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# DESCRIPTION

*Applied Clay Science* aims to be an international journal attracting high quality scientific papers on clays and clay minerals, including research papers, reviews, and technical notes. The journal covers typical subjects of Fundamental and Applied Clay Science such as:

- Synthesis and purification
- Structural, crystallographic and mineralogical properties of clays and clay minerals
- Thermal properties of clays and clay minerals
- Physico-chemical properties including i) surface and interface properties; ii) thermodynamic properties; iii) mechanical properties
- Interaction with water, with polar and apolar molecules
- Colloidal properties and rheology
- Adsorption, Intercalation, Ionic exchange
- Genesis and deposits of clay minerals
- Geology and geochemistry of clays
- Modification of clays and clay minerals properties by thermal and physical treatments
- Modification by chemical treatments with organic and inorganic molecules (organoclays, pillared clays)
- Modification by biological microorganisms
- Structural and textural modifications of clay minerals (metakaolin etc)
- Synthesis of other materials (such as zeolites, geopolymers) starting from clay minerals. However, the main part of the manuscript should be focused on clay minerals)
- Novel materials based on clay minerals such as clay polymer (bio)nanocomposites
- Clays and clay minerals in formulations of pesticides and drugs and in animal food production
- Environmental applications such as Radioactive Waste Disposal, and Water Engineering, Depollution of heavy metals, Filtration
- Fillers and coating (paint, rubber, plastics)
- Drilling fluids and drilling muds in petroleum industry
- Foundry moulding
- Applications in soil chemistry and in agriculture
- Applications of clay mineral in hydrocarbon and geothermal prospection
- Geotechnical applications of clays and clay minerals
- Applications in ceramics, construction, iron ore and steel industry, paper, catalysis, cosmetics
- Related lamellar materials such as Layered Double Hydroxides (LDH), layered oxides, layered silicates, Cement Silicate Hydrates (CSH)
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AUDIENCE

Clay scientists, Materials scientists, Mineralogists, Crystallographers, Chemists, Physicists, Geologists, Soil scientists, Geotechnical and petroleum Engineers, Environmental scientists, and all researchers, engineers, industrials and students using clays and clay minerals

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The submitted text of Research Papers should cover no more than 20 pages (without Tables, Legends, and References, style: font size 12, double line spacing). The maximum number of illustrations should not exceed 10. Results may be shown in tables or figures but not in both of them.

2. Review Articles
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3. Communications
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4. Technical Notes
Notes refer to resources, technologies, and applications of clays and clay minerals of mainly local interest. They must satisfy the same high scientific standard as the Research Papers and will be peer-reviewed like the other categories of manuscripts. The submitted text should not exceed 10 pages (without Tables, Legends, and References, style: font size 12, double line spacing). No more than 5 illustrations should be presented. This note will appear only by DOI and will not be published in hard copy. However, a summary can be accepted in hard copy.

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**Correct terminology**


**Part A: Fundamentals**

**Part B: Techniques and Applications**

- Most used abbreviations in the Handbook: kaolinite (Kaol), kaolin (K), metakaolin (MK)
  - montmorillonite (Mt), bentonite (Bent)
  - smectite (Sm), beidellite (Bd), hectorite (Ht)
  - Laponite (Lap)
  - sepiolite (Sep)
  - illite (I)
  - illite-smectite (I-Sm)
  - palygorskite (Pal) (avoid attapulgite) - Abbreviations should not contain final 's' even for plural

