INDIGENOUS KNOWLEDGE USE OF CLAY WITHIN AN AFRICAN CONTEXT: POSSIBLE DOCUMENTATION OF ENTIRE CLAY PROPERTIES?

Charles Akwe Masango

University of Cape Town, South Africa charlesamasango@yahoo.com

Georges Ivo Ekkose

University of Venda, South Africa ekosseg@gmail.com

Vhonani Netshandama

University of Venda, South Africa vhonani.netshandama@googlemail.com

ABSTRACT

This article explores the use of indigenous knowledge in documenting applications of clay. It explores whether it is possible to document the entire properties involved in the indigenous application of clay; considering that clay properties encompass a wide variety of scientific structures, as well as spiritual healing properties. Several studies have been carried out, which documented the varied scientific properties; but of intrigue concern is the difficulty in doing the same to the spiritual healing properties of clay, as it encompasses intangible mechanism. The challenge to documenting the spiritual elements that form part of clay properties is tantamount to documenting certain portions of properties of the indigenous use of clay, and not the entire indigenous knowledge properties of clay. The raison d'être for the exploration stems from the notion that cultures across continents and scientists have documented the use of clays for several gainful applications. The article explores African indigenous knowledge, which is tied to the properties in the use of clays that can and cannot be documented in their entirety, and advances reasons why the spiritual aspects tied to clay properties cannot be documented. The article proposes measures within Intellectual Property Rights (IPR) in the form of copyright, through which the entire properties involved in the indigenous knowledge use of certain clay properties could be documented in their entirety.

Keywords: clay; indigenous knowledge; Intellectual Property Rights (copyright); properties



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INTRODUCTION

Mugabe (1998) is of the view that

Indigenous Knowledge (IK) is that knowledge that is held and used by a people who identify themselves as indigenous of a place based on a combination of cultural distinctiveness and prior territorial occupancy relative to a more recently-arrived population with its own distinct and subsequently dominant culture.

Following the Interinstitutional Center for Indigenous Knowledge's interpretation (2012), IK "focuses on the ways of knowing, seeing, and thinking in areas such as agriculture, animal husbandry, child rearing practices, education systems, medicine, and natural resource management" that are orally passed down from one generation to the next. According to Boven and Morohashi (2002), indigenous knowledge encompasses "language, naming and classification systems, practices for using resources, ritual, spirituality, and worldview." The purpose of this article is to examine the possible documenting of clay properties applied to spiritual healing. It questions whether it is possible to document the entire properties involved in the IK use of clay for spiritual healing purposes. The rationale for the examination stems from the notion that cultures across continents and scientists have documented the use of clays for several other gainful applications (Lei 2006).

In order to examine indigenous knowledge of clay for spiritual healing; and whether the entire properties involved in the indigenous knowledge of clay can be documented in its entirety; the article first examines the possible reasons for the documentation of indigenous knowledge use of clay. Secondly, the article examines certain types of indigenous knowledge properties use of clay. The type of indigenous knowledge properties of clay that can and cannot be documented is revealed. Thirdly, the article explores possible reasons why certain elements of clay properties are considered spiritual. Fourthly, the article advances reasons why the spiritual aspects involved in clay properties may be difficult to document. Finally, the article proposes measures within Intellectual Property Rights (IPR) in the form of copyright; through which the entire properties involved in the indigenous knowledge use of certain clay properties could be documented in their entirety.

RATIONALE FOR DOCUMENTING INDIGENOUS KNOWLEDGE USE OF CLAY

Among the many reasons for documenting the indigenous knowledge of clay is because it "might in time lead to ... being part of the [medical] science curriculum" (Keane 2006, 193), as research has revealed that "clays are used for several purposes including brick making, ceramics, pottery, tiles, paint, filling and coating, medicine and cosmetics" (Matike, Ekosse and Ngole 2010, 138). According to Ferrell, Jr. (2008, 752), "the use of clay for medical purposes has a long history, dating back to 2500 BC when the Tablets of Nippur identified the wound healing and other properties of clays." According to Choy et al. (2007, 123-124),

for the purpose of aesthetic medicine in cosmetic products, geotherapy, pelotherapy, and paramuds, the cationic clays are also used as active principles or excipients. For example the geotherapy is mainly used for facial treatments to treat dermatological problems such as blackhead, spots, acne, seborrhea, etc and to promote perspiration and sebaceous secretions. Paramuds are used to moisturize the skin and act as anti-inflammatory

One can argue that clay might become part of the science curriculum because the clay eater progressively emerged as academic disciplines examined cultures worldwide to understand the significant effects and benefits of eating clay (Lei 2006). Following Lei (2006) "in studies appearing in academic and scientific journals over the past decade, the practice of earth eating is revealed as an evolutionary behaviour that in fact developed hand in hand with the early origins of medicine".

