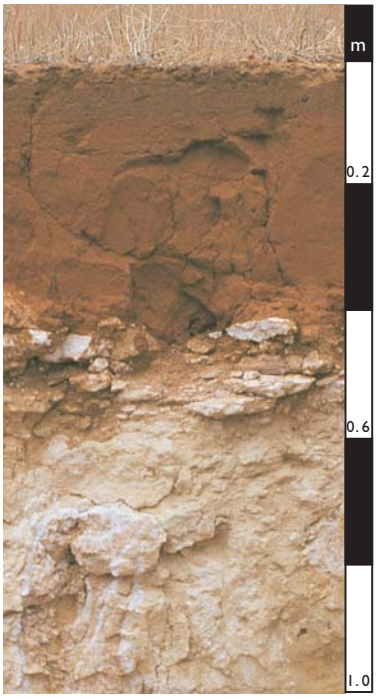
CA2: Ceteric, Petrocalcic, **Hypocalcic Calcarosol**



North-east of Murray Bridge, South Australia

General description of the soil

A Hypocalcic Calcarosol underlain by a hard calcrete pan. The upper part of the profile has no definitive properties at the subgroup level.

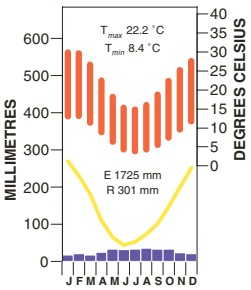
Distribution:	A common soil in the Southern Mallee Region of South Australia and adjacent Victoria.
Typical land use:	Cereal cropping.
Common variants:	Depth to the hard calcrete pan is variable.
World Reference Base:	Epipetric Calcisol.
Other names:	Solonised Brown Soils and Mallee Soils.

Environment and location of the example profile

Landform:	Broad depression.
Parent material or substrate:	Calcrete pan underlain by various sedimentary materials.
Drainage class:	Well-drained above the calcrete pan.
Surface condition:	Firm.
Site disturbance:	Cultivated.
Native vegetation:	Mallee shrubland.

Site location

Site climate



Soil morphology

Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A1p	0.00–0.09	reddish brown (5YR 4/4)	–	light sandy loam	massive	–	–		–	–	sharp
A2	0.09–0.32	yellowish red (5YR 4/6)	–	light sandy loam	massive	–	–		–	–	clear
B2t	0.32–0.40	yellowish red (5YR 4/6)	–	light sandy clay loam	massive	–	–		–	–	clear
B2km	0.40–0.55	strong brown (7.5YR 5/6)	–	sandy clay loam	massive	–	–		strongly cemented nodular calcrete pan	>50% carbonate nodules (20–60 mm) very highly calcareous*	clear
Ckm	0.55–1.00	reddish yellow (7.5YR 6/6)	–	sandy clay loam	massive	–	–		–	10–20% carbonate nodules (6–20 mm) and >50% soft carbonate very highly calcareous*	diffuse
2C1k	1.00–1.40	yellowish brown (10YR 5/8)	–	sandy loam	massive	–	–		–	<2% ferruginous nodules (6–20 mm) and 20–50% soft carbonate highly calcareous*	diffuse
2C2k	1.40–1.80	yellowish brown (10YR 5/8)	–	sandy loam	massive	–	–		–	<2% ferruginous nodules (6–20 mm) and 20–50% soft carbonate highly calcareous*	diffuse
2C3k	1.80–2.20	yellowish brown (10YR 5/8)	–	sandy loam	massive	–	–		–	<2% coarse ferruginous nodules and 20–50% soft carbonate highly calcareous*	

