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Atlas of Soil Reflectance Properties

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1979

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Soil Color in Perspective

In delineating differences between soils and in describing the characteristics of a soil profile, color is one of the most obvious and useful attributes for documenting these differences. For more than 50 years soil scientists have worked to refine and make more quantitative the descriptions of soil color.

In the 1920's a national committee on soil color standards was established and assigned the task of developing a standardized procedure for determining soil color. The work of this committee resulted in the adoption of the Munsell color notation along with color descriptions to document the color characteristics of specific soils and the different horizons within any soil profile (Pendleton and Nickerson, 1951).

Today the common method for determining this important soil property is for the human observer of soils to make a visual comparison between a given soil sample and the various color chips in an array of artificially produced Munsell colors, arranged according to hue, value and chroma. Once the observer has matched the color of the soil sample with that of the appropriate color chip, the soil is then assigned an alphanumeric Munsell color notation and a word description of the soil color. Often soil color will be determined by this method for soil samples in both air dry and moist conditions. In general, increasing moisture content will lower the numerical designation for value, i.e., reduce reflectance.

Since soil color is related to numerous other soil properties, it is important that soil color descriptions be as precise as possible. Recent developments in field and laboratory instrumentation now make it possible to reduce much of the subjectivity involved in the determination of soil color. New instrumentation also provides the opportunity to obtain precise quantitative reflectance measurements not only in the visible portion (color) of the electromagnetic spectrum but also in the near and middle infrared regions (Figure 1). This capability adds a new dimension to the possible use of soil spectral measurements to explain other soil characteristics and to predict soil response to different treatments, management, and variations in climate.

Reflectance measurements in the near and middle infrared often reveal textural, structural, mineralogical and/or other significant differences which may not be detectable by standard color observations (Figure 2). In this example, soils from three very different climatic regimes (Oklahoma, USA; Badajoz, Spain; Paraná, Brazil) were described by soil scientists as dark red and given the same Munsell color designation (2.5YR 3/6). The visible portion of the reflectance curves reveal similar spectral characteristics. However, in the near and middle infrared there are great differences in both the shapes of the curves and the intensity of reflectance.

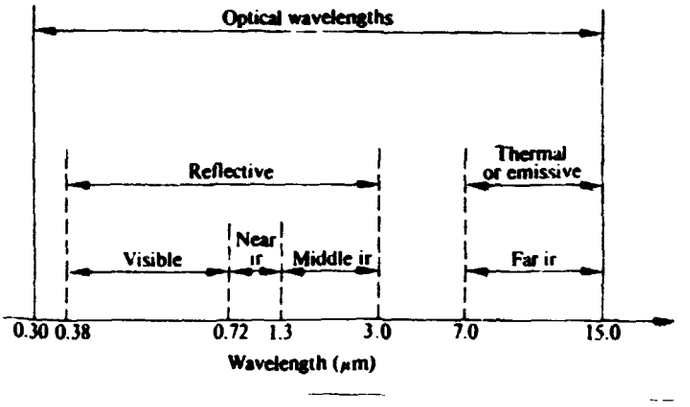
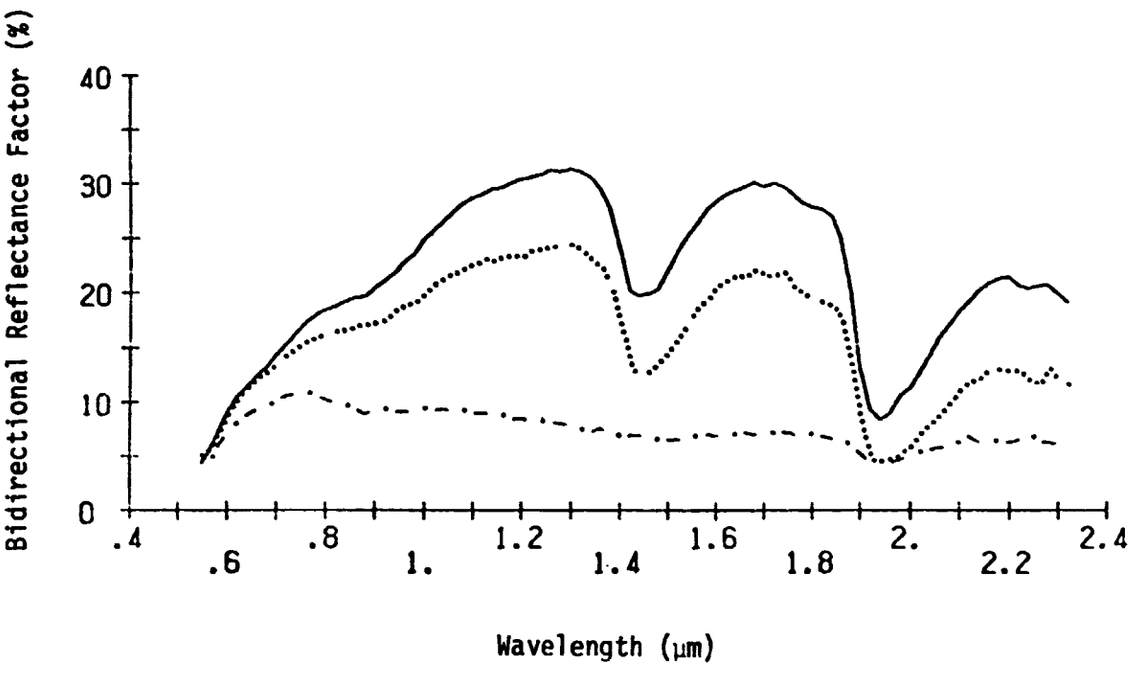


Figure 1. Electromagnetic spectrum.



Key to Soils Data

Soil	Curve	% Organic Matter	% Fe_2O_3
Dill (Oklahoma, USA)	——	0.6	0.87
Arroyo (Spain)	••••	1.28	2.00
Londrina (Brazil)	-·-·	2.28	25.6

Figure 2. Reflectance curve for three dark red surface soils having moist Munsell color notations 2.5 YR 3/6. (Stoner, 1979).

Purpose

The purpose of this atlas is to present for the first time a compendium of laboratory-measured soil parameters and soil site characteristics together with reflectance measurements of soils. Only those soil parameters and site characteristics known to influence soil reflectance properties are included, with the recognition that even more detailed soil mineralogical and organic constituent investigations are needed to understand soil reflectance differences.

The 251 soils shown here represent a wide range of soil forming factors characteristic of soils in the continental United States and Brazil. Selection of 247 of these soils based on stratification of the continental United States by soil temperature regime and climatic moisture zone provides a statistical sampling of soils in proportion to the geographic extent of each climatic region (Figure 3). Information about the soils in this atlas can be extended to many of those soils closely related in classification and geography.

This atlas is intended to promote an appreciation of the diversity of soil reflectance properties as those soils might be viewed by remote sensing devices. The well-ordered physical and chemical relationships that impart diverse spectral character to soils become apparent here. The need for a quantitative, reliable laboratory procedure for measuring soil spectral properties should also become evident.

Collection of Soil Samples

The Soil Survey Investigations Division of the Soil Conservation Service (USDA) cooperated with the Laboratory for Applications of Remote Sensing/ Purdue University by taking responsibility for field collection of almost 500 individual soil samples from 190 counties within 39 states. Two separate soil samples were collected for each soil series, one at a site near the type location for the current official series, and another at a site from one to twenty miles distant from the first site in a different mapping delineation of the same series. Samples were forwarded to Purdue University complete with additional site information regarding exact sampling location, physiographic position, slope, drainage, vegetation, and parent material. Brazilian soils were sampled in connection with a soil survey of Paraná State, Brazil (Fasolo, 1978).

Measurement of Soil Reflectance Properties

The sieved soil fraction less than 2 mm diameter was used for reflectance measurements in an attempt to standardize this procedure in line with the use of this same size fraction for most laboratory determinations of soil properties. All measurements were made on uniformly-moist soils which were equilibrated for 24 hours at a one-tenth bar moisture tension on asbestos tension tables. Specially constructed 10 cm diameter by 2 cm rings with 60 mesh wire bottoms held the soil in place through the stages of saturation, equilibration, and spectral reading (Figure 4).

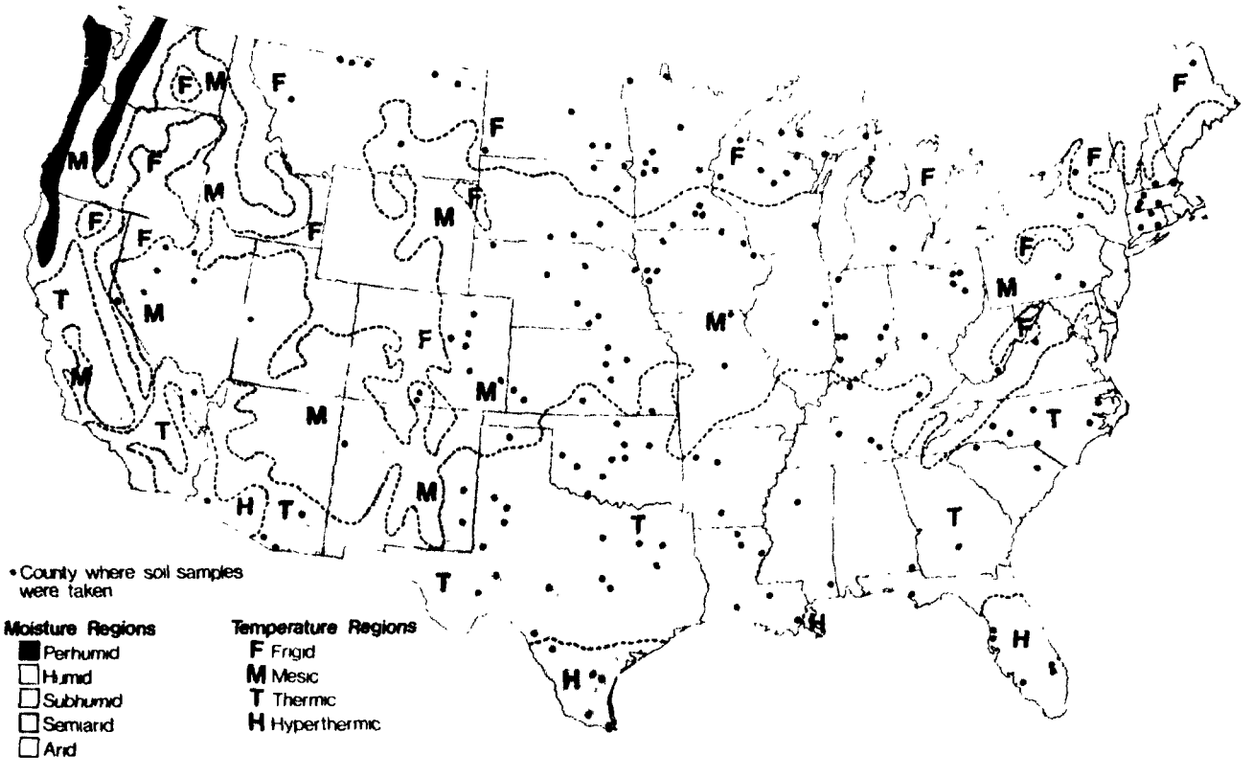
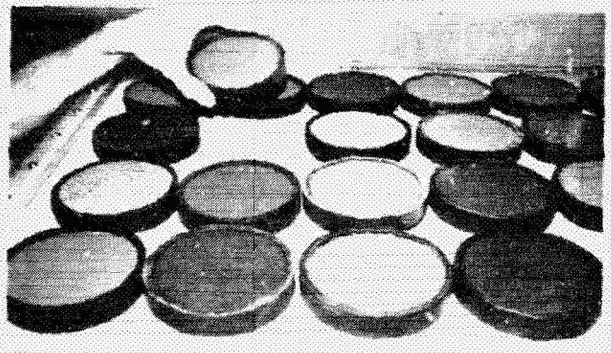


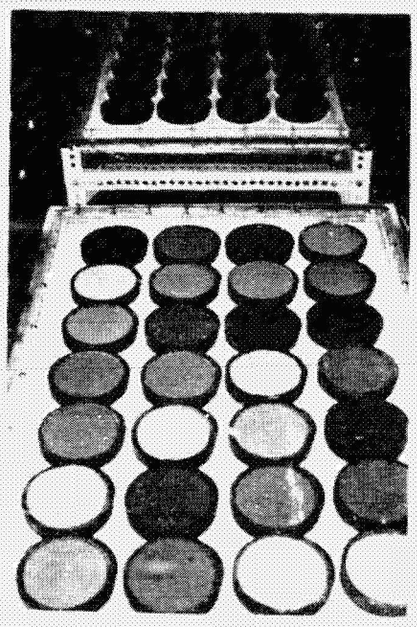
Figure 3. Climatic zones in the continental United States as identified by soil temperature regime (Soil Survey Staff, 1975; FAO-UNESCO, 1975) and the Thornthwaite (1948) moisture index.

a. Soil sample and 10 cm diameter sample holder.



b. Saturated sample being placed on asbestos tension table.

Figure 4. Setup for laboratory spectral measurements of soils.



c. Fifty-six soil samples ready for spectral measurement after 24 hours equilibration at 100 cm H_2O tension.

d. BRF reflectometer positioned for soil sample detection by the Exotech 20C spectro-radiometer.

Figure 4. (Cont.)

Soil reflectance was measured using an Exotech Model 20C spectroradiometer adapted for indoor use with a reflectometer equipped with an artificial illumination source, transfer optics, and sample stage. Spectral readings were taken in 0.01 μm increments over the 0.52-2.32 μm wavelength range. A 1000 watt tungsten iodine coiled filament lamp provided incident irradiation similar to that of solar illumination. Pressed barium sulfate was used as a calibration standard, with measurements being taken after every fifth soil sample to account for possible changes in the intensity of the illumination source. A more detailed explanation of the instrumentation is found in Silva, et al. (1971), Leamer, et al. (1973) and DeWitt and Robinson (1976), while the sample preparation procedure is described by Stoner (1979).

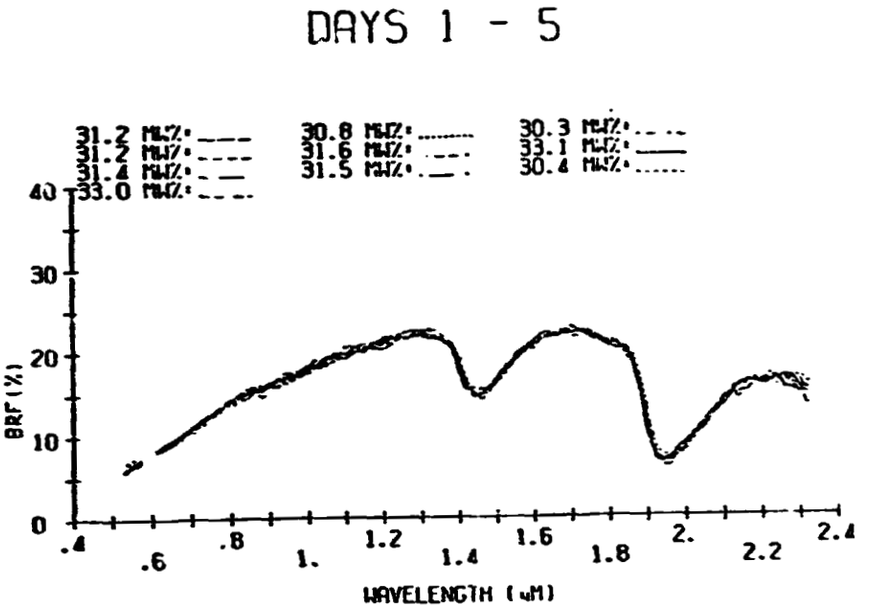
The repeatable quantitative nature of reflectance measurements made using this procedure is evident from spectral curves of check samples measured on each of the ten days needed to run over 500 individual soil samples (Figure 5). Random soil reflectance readings of twenty separately prepared Fincastle silt loam soil samples (a fine-silty mixed mesic Aeric Ochraqualf) gave very similar results.

Soil Reflectance Properties Data Base

An identification record containing 100 items of information including complete soil taxonomic classification along with site characteristics and laboratory analyses is available in computer tape format for all of the soils in this atlas. This information together with digitized soil reflectance data is accessible for editing and rapid retrieval of all soils information by means of the LARSPEC software package (Simmons, et al., 1975). Graphical display of soil reflectance curves as shown in this atlas is accomplished by one of the LARSPEC processors while another processor permits selection of specific soil analyses, site characteristics, and taxonomic data in the abbreviated format used here.

Organization of Soil Atlas

Soils are arranged in this atlas by alphabetical order of the 39 states in which they were sampled. Four soils from Paraná State, Brazil follow at the end. Four soils are displayed on each page, while information specific to one of two field samples is given in separate columns under each soil series name. A few soils are represented by only one field sample. Two indices are included, arranged by state and by soil series name. A narrative key follows, with each numbered item of soil information identified in Figure 6 described in detail as it appears in the atlas.



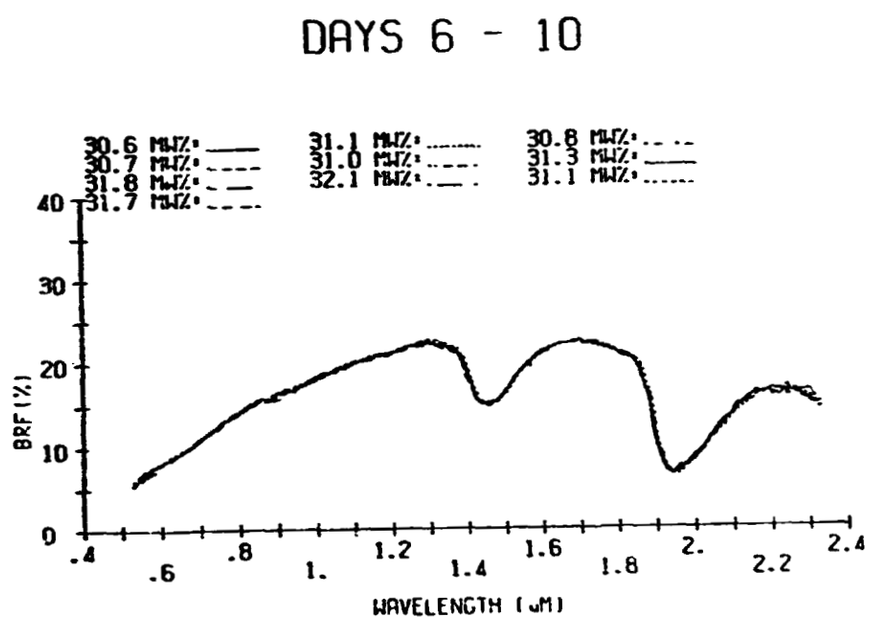


Figure 5. Soil reflectance curves and moisture percentages by weight (MW%) for 20 check samples of Fincastle sil, a fine-silty mixed mesic Aeric Ochraqualf, from ten different setups of the tension table apparatus.

1) ONTONAGON(MI)

2) Glossic Eutroboralf
3) very fine, mixed
4) humid zone
5) glacial lake plain sediments
6) Ontonagon Co.

	———	----
7)	Ap horizon	Ap horizon
8)	B slope	B slope
9)	mod. well drained	mod. well drained
10)	clay	clay
11)	7%S 22%Si 70%C	6%S 29%Si 66%C
12)	2.5YR 3/6 (moist) 5YR 6/4 (dry)	2.5YR 4/4 (moist) 5YR 6/4 (dry)
13)	4.88% O.M.	3.95% O.M.
14)	38.0 meq/100g CEC	31.6 meq/100g CEC
15)	1.73% Fe_2O_3	2.76% Fe_2O_3

16) 47.5 MW%:____ 43.2 MW%:----

17)

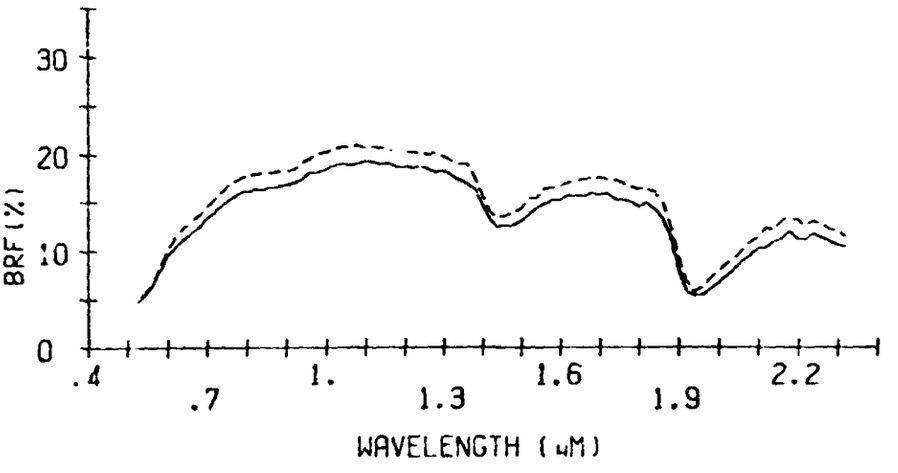


Figure 6. Numbered guide corresponding to narrative key to soil information.

Narrative Key to Soil Information

1) soil series name with two-letter state abbreviation

The series is the lowest category in the soil taxonomic system. Names of series as a rule are abstract place names with no connotation regarding soil diagnostic properties. This atlas contains soil information for 247 of the more than 10,000 soil series recognized in the United States. These 247 soil series were selected from a list of over 1,300 benchmark soils whose large geographic extent renders them an important part of a state or resource area. Soil samples were taken from sites within states having the responsibility for maintaining the standard series description for that soil series. Data from these soils are widely applicable to soils occurring in the continental United States.

2) soil subgroup name

Subgroup names consist of the name of a great group modified by one or more adjectives. About 970 subgroups are currently recognized in the United States. The name of a great group consists of the name of a suborder and a prefix that consists of one or two formative elements suggesting something of the diagnostic properties. There are about 225 great groups in the U.S. soil taxonomy (Soil Survey Staff, 1975). Names of suborders have exactly two syllables. The first syllable connotes some information about the diagnostic properties of the soils while the second is the formative element from the name of the order. Forty-seven suborders are recognized, while there are only ten soil orders.

It has been observed that high organic content surface soils of the Mollisol and Histosol soil order frequently have a concave-shaped reflectance curve in the 0.5 to 1.3 μm wavelength region. Lower organic content surface soils of the Alfisol soil order frequently have convex-shaped reflectance curves in the same wavelength region. Reflectance curves for surface soils of the Ultisol soil order often resemble those for Alfisols except for the presence of slight dips in the curve at 0.7 and 0.9 μm caused by iron absorption. It should be understood that these generalizations about soil reflectance of certain soil orders are only an aid to facilitate the appreciation of differences in spectral properties among surface soils. Soil orders distinguished primarily by subsoil horizon properties cannot always be expected to show characteristic reflectance in the surface horizon.

3) soil family modifiers

Names of soil families are polynomial, consisting of the name of a subgroup and adjectives. These adjectives describe the particle-size class (11 classes plus others if strongly contrasting), the mineralogy (20 classes and a few subclasses), the temperature regime (8 classes), and, in some families, depth of soil (3 classes), consistence (2 classes), moisture equivalent (2 classes) and other properties. Names of most families have three adjectives modifying the subgroup name but some have only one or two and others have four or more. Soil properties are used in this category without regard to their significance as marks of processes or lack of them. About 4,500 families are presently recognized in the United States.

Redundancy is avoided in naming families, thus, for example, the modifier frigid is left out of families in which the formative element bor in the suborder name indicates soils having a frigid temperature regime. Particle-size distribution and mineralogy are specified for only those horizons of major biologic activity below plow depth.

Soils have been observed to increase in reflectance with increasing soil temperature. This is most likely explained by decreased organic matter contents in warmer regions. Lower organic content soils reflect more than those with elevated levels of organic matter.

Soil mineralogy appears to influence soil reflectance in various manners. While soils with gypsic mineralogy reflect highly because of the inherent reflectance properties of gypsum, montmorillonitic soils, often associated with higher organic matter levels, show low reflectance attributable to this high organic matter content.

4) moisture zone

Although the soil moisture regime is an important property of a soil, the moisture regimes defined in the U.S. soil taxonomy are not always included in the taxonomic name, and are defined not necessarily by climatic moisture zone, but rather in terms of the ground-water level and the presence or absence of water held at a tension less than 15 bars throughout the year. Moisture zones in this atlas are defined in terms of climatic moisture zones as described by the Thornthwaite (1948) moisture index. Five main moisture zones are defined on this basis in the continental United States.

Soils from wetter climates generally reflect less than those from dry climates because of organic matter accumulation under higher rainfall conditions. Exceptions to this rule occur when soils are formed under prairie grass vegetation in drier climates.

5) parent material

Parent material, as the initial geologic material from which soils are formed, can be expected to demonstrate an eventual influence on soil reflectance. Certain soils referred to as lithochromic are even known to owe their spectral colors to inheritance from the parent material rather than from soil-forming processes. Parent material types listed in this atlas were obtained from the established series profile descriptions for each soil.

6) county

The county within the state where soils were collected is listed in order to specify the sampling location for each of two sets of samples whose analyses follow.

7) horizon designation

All soil samples represented only the surface soil, containing material from 0 to 15 cm (0 to 6 inches) if depth to a B horizon permitted. Those surface soils under cultivation or which still show the marks of cultivation are designated by the symbol "p" following the capital letter symbol for the horizon. Undisturbed soils are represented by horizon designations such as A1, A11, A1-A2, A1-A21 and A11-A12.

8) slope class

Relief, as expressed by slope class grouping, is an important soil-forming factor that is characteristic of each site in the soil landscape. Slope classes in this atlas follow the convention of capital letter symbols designating slope percentages as follows: A, 0-2%; B, 2-6%; C, 6-12%; D, 12-18%; E, 18-25%; F, 25-35%; G, greater than 35%.

9) internal drainage

All soil series have a specific internal drainage which is indicative of the local landscape position and broader climatic conditions under which they formed. Drainage classes used in this atlas are as follows: v. (very) poorly drained, poorly drained, s. (somewhat) poorly drained, mod. (moderately) well drained, well drained, s. excess. (somewhat excessively) drained, and excess. (excessively) drained.

Soils have been seen to show overall decreased reflectance with increasingly poorer drainage. Very poorly drained soils reflect considerably less than any of the other drainage classes at all wavelengths. As a site characteristic integrating the effects of climate, local relief, and accumulated organic matter, soil drainage characteristics are closely associated with reflectance properties of surface soils.

10) textural class name

Twenty-one textural class names have been defined in terms of size distribution of five sand size fractions plus silt and clay as determined by mechanical analysis in the laboratory (Soil Survey Staff, 1975). Organic soils are identified by using the term muck in place of the textural class name.

Because textural class names are defined wholly in terms of size distribution, the actual consistence or structure of the crushed, sieved soil samples may not necessarily be conveyed by this name. Highly aggregated clays may in some cases present surface structures similar to that of coarse sands. Use of the textural class name, however, is still the best available convention for expressing the size relationships among soil separates.

11) percent sand, silt, and clay

Particle size analysis was performed on organic matter-free soil portions (SCS-USDA, 1972). Clay and silt contents were determined by sedimentation-pipetting while five sand size fractions (here summed to give one sand amount) were separated by passing through a nest of sieves.

Decreasing particle size has been seen to increase soil reflectance among sand textured soils, possibly by forming a smoother surface with fewer voids to trap incoming light. The inverse appears to be true with medium to fine textured soils, however, possibly because increased moisture content and organic matter content associated with higher clay contents lead to lower reflectance.

12) Munsell color designations

Color standard comparisons were obtained at two soil moisture levels: air dry and field capacity. Moist soil colors were obtained by moistening samples and reading the color at a point in which visible moisture films were not present. Dry soil colors were obtained on the air dry sieved samples. All soil colors were determined by comparison to standard color chips of the Munsell Soil Color Charts.

Munsell designations for color consist of separate notations for hue, value, and chroma, which are combined in that order to form the color designation. The symbol for hue is the letter abbreviation of the color of the rainbow preceded by numbers from zero to ten. The notation for value, or relative lightness of color ranges from zero, for absolute black to ten, for absolute white. Chroma, or saturation, is the relative purity or strength of the spectral color and increases in number with decreasing grayness.

It is important to remember in comparisons between soil reflectance data and soil colors that the wavelength region of human physiological perception of visible reflectance extends only from about 0.4 to 0.7 μm, while reflectance data presented here extend from about 0.5 to 2.3 μm. While the color imparted to a soil may be due to specific absorptions in the visible region, it may also be caused by intense absorptions outside the visible wavelengths in either the ultraviolet or near infrared, the influence of which may extend into the visible. This points out the importance of having a full range of reflectance data from the visible to the middle infrared for thorough characterization of soil spectral properties.

13) organic matter content

Organic matter contents were determined by the modified Walkley-Black procedure of acid dichromate digestion with ferrous ammonium sulfate titration (Franzmeier, et al., 1977). Organic matter appears to be one of the dominant soil parameters responsible for imparting spectral properties to soils. Increased organic matter contents as a rule lead to decreased reflectance throughout the reflective spectrum. Many cases can be seen in this atlas where duplicate soil samples with otherwise similar properties exhibit

different reflectance curves because of slight differences in organic matter content.

Although increased organic matter content has been seen to decrease soil reflectance in mineral soils, the form or decomposition stage of organic material is more important in understanding reflectance properties of organic soils. Less decomposed organic materials have higher reflectance in the near infrared region because of enhanced reflectance attributable to remnant cell structure of well preserved fibers. In contrast, very highly decomposed organic materials show very low reflectance throughout the 0.5 to 2.3 μm range.

14) cation exchange capacity (CEC)

Cation exchange capacity (CEC) was measured for each soil sample as the sum of extractable cations of Ca, Mg, K, Na, plus extractable acidity, all expressed in terms of milliequivalents per 100 g of soil (SCS-USDA, 1972).

Cation exchange capacity is frequently seen to have a high negative correlation with reflectance, especially in the 2.08-2.32 μm middle infrared region. Although there is no direct physical basis for this relationship, it seems that cation exchange capacity is acting as a natural integrating factor for clay type and content as well as organic matter content, soil parameters which exhibit inherent spectral behavior.

15) iron oxide content

Free iron was measured by the so-called CBD procedure (Franzmeier, et al., 1977). Ferric iron absorption bands can be seen in certain soil reflectance curves in the 0.7 and 0.9 μm wavelength regions. Broad bands at these wavelengths frequently occur in high iron content soils; while a sharp, narrow absorption band at 0.9 μm is evident in many soils of relatively low or even negligible iron content.

Different forms of iron oxides are known to impart red and yellow colors to soils. Reflectance data in this atlas indicate that near infrared absorption may be partly responsible for coloring in high iron content soils.

16) moisture percentage by weight (MW%)

Soil moisture content by weight was determined gravimetrically on the soil samples used to obtain reflectance measurements. All soil samples were equilibrated at a one-tenth bar moisture tension, so resulting moisture differences are closely related to clay type, soil texture, and organic matter content. All other properties being equal, an increase in soil moisture content decreases soil reflectance at all wavelengths.

Strong water absorption bands at 1.45 and 1.95 μm are present in all of the spectral curves of these uniformly-moist soils. Weak water absorption bands at 1.2 and 1.77 μm are seen in some low organic content fine

sandy soils. Actual soil moisture content has been seen to be most highly correlated with soil reflectance in the 2.08-2.32 μm region.

17) plot of bidirectional reflectance factor (BRF%) versus wavelength (μm)

A convenient standard measure of reflectance that closely simulates the directional characteristics of illumination and viewing in an airborne remote sensor is the bidirectional reflectance factor. Bidirectional reflectance factor can be described as the ratio of the flux reflected by an object under specified conditions of negligibly small solid angles of irradiation and viewing to that reflected by the ideal, completely reflecting, perfectly diffusing surface, identically irradiated and viewed (Nicodemus, et al., 1977).

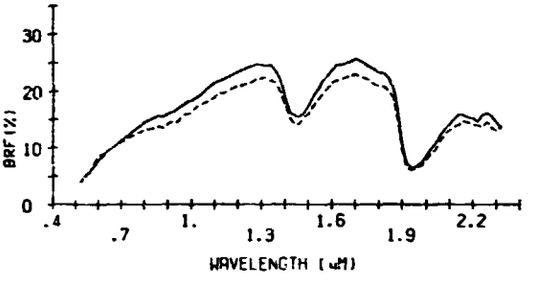
Wavelength, expressed in micrometer (μm) units, denotes the portion of the electromagnetic spectrum under consideration. Wavelength regions frequently referred to are the visible (0.38-0.72 μm), near infrared (0.72-1.3 μm), and middle infrared (1.3-3.0 μm).

RED BAY(AL)

Rhodic Paleudult
fine-loamy, siliceous, thermic
humid zone
marine sediments
Houston Co.

____	____
Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
loamy sand	sandy loam
83%S 7%Si 10%C	76%S 11%Si 13%C
5YR 3/4 (moist)	5YR 3/4 (moist)
7.5YR 5/6 (dry)	7.5YR 5/6 (dry)
0.58% O.M.	0.91% O.M.
10.8 meq/100g CEC	7.1meq/100g CEC
0.80% Fe_2O_3	1.32% Fe_2O_3

12.8 MW%·____ 15.2 MW%·____

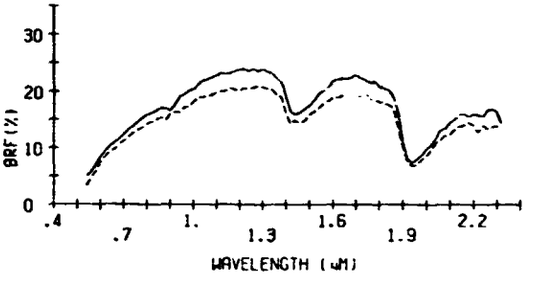


CONTINENTAL(AZ)

Typic Haplargid
fine, mixed, thermic
arid zone
acid rock alluvium
Santa Cruz Co.

____	____
All horizon	All horizon
A slope	A slope
well drained	well drained
coarse sandy loam	fine sandy loam
70%S 20%Si 9%C	53%S 35%Si 11%C
5YR 3/4 (moist)	5YR 3/3 (moist)
7.5YR 4/6 (dry)	7.5YR 4/6 (dry)
0.48% O.M.	0.71% O.M.
6.0 meq/100g CEC	15.7 meq/100g CEC
0.74% Fe_2O_3	1.55% Fe_2O_3

12.6 MW%·____ 17.2 MW%·____

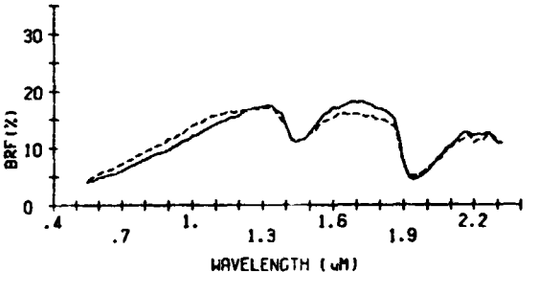


PIMA(AZ)

Cumulic Haplustoll
fine-silty, mixed, thermic
arid zone
mixed alluvium
Santa Cruz Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silty clay	silty clay loam
8%S 48%Si 44%C	9%S 52%Si 39%C
7.5YR 3/2 (moist)	7.5YR 3/2 (moist)
10YR 4/2 (dry)	10YR 5/2 (dry)
3.66% O.M.	1.86% O.M.
52.6 meq/100g CEC	44.8 meq/100g CEC
0.94% Fe_2O_3	1.25% Fe_2O_3

50.9 MW%·____ 55.9 MW%·____

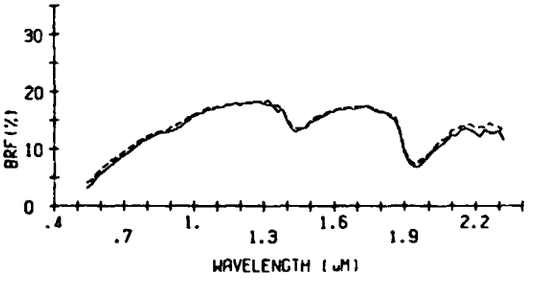


WHITE HOUSE(AZ)

Ustollic Haplargid
fine, mixed, thermic
arid zone
mixed alluvium
Santa Cruz Co.

____	____
Al horizon	Al horizon
A slope	B slope
well drained	well drained
fine sandy loam	sandy loam
52%S 34%Si 14%C	62%S 26%Si 12%C
5YR 3/3 (moist)	5YR 3/3 (moist)
7.5YR 4/4 (dry)	7.5YR 4/4 (dry)
1.68% O.M.	1.70% O.M.
15.7 meq/100g CEC	10.6 meq/100g CEC
1.64% Fe_2O_3	1.85% Fe_2O_3

21.8 MW%·____ 18.8 MW%·____

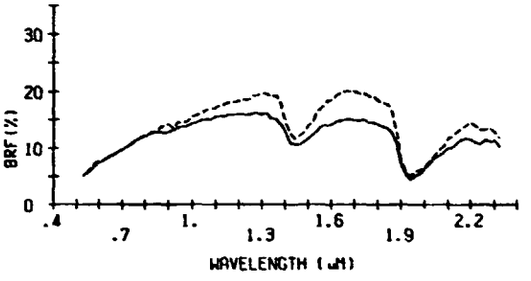


GILA(AZ)

Typic Torrifluvent
coarse-loamy, mixed (calcareous),
thermic
arid zone
mixed alluvium
Graham Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	loam
25%S 50%Si 25%C	43%S 43%Si 14%C
7.5YR 3/2 (moist)	7.5YR 4/2 (moist)
7.5YR 5/2 (dry)	10YR 5/3 (dry)
1.38% O.M.	1.08% O.M.
39.6 meq/100g CEC	30.2 meq/100g CEC
1.13% Fe_2O_3	0.69% Fe_2O_3

37.2 MWX•____ 34.0 MWX•____

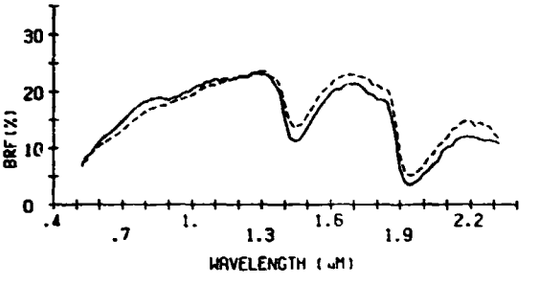


GLENDALE(AZ)

Typic Torrifluvent
fine-silty, mixed (calcareous),
thermic
arid zone
mixed alluvium
Graham Co.

