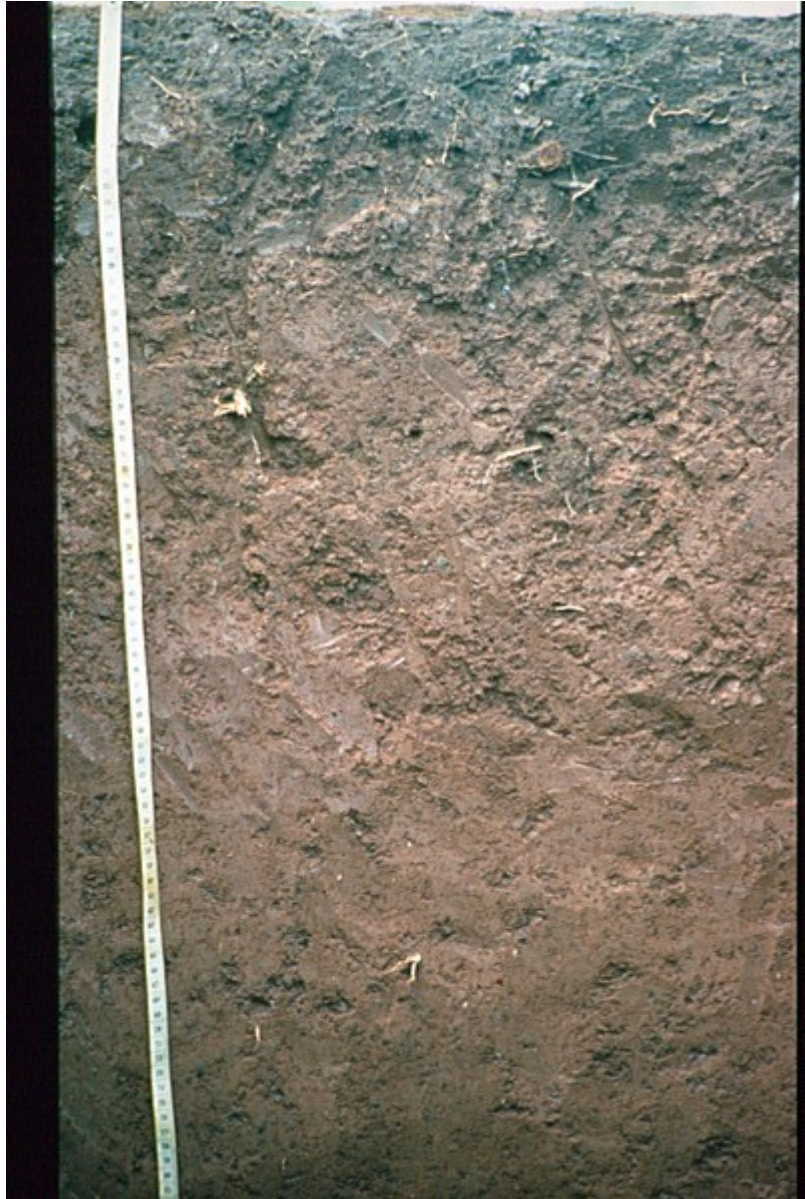


Reference soil Mozambique 3: Nitisol

Description

Brief description of the profile: A very deep, well drained, dark red clay soil, moderately structured. About 2 cm of dry litter at the surface. Original vegetation: Brachystegia woodland ("miombo") - Windspeed measured at 2 meter - Magnetite is present in whole profile - Soft nodules have same colour as soil matrix, inner side of nodules is massive. - Horizon boundaries in subsoil are very diffuse



Classification

WRB 2006:

Acric Ferralic Nitisol (Dystric Rhodic)
15-185 cm argic horizon
25-70 cm nitic horizon
ferralic properties

FAO-UNESCO-ISRIC 1988:

Dystri- Rhodic Nitisol
0-25 cm ochric A horizon
15-185 cm argic B horizon
nitic properties

WRB 1998:

Ferrali- Rhodic Nitisol (Dystric)

FAO-UNESCO 1974:

Ferric Acrisol
0-25 cm ochric A horizon
15-185 cm argillic B horizon
ferric properties

Site description

General information:

Names of person(s) who described the profile : Kauffman JH
General description of location of profile (e.g., town, province) : Niassa, Sanga, Unango
Climate classification according to Köppen : Cw
Date : October 1982
Latitude / Longitude : S -12.95° / E 35.3833°

