

Electron Microprobe Data

Ruff ID: **R050403**

Mineral: **Delafossite**

Locality: Cole Shaft, Bisbee, Cochise County, Arizona, USA

Weight Percents

| Analysis | #21 | #22 | #25 | #26 | #28 | #30 | #32 | #33 | #34 | #35 | #36 | #37 | #38 | #39 | Average | StDev |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-------|
| Al ₂ O ₃ | 1.00 | 0.32 | 3.02 | 0.49 | 1.17 | 0.15 | 1.92 | 0.83 | 2.72 | 2.30 | 3.53 | 3.30 | 3.16 | 3.73 | 1.97 | 1.29 |
| Fe ₂ O ₃ | 48.77 | 48.21 | 45.93 | 49.00 | 48.54 | 48.63 | 47.21 | 47.70 | 45.94 | 46.22 | 44.58 | 45.10 | 44.80 | 45.28 | 46.85 | 1.62 |
| Cu ₂ O | 45.44 | 45.38 | 46.46 | 45.77 | 45.30 | 45.79 | 45.87 | 44.68 | 44.72 | 45.32 | 45.67 | 46.36 | 46.08 | 46.46 | 45.66 | 0.57 |
| Totals | 95.21 | 93.91 | 95.40 | 95.26 | 95.00 | 94.57 | 95.00 | 93.21 | 93.38 | 93.83 | 93.78 | 94.77 | 94.05 | 95.48 | 94.49 | 0.78 |

Cation number normalized to 2 Oxygens

| | | | | | | | | | | | | | | | ACN | StDev | NCN | CNISF* |
|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|------|--------|
| Al | 0.03 | 0.01 | 0.09 | 0.02 | 0.04 | 0.01 | 0.06 | 0.03 | 0.09 | 0.07 | 0.11 | 0.10 | 0.10 | 0.11 | 0.06 | 0.04 | 0.06 | 0.060 |
| Fe ³⁺ | 0.97 | 0.98 | 0.90 | 0.98 | 0.96 | 0.98 | 0.94 | 0.97 | 0.92 | 0.92 | 0.89 | 0.89 | 0.89 | 0.88 | 0.93 | 0.04 | 0.93 | 0.940 |
| Cu ¹⁺ | 1.01 | 1.03 | 1.02 | 1.02 | 1.00 | 1.03 | 1.02 | 1.01 | 1.00 | 1.01 | 1.01 | 1.02 | 1.03 | 1.01 | 1.02 | 0.01 | 1.01 | 1.000 |
| Cation | 2.00 | 2.02 | 2.01 | 2.01 | 2.00 | 2.02 | 2.01 | 2.01 | 2.00 | 2.01 | 2.01 | 2.01 | 2.02 | 2.01 | 2.01 | 0.01 | 2.00 | 2.000 |

Ideal Chemistry: $\text{Cu}^{1+}\text{Fe}^{3+}\text{O}_2$

Calculated Chemistry: $\text{Cu}^{1+}(\text{Fe}^{3+}_{0.94}\text{Al}_{0.06})\text{O}_2$

Microprobe Calibration Data

| Xtal | El | Line | Pk(s) | Bkg(s) | Bkg(+) | Bkg(-) | Standards |
|------|----|------|-------|--------|--------|--------|-----------|
| TAP | Al | Ka | 20 | 10 | 400 | -400 | anor-s |
| TAP | Cu | La | 20 | 10 | 500 | -500 | chalcopy |
| LIF | Fe | Ka | 20 | 10 | 300 | -250 | fayalite |

Instrument: Cameca SX50

Sample Voltage: 15 kV

Acceleration Current: 20 nA

Beam Size: spot

Date of Analysis: 05/05/2006

ACN: Average Number of Cations

NCN: Normalized Cation Numbers = ACN*2/2.01

StDev: Standard Deviation

CNISF* = cation numbers in structural formulae, charge balanced