

# SALINE BLACK CRACKING CLAY

**General Description:** *Black cracking clay, becoming greyer with depth and saline throughout, with a saline water table at about a metre*

**Landform:** Low lying salinized plain with extensive swamps

**Substrate:** Lacustrine clay (St. Kilda Formation)

**Vegetation:** Salt tolerant grasses



**Type Site:** Site No.: MM114

1:50,000 sheet: 6827-3 (Moorlands)

Hundred: Coolinong

Annual rainfall: 385 mm

Sampling date: 31/03/93

Landform: Flat

Surface: Seasonally cracking with no stones

## Soil Description:

Depth (cm)	Description
0-10	Black hard clay with strong coarse granular structure. Abrupt to:
10-25	Black hard medium heavy clay with coarse angular blocky structure. Clear to:
25-45	Very dark grey moderately calcareous firm medium heavy clay with weak very coarse angular blocky structure. Diffuse to:
45-75	Dark grey medium clay. Diffuse to:
75-105	Olive grey medium clay.
105-	Water table. Salinity 36,000 mg/l.



**Classification:** Epicalcareous - Epihypersodic, Epipedal, Aquic Vertisol

## Summary of Properties

**Drainage** Imperfectly drained. Soil may remain saturated for several weeks following heavy or prolonged rainfall.

**Fertility** Inherent fertility is high, as indicated by the exchangeable cation data. Phosphorus levels are naturally high, but maintenance is still required. Nitrogen levels depend on legume status of pastures. Copper and zinc may require occasional additions. All measured nutrients, and organic carbon in good supply at the sampling site.

**pH** Neutral at the surface, alkaline with depth.

**Rooting depth** 45 cm in pit.

### Barriers to root growth

**Physical:** Dense clay may impede root growth to some extent.

**Chemical:** High boron and salt levels, and high sodicity from 25 cm restrict root growth.

**Water holding capacity** 90 mm in root zone.

**Seedling emergence:** Moderate to severe limitation caused by surface salinity and dispersion.

**Workability:** Poor due to dispersive surface which shatters if worked too wet and puddles if worked too dry.

### Erosion Potential

**Water:** Low.

**Wind:** 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	6.1	5.4	2	0.47	2.62	3.9	88	1100	7.3	3.4	130	250	1.6	32.9	13.48	10.21	3.43	3.76	10.4
0-10	6.0	5.3	1	0.44	2.71	2.9	78	1100	17	3.4	140	210	1.2	31.4	12.47	9.51	4.12	3.74	13.1
10-25	7.6	7.3	3	1.40	8.72	1.0	22	1500	6.3	2.4	46	52	0.40	49.0	13.70	13.71	12.54	4.62	25.6
25-45	8.5	8.1	5	2.96	14.0	0.6	29	1500	24	2.2	22	6.1	0.25	49.6	13.41	13.90	19.07	4.05	38.4
45-75	8.1	7.9	2	4.49	18.2	0.2	54	1400	29	3.0	36	2.3	0.18	52.2	12.64	13.66	22.21	3.80	42.5
75-105	7.8	7.8	2	7.21	28.6	0.2	25	1200	26	3.7	21	3.6	0.17	35.1	10.51	10.35	18.49	3.09	52.7

**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.