Parent material:

The main parent rock/ material over which the soil has been formed (1st entry) : coarse-grained intermediate igneous
Mode of Accumulation or deposition of parent material (1st entry) : residual material
Texture of parent material (1st entry) : clayey
Weathering status of solid rock (1st entry) : highly
Resistance against weathering (solid rock) (1st entry) : moderate
Depth1 of lithological boundary : cm
The main parent rock/ material over which the soil has been formed (2nd entry) :
Resistance against weathering (solid rock) (2nd entry) :
Soil Depth; depth to which roots can easily penetrate throughout the year : cm
Remarks on Parent Materials : Basement Complex

Physiography:

The altitude of the soil profile relative to mean sea level, specified in meters : 1075 m asl
Regional landform : plain
Topography of the surrounding country : undulating
Physiographic Unit in the immediate surrounding of the site : slope
The slope refers to the inclination of the land immediately surrounding the site. The measured or estimated slope angle is specified to the nearest per cent : 2 %
The physiographic position of the site where the profile is located : upper slope
Form of the slope surrounding the site : convex
Slope Aspect of the site :

Hydrology and drainage:

Depth of groundwater table : cm
Groundwater Top : cm
Groundwater Bottom : cm
Kind of groundwater table : no groundwater table observed
Top Stagnating Layer : cm
Bottom Stagnating Layer : cm
Runoff : slow
Flooding frequency : never
Estimated permeability (class) of least permeable part of the profile : moderate
Drainage Class : well
To Drainage Class :
Moisture conditions of the profile: dry from -to : 17-200 cm
Moisture conditions of the profile: moist from -to : 0-17 cm
Wet From - To : cm

Land use / vegetation:

Current land use at the site : high level arable farming
Major crops : maize
Main type of irrigation :
Rotation scheme :
Vegetation Type;The natural vegetation at the site :
Status of vegetation :
Remarks on Land Use / Vegetation : VEGETATION: Recently cleared
Brachystegia woodland

Erosion and aggradation:

Soil erosion type (1st entry)
Occurrence of soil aggradation :
Slope Stability :

Surface characteristics:

Microrelief type: small-scale differences in relief in the direct vicinity of the site :
Microrelief Height :
Rockiness : none
Stoniness : none
Average size of stones :
Shape of stones (on average) :
Cracks : no cracks observed
Slaking of aggregates by tillage, rainfall or frost : no surface slaking/crusting observed
Evidence of salt : non-saline
Evidence of alkali : non-alkaline

Nearest climate station:

Station : Maniamba
Country : Mozambique
WMO Code : 67.207
Distance : 45 km WNW (moderate)
Latitude / Longitude : S 12°46 / E 34°59

Climate data*:

dataType(Station)	: nrecord	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Precipitation (mm)(Maniamba)	: -	305	277	307	167	30	7	2	2	2	21	85	245	1450
Mean temperature (°C)(Maniamba)	: -	21.4	21.4	21.1	20.4	18.8	17	16.8	18	20.6	23.3	23.5	22.2	20.4
Maximum temperature (°C)(Maniamba)	: -	25.6	25.5	25.3	25	23.9	22.7	22.6	24.1	26.6	29.5	28.9	26.8	25.5
Minimum temperature (°C)(Maniamba)	: -	17.2	17.2	16.9	15.8	13.7	11.4	10.9	12	14.5	17.1	18.1	17.6	15.2
Relative humidity (%) (Maniamba)	: 26	78	79	77	70	66	61	59	56	53	54	59	71	65.3
Pot. evapotranspiration (mm)(Maniamba)	: -	19.8	20.1	19.2	16.7	14.3	11.8	11.2	11.5	12.8	15.4	17	18.9	15.7
Epot. - Penman (mm)(Maniamba)	: -	116	101	111	101	90	78	85	108	132	169	152	129	1372
Epot. - Frere, Popov (mm)(Maniamba)	: -	122	106	116	105	95	82	90	114	139	177	160	136	1442
Bright sunshine (%) (Maniamba)	: -	45	45	56	64	76	77	70	77	80	87	71	54	66.8
Total global radiation (MJ/m²)(Maniamba)	: -	18.6	18.3	19.1	18.5	18.1	17	16.6	19.3	22	25.1	23.1	20	19.6
Estimated global radiation (MJ/m²)(Maniamba)	: -	19.3	19	19.7	18.9	18.3	17.1	16.7	19.5	22.3	25.3	23.5	20.8	20
Windspeed (m/s, at 2m height)(Maniamba)	: -	1.7	1.5	1.5	1.7	1.8	1.9	2	2.2	2.3	2.7	2.5	1.9	2
Precipitation (mm)(Lichinga)	: 5	250	228	174	75	22	3	2	3	3	16	50	236	1062
Mean temperature (°C)(Lichinga)	: -	20.4	20.5	20	19.6	17.8	16	15.6	16.7	18.9	21.3	21.5	20.6	19.1
Maximum temperature (°C)(Lichinga)	: 22	25	25.1	24.8	24.7	23.7	22.2	21.7	23.2	25.7	28	27.3	25.4	24.7

