

# SHALLOW CALCAREOUS SANDY LOAM ON CALCRETE

**General Description:** *Calcareous sandy loam with variable rubble overlying sheet or boulder calcrete at shallow depth*

**Landform:** Low rises on gently undulating plains

**Substrate:** Pleistocene (Blanchetown)  
Clay capped by calcrete rubble

**Vegetation:** Mallee



**Type Site:** Site No.: MM011

1:50,000 sheet: 6827-1 (Karoonda)

Hundred: Hooper

Annual rainfall: 350 mm

Sampling date: 03/10/91

Landform: Stony rise

Surface: Firm with 20-50% calcrete stones (60-200 mm)

## Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-9	Dark brown slightly calcareous light sandy loam with 20-50% calcrete rubble (60-200 mm). Abrupt to:
9-18	Brown moderately calcareous light sandy clay loam with 20-50% calcrete rubble (60-200 mm). Abrupt to:
18-81	Calcrete pan comprising more than 90% rubble (200-600 mm) in a brown sandy clay loam matrix. Diffuse to:
81-170	Pink very highly calcareous sandy clay loam with more than 90% calcareous nodules (6-20 mm). Clear to:
170-210	Brown and olive mottled heavy clay with strong coarse blocky structure.



**Classification:** Epihypersodic, Petrocalcic, Supracalcic Calcarosol; thin, moderately gravelly, loamy / clay loamy, very shallow

## Summary of Properties

<b>Drainage</b>	Well drained. The soil never remains saturated for more than a few days.
<b>Fertility</b>	Inherent fertility is moderately low, as indicated by the exchangeable cation data. Phosphorus, copper and zinc are deficient at the sampling site, and organic carbon levels are extremely low. There is very little nutrient retention capacity in the calcrete, so maintenance of organic matter is critical for fertility.
<b>pH</b>	Alkaline at the surface, strongly alkaline with depth.
<b>Rooting depth</b>	81 cm in pit.
<b>Barriers to root growth</b>	
<b>Physical:</b>	Although root growth occurs between the boulders, the calcrete restricts soil volume, and consequently water availability and root growth.
<b>Chemical:</b>	High pH and sodicity and moderate salinity in the carbonate layers impede root growth.
<b>Water holding capacity</b>	30 mm in root zone.
<b>Seedling emergence:</b>	Slight limitation due to stoniness.
<b>Workability:</b>	Soil itself is easily worked, but stones abrade implements.
<b>Erosion Potential</b>	
<b>Water:</b>	Low.
<b>Wind:</b>	Low.

## 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	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	8.0	7.4	1	0.11	0.69	0.1	18	220	1.0	0.082	-	5.2	0.25	6.0	5.67	1.07	0.08	0.44	1.3
0-9	7.8	7.2	2	0.07	0.42	0.1	26	270	1.6	0.12	-	7.5	0.34	6.7	5.96	1.13	0.10	0.56	1.5
9-18	8.6	7.9	3	0.14	0.64	0.1	12	240	5.9	0.13	-	4.6	0.16	8.1	7.25	1.05	0.08	0.46	1.0
18-81	9.4	8.5	52	0.74	7.06	<0.1	5	94	4.1	0.23	-	1.1	<0.06	7.4	3.96	2.91	1.74	0.20	23.5
81-120	9.5	8.6	70	1.74	12.53	0.1	2	270	6.8	0.29	-	1.1	<0.06	5.9	1.00	2.20	3.11	0.58	52.7
120-170	9.8	8.5	61	1.08	4.42	<0.1	3	1200	17	0.21	-	1.6	<0.06	10.3	0.73	3.29	4.77	1.12	46.3
170-210	9.4	8.5	3	1.22	3.67	<0.1	2	500	2.8	0.78	-	1.1	0.07	29.1	0.42	10.24	17.77	2.70	61.1

**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.