With regard to the cosmetic usage of clay, it is reported that "clays in combination with other natural substances such as plant and animal extracts have over time been used by different indigenous African communities to meet their cosmetic needs" (Matike, Ekosse and Ngole 2010, 138). According to Ng'etich et al. (2014, 25), cosmetic usage of clays encompass "cleansing the skin, emulsification, beauty, adsorption, detoxification, ion exchange with the skin and trans-dermal nutrient supplementation of elements such as calcium, iron, magnesium, and potassium."

Indigenous knowledge of clay should be documented as, for example; it provides the basis for local-level decision making for hunting, fishing, agriculture and husbandry, food production, water as well as health (Boven and Morohashi 2002). According to Ng'etich et al. (2014, 25), "clay minerals are beneficial to human health by serving as active principles or excipients in pharmaceutical preparations and in beauty therapy medicines." According to Choy, Choi, Oh and Parks (2007, 123) "the properties which make clay minerals useful in pharmaceutical applications are the high adsorption ability, high internal surface area, high cation exchange capacity, interlayer reactions, chemical inertness, and low or null toxicity." Williams, Haydel and Ferrell, Jr. (2009) maintain that the healing practices of ancient cultures and modern society have relied on clay minerals to treat a multiplicity of topical and internal maladies, such as toxins and gastrointestinal maladies that cause borborygmi – the stomach rumblings caused by gas moving through the intestines. Ferrell, Jr. (2008, 752) also maintains that "knowledge of the healing power of ingested clays could greatly reduce deaths due to diarrhea-like disorders that are prevalent today and becoming more immune to antibiotic drugs." Matike, Ekosse, and Ngole (2010, 138) are of the view that clay "constitutes a significant aspect of human health", when used as a cosmetic product against ultraviolet radiation for example, in sunscreens. According to Ng'etich et al. (2014, 25), "sunscreens from natural sources like plants and clay are ... being explored as cheap, reliable, and available and ... offer simple alternative health benefits." Arledge (2010) is of the view that,

clay communicates with the body and acts as a catalyst that supports the body in healing itself by cleansing, detoxing, stimulating circulation and balancing body pH. A Living Clay has an electro-magnetic energy charge. In other words, it assists the body in regaining equilibrium and thus the normal flow of energy.

It can be argued that the use of clay could "lead to solving practical [health] problems" (Keane 2006, 185), as it has high absorption properties that give it the ability to absorb toxins, grease, and unwanted substances found beneath the skin (Matike, Ekosse and Ngole 2010, 144). Ng'etich et al. (2014, 25) maintains that clays "eliminate' excess grease and toxins from skin thus preventing dermatological diseases such as boils, acnes, ulcers, abscess, and seborrhoea." According to Amazing Discoveries (2009), "clay has a unique power to attract impurities and toxins out of the human body, simply because clay is electro negative and the impurities and toxins are electro positive." Furthermore, it is reported that " 'clay eating has been associated with treatments for cholera and bacterial infection ... and cures for poison" (Lei 2006). Williams, Haydel and Ferrell, Jr. (2009) maintain that "the beneficial uses of clay ... for bacteriostasis, sterilization, membrane coating, adsorption of toxins, and the clearing of the alimentary canal were recorded historically in pharmacopoeiae until the 1850s." According to Keane (2006, 201), depending on the complaint, community members use both "Western and traditional medicine." It is reported that in Nigeria traditional healers combine clay with plant substances in several medicinal remedies, "half of which are associated with pregnancy, the rest used to ease stomach ailments and dysentery. 400 to 500 tons of these medicines are produced and sold each year, a testament to their widespread use." (Lei 2006).

Another reason why the use of clay should be documented is because clay is used to produce bowls and pots for safe storage of drinking water. According to Tiamat (2009), clay is used to make sacred smudge bowls. It is reported that in the three districts of Nyanza province in KenyaHoma Bay, Rachuonyo, and Suba – where the climate is hot and only 34 per cent of the population has access to safe drinking water, as their main water sources are heavily polluted, 90 per cent of the residents use clay pots for storing drinking water; as the pots have "an evaporative cooling effect on the water" (Boven and Morohashi 2002). According to Boven and Morohashi (2002), clay pots can be used for as long as 20 - 30 years without replacement.