____	____
Al horizon	Al horizon
A slope	A slope
well drained	well drained
silty clay loam	silty clay
17%S 52%Si 31%C	11%S 46%Si 43%C
10YR 4/3 (moist)	10YR 5/3 (moist)
10YR 5/4 (dry)	10YR 6/3 (dry)
0.64% O.M.	1.89% O.M.
126.0 meq/100g CEC	44.8 meq/100g CEC
0.59% Fe_2O_3	0.78% Fe_2O_3

56.2 MWX•____ 42.0 MWX•____

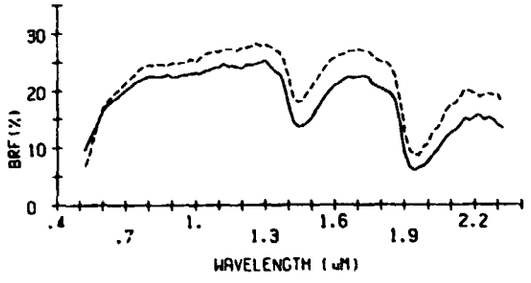


SUPERSTITION(AZ)

Typic Calciorthid
sandy, mixed, hyperthermic
arid zone
mixed alluvium
Yuma Co.

____	____
Al horizon	Al horizon
A slope	A slope
s. excess. drained	s. excess. drained
sand	sand
96%S 3%Si 1%C	93%S 1%Si 6%C
7.5YR 5/4 (moist)	5YR 5/6 (moist)
7.5YR 7/4 (dry)	7.5YR 7/4 (dry)
0.09% O.M.	0.10% O.M.
8.9 meq/100g CEC	10.9 meq/100g CEC
0.23% Fe_2O_3	0.26% Fe_2O_3

13.5 MWX•____ 8.0 MWX•____

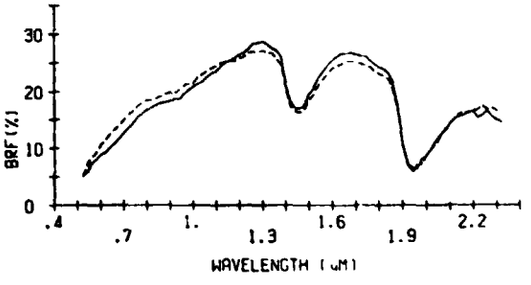


ENDERS(AR)

Typic Hapludult
clayey, mixed, thermic
humid zone
residuum from shale and limestone
Franklin Co.

____	____
All-Al2 horizon	All-Al2 horizon
E slope	E slope
well drained	well drained
loam	loam
37%S 37%Si 26%C	43%S 41%Si 16%C
10YR 4/6 (moist)	7.5YR 4/6 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
7.98% O.M.	4.70% O.M.
28.1 meq/100 g CEC	14.3 meq/100g CEC
4.43% Fe_2O_3	2.87% Fe_2O_3

37.5 MWX•____ 33.4 MWX•____

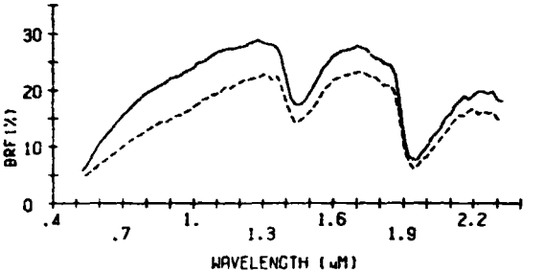


SAFFELL(AR)

Typic Hapludult
loamy-skeletal, siliceous,
thermic
humid zone
marine sediments
Ouachita Co.

____	----
Al horizon	Al horizon
B slope	A slope
well drained	well drained
fine sandy loam	fine sandy loam
66%S 29%Si 5%C	54%S 38%Si 8%C
7.5YR 4/4 (moist)	10YR 3/3 (moist)
7.5YR 6/4 (dry)	10YR 5/4 (dry)
0.58% O.M.	2.29% O.M.
4.1 meq/100g CEC	9.9 meq/100g CEC
0.49% Fe_2O_3	0.91% Fe_2O_3

18.0 MW%·____ 26.6 MW%·----

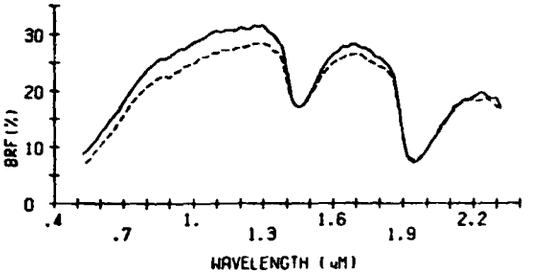


LINKER(AR)

Typic Hapludult
fine-loamy, siliceous, thermic
humid zone
residuum from sandstone
Pope Co.

____	----
Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
fine sandy loam	sandy loam
66%S 30%Si 5%C	60%S 33%Si 7%C
10YR 4/3 (moist)	10YR 4/3 (moist)
10YR 7/3 (dry)	10YR 7/3 (dry)
1.56% O.M.	1.93% O.M.
5.3 meq/100g CEC	6.4 meq/100g CEC
0.32% Fe_2O_3	0.98% Fe_2O_3

21.9 MW%·____ 23.9 MW%·----

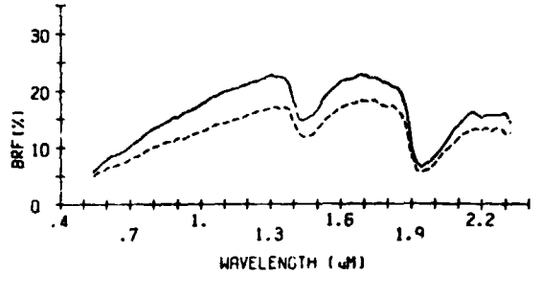


GLENBERG(CO)

Typic Torrifluvent
coarse-loamy, mixed (calcareous),
mesic
semiarid zone
mixed alluvium
Crowley Co.

____	----
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
coarse sandy loam	fine sandy loam
71%S 14%Si 15%C	64%S 25%Si 11%C
10YR 4/3 (moist)	10YR 3/2 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
1.12% O.M.	2.53% O.M.
22.6 meq/100g CEC	19.8 meq/100g CEC
0.66% Fe_2O_3	0.92% Fe_2O_3

13.7 MW%·____ 27.1 MW%·----

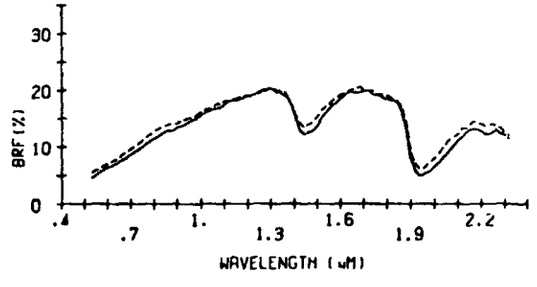


KUTCH(CO)

Torrertic Argiustoll
fine, montmorillonitic, mesic
semiarid zone
clayey sedimentary residuum
Elbert Co.

____	----
Al horizon	Al horizon
B slope	B slope
well drained	well drained
sandy clay loam	clay loam
53%S 25%Si 22%C	31%S 41%Si 28%C
10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 4/2 (dry)	10YR 5/3 (dry)
1.79% O.M.	4.10% O.M.
22.9 meq/100g CEC	27.7 meq/100g CEC
0.63% Fe_2O_3	1.47% Fe_2O_3

33.2 MW%·____ 33.8 MW%·----

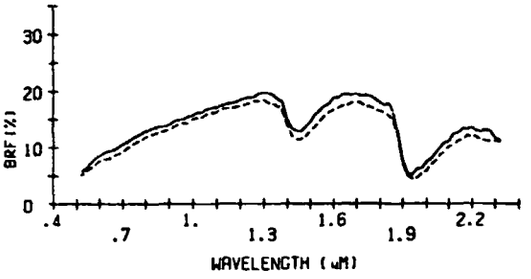


APISHAPA(CO)

Vertic Fluvaquent
fine, montmorillonitic (calcareous), mesic
semiarid zone
mixed alluvium
Crowley Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
clay loam	clay loam
20%S 48%Si 32%C	30%S 36%Si 34%C
10YR 3/3 (moist)	10YR 4/2 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
2.58% O.M.	2.52% O.M.
32.6 meq/100g CEC	52.7 meq/100g CEC
1.24% Fe_2O_3	1.13% Fe_2O_3

34.4 MW%·____ 35.9 MW%·____

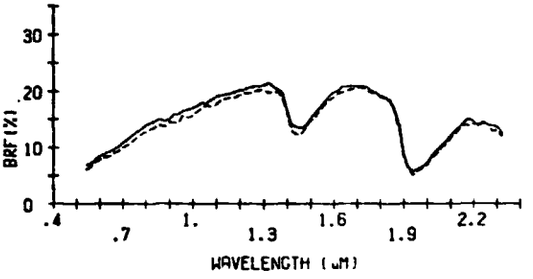


HAVERSON(CO)

Ustic Torrifluvent
fine-loamy, mixed (calcareous), mesic
semiarid zone
mixed alluvium
Prowers Co.

____	____
Al horizon	Al horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
11%S 73%Si 16%C	19%S 66%Si 14%C
10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
2.56% O.M.	3.26% O.M.
32.6 meq/100g CEC	27.3 meq/100g CEC
1.14% Fe_2O_3	1.09% Fe_2O_3

40.9 MW%·____ 40.6 MW%·____

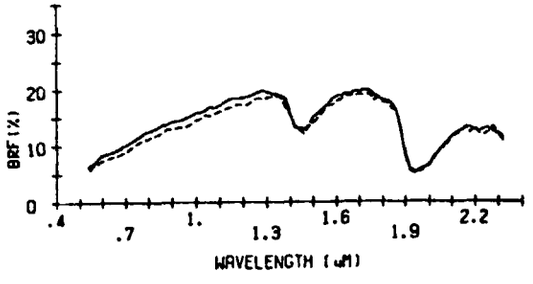


KORNMAN(CO)

Ustic Torrifluvent
coarse-loamy, mixed (calcareous), mesic
semiarid zone
mixed alluvium
Prowers Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
clay loam	clay loam
34%S 30%Si 36%C	20%S 47%Si 33%C
10YR 3/3 (moist)	10YR 4/2 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
1.64% O.M.	3.25% O.M.
33.4 meq/100g CEC	36.2 meq/100g CEC
1.17% Fe_2O_3	1.31% Fe_2O_3

29.5 MW%·____ 35.5 MW%·____

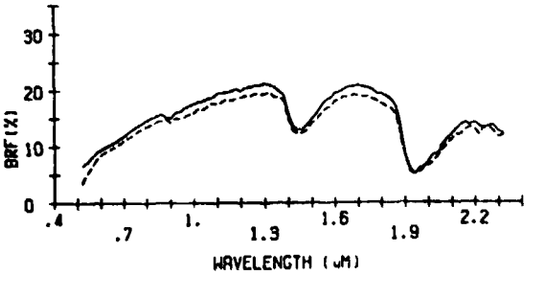


MINNEQUA(CO)

Ustic Torriorthent
fine-silty, mixed (calcareous), mesic
semiarid zone
soft rock residuum
Prowers Co.

____	____
Al horizon	Al horizon
B slope	B slope
well drained	well drained
loam	silt loam
36%S 49%Si 15%C	27%S 58%Si 15%C
10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
1.63% O.M.	1.90% O.M.
28.5 meq/100g CEC	29.2 meq/100g CEC
0.73% Fe_2O_3	0.78% Fe_2O_3

28.9 MW%·____ 32.7 MW%·____

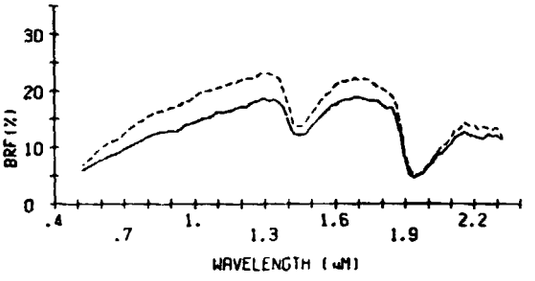


ROCKY FORD(CO)

Ustic Torriorthent
fine-silty, mixed (calcareous),
mesic
semiarid zone
mixed alluvium
Prowers Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silty clay	clay loam
4%S 50%Si 46%C	24%S 39%Si 37%C
10YR 4/2 (moist)	10YR 5/3 (moist)
10YR 5/2 (dry)	10YR 5/3 (dry)
3.70% O.M.	2.44% O.M.
47.3 meq/100g CEC	38.1 meq/100g CEC
1.39% Fe_2O_3	1.04% Fe_2O_3

37.8 MW%·—— 32.3 MW%·----

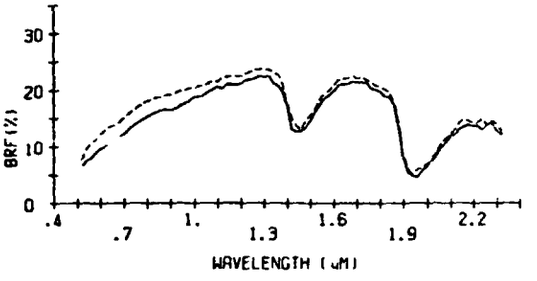


WILEY(CO)

Ustollic Haplargid
fine-silty, mixed, mesic
semiarid zone
eolian sediments
Prowers Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
23%S 57%Si 20%C	29%S 61%Si 10%C
10YR 4/3 (moist)	10YR 5/3 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
1.30% O.M.	1.22% O.M.
32.3 meq/100g CEC	28.0 meq/100g CEC
0.83% Fe_2O_3	1.09% Fe_2O_3

37.6 MW%·—— 34.5 MW%·----

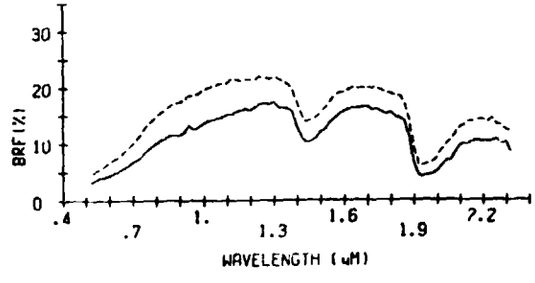


LA JARA(CO)

Typic Haplaquoll
coarse-loamy, mixed (calcareous),
frigid
arid zone
alluvium from basalt

Conejos Co.	Alamosa Co.
Al horizon	Al horizon
A slope	A slope
poorly drained	poorly drained
sandy loam	loam
52%S 30%Si 18%C	34%S 42%Si 24%C
10YR 3/2 (moist)	5YR 3/4 (moist)
10YR 4/3 (dry)	10YR 5/3 (dry)
7.33% O.M.	5.95% O.M.
44.9 meq/100g CEC	33.5 meq/100g CEC
2.63% Fe_2O_3	1.93% Fe_2O_3

54.3 MW%·—— 36.4 MW%·----

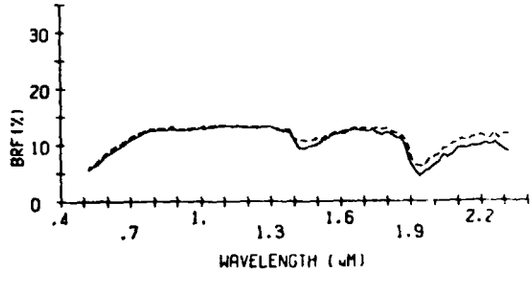


MOSCA(CO)

Typic Natrargid
coarse-loamy, mixed, frigid
arid zone
alluvium from basalt
Alamosa Co.

Al horizon	Al horizon
A slope	A slope
well drained	well drained
loamy coarse sand	coarse sand
84%S 10%Si 6%C	88%S 9%Si 3%C
7.5YR 4/2 (moist)	10YR 4/2 (moist)
10YR 5/3 (dry)	10YR 6/3 (dry)
0.11% O.M.	0.0% O.M.
20.5 meq/100g CEC	4.6 meq/100g CEC
0.54% Fe_2O_3	0.36% Fe_2O_3

17.8 MW%·—— 10.9 MW%·----

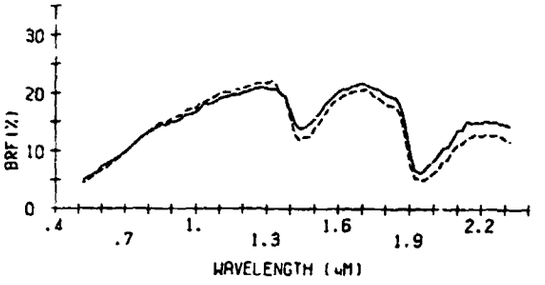


BRESSER(CO)

Aridic Argiustoll
fine-loamy, mixed, mesic
semiarid zone
coarse textured alluvial materials
Arapahoe Co.

Al horizon	Al horizon
C slope	B slope
well drained	well drained
coarse sandy loam	coarse sandy loam
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)

17.1 MW%·—— 14.7 MW%·----

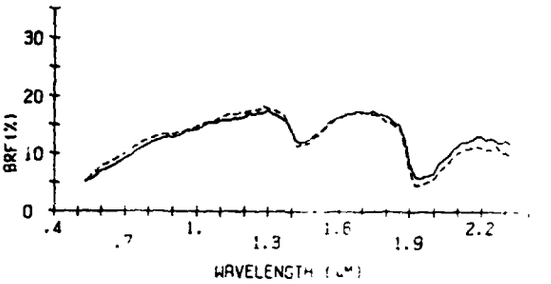


FONDIS(CO)

Aridic Paleustoll
fine, montmorillonitic, mesic
semiarid zone
loess over coarse textured outwash
Arapahoe Co.

Al horizon	Ap horizon
A slope	B slope
well drained	well drained
silt loam	silt loam
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)

39.2 MW%·—— 36.5 MW%·----

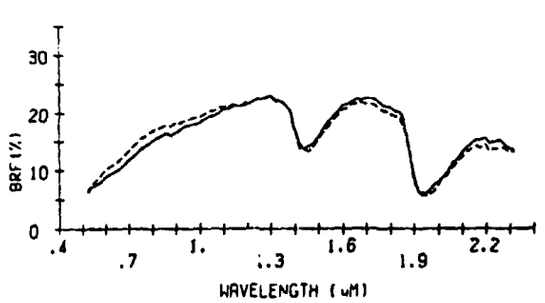


VONA(CO)

Ustollic Haplargid
coarse-loamy, mixed, mesic
semiarid zone
eolian materials
Morgan Co.

Al horizon	Al horizon
C slope	A slope
well drained	well drained
sandy loam	sandy loam
10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 6/2 (dry)	10YR 6/2 (dry)

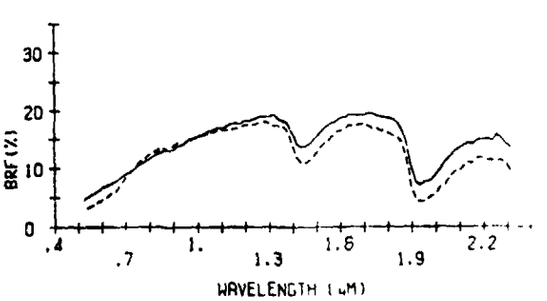
21.2 MW%·—— 25.9 MW%·----



BLAKELAND(CO) & VASQUEZ(CO)

Torriorthentic Haplustoll	Humic Pergelic Cryaquept
sandy, mixed, mesic	coarse-loamy, mixed,
semiarid zone	acid
eolian sediments	humid zone
Douglas Co.	local acid alluvium
	Boulder Co.
Al horizon	Al horizon
C slope	A slope
s. excess. drained	poorly drained
loamy coarse sand	loam
10YR 3/2 (moist)	10YR 2/1 (moist)
10YR 5/2 (dry)	10YR 4/1 (dry)

16.2 MW%·—— 45.5 MW%·----

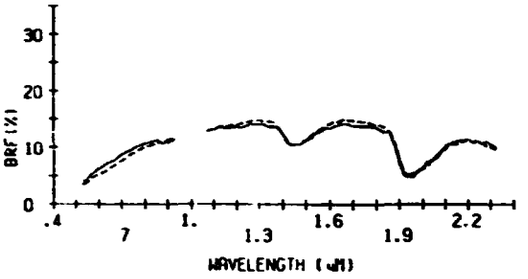


CHARLTON(CT)

Typic Dystrochrept
coarse-loamy, mixed, mesic
humid zone
acid till
New Haven Co.

____	____
Al horizon	Al horizon
B slope	B slope
well drained	well drained
loam	fine sandy loam
41%S 48%Si 11%C	58%S 34%Si 8%C
10YR 3/4 (moist)	10YR 3/3 (moist)
10YR 4/4 (dry)	10YR 4/3 (dry)
5.77% O.M.	6.99% O.M.
19.1 meq/100g CEC	21.0 meq/100g CEC
1.85% Fe_2O_3	2.03% Fe_2O_3

34.7 MW%·____ 36.3 MW%·____

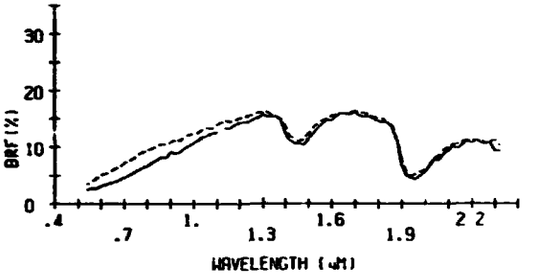


NINIGRET(CT)

Aquic Dystrochrept
coarse-loamy over sandy or sandy-skeletal, mixed, mesic
humid zone
thin loamy over thick sandy deposits
New London Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
m. well drained	m. well drained
fine sandy loam	fine sandy loam
61%S 36% Si 3% C	55%S 39%Si 6%C
10YR 2/2 (moist)	10YR 3/4 (moist)
10YR 4/2 (dry)	10YR 5/4 (dry)
8.20% O.M.	6.85% O.M.
23.5 meq/100g CEC	21.8 meq/100g CEC
1.32% Fe_2O_3	2.27% Fe_2O_3

38.5 MW%·____ 39.4 MW%·____

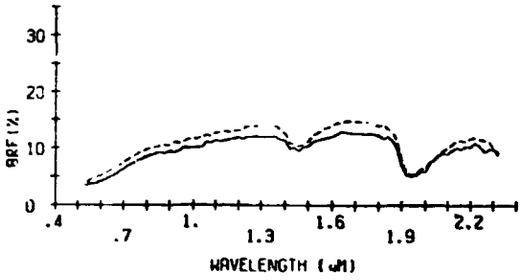


HOLLIS(CT)

Lithic Dystrochrept
loamy, mixed, mesic
humid zone
acid till
Tollan Co.

____	____
Al horizon	Al horizon
B slope	B slope
s. excess. drained	s. excess. drained
sand	sand
92%S 4%Si 4%C	96%S 2%Si 2%C
5YR 2/2 (moist	10YR 3/3 (moist)
10YR 4/3 (dry)	10YR 4/3 (dry)
12.56% O.M.	10.21% O.M.
24.8 meq/100g CEC	26.2 meq/100g CEC
1.63 Fe_2C_3	2.03% Fe_2O_3

37.7 MW%·____ 43.0 MW%·____

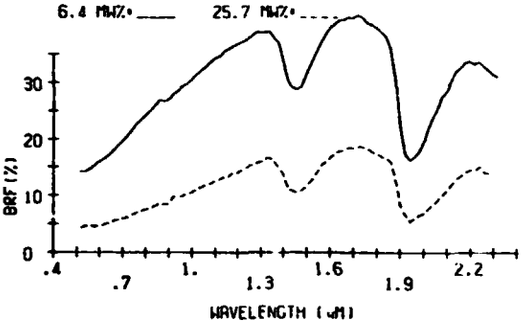


MYAKKA(FL)

Aeric Haplaquod
sandy, siliceous, hyperthermic
humid zone
sandy marine deposits
Lee Co.

____	____
Al horizon	Al horizon
A slope	A slope
poorly drained	poorly drained
fine sand	fine sand
99%S 0%Si 1%C	97%S 2%Si 1%C
10YR 4/1 (moist)	10YR 3/1 (moist
10YR 7/1 (dry)	10YR 6/1 (dry)
1.08% O.M.	1.85% O.M.
2.4 meq/100g CEC	4.8 meq/100g CEC
trace Fe_2O_3	trace Fe_2O_3

6.4 MW%·____ 25.7 MW%·____

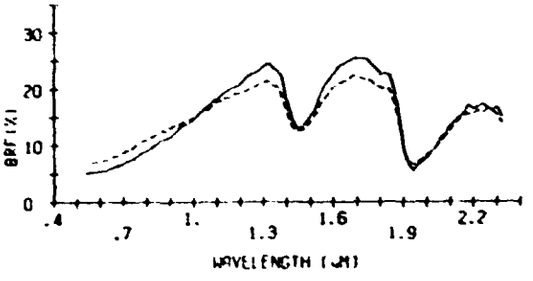


BASINGER(FL)

Spodic Psammaquent
siliceous, hyperthermic
humid zone
marine sands
Pasco Co.

A1-A2 horizon	A1-A2 horizon
A slope	A slope
poorly drained	poorly drained
fine sand	fine sand
98%S 2%Si 0%C	98%S 2%Si 0%C
7.5YR 3/2 (moist)	2.5YR 3/0 (moist)
10YR 6/1 (dry)	10YR 6/1 (dry)
1.39% O.M.	1.71% O.M.
4.8 meq/100g CEC	4.4 meq/100g CEC
trace Fe_2O_3	trace Fe_2O_3

24.5 MHz•____ 26.0 MHz•----

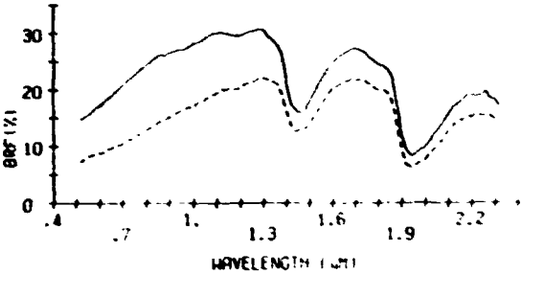


POMPANO(FL)

Typic Psammaquent
siliceous, hyperthermic
humid zone
marine sands
Lee Co.

A11 horizon	A11 horizon
A slope	A slope
poorly drained	poorly drained
fine sand	fine sand
100%S 0%Si 0%C	97%S 2%Si 1%C
10YR 5/1 (moist)	10YR 4/1 (moist)
10YR 7/1 (dry)	10YR 7/1 (dry)
0.51% O.M.	0.57% O.M.
0.0 meq/100g CEC	1.3 meq/100g CEC
trace Fe_2O_3	trace Fe_2O_3

20.9 MHz•____ 23.3 MHz•----

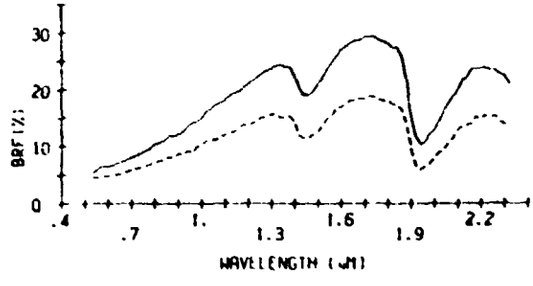


WABASSO(FL)

Alfic Haplaquod
sandy, siliceous, hyperthermic
humid zone
marine sands over loamy materials
Hernanado Co.

A1 horizon	A1 horizon
A slope	A slope
poorly drained	poorly drained
fine sand	fine sand
94%S 5%Si 1%C	98%S 0%Si 2%C
7.5YR 3/0 (moist)	2.5YR 3/0 (moist)
10YR 6/1 (dry)	10YR 6/1 (dry)
1.60% O M.	3.25% O.M.
6.3 meq/100g CEC	9.3 meq/100g CEC
trace Fe_2O_3	trace Fe_2O_3

10.5 MHz•____ 22.4 MHz•----

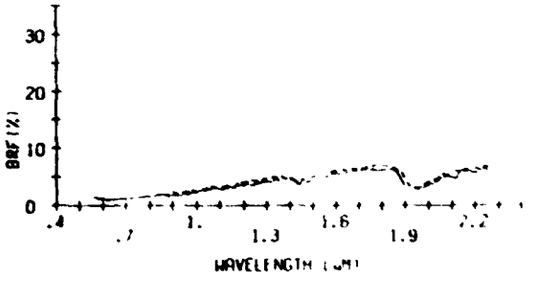


TERRA CEIA(FL)

Typic Medisaprist
euic, hyperthermic
humid zone
hydrophytic plant remains
Palm Beach Co.

Oap horizon	Oap horizon
A slope	A slope
v. poorly drained	v. poorly drained
muck	muck
2%S 81%Si 17%C	15%S 68%Si 17%C
7.5YR 2/0 (moist)	7.5YR 2/0 (moist)
10YR 2/1 (dry)	10YR 2/1 (dry)
76.4% O.M.	83.6% O.M.
152.0 meq/100g CEC	147.0 meq/100g CEC
0.00% Fe_2O_3	0.00% Fe_2O_3

137. MHz• 113. MHz•

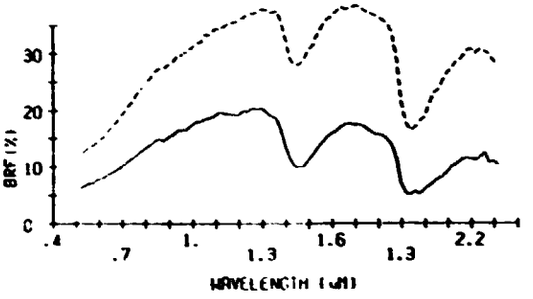


PAOLA(FL)

Spodic Quartzipsamment
uncoated, hyperthermic
humid zone
marine sands
Martin Co.

———	----
A1 horizon	A1 horizon
B slope	B slope
excess. drained	excess. drained
sand	sand
100%S 0%Si 0%C	100%S 0%Si 0%C
10YR 5/1 (moist)	10YR 5/1 (moist)
10YR 7/1 (dry)	10YR 7/1 (dry)
1.94% O.M.	1.16% O.M.
4.5 meq/100g CEC	5.9 meq/100g CEC
trace Fe_2O_3	trace Fe_2O_3

18.8 MWZ•—— 5.2 MWZ•----

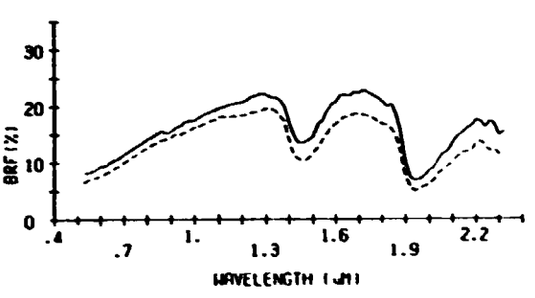


LEON(FL)

Aeric Haplaquod
sandy, siliceous, thermic
humid zone
acid marine sands
Bay Co.

———	----
A1-A21 horizon	A1-A21 horizon
A slope	A slope
poorly drained	poorly drained
sand	sand
97%S 2%Si 1%C	99%S 0%Si 1%C
7.5YR 4/1 (moist)	10YR 5/1 (moist)
10YR 7/1 (dry)	10YR 6/1 (dry)
0.85% O.M.	1.07% O.M.
2.1 meq/100g CEC	3.4 meq/100g CEC
trace Fe_2O_3	trace Fe_2O_3

12.1 MWZ•—— 16.8 MWZ•----

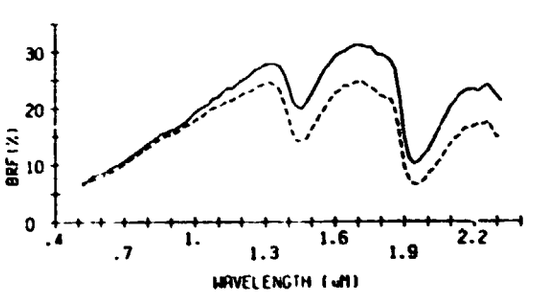


OCILLA(GA)

Aquic Arenic Paleudult
loamy, siliceous, thermic
humid zone
sandy and loamy marine sediments
Irvin Co.

———	----
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
loamy sand	sand
82%S 17%Si 1%C	91%S 8%Si 1%C
10YR 4/1 (moist)	10YR 4/1 (moist)
10YR 6/2 (dry)	10YR 6/2 (dry)
1.10% O.M.	0.94% O.M.
5.6 meq/100g CEC	4.5 meq/100g CEC
0.10% Fe_2O_3	0.03% Fe_2O_3

9.1 MWZ•—— 15.6 MWZ•----

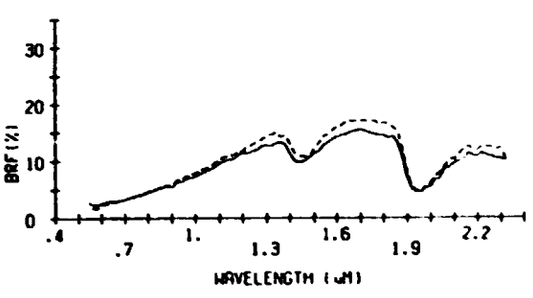


DRUMMER(IL)

Typic Haplaquoll
fine-silty, mixed, mesic
humid zone
thick loess over outwash and drift
Champaign Co.

———	----
Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silty clay loam	silty clay loam
13%S 56%Si 32%C	8%S 60%Si 32%C
10YR 2/1 (moist)	10YR 2/1 (moist)
10YR 3/2 (dry)	10YR 3/2 (dry)
5.61% O.M.	6.09% O.M.
40.3 meq/100g CEC	41.7 meq/100g CEC
0.76% Fe_2O_3	0.92% Fe_2O_3

41.1 MWZ•—— 40.2 MWZ•----

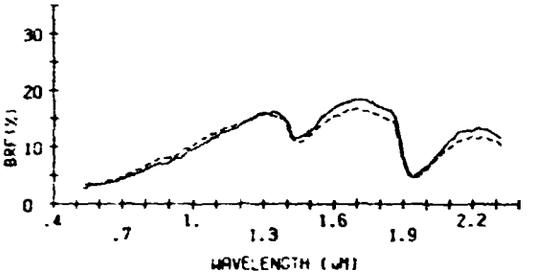


FLANAGAN(IL)

Aquic Argiudoll
fine, montmorillonitic, mesic
humid zone
thick loess over calcareous till
Champaign Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silt loam	silt loam
8%S 66%Si 26%C	7%S 67%Si 26%C
10YR 2/1 (moist)	10YR 3/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
3.27% O.M.	4.74% O.M.
25.7 meq/100g CEC	28.0 meq/100g CEC
1.17% Fe_2O_3	1.29% Fe_2O_3

35.8 MW% ____ 38.5 MW% ----

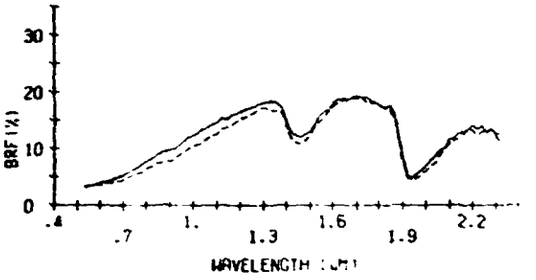


RIDGEVILLE(IL)

Aquic Argiudoll
coarse-loamy, mixed, mesic
humid zone
stratified glacial alluvium
Iroquois Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
fine sandy loam	fine sandy loam
66%S 23%Si 11%C	70%S 19%Si 11%
10YR 3/1 (moist)	10YR 3/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
1.94% O.M.	2.77% O.M.
15.2 meq/100g CEC	21.5 meq/100g CEC
0.57% Fe_2O_3	0.50% Fe_2O_3

23.0 MW% ____ 28.4 MW% ----

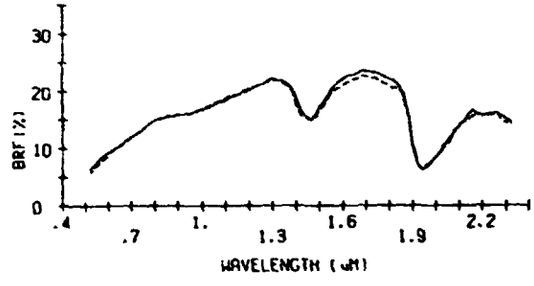


HAYMOND(IN)

Typic Udifluvent
coarse-silty, mixed, nonacid. mesic
humid zone
silty alluvium
Clark Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
10%S 74%Si 16%C	6%S 75%Si 19%C
10YR 4/3 (moist)	10YR 4/4 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
3.08% O.M.	2.32% O.M.
15.0 meq/100g CEC	15.8 meq/100g CEC
1.25% Fe_2O_3	2.91% Fe_2O_3

35.3 MW% ____ 34.5 MW% ----

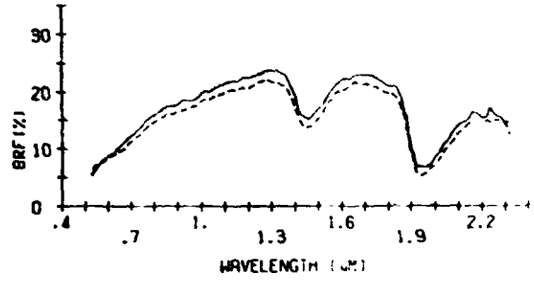


RUSSELL(IN)

Typic Hapludalf
fine-silty, mixed, mesic
humid zone
mod. thick loess and calcareous loam till
Decatur Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
11%S 70%Si 19%C	17%S 63%Si 20%C
10YR 4/2 (moist)	10YR 5/3 (moist)
10YR 6/4 (dry)	10YR 6/2 (dry)
2.18% O.M.	3.17% O.M.
15.8 meq/100g CEC	17.0 meq/100g CEC
1.32% Fe_2O_3	1.28% Fe_2O_3

32.7 MW% ____ 36.7 MW% ----

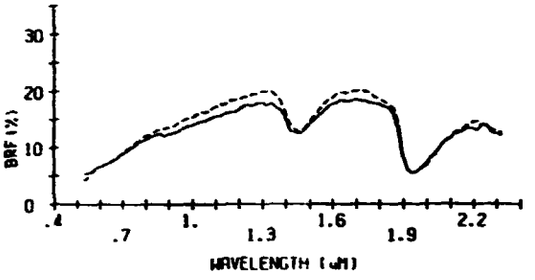


GENESEE(IN)

Typic Udifluvent
fine-loamy, mixed, nonacid, mesic
humid zone
alluvium
Fayette Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
20%S 60%Si 20%C	23%S 59%Si 18%C
10YR 3/3 (moist)	10YR 3/3 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
4.19% O.M.	2.19% O.M.
6.1 meq/100g CEC	21.2 meq/100g CEC
1.36% Fe_2O_3	1.27% Fe_2O_3

30.7 MWZ•____ 32.0 MWZ•----

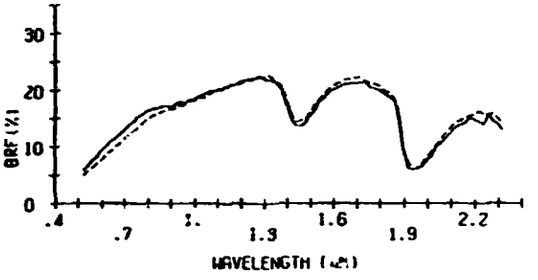


ALFORD(IN)

Typic Hapludalf
fine-silty, mixed, mesic
humid zone
loess
Knox Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
2%S 76%Si 22%C	2%S 80%Si 18%C
10YR 4/4 (moist)	10YR 4/4 (moist)
10YR 5/4 (dry)	10YR 5/4 (dry)
2.03% O.M.	1.44% O.M.
19.6 meq/100g CEC	14.8 meq/100g CEC
1.52% Fe_2O_3	1.35% Fe_2O_3

32.6 MWZ•____ 31.3 MWZ•----

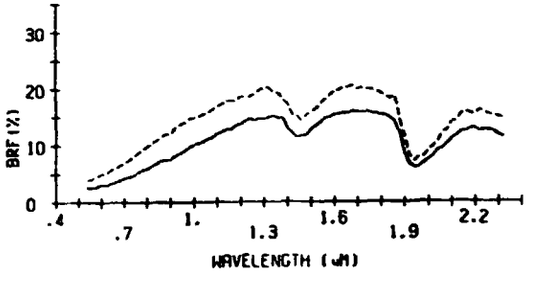


DOOR(IN)

Ultic Hapludalf
fine-loamy, mixed, mesic
humid zone
loamy outwash
Porter Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
fine sandy loam	loam
54%S 29%Si 17%C	44%S 44%Si 12%C
10YR 2/1 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 4/3 (dry)
3.73% O.M.	1.96% O.M.
22.0 meq/100g CEC	11.7 meq/100g CEC
1.55% Fe_2O_3	1.36% Fe_2O_3

24.5 MWZ•____ 24.4 MWZ•----

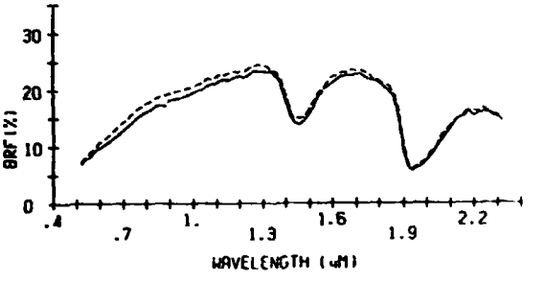


IVA(IN)

Aeric Ochraqualf
fine-silty, mixed, mesic
humid zone
loess
Vigo Co. Clay Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silt loam	silt loam
11%S 78%Si 11%C	19%S 71%Si 10%C
10YR 5/3 (moist)	10YR 5/4 (moist)
10YR 6/4 (dry)	10YR 6/3 (dry)
1.24% O.M.	1.56% O.M.
13.1 meq/100g CEC	11.5 meq/100g CEC
0.96% Fe_2O_3	1.19% Fe_2O_3

33.5 MWZ•____ 30.6 MWZ•----

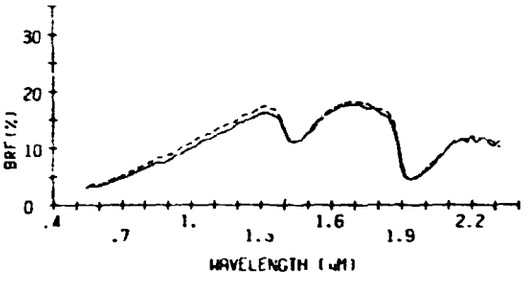


SAC(IA)

Typic Hapludoll
fine-silty, mixed, mesic
subhumid zone
loess and glacial till
Clay Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silty clay loam	silty clay loam
5%S 59%Si 36%C	6%S 62%Si 32%C
10YR 2/1 (moist)	10YR 2/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
5.37% O.M.	5.06% O.M.
37.0 meq/100g CEC	36.0 meq/100g CEC
1.43% Fe_2O_3	1.42% Fe_2O_3

40.8 MW%·____ 42.2 MW%·____

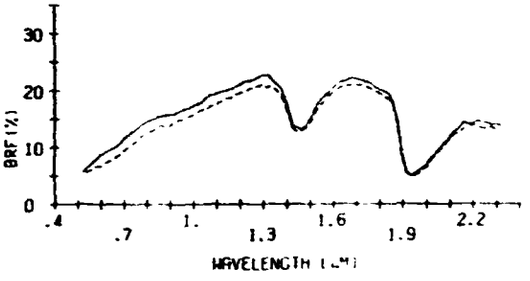


IDA(IA)

Typic Udorthent
fine-silty, mixed, calcareous, mesic
subhumid zone
loess
Crawford Co.