Minimum temperature (°C)(Lichinga)	: 22	15.8	15.9	15.3	14.4	11.8	9.8	9.4	10.2	12.1	14.6	15.7	15.8	13.4
Relative humidity (%) (Lichinga)	: 27	82	83	81	80	73	70	68	65	59	55	66	78	71.7
Pot. evapotranspiration (mm)(Lichinga)	: -	19.6	19.9	18.9	18.2	14.8	12.7	12	12.3	12.8	13.9	16.9	18.9	15.9
Epot. - Penman (mm)(Lichinga)	: -	105	94	101	91	85	74	83	104	130	152	132	109	1260
Epot. - Frere, Popov (mm)(Lichinga)	: -	111	99	107	96	90	79	88	110	139	161	141	117	1338
Bright sunshine (%) (Lichinga)	: -	32	36	42	51	64	63	58	64	66	70	51	33	52.5
Total global radiation (MJ/m²)(Lichinga)	: 19	16.2	16.7	16.7	16.4	16.2	15	14.8	17.3	19.7	22.1	19.5	16.3	17.2
Estimated global radiation (MJ/m²)(Lichinga)	: -	17.2	16.9	17.5	15.9	16.5	15	16.1	17.3	19.3	22.4	21.7	17.7	17.8
Windspeed (m/s, at 2m height)(Lichinga)	: -	2.2	2	2.2	2.4	2.4	2.4	2.7	3.1	3	2.4	2.8	2.3	2.5

*Data are considered representative for site

Profile description:

Ah 0-15 cm	: (2.5YR 3/3, moist), clay, moderate very fine and fine subangular blocky to crumb, friable, many very fine and fine pores, many fine and medium roots, non calcareous, clear smooth boundary to,
AB 15-25 cm	: dark reddish brown (2.5YR 3/4, moist), clay, moderate fine and medium subangular blocky, hard friable, broken thin clay cutans, many very fine and fine pores, many fine and medium roots, non calcareous, gradual smooth boundary to,
Bt1 25-70 cm	: dark reddish brown (2.5YR 3/4, moist), clay, moderate fine and medium subangular blocky, hard friable, few (2-5%) fine mottles 2.5YR2.5/0 (black), continuous thick clay cutans, many very fine and fine pores, many fine roots, non calcareous, gradual smooth boundary to,
Bt2 70-105 cm	: (2.5YR 3/5, moist), clay, weak to moderate very fine and fine subangular blocky, slightly hard very friable, broken moderately thick clay cutans, many very fine and fine pores, many fine roots, few medium soft argillaceous nodules, non calcareous, diffuse smooth boundary to,
Bo 105-185 cm	: (2.5YR 3/5, moist), clay, weak very fine and fine subangular blocky, slightly hard very friable, patchy moderately thick clay cutans, many very fine and fine pores, common fine roots, non calcareous,
Auger 185-400 cm	: (10R 3/5, moist), clay, non calcareous,
Auger 400-600 cm	: (10R 3/5, moist), clay, common weatherable minerals, non calcareous,
Auger 600-670 cm	: dominant strongly weathered rotten rock fragments, non calcareous,

Physical

Particle size distribution:

Depth (cm)	Gravel (%)	Very Coarse Sand (%)	Coarse Sand (%)	Medium Sand (%)	Fine Sand (%)	Very Fine Sand (%)	Total Sand (%)	Coarse Silt (%)	Fine Silt (%)	Total Silt (%)	Clay (%)
0-5	: -	0.4	2.9	8.3	14.6	7.8	34	7.2	19.1	26.3	39.8
5-17	: -	0.4	2.7	7.3	12.6	6.7	29.7	4.3	12.2	16.5	53.7
17-30	: -	0.4	2.3	5.4	8.8	5.2	22.1	4.5	6.2	10.7	67.2
30-60	: -	0.3	1.8	4.0	6.7	3.8	16.6	4.5	6.3	10.8	72.6
60-95	: -	0.4	1.9	4.4	7.5	4.3	18.5	5.4	14.3	19.7	61.8
95-160	: -	0.4	1.6	3.0	6.0	4.5	15.5	7.1	15.3	22.4	62.1
160-260	: -	1.9	4.0	4.3	5.6	4.2	20	8.6	15.4	24	56.0
330-390	: -	0.5	2.2	3.5	5.7	4.9	16.8	9.8	23.8	33.6	49.5
600-670	: -	0.2	1.3	4.4	8.9	6.6	21.4	24.2	36.9	61.1	17.4

Water retention characteristics

Depth (cm)	Bulk Density (kg/dm ³)	pF 0 (% w/v)	pF 1.0 (% w/v)	pF 1.5 (% w/v)	pF 2.0 (% w/v)	pF 2.3 (% w/v)	pF 2.7 (% w/v)	pF 3.4 (% w/v)	pF 4.2 (% w/v)	pF 2.5 (%)
20-26 :	1.24	54	52	41	33	30	28	27	25	-
40-46 :	1.26	51	50	41	35	33	31	30	29	-
104-110 :	1.11	56	54	47	36	31	28	25	24	-

Other physical data

Depth (cm)	Bulk Density (kg/dm ³)	Spec. Surf. Area (m ² /g)	COLE (cm/cm)	Water Disp. Clay (%)	Clay (%)
0-5 :	-	-	-	28.5	39.8
5-17 :	-	-	-	17.4	53.7
17-30 :	-	77	-	21.8	67.2
30-60 :	-	82	-	1.5	72.6
60-95 :	-	70	-	0.0	61.8
95-160 :	-	70	-	0.0	62.1
160-260 :	-	-	-	0.0	56.0
330-390 :	-	-	-	0.0	49.5
600-670 :	-	-	-	-	17.4

Chemical characteristics:

Depth (cm)	pH H ₂ O	pH KCl	EC 1 : 2.5 (mS/cm)	CaCO ₃ (%)	Org. C (%)	Org. N (%)	C / N	Exch. Acid (cmol/kg)	Exch. Al (cmol/kg)	Ca (cmol/kg)	Mg (cmol/kg)	K (cmol/kg)	Na (cmol/kg)	Sum Cations (cmol/kg)
0-5 :	5.5	4.9	0.09	-	1.98	0.14	14	0.1	0.0	2.9	2.5	0.1	0.7	6.2
5-17 :	5.5	4.7	0.05	-	1.36	0.11	12	0.1	0.0	2.5	1.8	0.1	0.6	5
17-30 :	5.8	4.9	0.03	-	0.64	0.06	11	0.0	0.0	2.5	1.6	0.1	0.5	4.7
30-60 :	5.6	5.2	0.02	-	0.29	0.05	6	0.0	0.0	2.1	1.4	0.1	0.6	4.2
60-95 :	5.6	5.4	0.01	-	0.19	0.03	6	0.0	0.0	1.6	1.1	0.2	0.5	3.4
95-160 :	5.8	5.7	0.01	-	0.15	0.02	8	0.0	0.0	1.4	1.2	0.1	0.3	3
160-260 :	5.8	5.7	0.01	-	0.07	0.04	2	0.0	0.0	1.9	1.3	0.2	0.5	3.9
330-390 :	6.0	5.6	0.01	-	0.06	0.03	2	0.0	0.0	2.3	2.1	0.2	0.4	5
600-670 :	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Depth (cm)	CEC Soil (cmol/kg)	CEC Clay (cmol/kg)	CEC Org (cmol/kg)	ECEC (cmol/kg)	Base sat. (%)	Al sat. (%)	ESP (%)
0-5 :	16.2	41	6.9	-	38	0	4
5-17 :	14.0	26	4.8	-	36	0	4
17-30 :	12.3	18	2.2	-	38	0	4
30-60 :	9.8	13	1.0	-	43	0	6
60-95 :	7.9	13	0.7	-	43	0	6
95-160 :	7.5	12	0.5	-	40	0	4
160-260 :	9.0	16	0.2	-	43	0	6
330-390 :	10.1	20	0.2	-	50	0	4
600-670 :	-	-	-	-	-	-	-