Indigenous knowledge of clay should be documented as it incorporates tacit attitudes that need to be reflected upon following their personal, institutional, societal and policy nature (Keane 2006, 189). It could be argued that the personal, institutional, societal and policy nature of indigenous knowledge of clay emanate from the fact that it is "handed over orally, from generation to generation and is therefore seldom documented [hence considered] as a large body of knowledge and skills that has been developed outside the formal educational system" (Boven and Morohashi 2002).

Another possible reason why the indigenous knowledge of clay should be documented is that it is associated with the survival and subsistence of many people (Boven and Morohashi 2002), as it is consumed by human beings and sold to the markets. This phenomenon, known as geophagia, is very rampant not only in Africa but is practiced in all the continents of the world also. Key consumers are pregnant and lactating females, as well as children (Ekosse and Ngole 2012; Ekosse and Obi 2015). Amazing Discoveries (2009) says that "the most common clays on the market are green, white, grey, yellow, red, blue, black, and pink." According to Ferrell, Jr. (2008, 752), clay is sold overtly in the markets of Mexico, Esquipulas, and Guatemala. According to Williams, Haydel and Ferrell Jr. (2009), the scientific terms used for edible clay include "beidellitic montmorillonite, chalk, clay dirt, white dirt, clay tablets, colloidal minerals, panito del senor, Terra sigillata, and white mud." It is reported that pregnant women are engaged in clay consumption. For example Lei (2006) maintains that;

in sub-Saharan Africa, the rates of pregnant women eating soil or clay range from 28 % in Tanzania to 65 % in Kenya. Clay is prepared and sold in markets, or taken from termite mounds known to be rich in minerals, and eaten at an average of 30g daily.

Furthermore, among African Americans "kaolin, a clay mined in North Carolina and Georgia... are available for purchase in shops throughout the South, marketed as 'down home Georgia white dirt' and 'Mississippi mud'" (Lei 2006).

Indigenous knowledge of clay should be documented in order to explore and accord due respect to its explicit and "non-explicit ontologies" (Keane 2006, 189). The explicit ontologies consist for example, of "hydrated silicates of aluminum, regarded as the material from which the human body was formed. [Hence] clays and the body are both essentially made up of nano, silica crystals" (Arledge 2010). Following the argument by Boven and Morohashi (2002), clay properties encompass the cultural complex body of knowledge that embrace rituals and spirituality. One can argue that although the explicit ontologies need to be studied, rituals and spiritualties that are considered non-explicit ontologies need to be studied carefully as they are "not only perspectives formed into a set of beliefs, they are an expression of profound knowledge systems and ontologies that shape and guide perception and thinking" (Keane 2006, 189).

TYPES OF INDIGENOUS KNOWLEDGE PROPERTY USE OF CLAY: WHICH PROPERTIES FOR POSSIBLE DOCUMENTATION

Clays comprise physicochemical, petrographic, mineralogical, chemical, geochemical properties (Diko and Ekosse 2014; Matike, Ekosse and Ngole 2010, 145; Ngole-Jeme and Ekosse 2015), as well as complex cultural knowledge that embraces rituals and spirituality (Boven and Morohashi 2002). Matike, Ekosse, and Ngole (2010, 140) corroborate the assertion that clays have spiritual elements as in ancient Egypt "people applied different types of clays on their body for spiritual purposes." Manataka American Indian Council (n.d.) maintains that clays are "used in meditation and

spiritual ceremonies." According to Williams, Haydel and Ferrell Jr. (2009), clay is deliberately consumed for spiritual healing. Furthermore, Illes (2015) say Rhassoul clay, for example, has ritual and magical uses.

Among the chemical properties of clays is their protective function when applied on the skin to act as sunscreen. According to Williams and Haydel (2010, 745), "clays have been used to heal skin infections since the earliest recorded history." According to Elmarzugi et al. (2013, 44);

sunscreen also known as sun block is a topical product ... that helps to protect the skin from Ultra Violet (UV) rays. It is used to deflect UV rays based on their mechanism of action and product type.

