple martin, redhead, red-breasted nuthatch, red-eyed vireo, red-headed woodpecker, red-necked grebe, red-tailed hawk, red-winged blackbird, ring-billed gull, ring-necked duck, rock dove, rose-breasted grosbeak, ruby-throated hummingbird, ruddy duck, ruffed grouse, sandhill crane, savannah sparrow, Say's phoebe, sedge wren, sharp-tailed grouse, short-eared owl, snow goose, solitary sandpiper, song sparrow, sora, spotted sandpiper, spotted towhee, Swainson's hawk, swamp sparrow, Tennessee warbler, tree swallow, turkey vulture, upland sandpiper, veery, vesper sparrow, Virginia rail, warbling vireo, western grebe, western kingbird, western meadowlark, western wood-pewee, white-breasted nuthatch, white-crowned sparrow, white-throated sparrow, willet, willow flycatcher, Wilson's phalarope, Wilson's snipe, Wilson's warbler, yellow-bellied flycatcher, yellow-bellied sapsucker, yellow-breasted chat, yellow-headed blackbird, yellow-rumped warbler, yellow-shafted flicker, yellow warbler, boreal chorus frog, Canadian toad, great plains toad, northern leopard frog, painted turtle, plains garter snake, red-bellied snake, western tiger salamander, wood frog, American badger, American beaver, Chihuahua vole, coyote, eastern cottontail, Franklin's ground squirrel, least chipmunk, moose, mule deer, muskrat, North American deer mouse, North American porcupine, North American river otter, prairie vole, pronghorn, northern raccoon, red fox, red squirrel, Richardson's ground squirrel, snowshoe hare, striped skunk, thirteen-lined ground squirrel, white-tailed deer, white-tailed jackrabbit, blackside darter, common shiner, creek chub, fathead minnow, johnny darter, logperch, longnose dace, northern pike, pearl dace, walleye, white sucker, yellow perch
<b>Florida</b>	Burrowing owl, Florida black bear, sandhill crane, Florida pine snake, least tern, limpkin, little blue heron, osprey, Southeast American kestrel, Sherman's fox squirrel, snowy egret, tricolored heron, white ibis, wood stork, Eastern indigo snake, Northern crested caracara, American alligator, bald eagle, red-winged blackbird, Northern harrier, ground dove, field sparrow, Eastern wood peewee, Eastern diamondback rattlesnake
<b>Louisiana</b>	Bald eagle, long-tailed weasel
<b>New Mexico</b>	American kestrel, Cooper's hawk, dunlin, great horned owl, greater yellowlegs, Harris's hawk, killdeer, least sandpiper, least tern, lesser yellowlegs, merlin, Northern harrier, Northern pintail, Northern shoveler, red-tailed hawk, sanderling, sandhill crane, Western sandpiper

