

# SACHON SERIES

Established Series  
UKT, JFD  
21 November, 1969

The Sachon series are members of the coarse loamy, mixed, mesic family of Fluvaquentic Endoaquepts [Fluvic Gleyic Hydragric Anthrosols (Eutric) classified by WRB]. These soils have dark gray loam Ap horizons with dark yellowish brown mottles, dark gray sandy loam BAg horizons with yellowish brown mottles, dark gray sandy loam Bg horizons with brown mottles, grayish brown sandy loam BCg horizons with yellowish brown mottles, and gray sandy loam Cg horizons with yellowish brown mottles. They are developed in narrow local valleys in granitic areas.

**Typifying pedon:** Sachon loam-paddy rice (Colors are for moist soil).

Slope: 2-7%

Elevation: 90 m above m.s.l.

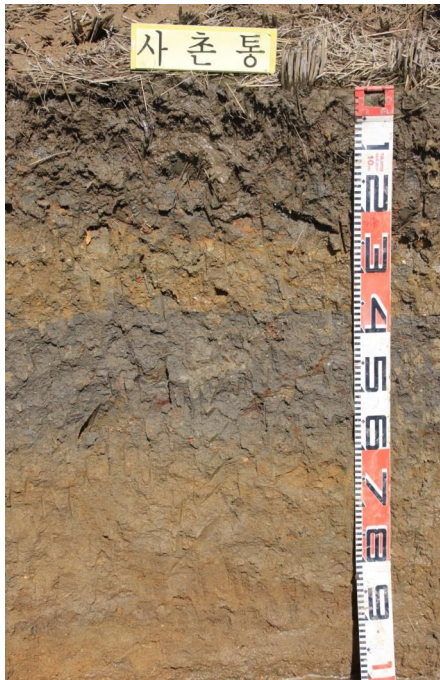
Soil moisture regime: Aquic

Soil temperature regime: Mesic

Parent material: Local alluvium from granitic materials

Diagnostic features: An ochric epipedon from a depth of 0 to 22 cm and a cambic horizon from a depth of 41 to 120 cm (An anthraquic horizon from a depth of 0 to 41 cm and a hydragric horizon from a depth of 41 to 120 cm by WRB).

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Morphological properties of typifying pedon.

**Ap** - 0 to 22 cm. Dark gray (2.5Y 4/1) loam; common fine distinct dark yellowish brown (10YR 4/6) mottles; structureless, puddled; friable, slightly sticky and slightly plastic; common fine to medium roots; few fine pores; few fine micas; abrupt smooth boundary.

**B<sub>Ag</sub>** - 22 to 37 cm. Dark gray (2.5Y 4/1) sandy loam; common fine to medium distinct yellowish brown (10YR 4/6) mottles; weak fine to medium subangular blocky structure; firm, slightly sticky and slightly plastic; few fine roots; common fine to medium pores; common fine micas; clear smooth boundary.

**B<sub>g</sub>** - 37 to 60 cm. Dark gray (2.5Y 4/1) sandy loam; common fine distinct strong brown (7.5YR 4/6) mottles; weak medium to coarse prismatic structure; friable, slightly sticky and slightly plastic; few fine roots; common fine pores; many fine micas; abrupt smooth boundary.

**BC<sub>g</sub>** - 60 to 84 cm. Grayish brown (2.5Y 5/2) sandy loam; common fine distinct dark yellowish brown (10YR 4/6) mottles; weak medium to coarse prismatic structure; friable, slightly sticky and slightly plastic; few fine roots; few fine pores; many very fine micas; clear smooth boundary.

**C<sub>g</sub>** - 84 to 150 cm. Gray (2.5Y 5/1) sandy loam; common fine to medium distinct yellowish brown (10YR 5/8) mottles; structureless, massive; friable, slightly sticky and slightly plastic; no roots; few fine pores; common fine micas.

The typifying pedon has an ochric epipedon from a depth of 0 to 22 cm and a cambic horizon from a depth of 37 to 60 cm. It can be classified as Inceptisol. It has aquic conditions for some time in normal years in a layer at a depth between 40 and 50 cm from the mineral soil surface, and has a layer within 50 cm of the mineral soil surface, that has, on the faces of peds, 50% or more chroma of 2 or less, and has redox concentrations. Therefore it can be classified Aquept. It has endosaturation and keys out as Endoaquept. It has a slope of less than 25% and at a depth of 125 cm below the mineral soil surface, an organic-carbon content (Holocene age) of 0.2% or more and no densic, lithic, or paralithic contact within that depth. That can be classified as Fluvaquentic Endoaquept.

The typifying pedon has coarse loamy particle-size class and mesic soil temperature class. Therefore it can be classified as coarse loamy, mixed, mesic family of Fluvaquentic Endoaquept.

**Type Location:** About 400 meters east of the Nogog Reservoir, Nogog Ri, Yangseong Myeon, Anseong city, Gyeonggi Do (127° 15' 45.2", 37° 6' 19.5").

**Range in Characteristics:** These soils have ochric epipedons and cambic horizons. Solum thickness ranges from 50 to 100 cm and depth to hard rock is greater than 3 meters. Base saturation is more than 60 percent. Reaction is strongly acid in Ap horizons and slightly acid to neutral in the subsoil. There are few to common mica flakes throughout. Ap horizons very dark grayish brown, dark grayish brown, grayish brown, or gray loam or sandy loam with mottles. The cambic B horizons are dark gray sandy loam, loam, or silt loam. C horizons are grayish brown weakly stratified sandy loam and loam with strong brown mottles.

**Competing Series and Their Differentiae:** These include the Jeomgog, Gamcheon, and Seogcheon series. The Jeomgog soils are formed from sandstone and conglomerate materials. The Gamcheon

soils have plenty of micas throughout the profiles. The Seogcheon soils occur on broad alluvial plains. The Eungog soils are better drainage.