Corroborating this view, Ng'etich et al. (2014, 25) maintain that sunscreen is "placed in contact with the human skin with a view exclusively or mainly to protect it from UV rays through absorbing, scattering or reflecting radiation." It is reported by Matike, Ekosse and Ngole (2010, 144) that

clay minerals such as kaolinite, talc, and smec-tites have the ability to form a film that provides the skin mechanical protection against ultraviolet radiation as they are capable of absorbing or scattering radiant energy.

Hoang-Minh et al (2010, 355) are of the view that "clays show potential for UV protection through absorption or reflection of UV radiation." They are also of the view that "various clays including kaolin, smectite, mixed-layer series-dominated clay and mica-dominated clay [has the potential] to protect against ultraviolet (UV) radiation in the range 250-400 nm" (Hoang-Minh et al 2010, 349). Furthermore, the chemical properties of clay have, for a long time, been used for cosmetic purposes. Choy et al (2007, 123) maintain that

clay minerals are used as excipients in pharmacological applications to improve the organoleptic properties, for example, taste, smell, and colour, or the physical and chemical ones, and to facilitate and promote the pharmacological formulations

Following the argument by Elmarzugi et al. (2013, 43), "the first archaeological evidence of cosmetics usage [of clay] is found in ancient Egypt around 4000BC." It was also reported that because of the presence of iron in goethitic and haematitic clays, traditional African societies extensively use these clays for cosmetic purposes (Matike, Ekosse and Ngole 2010, 139). According to Choy et al (2007, 123–124) the chemical composition of clays has made it possible for clays to be used as "antiperspirants, to give the skin opacity and remove shine or blemishes."

One can argue that the chemical properties embedded in clay can be documented in their entirety because they not entail rituals and spirituality as they encompass physical or tangible elements that can be seen, confirmed and proven with the naked eye. For example, it can be documented in its entirety, confirmed and proven with the naked eye that the physical elements of iron found in goethitic and haematitic clays are used for cosmetic purposes. Furthermore, Foley (2009) documents that it can be documented in its entirety, proven and confirmed with the naked eye that the physical elements of

clay minerals all have a great affinity for water. Some swell easily and may double in thickness when wet. Most have the ability to soak up ions – electrically charged atoms and molecules – from solution and release the ions later when conditions change.

Following Foley's (2009) argument, it can be entirely documented, proven and confirmed with the naked eye that the physical elements of

a mixture of a lot of clay and a little water results in a mud that can be shaped and dried to form a relatively rigid solid. This property is exploited by potters and the ceramics industry to produce plates, cups, bowls, pipes ...

Also, it can be documented in its entirety, proven and confirmed with the naked eye that "bentonite is also used as a soil liner for environmental containment applications and with polyacrylamide for making paper" (Foley 2009). Furthermore, "German reference kaolins" can be documented in its entirety as its composition encompasses "Caminau, Wolfka, Spergau, and Seilitz kaolins" (Hoang-Minh et al 2010, 350), and are physical or tangible products.

On the other hand, one can argue that the complex cultural body of knowledge, knowhow, and practices maintained and developed by peoples in rural areas, that embraces explicit and "non-explicit ontologies" (Keane 2006, 189), cannot be documented in its entirety as the non-explicit component involves rituals and spirituality. One can argue that although the spiritual healing properties of clay can be proven and confirmed in certain cases, as it is alleged that "one of Living Clay's spiritual healing properties is that of homeostasis ... the ability of a system or living organism to adjust its internal environment by several complex biological mechanisms that operate via the autonomic nervous system to maintain a stable equilibrium" (Arledge 2010), it may be difficult to document the spiritual healing properties of clay as it is intangible or not physical in nature. For example, it may be difficult to document a non-physical system or living organism that adjusts its internal environment by several complex biological mechanisms through an automatic nervous system. It may be difficult for the naked eye to identify a system or living organism as it is considered spiritual and the spiritual aspects are intangible products.

WHY CERTAIN CLAY PROPERTIES ARE CONSIDERED SPIRITUAL

One can argue that clay properties are considered spiritual because it "provides a direct connection between human health and Earth's rocks and minerals" (Williams, Haydel and Ferrell Jr. 2009). According to Illes (2015) the use of clay "dates back to prehistoric

times" as it is reported that "clay is one of the absolute oldest healing remedies on earth" (Amalux n.d). Ferrell, Jr. (2008, 751) is of the view that the direct consumption of clay for medical and spiritual purposes occurs worldwide and is "deeply rooted in folk medicine and religion" and "are intimately intertwined." Williams, Haydel and Ferrell Jr. (2009) maintain that when clay is consumed "intermediaries in the food chain are eliminated, thus providing direct access to potentially beneficial or harmful elements and compounds associated with the ingested materials."

