

S32 - SHIELDED METAL ARC WELDING (SMAW), E6011, Section 12.19 Table 12.19-1 of AP-42 (1/95)

CALCULATION METHODS (for Trace Metals with listed AP-42 emission factors)

$E_a = U_a \times EF$ (lbs/lb rod)

$E_h = U_h \times EF$ (lbs/lb rod)

CALCULATION METHODS (for Trace Metals without listed AP-42 emission factors)

$E_a = U_a \times EF$ (Fume generation rate lbs fume/lb rod x NASSCO Fume Correction Factor) x C_i

$E_h = U_h \times EF$ (Fume generation rate lbs fume/lb rod x NASSCO Fume Correction Factor) x C_i

NOTES:

- All emissions are assumed uncontrolled. Control efficiencies must be included in the release point information if applicable.
- Trace metals with specified emission factors listed by the EPA in AP-42 are quantified accordingly.
- Trace metals which are components of the welding rod but not identified by EPA will be quantified by the District's default procedures.
- Default fume generation rates (lbs fume/lb rod) are; 0.01 (GMAW, TIG, & MIG), 0.02 (SMAW & FCAW), and 0.05 (unspecified).
- Default Fume Correction Factors from NASSCO (Dr. Bell) are 0.5464 (GMAW, TIG, & MIG), 0.2865 (SMAW & FCAW), and 1.0 (unspecified)
- Default hexavalent chromium conversion rates from ARB analysis of AWS data are; 0.05 (GMAW, TIG, & MIG), 0.63 (SMAW & FCAW), and 0.10 (unspecified).
- Trace metal EPA emission factors for specific rods are from Tables 12.19-1 & 12.19-2 (1/95) of AP-42.

| POLLUTANT | District Emission Factor | EPA REFERENCE | EPA | (UNITS) | COMMENTS |
|-----------------------------|--------------------------|-----------------------------------|--------|---------------------|---|
| | (lbs/lb rod) | DOCUMENT | FACTOR | | |
| NOX | | | | | |
| CO | | | | | |
| SOX | | | | | |
| TOG | | | | | |
| ROG | | | | | |
| TSP | 3.84E-02 | | | | ASSUME PM10 = TSP |
| PM10 | 3.84E-02 | Table 12.19-1 (1/95) AP-42 | 38.40 | lb/1000 lbs rod | ASSUME PM10 EMISSION RATE = FUME GENERATION RATE (FGR) |
| Chromium, Nonhexavalent | 5.00E-06 | Table 12.19-2 (1/95) AP-42 | 0.05 | 0.1 lb/1000 lbs rod | |
| Chromium, Hexavalent | = 6.93E-03 x C_i | District / ARB / NASSCO Procedure | ND | | EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i \times 0.63$ |
| Cobalt | 1.00E-06 | Table 12.19-2 (1/95) AP-42 | 0.01 | | |
| Manganese | 9.98E-04 | Table 12.19-2 (1/95) AP-42 | 9.98 | | |
| Nickel | 5.00E-06 | Table 12.19-2 (1/95) AP-42 | 0.05 | | |
| Lead | = 1.10E-02 x C_i | District / ARB / NASSCO Procedure | ND | | EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i$ |
| Metals w/o Emission Factors | = 1.10E-02 x C_i | District / ARB / NASSCO procedure | ND | | EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i$ |

| Default Electrode Composition | Weight % | Reference |
|-------------------------------|----------|-----------|
| Aluminum | | |

| | | |
|-----------------|-------|--------------------------------------|
| Chromium, Total | 0.50% | Best Estimate (Note AP-42 test data) |
| Cobalt | 0.50% | Best Estimate (Note AP-42 test data) |
| Copper | | |
| Lead | | |
| Manganese | 1.50% | Based on MSDS 7969-D |
| Nickel | 0.50% | Best Estimate (Note AP-42 test data) |
| Zinc | | |

*Last Updated on 8/26/99
By D. Byrnes*