

Proposed by P. Pramojanee, 1972
Revised by :
P. Vijarnsorn and staffs, 1988
W. Sirichuaychoo, 2004

SAI KHAO SERIES

Field Symbol: Sak

Distribution: Occupies a small extent in Peninsular Thailand.

Setting: Sai Khao soils are formed from alluvium originated from granite or gneissic granite and occurred on lower part of alluvial fan (granitic terrain). Relief is level to nearly level. Slope is less than 2 percent. Elevation ranges from 10 to 20 m above mean sea level. The climate is Tropical Monsoon (Koppen 'Am') or Tropical Rain Forest (Koppen 'Af'). Average annual precipitation is above 2,000 mm Average annual air temperature is from 26 °C to 28°C.

Drainage, Permeability and Surface Runoff: Drainage is poorly drained, permeability is estimated to be rapid and surface runoff is very slow. Ground water level lies below 1 meter for 6 to 8 months a year. Free water commonly covers the soil surface for 2 to 3 months a year.

Vegetation and Land Use: Mostly occupied by low shrubs and grasses.

Characteristic Profile Features: The Sai Khao series is a member of the siliceous, isohyperthermic Humaqueptic Psammaquents (soil taxonomy, 2003). They are very deep sandy soils and are characterized by a very dark gray or dark grayish brown loamy sand surface or A horizon overlying a gray or light gray coarse sand or coarse loamy sand C horizon. Mottles of brownish and yellowish occur throughout the profile. Very strongly, reaction values range from 4.5 to 5.0 on surface soil and strongly acid to moderately acid, reaction values range from 5.5 to 6.0 in subsoil.

Typifying pedon: Sai Khao loamy sand - scrub forest (mainly *Melaleuca leucadendron*), from Ban Sai Kao, Amphoe Chana, Changwat Songkhla, 20 m above mean sea level, less than 2 percent slopes, 50 cm ground water table depth (sheet number 5122 SW).

Profile Code Number: S-68/78, described by P. Pramojanee, 23 January 1972 (moist colors unless otherwise stated).

Horizon Depth (cm)	Description
Ag 0-17	Mixed very dark brown (10YR3/1) and very dark grayish brown (10YR3/2) loamy sand; weak medium subangular blocky structure; loose, nonsticky and nonplastic; many very fine and fine interstitial pores; many fine and few large roots; strongly acid (field pH 5.5); clear smooth boundary.
ACg 17-28	Dark grayish brown (10YR4/2) loamy sand; weak medium to coarse subangular blocky structure; friable, nonsticky and nonplastic; many very fine and fine tubular pores, many fine interstitial pores; common fine and few large roots; moderately acid (field pH 6.0); clear smooth boundary.
Cg1 28-50	Mixed dark grayish brown (10YR4/2) and light brownish gray (10YR6/2) loamy coarse sand; weak medium subangular blocky structure; friable, nonsticky and nonplastic; common very fine tubular and many fine interstitial pores; common fine roots; moderately acid (field pH 6.0); clear smooth boundary.
Cg2 50-100	Light gray (10YR7/1-2) loamy coarse sand; many coarse distinct strong brown (7.5YR5/6) mottles; moderately acid (field pH 6.0).

Type location:

Name of village, Ban Sai Kao, Amphoe Chana, Changwat Songkhla.

Range of Profile Features:

The surface or A horizon sand or loamy sand is 10 to 15 cm in thickness and has 10YR hues, values 3 or 4 and chromas 1 or 2. Structure is weak fine subangular blocky. Very strong acid to strongly acid, reaction values range from 5.0 to 5.5.

The C horizon sand or loamy sand, has 10YR or 2.5Y hues, values 5 to 7 and chromas less than 2. There is no aggregation, single grain, if aggregation is presented, usually weak blocky structure breaking to single grain. Very strongly acid to moderately acid is 5.0 to 6.0.

Similar Soil Series:

Principal Associated Soils:

These include Thung Wa series on higher position.

Thung Wa series (Tg): coarse-loamy, siliceous, subactive, isohyperthermic Typic Paleudults.

ANALYSIS RESULTS

Profile code No.: S-68/78

(oven dry basis)

Soil series: Sai Khao series (Sak)

Lab No.	Depth (cm)	Horizon	Particle size distribution analysis (% by weight)								Texture		pH		CaCO ₃ %	P, mg kg ⁻¹ Bray 2	K, mg kg ⁻¹ NH ₄ OAc	
			USDA grading			Sand-fraction grading					Lab	Field	1:1	1:1				
			sand	silt	clay	vc	c	m	f	vf	result	estim ⁿ	water	KCl				
Pc-290	0-17	Ag	90.5	9.0	0.5							s	ls	4.9	4.2	0.6	2.2	29
Pc-291	17-28	AC g	88.5	8.0	3.5							s	ls	5.5	4.4	0.0	1.2	24
Pc-292	28-50	Cg1	86.0	8.5	5.5							ls	lcos	5.6	4.5	0.6	1.9	21
Pc-293	50-100	Cg2	82.0	8.0	10.0							ls	lcos	5.5	4.2	0.0	2.3	44

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol ₍₊₎ kg ⁻¹)									Base satur ⁿ (%)		ECEC cmol ₍₊₎ kg ⁻¹ (B+D)	Al KCl extr. cmol ₍₊₎ kg ⁻¹ (D)	Electrical conduct ^y (ECx10 ⁶) dS m ⁻¹
				Ca	Mg	K	Na	SUM cations (B)	Extr. acidity (A)	SUM (B+A)	CEC NH ₄ OAc (C)	CEC 100g Clay	B/Cx100	(Bx100)/(B+A)			
				0-17	0.4	0.85		0.10	0.00	0.10	0.10	0.30	2.00	2.30			
17-28	0.4	0.59		0.10	0.00	0.10	0.10	0.30	1.80	2.10	1.0	28.6	30	14		0.14	
28-50	0.6	0.79		0.10	0.00	0.10	0.10	0.30	2.20	2.50	2.0	36.4	15	12		0.10	
50-100	0.9	0.61		0.10	0.02	0.10	0.10	0.32	2.10	2.42	2.3	23.0	14	13		0.06	

Surveyor: P. Pramojanee

Reported by: W. Sirichuaychoo

Date: Jan. 23, 1972

Date: Oct. 28, 1998