

ENGINEERING ENVIRONMENTAL

CONSULTING SERVICES

Robert A. Haberlein, Ph.D., QEP

robhab@erols.com

TWO FISK CIRCLE
ANNAPOLIS, MD 21401
(410) 268-7367
(410) 267-8174 fax
(410) 693-0992 cell

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Page 1 of 3

Mr. Mike Zais
Chairman, UEF Subcommittee
American Composites Manufacturing Association

Mike:

Attached is a draft Petition to incorporate a new styrene emission factor for the compression molding of SMC parts into the Unified Emission Factors.

Please ask the participating Relevant Committee members to review, approve, and submit this petition to the ANSI process for adoption as part of the UEF factors.

Please consider including Walt McSherry of Premix, Perry Bennett of MFG, Bob Lacovara of Convergent Composites, and Tony Becker of the Ohio EPA in the voting Canvas Panel. These persons were directly involved with the testing and have important first-hand knowledge of the test circumstances.

Best regards



Robert A. Haberlein, Ph.D., QEP

cc:

Larry Cox, UEF/ANSI Secretariat at ACMA
Jay Merrill, Chairman of the GAC Committee
Pete Emrich, Chairman of the CMRC Committee

SMC Compression Molding Factor Petition
September 30, 2009
Page 2 of 3

1. Introduction

Attachments

The following attachments and appendices contain the bulk of the test information, data, and calculations:

- Feasibility Report – *Feasibility of a Temporary Total Enclosure for Measuring the Process Emissions from Compression Molding Manufacturing*; EECS; July 30, 2008
- Test Protocol – *Test Protocol to determine the Process Emissions from Compression Molding using a TTE Enclosure to measure the VOC Emissions from Charge Preparation and Material Handling*; EECS; July 21, 2008
- Test Report – *Test Results: Process Emissions from SMC Compression Molding during SMC Charge Preparation and Material Handling at the Premix Plant in North Kingsville, Ohio*; EECS; November 30, 2008

Appendices to the Test Report:

- Appendix A – SMC test charge photographs
- Appendix B – Test enclosure and equipment photographs
- Appendix C – EECS field data sheets (CBI redacted)
- Appendix D-1 – ACT field data sheets – test enclosure inlet
- Appendix D-2 – ACT field data sheets – test enclosure outlet

2. Test Methods and Test Procedures

The testing incorporated the following EPA reference test methods:

- Method 1
- Method 2
- ASHRAE psychrometric equations (approved alternative to Methods 3 & 4 for moist air)
- Method 25A
- Method 204

This protocol was reviewed prior to testing and approved by the Ohio EPA. A group of field inspectors from the Ohio EPA visited the test site and observed the actual testing.

SMC Compression Molding Factor Petition
September 30, 2009
Page 3 of 3

3. SMC Part Test Charges

The selection of the SMC part test charges is discussed in Section II.A. of the Test Protocol.

The test charge dimensions and other pertinent charge parameters are listed in Section II.B. of the Test Report.

Photographs of each test charge, showing the appearance of completed charge when ready for insertion into the compression mold, are provided in Appendix A to the Test Report.

4. SMC Part Compression Molding Test Data and Data Quality Control

The test data is listed in Section III of the Test Report.

The data quality control is described in Section IV of the Test Report.

5. SMC Part Compression Molding Factor Derivation

The proposed emission factor is the arithmetic average of test results for the 49 individual test runs. The emission factor is expressed as a percentage of the available styrene monomer contained in the uncured SMC material that is processed in the compression mold. The calculation of this average is shown in Table 13 of Section V of the Test Report.

6. Proposed UEF Table Entry for SMC Part Compression Molding

The proposed entry for the SMC Part Compression Molding factor will be:

1.5% of the styrene monomer content in the SMC material

7. Conclusion

I request adoption of the proposed styrene emission factor for the compression molding of SMC parts. This factor is necessary so that a common emission factor will be available to all compression molders that make SMC parts in the USA.