____	____
Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
3%S 74%Si 23%C	3%S 73%Si 24%C
10YR 3/3 (moist)	10YR 4/3 (moist)
10YR 5/4 (dry)	10YR 5/4 (dry)
1.18% O.M.	3.00% O.M.
26.7 meq/100g CEC	28.7 meq/100g CEC
1.33% Fe_2O_3	1.33% Fe_2O_3

37.5 MW%·____ 40.9 MW%·____

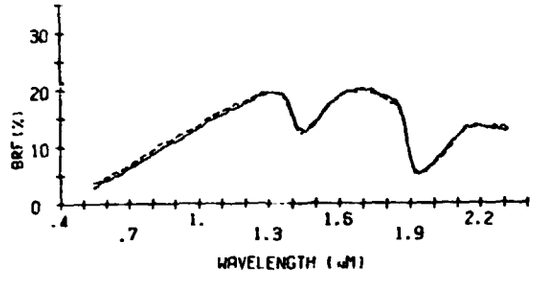


MONONA(IA)

Typic Hapludoll
fine-silty, mixed, mesic
subhumid zone
loess
Harrison Co.

____	____
Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
3%S 76%Si 21%C	2%S 72%Si 26%C
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/3 (dry)	10YR 4/3 (dry)
3.58% O.M.	2.92% O.M.
25.1 meq/100g CEC	21.0 meq/100g CEC
1.46% Fe_2O_3	1.35% Fe_2O_3

37.3 MW%·____ 38.5 MW%·____

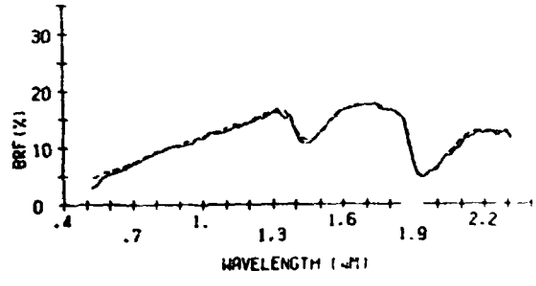


HAYNIE(IA)

Mollic Udifluvent
coarse-silty, mixed, calcareous, mesic
subhumid zone
recent alluvium
Monona Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
9%S 77%Si 14%C	10%S 76%Si 14%C
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)
2.38% O.M.	2.56% O.M.
20.2 meq/100g CEC	21.5 meq/100g CEC
1.02% Fe_2O_3	1.09% Fe_2O_3

36.0 MW%·____ 36.8 MW%·____

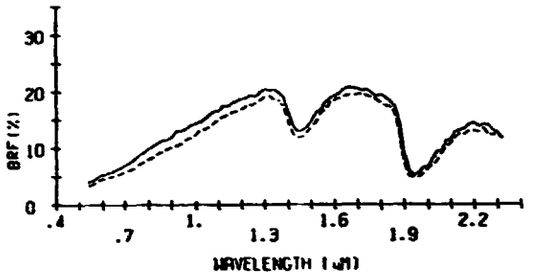


DOWNS(IA)

Mollic Hapludalf
fine-silty, mixed, mesic
humid zone
loess
Clayton Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
3%S 76%Si 21%C	2%S 72%Si 26%C
10YR 3/2 (moist)	7.5YR 3/2 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
2.84% O.M.	3.82% O.M.
21.1 meq/100g CEC	25.4 meq/100g CEC
1.15% Fe_2O_3	1.29% Fe_2O_3

33.0 MWX•____ 35.0 MWX•----

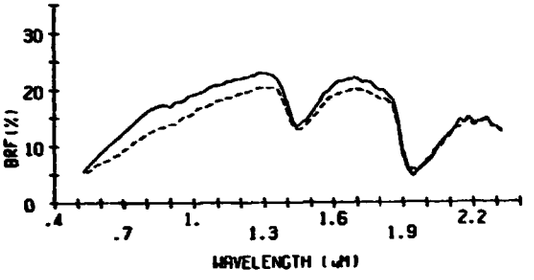


DUBUQUE(IA)

Typic Hapludalf
fine-silty, mixed, mesic
humid zone
loess
Dubuque Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
silt loam	silt loam
3%S 78%Si 19%C	10%S 68%Si 22%C
10YR 4/3 (moist)	10YR 3/3 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
2.08% O.M.	2.80% O.M.
17.3 meq/100g CEC	16.4 meq/100g CEC
0.19% Fe_2O_3	0.21% Fe_2O_3

32.9 MWX•____ 36.2 MWX•----

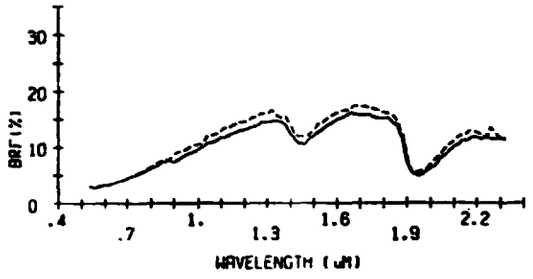


WAUKEE(IA)

Typic Hapludoll
fine-loamy over sandy or sandy-
skeletal, mixed mesic
humid zone
stratified loamy alluvium over sand
Howard Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	loam
47%S 49%Si 24%C	32%S 48%Si 20%C
10YR 2/1 (moist)	10YR 2/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
4.09% O.M.	3.93% O.M.
25.1 meq/100g CEC	22.2 meq/100g CEC
1.22% Fe_2O_3	1.11% Fe_2O_3

32.4 MWX•____ 29.9 MWX•----

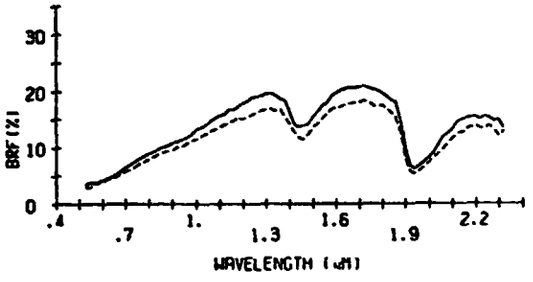


HEDVILLE(KS)

Lithic Haplustoll
loamy, mixed, mesic
subhumid zone
sandstone residuum
Cloud Co.

All horizon	All horizon
C slope	C slope
s. excess. drained	s. excess. drained
loam	silt loam
49%S 39%Si 12%C	25%S 60%Si 15%C
7.5YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/3 (dry)	10YR 3/3 (dry)
3.61% O.M.	3.86% O.M.
16.0 meq/100g CEC	20.2 meq/100g CEC
1.67% Fe_2O_3	0.51% Fe_2O_3

23.7 MWX•____ 33.0 MWX•----

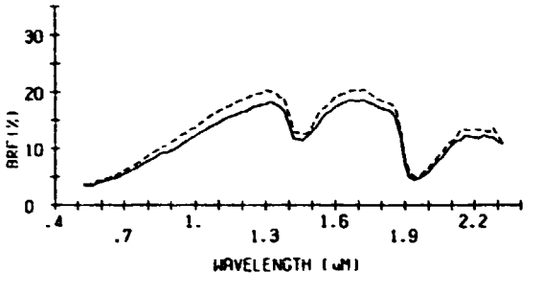


IRWIN(KS)

Pachic Argiustoll
fine, mixed, mesic
subhumid zone
pedisediments from clay shales
Geary Co.

____	____
Ap horizon	Ap horizon
B slope	B slope
m. well drained	m. well drained
silty clay loam	silty clay loam
3%S 67%Si 30%C	3%S 70%Si 27%C
7.5YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
3.15% O.M.	2.26% O.M.
29.1 meq/100g CEC	23.9 meq/100g CEC
0.99% Fe_2O_3	1.01% Fe_2O_3

36.5 MW%·____ 37.8 MW%·----

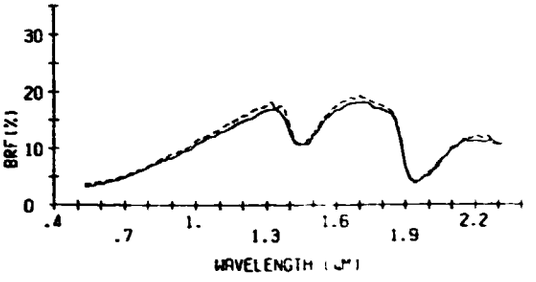


GOESSEL(KS)

Udic Pellustert
fine, montmorillonitic, mesic
subhumid zone
clayey alluvium
McPherson Co.

____	----
Ap horizon	Ap horizon
A slope	A slope
m. well drained	m. well drained
silty clay loam	silty clay loam
6%S 54%Si 40%C	10%S 53%Si 37%C
10YR 2/1 (moist)	10YR 3/1 (moist)
10YR 3/1 (dry)	10YR 4/1 (dry)
2.83% O.M.	2.77% O.M.
36.1 meq/100g CEC	32.6 meq/100g CEC
0.59% Fe_2O_3	0.41% Fe_2O_3

35.5 MW%·____ 37.3 MW%·----

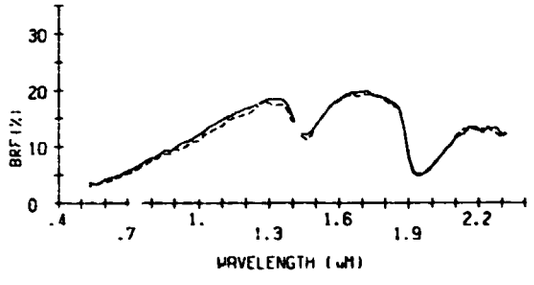


LANCASTER(KS)

Udic Argiustoll
fine-loamy, mixed, mesic
subhumid zone
sandstone and sandy shale residuum
Saline Co.

____	----
Al horizon	Al horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
23%S 55%Si 22%C	32%S 51%Si 17%C
7.5YR 3/2 (moist)	10YR 3/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
3.97% O.M.	3.37% O.M.
16.3 meq/100g CEC	15.4 meq/100g CEC
1.26% Fe_2O_3	1.22% Fe_2O_3

31.2 MW%·____ 29.4 MW%·----

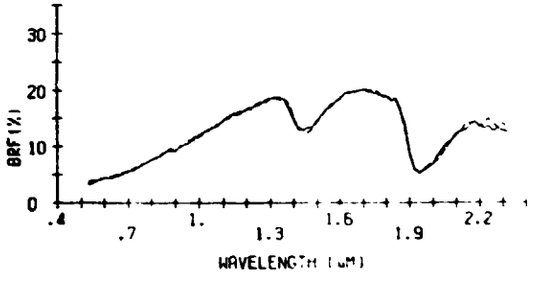


VERDIGRIS(KS)

Cumuli Hapludoll
fine-silty, mixed, thermic
humid zone
silty alluvium
Montgomery Co.

___	----
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt	silt loam
9%S 90%Si 1%C	16%S 60%Si 24%C
10YR 3/2 (moist)	10YR 3/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
2.88% O.M.	1.84% O.M.
24.1 meq/100g CEC	23.0 meq/100g CEC
1.26% Fe_2O_3	1.13% Fe_2O_3

32.1 MW%·____ 34.1 MW%·----

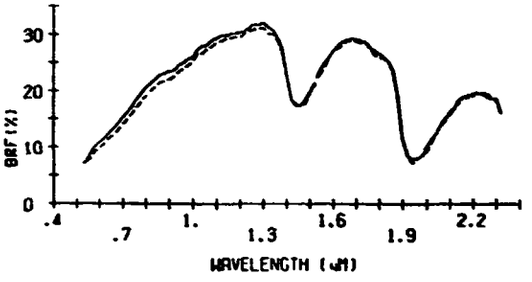


PRATT(KS)

Psammentic Haplustalf
sandy, mixed, thermic
subhumid zone
sandy eolian deposits
Pratt Co.

———	———
Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
fine sandy loam	fine sandy loam
73%S 24%Si 3%C	61%S 37%Si 2%C
10YR 3/3 (moist)	10YR 4/3 (moist)
7.5YR 6/4 (dry)	7.5YR 6/2 (dry)
0.55% O.M.	0.44% O.M.
2.8 meq/100g CEC	1.9 meq/100g CEC
0.31% Fe_2O_3	0.25% Fe_2O_3

11.0 MWZ•—— 13.4 MWZ•----

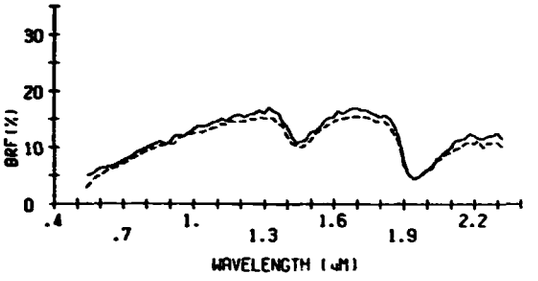


RICHFIELD(KS)

Aridic Argiustoll
fine, montmorillonitic mesic
semiarid zone
silty eolian sediments
Grant Co.

———	———
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
8%S 72%Si 20%C	12%S 70%Si 18%C
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/3 (dry)	10YR 5/2 (dry)
2.14% O.M.	1.78% O.M.
21.4 meq/100g CEC	21.3 meq/100g CEC
0.79% Fe_2O_3	0.86% Fe_2O_3

37.3 MWZ•—— 35.6 MWZ•----

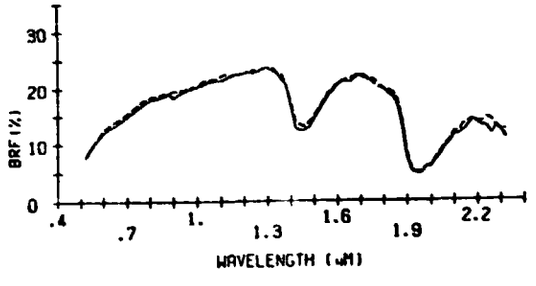


COLBY(KS)

Ustic Torriorthent
fine-silty, mixed, calcareous, mesic
semiarid zone
calcareous silty material
Hamilton Co.

———	———
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
22%S 54%Si 24%C	15%S 62%Si 24%C
10YR 5/3 (moist)	10YR 5/3 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
1.24% O.M.	0.85% O.M.
30.3 meq/100g CEC	30.2 meq/100g CEC
0.69% Fe_2O_3	0.68% Fe_2O_3

37.3 MWZ•—— 36.6 MWZ•----

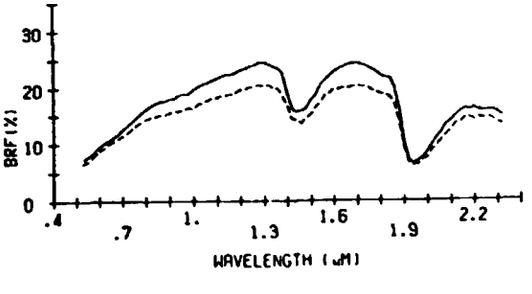


NEWARK(KY)

Aeric Fluventic Haplaquept
fine-silty, mixed, nonacid, mesic
humid zone
mixed alluvium
Daviess Co.

———	———
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silt loam	silt loam
25%S 57%Si 18%C	4%S 79%Si 18%C
10YR 4/2 (moist)	10YR 4/3 (moist)
10YR 6/3 (dry)	10YR 6/4 (dry)
1.83% O.M.	2.84% O.M.
15.7 meq/100g CEC	17.0 meq/100g CEC
1.05% Fe_2O_3	1.93% Fe_2O_3

29.0 MWZ•—— 34.1 MWZ•----

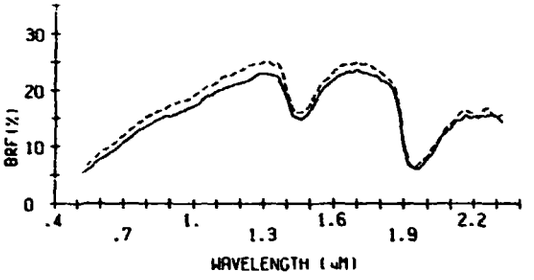


WHITLEY(KY)

Typic Hapludult
fine-silty, mixed, mesic
humid zone
part alluvium, part acid residuum
Laurel Co.

____	____
Ap horizon	Ap horizon
E slope	B slope
well drained	well drained
silt loam	silt loam
23%S 57%Si 20%C	16%S 65%Si 19%C
10YR 4/3 (moist)	10YR 4/3 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
3.50% O.M.	2.57% O.M.
12.7 meq/100g CEC	14.2 meq/100g CEC
1.55% Fe_2O_3	2.11% Fe_2O_3

18.5 MW%•____ 35.9 MW%•----

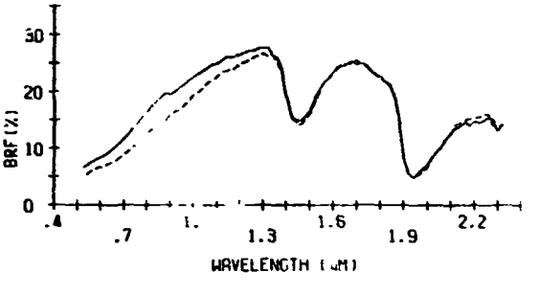


MIDLAND(LA)

Typic Ochraqualf
fine, montmorillonitic, thermic
humid zone
clayey sediments
Acadia Parish

____	____
Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silty clay loam	silty clay loam
5%S 57%Si 38%C	3%S 65%Si 32%C
10YR 4/2 (moist)	10YR 3/1 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
2.42% O.M.	2.32% O.M.
25.1% meq/100g CEC	27.3 meq/100g CEC
0.88% Fe_2O_3	0.62% Fe_2O_3

37.7 MW%•____ 41.2 MW%•----

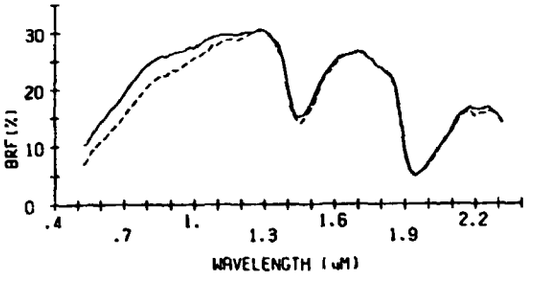


CALHOUN(LA)

Typic Glossaqualf
fine-silty, mixed, thermic
humid zone
loess
East Baton Rouge Parish

____	____
A1 horizon	A1 horizon
A slope	A slope
poorly drained	poorly drained
silt loam	silt loam
15%S 71%Si 14%C	20%S 69%Si 10%C
10YR 5/3 (moist)	10YR 5/3 (moist)
10YR 7/3 (dry)	10YR 6/4 (dry)
1.74% O.M.	2.40% O.M.
7.1 meq/100g CEC	11.4 meq/100g CEC
0.60% Fe_2O_3	0.72 Fe_2O_3

34.6 MW%•____ 33.7 MW%•----

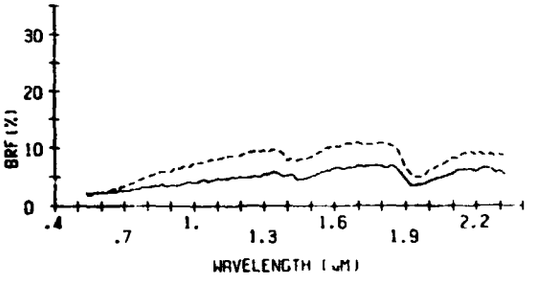


KENNER(LA)

Fluvaquentic Medisaprist
euic, thermic
humid zone
herbaceous plant remains with clayey
alluvium
Jefferson Parish

____	____
Oel horizon	Oel horizon
A slope	A slope
v. poorly drained	v. poorly drained
muck	muck
4%S 40%Si 56%C	3%S 31%Si 66%C
7.5YR 2/0 (moist)	10YR 2/1 (moist)
10YR 2/1 (dry)	10YR 2/1 (dry)
55.14% O.M.	54.39% O.M.
73.6 meq/100g CEC	82.1 meq/100g CEC
0.00% Fe_2O_3	0.00% Fe_2O_3

77.2 MW%•____ 73.1 MW%•----

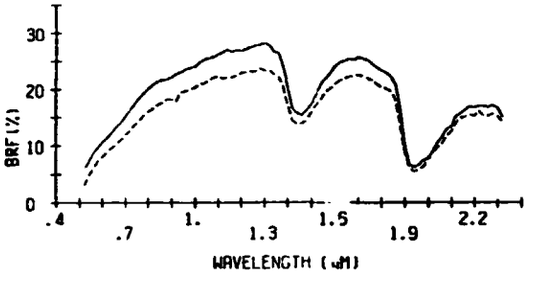


RILLA(LA)

Typic Hapludalf
fine-silty, mixed, thermic
humid zone
mixed silty alluvium
Ouachita Parish

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
20%S 70%Si 10%C	17%S 76%Si 7%C
10YR 5/4 (moist)	10YR 4/3 (moist)
10YR 7/4 (dry)	10YR 6/4 (dry)
1.46% O.M.	0.83% O.M.
10.0 meq/100g CEC	8.9 meq/100g CEC
0.45% Fe_2O_3	0.50% Fe_2O_3

33.5 MW% ____ 31.2 MW% ----

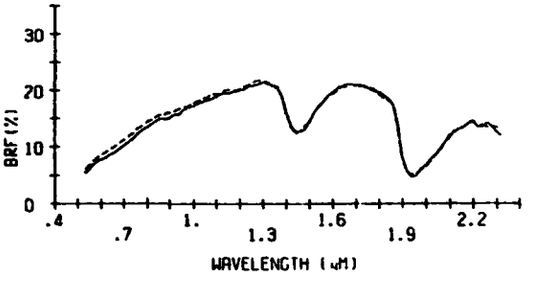


COMMERCE(LA)

Aeric Fluvaquent
fine-silty, mixed, nonacid, thermic
humid zone
loamy alluvium
Tensas Parish

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silt loam	silt loam
14%S 68%Si 18%C	5%S 71%Si 24%C
10YR 4/2 (moist)	10YR 4/3 (moist)
10YR 6/3 (dry)	10YR 6/4 (dry)
1.60% O.M.	1.33% O.M.
24.8 meq/100g CEC	25.4 meq/100g CEC
0.60% Fe_2O_3	0.88% Fe_2O_3

33.4 MW% ____ 34.1 MW% ----

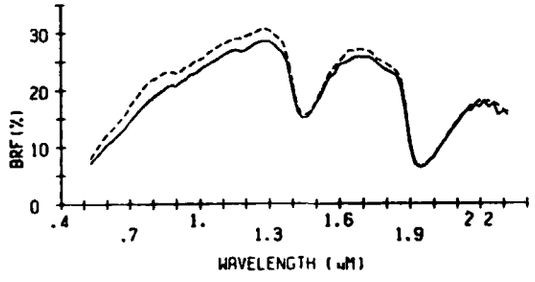


RUSTON(LA)

Typic Paleudult
fine-loamy, siliceous, thermic
humid zone
loamy marine deposits
Union Parish

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
loamy fine sand	loamy fine sand
76%S 21%Si 3%C	78%S 19%Si 3%C
10YR 5/3 (moist)	7.5YR 4/4 (moist)
10YR 6/3 (dry)	10YR 6/4 (dry)
1.10% O.M.	0.69% O.M.
4.6 meq/100g CEC	3.5 meq/100g CEC
0.35% Fe_2O_3	0.58% Fe_2O_3

21.5 MW% ____ 22.7 MW% ----

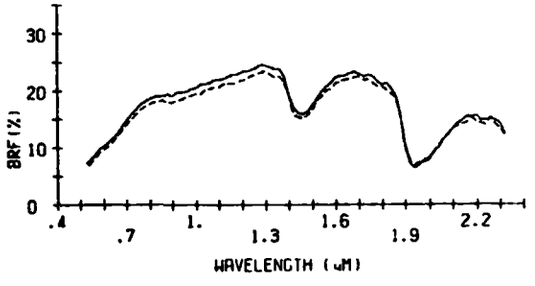


CARIBOU(ME)

Typic Haplorthod
sandy-skeletal, mixed, frigid
humid zone
calcareous loam till
Aroostook Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
silt loam	loam
29%S 59%Si 12%C	37%S 48%Si 15%C
2.5Y 5/4 (moist)	10YR 5/4 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
3.84% O.M.	3.82% O.M.
24.5 meq/100g CEC	25.5 meq/100g CEC
2.31% Fe_2O_3	2.18% Fe_2O_3

33.4 MW% ____ 31.1 MW% ----

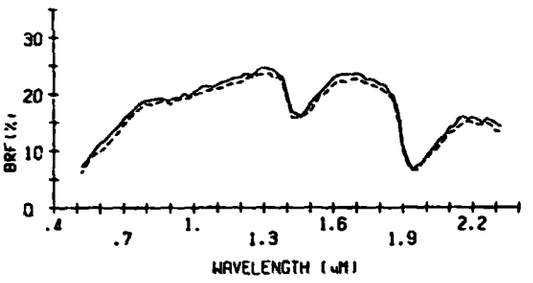


PLAISTED(ME)

Typic Fragiorthod
coarse-loamy, mixed, frigid
humid zone
glacial till
Aroostook Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
loam	silt loam
37%S 50%Si 13%C	37%S 58%Si 5%C
10YR 5/4 (moist)	10YR 5/4 (moist)
10YR 6/4 (dry)	10YR 6/3 (dry)
4.28% O.M.	4.40% O.M.
23.4 meq/100g CEC	25.8 meq/100g CEC
2.21% Fe_2O_3	2.19% Fe_2O_3

33.0 MW% ____ 31.2 MW% ----

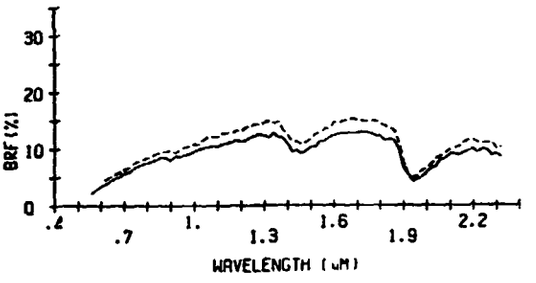


SUDBURY(MA)

Aquic Dystrochrept
sandy, mixed, mesic
humid zone
mixed alluvium
Essex Co.

Ap horizon	Ap horizon
A slope	A slope
mod. well drained	mod. well drained
sandy loam	coarse sandy loam
56%S 37%Si 7%C	72%S 23%Si 5%C
10YR 3/2 (moist)	7.5YR 3/2 (moist)
10YR 4/3 (dry)	10YR 3/3 (dry)
6.07% O.M.	4.38% O.M.
25.1 meq/100g CEC	22.7 meq/100g CEC
1.46% Fe_2O_3	1.37% Fe_2O_3

27.9 MW% ____ 25.1 MW% ----

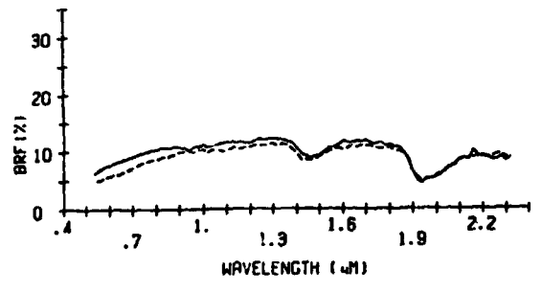


WINOOSKI(MA)

Aquic Udifluvent
coarse-silty, mixed, non-acid, mesic
humid zone
fine sand and silt alluvium
Franklin Co.

Ap horizon	Ap horizon
A slope	A slope
mod. well drained	mod. well drained
silt loam	silt loam
30%S 67%Si 3%C	17%S 80%Si 3%C
2.5Y 4/2 (moist)	10YR 4/1 (moist)
5Y 6/3 (dry)	2.5Y 6/2 (dry)
1.96% O.M.	3.30% O.M.
14.7 meq/100g CEC	20.8 meq/100g CEC
1.12% Fe_2O_3	0.27% Fe_2O_3

39.7 MW% ____ 39.0 MW% ----

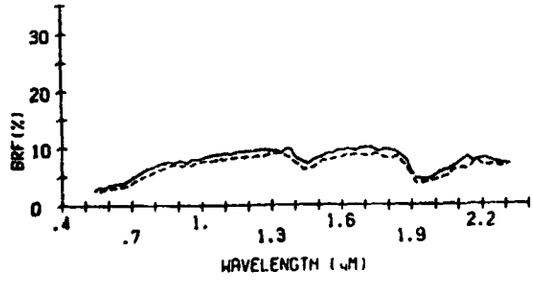


BERKSHIRE(MA)

Typic Haplorthod
coarse-loamy, mixed, frigid
humid zone
glacial till
Franklin Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
sandy loam	loam
65%S 25%Si 10%C	43%S 50%Si 7%C
10YR 2/1 (moist)	10YR 2/1 (moist)
10YR 4/1 (dry)	10YR 4/1 (dry)
11.52% O.M.	19.95% O.M.
33.0 meq/100g CEC	43.4 meq/100g CEC
1.52% Fe_2O_3	0.89% Fe_2O_3

42.5 MW% ____ 69.8 MW% ----

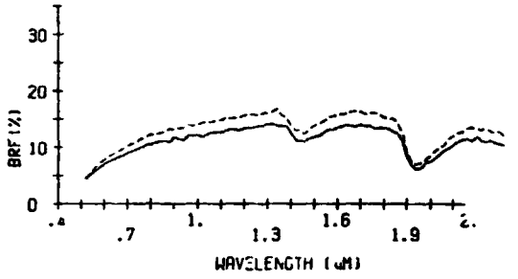


AGAWAM(MA)

Typic Dystrochrept
coarse-loamy over sandy or sandy-skeletal, mixed, mesic
humid zone
sandy alluvium
Hampden Co.

____	____
Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
fine sandy loam	fine sandy loam
73%S 23%Si 4%C	74%S 21%Si 5%C
10YR 3/3 (moist)	10YR 3/3 (moist)
10YR 5/4 (dry)	10YR 5/4 (dry)
1.46% O.M.	1.28% O.M.
9.7 meq/100g CEC	5.2 meq/100g CEC
0.98% Fe_2O_3	2.17% Fe_2O_3

17.8 MW%·____ 15.2 MW%·____

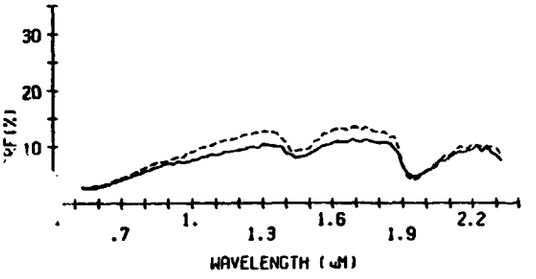


RIDGEBURY(MA)

Aeric Fragiaquept
coarse-loamy, mixed, mesic
humid zone
sandy and stony glacial till
Hampden Co.

____	____
A1 horizon	A1 horizon
A slope	A slope
poorly drained	poorly drained
sandy loam	loam
64%S 33%Si 3%C	48%S 43%Si 9%C
10YR 2/1 (moist)	7.5YR 2/0 (moist)
10YR 4/1 (dry)	10YR 4/1 (dry)
8.49% O.M.	7.78% O.M.
27.7 meq/100g CEC	28.3 meq/100g CEC
0.84% Fe_2O_3	1.14% Fe_2O_3

31.1 MW%·____ 49.9 MW%·____

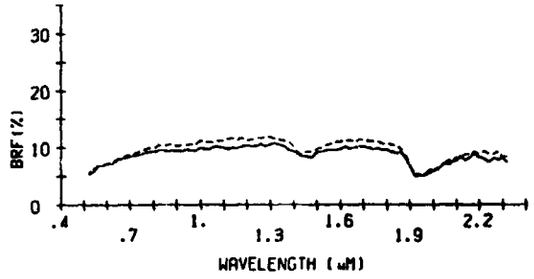


HADLEY(MA)

Typic Udifluvent
coarse-silty, mixed, nonacid, mesic
humid zone
fine sand and silt alluvium
Hampshire Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
24%S 71%Si 5%C	20%S 75%Si 5%C
10YR 3/2 (moist)	2.5Y 4/2 (moist)
2.5Y 5/2 (dry)	2.5YR 5/2 (dry)
1.16% O.M.	1.61% O.M.
12.8 meq/100g CEC	13.1 meq/100g CEC
1.13% Fe_2O_3	1.16% Fe_2O_3

35.0 MW%·____ 36.2 MW%·____

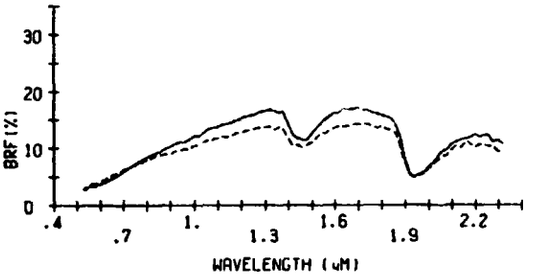


HINCKLEY(MA)

Typic Udorthent
sandy-skeletal, mixed, mesic
humid zone
sandy alluvium
Worcester Co.

____	____
Ap horizon	Ap horizon
B slope	B slope
s. excess. drained	s. excess. drained
loamy coarse sand	loamy coarse sand
81%S 16%Si 3%C	75%S 20%Si 5%C
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/3 (dry)	10YR 4/3 (dry)
4.20% O.M.	6.80% O.M.
17.5 meq/100g CEC	26.1 meq/100g CEC
0.95% Fe_2O_3	1.09% Fe_2O_3

30.2 MW%·____ 22.4 MW%·____

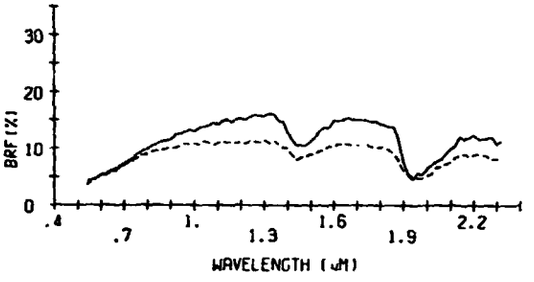


IRON RIVER(MI)

Alfic Fragiorthod
coarse-loamy, mixed, frigid
humid zone
glacial till
Baraga Co.

