

**A10 - SUBMERGED ARC WELDING (SAW), EM12K, 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.

<b>POLLUTANT</b>	<b>District Emission Factor</b>	<b>EPA REFERENCE</b>	<b>EPA</b>	<b>(UNITS)</b>	<b>COMMENTS</b>
	<b>(lbs/lb rod)</b>	<b>DOCUMENT</b>	<b>FACTOR</b>		
NOX					
CO					
SOX					
TOG					
ROG					
TSP	5.00E-05				ASSUME PM10 = TSP
PM10	5.00E-05	Table 12.19-1 (1/95) AP-42	0.05	lb/1000 lbs rod	ASSUME PM10 EMISSION RATE = FUME GENERATION RATE (FGR)
Chromium, Nonhexavalent	= 5.30E-06 x $C_i$	District / ARB / NASSCO Procedure	ND	0.1 lb/1000 lbs rod	EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i \times (1 - 0.63)$
Chromium, Hexavalent	= 9.02E-06 x $C_i$	District / ARB / NASSCO Procedure	ND		EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i \times 0.63$
Cobalt	= 1.43E-05 x $C_i$	District / ARB / NASSCO Procedure	ND		EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i$
Manganese	= 1.43E-05 x $C_i$	District / ARB / NASSCO Procedure	ND		EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i$
Nickel	= 1.43E-05 x $C_i$	District / ARB / NASSCO Procedure	ND		EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i$
Lead	= 1.43E-05 x $C_i$	District / ARB / NASSCO Procedure	ND		EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i$

Metals w/o Emission Factors	= 1.43E-05 x Ci	District / ARB / NASSCO procedure	ND	EMISSIONS = Ua x FGR x 0.2865 x Ci
<b>Default Electrode Composition</b>	<b>Weight %</b>	<b>Reference</b>		
Aluminum				
Chromium, Total				
Cobalt				
Copper	0.50%	Based on MSDS 7965-G		
Lead				
Manganese	1.50%	Based on MSDS 7965-G		
Nickel				
Zinc				

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By D. Byrnes