Depth (cm)	pH NaF	P Retention (%)	OD OE	Melanic Index	Fe o (wt%)	Al o (wt%)	Si o (wt%)	Fe d (wt%)	Al d (wt%)	Fe p (wt%)	Al p (wt%)	C p (wt%)
0-5	:	-	-	-	0.25	0.29	0.07	5.72	0.30	0.02	0.10	-
5-17	:	-	-	-	0.29	0.30	0.06	6.29	0.32	0.03	0.10	-
17-30	:	-	-	-	0.34	0.29	0.04	6.58	0.31	0.02	0.09	-
30-60	:	-	-	-	0.31	0.25	0.08	6.68	0.31	0.01	0.07	-
60-95	:	-	-	-	0.22	0.19	0.10	6.66	0.29	0.00	0.06	-
95-160	:	-	-	-	0.19	0.16	0.11	6.35	0.27	0.00	0.05	-
160-260	:	-	-	-	0.17	0.19	0.12	7.05	0.33	0.00	0.05	-
330-390	:	-	-	-	0.14	0.18	0.02	6.72	0.31	0.00	0.06	-
600-670	:	-	-	-	-	-	-	-	-	-	-	-

Elemental composition of the clay:

Depth (cm)	SiO2 (wt%)	Al2O3 (wt%)	Fe2O3 (wt%)	CaO (wt%)	MgO (wt%)	K2O (wt%)	Na2O (wt%)	TiO2 (wt%)
0-5	:	-	-	-	-	-	-	-
5-17	:	-	-	-	-	-	-	-
17-30	:	-	-	-	-	-	-	-
30-60	:	-	-	-	-	-	-	-
60-95	:	36.8	36.6	13.4	0.02	0.05	0.06	0.85
95-160	:	34.9	36.2	14.9	0.02	0.05	0.06	0.89
160-260	:	-	-	-	-	-	-	-
330-390	:	-	-	-	-	-	-	-
600-670	:	-	-	-	-	-	-	-

Elemental composition of the clay:

Depth (cm)	MnO2 (wt%)	P2O5 (wt%)	Ign.Loss clay (wt%)	Total clay (%)	SiO2 / Al2O3 (mol/mol)	SiO2 / Fe2O3 (mol/mol)	SiO2 / R (mol/mol)	Al2O3 / Fe2O3 (mol/mol)
0-5	:	-	-	-	-	-	-	-
5-17	:	-	-	-	-	-	-	-
17-30	:	-	-	-	-	-	-	-
30-60	:	-	-	-	-	-	-	-
60-95	:	0.06	0.14	14.3	1.7	7.3	1.4	4.3
95-160	:	0.05	0.12	14.6	1.6	6.2	1.3	3.8
160-260	:	-	-	-	-	-	-	-
330-390	:	-	-	-	-	-	-	-
600-670	:	-	-	-	-	-	-	-

Elemental composition of the soil:

Depth (cm)	SiO2 (wt%)	Al2O3 (wt%)	Fe2O3 (wt%)	CaO (wt%)	MgO (wt%)	K2O (wt%)	Na2O (wt%)	TiO2 (wt%)
0-5	:	44.4	20.4	18.3	0.16	0.19	0.34	5.34
5-17	:	43.3	22.4	17.6	0.13	0.17	0.32	4.75
17-30	:	42.4	25.8	16.2	0.1	0.13	0.25	3.78
30-60	:	40.8	28.5	15.0	0.07	0.11	0.21	3.07
60-95	:	41.8	28.4	15.7	0.06	0.09	0.21	3.40
95-160	:	40.2	29.4	15.9	0.05	0.11	0.16	3.33
160-260	:	42.4	29.1	15.7	0.06	0.13	0.09	2.63
330-390	:	42.1	29.4	14.3	0.07	0.11	0.07	2.31
600-670	:	-	-	-	-	-	-	-

Elemental composition of the soil:

Depth (cm)	MnO2 (wt%)	P2O5 (wt%)	LOI (wt%)	SiO2 / Al2O3 (mol/mol)	SiO2 / Fe2O3 (mol/mol)	SiO2 / R (mol/mol)	Al2O3 / Fe2O3 (mol/mol)
0-5	: 0.22	0.29	10.8	3.7	6.5	2.3	1.7
5-17	: 0.20	0.24	10.7	3.3	6.5	2.2	2.0
17-30	: 0.17	0.23	11.0	2.8	7.0	2.0	2.5
30-60	: 0.14	0.16	11.8	2.4	7.2	1.8	3
60-95	: 0.11	0.08	11.2	2.5	7.1	1.8	2.8
95-160	: 0.09	0.08	11.6	2.3	6.7	1.7	2.9
160-260	: 0.29	0.09	11.0	2.5	7.2	1.8	2.9
330-390	: 0.09	0.07	11.4	2.4	7.8	1.9	3.2
600-670	: -	-	-	-	-	-	-

Clay mineralogy:

Depth (cm)	Kaolinite	Mica / illite	Vermiculite	Chlorite	Smectite	Halloysite	Mixed layer	Quartz	Feldspar	Gibbsite	Goethite	Hematite
0-5	: very strong	-	-	-	-	-	-	very weak	-	weak to medium	weak to medium	weak
5-17	: very strong	-	-	-	-	-	-	very weak	-	weak	weak to medium	weak
17-30	: very strong	-	-	-	-	-	-	very weak	-	weak to medium	weak to medium	weak
30-60	: very strong	-	-	-	-	-	-	very weak	-	weak to medium	weak to medium	weak
60-95	: very strong	-	-	-	-	-	-	very weak	-	weak to medium	weak to medium	weak
95-160	: very strong	-	-	-	-	-	-	very weak	-	weak to medium	weak to medium	weak
160-260	: very strong	-	-	-	-	-	-	very weak	-	very weak to weak	weak to medium	weak
330-390	: very strong	-	-	-	-	-	-	very weak	-	-	weak to medium	weak
600-670	: -	-	-	-	-	-	-	-	-	-	-	-

Mineral sand:

Depth (cm)	Heavy Frac. Sand (wt%)	Light Frac. Sand (wt%)	Quartz (wt%in lf)	K-Feldspar (wt%in lf)	Plagioclase (wt%in lf)	Rest (wt%in lf)	Opaque (wt%in lf)
0-5	: -	-	-	-	-	-	-
5-17	: -	-	-	-	-	-	-
17-30	: -	-	-	-	-	-	-
30-60	: -	-	87	2	1	-	98
60-95	: -	-	-	-	-	-	-
95-160	: 36.9	63.1	90	10	-	-	100
160-260	: -	-	-	-	-	-	-
330-390	: -	-	85	3	1	-	94
600-670	: -	-	-	-	-	-	-

Minerals:

Depth (cm)	Hypersthene (wt%)	Rutile (wt%)	Zircone (wt%)
0-5	-	-	-
5-17	-	-	-
17-30	-	-	-
30-60	-	1	-
60-95	-	-	-
95-160	-	-	-
160-260	-	-	-
330-390	-	1	-
600-670	-	-	-

Source of analyzing procedures:

Laboratory Attribute	Description	Proc. ref
ISRIC Al d	Al; Atomic Absorption Spectrometry	12.1-1.2
ISRIC Al o	Al; Atomic Absorption Spectrometry	12-2
ISRIC Al p	Al; Atomic Absorption Spectrometry	12-3
ISRIC Al sat.	Calculation; Exchangeable Al / (exchangeable bases+Al+H) or Al / CEC	11.1.4-1.4.3
ISRIC Al2O3	Clay pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-1
ISRIC Al2O3	Fine earth pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-4
ISRIC Al2O3 / Fe2O3	Calculation; molar ratio Al / Fe	15-1
ISRIC Al2O3 / Fe2O3	Calculation; molar ratio Al / Fe	15-5
ISRIC Base sat.	Calculation; Sum of Exchangeable Cations (Na, K, Ca, Mg) / CEC soil	labmanual
ISRIC Bulk Density	Soil density excluding mass liquid, including interparticle space	18-3
ISRIC C / N	Calculation; Organic Carbon / Organic Nitrogen	labmanual
ISRIC Ca	Exchangeable bases with 1 M ammonium acetate at pH 7; Ca by atomic absorption spectrometry	9-4 and 9-5.3
ISRIC CaO	Clay pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-5
ISRIC CaO	Fine earth pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-4
ISRIC CEC Clay	Calculation; ((CEC soil - CEC org.m.)/ clay %)*100	9-6.3
ISRIC CEC Org	CEC organic matter; expert estimate for charge per unit C	9-6.3
ISRIC CEC Soil	CEC; with index cation in buffered solution pH7	9-4 and 9-5.3.3
ISRIC Clay; < 0.002 mm	Fraction by Pipette analysis; after removal CaCO3 and organic matter, dispersion and sedimentation	3-4.7
ISRIC EC 1 : 2.5	Electro Conductivity of a soil / water (1:2.5) suspension	4-1.4 and 13-4
ISRIC ESP	Calculation; (Exchangeable Na / CEC soil) * 100	9-6.3
ISRIC Exch. Acid	Extraction by 1 M KCl; titration with NaOH	11.1.4-1.4.2
ISRIC Exch. Al	Extraction by 1 M KCl; Al by atomic absorption spectrometry	11.1.4-1.4.3
ISRIC Fe d	Fe; Atomic Absorption Spectrometry	12-1.2
ISRIC Fe o	Fe; Atomic Absorption Spectrometry	12-2
ISRIC Fe p	Fe; Atomic Absorption Spectrometry	12-3
ISRIC Fe2O3	Clay pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-5
ISRIC Fe2O3	Fine earth pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-4
ISRIC Feldspar slf	K_Feldspar; diagnostic characteristic	19-5
ISRIC Gibbsite	Gibbsite; relative abundance scale 0 - 7	16-1
ISRIC Goethite	Goethite; relative abundance scale 0 - 7	16-1
ISRIC Hematite	Hematite; relative abundance scale 0 - 7	16-1
ISRIC Hypersthene	Hypersthene; in sand fraction; sand mineral	19-1
ISRIC Ign. Loss clay	Clay pretreatment; dried at 105, ignited at 900 degree Celcius	15-3(18)
ISRIC Ign. loss fine earth	Fine earth pretreatment; dried at 105, ignited at 900 degree Celcius.	15-5.1 and 15-5.3(18)
ISRIC K	Exchangeable bases with 1 M ammonium acetate at pH 7; K by flame atomic emission spectrometry	9-6.1
ISRIC K2O	Clay pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-5
ISRIC K2O	Fine earth pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-4
ISRIC Kaolinite	Kaolinite; relative abundance scale 0 - 7	16-1
ISRIC Mg	Exchangeable bases with 1 M ammonium acetate at pH 7; Mg by atomic absorption spectrometry	9-4 and 9-5.3
ISRIC MgO	Clay pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-5
ISRIC MgO	Fine earth pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-4
ISRIC MnO2	Clay pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-5
ISRIC MnO2	Fine earth pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-4
ISRIC Na	Exchangeable bases with 1 M ammonium acetate at pH 7; Na by flame atomic emission spectrometry	9-4 and 9-5.3
ISRIC Opaque slf	Opaque minerals, most common Magnetite and Ilmenite; diagnostic characteristic	19-5