Al-A2 horizon	Al-A2 horizon
B slope	B slope
mod. well drained	mod. well drained
silt loam	silt loam
14%S 77%. 9%C	27%S 61%Si 13%C
7.5YR 3/2 (moist)	7.5YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)
6.38% O.M.	10.75% O.M.
20.4 meq/100g CEC	26.3 meq/100g CEC
1.06% Fe_2O_3	1.73% Fe_2O_3

52.2 MW%·___ 48.5 MW%·----

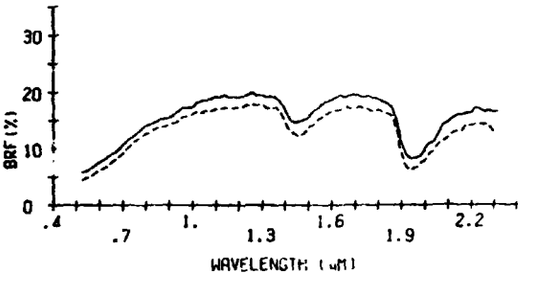


MUNISING(MI)

Alfic Fragiorthod
coarse-loamy, mixed, frigid
humid zone
glacial till
Baraga Co.

Al-A2 horizon	Al-A2 horizon
B slope	B slope
mod. well drained	mod. well drained
loamy sand	sandy loam
78%S 19%Si 3%C	74%S 22%Si 4%C
5YR 3/2 (moist)	5YR 3/1 (moist)
5YR 6/2 (dry)	5YR 6/2 (dry)
2.61% O.M.	4.79% O.M.
9.5 meq/100g CEC	14.2 meq/100g CEC
0.55% Fe_2O_3	0.54% Fe_2O_3

17.5 MW%·___ 24.5 MW%·----

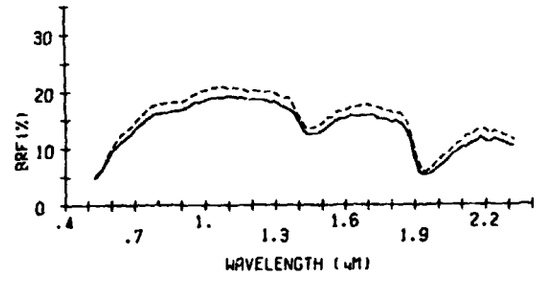


ONTONAGON(MI)

Glossic Eutroboralf
very fine, mixed
humid zone
glacial lake plain sediments
Ontonagon Co.

Ap horizon	Ap horizon
B slope	B slope
mod. well drained	mod. well drained
clay	clay
7%S 22%Si 70%C	6%S 29%Si 66%C
2.5YR 3/6 (moist)	2.5YR 4/4 (moist)
5YR 6/4 (dry)	5YR 6/4 (dry)
4.88% O.M.	3.95% O.M.
38.0 meq/100g CEC	31.6 meq/100g CEC
1.73% Fe_2O_3	2.76% Fe_2O_3

47.5 MW%·___ 43.2 MW%·----

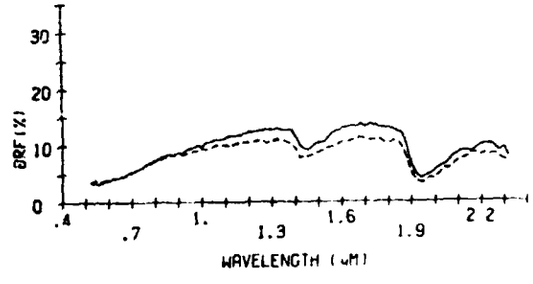


PICKFORD(MI)

Aeric Haplaquept
fine, mixed, nonacid, frigid
humid zone
clayey glacial till or
lacustrine material
Chippewa Co.

A11-A12 horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silty clay	clay
5%S 48%Si 47%C	7%S 29%Si 64%C
5YR 2.5/2 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 5/2 (dry)
14.57% O.M.	15.16% O.M.
51.6 meq/100g CEC	50.8 meq/100g CEC
3.71% Fe_2O_3	0.64% Fe_2O_3

60.8 MW%·___ 62.3 MW%·. .

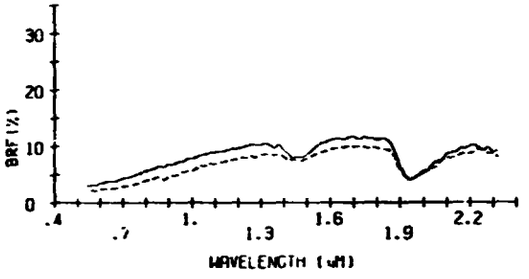


ANGELICA(...)

Aeric Haplaquept
fine-loamy, mixed, nonacid, frigid
humid zone
glacial till
Delta Co.

____	____
A1 horizon	A1 horizon
A slope	A slope
poorly drained	poorly drained
silt loam	silt loam
44%S 51%Si 5%C	18%S 70%Si 11%C
10YR 3/1 (moist)	7.5YR 2/0 (moist)
10YR 5/1 (dry)	10YR 3/1 (dry)
8.86% O.M.	25.23% O.M.
23.4 meq/100g CEC	63.1 meq/100g CEC
0.28% Fe_2O_3	0.44% Fe_2O_3

46.7 MW%·____ 42.9 MW%·----

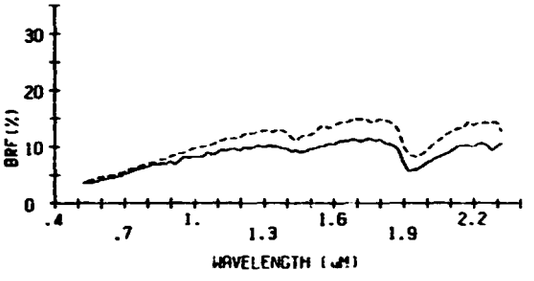


GRAYLING(MI)

Typic Udipsamment
mixed, frigid
humid zone
sandy glaciofluvial sediments
Delta Co.

____	____
A1-A2 horizon	A1-A2 horizon
A slope	A slope
excessively drained	excessively drained
sand	loamy sand
93%S 5%Si 2%C	84%S 14%Si 2%C
5YR 2/1 (moist)	7.5YR 2/0 (moist)
10YR 4/1 (dry)	10YR 4/1 (dry)
4.47% O.M.	3.57% O.M.
15.0 meq/100g CEC	12.9 meq/100g CEC
0.21% Fe_2O_3	0.22% Fe_2O_3

15.3 MW%·____ 12.0 MW%·----

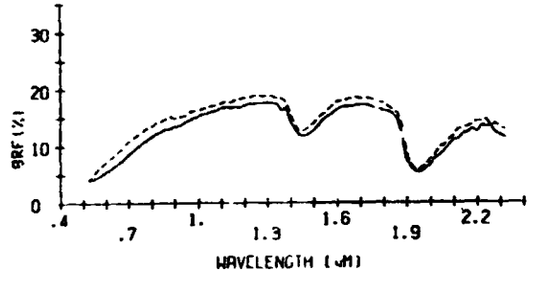


ONAWAY(MI)

Alfic Haplorthod
fine-loamy, mixed, frigid
humid zone
glacial drift
Delta Co.

____	____
Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
fine sandy loam	loam
61%S 34%Si 6%C	44%S 47%Si 9%C
7.5YR 3/2 (moist)	10YR 3/4 (moist)
10YR 5/2 (dry)	10YR 6/3 (dry)
3.32% O.M.	2.78% O.M.
13.2 meq/100g CEC	13.7 meq/100g CEC
0.81% Fe_2O_3	0.92% Fe_2O_3

27.3 MW%·____ 27.5 MW%·----

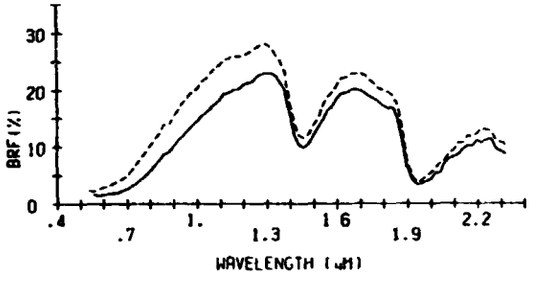


RIFLE(MI)

Typic Borohemist
euic
humid zone
organic material
Delta Co.

____	____
Oil horizon	Oil horizon
A slope	A slope
v. poorly drained	v. poorly drained
muck	muck
38%S 43%Si 20%C	5%S 94%Si 1%C
10YR 2/1 (moist)	7.5YR 3/2 (moist)
10YR 2/2 (dry)	10YR 3/2 (dry)
75.11% O.M.	84.79% O.M.
240.0 meq/100g CEC	151.0 meq/100g CEC
trace Fe_2O_3	trace Fe_2O_3

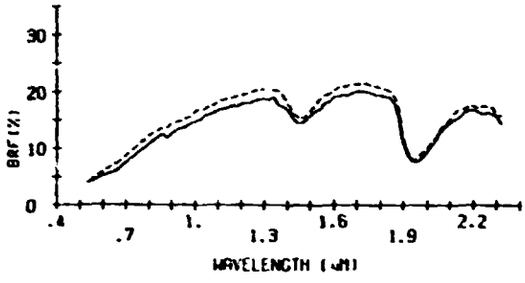
176. MW%·____ 217. MW%·----



EMMET(MI)

Alfic Haplorthod
coarse-loamy, mixed, frigid
humid zone
glacial till
Delta Co.

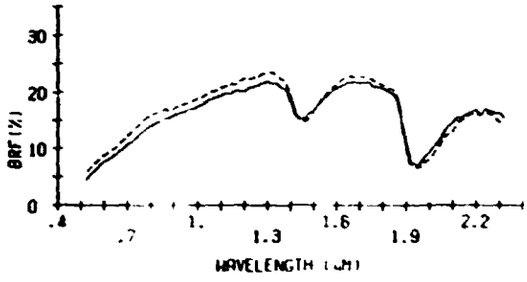
Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
loamy sand	loamy sand
79%S 19%Si 2%C	78%S 15%Si 7%C
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/3 (dry)
2.46% O.M.	2.98% O.M.
7.7 meq/100g CEC	10.2 meq/100g CEC
0.42% Fe_2O_3	0.54% Fe_2O_3
12.7 MWX*	12.2 MWX*



HILLSDALE(MI)

Typic Hapludalf
coarse-loamy, mixed, mesic
humid zone
glacial till and drift
Jackson Co.

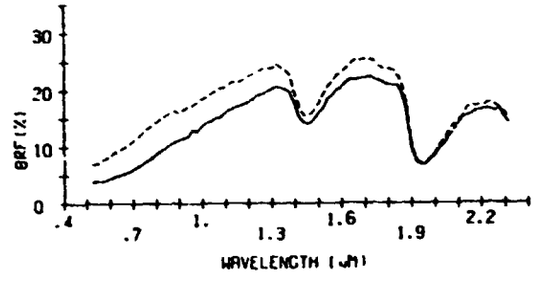
Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
fine sandy loam	fine sandy loam
57%S 35%Si 8%C	75%S 17%Si 8%C
10YR 3/3 (moist)	7.5YR 4/4 (moist)
10YR 6/3 (dry)	10YR 6/4 (dry)
1.69% O.M.	2.02% O.M.
9.2 meq/100g CEC	9.6 meq/100g CEC
1.11% Fe_2O_3	0.99% Fe_2O_3
20.0 MWX*	19.7 MWX*



TAYLOR(MN)

Typic Eutroboralf
fine, mixed
subhumid zone
silty clay loam till and
lacustrine silts
Lake-of-the-Woods Co.

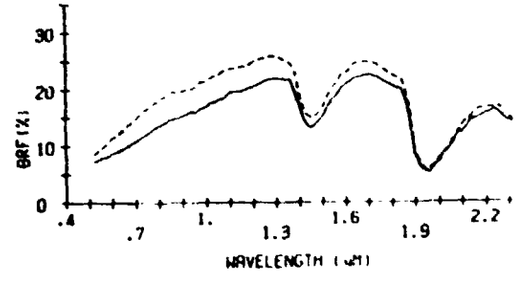
Ap horizon	Ap horizon
A slope	A slope
mod. well drained	mod. well drained
loamy sand	fine sandy loam
78%S 16%Si 6%C	73%S 21%Si 6%C
5YR 2.5/1 (moist)	10YR 3/2 (moist)
10YR 5/1 (dry)	10YR 6/1 (dry)
3.72% O.M.	2.21% O.M.
13.6 meq/100g CEC	9.2 meq/100g CEC
0.31% Fe_2O_3	0.23% Fe_2O_3
20.0 MWX*	23.9 MWX*



WARBA(MN)

Typic Glossoboralf
fine, mixed
subhumid zone
calcareous clay loam materials
Cass Co.

A1-A21 horizon	A1-A21 horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
26%S 68%Si 6%C	22%S 73%Si 5%C
10YR 4/1 (moist)	10YR 5/3 (moist)
10YR 7/1 (dry)	10YR 7/2 (dry)
1.71% O.M.	1.61% O.M.
9.6 meq/100g CEC	9.3 meq/100g CEC
0.41% Fe_2O_3	0.45% Fe_2O_3
32.7 MWX*	29.3 MWX*

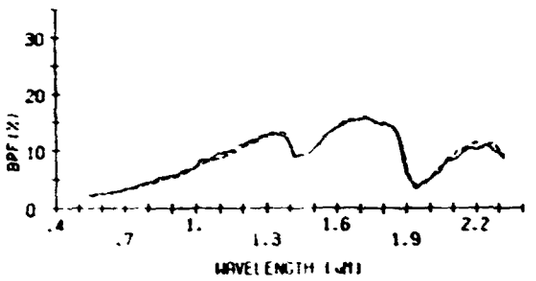


ROLISS(MN)

Typic Haplaquoll
fine-loamy, mixed, calcareous, frigid
subhumid zone
calcareous glacial till
Grant Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
clay loam	loam
37%S 34%Si 29%C	46%S 30%Si 24%C
7.5YR 2/0 (moist)	7.5YR 2/0 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
4.03% O.M.	4.79% O.M.
45.7 meq/100g CEC	37.6 meq/100g CEC
0.21% Fe_2O_3	0.32% Fe_2O_3

39.0 MW%• ___ 38.3 MW%• ---

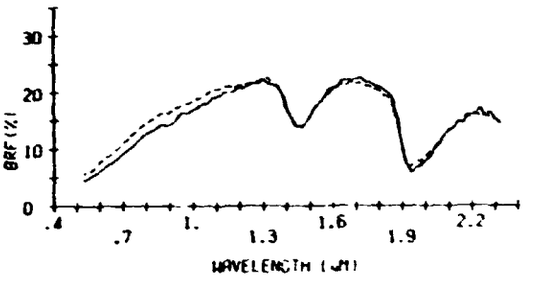


ANOKA(MN)

Eutric Glossoboralf
coarse-loamy, mixed
subhumid zone
sandy outwash
Isanti Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loamy fine sand	silt
87%S 7%Si 6%C	15%S 80%Si 4%C
10YR 3/2 (moist)	10YR 3/3 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
0.76% O.M.	0.71% O.M.
5.2 meq/100g CEC	3.0 meq/100g CEC
0.42% Fe_2O_3	0.21% Fe_2O_3

22.3 MW%• ___ 16.8 MW%• ---

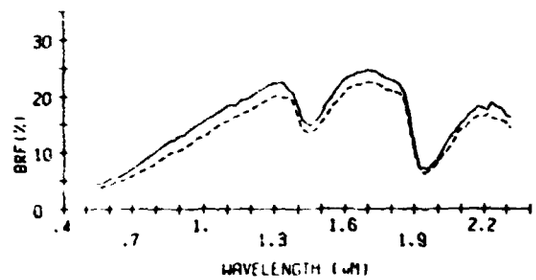


GRYGLA(MN)

Mollic Haplaquent
sandy over loamy, mixed, nonacid,
frigid
subhumid zone
lacustrine sediments over till
Kittson Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
fine sand	fine sand
90%S 6%Si 4%C	89%S 7%Si 5%C
10YR 3/1 (moist)	10YR 3/1 (moist)
10YR 5/1 (dry)	10YR 5/1 (dry)
2.09% O.M.	2.83% O.M.
8.1 meq/100g CEC	9.4 meq/100g CEC
0.13% Fe_2O_3	0.09% Fe_2O_3

17.5 MW%• ___ 27.8 MW%• ---

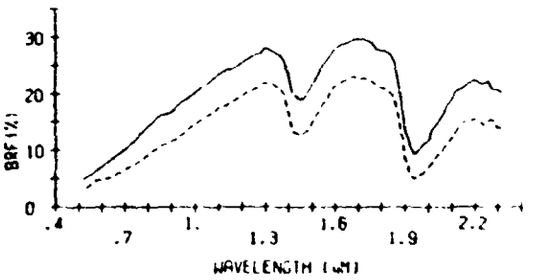


REDBY(MN)

Aquic Udipsamment
mixed, frigid
subhumid zone
sands of glacial origin
Kittson Co.

Al horizon	Al horizon
A slope	A slope
s. poorly drained	s. poorly drained
fine sand	fine sand
94%S 3%Si 3%C	88%S 8%Si 5%C
10YR 3/2 (moist)	10YR 3/1 (moist)
10YR 5/2 (dry)	10YR 4/2 (dry)
0.90% O.M.	1.37% O.M.
5.4 meq/100g CEC	11.1 meq/100g CEC
0.14% Fe_2O_3	0.10% Fe_2O_3

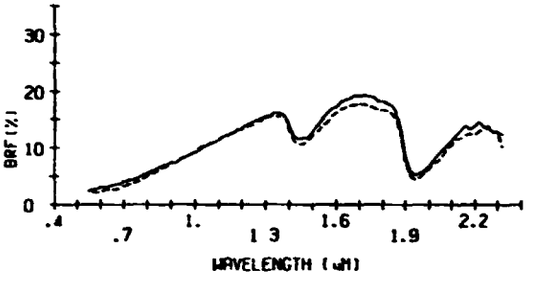
10.0 MW%• ___ 19.3 MW%• ---



CORMANT(MN)

Mollic Psammaquent
mixed, frigid
subhumid zone
sandy sediments
Lake-of-the-Woods Co.

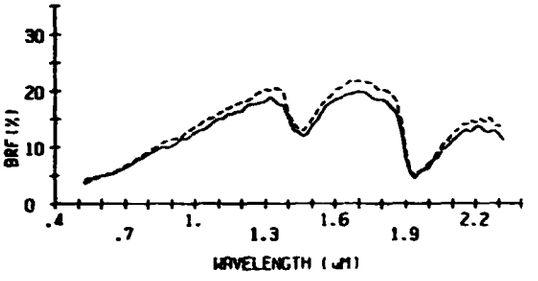
Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
loamy fine sand	loamy fine sand
82%S 11%Si 7%C	83%S 10%Si 7%C
10YR 2/1 (moist)	7.5YR 2/0 (moist)
10YR 4/2 (dry)	10YR 4/1 (dry)
4.38% O.M.	8.93% O.M.
23.2 meq/100g CEC	52.7 meq/100g CEC
0.39% Fe_2O_3	0.08% Fe_2O_3
28.7 MWX•____	38.5 MWX•____



BUSE(MN)

Udorthentic Haploboroll
fine-loamy, mixed
subhumid zone
glacial till
Ottertail Co.

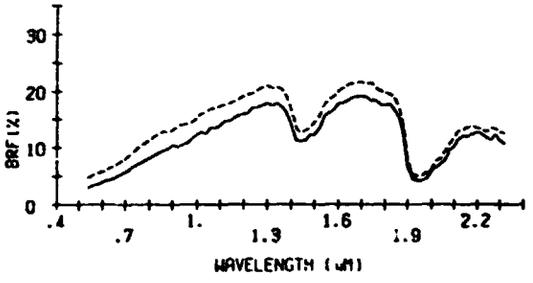
Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
loam	loam
43%S 33%Si 24%C	36%S 41%Si 25%C
10YR 3/1 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/3 (dry)
3.51% O.M.	3.92% O.M.
29.3 meq/100g CEC	30.0 meq/100g CEC
0.91% Fe_2O_3	1.01% Fe_2O_3
30.0 MWX•____	33.9 MWX•____



LANGHEI(MN)

Typic Udorthent
fine-loamy, mixed, calcareous, frigid
subhumid zone
calcareous glacial till
Pope Co.

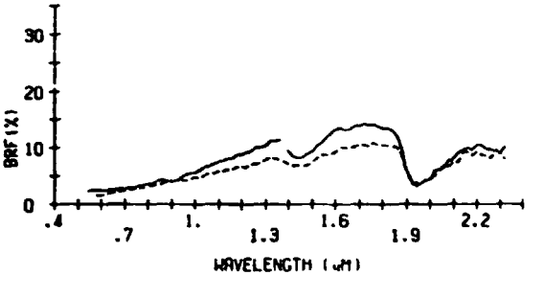
Ap horizon	Ap horizon
D slope	C slope
s. excess. drained	s. excess. drained
loam	loam
29%S 48%Si 23%C	38%S 44%Si 18%C
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 5/3 (dry)
3.00% O.M.	2.52% O.M.
25.1 meq/100g CEC	25.3 meq/100g CEC
0.71% Fe_2O_3	0.77% Fe_2O_3
35.0 MWX•____	29.7 MWX•____



FLOM(MN)

Typic Haplaquoll
fine-loamy, mixed, frigid
subhumid zone
glacial till
Stevens Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silty clay loam	silty clay loam
18%S 47%Si 35%C	11%S 52%Si 37%C
7.5YR 2/0 (moist)	7.5YR 2/0 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
6.06% O.M.	7.76% O.M.
53.6 meq/100g CEC	63.6 meq/100g CEC
0.30% Fe_2O_3	0.45% Fe_2O_3
47.4 MWX•____	50.7 MWX•____

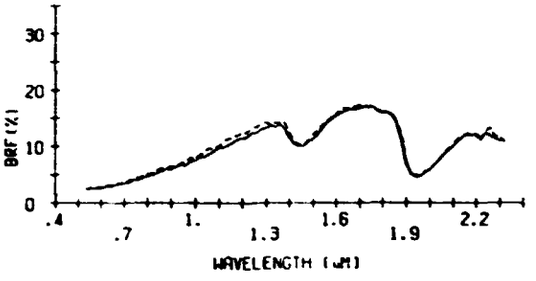


NICOLLET(MN)

Aquic Hapludoll
fine-loamy, mixed, mesic
subhumid zone
calcareous loam till
Martin Co.

Ap horizon	Ap horizon
B slope	B slope
mod. well drained	mod. well drained
loam	loam
46%S 29%Si 25%C	43%S 31%Si 26%C
10YR 2/1 (moist)	10YR 2/1 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
4.13% O.M.	4.14% O.M.
30.2 meq/100g CEC	27.2 meq/100g CEC
0.89% Fe_2O_3	1.09% Fe_2O_3

31.7 MW%•____ 29.8 MW%•----

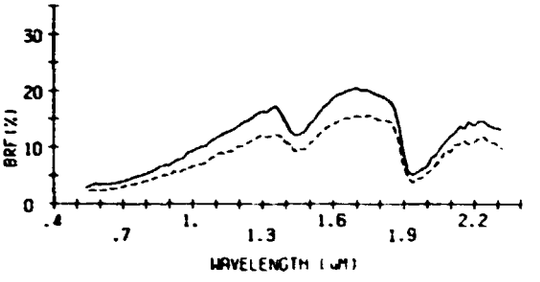


CANISTEO(MN)

Typic Haplaquoll
fine-loamy, mixed, calcareous, mesic
subhumid zone
glacial till
Steele Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
loam	loam
39%S 38%Si 22%C	35%S 38%Si 27%C
7.5YR 2/0 (moist)	7.5YR 2/0 (moist)
10YR 4/1 (dry)	10YR 3/1 (dry)
4.98% O.M.	8.94% O.M.
33.7 meq/100g CEC	42.0 meq/100g CEC
0.30% Fe_2O_3	0.33% Fe_2O_3

36.3 MW%•____ 40.8 MW%•----

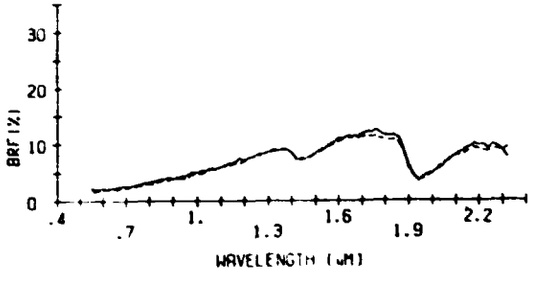


GLENCOE(MN)

Cumulic Haplaquoll
fine-loamy, mixed, mesic
subhumid zone
loamy sediments and till
Steele Co.

Ap horizon	Ap horizon
A slope	A slope
v. poorly drained	v. poorly drained
clay loam	silty clay loam
35%S 37%Si 28%C	15%S 38%Si 37%C
7.5YR 2/0 (moist)	7.5YR 2/0 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
8.41% O.M.	9.93% O.M.
43.5 meq/100g CEC	50.7 meq/100g CEC
0.30% Fe_2O_3	0.59% Fe_2O_3

41.0 MW%•____ 43.7 MW%•----

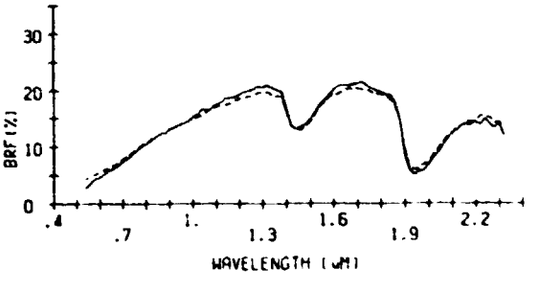


HAYDEN(MN)

Typic Hapludalf
fine-loamy, mixed, mesic
subhumid zone
calcareous loam till
Rice Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
loam	loam
40%S 40%Si 20%C	47%S 43%Si 10%C
10YR 3/2 (moist)	10YR 4/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)
2.16% O.M.	2.02% O.M.
20.0 meq/100g CEC	12.5 meq/100g CEC
0.84% Fe_2O_3	0.67% Fe_2O_3

28.0 MW%•____ 27.1 MW%•----

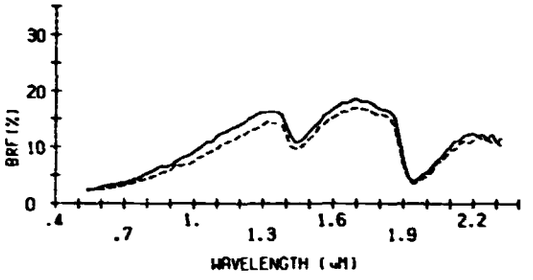


CORDOVA(MN)

Typic Argiaquoll
fine-loamy, mixed, mesic
subhumid zone
calcareous loamy till
Waseca Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
clay loam	clay loam
26%S 41%Si 33%C	34%S 34%Si 32%C
10YR 2/1 (moist)	7.5YR 2/0 (moist)
10YR 4/2 (dry)	10YR 3/1 (dry)
4.37% O.M.	4.32% O.M.
35.8 meq/100g CEC	40.4 meq/100g CEC
0.69% Fe_2O_3	0.49% Fe_2O_3

39.3 MW%•____ 37.1 MW%•----

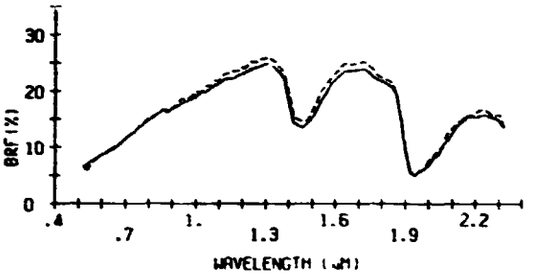


SUSQUEHANNA(MS)

Vertic Paleudalf
fine, montmorillonitic, thermic
humid zone
coastal plain clays
George Co.

____	____
Al horizon	Al horizon
C slope	C slope
s. poorly drained	s. poorly drained
fine sandy loam	silt loam
51%S 42%Si 7%C	39%S 50%Si 11%C
10YR 4/2 (moist)	10YR 4/3 (moist)
10YR 7/2 (dry)	10YR 6/3 (dry)
1.96% O.M.	2.12% O.M.
8.5 meq/100g CEC	11.6 meq/100g CEC
0.73% Fe_2O_3	0.97% Fe_2O_3

29.8 MW%•____ 33.9 MW%•----

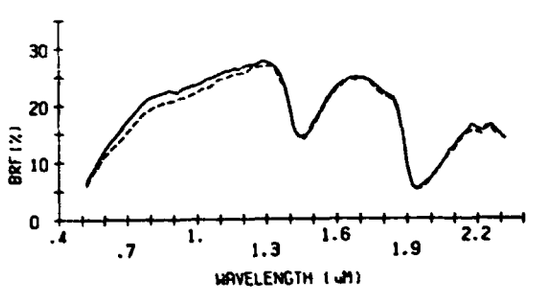


GRENADA(MS)

Glossic Fragiudalf
fine-silty, mixed, thermic
humid zone
loess
Grenada Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
mod. well drained	mod. well drained
silt loam	silt loam
2%S 84%Si 14%C	6%S 80%Si 14%C
10YR 5/6 (moist)	10YR 5/6 (moist)
10YR 6/6 (drv)	10YR 6/6 (dry)
0.60% O.M.	1.55% O.M.
11.3 meq/100g CEC	13.2 meq/100g CEC
1.26% Fe_2O_3	1.44% Fe_2O_3

33.0 MW%•____ 34.6 MW%•----

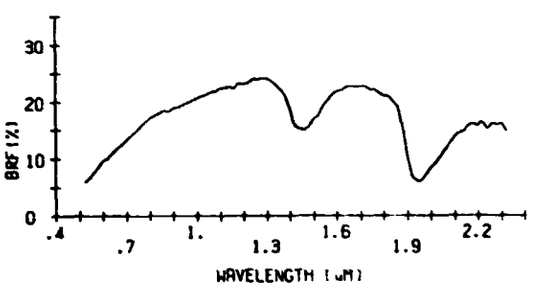


UNION(MO)

Typic Hapludalf
very-fine, mixed, mesic
humid zone
limestone and shale residuum
Moniteau Co.

____
Ap horizon
C slope
well drained
silt loam
1%S 83%Si 16%C
10YR 4/4 (moist)
10YR 6/4 (dry)
1.45% O.M.
12.0 meq/100g CEC
0.98% Fe_2O_3

33.4 MW%•____

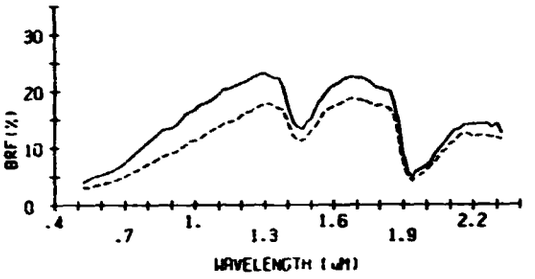


KILWINNING(MO)

Vertic Ochraqualf
fine, montmorillonitic, mesic
humid zone
thick loess over till
Scotland Co.

Ap horizon	Ap horizon
B slope	B slope
s. poorly drained	s. poorly drained
silt loam	silt loam
5%S 70%Si 25%C	12%S 70%Si 21%C
10YR 3/2 (moist)	10YR 3/1 (moist)
10YR 5/2 (dry)	10YR 4/2 (dry)
2.54% O.M.	3.57% O.M.
25.8 meq/100g CEC	31.3 meq/100g CEC
1.63% Fe_2O_3	1.17% Fe_2O_3

39.5 MW%•____ 42.4 MW%•----

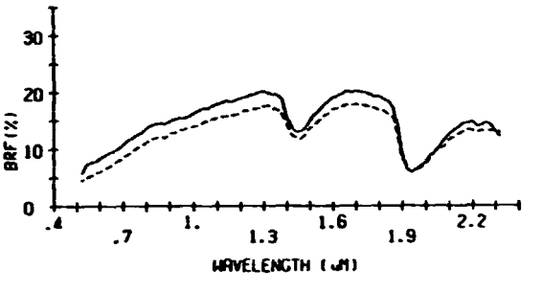


CHINOOK(MT)

Aridic Haploboroll
coarse-loamy, mixed
semiarid zone
fine sandy loam alluvium
Hill Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
v. fine sandy loam	fine sandy loam
52%S 41%Si 6%C	67%S 26%Si 7%C
2.5YR 4/2 (moist)	10YR 3/2 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
1.52% O.M.	2.67% O.M.
14.4 meq/100g CEC	10.3 meq/100g CEC
0.50% Fe_2O_3	0.67% Fe_2O_3

26.6 MW%•____ 25.1 MW%•----

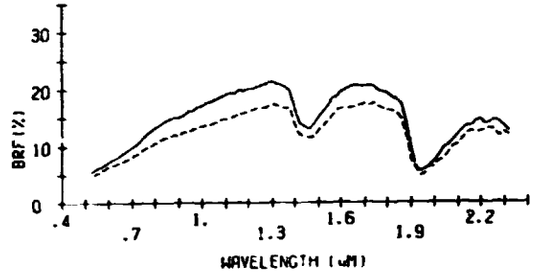


ELLOAM(MT)

Borollic Natrargid
fine, montmorillonitic
semiarid zone
calcareous loam till
Hill Co.

A2 horizon	A2 horizon
B slope	B slope
well drained	well drained
loam	silt loam
28%S 48%Si 24%C	32%S 53%Si 15%C
10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 6/3 (dry)	10YR 5/3 (dry)
4.36% O.M.	3.56% O.M.
22.4 meq/100g CEC	18.4 meq/100g CEC
0.72% Fe_2O_3	0.61% Fe_2O_3

42.2 MW%•____ 37.0 MW%•----

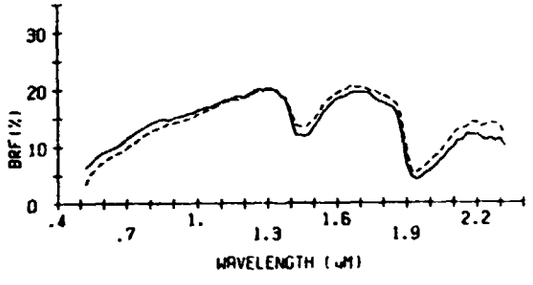


ETHRIDGE(MT)

Aridic Argiboroll
fine, montmorillonitic
semiarid zone
lacustrine sediments
Liberty Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
clay loam	silty clay loam
29%S 34%Si 37%C	16%S 50%Si 34%C
2.5Y 4/2 (moist)	10YR 3/3 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
1.77% O.M.	3.48% O.M.
23.3 meq/100g CEC	28.0 meq/100g CEC
0.46% Fe_2O_3	0.98% Fe_2O_3

36.0 MW%•____ 38.0 MW%•----

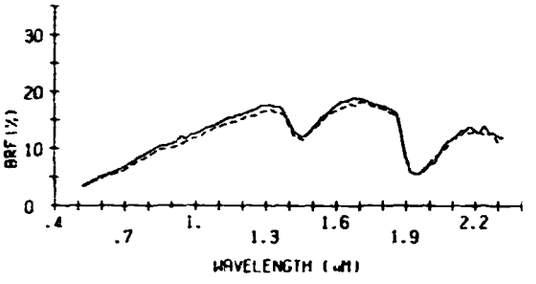


LIHEN(MT)

Entic Haploboroll
sandy, mixed
semiarid zone
wind or water deposited sands
Roosevelt Co.

Ap horizon	Al horizon
A slope	A slope
well drained	well drained
loamy sand	sandy loam
86%S 9%Si 5%C	74%S 16%Si 10%C
10YR 4/2 (moist)	7.5YR 3/2 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
1.25% O.M.	1.45% O.M.
7.2 meq/100g CEC	9.2 meq/100g CEC
0.64% Fe_2O_3	0.80% Fe_2O_3

20.4 MW%·____ 16.0 MW%·----

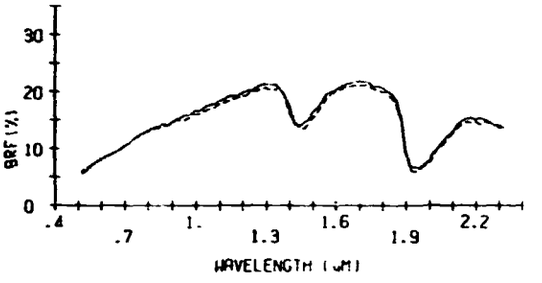


JOPLIN(MT)

Aridic Argiboroll
fine-loamy, mixed
semiarid zone
loamy glacial till
Toole Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	loam
31%S 50%Si 19%C	35%S 46%Si 19%C
10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
1.94% O.M.	2.06% O.M.
18.4 meq/100g CEC	17.7 meq/100g CEC
1.00% Fe_2O_3	1.17% Fe_2O_3

27.8 MW%·____ 28.6 MW%·----

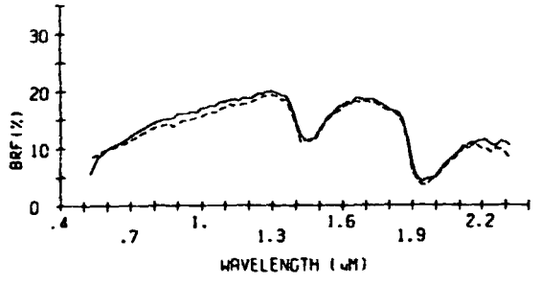


MARIAS(MT)

Ustertic Torriorthent
fine, montmorillonitic, calcareous,
frigid
semiarid zone
clay residuum
Valley Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
clay	clay
14%S 37%Si 49%C	3%S 34%Si 63%C
10YR 5/2 (moist)	2.5Y 4/2 (moist)
2.5Y 6/2 (dry)	2.5Y 5/2 (dry)
2.08% O.M.	1.60% O.M.
40.7 meq/100g CEC	46.3 meq/100g CEC
1.05% Fe_2O_3	0.98% Fe_2O_3

43.4 MW%·____ 43.8 MW%·----

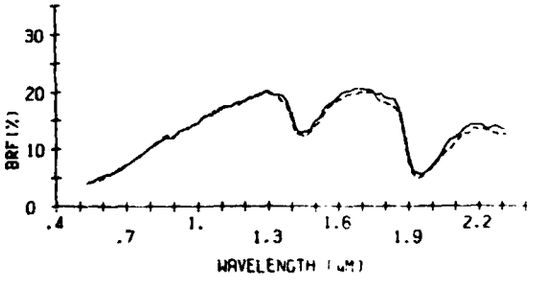


ABSAROKEE(MT)

Typic Argiboroll
fine, montmorillonitic
semiarid zone
calcareous clay loam residuum
Yellowstone Co.