Clay properties are considered spiritual because they "remains one of the most mysterious – and underestimated – medicinal mediums, despite the fact that it ranks among the very oldest magical, therapeutic, ritual, and cosmetic ingredients" (Illes 2015). Corroborating the mysterious aspect of clay, King (2015) maintains that "clay's healing powers remain a mystery." For example, it is reported that Rhassoul clay is "considered detoxifying – not only physically, but spiritually [as it] can be used as a component of enchanted baths, especially those intended for purification" (Illes 2015). It can also be argued that the mysterious aspect of clay is demonstrated by the fact that in ancient times a pregnant woman was made to consume, on a daily basis, specially prepared tiny balls of clay that made the mother and child grow "stronger and healthier with fewer birth complications." (Manataka American Indian Council, n.d.). Also, the mysterious aspect of clay is established when "clay provides our bodies with trace minerals that go through the skin into the blood stream. This occurs with the application of an external poultice" (Amazing Discoveries 2009).

Clay properties are also considered spiritual because they "have distinctive magical and therapeutic use" (Illes 2015). According to Williams and Haydel (2010, 746), "clays have been used topically in mud spas (pelotherapy) to adsorb toxins from skin and provide heat to stimulate circulation for rheumatism treatment." Manataka American Indian Council (n.d.) reports that when "Manataka Healing Clay" for example was applied, "it created gateways through which energy, healing, and information may pass." According to Amazing Discoveries (2009):

Clay is antiseptic (prevent decay or putrefaction), cicatrizing (promotes wound healing), antiinflammatory (relieves and prevents inflammation), anti-carcinogenic (cleans cancer cells), emollient (softens and soothes the skin), refrigerant (cools and reduces body heat), and cosmetic (improve skin's texture)

Furthermore, when clay is placed inside the human body it acts as a "powerful detoxifier, especially the Bentonite Clay, which can absorb heavy metals such as mercury, arsenic, lead, and tin" (Amazing Discoveries 2009).

Clay properties are considered spiritual also because the miraculous healing properties of clay are relatively unknown (Amazing Discoveries 2009). It is reported that pyrophyllite clay, for instance, has been used both internally and externally for physical healing for the last 20 years (King 2015). Ferrell, Jr. (2008, 751) is of the view that the legendary powers of the Chimayo clays, for example, found in the "small village

on State Highway 76, ~25 miles northeast of Santa Fe, New Mexico" originated as a result of a miracle. According to Manataka American Indian Council (n.d.), the keys to unlocking the healing qualities of clay are hidden. Corroborating this view, Arledge (2010) maintains that "many of the healing properties of clay cannot be explained by scientists." It is reported that when clay is taken internally, some internal processes guides it immediately "to the places that needs to be fixed" (Amazing Discoveries 2009); as clay encompass colloidal properties that eliminate toxins and harmful substances from the body. According to Arledge (2010), "clay has wisdom of its own. It knows where to go and what to do [following that] clay is a nano crystal [and] crystals are capable of memory and holding energy." According to Manataka American Indian Council (n.d.), crystals are used both in spiritual rituals and as aids to physical healing. The Manataka American Indian Council (n.d.) found that crystals have the metaphysical power of healing, as

metaphysical healing relies on the innate powers of healing crystals. For example, rose quartz is great for emotional healing, amethyst crystals for headaches, malachite for the stomach, lapis for anxiety, and jade for the heart.

POSSIBLE REASONS FOR NON-DOCUMENTATION OF SPIRITUAL CLAY PROPERTIES

One can argue that among other reasons for the non-documentation of the spiritual properties of clay is because their "claims are not supported by objective scientific studies" (Ferrell, Jr. 2008, 752). For example, the assertion that when clay is taken internally, some internal processes guide it immediately to the places that need to be fixed (Amazing Discoveries 2009); is yet to be justified scientifically. Also, the assertion that when "Manataka Healing Clay" for instance, was applied, "it created gateways through which energy, healing, and information may pass" (Manataka American Indian Council n.d.), is also yet to be justified scientifically. According to Williams and Haydel (2010, 746), "of the many historical accounts of clays, muds, and soils used by people for 'healing', the scientific evidence of the action of clays for treating and healing ulcers, tumors, cysts, cancers, osteoporosis, is lacking." Furthermore, Manataka American Indian Council [n.d.] is of the view that "the use of [clays] for healing is not an exact science."

