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## THE NATIVE CHROMIUM DISCOVERED IN SICHUAN PROVINCE

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A natural mineral determined to be native chromium was found in Sichuan Province in a platinum-bearing Cu-Ni sulfide deposit occurring in a strongly altered ultrabasic intrusion rock body in the Carboniferous strata of the Daxue Group along both limbs of a plunged anticline. The upper country rock comprises carbonaceous slate, sericite-quartz-schist and thin marble; while the lower one, quartzite and siliceous-marble. The ore body, occurring in the strongly serpentinized and talcized harzburgite of the middle lower part of the ultrabasic intrusion, contains three main types of ore—disseminated, compact massive and taxitic. The native chromium was found in the mechanical concentrates of massive ore located at the place where the ultrabasic rock comes into contact with the siliceous marble and is closely associated with another new mineral danbaite (CuZn<sub>2</sub>) forming a rim closely surrounding it. Other minerals associated with native chromium are pyrrhotite, sulfarsenides and minerals of precious metals. The grain size of the native chromium is small.

about 20 $\mu$  in diameter. Its colour of reflection is yellowish-white. It is isotropic without internal reflection; high reflectivity. Taking the reflectivity of WC as a standard, the values of reflectivity measured by photoelectric microphotometer are: 480 nm, 65.3%; 546 nm, 67.9%; 589 nm, 68.8%, and 656nm, 70.0%. Compared with pure chromium film, the reflectivity of the native chromium is obviously higher.

The chemical composition is Cr 98.01, Fe 0.001, Cu 0.366, Zn 1.40. total 99.78; atomic percentage, Cr 98.59%, Zn 1.12%, Cu 0.28%. Cu and Zn are in stable isomorphism and each of them may take the place of Cr. Seen under ore microscope and diffraction electron microscope, the mineral is an extraordinary homogeneous phase, without any discernible exsolution phenomenon. It is also proved to be a homogeneous mineral.

Up to now it is the first time that native chromium containing isomorphous Cr and Zn has been found in nature. Doubtless this is of significance, both in practice and theory, in the study of the solid solution in Cr-Cu and Cr-Zn systems.

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