

HIGHLY CALCAREOUS SANDY LOAM ON CALCRETE

(Calcrete soil)

General Description: *Highly calcareous sandy loam to light sandy clay loam over calcrete at shallow depth*

Landform: Low stony rises and flats.

Substrate: Calcrete over softer highly calcareous sandy loam grading to Tertiary heavy clay.

Vegetation: Mallee

Type Site:	Site No.:	EC055	1:50,000 mapsheet:	5932-3 (Minnipa)
	Hundred:	Minnipa	Easting:	515750
	Section:	27	Northing:	6368350
	Sampling date:	1992	Annual rainfall:	330 mm average

Lower slope of gently undulating rise. Firm surface.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-14	Dark brown highly calcareous light sandy clay loam. Sharp to:
14-36	Sheet calcrete (Class II carbonate). Abrupt to:
36-60	Orange very highly calcareous sandy loam with more than 50% carbonate nodules (Class III C). Clear to:
60-100	Reddish yellow very highly calcareous sandy loam with more than 50% carbonate nodules (Class III C). Clear to:
100-145	Yellowish red light clay. Clear to:
145-225	Red heavy clay.



Classification: Hypervescent, Petrocalcic, Calcic Calcarosol; medium, non-gravelly, loamy / -, very shallow



Summary of Properties

- Drainage:** Well drained. Except where water ponds on unfractured calcrete, the soil rarely remains wet for more than a day or so.
- Fertility:** Inherent fertility is moderately low. Although the surface soil has good nutrient retention capacity, the high carbonate content reduces availability of phosphorus, copper, zinc and manganese. All can be deficient. Phosphorus and zinc levels are low at the sampling site. Organic carbon levels are marginally low.
- pH:** Alkaline at the surface, strongly alkaline below the calcrete.
- Rooting depth:** 14 cm. Few roots penetrate the calcrete.
- Barriers to root growth:**
- Physical:** The calcrete is a major barrier to root growth. Natural fractures provide the only access for roots to the subsoil.
 - Chemical:** High pH and sodicity below the calcrete cap limit the growth of any roots which do penetrate through cracks.
- Waterholding capacity:** Approximately 20 mm in the rootzone.
- Seedling emergence:** Satisfactory.
- Workability:** Soft to firm surface is easily worked although surface stone interferes with and abrades equipment.
- Erosion Potential:**
- Water:** Low.
 - Wind:** Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO ₄ 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	
0-14	8.4	7.9	13	0.2	0.9	0.86	13	450	-	4.4	0.56	5.8	6.3	0.22	16.6	12.86	4.73	0.48	1.12	2.9
14-36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36-60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60-100	9.4	8.1	74	0.3	1.8	0.11	3.4	430	-	5.0	0.28	3.4	1.1	0.13	4.1	1.49	1.71	1.52	0.73	37
100-145	9.2	8.6	58	3.4	34.9	0.16	3.6	660	-	24.1	0.44	2.7	1.3	0.15	9.2	1.43	2.93	6.02	1.35	65
145-190	8.9	8.3	1	1.5	7.5	0.08	3.2	1100	-	37.7	0.40	2.7	0.99	0.13	22.3	1.39	8.44	9.51	2.47	43
190-225	7.6	7.0	1	1.1	5.0	0.09	2.0	650	-	5.8	0.48	6.1	0.31	0.12	18.2	1.86	5.08	6.79	1.20	37

Note: 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.

Further information: [DEWNR Soil and Land Program](#)

