

PHOSPHORUS SORPTION CAPACITY

1 sample supplied by JR Richards & Sons Pty Ltd on 4/08/2022 . Lab Job No.N1340

Analysis requested by Indika Kelasekara. Your Job: Irrigation Area - Molong ORF

15-19 Brickworks Lane SOUTH GRAFTON NSW 2461

SAMPLE 1	
Irrigation Area - Molong ORF	
<i>Job No.</i>	<i>N1340/1</i>
Native NaOH Phosphorus (mg/kg P)	890
Residual phosphorus remaining in solution from the initial phosphate phosphorus	
Initial Phosphorus concentration (ppm P)	33.16
72 hour - 3 Day (ppm P)	22.10
120 hour - 5 Day (ppm P)	21.53
168 hour - 7 Day (ppm P)	18.43
Equilibrium Phosphorus (ppm P)	16.93

Notes:

1. ppm = mg/kg dried soil
2. Insitu P determined using 0.1 M NaOH and shaking for 24 h before determining phosphate
3. Soils were crushed using a ceramic grinding head and mill; five 1 g subsamples of each soil were used to which 40 mL of 0.1 M NaCl with 30 ppm phosphorus was added to each. The samples were shaken on an orbital shaker
4. All results as dry weight DW - soils were dried at 60°C for 48 h prior to crushing and analysis.
5. Phosphorus Capacity method from Ryden and Pratt, 1980.
6. Analysis conducted between sample arrival date and reporting date.
7. .. Denotes not requested.
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10. This report was issued on 19/08/2022



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PHOSPHORUS SORPTION TRIAL

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Calculations for Equilibrium Absorption Maximum for Soil provided

I.D.	JOB NO.	Equilibrium P mg P/L (in solution)	Added P mg P/L	P Sorb at Equil. mg P/kg	Native P mg P/kg	Equilibrium P Sorption Level $\mu\text{g P/g soil}$	Divide Θ (from Table)	Equilibrium Absorption Maximum (B) $\mu\text{g P/g soil}$
Irrigation Area - Molong ORF	N1340/1	16.9	33.1625	649	890	1539	0.86	1,789

Calculations for phosphorus sorption capacity

	JOB NO.	Equilibrium Absorption Maximum (B) $\mu\text{g P/g soil}$	multiply by theta of wastewater to be applied ($=X$)	minus the native P ($=Y$)	kg P sorption / hectare (to a depth of 15 cm) (1.95 is a correction factor for density, etc)	kg P sorption / hectare (to a depth of 100 cm) (1.95 is a correction factor for density, etc)
Irrigation Area - Molong ORF	N1340/1	1789	($=B \times \text{theta}$)	($=X - \text{native P}$)	($=Y \times 1.95$)	($=Y \times 1.95 \times 100/15$)

EXAMPLE 1 - Calculations for phosphorus sorption capacity using a wastewater phosphorus of 15 mg/L P

	JOB NO.	Equilibrium Absorption Maximum (B) $\mu\text{g P/g soil}$	multiply by theta of wastewater to be applied (ie. 0.84)	minus the native P ($=Y$)	kg P sorption / hectare (to a depth of 15 cm) (1.95 is a correction factor for density, etc)	kg P sorption / hectare (to a depth of 100 cm) (1.95 is a correction factor for density, etc)
Irrigation Area - Molong ORF	N1340/1	1789	1503	613	1,195	7,967

