Chromferide $\mathbf{Fe_3Cr_{1-x}}$ (x = 0.6)

Crystal Data: Cubic. *Point Group:* $4/m\ \overline{3}\ 2/m$. As small grains forming aggregates, to several hundred μm.

Physical Properties: Hardness = n.d. VHN = 260 (100 g load). D(meas.) = n.d. D(calc.) = 6.69 Ferromagnetic.

Optical Properties: Opaque. *Color:* Pale gray. *Luster:* Metallic.
R: (400) — , (420) — , (440) 50.4, (460) 51.4, (480) 50.9, (500) 52.6, (520) 53.0, (540) 55.3, (560) 56.5, (580) 56.9, (600) 57.9, (620) 58.3, (640) 59.0, (660) 60.0, (680) 60.7, (700) 60.8

Cell Data: *Space Group:* $Pm3m$. a = 2.859(5) Z = 1

X-ray Powder Pattern: Efim area, Russia.
2.02 (100), 1.16 (100), 1.43 (80), 1.01 (70), 1.28 (50), 2.87 (20), 1.656 (10)

Chemistry:

	(1)	(2)
Fe	88.91	88.96
Cr	11.30	11.04
Total	100.21	100.00

(1) Efim area, Russia; by electron microprobe, corresponding to Fe_3Cr_{1-x}, with x = 0.6.
(2) $Fe_3Cr_{0.4}$.

Occurrence: In quartz veins within brecciated amphibolites and schist.

Association: Iron, copper, bismuth, gold, ferchromide, graphite, cohenite, halite, sylvite, marialite, quartz.

Distribution: From a gold occurrence in the Efim area, Kumak ore field, 110 km east of Orsk, Southern Ural Mountains, Russia [TL].

Name: For the chemical composition, CHROMium and FERrum, *iron*.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia.

References: (1) Novgorodova, M.I., A.I. Gorshkov, N.V. Trubkin, A.I. Tsepin, and M.T. Dmitrieva (1986) New natural intermetallic compounds of iron and chromium – chromferide and ferchromide. Zap. Vses. Mineral. Obshch., 115, 355–360 (in Russian). (2) (1988) Amer. Mineral., 73, 190 (abs. ref. 1).