

Proposed by R.L. Pendleton, 1953
 Revised by:
 1. C. Changprai, 1987
 2. S. Udomsri, 2004

THA CHIN SERIES

Field Symbol: Tc

Distribution: Occupies large extent in the southern Central Plain and small extent in the Southeast Coastal Region and the east and west coasts of Peninsular Thailand.

Setting: Tha Chin soils are formed from recent marine sediments and occur in tidal swamps. Relief is flat. Slopes are 0-1%. Elevation is about 1 m above sea level. The climate are both Tropical Savanna (Köppen 'Aw') and Tropical Monsoon (Köppen 'Am'). Annual precipitation ranges from 1,000 mm to 3,000 mm. Mean annual temperature is 27°C.

Drainage, Permeability and Surface Runoff: Very poorly drained. Permeability is moderate to slow due to the large number of root channels and crab holes in the soil. Runoff is slow. Groundwater or sea water level remains at or near the surface throughout the year and the soils are regularly flooded by sea water sometimes in normal years.

Vegetation and Land Use: Mangrove forest is the characteristic vegetation. These soils are not cultivated but the wood is used for making charcoal and fish ponds and salt pans are constructed.

Characteristic Profile Features: Tha Chin series is a member of the Fine, smectitic, nonacid, isohyperthermic Sodic Hydraquents. They are deep, mildly to moderately alkaline soils and are characterized by a brown clay A horizon overlying a reduced dark gray or greenish gray clay or silty clay C horizon which has an upper boundary within 50 cm of the soil surface. The A horizon contains many brown and gray mottles while the upper C horizon contains few olive and grayish green mottles.

Typifying Pedon: Profile code number is SW-55/8

Location: Amphoe Mueang Changwat Samut Sakorn.

Sheet Name: Changwat Samut Sakorn.

SheetNo.: 5036 II

Coordinate: -

Elevation: 0.5-1 m MSL.

Relief: level to nearly level

Slope: 0-1%

Physiography: tidal flats

Parent material: marine sediments

Drainage: very poorly drained

Permeability: slow

Runoff: slow

Ground water depth: 0.5 m

Flooding depth: - cm

Duration: - month

Frequency: every year

Annual rainfall: 1,496.8 mm

Mean temp: 27.8 °C

Climate type: Tropical Savannah

Natural vegetation and/or land use: mangrove forest, Xylocarpus

Other: many crab activity crabeills of 15 cm high.

Described by: Kevie and Pisan:

Date: 24 May, 1971

Revised by: S. Udomsri

| Horizon | Depth (cm) | Description |
|---------|------------|--|
| Ag | 0-30/40 | Dark brown (10YR 4/3) clay; many medium very dark gray (5YR 3/1) and brown (7.5YR 4/4) mottles along root holes; many medium and coarse greenish gray (5GY 5/1) mottles; nearly ripe to half ripe clay; weak to moderate medium subangular blocky structure; common fine and few medium tubular pores; few fine and common medium roots; common crab holes; moderately alkaline (field pH 8.0) |

| | | |
|-----|----------|---|
| Cg1 | 30/40-50 | Mixed dark greenish gray (5GY 4/1) and very dark gray (5Y 3/1) half ripe clay; weak coarse subangular blocky structure; sticky and plastic common very fine and fine tubular pores; common crab holes, few fine medium and coarse roots; moderately alkaline (field pH 8.0) |
| Cg2 | 50-100+ | Greenish gray (5GY 5/1) nearly unripe clay; moderately alkaline (field pH 8.0) |

Type Location: Name of river, Mae Nam Tha Chin, Amphoe Mueang Changwat Samut Sakhon.

Range of Profile Features:

The A horizon is from 5 to 40 cm thick, has 10YR or 7.5YR hues, values of 4 or 3 and chromas of 3 through 1. Structure is weak, medium blocky or massive. Field pH values range from 6.0 to 8.0.

The C horizon has hues of 5Y and 5GY, values of 3 to 5 and chroma of 1. Structure may be weak coarse blocky in the upper part of the C horizon or massive, but becomes nearly unripe or unripe with depth. Field pH values range from 7.5 to 8.0.

A thin B horizon may have developed, but its lower boundary is not deeper than 50 cm from the soil surface. The soil has n-values higher than 0.7 in all horizons.

Similar Soil Series:

Bang Pakong series (Bpg): has a similar profile, but is potentially acid. It has a high sulphur content and on oxidation reaction becomes extremely acid.

Samut Prakan series (Sm): has a cambic B horizons and has C horizons between 50-100 cm

Principal Associated soils: These include Bang Pakong series which occur in association with Tha Chin series in tidal swamps, and Samut Prakan series which occurs more inland on former tidal flats and are seldom inundated by sea water.

ANALYSIS RESULTS
(oven dry basis)

Profile code No. : SW-55/8
Soil series : Tha Chin (Tc)

| 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 ¹ | water | KCl | | | |
| b-741 | 0-30/40 | Ag | 6.0 | 43.5 | 42.5 | | | | | | sic | c | 6.8 | 6.5 | 3.5 | 53.2 | 1,080 |
| b-742 | 30/40-50 | Cg1 | 5.0 | 46.6 | 42.5 | | | | | | sic | c | 7.0 | 6.4 | 3.6 | 51.6 | 1,285 |
| b-743 | 50-100+ | Cg2 | 8.0 | 50.5 | 38.0 | | | | | | sicl | c | 6.3 | 5.8 | 2.0 | 39.0 | 1,195 |

| Depth (cm) | Air dried to oven dried | C % | N % | Exchange capacity and cations (cmol ₍₊₎ kg ⁻¹) | | | | | | | | | | Base satur ¹ (%) | | ECEC cmol ₍₊₎ kg ⁻¹ (B+D) | Al KCl extr. cmol ₍₊₎ kg ⁻¹ (D) | Electrical conduct ² (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) | | | | |
| 0-14 | 5.90 | 2.3 | | 10.40 | 23.00 | 2.60 | 41.40 | 77.40 | 7.40 | 84.80 | 38.00 | 89.4 | 100 | 91 | | | 16.00 | |
| 14-50 | 5.70 | 2.5 | | 11.00 | 20.80 | 3.30 | 26.20 | 61.30 | 6.20 | 67.50 | 34.70 | 81.6 | 100 | 91 | | | 16.00 | |
| 50-100 | 5.40 | 2.9 | | 9.20 | 20.10 | 3.20 | 27.20 | 59.70 | 8.40 | 68.10 | 31.00 | 81.6 | 100 | 88 | | | 12.00 | |