**Setting:** The Sachon series occur on gently sloping to sloping narrow local valleys derived from granitic soil materials. Dominant slopes are 2 to 15 percent and the range is from 2 to 30 percent.

**Principal Associated Soils:** These include the Samgag, Togye, Ibseog, Sangju, Jisan, Tongcheon and Seoggye series. The Samgag, Togye, Ibseog, and Sangju soils occur above and adjacent to the Sachon soils in foot slope positions. The Samgag soils are in residual upland positions. The Jisan, Tongcheon, and Seoggye soils are associated in similar physiographic positions.

**Drainage and Permeability:** The Sachon soils have imperfectly drainage, moderately rapid permeability and slow runoff.

**Use and Vegetation:** The Sachon soils are used for flood irrigated paddy rice and non irrigated barley.

**Distribution and Extent:** The Sachon series are of large extent and are distributed in narrow local valleys throughout the granitic areas of the country.

**Series Established:** Ulju Gun, Ulsan city, 1966. **Revised,** Anseong city, Gyeonggi Do, 2010.

**Laboratory data sheets of typifying pedon.**

Depth (cm)	Horizon	( --- Total ---)			(-- Clay --)		(-- Silt --)		(----- Sand -----)				
		Clay	Silt	Sand	Fine	Coarse	Fine	Coarse	VF	F	M	C	VC
		LT	.002	.05	LT	LT	.002	.02	.05	.10	.25	.5	1
		.002	.05	.2	.0002	.002	.02	.05	.10	.25	.50	1	2
----- Pct of < 2mm (3A1) -----													
0-22	Ap	14.3	34.1	51.6			20.1	14.0	16.8	10.7	14.5	11.1	4.4
22-37	B <sub>Ag</sub>	17.7	32.6	49.7			19.0	13.6	7.6	13.6	14.0	10.4	4.0
37-60	B <sub>g</sub>	15.9	35.6	48.5			19.9	15.7	7.0	12.8	14.7	10.0	4.0
60-84	B <sub>Cg</sub>	14.2	21.7	64.1			12.9	8.9	10.2	20.2	17.9	11.5	4.2
84-150	C <sub>g</sub>	5.9	9.6	84.5			4.6	5.0	3.9	19.9	31.4	21.4	7.9

Depth (cm)	Coarse Fractions(mm)				>2mm	Orgn	Total	Extr	Total	(-- Dith -Cit --)		
	Weight				Wt	C	N	P	S	Extractable		
	2-5	5-20	20-75	.1-75	Pct of					Fe	Al	Mn
	Pct of < 75mm (3B1)				Whole	6A1c	6B3a	6S3	6R3a	6C2b	6G7a	6D2a
	Pct of < 75mm (3B1)				Soil	Pct < 2mm		g/kg	Pct of < 2mm			
0-22						2.12						
22-37						1.14						
37-60						1.65						
60-84						0.84						
84-150						0.58						

Depth (cm)	Ratio/Clay		Atterberg		( Bulk Density )			COLE		(- Water Content -)			WRD
	CEC	1500	Limits		Field	33	Oven	Whole	Field	10	33	1500	Whole
		kPa	LL	PI	Moist	kPa	Dry	Soil	Moist	kPa	kPa	kPa	Soil
	8D1	8D1	4P1	4P	4A3a	4A1d	4A1h	4D1	4B4	4B1c	4B1c	4B2a	4C1
	Pct <0.4mm		- - g/cc - -			cm/cm		-- Pct of <2mm --			cm/cm		
0-22	0.62				1.00							54.4	
22-37	0.39				1.41							28.8	
37-60	0.66				1.21							40.8	
60-84	0.33				1.45							22.3	
84-150	0.33												

Depth (cm)	( NH4OAc Extractable Bases )					Acid-	Extr	(----- CEC -----)			Al
	Ca	Mg	K	Na	Sum	ity	Al	Sum	NH4-	Bases	Sat
	5B5a	5B5a	5B5a	5B5a	Bases			Cats	OAc	+ Al	
	6N2e	6O2d	6Q2b	6P2b		6H5a	6G9a	5A3a	5A8b	5A3b	5G1
	- - - - - meq / 100g - - - - -										Pct
0-22	3.1	1.0	0.3	0.1	4.5	9.5	0.5	14.0	8.9	5.0	9.7
22-37	3.7	1.0	0.1	0.1	5.0	6.8	0	11.7	6.8	5.0	0
37-60	5.8	1.6	0.2	0.1	7.7	9.1	0	16.8	10.5	7.7	0
60-84	2.7	1.0	0.1	0.1	3.9	3.8	0	7.7	4.7	3.9	0
84-150	1.1	0.4	0.1	0.1	1.7	2.3	0	4.0	2.0	1.7	0

Depth (cm)	(Base Sat)		CO3 as	Res	Cond	(----- pH -----)			Acid	Oxalate	Extraction		
	Sum	NH4-	CaCO3			NaF	KCl	CaCl2	H2O	Opt	Al	Fe	Si
		OAc	<2mm					.01M		Den			
	5C3	5C1	6E1g	8E1	8I	8C1d		8C1f	8C1f	8J	6G12	6C9a	6V2
	---- Pct ----		ohms	dS/m	1: 1 1: 2 1: 1			- Pct of <2mm -					
0-22	32.2	50.6					4.1	4.6	5.2				
22-37	42.5	73.0					4.8	5.3	6.1				
37-60	45.8	73.7					4.9	5.4	6.1				
60-84	50.8	81.9					5.1	5.7	6.6				
84-150	41.8	85.3					5.2	5.8	6.7				