

**F99 - FLUX CORE ARC WELDING (FCAW), Unspecified electrode, General District-ARB-Nassco SMAW emission estimation procedure**

**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	2.00E-02				ASSUME PM10 = TSP
PM10	2.00E-02				ASSUME PM10 EMISSION RATE = FUME GENERATION RATE (FGR)
Chromium, Nonhexavalent	$= 0.02 \times 0.2865 \times 0.37 \times C_i$	District / ARB / NASSCO Procedure	ND		EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i \times (1 - 0.63)$
Chromium, Hexavalent	$= 0.02 \times 0.2865 \times 0.63 \times C_i$	District / ARB / NASSCO Procedure	ND		EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i \times 0.63$
Cobalt	$= 0.02 \times 0.2865 \times C_i$	District / ARB / NASSCO Procedure	ND		EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i$
Manganese	$= 0.02 \times 0.2865 \times C_i$	District / ARB / NASSCO Procedure	ND		EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i$
Nickel	$= 0.02 \times 0.2865 \times C_i$	District / ARB / NASSCO Procedure	ND		EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i$
Lead	$= 0.02 \times 0.2865 \times C_i$	District / ARB / NASSCO Procedure	ND		EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i$
Metals w/o Emission Factors	$= 0.02 \times 0.2865 \times C_i$	District / ARB / NASSCO procedure	ND		EMISSIONS = $U_a \times FGR \times 0.2865 \times C_i$

Default Electrode Composition	Weight %	Reference
Aluminum		
		NO DATA FOR UNSPECIFIED

Chromium, Total		MATERIALS
Cobalt		
Copper		
Lead		
Manganese		
Nickel		
Zinc		

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