

## SAND OVER RED SANDY CLAY LOAM ON CALCRETE

**General Description:** *Reddish sand, sharply overlying a red massive sandy clay loam to sandy clay formed on rubbly carbonate or broken sheet calcrete. This is underlain by soft yellowish very highly calcareous material*

**Landform:** Low gently undulating rises

**Substrate:** Soft very highly calcareous sandy clay loam to sandy clay (Woorinen Formation)

**Vegetation:** Mallee scrub



**Type Site:** Site No.: CM034

1:50,000 sheet: 6530-3 (Lochiel)

Hundred:

Cameron

Annual rainfall: 385 mm

Sampling date:

14/05/93

Landform: Lower slope of an undulating rise, 3% slope

Surface: Loose with no stones

### Soil Description:

Depth (cm)	Description
0-12	Reddish brown loose sand. Abrupt to:
12-17	Yellowish red soft loamy sand. Sharp to:
17-35	Red massive sandy clay loam. Sharp to:
35-60	Broken pan of sheet calcrete (Class III C carbonate). Gradual to:
60-100	Reddish yellow very highly calcareous massive sandy clay loam with 30% calcrete rubble. Diffuse to:
100-150	Reddish yellow very highly calcareous massive soft fine sandy light clay (Class III A carbonate).



**Classification:** Haplic, Petrocalcic, Red Chromosol; medium, non-gravelly, sandy / clay loamy, moderate

## Summary of Properties

<b>Drainage</b>	The soil is rapidly drained and is unlikely to remain wet for more than a few hours.
<b>Fertility</b>	The natural fertility of the soil is low. It has a low to moderate capacity to retain nutrients as indicated by the exchangeable cation data, and organic matter levels are difficult to maintain in the sandy surface. High pH and carbonate content in the subsoil reduce the availability of nutrients like zinc (note low DTPA zinc levels). Phosphorus is low at the sampling site.
<b>pH</b>	Neutral at the surface grading to strongly alkaline with depth.
<b>Rooting depth</b>	100 cm in sampling pit. Although there are very few roots in the calcrete pan, they proliferate beneath it.
<b>Barriers to root growth</b>	
<b>Physical:</b>	The calcrete limits root growth but is sufficiently broken that roots can penetrate.
<b>Chemical:</b>	Low fertility status, high pH and carbonate content (reducing nutrient availability), and high exchangeable sodium at depth restrict root growth.
<b>Water holding capacity</b>	Approximately 70 mm in the root zone. Half of this potential capacity is below the calcrete.
<b>Seedling emergence</b>	Good, provided that the sandy surface is not water repellent.
<b>Workability</b>	Good.
<b>Erosion Potential</b>	
<b>Water:</b>	Moderately low.
<b>Wind:</b>	Moderate to moderately high, due to the loose, infertile sandy surface.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> -S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	7.8	7.5	0.2	0.14	0.68	0.8	14	242	-	1.5	0.2	5	4.3	0.2	6.7	5.23	0.88	0.09	0.43	1.3
0-12	7.1	6.9	0	0.08	0.68	0.9	15	319	-	1.6	0.2	5	4.4	0.2	7.0	6.73	1.14	0.10	0.69	1.4
12-17	7.1	6.8	0	0.04	0.19	0.4	7	174	-	1.1	0.2	3	2.3	<0.1	5.1	5.01	0.78	0.12	0.29	2.4
17-35	8.2	7.9	1.5	0.11	0.31	0.5	<4	171	-	1.9	0.3	5	1.5	<0.1	8.3	8.28	1.23	0.12	0.44	1.5
35-60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60-100	9.4	8.4	40.4	0.29	0.95	0.4	4	110	-	8.4	0.8	3	0.6	0.2	9.5	2.64	5.71	1.82	0.30	19.2
100-150	9.9	8.6	37.4	0.54	1.07	0.2	<4	237	-	17.8	0.4	3	0.5	0.1	9.0	1.18	3.61	4.77	0.63	53.0

**Note:** Paddock sample bulked from cores (0-10 cm) taken around the pit.

CEC (cation exchange capacity) is a measure of the soil's capacity to store and release major nutrient elements.

ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the CEC.