To date, inks of the kind that contain only nanoscale, infrared-absorbing materials, for example, are seldom used to protect branded goods, such as high-value textiles. The reason is that the requirement for permanent markings, visual invisibility, and the contrasts necessary to allow for decoding the markings on backgrounds that are dyed in diverse colors cannot be adequately met.

It is an object of this invention to propose a marking composition by means of which better protection of goods than hitherto available can be achieved, regardless of the coloring of the goods.

This problem is solved by means of a marking composition according to claim 1.

Summary
In one aspect, there is provided a marking composition comprising an infrared-absorbing particulate component, as well as a carbon derivative, wherein the weight ratio of the infrared-absorbing component to the carbon derivative is in the range of approx. 10:1 to approx. 10,000:1.
In another aspect, there is provided an application of the marking composition as disclosed above as a coating and ink formulation, particularly as an ink jet-printable ink formulation, preferably water-based.
In another aspect, there is provided an application of the marking composition as disclosed above as an infrared-absorbing, transparent and visually unnoticeable coating composition and printable ink, particularly in the form of a curable formulation, preferably as a coating composition curable by infrared and ultraviolet irradiation and printable ink, further preferred as a thermosettable coating composition and printable ink, for purposes of identification and marking of objects, particularly in the form of a security marking or a data matrix code.
In another aspect, there is provided an application of the marking composition as disclosed above for detectable and decodable markings in the infrared range, the near infrared range at wavelengths of approx. 800 to approx. 2.500 nm, and particularly in the far infrared range at wavelengths of approx. 2.5 to approx. 14.0 µm.
In another aspect, there is provided an application of the marking composition as disclosed above in a solid material, particularly in an organic solid material, further

preferred in a polymer matrix or a plastic material, wherein the weight ratio of the marking composition in particular is between approx. 0.1 and approx. 30 weight-%, preferred between approx. 1 and approx. 20 weight-%, and more preferably between approx. 3 and approx. 10 weight-%.

In another aspect, there is provided a solid material composition comprising a marking composition as disclosed above, as well as a matrix material, wherein the matrix material in particular is chosen from organic and inorganic solid materials.

In another aspect, there is provided a substrate comprising a marking, in particular in the form of a data matrix code, made from a marking composition as disclosed above.

Detailed Description

The marking composition described in this invention allows markings to be produced that are not visually noticeable, yet are easy to detect, especially on textiles.

Markings that are visually undetectable, but which can be seen and decoded by detection in a specific wavelength range of the infrared spectral range by using an appropriate camera for example, represent a suitable solution for security markings of any kind.

The markings that can be produced by means of the marking compositions described in this invention, while unnoticeable in the visual spectral range and particularly when they appear transparent, are especially advantageous when it comes to applying security markings on textiles.

In addition, the growing demand for invisible, hidden security features on banknotes, identification documents and credit cards can be met by means of the marking composition of this invention, thus ensuring protection against forgeries in the future,