In addition, another reason for the non-documentation of spiritual clay properties is that these properties encompass non-physical or non-tangible elements that cannot be seen, confirmed or proven by the naked eye. For instance, the spiritual healing properties of clay in the form of homeostasis, that is "the ability of a system or living organism to adjust its internal environment by several complex biological mechanisms that operate through the autonomic nervous system to maintain a stable equilibrium" (Arledge 2010), are non-physical or non-tangible elements that cannot be seen, confirmed and proven with the naked eye. Another possible reason for the non-documentation of the spiritual properties of clay is the assumption that is often made with regard to the spiritual nature of clay properties – for instance, the assertion that when clay is consumed "intermediaries in the food chain are eliminated, thus providing direct access to potentially beneficial or harmful elements and compounds associated with the ingested materials" (Williams, Haydel and Ferrell Jr. 2009). Another assumption is that when clay is placed inside the human body it acts as a "powerful detoxifier, especially the Bentonite Clay, which can absorb heavy metals such as mercury, arsenic, lead, and tin" (Amazing Discoveries 2009). The issue of the absorption of heavy metals can be seen as assumptions as it has not been tested. According to Ferrell, Jr. (2008, 758), the extractability of elements in the gastric tract of human beings is often assumed to take place when clay is ingested. According to Manataka American Indian Council (n.d.), "no one seems to know for sure" how crystals work. People believed in their "capacity to store and amplify any power source fed into them – physical, mental, emotional, or spiritual."

MEASURES TO ENHANCE FULL DOCUMENTATION OF CERTAIN CLAY PROPERTIES

Given that it may be difficult to document the spiritual healing properties of clay as it is intangible in nature, this aspect can only be documented when it is made a tangible product. For instance, one can argue that sacred clay that enhances the quality of water when added to it can be documented because the toxins, chemicals, fungi viruses and bacteria that it removes (King 2015), are tangible products that can be seen, confirmed and proven with the naked eye. Also, the content of pyrophyllite clay that is approximately 60 per cent of silica (King 2015) can be documented because the pyrophyllite clay and the silica are tangible items that can be seen, confirmed and proven with the naked eye. Furthermore, pure clay that is called kaolin, when found in large quantities can be documented in its entirety because its content that encompasses "silicate of aluminum" (Weems 1904, 322) can be seen, confirmed and proven with the naked eye.

Given that there are spiritual properties embedded in clays, the spiritual components could possibly be documented when scholars transform the spiritual aspects of clays into literary products that can be seen, confirmed and proven with the naked eye. Where a scholar, for example, transforms the spiritual aspect of clay into a literary product, the scholar automatically owns the copyright for the literary work. According to Band (2008), once ink flows from a pen onto paper, copyright applies as literary works are produced. According to Masango (2008, 232):

copyright is a procedure whereby the originator of a recorded work acquires a series of rights over the work created, including copying, publishing, performing, broadcasting and adaptation for a determined period of time.

For example, scholars who transformed the non-spiritual aspects of geophagy; that is the practice of eating earth materials containing clay minerals into a tangible product have copyright of the literary work. Hence, the literary works that state that geophagy encompasses "a healing response in humans through ingesting the easily available materials that may physically soothe an infected and inflamed gastrointestinal lining" (Williams and Haydel 2010, 746), is the copyright of the first scholar who came out and placed the finding into a literary form. This is because copyright operates in new works of authorship, fixed in any tangible medium of expression, from which they can be replicated, perceived, communicated either directly, or with the aid of a machine or device.

CONCLUSION

Although it can be argued that Africa's clay properties can be documented, it is worth conceding that only certain types of the properties can be documented in their entirety. It may be difficult if not impossible to document the spiritual properties embedded in Africa's clays, given that their claims are not supported by objective scientific evidence; their properties encompass non-physical or non-tangible elements that cannot be seen, confirmed and proven with the naked eye; and there are assumptions that are often made with regard to the spiritual nature of Africa's clays properties. However, one can argue that it may be possible to document Africa's clays properties in their entirety when a scholar transforms the spiritual elements of clay into a literary product and thereafter claims the copyright for the literary work, as copyright applies to all literary works; whether published or unpublished. Once ink flows out of a pen onto paper or one type up a work, copyright prevails (Band 2008).

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