Al horizon	Al horizon
A slope	A slope
well drained	well drained
v. fine sandy loam	silt loam
54%S 33%Si 14%C	26%S 54%Si 20%C
10YR 3/1 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)
5.42% O.M.	5.69% O.M.
15.0 meq/100g CEC	22.3 meq/100g CEC
0.84% Fe_2O_3	0.79% Fe_2O_3

39.2 MW%·____ 49.2 MW%·----

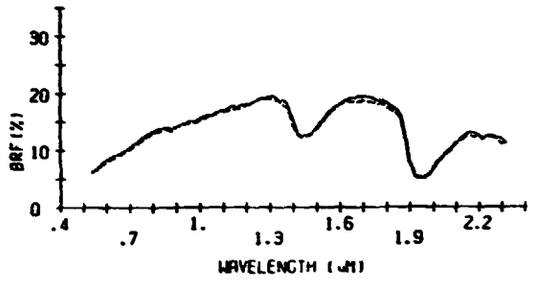


KEISER(MT)

Ustollic Haplargid
fine-silty, mixed, mesic
semiarid zone
calcareous silt loam material
Yellowstone Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	loam
38%S 37%Si 25%C	34%S 42%Si 24%C
10YR 4/3 (moist)	10YR 4/2 (moist)
10YR 4/3 (dry)	10YR 5/3 (dry)
1.14% O.M.	1.23% O.M.
28.0 meq/100g CEC	21.1 meq/100g CEC
0.81% Fe_2O_3	0.89% Fe_2O_3

26.8 MWZ•____ 29.6 MWZ•____

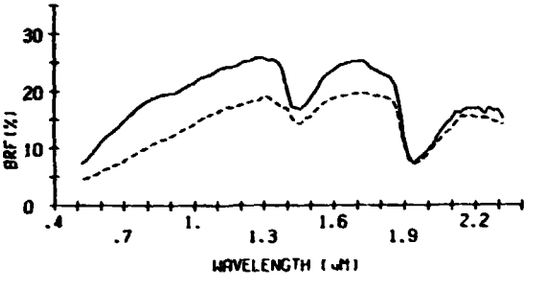


GREENOUGH(MT)

Typic Eutroboralf
fine-silty, mixed
subhumid zone
thin glacial till over bedrock
Missoula Co.

____	____
A2 horizon	A2 horizon
B slope	B slope
well drained	well drained
loamy sand	silty clay
84%S 9%Si 7%C	1%S 52%Si 47%C
10YR 5/4 (moist)	5YR 3/1 (moist)
10YR 6/3 (dry)	10YR 5/1 (dry)
1.13% O.M.	5.37% O.M.
10.1 meq/100g CEC	27.2 meq/100g CEC
1.23% Fe_2O_3	1.16% Fe_2O_3

25.3 MWZ•____ 42.8 MWZ•____

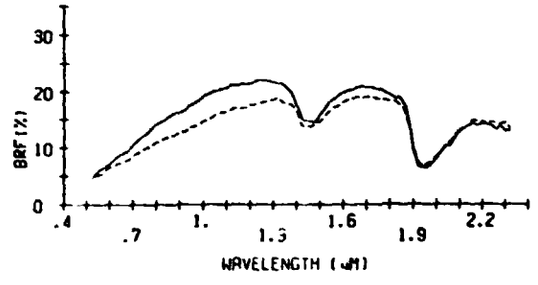


TARKIO(MT)

Typic Eutroboralf
very-fine, mixed
subhumid zone
glacial lake terrace deposits
Missoula Co.

____	____
A2 horizon	A2 horizon
A slope	A slope
well drained	well drained
clay loam	silty clay loam
34%S 33%Si 33%C	2%S 58%Si 39%C
5YR 4/2 (moist)	7.5YR 4/2 (moist)
7.5YR 6/2 (dry)	10YR 6/2 (dry)
3.00% O.M.	4.43% O.M.
20.7 meq/100g CEC	25.7 meq/100g CEC
0.86% Fe_2O_3	1.20% Fe_2O_3

36.6 MWZ•____ 47.7 MWZ•____

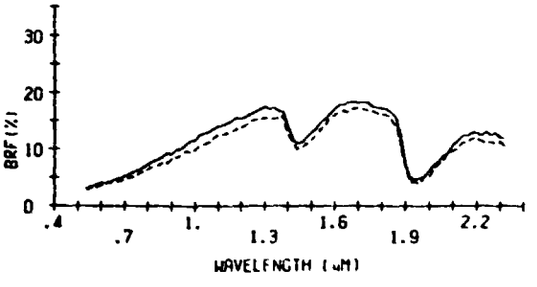


HORD(NE)

Pachic Haplustoll
fine-silty, mixed, mesic
subhumid zone
calcareous silt loam
Buffalo Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
21%S 59%Si 20%C	15%S 64%Si 21%C
10YR 3/1 (moist)	10YR 2/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
2.37% O.M.	2.85% O.M.
23.8 meq/100g CEC	26.4 meq/100g CEC
0.49% Fe_2O_3	0.41% Fe_2O_3

36.2 MWZ•____ 37.9 MWZ•____

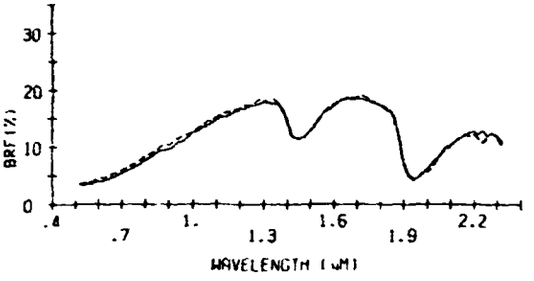


HASTINGS(NE)

Udic Argiustoll
fine, montmorillonitic, mesic
subhumid zone
loess
Clay Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
5%S 74%Si 22%C	10%S 65%Si 25%C
5YR 3/1 (moist)	10YR 2/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
3.05% O.M.	2.58% O.M.
22.1 meq/100g CEC	20.8 meq/100g CEC
0.67% Fe_2O_3	0.55% Fe_2O_3

38.7 MW%•____ 37.0 MW%•----

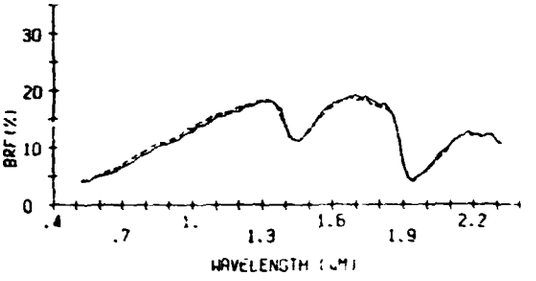


ALLIANCE(NE)

Aridic Argiustoll
fine-silty, mixed, mesic
semiarid zone
loess and calcareous residuum
Dawes Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	loam
38%S 45%Si 17%C	38%S 47%Si 15%C
7.5YR 3/2 (moist)	10YR 3/1 (moist)
10YR 4/2 (dry)	10YR 5/2 (dry)
1.94% O.M.	1.75% O.M.
22.9 meq/100g CEC	19.5 meq/100g CEC
0.35% Fe_2O_3	0.42% Fe_2O_3

30.6 MW%•____ 39.5 MW%•----

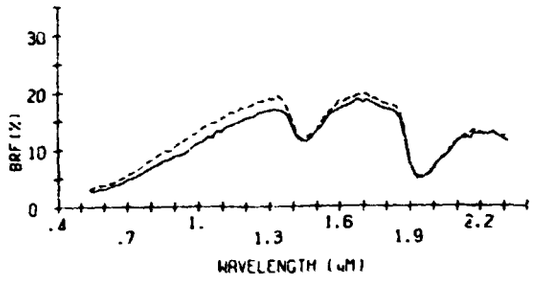


JANSEN(NE)

Typic Argiustoll
fine-loamy over sandy or sandy-
skeletal, mixed, mesic
subhumid zone
loamy alluvium or loess over sand
Holt Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	loam
38%S 34%Si 19%C	44%S 42%Si 14%C
10YR 2/1 (moist)	5YR 3/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
3.31% O.M.	2.12% O.M.
17.8 meq/100g CEC	19.9 meq/100g CEC
0.57% Fe_2O_3	0.46% Fe_2O_3

31.5 MW%•____ 39.9 MW%•----

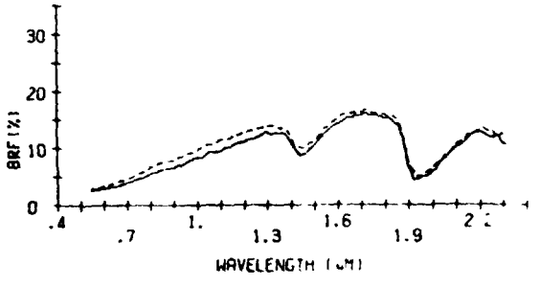


LOUP(NE)

Typic Haplaquoll
sandy, mixed, mesic
subhumid zone
sandy alluvium
Thomas Co.

All horizon	All horizon
A slope	A slope
poorly drained	poorly drained
loamy fine sand	fine sandy loam
78%S 14%Si 8%C	72%S 18%Si 10%C
7.5Y 2/0 (moist)	10YR 2/1 (moist)
10YR 4/1 (dry)	10YR 4/1 (dry)
5.51% O.M.	9.51% O.M.
30.5 meq/100g CEC	35.2 meq/100g CEC
0.07% Fe_2O_3	0.07% Fe_2O_3

31.8 MW%•---- 39.0 MW%•

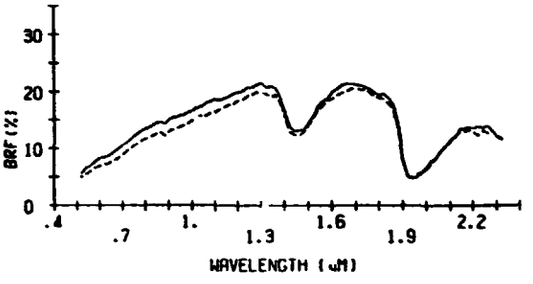


CROFTON(NE)

Typic Ustorthent
fine-silty, mixed, calcareous, mesic
subhumid zone
silty loess
Thurston Co.

———	----
Ap horizon	Ap horizon
D slope	D slope
well drained	well drained
silt loam	silt loam
2%S 71%Si 27%C	4%S 70%Si 26%C
10YR 4/3 (moist)	7.5YR 4/2 (moist)
10YR 5/4 (dry)	10YR 5/3 (dry)
1.98% O.M.	2.75% O.M.
39.2 meq/100g CEC	40.6 meq/100g CEC
1.17% Fe_2O_2	1.01% Fe_2O_3

38.7 MW%•—— 36.8 MW%•----

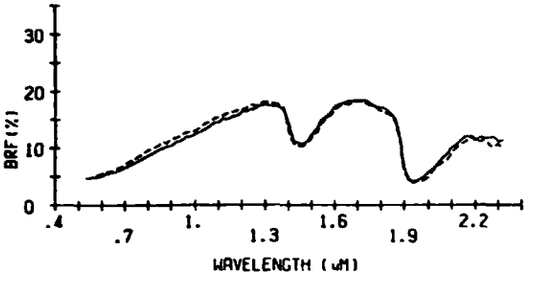


GIBBON(NE)

Fluvaquentic Haplaquoll
fine-silty, mixed, calcareous, mesic
subhumid zone
calcareous alluvium
Webster Co.

———	----
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silty clay loam	silty clay loam
12%S 55%Si 33%C	7%S 65%Si 28%C
10YR 3/1 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
2.73% O.M.	3.00% O.M.
42.2 meq/100g CEC	32.5 meq/100g CEC
0.41% Fe_2O_3	0.54% Fe_2O_3

46.4 MW%•—— 43.2 MW%•----

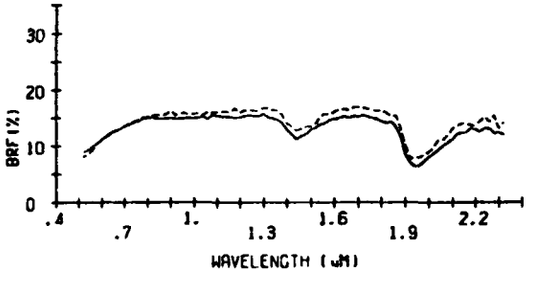


APPIAN(NV)

Typic Natrargid
fine-loamy over sandy or sandy-
skeletal, mixed, mesic
arid zone
loamy alluvium over lacustrine sands
Churchill Co.

———	----
A11-A12 horizon	A11-A12 horizon
A slope	A slope
well drained	well drained
sandy loam	loamy sand
76%S 18%Si 7%C	35%S 9%Si 5%C
10YR 5/2 (moist)	10YR 4/2 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
0.13% O.M.	0.0% O.M.
8.5 meq/100g CEC	10.5 meq/100g CEC
0.34% Fe_2O_3	0.26% Fe_2O_3

16.1 MW%•—— 9.3 MW%•----

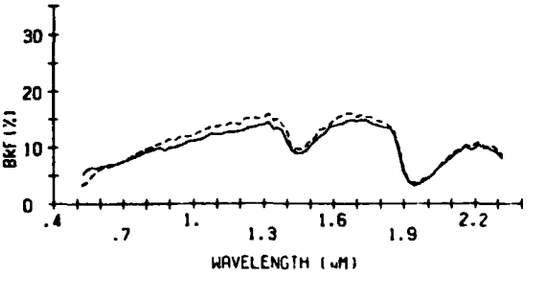


CARSON(NV)

Vertic Haplaquoll
very-fine, montmorillonitic, mesic
arid zone
clayey mixed alluvium
Churchill Co.

———	----
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
clay	clay
10%S 24%Si 65%C	15%S 27%Si 58%C
10YR 4/1 (moist)	10YR 4/1 (moist)
10YR 5/1 (dry)	10YR 4/1 (dry)
1.93% O.M.	1.88% O.M.
54.4 meq/100g CEC	52.1 meq/100g CEC
0.48% Fe_2O_3	0.43% Fe_2O_3

56.7 MW%•—— 51.6 MW%•----

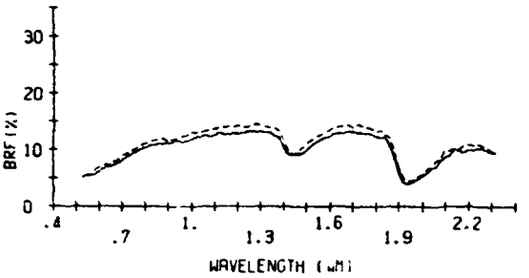


DIA(NV)

Fluvaquentic Haploxeroll
fine-loamy over sandy-skeletal, mixed, mesic
arid zone
loamy over sandy alluvium
Churchill Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
loam	fine sandy loam
50%S 32%Si 18%C	59%S 24%Si 16%C
10YR 4/2 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/3 (dry)
2.16% O.M.	1.18% O.M.
23.1 meq/100g CEC	26.7 meq/100g CEC
0.67% Fe_2O_3	0.51% Fe_2O_3

30.9 MW%·____ 29.2 MW%·----

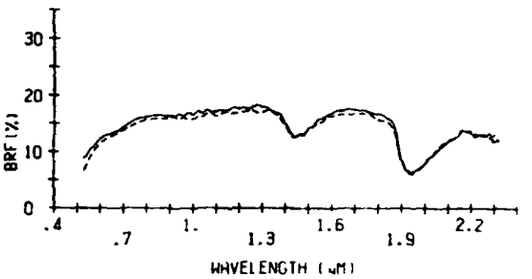


PIROUETTE(NV)

Typic Nadurargid
loamy-skeletal, mixed, mesic
arid zone
residuum from tuffs and basalts
Churchill Co.

____	----
A1 horizon	A1 horizon
B slope	B slope
well drained	well drained
loam	fine sandy loam
49%S 35%Si 15%C	65%S 26%Si 9%C
10YR 4/2 (moist)	10YR 5/3 (moist)
10YR 7/2 (dry)	10YR 7/2 (dry)
0.90% O.M.	0.64% O.M.
32.4 meq/100g CEC	30.4 meq/100g CEC
0.49% Fe_2O_3	0.42% Fe_2O_3

21.2 MW%·____ 3.1 MW%·----

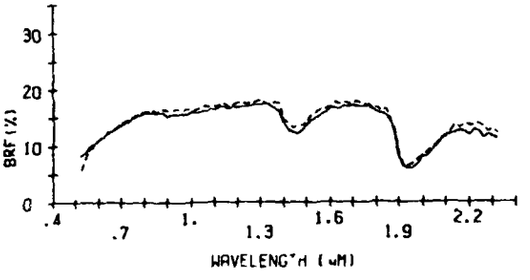


BLACKHAWK(NV)

Entic Durorthid
loamy, mixed, mesic, shallow
arid zone
loess over mixed alluvium
Pershing Co.

____	----
A1 horizon	A1 horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
33%S 58%Si 9%C	31%S 59%Si 10%C
10YR 5/4 (moist)	10YR 4/2 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
0.74% O.M.	0.40% O.M.
17.3 meq/100g CEC	20.0 meq/100g CEC
0.44% Fe_2O_3	0.51% Fe_2O_3

26.8 MW%·____ 26.2 MW%·----

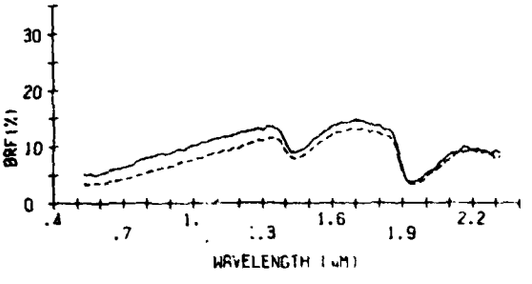


HUMBOLDT(NV)

Fluvaquentic Haplaquoll
fine, montmorillonitic, calcareous, mesic
arid zone
silty mixed alluvium wit' volcanic ash
Pershing Co.

___	----
Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silty clay	clay
3%S 47%Si 50%C	6%S 38%Si 56%C
10YR 3/1 (moist)	10YR 3/1 (moist)
10YR 5/1 (dry)	10YR 4/1 (dry)
4.48% O.M.	4.83% O.M.
47.8 meq/100g CEC	72.4 meq/100g CEC
0.25% Fe_2O_3	0.26% Fe_2O_3

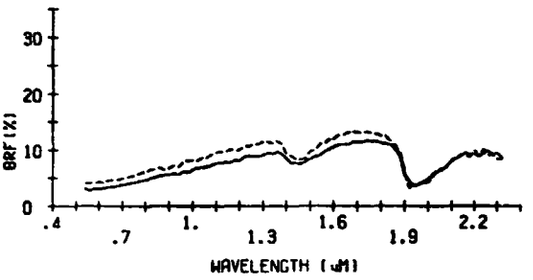
56.0 MW%·____ 66.0 MW%·----



LOVELOCK(NV)

Aquic Natrixeroll
fine, montmorillonitic, calcareous, mesic
arid zone
calcareous loamy alluvium
Pershing Co.

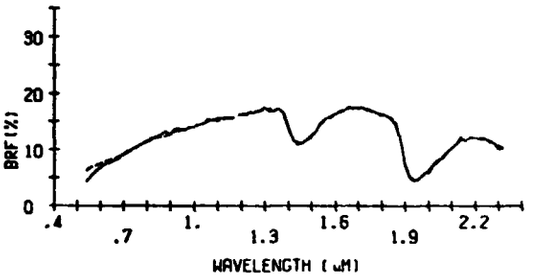
Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silty clay	silty clay
12%S 42%Si 46%C	14%S 42%Si 44%C
10YR 2/1 (moist)	10YR 3/1 (moist)
10YR 4/1 (dry)	10YR 5/1 (dry)
7.91% O.M.	6.96% O.M.
88.0 meq/100g CEC	72.9 meq/100g CEC
0.30% Fe_2O_3	0.25% Fe_2O_3
86.6 MW%·____	71.1 MW%·____



PLACERITOS(NV)

Aquic Xerofluvent
fine-silty, mixed, calcareous, mesic
arid zone
mixed alluvium
Pershing Co.

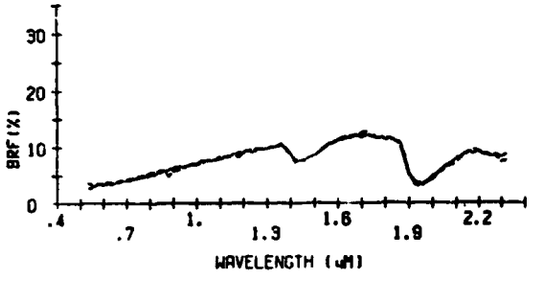
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silt loam	sandy clay loam
26%S 54%Si 20%C	49%S 27%Si 24%C
10YR 4/2 (moist)	10YR 4/1 (moist)
10YR 6/2 (dry)	10YR 6/2 (dry)
1.36% O.M.	1.13% O.M.
34.9 meq/100g CEC	28.9 meq/100g CEC
0.22% Fe_2O_3	0.19% Fe_2O_3
37.6 MW%·____	32.4 MW%·____



RYEPATCH(NV)

Vertic Haplaquoll
very-fine, montmorillonitic, calcareous, mesic
arid zone
calcareous mixed alluvium
Pershing Co.

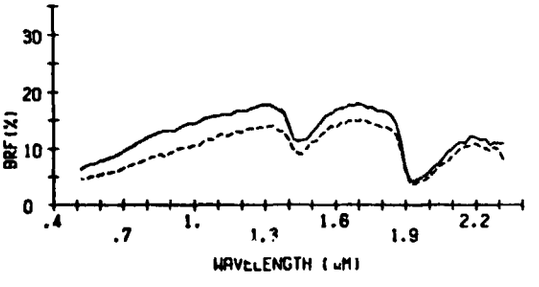
Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
clay	silty clay
7%S 31%Si 62%C	3%S 45%Si 52%C
10YR 3/1 (moist)	7.5YR 3/0 (moist)
10YR 5/1 (dry)	10YR 5/1 (dry)
4.99% O.M.	6.40% O.M.
77.3 meq/100g CEC	66.2 meq/100g CEC
0.27% Fe_2O_3	0.26% Fe_2O_3
59.9 MW%·____	58.6 MW%·____



SONOMA(NV)

Aeric Fluvaquent
fine-silty, mixed, calcareous
arid zone
calcareous mixed alluvium
Pershing Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
clay loam	silty clay
20%S 43%Si 36%C	9%S 46%Si 45%C
10YR 4/1 (moist)	10YR 4/1 (moist)
10YR 6/1 (dry)	10YR 5/1 (dry)
2.80% O.M.	2.70% O.M.
44.9 meq/100g CEC	53.9 meq/100g CEC
0.23% Fe_2O_3	0.26% Fe_2O_3
42.0 MW%·____	52.8 MW%·____

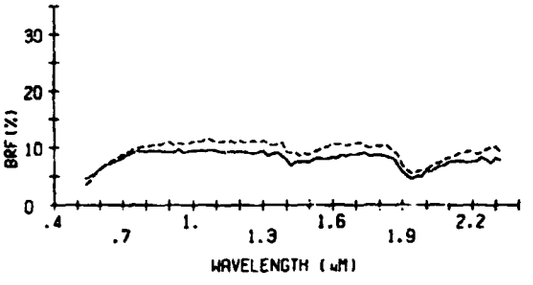


INDIAN CREEK(NV)

Xerollic Durargid
clayey, montmorillonitic, mesic,
shallow
semiarid zone
mixed alluvium
Douglass Co.

———	----
A11-A12 horizon	A11-A12 horizon
B slope	B slope
well drained	well drained
loam	sandy loam
27%S 46%Si 26%C	55%S 38%Si 7%C
7.5YR 3/2 (moist)	5YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)
2.45% O.M.	0.87% O.M.
20.3 meq/100g CEC	8.9 meq/100g CEC
1.37% Fe_2O_3	1.19% Fe_2O_3

33.6 MW%·—— 18.8 MW%·----

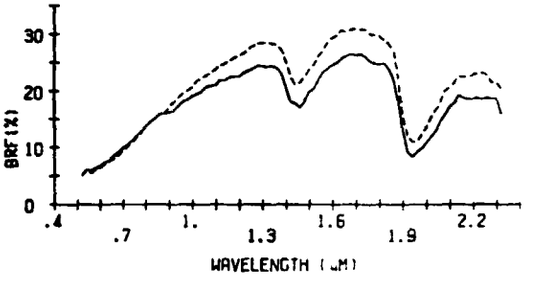


MOTTSVILLE(NV)

Torripsammentic Haploxeroll
sandy, mixed, mesic
semiarid zone
sandy alluvium from granitic sources
Douglass Co.

———	----
All horizon	All horizon
C slope	C slope
excessively drained	excessively drained
coarse sand	coarse sand
90%S 8%Si 2%C	89%S 10%Si 1%C
10YR 4/2 (moist)	10YR 4/1 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
1.59% O.M.	2.87% O.M.
6.6 meq/100g CEC	6.5 meq/100g CEC
0.37% Fe_2O_3	0.32% Fe_2O_3

12.1 MW%·—— 10.0 MW%·----

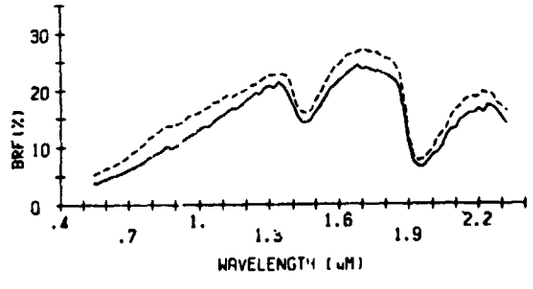


OPHIR(NV)

Typic Haplaquoll
sandy, mixed, mesic
semiarid zone
mixed alluvium
Douglass Co.

———	- --
A1p-A12 horizon	A1p-A12 horizon
B slope	B slope
poorly drained	poorly drained
sand	loamy coarse sand
89%S 8%Si 3%C	83%S 14%Si 4%C
7.5YR 3/0 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 5/3 (dry)
3.72% O.M.	1.33% O.M.
11.9 meq/100g CEC	9.7 meq/100g CEC
0.34% Fe_2O_3	0.74% Fe_2O_3

21.6 MW%·—— 17.0 MW%·----

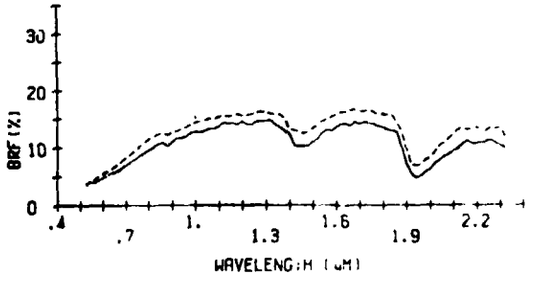


ORMSBY(NV)

Aquic Durorthidic Xeropsamment
mixed, mesic
semiarid zone
mixed sandy alluvium
Douglass Co.

———	----
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
sandy loam	loamy sand
66%S 28%Si 6%C	82%S 13%Si 5%C
5YR 2.5/2 (moist)	10YR 3/3 (moist)
10YR 5/2 (dry)	10YR 4/2 (dry)
2.25% O.M.	0.65% O.M.
11.6 meq/100g CEC	7.7 meq/100g CEC
0.77% Fe_2O_3	0.67% Fe_2O_3

20.4 MW%·—— 9.5 MW%·----

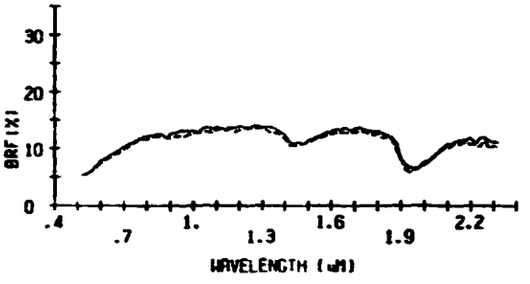


RENO(NV)

Abruptic Xerollic Durargid
fine, montmorillonitic, mesic
semiarid zone
mixed pediesediments and
fluvial sediments
Douglass Co.

____	____
A1-A2 horizon	A1-A2 horizon
B slope	B slope
well drained	well drained
sandy loam	sandy loam
75%S 19%Si 6%C	70%S 24%Si 7%C
7.5YR 4/2 (moist)	10YR 3/3 (moist)
10YR 6/2 (dry)	10YR 6/3 (dry)
0.54% O.M.	1.26% O.M.
9.1 meq/100g CEC	10.4 meq/100g CEC
1.08% Fe_2O_3	1.41% Fe_2O_3

15.9 MWZ•____ 20.7 MWZ•----

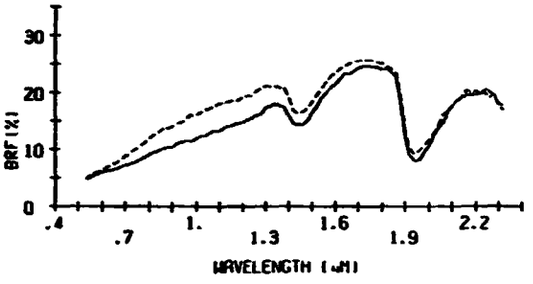


TOIYABE(NV)

Typic Xeropsamment
mixed, frigid, shallow
subhumid zone
residuum from granite and granodiorite
Douglass Co.

____	____
A1 horizon	A1 horizon
E slope	E slope
excessively drained	excessively drained
loamy sand	loamy coarse sand
76%S 21%Si 3%C	82%S 16%Si 2%C
10YR 3/1 (moist)	10YR 3/2 (moist)
10YR 5/1 (dry)	10YR 4/2 (dry)
1.57% O.M.	2.85% O.M.
10.7 meq/100g CEC	7.3 meq/100g CEC
0.26% Fe_2O_3	0.22% Fe_2O_3

13.4 MWZ•____ 13.2 MWZ•----

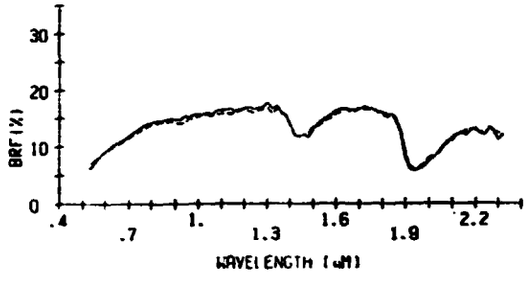


TURRIA(NV)

Xerollic Haplargid
fine-loamy, mixed, mesic
semiarid zone
mixed alluvium
Douglass Co.

____	____
A1 horizon	A1 horizon
A slope	A slope
well drained	well drained
fine sandy loam	v. fine sandy loam
59%S 26%Si 15%C	56%S 30%Si 14%C
10YR 5/3 (moist)	10YR 5/3 (moist)
10YR 6/3 (dry)	10YR 7/2 (dry)
0.52% O.M.	0.42% O.M.
13.7 meq/100g CEC	12.6 meq/100g CEC
0.75% Fe_2O_3	0.79% Fe_2O_3

25.2 MWZ•____ 23.5 MWZ•----

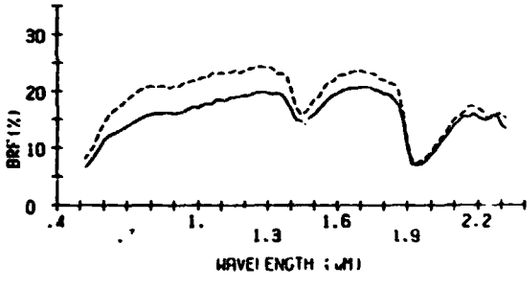


BITTER SPRING(NV)

Typic Haplargid
loamy-skeletal, mixed, thermic
arid zone
mixed alluvium
Clark Co.

____	____
A1 horizon	A1 horizon
A slope	A slope
well drained	well drained
fine sandy loam	loam
57%S 37%Si 5%C	29%S 48%Si 23%C
7.5YR 4/4 (moist)	7.5YR 4/6 (moist)
7.5YR 6/4 (dry)	7.5YR 6/4 (dry)
0.44% O.M.	0.10% O.M.
15.9 meq/100g CEC	27.4 meq/100g CEC
0.72% Fe_2O_3	0.97% Fe_2O_3

17.4 MWZ•____ 19.6 MWZ•----

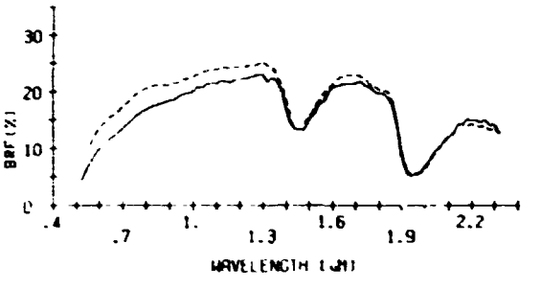


CALICO(NV)

Aquic Xerofluvent
coarse-loamy over clayey, mixed,
calcareous, thermic
arid zone
alluvium
Clark Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
v. fine sandy loam	fine sandy loam
54%S 34%Si 12%C	54%S 32%Si 14%C
7.5YR 4/2 (moist)	10YR 5/3 (moist)
10YR 6/3 (dry)	7.5YR 6/4 (dry)
1.10% O.M.	1.25% O.M.
25.0 meq/100g CEC	169.0 meq/100g CEC
0.55% Fe_2O_3	0.39% Fe_2O_3

31.9 MW% ___ 31.8 MW% ----

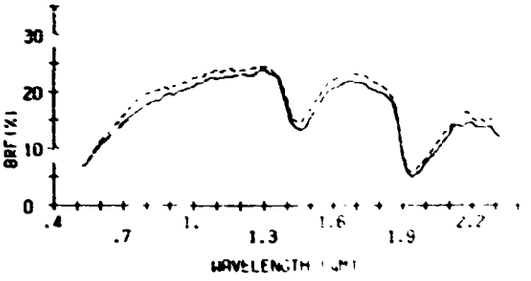


LAND(NV)

Typic Salorthid
fine-loamy, gypsic, thermic
arid zone
alluvium
Clark Co.

Al horizon	Al horizon
A slope	A slope
mod. well drained	mod. well drained
fine sandy loam	loam
66%S 20%Si 15%C	42%S 36%Si 22%C
10YR 7/3 (moist)	7.5YR 4/2 (moist)
7.5YR 7/4 (dry)	7.5YR 7/4 (dry)
1.21% O.M.	0.40% O.M.
99.2 meq/100g CEC	55.6 meq/100g CEC
0.46% Fe_2O_3	0.56% Fe_2O_3

27.4 MW% ___ 29.3 MW% ----

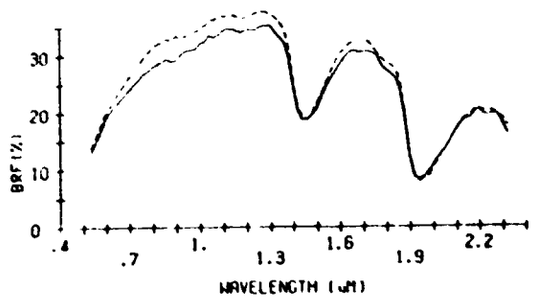


MC CARRAN(NV)

Typic Salorthid
coarse-loamy, gypsic, thermic
arid zone
gypsiferous, calcareous valley fill
Clark Co.

A11-A12 horizon	A11-A12 horizon
B slope	B slope
mod. well drained	mod. well drained
fine sand	fine sand
93%S 5%Si 2%C	91%S 6%Si 3%C
10YR 6/4 (moist)	7.5YR 5/4 (moist)
7.5YR 7/4 (dry)	7.5YR 7/4 (dry)
0.16% O.M.	0.30% O.M.
12.9 meq/100g CEC	30.1 meq/100g CEC
0.10% Fe_2O_3	0.09% Fe_2O_3

14.4 MW% ___ 17.8 MW% ----

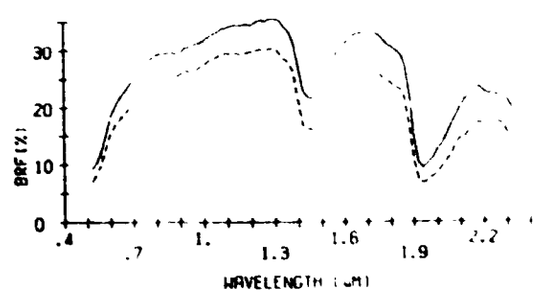


MORMAN MESA(NV)

Typic Paleorthid
loamy, carbonatic, thermic, shallow
arid zone
limestone valley fill
Clark Co.

Al horizon	Al horizon
A slope	A slope
well drained	well drained
loamy fine sand	loam fine sand
87%S 9%Si 4%C	84%S 10%Si 6%C
7.5YR 4/6 (moist)	5YR 5/8 (moist)
7.5YR 7/6 (dry)	7.5YR 7/6 (dry)
0.23% O.M.	0.08% O.M.
18.2 meq/100g CEC	15.9 meq/100g CEC
0.32% Fe_2O_3	0.32% Fe_2O_3

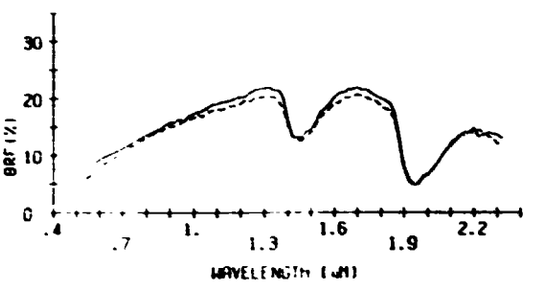
12.1 MW% ___ 17.4 MW% ----



OVERTON(NV)

Aeric Haplaquept
fine, montmorillonitic, calcareous, thermic
arid zone
clayey alluvium
Clark Co.

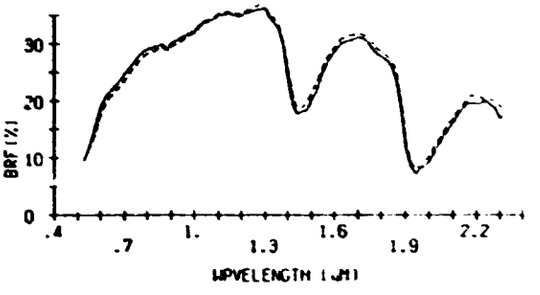
Ap horizon	Ap horizon
A slope	A slope
v. poorly drained	v. poorly drained
silty clay	loam
10%S 43%Si 47%C	33%S 48%Si 19%C
10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 6/2 (dry)	10YR 6/3 (dry)
2.58% O.M.	2.21% O.M.
51.0 meq/100g CEC	34.4 meq/100g CEC
0.66% Fe_2O_3	0.52% Fe_2O_3
45.9 MWP ____	38.5 MWP ----



TOQUOP(NV)

Typic Torripsamment
mixed, thermic
arid zone
deep sandy alluvium
Clark Co.

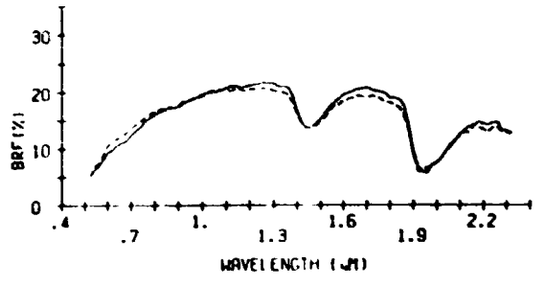
Al horizon	Al horizon
A slope	A slope
excessively drained	excessively drained
fine sand	fine sand
92%S 5%Si 3%C	94%S 3%Si 3%C
5YR 6/6 (moist)	7.5YR 5/6 (moist)
7.5YR 7/6 (dry)	7.5YR 7/6 (dry)
0.0% O.M.	0.23% O.M.
9.0 meq/100g CEC	4.9 meq/100g CEC
0.20% Fe_2O_3	0.36% Fe_2O_3
11.9 MWP ____	14.5 MWP ----



VIRGIN RIVER(NV)

Aquic Xerorthent
fine, mixed, calcareous, thermic
arid zone
clayey alluvium
Clark Co.

