

$Y_m$ =Dry gas meter correction factor, dimensionless.

$V_m$ =Dry gas meter volume, ft<sup>3</sup>.  
 $P_{bar}$ =Barometric pressure, in. Hg.

8.2 Approximate Mass Emission Rate (Optional). Calculate an approximate mass emission rate of Cr in kg/hr using the following equation:

$$\text{kg/hr} = (0.0001597) (C_{Cr}) (r^2) (\sqrt{\Delta p})_{avg} \sqrt{\frac{(T_s + 460)}{(P_{bar})}} \quad \text{Eq. 306A-3}$$

where:

$r$ =Radius of stack, in.  
 $(\sqrt{\Delta p})_{avg}$ =Average of  $\sqrt{\Delta p}$  values.  
 $T_s$ =Stack temperature, °F.  
 $P_{bar}$ =Barometric pressure, in. Hg.  
 $C_{Cr}$ =Concentration of Cr, mg/dscm.

**Note:** The emission rate calculated using Equation 306A-3 is based on an assumed moisture content of 2%.

### 9. Bibliography

1. Clay, F.R. Memo, Impinger Collection Efficiency—Mason Jars vs. Greenburg-Smith Impingers, Dec. 1989.

2. Segall, R.R., W.G. DeWees, F.R. Clay, and J.W. Brown. Development of Screening Methods for Use in Chromium Emissions Measurement and Regulations Enforcement. In: Proceedings of the 1989 EPA/A&WMA International Symposium—Measurement of Toxic and Related Air Pollutants, A&WMA Publication VIP-13, EPA Report No. 600/9-89-060, p. 785.

3. Clay, F.R. Chromium Sampling Method. In: Proceedings of the 1990 EPA/A&WMA International Symposium—Measurement of Toxic and Related Air Pollutants, A&WMA Publication VIP-17, EPA Report No. 600/9-90-026, p. 576.

4. Clay, F.R. Proposed Sampling Method 306A for the Determination of Hexavalent Chromium Emissions from Electroplating and Anodizing Facilities. In: Proceedings of the 1992 EPA/A&WMA International Symposium—Measurement of Toxic and Related Air Pollutants, A&WMA Publication VIP-25, EPA Report No. 600/R-92/131, p. 209.

### Method 306-B—Surface Tension Measurement and Recordkeeping for Chromium Plating Tanks Used at Electroplating and Anodizing Facilities

#### 1. Applicability and Principle

1.1 Applicability. This method is applicable to all decorative plating and anodizing operations where a wetting agent is used in the tank as the primary mechanism

for reducing emissions from the surface of the solution.

1.2 Principle. During an electroplating or anodizing operation, gas bubbles generated during the process rise to the surface of the tank liquid and burst. Upon bursting, tiny droplets of chromic acid become entrained in ambient air. The addition of a wetting agent to the tank bath reduces the surface tension of the liquid and diminishes the formation of these droplets.

#### 2. Apparatus

2.1 Stalagmometer. Any commercially available stalagmometer or equivalent surface tension measuring device may be used to measure the surface tension of the plating or anodizing tank liquid.

2.2 Preciser tensiometer. A Preciser tensiometer may be used to measure the surface tension of the tank liquid provided the procedures specified in ASTM Method D 1331-89, Standard Test Methods for Surface and Interfacial Tension of Solutions of Surface Active Agents (incorporated by reference—see § 63.14) are followed.

#### 3. Procedure

3.1 The surface tension of the tank bath may be measured by using a Preciser tensiometer, a stalagmometer or any other device suitable for measuring surface tension in dynes per centimeter. If the Preciser tensiometer is used, the instructions given in ASTM Method D 1331-89, Standard Test Methods for Surface and Interfacial Tension of Solutions of Surface Active Agents (incorporated by reference—see § 63.14) must be followed. If a stalagmometer or other device is used to measure surface tension, the instructions that came with the measuring device must be followed.

3.2 (a) Measurements of the bath surface tension are done using a progressive system which minimizes the number of surface tension measurements required when the proper surface tension is maintained. Initially, measurements must be made every 4 hours of tank operation for the first 40

hours of tank operation after the compliance date. Once there are no exceedances during 40 hours of tank operation, measurements may be conducted once every 8 hours of tank operation. Once there are no exceedances during 40 hours of tank operation, measurements may be conducted once every 40 hours of tank operation on an on-going basis, until an exceedance occurs. The maximum time interval for measurements is once every 40 hours of tank operation.

(b) If a measurement of the surface tension of the solution is above the 40 dynes per centimeter limit, the time interval reverts back to the original monitoring schedule of once every 4 hours. A subsequent decrease in frequency would then be allowed according to the previous paragraph.

#### 4. Recordkeeping

4.1 Log book of surface tension measurements and fume suppressant additions. The surface tension of the plating or anodizing tank bath must be measured as specified in section 3.2. The measurements must be recorded in the log book. In addition to the record of surface tension measurements, the frequency of fume suppressant maintenance additions and the amount of fume suppressant added during each maintenance addition will be recorded in the log book. The log book will be readily available for inspection by regulatory personnel.

4.2 Instructions for apparatus used in measuring surface tension. Also included with the log book must be a copy of the instructions for the apparatus used for measuring the surface tension of the plating or anodizing bath. If a Preciser tensiometer is used, a copy of ASTM Method D 1331-89, Standard Methods for Surface and Interfacial Tension of Solutions of Surface Active Agents (incorporated by reference—see § 63.14) must be included with the log book.

[FR Doc. 95-65 Filed 1-24-95; 8:45 am]

BILLING CODE 6560-50-P