SUMMARY

(0035a) In one aspect, there is provided a method for producing a cluster of thin sheet graphite crystals composed of aggregates in such a state that thin sheet graphite crystals extend from the inside toward the outside, comprising preparing a powdery and/or particulate material of an organic compound pre-baked to an extent of containing remaining hydrogen, charging the powdery and/or particulate material in a closed vessel made of a heat resistant material, and subjecting the powdery and/or particulate material together with the vessel to hot isostatic pressing treatment using a compressed gas atmosphere, wherein a maximum ultimate temperature in the hot isostatic pressing treatment is 900°C or more and lower than 2000°C.

(0035b) In another aspect, there is provided a method for producing a cluster of graphite crystals, in which the thin sheet graphite crystals are partly cleaved, comprising preparing an intercalation compound of graphite composed of , as a host material, the cluster of thin sheet graphite crystals produced by the method as defined above, and subjecting the intercalation compound to rapid heating.

(0035c) In another aspect, there is provided a method for producing a graphite-silicon composite material, comprising a cluster of thin sheet graphite crystals composed of aggregates in such a state that thin sheet graphite crystals extend from the inside toward the outside and a nano-silicon material of one-dimensional shape, the method comprises preparing a powdery and/or particulate material of an organic compound pre-baked to an extent of containing remaining hydrogen, mixing a silicon powder thereto, charging the mixture in a closed vessel made of a heat resistant material, and subjecting the mixture together with the vessel to hot isostatic pressing treatment

using a compressed gas atmosphere, wherein a maximum ultimate temperature in the hot isostatic pressing treatment is 1320°C or more and lower than 2000°C.

(0035d) In another aspect, there is provided a method for producing thin sheet graphite crystals and/or wrinkled and shrunk graphite crystals thereof and/or roll-shaped graphite crystals thereof which are dispersed in a solvent, comprising dispersing in a solvent a pulverized resultant of the cluster of thin sheet graphite crystals composed of aggregates in such a state that thin sheet graphite crystals extend from the inside toward the outside that is produced according to the method as defined above, subjecting the dispersion to ultrasonic wave treatment and centrifuging, and collecting a supernatant therefrom.

(0035e) In another aspect, there is provided a method for producing thin sheet graphite crystals and/or wrinkled and shrunk graphite crystals thereof and/or roll-shaped graphite crystals thereof, comprising distilling-off the solvent from the thin sheet graphite crystals and/or wrinkled and shrunk graphite crystals thereof and/or roll-shaped graphite crystals thereof as defined above which are dispersed in a solvent.