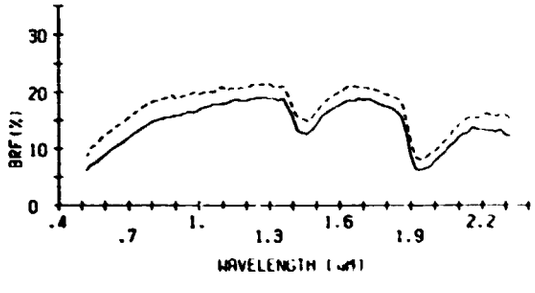
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silty clay loam	silty clay
19%S 54%Si 28%C	8%S 49%Si 43%C
7.5YR 4/6 (moist)	5YR 3/4 (moist)
7.5YR 5/4 (dry)	7.5YR 6/4 (dry)
4.04% O.M.	2.16% O.M.
31.1 meq/100g CEC	35.8 meq/100g CEC
1.19% Fe_2O_3	1.50% Fe_2O_3
36.6 MWP ____	36.8 MWP ----



CORTEZ(NV)

Xerollic Nadurargid
fine, montmorillonitic, mesic
arid zone
thin loess high in volcanic ash over alluvium

Eureka Co.	Elko Co.
A11-A12 horizon	A11-A12 horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
17%S 72%Si 11%C	18%S 74%Si 9%C
10YR 4/2 (moist)	10YR 5/3 (moist)
10YR 6/3 (dry)	10YR 7/3 (dry)
1.24% O.M.	1.08% O.M.
14.6 meq/100g CEC	14.4 meq/100g CEC
0.74% Fe_2O_3	0.70% Fe_2O_3
35.4 MWP ____	31.1 MWP ----

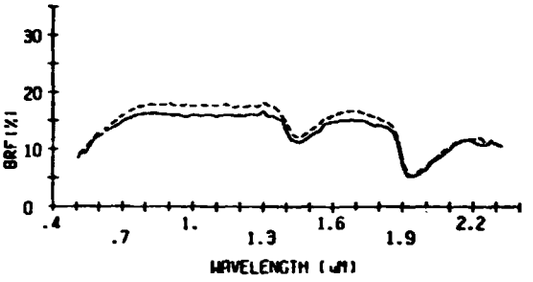


BLOOR(NV)

Typic Natrargid
fine-loamy, micaceous, mesic
arid zone
lacustrine sediments
Humboldt Co.

A2 horizon	A2 horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
22%S 65%Si 13%C	19%S 63%Si 18%C
10YR 5/3 (moist)	10YR 6/3 (moist)
10YR 7/2 (dry)	10YR 7/2 (dry)
0.81% O.M.	1.95% O.M.
30.5 meq/100g CEC	32.8 meq/100g CEC
0.33% Fe_2O_3	0.29% Fe_2O_3

35.6 MWZ•____ 35.3 MWZ•----

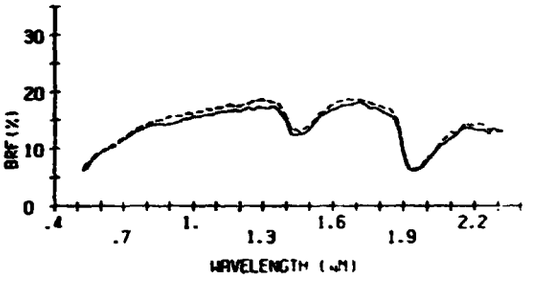


NINCH(NV)

Xeric Torrifluvent
sandy, mixed, mesic
arid zone
sandy eolian materials
Humboldt Co.

A1 horizon	A1 horizon
C slope	C slope
s. excess. drained	s. excess. drained
fine sand	loamy fine sand
90%S 5%Si 5%C	86%S 7%Si 6%C
10YR 4/3 (moist)	10YR 4/3 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
0.45% O.M.	0.34% O.M.
9.2 meq/100g CEC	11.1 meq/100g CEC
0.26% Fe_2O_3	0.20% Fe_2O_3

19.3 MWZ•____ 16.6 MWZ•----

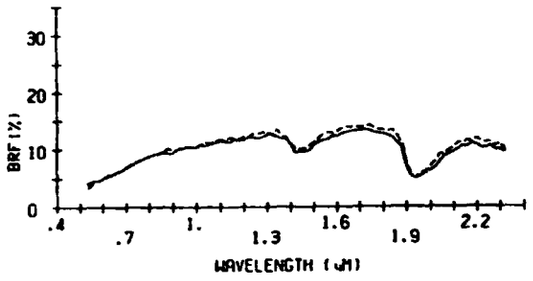


RIO KING(NV)

Entic Haplustoll
coarse-loamy, micaceous, mesic
semiarid zone
alluvium from granite, rhyolite, basalt
Humboldt Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
sandy loam	sandy loam
52%S 38%Si 9%C	61%S 29%Si 10%C
10YR 3/2 (moist)	10YR 3/1 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)
0.90% O.M.	1.05% O.M.
19.5 meq/100g CEC	18.8 meq/100g CEC
0.95% Fe_2O_3	1.00% Fe_2O_3

18.6 MWZ•____ 18.2 MWZ•----

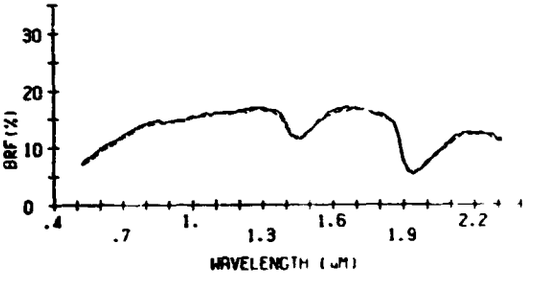


VALMY(NV)

Durorthidic Torriorthent
coarse-loamy, mixed, calcareous, mesic
arid zone
thin loess over loamy alluvium
Humboldt Co.

A1 horizon	A1 horizon
A slope	A slope
well drained	well drained
sandy loam	fine sandy loam
46%S 48%Si 6%C	54%S 40%Si 6%C
10YR 4/3 (moist)	10YR 4/3 (moist)
10YR 7/2 (dry)	10YR 7/2 (dry)
0.53% O.M.	0.87% O.M.
16.2 meq/100g CEC	14.6 meq/100g CEC
0.36% Fe_2O_3	0.36% Fe_2O_3

29.2 MWZ•____ 28.5 MWZ•----

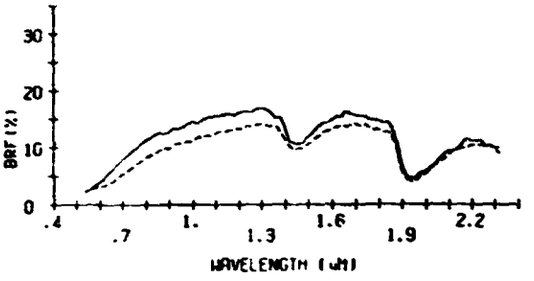


ACTON(NH)

Entic Haplorthod
coarse-loamy, mixed, mesic
humid zone
sandy granitic till
Hillsboro Co.

Ap horizon	Ap horizon
B slope	B slope
mod. well drained	mod. well drained
sandy loam	fine sandy loam
70%S 25%Si 5%C	59%S 36%Si 5%C
10YR 2/2 (moist)	10YR 2/2 (moist)
10YR 3/3 (dry)	10YR 4/3 (dry)
8.30% O.M.	14.98% O.M.
30.6 meq/100g CEC	37.9 meq/100g CEC
0.97% Fe_2O_3	1.00% Fe_2O_3

42.6 MW%•____ 61.8 MW%•----

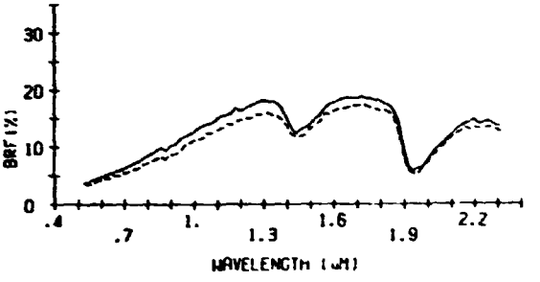


FORTWINGATE(NM)

Typic Eutroboralf
fine, montmorillonitic, frigid
semiarid zone
residuum from sandstone
McKinley Co.

Al horizon	Al horizon
B slope	B slope
well drained	well drained
loam	silt loam
46%S 40%Si 14%C	25%S 56%Si 20%C
10YR 3/1 (moist)	5YR 2.5/2 (moist)
10YR 4/2 (dry)	7.5YR 4/2 (dry)
2.93% O.M.	3.14% O.M.
15.6 meq/100g CEC	33.9 meq/100g CEC
0.70% Fe_2O_3	1.03% Fe_2O_3

33.1 MW%•____ 35.1 MW%•----

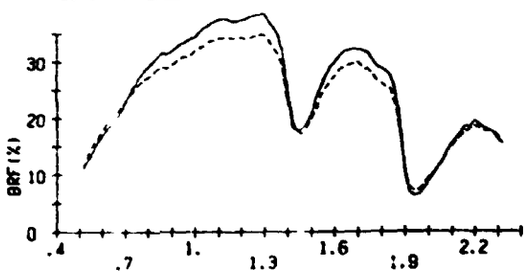


JAL(NM)

Typic Calciorthid
fine-loamy, carbonatic, thermic
semiarid zone
alluvial or lacustrine fine
textured material
Lea Co.

All horizon	All horizon
A slope	A slope
well drained	well drained
fine sandy loam	loamy fine sand
68%S 18%Si 13%C	81%S 10%Si 9%C
10YR 5/3 (moist)	10YR 5/3 (moist)
10YR 7/3 (dry)	7.5YR 7/2 (dry)
1.02% O.M.	0.59% O.M.
25.1 meq/100g CEC	17.1 meq/100g CEC
0.06% Fe_2O_3	0.03% Fe_2O_3

28.0 MW%•____ 17.0 MW%•----

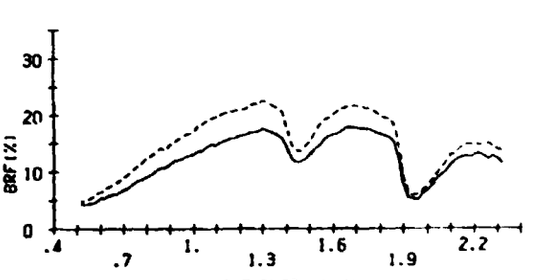


KIMBROUGH(NM)

Petrocalcic Calciustoll
loamy, mixed, thermic, shallow
semiarid zone
coarse textured material over an
indurated layer
Lea Co.

Al horizon	Al horizon
A slope	A slope
well drained	well drained
fine sandy loam	fine sandy loam
56%S 25%Si 19%C	62%S 25%Si 13%C
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 5/3 (dry)
3.14% O.M.	3.28% O.M.
29.4 meq/100g CEC	26.7 meq/100g CEC
0.46% Fe_2O_3	0.32% Fe_2O_3

32.3 MW%•____ 34.4 MW%•----

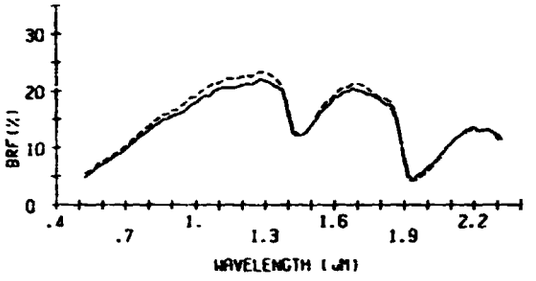


PORTALES(NM)

Aridic Calciustoll
fine-loamy, mixed thermic
semiarid zone
mixed sediments
Roosevelt Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
fine sandy loam	sandy clay loam
69%S 16%Si 14%C	55%S 23%Si 22%C
7.5YR 3/2 (moist)	7.5YR 4/2 (moist)
7.5YR 4/2 (dry)	10YR 5/3 (dry)
0.74% O.M.	0.93% O.M.
24.9 meq/100g CEC	29.7 meq/100g CEC
0.33% Fe_2O_3	0.32% Fe_2O_3

28.2 MW%·___ 35.0 MW%·____

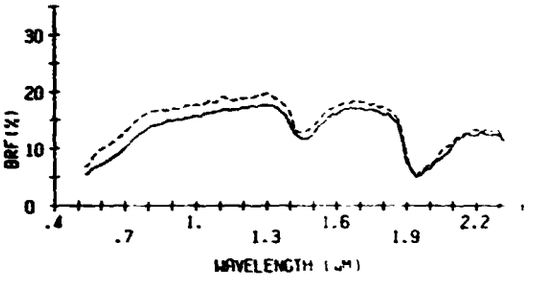


NORWICH(NY)

Typic Fragiaquept
fine-loamy, mixed, mesic
humid zone
glacial till
Chenango Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silt loam	silt loam
27%S 59%Si 14%C	22%S 61%Si 18%C
10YR 4/2 (moist)	10YR 3/3 (moist)
10YR 6/2 (dry)	10YR 6/3 (dry)
5.41% O.M.	4.90% O.M.
13.1 meq/100g CEC	15.9 meq/100g CEC
1.03% Fe_2O_3	1.48% Fe_2O_3

49.0 MW%·___ 50.1 MW%·____

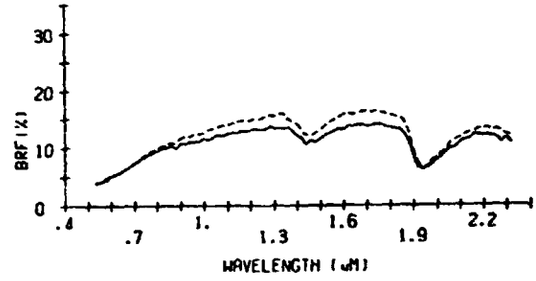


ADAMS(NY)

Typic Haplorthod
sandy, mixed, frigid
humid zone
outwash sand
Lewis Co.

A2 horizon	A2 horizon
A slope	A slope
excessively drained	excessively drained
sand	loamy sand
90%S 9%Si 1%C	86%S 13%Si 2%C
10YR 3/3 (moist)	7.5YR 3/2 (moist)
10YR 4/3 (dry)	10YR 4/3 (dry)
2.20% O.M.	2.88% O.M.
10.3 meq/100g CEC	13.7 meq/100g CEC
0.54% Fe_2O_3	0.53% Fe_2O_3

11.3 MW%·___ 17.1 MW%·____

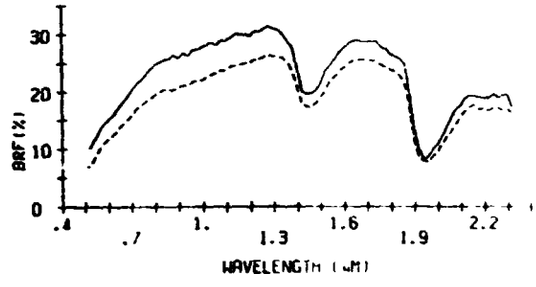


APPLING(NC)

Typic Hapludult
clayey, kaolinitic, thermic
humid zone
residuum from acid igneous rocks
Alamance Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
sandy loam	coarse sandy loam
52%S 42%Si 7%C	68%S 23%Si 9%C
2.5Y 5/4 (moist)	2.5Y 5/4 (moist)
10YR 7/3 (dry)	10YR 7/4 (dry)
0.86% O.M.	0.87% O.M.
2.6 meq/100g CEC	4.6 meq/100g CEC
0.39% Fe_2O_3	0.35% Fe_2O_3

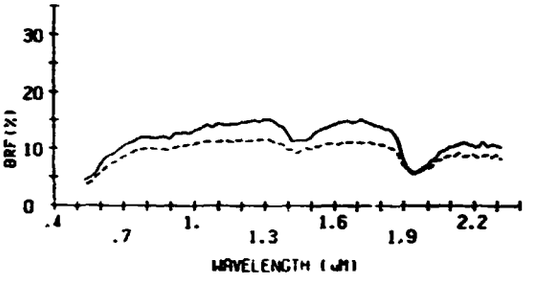
11.1 MW%·___ 15.3 MW%·



MECKLENBURG(NC)

Ultic Hapludalf
fine, mixed, thermic
humid zone
moderately fine basic rock residuum
Cabarrus Co.

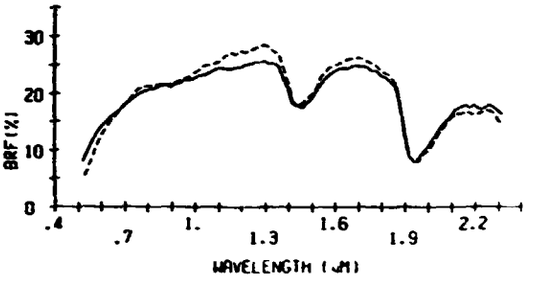
Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
clay loam	fine sandy loam
36%S 34%Si 30%C	53%S 27%Si 20%C
5YR 3/4 (moist)	5YR 3/3 (moist)
7.5YR 4/4 (dry)	7.5YR 4/4 (dry)
2.71% O.M.	1.11% O.M.
14.3 meq/100g CEC	13.4 meq/100g CEC
3.92% Fe_2O_3	5.27% Fe_2O_3
28.2 MWZ•___	19.9 MWZ•----



CECIL(NC)

Typic Hapludult
clayey, kaolinitic, thermic
humid zone
acid igneous and metamorphic rocks
Catawba Co.

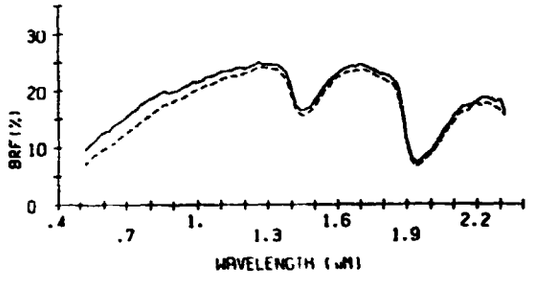
Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
sandy loam	loam
70%S 23%Si 7%C	51%S 28%Si 21%C
10YR 5/4 (moist)	10YR 4/6 (moist)
10YR 6/4 (dry)	7.5YR 6/6 (dry)
2.12% O.M.	2.24% O.M.
8.8 meq/100g CEC	10.0 meq/100g CEC
0.64% Fe_2O_3	2.64% Fe_2O_3
15.9 MWZ•___	11.2 MWZ•----



CRAVEN(NC)

Aquic Hapludult
clayey, mixed, thermic
humid zone
clayey coastal plain sediments
Craven Co.

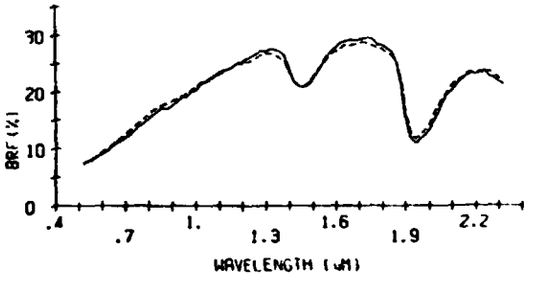
Ap horizon	Ap horizon
A slope	A slope
mod. well drained	mod. well drained
silt loam	silt loam
23%S 71%Si 6%C	18%S 76%Si 6%C
10YR 5/2 (moist)	10YR 5/3 (moist)
10YR 7/2 (dry)	10YR 7/1 (dry)
2.26% O.M.	1.60% O.M.
9.8 meq/100g CEC	8.8 meq/100g CEC
0.56% Fe_2O_3	0.35% Fe_2O_3
29.5 MWZ•___	33.6 MWZ•----



WAGRAM(NC)

Arenic Paleudult
loamy, siliceous, thermic
humid zone
loamy coastal plain sediments
Scotland Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loamy sand	loamy sand
84%S 13%Si 3%C	88%S 10%Si 2%C
10YR 4/2 (moist)	10YR 5/3 (moist)
10YR 7/2 (dry)	10YR 7/2 (dry)
0.87% O.M.	0.95% O.M.
3.4 meq/100g CEC	4.4 meq/100g CEC
0.20% Fe_2O_3	0.18% Fe_2O_3
8.2 MWZ•___	5.6 MWZ•----

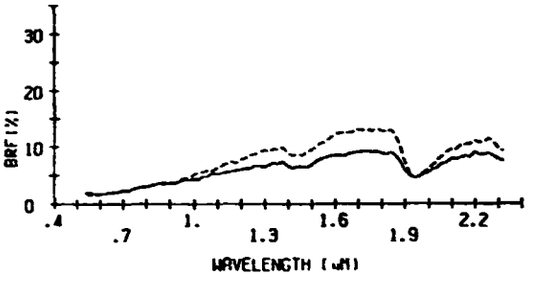


PONZER(NC)

Terric Mediosaprist
loamy, mixed, dysic, thermic
humid zone
loamy mineral material
Washington Co. Hyde Co.

Oap horizon	Oa$_2$ horizon
A slope	A slope
v. poorly drained	v. poorly drained
muck	muck
12%S 67%Si 21%C	1%S 91%Si 8%C
7.5YR 2/0 (moist)	7.5YR 2/0 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
36.18% O.M.	38.58% O.M.
49.0 meq/100g CEC	61.8 meq/100g CEC
0.80% Fe_2O_3	0.75% Fe_2O_3

76.4 MW%·____ 95.3 MW%·----

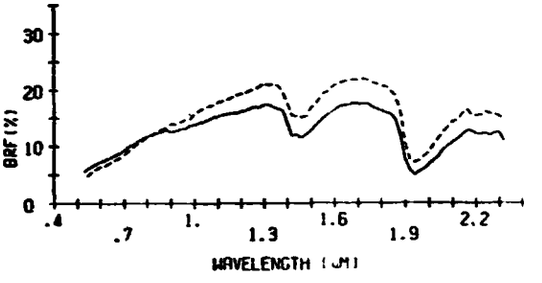


EKALAKA-DESART(ND)

Typic Natriboroll
coarse-loamy, mixed
semiarid zone
stratified alkaline alluvium or
soft sandstone
Bowman Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	fine sandy loam
36%S 56%Si 8%C	70%S 20%Si 11%C
10YR 4/2 (moist)	10YR 3/3 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
1.42% O.M.	0.64% O.M.
9.9 meq/100g CEC	10.3 meq/100g CEC
0.99% Fe_2O_3	1.05% Fe_2O_3

27.6 MW%·____ 15.3 MW%·----

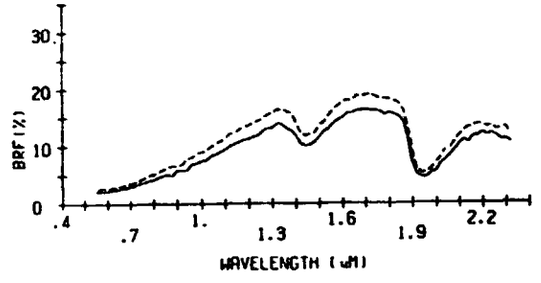


SVEA(ND)

Pachic Udic Haploboroll
fine-loamy, mixed
subhumid zone
calcareous glacial till
LaMoure Co.

Ap horizon	Ap horizon
A slope	A slope
mod. well drained	mod. well drained
clay loam	clay loam
28%S 45%Si 27%C	25%S 48%Si 28%C
10YR 3/1 (moist)	7.5YR 2/0 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
4.33% O.M.	5.20% O.M.
33.0 meq/100g CEC	32.0 meq/100g CEC
0.46% Fe_2O_3	0.78% Fe_2O_3

36.2 MW%·____ 37.5 MW%·----

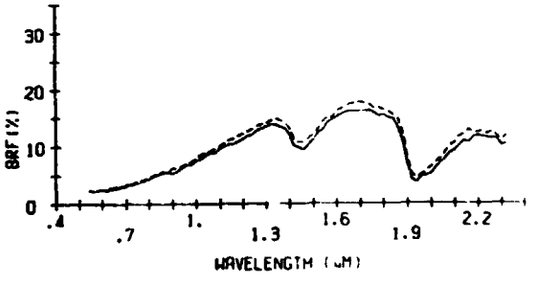


TONKA(ND)

Argiaquic Argialboll
fine, montmorillonitic, frigid
subhumid zone
local alluvium over glacial till
Ransom Co.

Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silt loam	silty clay loam
16%S 59%Si 25%C	15%S 54%Si 31%C
7.5YR 2/0 (moist)	2.5 YR 2/0 (moist)
10YR 4/1 (dry)	10YR 4/2 (dry)
6.67% O.M.	6.11% O.M.
34.9 meq/100g CEC	44.8 meq/100g CEC
0.32% Fe_2O_3	0.60% Fe_2O_3

51.8 MW%·____ 42.8 MW%·-

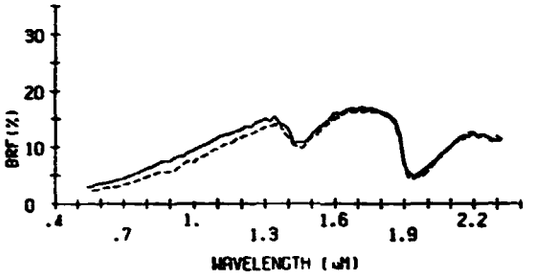


DIVIDE(ND)

Aeric Calciaquoll
fine-loamy over sandy or sandy-skeletal, frigid
subhumid zone
loamy sediment over sand and gravel
Wells Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
coarse sandy loam	sandy loam
64%S 22%Si 14%C	55%S 27%Si 18%C
10YR 2/1 (moist)	7.5YR 2/0 (moist)
10YR 4/1 (dry)	10YR 3/1 (dry)
2.21% O.M.	2.84% O.M.
24.4 meq/100g CEC	28.2 meq/100g CEC
0.14% Fe_2O_3	0.27% Fe_2O_3

23.4 MWZ•____ 26.8 MWZ•----

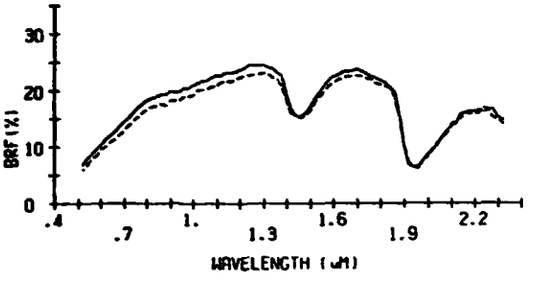


CINCINNATI(OH)

Typic Fragiudalf
fine-silty, mixed, mesic
humid zone
loess over till
Highland Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
8%S 75%Si 17%C	11%S 68%Si 21%C
10YR 4/4 (moist)	10YR 4/3 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
2.33% O.M.	2.44% O.M.
12.8 meq/100g CEC	14.2 meq/100g CEC
1.48% Fe_2O_3	1.58% Fe_2O_3

37.6 MWZ•____ 33.6 MWZ•----

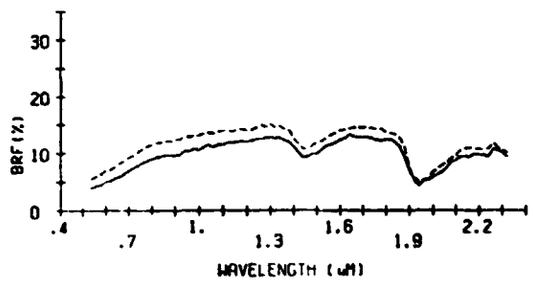


HOLLY(OH)

Typic Fluvaquent
fine-loamy, mixed, nonacid, mesic
humid zone
alluvium from glacial drift, sandstone and shale

Summit Co.	Medina Co.
Al horizon	Al horizon
A slope	A slope
poorly drained	poorly drained
loam	silty clay loam
40%S 38%Si 22%C	9%S 60%Si 31%C
10YR 3/2 (moist)	10YR 4/3 (moist)
10YR 5/2 (dry)	10YR 5/3 (dry)
7.56% O.M.	6.87% O.M.
29.9 meq/100g CEC	33.6 meq/100g CEC
2.27% Fe_2O_3	2.33% Fe_2O_3

40.3 MWZ•____ 44.6 MWZ•----

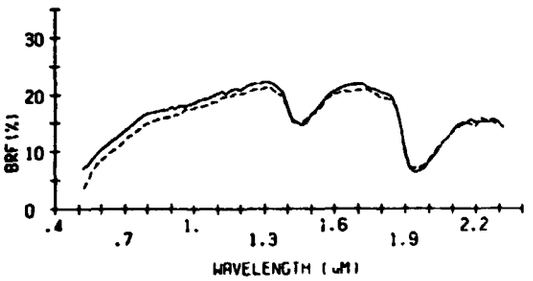


KEENE(OH)

Aquic Hapludalf
fine-silty, mixed, mesic
humid zone
silty residuum from sedimentary rock
Tuscarawas Co.

Ap horizon	Ap horizon
B slope	B slope
mod. well drained	mod. well drained
silt loam	silt loam
6%S 75%Si 20%C	10%S 76%Si 14%C
10YR 5/4 (moist)	10YR 4/3 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
1.49% O.M.	2.46% O.M.
15.9 meq/100g CEC	15.4 meq/100g CEC
2.19% Fe_2O_3	2.21% Fe_2O_3

34.8 MWZ•____ 34.1 MWZ•----

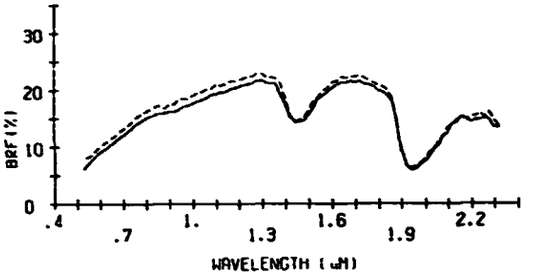


CANFIELD(OH)

Aquic Fragiudalf
fine-loamy, mixed, mesic
humid zone
glacial till with thin loess cap
Wayne Co.

Ap horizon	Ap horizon
B slope	B slope
mod. well drained	mod. well drained
silt loam	silt loam
18%S 64%Si 17%C	12%S 75%Si 13%C
10YR 4/3 (moist)	10YR 4.5/4 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
2.93% O.M.	2.58% O.M.
11.5 meq/100g CEC	10.5 meq/100g CEC
2.33% Fe_2O_3	1.56% Fe_2O_3

34.8 MW%•____ 38.4 MW%•----

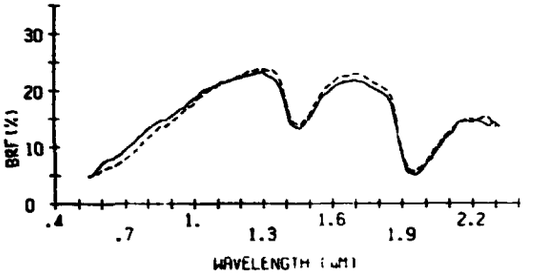


FOARD(OK)

Typic Natrustoll
fine, montmorillonitic, thermic
subhumid zone
old alluvium or red bed material
Cotton Co.

Ap horizon	Ap horizon
A slope	A slope
mod. well drained	mod. well drained
silt loam	silt loam
22%S 61%Si 17%C	21%S 59%Si 20%C
5YR 3/4 (moist)	7.5YR 3/2 (moist)
7.5YR 5/6 (dry)	7.5YR 5/4 (dry)
0.89% O.M.	1.90% O.M.
14.8 meq/100g CEC	10.5 meq/100g CEC
0.69% Fe_2O_3	0.79% Fe_2O_3

27.6 MW%•____ 30.4 MW%•----

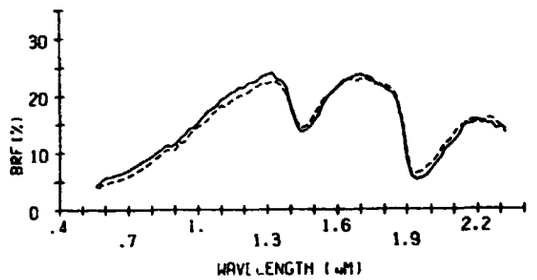


PORT(OK)

Cumulic Haplustoll
fine-silty, mixed, thermic
subhumid zone
loamy alluvial sediments
Grady Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	silt loam
41%S 44%Si 15%C	21%S 61%Si 19%C
5YR 3/3 (moist)	7.5YR 3/2 (moist)
5YR 4/4 (dry)	7.5YR 3/2 (dry)
0.77% O.M.	2.11% O.M.
11.5 meq/100g CEC	8.3 meq/100g CEC
0.80% Fe_2O_3	0.75% Fe_2O_3

30.4 MW%•____ 29.3 MW%•----

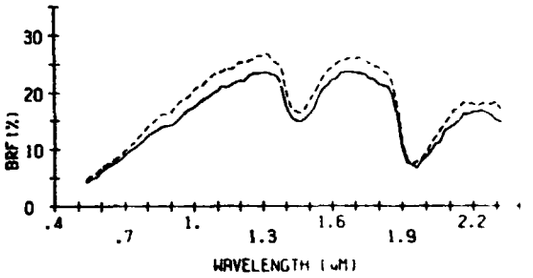


DARNELL(OK)

Udic Ustochrept
loamy, siliceous, thermic, shallow
subhumid zone
sandstone residuum
Lincoln Co. Payne Co.

A horizon	A horizon
B slope	B slope
s. excess. drained	s. excess. drained
loamy fine sand	fine sandy loam
83%S 13%Si 4%C	74%S 19%Si 7%C
7.5YR 3/2 (moist)	7.5YR 3/4 (moist)
7.5YR 5/4 (dry)	7.5YR 5/4 (dry)
2.23% O.M.	1.89% O.M.
7.7 meq/100g CEC	5.4 meq/100g CEC
0.34% Fe_2O_3	0.51% Fe_2O_3

28.2 MW%•____ 18.2 MW%•----

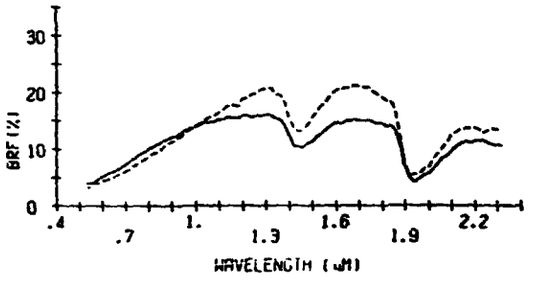


RENFROW(OK)

Udertic Paleustoll
fine, mixed, thermic
subhumid zone
clay and shale residuum
Kay Co.