ISRIC	Organic Carbon	Wet combustion of organic matter by potassium dichromate and sulphuric acid at about 125 degrees Celcius. Residual dichromate is back titrated against ferrous sulphate. To compensate for incomplete destruction an empirical correction factor of 1.3 is applied	5
ISRIC	Organic Nitrogen	Organic Matter is digested in sulphuric acid (and hydrogen peroxide) with selenium as catalyst. Nitrogen is converted to ammonium sulphate. The solution is made alkaline and ammonia is distilled off. The evolved ammonia is trapped in boric acid and titrated with standardized acid solution	6
ISRIC	P2O5	Clay pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-5
ISRIC	P2O5	Fine earth pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-4
ISRIC	pF 0	Moisture content of soil in a ring sample at tension of 0.1 kPa head of water	18-3
ISRIC	pF 1.0	Moisture content of soil in a ring sample at tension of 1 kPa head of water	18-3
ISRIC	pF 1.5	Moisture content of soil in a ring sample at tension of 3.2 kPa head of water	18-3
ISRIC	pF 2.0	Moisture content of soil in a ring sample at tension of 10 kPa head of water	18-3
ISRIC	pF 2.3	Moisture content of soil in a ring sample at tension of 20 kPa head of water	18-3
ISRIC	pF 2.7	Moisture content of soil in a ring sample at tension of 50 kPa head of water	18-3
ISRIC	pF 3.4	Moisture content of soil in a ring sample at tension of 250 kPa head of water	18-3
ISRIC	pF 4.2	Moisture content of soil in a ring sample at tension of 1.5 MPa head of water	18-3
ISRIC	pH H2O	pH electrode; in supernatant suspension	4-1
ISRIC	pH KCl	In supernatant suspension; potentiometrically	4-1
ISRIC	Plagioclase slf	Plagioclase; diagnostic characteristic	19-5
ISRIC	Quartz	Quartz; relative abundance scale 0 - 7	16-1
ISRIC	Quartz slf	Quartz; diagnostic characteristic	19-5
ISRIC	Rutile	Rutile; in sand fraction; sand mineral	19-1
ISRIC	Sand: Heavy Fraction	pretreatment fine earth; removal of cementing and coating materials, separation of sand by wet sieving and fraction 50-420 by dry sieving; separation heavy and light fraction by high density liquid.	19-2
ISRIC	Sand: Light Fraction	pretreatment fine earth; removal of cementing and coating materials, separation of sand by wet sieving and fraction 50-420 by dry sieving; separation heavy and light fraction by high density liquid.	19-2
ISRIC	Sand; 0.10 - 0.05 mm	Fraction by sieving; after removal CaCO3 and organic matter	3-4.6
ISRIC	Sand; 0.25 - 0.10 mm	Fraction by sieving; after removal CaCO3 and organic matter	3-4.6
ISRIC	Sand; 0.5 - 0.25 mm	Fraction by sieving; after removal CaCO3 and organic matter	3-4.6
ISRIC	Sand; 1.0 - 0.5 mm	Fraction by sieving; after removal CaCO3 and organic matter	3-4.6
ISRIC	Sand; 2.0 - 0.05 mm	Total sand fractions by sieving; after removal CaCO3 and organic matter	3-5
ISRIC	Sand; 2.0 - 1.0 mm	Fraction by sieving; after removal CaCO3 and organic matter	3-4.6
ISRIC	Si o	Si; Atomic Absorption Spectrometry	12-2
ISRIC	Silt; 0.02 - 0.002 mm	Fraction by Pipette analysis ; after removal CaCO3 and organic matter, dispersion and sedimentation	3-4.7
ISRIC	Silt; 0.05 - 0.002 mm	Calculation; Sum fractions Silt 0.05 - 0.02 mm	3-4.7
ISRIC	Silt; 0.05 - 0.02 mm	Fraction by Pipette analysis ; after removal CaCO3 and organic matter, dispersion and sedimentation	3-4.7
ISRIC	SiO2	Clay pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-1
ISRIC	SiO2	Fine earth pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-4
ISRIC	SiO2 / (Al2O3+Fe2O3)	Calculation; molar ratio (Si) / (Al + Fe)	15-1
ISRIC	SiO2 / (Al2O3+Fe2O3)	Calculation; molar ratio Si / (Al + Fe)	15-5
ISRIC	SiO2 / Al2O3	Calculation; molar ratio Si / Al	15-1
ISRIC	SiO2 / Al2O3	Calculation; molar ratio SiO2/ Al2O3	15-5
ISRIC	SiO2 / Fe2O3	Calculation; molar ratio Si / Fe	15-1
ISRIC	SiO2 / Fe2O3	Calculation; molar ratio Si / Fe	15-5
ISRIC	Specific Surface Area	fine earth coated with monomolecular layer of Ethylene Glycol Monoethyl Ether	17-1
ISRIC	Sum cations	Sum of Exchangeable Cations (Ca, Mg, Na, K) with 1 M ammonium acetate at pH 7	9-
ISRIC	TiO2	Clay pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-5
ISRIC	TiO2	Fine earth pretreatment; dried at 105, ignited at 900 degree Celcius; fused with Li2B4O7	15-4
ISRIC	Total Clay	Calculation	3-4.7.5
ISRIC	Total fine earth	Calculation; correction only if sum fractions is >95 and < 108%	3-5(Note)
ISRIC	Water		
ISRIC	Dispersable Clay	Fraction by Pipette analysis; without any pretreatment	3-8
ISRIC	Zircon	Zircon; in sand fraction; sand mineral	19-1

*ref: no labmanual available, link to presumable used analytical methode

Other classification

USDA-SCS (1975) : Paleustult clayey kaolinitic thermic

Classification (other) :

Chicunja

FAO74: Ferric properties because of low CEC clay

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