- When naming the mineral, all the names of natural clay minerals are with low case but Laponite is with capitalized initial because it is the name of a synthetic clay mineral
- Phyllosilicates cannot be used instead of clay minerals: all the phyllosilicates are not clay minerals.
- Clay minerals are a group of phyllosilicates.
  - Distinguish clearly between clay and clay mineral
  - Clay layer (surface, charge etc.) should be clay mineral layer (surface, charge etc.)
  - Clay should be specified such as bentonite, kaolin;
  - Clay mineral should be specified such as montmorillonite, kaolinite
  - Bentonite clay, montmorillonite clay, smectite clay should be bentonite, montmorillonite, smectite
  - Natural clay should be raw clay
  - Polymer clay (mineral) (nano)composite should be clay (mineral) polymer (nano)composite, abbreviated CPN
  - Tetrahedral (octahedral) layer should be tetrahedral (octahedral) sheet. One layer contains one or two tetrahedral sheet and one octahedral sheet.
  - Anionic clay = layered double hydroxide (LDH)
  - Nanosized zero valent iron and similar expressions should be iron nanoparticles
  - Oxides also containing hydroxyl groups (oxyhydroxides) should be (hydr)oxides
  - Use adsorption, adsorbed, adsorbent instead of sorption, sorbed, sorbent
  - Use reflection instead of peak (or diffraction peak) when describing XRD diagrams
  - d001 reflection is incorrect: use 001 reflection (basal reflection) or d001-value!
  - d-spacing must be d-value
  - Use dispersion instead of suspension (in most cases)
  - Interlayer spacing should be interlayer space
  - Gallery should be avoided, gallery (height) or spacing should be interlayer space
  - Ionic (cationic, anionic) exchange should be ion (cation, anion) exchange
  - Weight, molecular weight should be mass, molar mass
- Weight loss should be Mass loss
- Mole ratio should be molar ratio
- Percentage must indicate what type - volume, mass, etc.
- Surface area should be specific surface area
- Use correct nomenclature for surfactants, e.g. dimethyl dialkylammonium ions or trimethyl alkylationmonium ions must be dialkyl dimethylammonium ions, alkyl trimethylammonium ions etc.

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3. **Abstract results, Experiments** and **results** have to be reported in past tense (neither present nor perfect tense)

4. **Experimental section:**
   - Experimental data should not be given with too many digits. Please consider the limits of error.
   - It is important that all relevant details are given including all materials used (plus where obtained), all experimental procedures and all significant details regarding analytical techniques used. It is also important to include the minimum information about clay minerals used in the paper such as their chemical composition in mass% of the various oxides or the structural formula and the cation exchange capacity.
   - Relevant information with regards to replicate samples and replicate analyses plus the relevant corresponding statistical information (errors, error bars in figures, repeatability, reproducibility, etc.)

4a. **X-ray diffraction.**
   - Details should include name/model of instrument, radiation source (Cu, Mo, etc) and wavelength, whether monochromator is used, slit width (detector and/or Soller), step scan size, counting time (atmosphere and temperature if applicable).
   - And for clay minerals it is very important that the sample preparation is described in detail.

4b. **Thermal analytical techniques.**
   - For methods like TGA, DTA and DSC details should include the name/model of the instrument, heating (cooling, constant temperature time) rate in °C/min, atmosphere (air, nitrogen, vacuum, etc.).
   - Make sure that mass loss in TGA is reported in percentages.
   - Make sure that there is no confusion between DTA and DSC (both measure exo/endothermic reactions but DTA must be reported in °T, whereas DSC is reported either as heat flow (mW) or energy rate per time unit).
   - In the case of evolved gas analysis details of the instruments used and their settings should be reported similar to when these techniques are used as stand-alone techniques (GC-MS, Mid-IR spectroscopy, etc.)

4c. **Spectroscopic methods.**
   - Infrared (IR) Spectroscopy or Mid-Infrared should be properly named when **Far-Infrared and Near-Infrared** are involved throughout the manuscript.
   - Make sure that the term frequency is only used when reporting in Hz, while cm-1 refers to wavenumber or spectral regions and not frequency!
   - Peaks and vibrations should be bands (vibrations refer to the motions between the atoms in the structure).
   - For band fitting program used, setting used (and in the main text rationale for the number of bands) must be given.
   - For all techniques the instrument name/model should be included plus type of technique (FT-IR, DRIFT, ATR, microscopy, emission), the spectral range (in cm-1), resolution (in cm-1), number of scans, detector type, (if possible mirror velocity) and sample preparation (KBr tablet with sample concentration, for other techniques like DRIFT, ATR, single crystal microscopy, etc.).
   - When appropriate the atmosphere in which measurements were made.
   - For **Raman spectroscopy** the instrument name/model must be included plus the type of technique (FT-Raman, Raman microscopy), type of laser and its wavelength, spectral range (in cm-1), resolution (in cm-1), number of scans, type of microscope and m
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