A1 horizon	A1 horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
11%S 66%Si 23%C	22%S 58%Si 20%C
7.5YR 3/2 (moist)	10YR 2/2 (moist)
10YR 4/3 (dry)	10YR 4/2 (dry)
4.18% O.M.	3.22% O.M.
21.9 meq/100g CEC	17.4 meq/100g CEC
1.20% Fe_2O_3	0.84% Fe_2O_3

36.5 MW%•____ 29.8 MW%•----

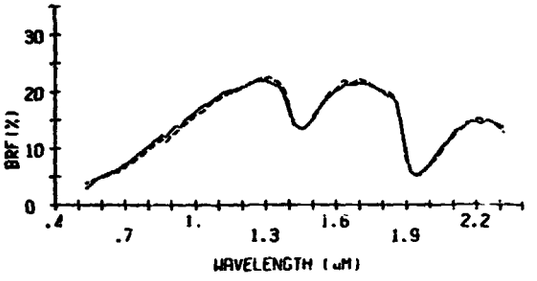


BETHANY(OK)

Pachic Paleustoll
fine, mixed, thermic
subhumid zone
loess, alluvium, and red bed residuum
Oklahoma Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
16%S 67%Si 17%C	14%S 68%Si 18%C
7.5YR 3/2 (moist)	5YR 2.5/2 (moist)
7.5YR 4/2 (dry)	7.5YR 4/2 (dry)
0.69% O.M.	1.85% O.M.
12.1 meq/100g CEC	16.8 meq/100g CEC
0.68% Fe_2O_3	0.61% Fe_2O_3

33.3 MW%•____ 32.4 MW%•----

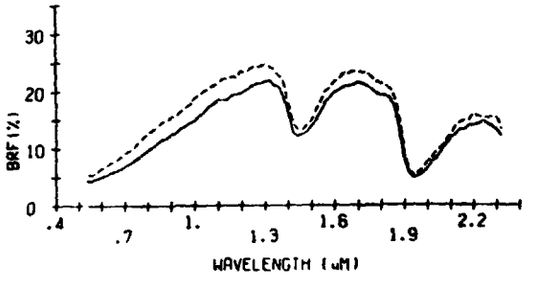


CANADIAN(OK)

Udic Haplustoll
coarse-loamy, mixed, thermic
subhumid zone
loamy sediments
Oklahoma Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
v. fine sandy loam	v. fine sandy loam
69%S 24%Si 8%C	52%S 41%Si 7%C
7.5YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/3 (dry)	10YR 5/3 (dry)
1.05% O.M.	0.82% O.M.
5.9 meq/100g CEC	7.1 meq/100g CEC
0.36% Fe_2O_3	0.23% Fe_2O_3

30.1 MW%•____ 27.0 MW%•----

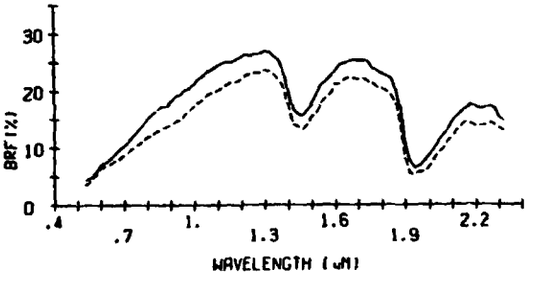


ZANEIS(OK)

Udic Argiustoll
fine-loamy, mixed, thermic
subhumid zone
residuum from sandstone and shale
Oklahoma Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
fine sandy loam	loam
54%S 32%Si 14%C	37%S 44%Si 20%C
5YR 3/4 (moist)	5YR 3/3 (moist)
7.5YR 4/4 (dry)	7.5YR 4/6 (dry)
1.02% O.M.	2.19% O.M.
6.9 meq/100g CEC	15.7 meq/100g CEC
0.83% Fe_2O_3	1.09% Fe_2O_3

25.4 MW%•____ 30.3 MW%•----

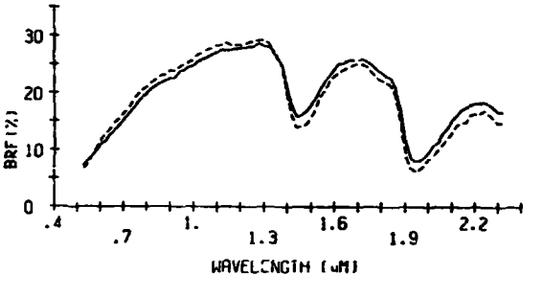


DOUGHERTY(OK)

Arenic Haplustalf
loamy, mixed, thermic
subhumid zone
sandy or loamy sediments
Payne Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
loamy fine sand	fine sand
85%S 12%Si 3%C	88%S 8%Si 3%C
10YR 5/4 (moist)	5YR 5/6 (moist)
7.5YR 6/4 (dry)	7.5YR 6/4 (dry)
0.84% O.M.	0.26% O.M.
3.0 meq/100g CEC	3.2 meq/100g CEC
0.17% Fe_2O_3	0.21% Fe_2O_3

15.9 MW%·___ 19.0 MW%·----

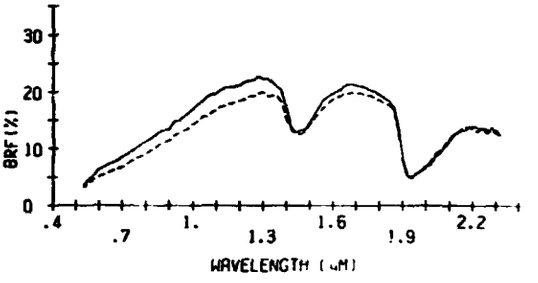


ST.PAUL(OK)

Pachic Argiustoll
fine-silty, mixed, thermic
subhumid zone
silty red bed sediments
Roger Mills Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
19%S 56%Si 26%C	16%S 59%Si 25%C
10YR 3/3 (moist)	5YR 3/2 (moist)
5YR 4/4 (dry)	7.5YR 4/4 (dry)
1.39% O.M.	2.12% O.M.
14.2 meq/100g CEC	21.0 meq/100g CEC
1.07% Fe_2O_3	1.03% Fe_2O_3

33.5 MW%·___ 33.2 MW%·----

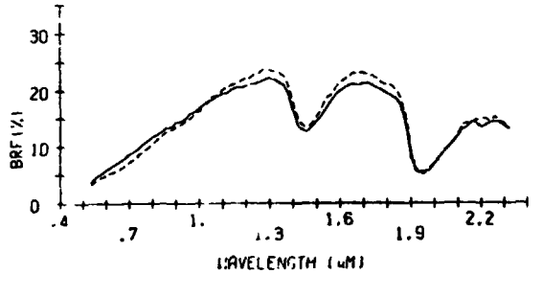


NEWTONIA(OK)

Typic Paleudoll
fine-silty, mixed, thermic
humid zone
limestone residuum
Tulsa Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
13%S 72%Si 14%C	31%S 58%Si 11%C
5YR 3/3 (moist)	7.5YR 3/2 (moist)
7.5YR 5/4 (dry)	10YR 4/3 (dry)
2.15% O.M.	2.10% O.M.
9.9 meq/100g CEC	10.5 meq/100g CEC
0.91% Fe_2O_3	0.76% Fe_2O_3

30.8 MW%·___ 28.8 MW%·----

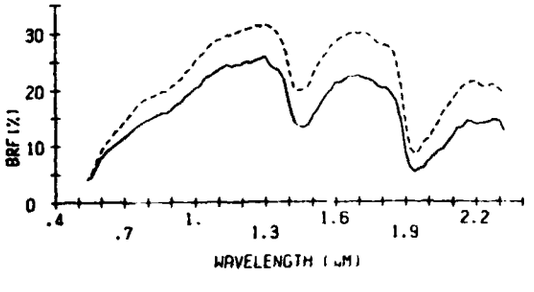


DILL(OK)

Udic Ustochrept
coarse-loamy, mixed, thermic
subhumid zone
red sandstone
Washita Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
v. fine sandy loam	loamy fine sand
73%S 16%Si 11%C	83%S 7%Si 9%C
10YR 3/4 (moist)	2.5YR 3/6 (moist)
2.5YR 4/6 (dry)	2.5YR 4/6 (dry)
0.0% O.M.	0.60% O.M.
6.5 meq/100g CEC	6.5 meq/100g CEC
1.00% Fe_2O_3	0.85% Fe_2O_3

26.0 MW%·___ 11.9 MW%·. . .

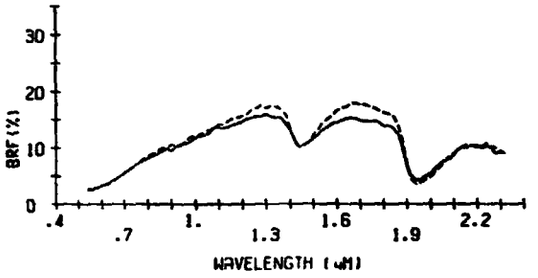


ASTORIA(OR)

Andic Haplumbrept
medial, mesic
perhumid zone
residuum from fine grained sediments
Tillamook Co.

____	____
All horizon	All horizon
D slope	D slope
well drained	well drained
clay	silty clay
20%S 39%Si 41%C	14%S 52%Si 35%C
5YR 2/2 (moist)	10YR 3/2 (moist)
10YR 3/3 (dry)	10YR 3/3 (dry)
26.47% O.M.	21.18% O.M.
46.7 meq/100g CEC	57.4 meq/100g CEC
5.35% Fe_2O_3	2.84% Fe_2O_3

71.4 MW%·____ 67.4 MW%·____

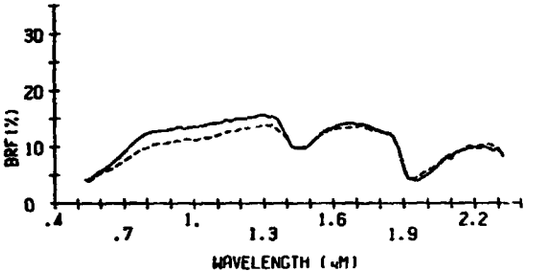


BRENNER(OR)

Fluvaquentic Humaquept
fine, mixed, acid, mesic
perhumid zone
fine mixed alluvium
Tillamook Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silt loam	silt loam
27%S 58%Si 15%C	3%S 80%Si 17%C
10YR 3/4 (moist)	7.5YR 3/4 (moist)
10YR 5/4 (dry)	10YR 5/4 (dry)
10.62% O.M.	11.15% O.M.
53.1 meq/100g CEC	58.3 meq/100g CEC
3.80% Fe_2O_3	2.88% Fe_2O_3

77.1 MW%·____ 73.4 MW%·____

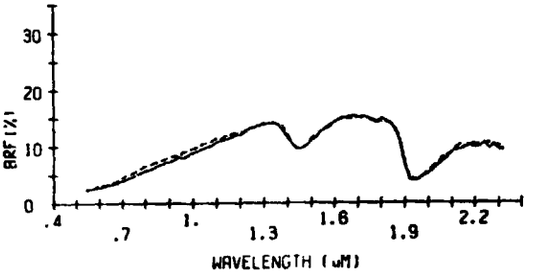


HEBO(OR)

Typic Humaquept
very-fine, mixed, mesic
perhumid zone
silty and clayey alluvium
Tillamook Co.

____	____
Apg horizon	Apg horizon
A slope	A slope
poorly drained	poorly drained
silty clay	silty clay
6%S 39%Si 55%C	6%S 43%Si 51%C
2.5Y 2/0 (moist)	10YR 2/2 (moist)
10YR 3/2 (dry)	10YR 3/2 (dry)
11.40% O.M.	12.28% O.M.
42.1 meq/100g CEC	43.9 meq/100g CEC
2.46% Fe_2O_3	2.84% Fe_2O_3

56.4 MW%·____ 60.4 MW%·____

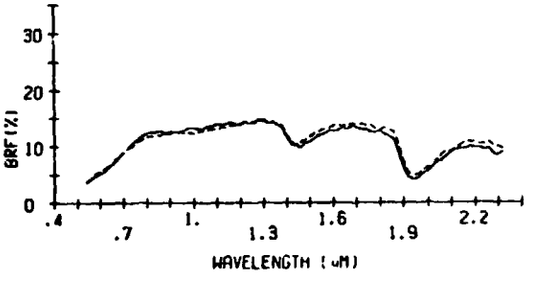


NEHALEM(OR)

Fluventic Haplumbrept
fine-silty, mixed, mesic
perhumid zone
medium textured recent alluvium
Tillamook Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
18%S 60%Si 22%C	17%S 62%Si 21%C
5YR 3/3 (moist)	7.5YR 4/4 (moist)
10YR 4/4 (dry)	10YR 5/4 (dry)
10.66% O.M.	6.41% O.M.
60.0 meq/100g CEC	58.3 meq/100g CEC
4.03% Fe_2O_3	3.38% Fe_2O_3

58.3 MW%·____ 46.9 MW%·____

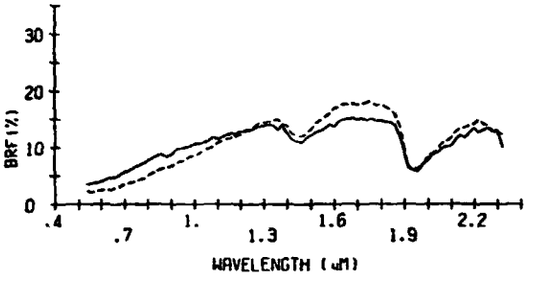


BLACKLOCK(OR)

Typic Sideraquod
sandy, mixed, mesic, ortstein
perhumid zone
sandy marine terrace
Curry Co.

———	----
Al horizon	Al horizon
B slope	B slope
poorly drained	poorly drained
fine sandy loam	loam
44%S 50%Si 6%C	44%S 40%Si 17%C
2.5YR 2.5/0 (moist)	7.5YR 2/0 (moist)
10YR 4/1 (dry)	10YR 3/1 (dry)
13.34% O.M.	18.05% O.M.
24.3 meq/100g CEC	42.2 meq/100g CEC
trace Fe_2O_3	trace Fe_2O_3

35.6 MW%·—— 47.7 MW%·----

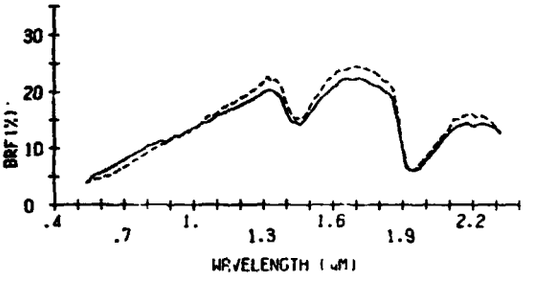


ORFORD(OR)

Typic Haplohumult
clayey, mixed, mesic
perhumid zone
residuum from arkose sandstones and siltstones
Curry Co.

———	----
Al horizon	Al horizon
E slope	E slope
well drained	well drained
silty clay	silty clay loam
11%S 47%Si 42%C	17%S 50%Si 33%C
10YR 3/3 (moist)	7.5YR 3/2 (moist)
10YR 5/3 (dry)	10YR 4/3 (dry)
6.34% O.M.	5.94% O.M.
37.6 meq/100g CEC	36.4 meq/100g CEC
3.30% Fe_2O_3	2.44% Fe_2O_3

42.2 MW%·—— 39.8 MW%·----

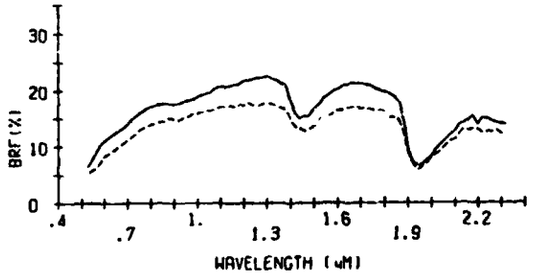


DUFFIELD(PA)

Ultic Hapludalf
fine-loamy, mixed, mesic
humid zone
residuum from impure limestone
Lancaster Co.

———	----
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
13%S 64%Si 23%C	17%S 65%Si 19%C
10YR 5/6 (moist)	7.5YR 4/4 (moist)
10YR 6/4 (dry)	10YR 5/4 (dry)
2.97% O.M.	2.45% O.M.
17.0 meq/100g CEC	13.8 meq/100g CEC
2.89% Fe_2O_3	2.06% Fe_2O_3

37.2 MW%·—— 30.0 MW%·----

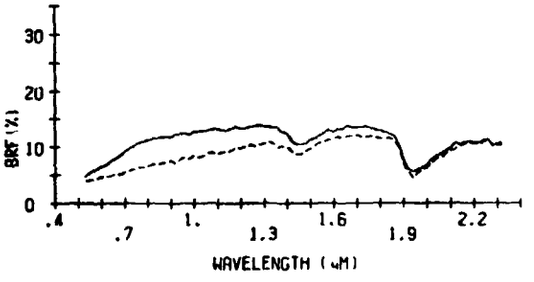


EDGEMONT(PA)

Typic Hapludult
fine-loamy, mixed, mesic
humid zone
quartzite, quartz schist conglomerate
Lancaster Co.

———	--
A1-A2 horizon	A1-A2 horizon
D slope	D slope
well drained	well drained
fine sandy loam	loam
50%S 44%Si 6%C	44%S 45%Si 11%C
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/3 (dry)	10YR 4/2 (dry)
3.12% O.M.	4.98% O.M.
13.5 meq/100g CEC	22.4 meq/100g CEC
0.52% Fe_2O_3	0.93% Fe_2O_3

26.4 MW%·—— 23.2 MW%·----

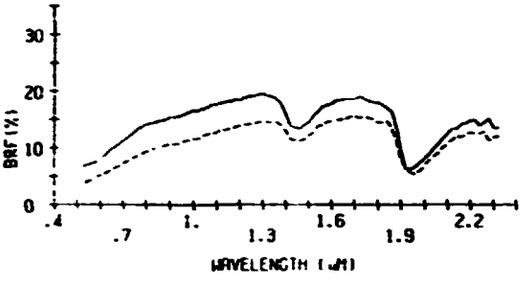


ELLIBER(PA)

Typic Hapludult
loamy-skeletal, mixed, mesic
humid zone
loamy material from cherty limestone
Perry Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
silt loam	loam
38%S 52%Si 10%C	44%S 45%Si 11%C
10YR 4/2 (moist)	10YR 3/3 (moist)
10YR 6/3 (dry)	10YR 5/3 (dry)
3.17% O.M.	4.97% O.M.
12.7 meq/100g CEC	18.1 meq/100g CEC
0.96% Fe_2O_3	1.18% Fe_2O_3

41.5 MW% ____ 40.4 MW% ----

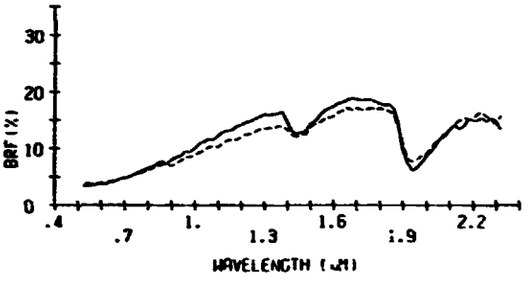


RAINS(SC)

Typic Paleaquult
fine-loamy, siliceous, thermic
humid zone
loamy coastal plain sediments
Florence Co.

Al horizon	Al horizon
A slope	A slope
poorly drained	poorly drained
loamy coarse sand	loamy fine sand
78%S 18%Si 4%C	78%S 15%Si 7%C
7.5YR 2/0 (moist)	7.5YR 2/0 (moist)
10YR 5/1 (dry)	10YR 5/1 (dry)
4.51% O.M.	6.3% O.M.
16.9 meq/100g CEC	20.0 meq/100g CEC
0.00% Fe_2O_3	0.16% Fe_2O_3

19.5 MW% ____ 21.0 MW% ----

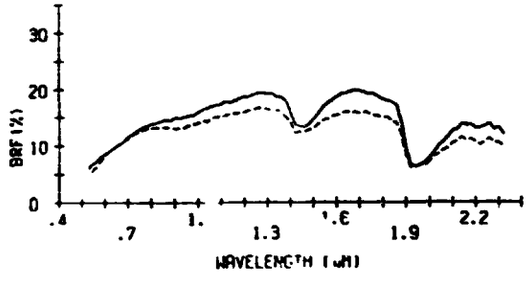


PACOLET(SC)

Typic Hapludult
clayey, kaolinitic, thermic
humid zone
residuum from acid crystaline rock
Spartanburg Co.

Al-A2 horizon	Al-A2 horizon
D slope	D slope
well drained	well drained
fine sandy loam	fine sandy loam
71%S 19%Si 10%C	53%S 28%Si 19%C
10YR 4/3 (moist)	7.5YR 4/4 (moist)
10YR 6/3 (dry)	7.5YR 5/4 (dry)
2.44% O.M.	4.77% O.M.
9.9 meq/100g CEC	14.8 meq/100g CEC
0.77% Fe_2O_3	1.62% Fe_2O_3

20.1 MW% ____ 27.0 MW% ----

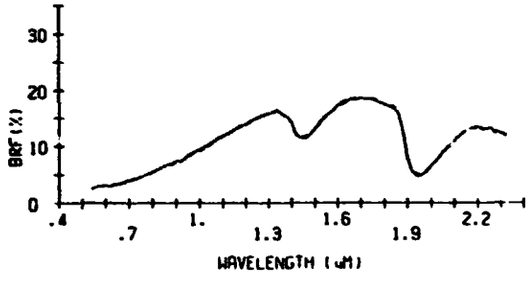


BEOTIA(SD)

Pachic Udic Haplo roll
fine-silty, mixed
subhumid zone
glaciolacustrine stratified deposits
Brown Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
9%S 66%Si 25%C	8%S 66%Si 26%C
10YR 2/1 (moist)	10YR 2/1 (moist)
10YR 3/2 (dry)	10YR 3/2 (dry)
4.64% O.M.	5.63% O.M.
31.4 meq/100g CEC	31.5 meq/100g CEC
0.73% Fe_2O_3	0.65% Fe_2O_3

44.5 MW% ____ 42.5 MW% ----

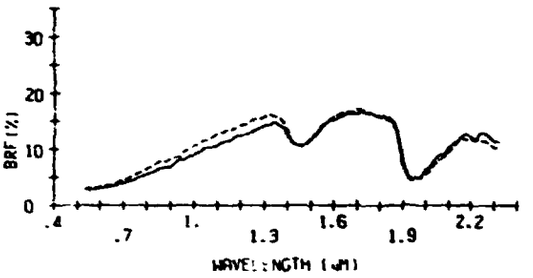


EXLINE(SD)

Laptic Natriboroll
fine, montmorillonitic
subhumid zone
calcareous lacustrine deposits
Brown Co.

Al-A2 horizon	A2 horizon
A slope	A slope
s. poorly drained	s. poorly drained
silty clay loam	silty clay loam
7%S 66%Si 28%C	10%S 62%Si 29%C
7.5YR 2/0 (moist)	10YR 2/1 (moist)
10YR 4/1 (dry)	10YR 4/1 (dry)
7.50% O.M.	10.12% O.M.
30.7 meq/100g CEC	37.6 meq/100g CEC
0.37% Fe_2O_3	0.43% Fe_2O_3

57.7 MWX·____ 64.4 MWX·____

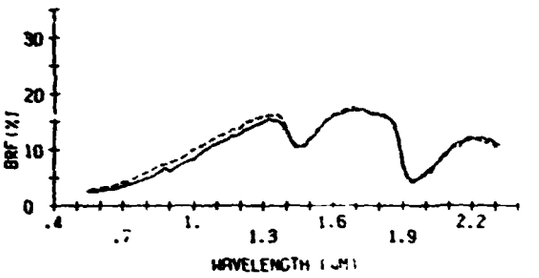


FORDVILLE(SD)

Pachic Udic Haploboroll
fine-loamy over sandy or sandy-skeletal, mixed
subhumid zone
loamy alluvium over stratified sand and gravel
Codington Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	loam
31%S 50%Si 20%C	44%S 37%Si 18%C
7.5YR 2/0 (moist)	10YR 2/1 (moist)
10YR 3/2 (dry)	10YR 3/2 (dry)
5.16% O.M.	4.56% O.M.
27.1 meq/100g CEC	23.8 meq/100g CEC
0.70% Fe_2O_3	0.72% Fe_2O_3

38.5 MWX·____ 37.6 MWX·____

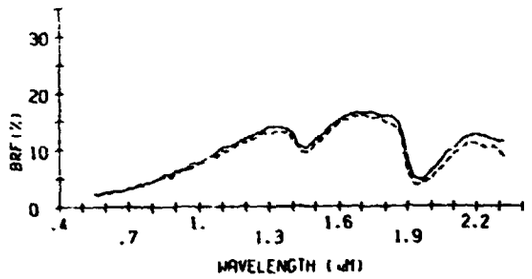


RENSHAW(SD)

Udic Haploboroll
fine-loamy over sandy or sandy-skeletal, mixed
subhumid zone
loamy alluvium over thick sand and gravel
Codington Co.

Ap horizon	Ap horizon
B slope	A slope
s. excess. drained	s. excess. drained
loam	loam
40%S 46%Si 14%C	42%S 37%Si 21%C
10YR 2/1 (moist)	10YR 2/1 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
5.32% O.M.	5.05% O.M.
28.5 meq/100g CEC	30.5 meq/100g CEC
0.81% Fe_2O_3	0.64% Fe_2O_3

40.3 MWX·____ 39.8 MWX·____

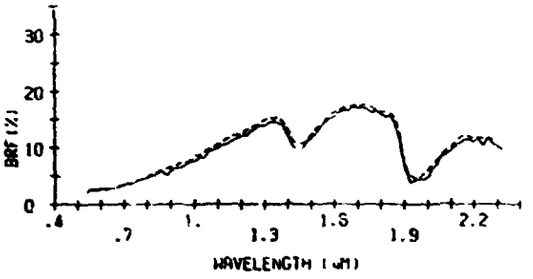


PEEVER(SD)

Udic Argiboroll
fine, montmorillonitic
subhumid zone
clay loam glacial till
Roberts Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
clay loam	clay loam
22%S 38%Si 40%C	28%S 39%Si 32%C
7YR 2/1 (moist)	10YR 2/1 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
7.31% O.M.	5.33% O.M.
38.7 meq/100g CEC	35.4 meq/100g CEC
1.27% Fe_2O_3	1.15% Fe_2O_3

45.4 MWX·____ 36.3 MWX·

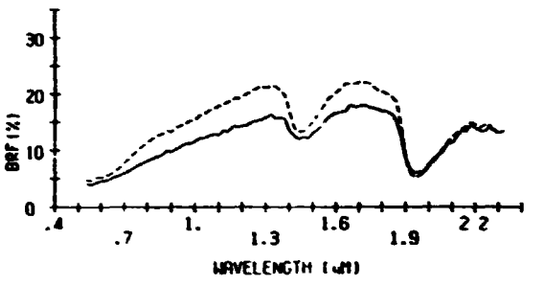


BETTS(SD)

Typic Ustorthent
fine-loamy, mixed, calcareous, mesic
subhumid zone
glacial till
Davison Co.

A1 horizon	A1 horizon
E slope	E slope
excess. drained	excess. drained
loam	loam
45%S 34%Si 21%C	43%S 34%Si 23%C
10YR 3/1 (moist)	10YR 4/2 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
4.53% O.M.	3.78% O.M.
27.0 meq/100g CEC	26.8 meq/100g CEC
0.86% Fe_2O_3	1.01% Fe_2O_3

30.2 MWD•____ 32.7 MWD•----

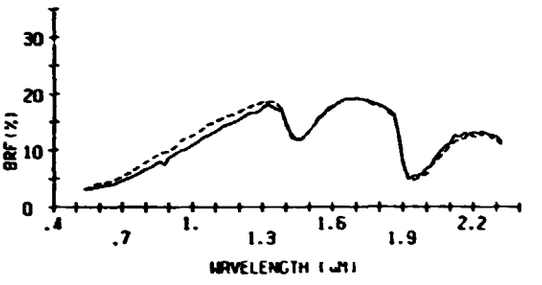


STICKNEY(SD)

Glossic Natrustoll
fine, montmorillonitic, mesic
subhumid zone
calcareous clay loam glacial till
Davison Co.

Ap horizon	Ap horizon
A slope	A slope
mod. well drained	mod. well drained
loam	loam
30%S 47%Si 23%C	27%S 48%Si 25%C
10YR 2/1 (moist)	5YR 3/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
2.85% O.M.	2.70% O.M.
22.6 meq/100g CEC	25.7 meq/100g CEC
0.72% Fe_2O_3	0.68% Fe_2O_3

32.3 MWD•____ 34.4 MWD•----

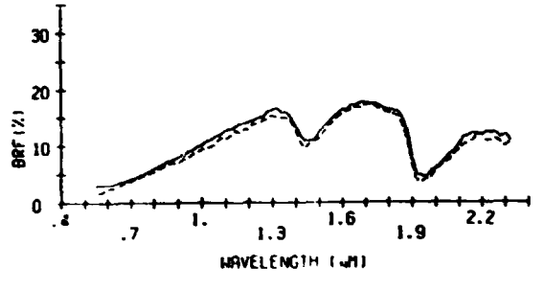


TETONKA(SD)

Argiaquic Argialboll
fine, montmorillonitic, mesic
subhumid zone
local alluvial deposits over
glacial till
Davison Co.

A1 horizon	A1 horizon
A slope	A slope
poorly drained	poorly drained
silt loam	silty clay loam
12%S 61%Si 27%C	12%S 57%Si 31%C
10YR 3/1 (moist)	10YR 3/1 (moist)
10YR 4/1 (dry)	10YR 4/1 (dry)
5.11% O.M.	6.47% O.M.
30.8 meq/100g CEC	38.8 meq/100g CEC
0.42% Fe_2O_3	0.43% Fe_2O_3

47.4 MWD•____ 52.5 MWD•----

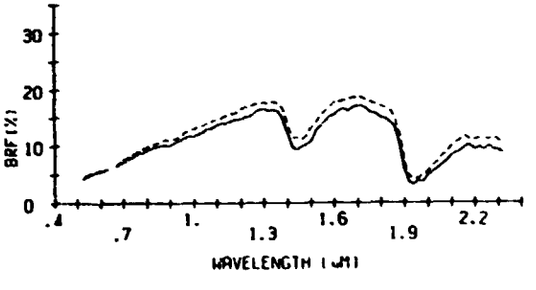


BOYD(SD)

Vertic Haplustoll
fine, montmorillonitic, mesic
subhumid zone
residuum from clay shales
Gregory Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
clay	silty clay
2%S 30%Si 68%C	4%S 42%Si 54%C
10YR 4/2 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
3.12% O.M.	2.69% O.M.
63.8 meq/100g CEC	>6.8 meq/100g CEC
1.66% Fe_2O_3	1.85% Fe_2O_3

49.6 MWD•____ 41.6 MWD•----

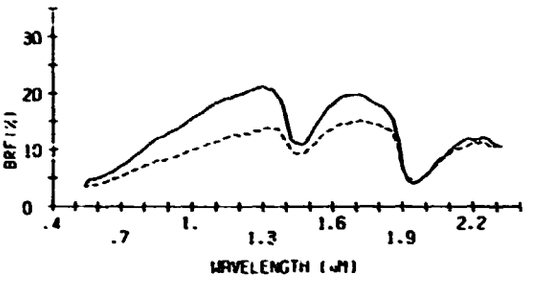


TUTHILL(SD)

Aridic Argiustoll
fine-loamy over sandy or sandy-skeletal, mixed, mesic
semiarid zone
mixed sandy and loamy materials
Todd Co.

Ap horizon	A1 horizon
B slope	B slope
well drained	well drained
fine sandy loam	fine sandy loam
75%S 15%Si 10%C	63%S 23%Si 14%C
10YR 3/1 (moist)	10YR 2/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
1.18% O.M.	3.88% O.M.
11.3 meq/100g CEC	18.5 meq/100g CEC
0.26% Fe_2O_3	0.33% Fe_2O_3

28.6 MW% ____ 39.3 MW% ____

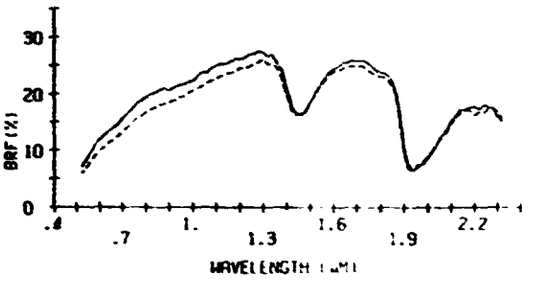


DICKSON(IN)

Glossic Fragiudult
fine-silty, siliceous, thermic
humid zone
thick silt over limestone residuum
Coffee Co.

Ap horizon	Ap horizon
C slope	C slope
mod. well drained	mod. well drained
silt loam	silt loam
19%S 67%Si 14%C	9%S 73%Si 18%C
10YR 5/6 (moist)	10YR 5/4 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
1.36% O.M.	2.17% O.M.
10.7 meq/100g CEC	14.2 meq/100g CEC
1.63% Fe_2O_3	1.86% Fe_2O_3

27.3 MW% ____ 33.9 MW% ____

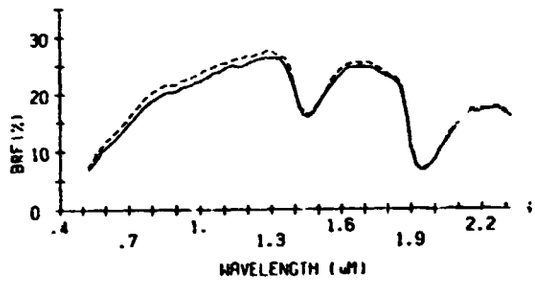


MOUNTVIEW(TN)

Typic Paleudult
fine-silty, siliceous, thermic
humid zone
loess over limestone residuum
Coffee Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
silt loam	silt loam
27%S 60%Si 13%C	8%S 75%Si 17%C
10YR 4/4 (moist)	10YR 5/4 (moist)
10YR 6/4 (dry)	10YR 6/4 (dry)
2.23% O.M.	2.33% O.M.
9.2 meq/100g CEC	13.5 meq/100g CEC
1.45% Fe_2O_3	1.51% Fe_2O_3

33.9 MW% ____ 35.0 MW% ____

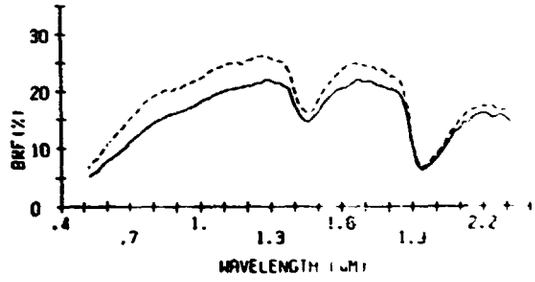


BODINE(IN)

Typic Paleudult
loamy-skeletal, siliceous, thermic
humid zone
residuum from cherty limestone
Humphreys Co.

Ap horizon	Ap horizon
E slope	E slope
s. excess. drained	s. excess. drained
silt loam	silt loam
8%S 76%Si 16%C	15%S 73%Si 12%C
10YR 4/3 (moist)	10YR 4/3 (moist)
10YR 6/3 (dry)	10YR 6/4 (dry)
4.42% O.M.	2.49% O.M.
17.1 meq/100g CEC	10.0 meq/100g CEC
0.99% Fe_2O_3	0.99% Fe_2O_3

38.3 MW% ____ 34.8 MW% ____

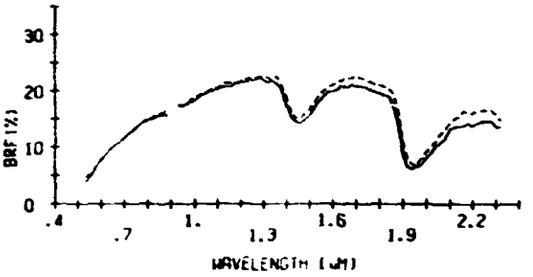


CUMBERLAND(TN)

Rhodic Paleudalf
fine, mixed, thermic
humid zone
old alluvium over limestone residuum
Rutherford Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
silty clay loam	silt loam
7%S 66%Si 28%C	3%S 77%Si 20%C
2.5YR 3/4 (moist)	7.5YR 4/6 (moist)
7.5YR 4/6 (dry)	7.5YR 5/6 (dry)
1.74% O.M.	1.91% O.M.
15.4 meq/100g CEC	10.6 meq/100g CEC
3.25% Fe_2O_3	2.27% Fe_2O_3

29.6 MW% ____ 31.9 MW% ----

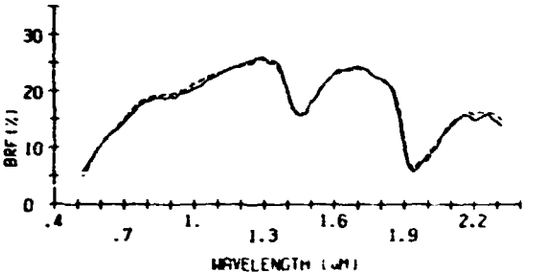


TALBOTT(TN)

Typic Hapludalf
fine, mixed, thermic
humid zone
clayey limestone residuum
Rutherford Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silty clay loam	silt loam
14%S 58%Si 28%C	11%S 67%Si 23%C
7.5YR 4/6 (moist)	7.5YR 4/6 (moist)
10YR 6/6 (dry)	10YR 6/6 (dry)
1.84% O.M.	2.50% O.M.
15.6 meq/100g CEC	13.8 meq/100g CEC
3.68% Fe_2O_3	3.34% Fe_2O_3

28.2 MW% ____ 30.2 MW% ----

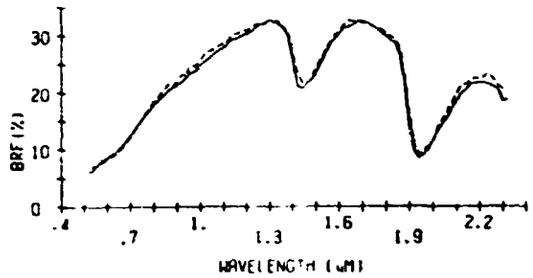


BRACKETT(TX)

Typic Ustrochrept
loamy, carbonatic, thermic, shallow
subhumid zone
interbedded soft limestones and
marly earth
Bell Co.

A1 horizon	horizon
C slope	C slope
well drained	well drained
loam	clay loam
40%S 39%Si 21%C	26%S 46%Si 28%C
10YR 4/2 (moist)	10YR 4/2 (moist)
10YR 6/2 (dry)	10YR 6/2 (dry)
3.20% O.M.	6.61% O.M.
23.7 meq/100g CEC	26.7 meq/100g CEC
1.02% Fe_2O_3	0.49% Fe_2O_3

22.6 MW% ____ 32.0 MW% ----

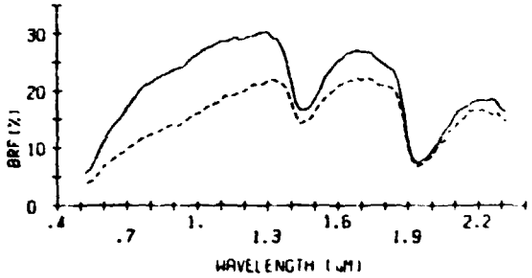


ELROSE(TX)

Typic Paleudalf
fine-loamy, siliceous, thermic
subhumid zone
stratified marine sediments
Anderson Co.

Ap horizon	A11 horizon
A slope	A slope
well drained	well drained
fine sandy loam	v. fine sandy loam
62%S 32%Si 6%C	67%S 28%Si 5%C
7.5YR 4/6 (moist)	5YR 3/4 (moist)
7.5YR 6/6 (dry)	5YR 5/4 (dry)
0.91% O.M.	2.57% O.M.
4.4 meq/100g CEC	8.6 meq/100g CEC
0.65% Fe_2O_3	2.59% Fe_2O_3

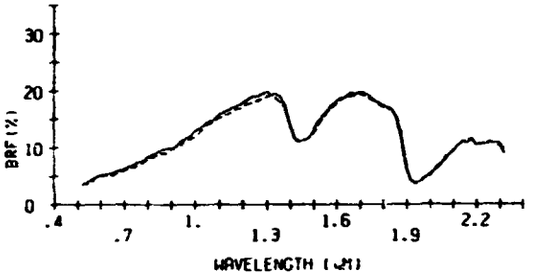
20.2 MW% ____ 25.3 MW% ----



DENTON(TX)

Vertic Calciustoll
fine, montmorillonitic, thermic
subhumid zone
clayey materials over limestones and marls
Coryell Co.

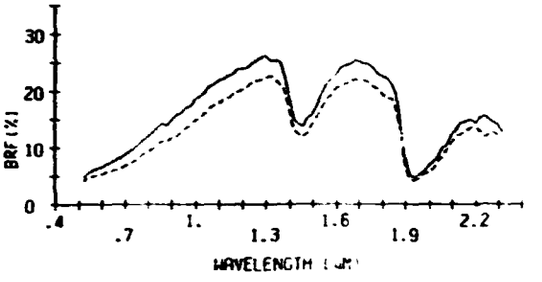
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silty clay	clay
4%S 41%Si 56%C	3%S 36%Si 60%C
7.5YR 3/2 (moist)	7.5YR 3/2 (moist)
10YR 3/2 (dry)	10YR 3/2 (dry)
3.21% O.M.	2.91% O.M.
60.9 meq/100g CEC	57.2 meq/100g CEC
1.81% Fe_2O_3	1.86% Fe_2O_3
48.0 MW%	45.7 MW%



FRIO(TX)

Cumulic Haplustoll
fine, mixed, thermic
subhumid zone
calcareous silty clay loam alluvium
Coryell Co.

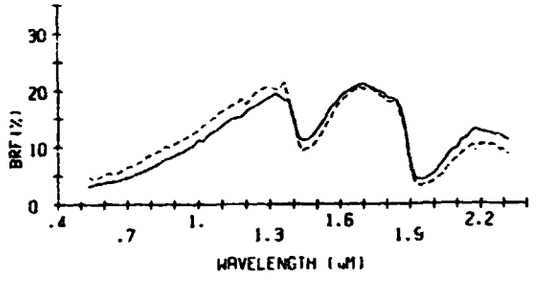
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
clay loam	silty clay loam
29%S 40%Si 31%C	18%S 44%Si 37%C
10YR 4/2 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
2.16% O.M.	2.20% O.M.
29.7 meq/100g CEC	35.4 meq/100g CEC
0.66% Fe_2O_3	0.82% Fe_2O_3
36.1 MW%	41.9 MW%



TRINITY(TX)

Typic Pelludert
very-fine, montmorillonitic, thermic
subhumid zone
calcareous clayey alluvium
Kaufman Co.