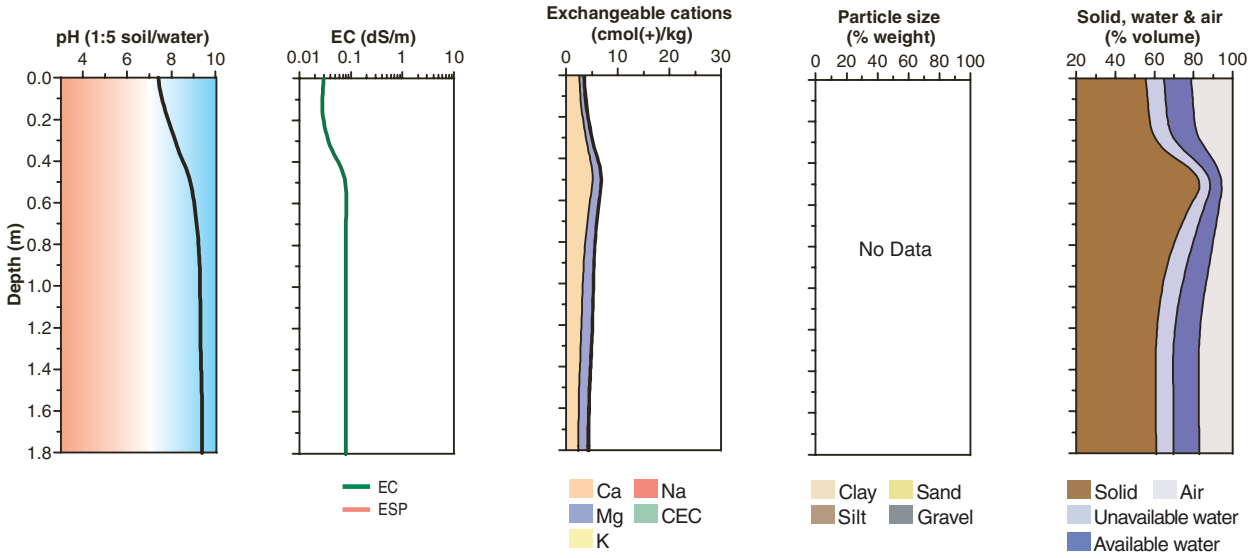
* Fine earth fraction

Soil chemical and physical properties

Horizon	Sample Depth (m)	pH H_2O[A]	pH $CaCl_2$[B]	Elect. Cond. dS/m[A]	$CaCO_3$ %[B]	Org. C %[D]	Extr. P mg/kg[A]	Tot. P %	Tot. K %	Cation exchange properties[G] cmol(+)/kg							ESP %	Bulk dens. Mg/m^3	Particle size %			
										Ca	Mg	K	Na	H+Al	CEC	ECEC			CS	FS	Silt	Clay
A1p	0.00–0.09	7.4	7.0	0.03	1	0.4	10			2.5	0.8	0.2	0.2		4							
A2	0.09–0.32	7.8	7.1	0.02	2	0.1	2			2.9	0.8	0.1	0.2		4							

Horizon	Sample Depth (m)	pH H_2O[A]	pH $CaCl_2$[B]	Elect. Cond. dS/m[A]	$CaCO_3$ %[B]	Org. C %[D]	Extr. P mg/kg[A]	Tot. P %	Tot. K %	Cation exchange properties[G] cmol(+)/kg							ESP %	Bulk dens. Mg/m^3	Particle size %			
										Ca	Mg	K	Na	H+Al	CEC	ECEC			CS	FS	Silt	Clay
B2t	0.32–0.40	8.3	7.3	0.03	2	0.1	< 2			4.2	1.0	0.1	0.2		5							
B2km	0.40–0.55	9.0	8.1	0.10	17	0.3	3			6.3	1.7	0.1	0.2		5							
Ckm	0.55–1.00	9.3	8.2	0.08	19	0.2	2			3.5	1.8	0.1	0.2		3							
2C1k	1.00–1.40	9.3	8.3	0.08	12	0.1	< 2			2.9	2.1	0.1	0.2		3							
2C2k	1.40–1.80	9.4	8.3	0.08	8	< 0.1	< 2			2.3	1.8	0.2	0.2		2							

Key profile properties



General qualities of the soil

Infiltration:	Rapid unless water repellence has developed.
Available water store:	Small in the shallow root zone.
Permeability:	High to moderate.
Physical root limitations:	Restricted by calcrete rubble.
Erosion hazard:	Low to moderate depending on A-horizon texture and surface exposure.
Nutrient availability:	Low phosphorus (fertiliser essential) and nitrogen (depends on pasture legume). Copper and zinc are marginal and require occasional additions.
Toxicities:	Unlikely to occur.

Soil occurs in the closed depressions between undulating rises, Murray Mallee, South Australia

Acknowledgements: Soil image, soil description and laboratory data: Department of Water, Land and Biodiversity Conservation, South Australia. Site MM024 from McCord (1995). Landscape image: MapLand, South Australia.