

DE1: Haplic, Petrocalcic, Red Dermosol

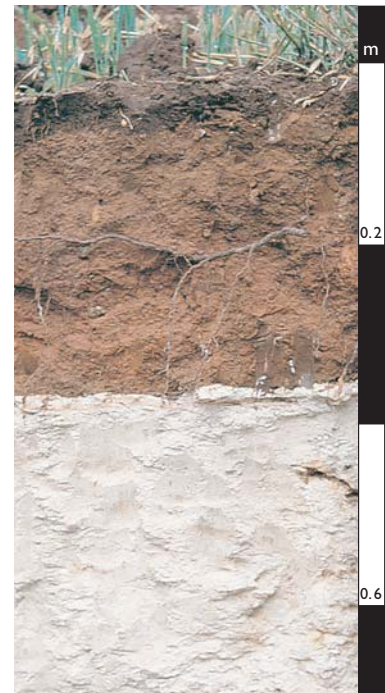
General description of the soil

A strongly structured Red Dermosol in which the B2 horizon is underlain at shallow depth by a thin, cemented, massive calcrete pan. No other diagnostic features are present, hence the term Haplic (simple) is used for the subgroup class.

Distribution:	These soils are mostly confined to south-eastern South Australia.
Typical land use:	Dryland farming and highly prized for viticulture.
Common variants:	Depth to calcrete pan may vary.
World Reference Base:	Hypercalcic Calcisol.
Other names:	Terra Rossa Soils.

Environment and location of the example profile

Landform:	Undulating rises and low hills.
Parent material or substrate:	Calcareous siltstone.
Drainage class:	Well-drained.
Surface condition:	Firm.
Site disturbance:	Cultivation.
Native vegetation:	Eucalypt woodland.

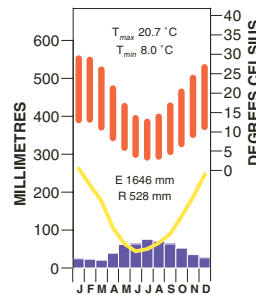


'Terra Rossa' soils are highly prized for viticulture, near Clare, South Australia.

Site location



Site climate



Soil morphology

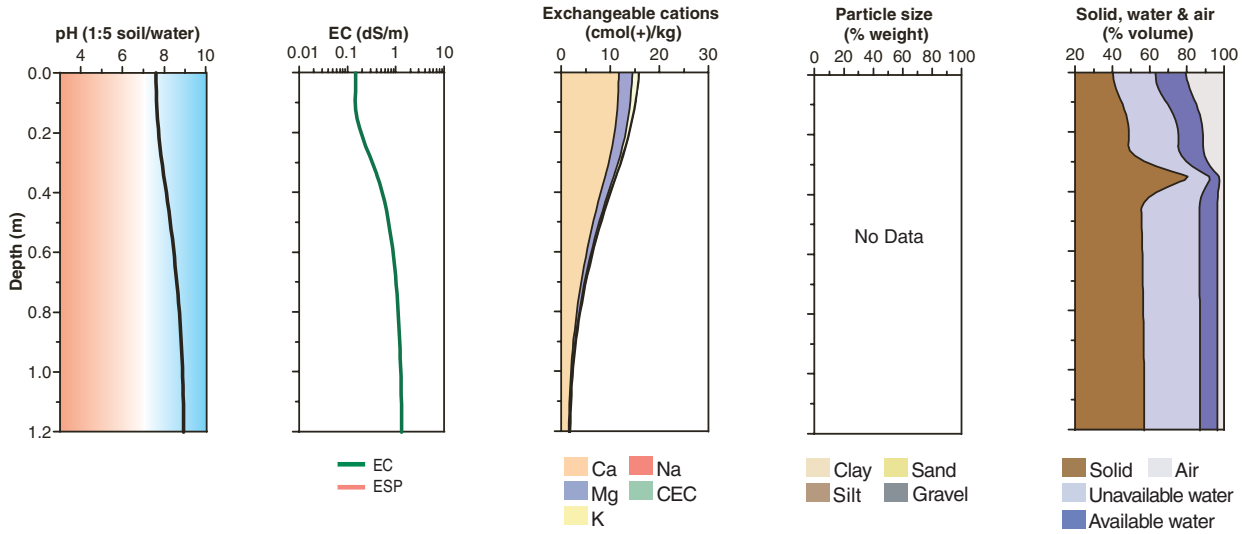
Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A1	0.00–0.09	dark reddish brown (2.5YR 3/3)	–	heavy clay loam	strong	granular	2–5 mm	weak (moist)	–	–	abrupt
B2	0.09–0.34	dark reddish brown (2.5YR 3/4)	–	light clay	strong	polyhedral	2–5 mm	firm (moist)	2–10% calcrete fragments (20–60 mm)	–	sharp
B3km	0.34–0.36	massive moderately cemented calcrete pan	–	–	–	–	–	–	–	very highly calcareous*	sharp
Ck	0.36–1.20	–	–	silty clay loam	massive	–	–	very firm (moist)	soft weathering calcareous siltstone	>50% soft carbonate very highly calcareous*	–

* Fine earth fraction

Soil chemical and physical properties

Horizon	Sample Depth (m)	pH H ₂ O ^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 ¹						ESP %	Bulk dens. Mg/m ³	Particle size %			
										cmol(+)/kg								CS	FS	Silt	Clay
										Ca	Mg	K	Na	H+Al	CEC						
A1	0.00–0.09	7.6	7.4	0.15	1	1.7	100	–	–	11.7	2.7	1.2	0.1	–	16	–	–	–	–		
B2	0.09–0.34	7.7	7.5	0.14	1	0.8	18	–	–	11.2	2.2	0.6	0.1	–	14	–	–	–	–		
B3km	0.34–0.36	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Ck	0.36–1.20	8.7	7.8	1.10	75	0.7	4	–	–	3.3	0.5	0.1	0.2	–	2	–	–	–	–		

Key profile properties



General qualities of the soil

Infiltration:	Rapid.
Available water store:	Small in the root zone above the calcrete pan.
Permeability:	Moderate to high above the pan.
Physical root limitations:	The thin calcrete pan often restricts root growth into the underlying softer rock.
Erosion hazard:	Moderate water erosion potential on steeper slopes. Wind erosion potential is low.
Nutrient availability:	Moderately high level of natural fertility. Phosphorus levels are high and organic matter is adequate.
Toxicities:	None apparent.



Vineyards in the Clare Valley, South Australia

Acknowledgements: Soil image, soil description and laboratory data: Department of Water, Land and Biodiversity Conservation, South Australia. Site CM041. Landscape image: South Australian Tourism Commission.