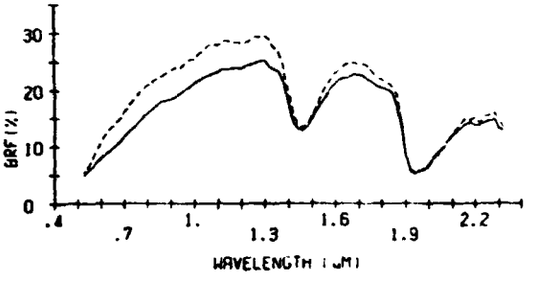
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
silty clay loam	clay
18%S 46%Si 35%C	1%S 29%Si 70%C
7.5YR 3/0 (moist)	10YR 3/1 (moist)
10YR 4/1 (dry)	10YR 4/1 (dry)
3.53% O.M.	3.17% O.M.
38.9 meq/100g CEC	92.8 meq/100g CEC
0.47% Fe_2O_3	0.77% Fe_2O_3
43.1 MW%	62.9 MW%



WINDTHORST(TX)

Udic Paleustalf
fine, mixed, thermic
subhumid zone
stratified clay and loamy materials
Parker Co.

Al horizon	Al horizon
B slope	B slope
mod. well drained	mod. well drained
v. fine sandy loam	v. fine sandy loam
59%S 32%Si 10%C	68%S 25%Si 7%C
7.5YR 4/4 (moist)	7.5YR 4/6 (moist)
7.5YR 5/4 (dry)	7.5YR 6/6 (dry)
1.77% O.M.	1.09% O.M.
12.2 meq/100g CEC	8.1 meq/100g CEC
0.34% Fe_2O_3	0.45% Fe_2O_3
29.2 MW%	29.4 MW%

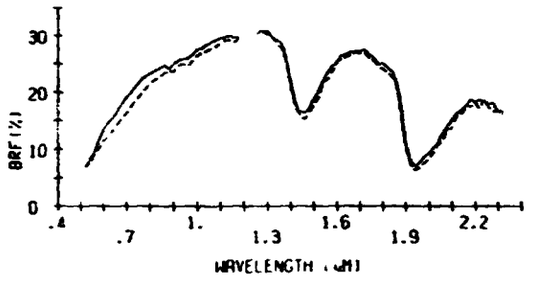


KIRVIN(TX)

Typic Hapludalt
clayey, mixed, thermic
humid zone
acid sandstone and loamy and clayey sediments
Smith Co.

Al horizon	Ap horizon
B slope	B slope
well drained	well drained
v. fine sandy loam	silt loam
64%S 30%Si 5%C	45%S 51%Si 3%C
7.5YR 5/4 (moist)	7.5YR 5/4 (moist)
7.5YR 6/4 (dry)	7.5YR 7/4 (dry)
0.41% O.M.	0.95% O.M.
2.7 meq/100g CEC	4.6 meq/100g CEC
0.57% Fe_2O_3	0.85% Fe_2O_3

26.6 MW%•____ 28.8 MW%•----

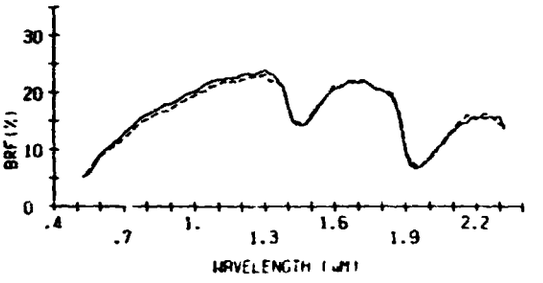


TRIOMAS(TX)

Ustalfic Haplargid
fine-loamy, mixed, thermic
semiarid zone
sandy eolian materials
Andrews Co.

All horizon	All horizon
A slope	A slope
well drained	well drained
loamy fine sand	loamy fine sand
85%S 10%Si 4%C	87%S 6%Si 7%C
7.5YR 4/4 (moist)	7.5YR 3/4 (moist)
7.5YR 5/6 (dry)	7.5YR 5/4 (dry)
0.94% O.M.	0.28% O M.
5.2 meq/100g CEC	9.3 meq/100g CEC
0.32% Fe_2O_3	0.28% Fe_2O_3

21.2 MW%•____ 17.7 MW%•----

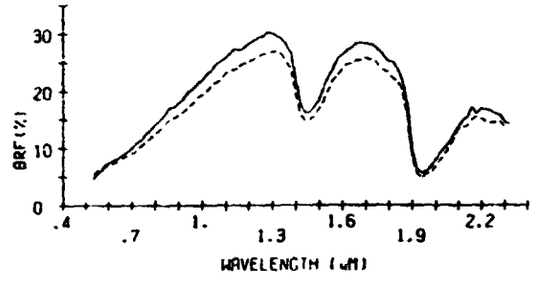


MONTELL(TX)

Entic Pellustert
fine, montmorillonitic, hyperthermic
semiarid zone
calcareous, clayey alluvium
Kinney Co.

All horizon	All horizon
A slope	A slope
mod. well drained	mod. well drained
clay	clay loam
20%S 39%Si 41%C	21%S 43%Si 36%C
10YR 4/1 (moist)	10YR 4/1 (moist)
10YR 5/1 (dry)	10YR 5/1 (dry)
2.58% O.M.	2.18% O.M.
41.4 meq/100g CEC	45.2 meq/100g CEC
0.19% Fe_2O_3	0.18% Fe_2O_3

40.9 MW%•____ 42.7 MW%•----

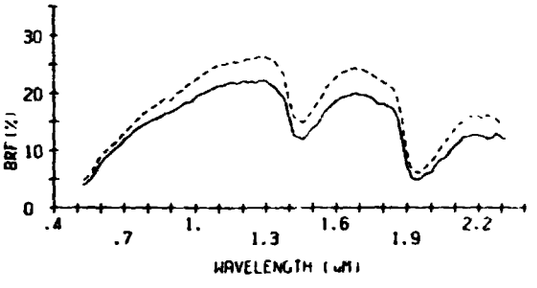


AMARILLO(TX)

Aridic Paleustalf
fine-loamy, mixed, thermic
semiarid zone
old eolian deposits or alluvium
Lamb Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	fine sandy loam
43%S 44%Si 14%C	77%S 10%Si 13%C
5YR 3/4 (moist)	7.5YR 4/6 (moist)
5YR 5/6 (dry)	7.5YR 4/o (dry)
0.73% O.M.	0.56% O.M.
10.5 meq/100g CEC	13.6 meq/100g CEC
0.80% Fe_2O_3	0.51% Fe_2O_3

26.1 MW%•____ 20.3 MW%•----

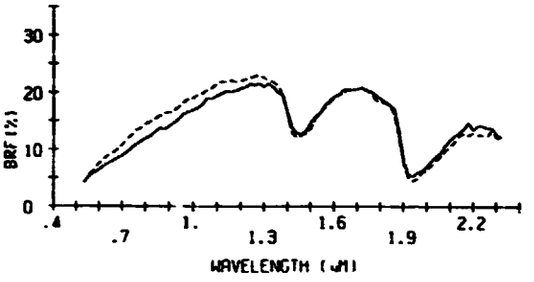


ACUFF(TX)

Aridic Paleustoll
fine-loamy, mixed, thermic
semiarid zone
sandy outwash or old alluvium
Lubbock Co.

____	____
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
fine sandy loam	fine sandy loam
61%S 22%Si 16%C	65%S 20%Si 15%C
7.5YR 3/2 (moist)	7.5YR 3/4 (moist)
7.5YR 4/4 (dry)	7.5YR 4/6 (dry)
1.12% O.M.	0.75% O.M.
16.2 meq/100g CEC	12.0 meq/100g CEC
0.58% Fe_2O_3	0.59% Fe_2O_3

26.4 MW%·____ 27.4 MW%·----

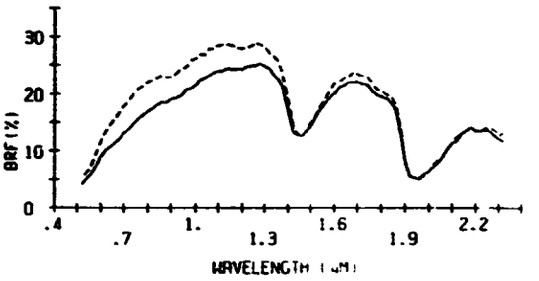


PATRICIA(TX)

Aridic Paleustalf
fine-loamy, mixed, thermic
semiarid zone
sandy eolian sediments
Lynn Co.

____	----
Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
loamy fine sand	fine sand
80%S 11%Si 9%C	89%S 4%Si 7%C
5YR 4/4 (moist)	5YR 4/4 (moist)
7.5YR 5/6 (dry)	7.5YR 5/6 (dry)
0.56% O.M.	0.11% O.M.
6.4 meq/100g CEC	6.3 meq/100g CEC
0.40% Fe_2O_3	0.33% Fe_2O_3

24.5 MW%·____ 20.4 MW%·----

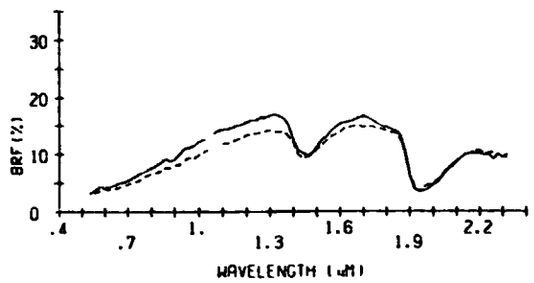


TARRANT(TX)

Lithic Calciustoll
clayey-skeletal, montmorillonitic,
thermic
subhumid zone
residuum from limestone
Menard Co.

____	----
All horizon	All horizon
A slope	A slope
well drained	well drained
silty clay	silty clay
2%S 41%Si 57%C	4%S 46%Si 49%C
5YR 3/1 (moist)	10YR 2/1 (moist)
10YR 3/2 (dry)	10YR 3/2 (dry)
4.61% O.M.	5.62% O.M.
59.0 meq/100g CEC	50.4 meq/100g CEC
0.94% Fe_2O_3	0.87% Fe_2O_3

51.9 MW%·____ 50.1 MW%·----

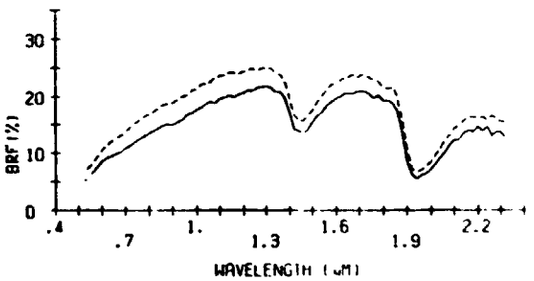


REAGAN(TX)

Ustollic Calciorthid
fine-silty, mixed, thermic
semiarid zone
eolian material
Upton Co.

____	----
All horizon	All horizon
A slope	A slope
well drained	well drained
loam	loam
38%S 47%Si 15%C	44%S 41%Si 16%C
10YR 3/3 (moist)	10YR 4/4 (moist)
7.5YR 6/4 (dry)	7.5YR 6/4 (dry)
0.82% O.M.	0.90% O.M.
31.8 meq/100g CEC	29.3 meq/100g CEC
0.69% Fe_2O_3	0.58% Fe_2O_3

28.9 MW%·____ 26.2 MW%·----

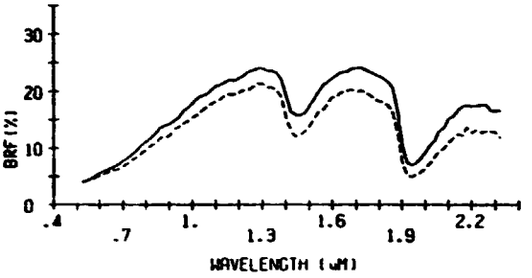


WILLACY(TX)

Udic Argiustoll
fine-loamy, mixed, hyperthermic
subhumid zone
alkaline loamy sediments
Cameron Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loamy fine sand	fine sandy loam
82%S 10%Si 8%C	76%S 12%Si 12%C
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
0.55% O.M.	0.80% O.M.
5.4 meq/100g CEC	7.8 meq/100g CEC
0.25% Fe_2O_3	0.29% Fe_2O_3

16.0 MW%·____ 27.3 MW%·____

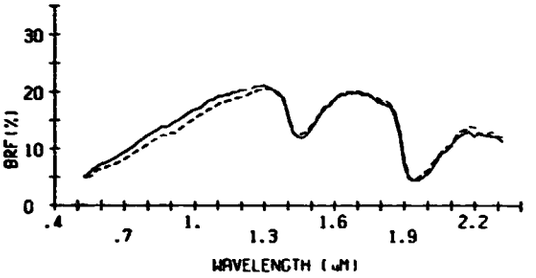


HIDALGO(TX)

Typic Haplustoll
fine-loamy, mixed, hyperthermic
semiarid zone
fine textured calcareous sediments
Hidalgo Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
sandy clay loam	clay loam
50%S 22%Si 28%C	42%S 24%Si 34%C
7.5YR 4/2 (moist)	10YR 3/1 (moist)
10YR 4/2 (dry)	10YR 4/2 (dry)
1.48% O.M.	2.46% O.M.
26.4 meq/100g CEC	31.5 meq/100g CEC
0.33% Fe_2O_3	0.16% Fe_2O_3

33.2 MW%·____ 35.0 MW%·____

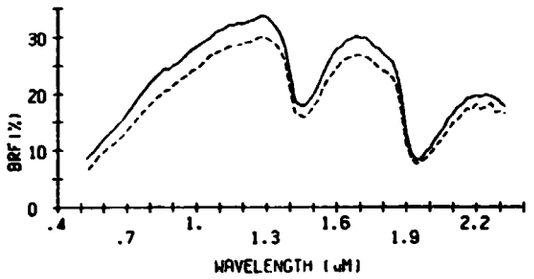


SARITA(TX)

..ossaremic Paleustalf
loamy, mixed, hyperthermic
semiarid zone
sandy and loamy deposits
Hidalgo Co.

Al horizon	Al horizon
A slope	A slope
well drained	well drained
fine sand	fine sand
95%S 3%Si 2%C	96%S 2%Si 2%C
10YR 4/3 (moist)	10YR 4/3 (moist)
10YR 6/3 (dry)	10YR 7/3 (dry)
0.52% O.M.	0.19% O.M.
4.3 meq/100g CEC	3.0 meq/100g CEC
0.07% Fe_2O_3	0.06% Fe_2O_3

14.5 MW%·____ 18.6 MW%·____

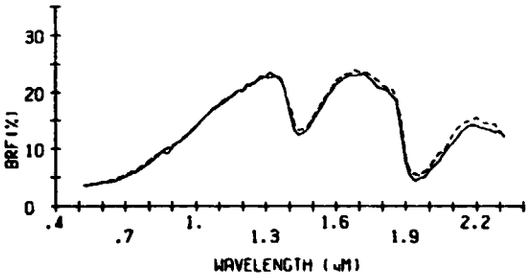


CLAREVILLE(TX)

Pachic Argiustoll
fine, montmorillonitic, hyperthermic
semiarid zone
calcareous clayey marine sediments
Jim Wells Co.

Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
loam	sandy clay loam
48%S 28%Si 24%C	56%S 19%Si 24%C
10YR 3/1 (moist)	10YR 3/1 (moist)
10YR 3/1 (dry)	10YR 3/1 (dry)
2.09% O.M.	1.66% O.M.
30.5 meq/100g CEC	36.6 meq/100g CEC
0.18% Fe_2O_3	0.18% Fe_2O_3

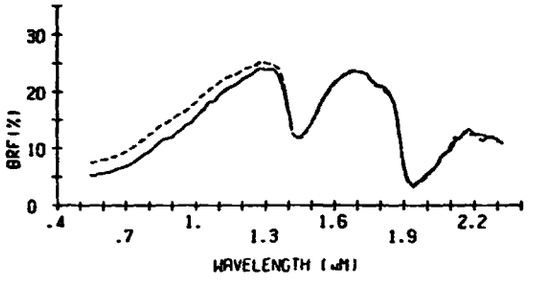
38.2 MW%·____ 30.9 MW%·____



VICTORIA(TX)

Udic Pellustert
fine, montmorillonitic, hyperthermic
subhumid zone
calcareous clayey marine sediments
Nueces Co.

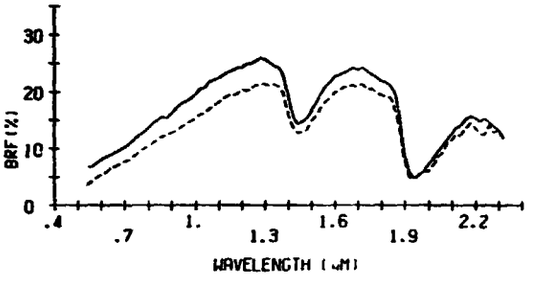
Ap horizon	Ap horizon
A slope	A slope
s. poorly drained	s. poorly drained
clay	clay
20%S 27%Si 54%C	16%S 27%Si 57%C
7.5YR 3/0 (moist)	7.5YR 4/0 (moist)
10YR 4/1 (dry)	10YR 5/1 (dry)
2.07% O.M.	1.76% O.M.
59.2 meq/100g CEC	61.3 meq/100g CEC
0.23% Fe_2O_3	0.61% Fe_2O_3
45.4 MW%	47.3 MW%



UVALDE(TX)

Aridic Calciustoll
fine-silty, mixed, hyperthermic
semiarid zone
alluvium from limestone
Zavala Co.

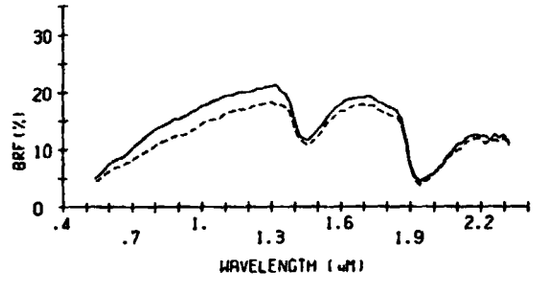
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
clay loam	clay loam
27%S 42%Si 31%C	38%S 30%Si 32%C
10YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/3 (dry)	10YR 4/2 (dry)
1.50% O.M.	2.91% O.M.
38.7 meq/100g CEC	36.6 meq/100g CEC
0.60% Fe_2O_3	0.68% Fe_2O_3
37.2 MW%	39.1 MW%



SHERM(TX)

Torrertic Paleustoll
fine, mixed, mesic
semiarid zone
eolian sediments
Sherman Co.

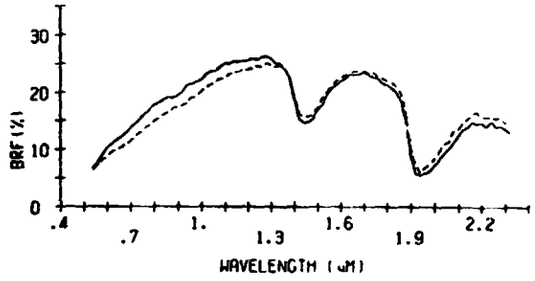
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
loam	clay loam
39%S 36%Si 25%C	22%S 46%Si 32%C
7.5YR 3/4 (moist)	10YR 3/3 (moist)
7.5YR 5/4 (dry)	10YR 4/3 (dry)
1.65% O.M.	1.89% O.M.
18.1 meq/100g CEC	28.7 meq/100g CEC
0.76% Fe_2O_3	0.84% Fe_2O_3
36.6 MW%	39.0 MW%



HODGINS(TX)

Ustollic Camborthid
fine-silty, mixed, thermic
arid zone
calcareous loamy alluvium
Pecos Co.

A11-A12 horizon	A11-A12 horizon
A slope	A slope
well drained	well drained
silty clay	silty clay loam
7%S 49%Si 44%C	6%S 66%Si 28%C
10YR 4/3 (moist)	10YR 4/2 (moist)
7.5YR 6/4 (dry)	10YR 5/3 (dry)
2.09% O.M.	2.82% O.M.
48.1 meq/100g CEC	48.5 meq/100g CEC
0.78% Fe_2O_3	0.77% Fe_2O_3
44.8 MW%	41.7 MW%

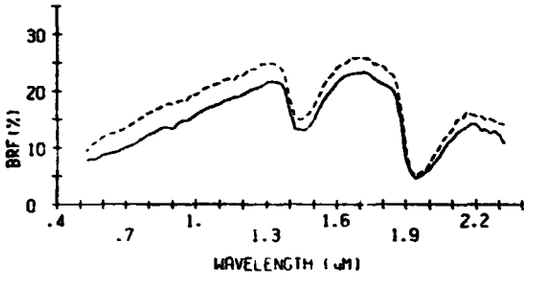


ABBOTT(UT)

Vertic Fluvaquent
fine, montmorillonitic, calcareous, mesic
arid zone
mixed alluvium
Millard Co.

____	----
Ap horizon	Ap horizon
A slope	A slope
poorly drained	poorly drained
silty clay	clay
2%S 41%Si 57%C	3%S 37%Si 61%C
5YR 4/1 (moist)	10YR 6/1 (moist)
10YR 5/1 (dry)	10YR 5/1 (dry)
1.79% O.M.	0.74% O.M.
49.8 meq/100g CEC	44.4 meq/100g CEC
0.30% Fe_2O_3	0.36% Fe_2O_3

49.2 MW%·____ 34.8 MW%·----

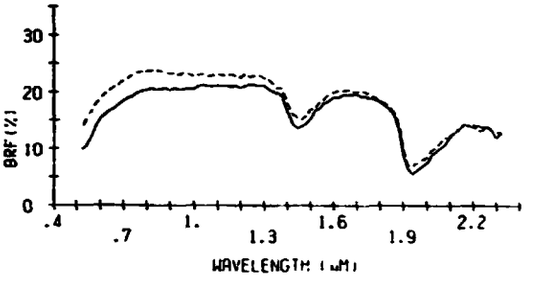


HARDING(UT)

Xerollic Natrargid
fine, mixed, mesic
arid zone
mixed sediments
Millard Co.

____	----
A2 horizon	A2 horizon
A slope	A slope
well drained	well drained
loam	sandy clay loam
41%S 34%Si 25%C	54%S 22%Si 24%C
10YR 6/4 (moist)	10YR 5/3 (moist)
10YR 6/3 (dry)	10YR 7/2 (dry)
0.13% O.M.	0.61% O.M.
33.0 meq/100g CEC	28.0 meq/100g CEC
0.51% Fe_2O_3	0.46% Fe_2O_3

26.1 MW%·____ 19.4 MW%·----

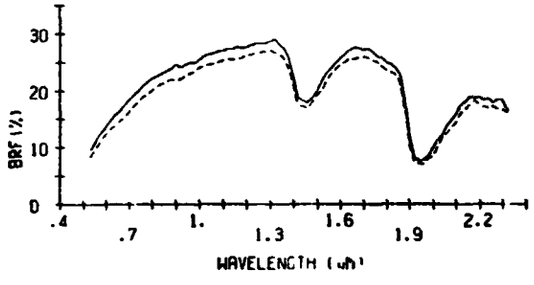


PALISADE(UT)

Typic Calciorthid
coarse-loamy, mixed, mesic
semiarid zone
calcareous glacial outwash
Millard Co.

____	----
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
v. fine sandy loam	silt loam
66%S 25%Si 9%C	26%S 56%Si 18%C
10YR 5/4 (moist)	10YR 5/3 (moist)
10YR 6/3 (dry)	10YR 6/3 (dry)
0.75% O.M.	1.99% O.M.
26.8 meq/100g CEC	30.7 meq/100g CEC
0.41% Fe_2O_3	0.58% Fe_2O_3

23.5 MW%·____ 33.9 MW%·----

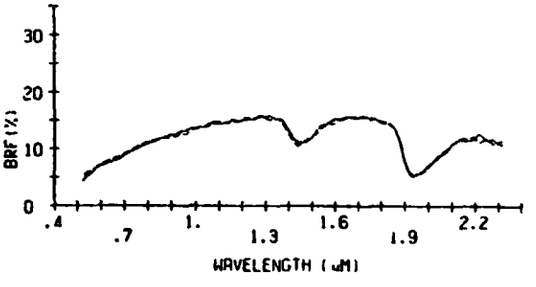


PHARO(UT)

Aridic Calcixeroll
loamy-skeletal, carbonatic, mesic
semiarid zone
gravelly alluvium
Millard Co.

____	----
A11-A12 horizon	A11-A12 horizon
B slope	B slope
s. excess. drained	s. excess. drained
loam	sandy loam
52%S 35%Si 13%C	54%S 34%Si 12%C
10YR 3/2 (moist)	7.5YR 3/2 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
1.42% O.M.	1.29% O.M.
25.9 meq/100g CEC	25.8 meq/100g CEC
0.48% Fe_2O_3	0.48% Fe_2O_3

23.2 MW%·____ 22.4 MW%·----

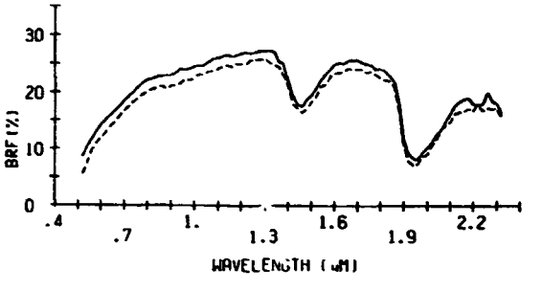


FREDERICK(VA)

Typic Paleudult
clayey, mixed, mesic
humid zone
clayey residuum from dolomitic limestone
Rockingham Co.

———	----
Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
silt loam	silt loam
21%S 62%Si 17%C	20%S 65%Si 15%C
10YR 4/4 (moist)	10YR 5/4 (moist)
10YR 7/4 (dry)	10YR 7/4 (dry)
1.16% O.M.	2.47% O.M.
7.2 meq/100g CEC	10.1 meq/100g CEC
1.30% Fe_2O_3	1.23% Fe_2O_3

27.1 MW%·—— 33.6 MW%·----

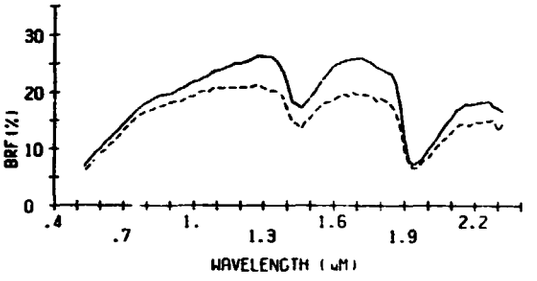


MURRILL(WV)

Typic Hapludult
fine-loamy, mixed, mesic
humid zone
colluvial acid material
Monroe Co.

———	----
Ap horizon	Ap horizon
C slope	D slope
well drained	well drained
silt loam	loam
28%S 56%Si 17%C	48%S 41%Si 11%C
10YR 5/4 (moist)	7.5YR 4/4 (moist)
10YR 6/4 (dry)	10YR 6/3 (dry)
2.24% O.M.	2.58% O.M.
10.3 meq/100g CEC	9.2 meq/100g CEC
1.48% Fe_2O_3	1.23% Fe_2O_3

27.3 MW%·—— 29.6 MW%·----

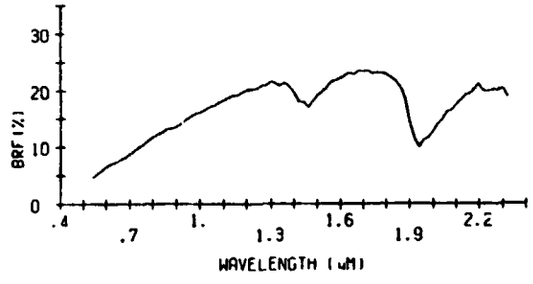


VILAS(WI)

Entic Haplorthod
sandy, mixed, frigid
humid zone
alluvium or outwash
Bayfield Co.

———
A1-A2 horizon
A slope
excess. drained
sand
91%S 8%Si 1%C
7.5YR 3/2 (moist)
7.5YR 5/2 (dry)
1.95% O.M.
8.7 meq/100g CEC
0.29% Fe_2O_3

8.8 MW%·——

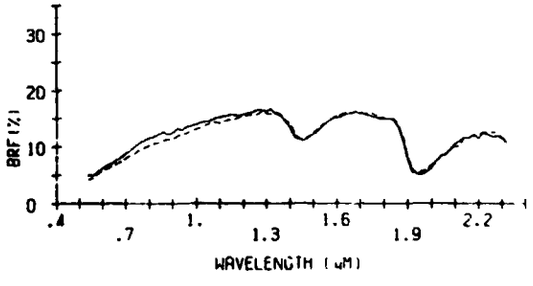


PENCE(WI)

Typic Haplorthod
coarse-loamy, mixed, frigid
humid zone
sandy loam drift over acid sand outwash
Florence Co.

———	----
Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
sandy loam	silt loam
53%S 40%Si 7%C	31%S 63%Si 6%C
10YR 3/3 (moist)	7.5YR 3/2 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
2.56% O.M.	2.79% O.M.
13.1 meq/100g CEC	12.3 meq/100g CEC
1.05% Fe_2O_3	1.08% Fe_2O_3

28.1 MW%·—— 25.7 MW%·----

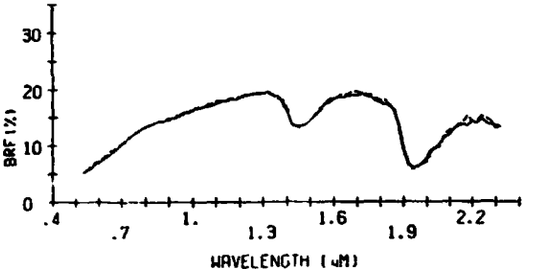


ANTIGO(WI)

Typic Glossoboralf
fine-silty over sandy or sandy-skeletal, mixed
humid zone
silty sediments over glacial sand
Langlade Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
18%S 71%Si 11%C	18%S 73%Si 9%C
10YR 4/3 (moist)	10YR 3/3 (moist)
10YR 6/3 (dry)	10YR 7/4 (dry)
3.28% O.M.	2.86% O.M.
12.9 meq/100g CEC	16.3 meq/100g CEC
1.24% Fe_2O_3	1.12% Fe_2O_3

33.1 MW%·____ 31.2 MW%·----

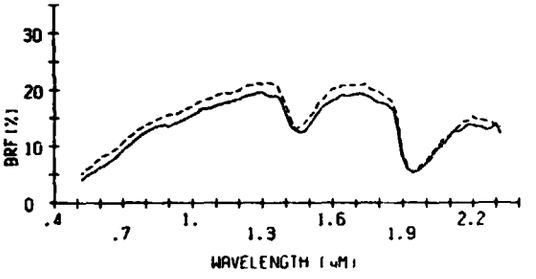


FENWOOD(WI)

Typic Glossoboralf
fine-loamy, mixed
humid zone
silty sediments and residuum from granitic rocks
Marathon Co.

Ap horizon	Ap horizon
B slope	B slope
well drained	well drained
silt loam	silt loam
30%S 61%Si 9%C	27%S 68%Si 5%C
10YR 3/2 (moist)	10YR 4/3 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
2.82% O.M.	2.96% O.M.
17.6 meq/100g CEC	18.6 meq/100g CEC
1.35% Fe_2O_3	1.16% Fe_2O_3

36.2 MW%·____ 37.2 MW%·----

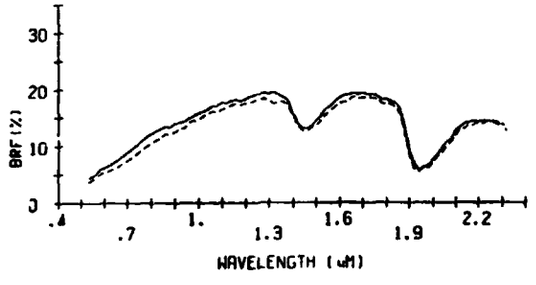


CAMPIA(WI)

Typic Glossoboralf
fine-silty, mixed
humid zone
silty eolian or lacustrine deposits
Polk Co.

Ap horizon	Ap horizon
A slope	A slope
well drained	well drained
silt loam	silt loam
13%S 76%Si 10%C	31%S 59%Si 10%C
7.5YR 3/2 (moist)	10YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/3 (dry)
3.58% O.M.	2.28% O.M.
16.8 meq/100g CEC	15.3 meq/100g CEC
0.73% Fe_2O_3	0.85% Fe_2O_3

52.0 MW%·____ 39.9 MW%·----

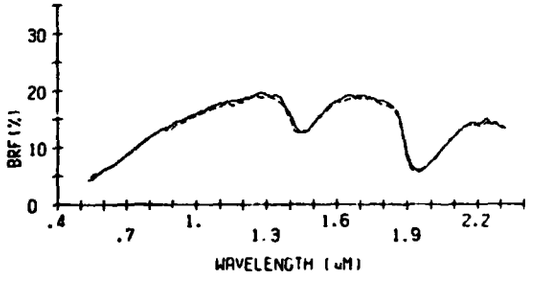


CUSHING(WI)

Glossic Eutroboralf
fine-loamy, mixed
humid zone
loam till with a silty mantle
Polk Co.

Ap horizon	Ap horizon
B slope	B slope
mod. well drained	mod. well drained
fine sandy loam	fine sandy loam
54%S 40%Si 7%C	54%S 39%Si 7%C
7.5YR 3/2 (moist)	7.5YR 3/2 (moist)
10YR 5/2 (dry)	10YR 5/2 (dry)
1.96% O.M.	2.55% O.M.
11.0 meq/100g CEC	12.7 meq/100g CEC
0.55% Fe_2O_3	0.59% Fe_2O_3

28.7 MW%·____ 29.1 MW%·----

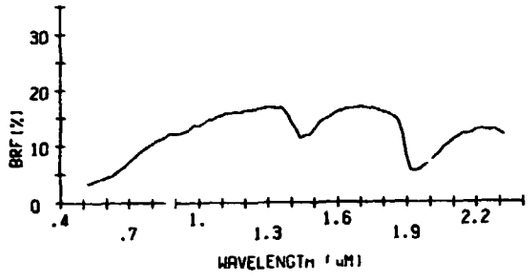


GOODMAN(WI)

Alfic Haplorthod
coarse-silty, mixed, frigid
humid zone
silty sediments over acid till
Price Co.

Al horizon
A slope
mod. well drained
silt loam
6%S 82%Si 12%C
7.5YR 3/2 (moist)
10YR 6/2 (dry)
7.44% O.M.
30.0 meq/100g CEC
1.04% Fe_2O_3

41.5 MW%·——

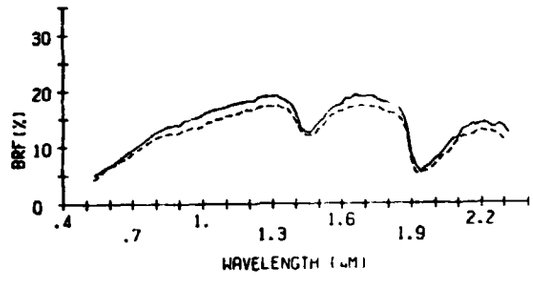


FOX(WI)

Typic Hapludalf
fine-loamy over sandy or sandy-skeletal, mixed, mesic
humid zone
loamy outwash over calcareous sand
Ozaukee Co.

Ap horizon	Ap horizon
C slope	C slope
well drained	well drained
silt loam	loam
28%S 61%Si 12%C	50%S 35%Si 15%C
10YR 3/3 (moist)	10YR 3/3 (moist)
10YR 5/3 (dry)	10YR 5/3 (dry)
2.78% O.M.	3.75% O.M.
17.0 meq/100g CEC	17.9 meq/100g CEC
1.05% Fe_2O_3	2.01% Fe_2O_3

32.0 MW%·—— 28.4 MW%·----

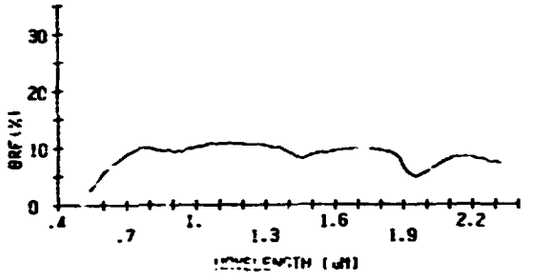


CASCAVEL (PR. BRASIL)

Haplic Acrorthox
very-fine, oxidic, thermic
humid zone
basalt
Municipio of Cascavel

A1 horizon
B slope
excess. drained
clay
15ES 18ZSi 67ZC
2.5YR 3/3 (moist)
2.5YR 3/6 (dry)
3.55% O.M.
19.8 meq/100g CEC
23.3% Fe_2O_3

ORTHOX • ___

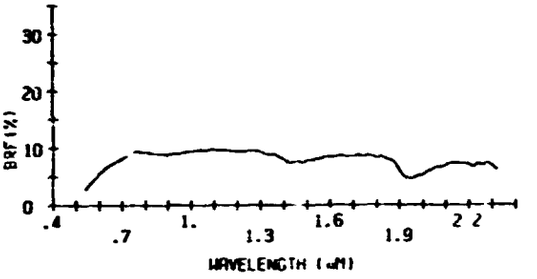


PATO BRANCO (PR. BRASIL)

Haplic Acrorthox
very-fine, kaolinitic, thermic
humid zone
basalt
Municipio of Pato Branco

Ap horizon
B slope
excess. drained
clay
9ES 23ZSi 68ZC
5YR 3/2 (moist)
5YR 4/4 (dry)
3.70% O.M.
20.2 meq/100g CEC
11.2% Fe_2O_3

ORTHOX • ___

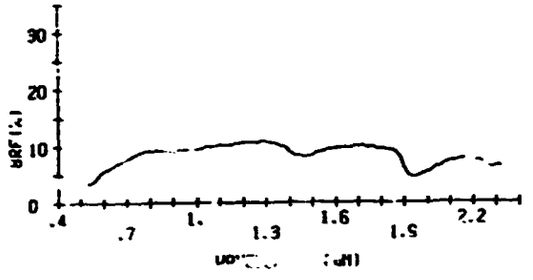


GUARAPUAVA (PR. BRASIL)

Typic Acrohumox
very-fine, oxidic, thermic
humid zone
andesite
Municipio of Guarapuava

A1 horizon
B slope
excess. drained
clay
6ES 46ZSi 48ZC
7.5YR 3/2 (moist)
7.5YR 4/4 (dry)
9.2% O.M.
41.6 meq/100g CEC
14.0% Fe_2O_3

HUMOX • ___

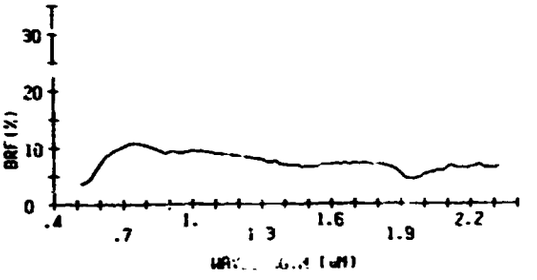


LONDRINA (PR. BRASIL)

Typic Haplorthox
very-fine, kaolinitic, hyperthermic
humid zone
basalt
Municipio of Londrina

A1p horizon
C slope
excess. drained
clay
9ES 14ZSi 77ZC
2.5YR 3/6 (moist)
2.5YR 4/6 (dry)
2.28% O.M.
22.1 meq/100g CEC
25.6% Fe_2O_3

ORTHOX • ___



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