Moissanite SiC

**Crystal Data**: Hexagonal. *Point Group*: 6mm. As hexagonal plates, to 5 mm, platy to elongated on [10\*0], rounded; polytypes are commonly syntactically intergrown.

**Physical Properties**: Cleavage:  $\{0001\}$ , poor. Fracture: Conchoidal. Hardness = 9.5 D(meas.) = 3.1-3.29 D(calc.) = 3.21

**Optical Properties**: Transparent. *Color*: Green, emerald-green, blue-green, deep blue, blue-black, black; rarely pale green, yellow, or colorless; may be zoned. *Luster*: Metallic to adamantine. *Optical Class*: Uniaxial (+).  $\omega = 2.654$   $\varepsilon = 2.697$  *Pleochroism*: Weak; O = light blue; E = deep indigo.

**Cell Data**: Space Group:  $P6_3mc$  (synthetic, 6H polytype). a = 3.073 c = 15.08 Z = 6

X-ray Powder Pattern: Synthetic (6H).

2.511 (100), 2.621 (40), 1.311 (40), 1.537 (35), 2.352 (20), 1.286 (15), 1.087 (15)

Chemistry:

(1) Udachnaya kimberlite, Russia; by electron microprobe. (2) Metaxades, Greece; by electron microprobe. (3) SiC.

**Polymorphism & Series**: Polytypes 2*H*, 3*C*, 4*H*, 5*H*, 6*H*, 10*R*, 15*R*, 33*R* have been noted (of 74 known to exist).

**Occurrence**: Rare: formed in an iron meteorite; as inclusions in diamond; in diamondiferous kimberlites and lamproites, and in eclogite; in volcanic breccias and rhyolite; in alluvium.

**Association**: Iron, diamond (Canyon Diablo); quartz, diamond (Fuxian, China); garnet, coesite, clinopyroxene, quartz, rutile, graphite, pyrrhotite, cobaltian pyrite (Udachnaya kimberlite, Russia).

**Distribution**: In the Canyon Diablo meteorite, USA. From the Sevan-Amasii ophiolite, Dzoraget River, Armenia. Around Metaxades, Greece. In China, from near Fuxian, Liaoning Province, and in the Hong district, Tibet. From the Udachnaya, Mir, and Aikhal diamond mines, and elsewhere in Sakha, Russia. In the Argyle diamond mine, Kimberley district, Western Australia. At a beach along the Turkish coast of the Mediterranean Sea, ~150 km NW from Izmir (most likely derived from Tertiary volcanic rocks outcropping in the area).

**Name**: For Ferdinand F. Henri *Moissan* (1852-1907), French chemist, who noted the species in the Canyon Diablo meteorite.

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