

S10 - SHIELDED METAL ARC WELDING (SMAW), E308, 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 (lbs/lb rod)	EPA REFERENCE DOCUMENT	EPA FACTOR	(UNITS)	COMMENTS
NOX					
CO					
SOX					
TOG					
ROG					
TSP	1.08E-02				ASSUME PM10 = TSP
PM10	1.08E-02	Table 12.19-1 (1/95) AP-42	10.80	lb/1000 lbs rod	ASSUME PM10 EMISSION RATE = FUME GENERATION RATE (FGR)
Chromium, Nonhexavalent	3.93E-04	Table 12.19-2 (1/95) AP-42	3.93	0.1 lb/1000 lbs rod	
Chromium, Hexavalent	3.59E-04	Table 12.19-2 (1/95) AP-42	3.59		
Cobalt	1.00E-06	Table 12.19-2 (1/95) AP-42	0.01		
Manganese	2.52E-04	Table 12.19-2 (1/95) AP-42	2.52		
Nickel	4.30E-05	Table 12.19-2 (1/95) AP-42	0.43		
Lead	= 3.09E-03 x C_i	District / ARB / NASSCO Procedure	ND		EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i$
Metals w/o Emission Factors	= 3.09E-03 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	21.00%	Based on MSDS 7922-H

Cobalt	1.00%	Best Estimate (Note AP-42 test data)
Copper		
Lead		
Manganese	2.00%	Based on MSDS 7922-H
Nickel	10.00%	Based on MSDS 7922-H
Zinc		

*Last Updated on 8/26/99
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