

Statement of Compliance with EPA Test Method Requirement in 40CFR63, Subpart HHHHHH

The ANDREAE FILTER is tested with AFTL A206-84, Paint Arrestor Device Removal Efficiency, Paint Fraction Weight Arrestance. Per Air Filter Testing Laboratories, Inc., Andreae Filters have been tested with methods consistent with ASHRAE 52.1, "Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter, June 4, 1992" using paint instead of dust (therefore particle size data is not included) as per the specific paint test parameters outlined in the EPA requirement found in 40CFR63.11173(e)(2)(i).

ASHRAE 52.1 evaluates the performance of air-cleaning devices for removing airborne particulate matter. The test procedure is a dust-spot test using potassium chloride as the challenge to simulate the accumulation of particles during the service life of a filter. The standard measures particle diameter (0.3 - 10µm) upstream and downstream of the air-cleaning device to calculate removal efficiency.¹ As of January, 2009, ASHRAE 52.1 was withdrawn, superseded by and incorporated into ASHRAE 52.2. Test methods for liquid paint arrestance are not provided in either ASHRAE 52.1 or 52.2.

The EPA states that the procedure to demonstrate filter efficiency must be *consistent with* ASHRAE 52.1. Thus, the procedure used to demonstrate filter efficiency must adhere to the same principles and be compatible with those procedures provided for in ASHRAE 52.1. Test guidelines for the specific application of liquid paint arrestance are provided within the ruling text:

Title 40 Code of Federal Regulations

§63.11173 (e)(2)(i) Subpart HHHHHH-National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources, General Compliance Requirements

All spray booths, preparation stations, and mobile enclosures must be fitted with a type of filter technology that is demonstrated to achieve at least 98-percent capture of paint overspray. The procedure used to demonstrate filter efficiency must be consistent with the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Method 52.1, "Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter, June 4, 1992" (incorporated by reference, see §63.14 of subpart A of this part). **The test coating for measuring filter efficiency shall be a high solids bake enamel delivered at a rate of at least 135 grams per minute from a conventional (non-HVLP) air-atomized spray gun operating at 40 pounds per square inch (psi) air pressure; the air flow rate across the filter shall be 150 feet per minute.** Owners and operators may use published filter efficiency data provided by filter vendors to demonstrate compliance with this requirement and are not required to perform this measurement.

¹ASHRAE. 1992. Standard 52.1-1992--Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter. ASHRAE.

EPA Comments

Part III, Environmental Protection Agency, 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources; Final Rule

Federal Register/Vol. 73, No. 6/Wednesday, January 9, 2009/Rules and Regulations

V. Summary of Comments and Responses,

I. Spray Booth Filters, page 1753.

It was the intent of EPA that filter specifications or filter performance data provided by the filter manufacturer would suffice for the purpose of compliance in the proposed rule. The final rule clarifies that records of manufacturer specifications or vendor supplied or published data are sufficient for demonstrating compliance with the filter efficiency requirement.

VII. Statutory and Executive Order Reviews,

I. National Technology Transfer Advancement Act, page 1759.

This rulemaking involves technical standards. Therefore the EPA conducted searches to identify potential voluntary consensus standards. However, we identified no such standards and none were brought to our attention in comments. The search and review results are in the docket for this rule. Therefore EPA has decided to use the following:

(1) the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Method 52.1, "Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter, June 4, 1992," to measure paint booth filter efficiency to measure the capture efficiency of paint overspray arrestors with spray-applied coatings.

Addendum

Andreae Team, Inc. purchased ASHRAE 52.2 and did not locate any reference to liquid paint arrestance. Therefore, we posed the following question to ASHRAE on September 17, 2009: Does ASHRAE 52.1-1992 include test methods for paint booth exhaust filtration of liquid applications? Steve Hammerling, Technical Services Engineer, ASHRAE, replied:

"ASHRAE 52.1-1992 has been superseded by and incorporated into ASHRAE 52.2-2007. The scope of the 52.2 standard notes: the method of testing measures the performance of air-cleaning devices in removing particles of specific diameters as the devices become loaded by standardized loading dust fed at intervals to simulate accumulation of particles during service life. The standard defines procedures for generating the aerosols required for conducting the test. The standard also provides a method for counting airborne particles of 0.30 to 10µm in diameter upstream and downstream of the air-cleaning device in order to calculate removal efficiency by particle size.

Standards 52.1 and 52.2 are similar in scope but use different test methods so I don't believe 52.1 includes a test procedure specifically for your application. If there is a topic you'd like included or changed, you can submit a change proposal for the consideration of the committee."

On September 17, 2009, Andreae Team, Inc. submitted a formal change proposal to ASHRAE for the inclusion of liquid paint arrestance test methods into ASHRAE 52.2, as referenced and cited by the EPA. Andreae Team, Inc. also sent an inquiry to Israel Anderson, EPA Region 6 Compliance Assistant, for interpretation and clarification of the test methods. To date, the change proposal is under review and Mr. Anderson has not responded.

Statement of Compliance with EPA Test Method 319 in 40CFR63, Subpart GG, Appendix A

Andreae Filters are compliant with 40CFR63 Subpart GG (National Emission Standards for Aerospace Manufacturing and Rework Facilities) as pre-filters (stage 1 of a 2 stage system or stages 1 & 2 of a 3 stage system) if the final stage has been tested and certified efficient using Test Method 319 (M319). This subpart applies to facilities that are engaged in the manufacture or rework of commercial, civil or military aerospace vehicles or components and that are *major sources* of HAP, VOC and/or inorganic HAP emissions (>10 tons/yr).

Aerospace NESHAP states that all spray booths built after 1999 require a 3 stage filtration system. However, there has been interpretation stating that if the final stage is certified efficient using M319, then only one stage is possible as may be found in a HEPA filter. Scope and Application further states that pre-filters need not be tested and are considered to pass filtration requirements when the final stage is tested and certified efficient.

40CFR63, Subpart GG, Appendix A

Scope and Application, 1.3

For a paint arrestor system or subsystem which has been tested by this method, adding additional filtration devices to the system or subsystem shall be assumed to result in an efficiency of at least that of the original system **without the requirement for additional testing**. (For example, if the final stage of a three-stage paint arrestor system has been tested by itself, then the addition of the other two stages shall be assumed to maintain, as a minimum, the filtration efficiency provided by the final stage alone. Thus, in this example, if the final stage has been shown to meet the filtration requirements of Table 1 of 63.745 of subpart GG, then **the final stage in combination with any additional paint arrestor stages also passes the filtration requirements.**)

EPA Control Technologies Guidance Document: <http://envinfo.com/caain/498/regfin.html>

Therefore, when used in conjunction with a tested and certified final stage, Andreae Filters are not required to be further tested and thus also pass filtration requirements.