

X72 - COPPER SULFATE ELECTROPLATING, CHEMICAL FUME SUPPRESSANT CONTROLLED

CALCULATION METHODS

$E_a = U_a \times EF$

$E_h = U_h \times EF$

NOTES:

- U_a = Annual electrical usage, ampere-hour/year

- U_h = Maximum hourly electrical usage, ampere-hour/ hour

- Assume 95% control efficiency for anti-mist additives (i.e. foam, fume suppressant). See ARB Tech. Support Doc. to Proposed ATCM for Emissions of Cr+6 from Chrome Plating & Chromic Acid Anodizing Operations

(Jan. 1988), Table III-2 and ARB Tech. Guidance Doc. to the Criteria & Guidelines Reg. for AB2588 (Aug. 1989), page 44.

- Assume TSP = PM-10.

- C_i = Weight percent of other listed substance in solution, %.

- C_{Cu} = Weight percent of copper in solution, %.

- "OTHER" pollutants and their corresponding emission factors are to be manually entered.

- Assume 100% capture efficiency.

| POLLUTANT | Emission Factor | REFERENCE | ARB | (UNITS) | COMMENTS |
|-----------|-------------------|--|--------|---------|----------|
| | (lbs/amp-hr) | DOCUMENT | FACTOR | | |
| NOX | | | | | |
| CO | | | | | |
| SOX | | | | | |
| TOG | | | | | |
| ROG | | | | | |
| TSP | 7.28E-08 | Default TSP/PM-10 EF = Cu + SO4 * 5H2O EF's = 7.28E-8 lbs/amp-hr. | | | |
| PM10 | 7.28E-08 | Assume that TSP and PM-10 are based on average weight percent of copper in solution. | | | |
| COPPER | 5.80E-08 | AP-42 (July 1996), Table 12.20-4 = 8.1E-5 grains Cu/dscf -> 8.1E-3 grains Cu/amp-hr. | | | |
| OTHER | 5.80E-8 x Ci/C Cu | | | | |

MW of CuSO4 * 5H2O = 249.5

MW of Cu = 63.5

EF for SO4 * 5H2O = (5.80E-8)(63.5/249.5) = 1.48E-8