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TEST REPORT

Rendered by Manufacturer and Released to:
Acoustical Surfaces, Inc.
123 Columbia Court North
Chaska, MN 55318

Organic analysis of expanded polypropylene (ARPRO EPP with anti-stat) molded samples using a Fourier Transformed Infrared Spectrometer for Silicone (Dimethicone) and Liquid Particle Counting (LPC).

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SUMMARY

FTIR Analysis

The sample tray was received and processed for FTIR analysis of expanded polyproplyene (ARPRO EPP with anti-stat) for Silicone and liquid particle analysis by liquid particle counter (LPC).

A sample tray of material was extracted in enough hexane to cover for 10 minutes. Then the hexane was evaporated. The resulting extract was allowed to evaporate to a dry residue. The residue was extracted with 5-ml hexane and evaporated onto a Horizontal Attenuate Total Reflectance (HATR) trough plate drop wise. The remaining residue was extracted with 2-ml of hexane and evaporated onto the HATR with the residue from previous extract. The HATR was placed in a FTIR and the residue was analyzed. The FTIR spectrum was compared to that of silicone oil. The four signature peaks for silicone oil are at approximately 1258, 1088, 1017 and 796 cm^{-1}.

Liquid Particle Counting (LPC) Analysis-Zero-Stress Method

A sample was placed in a clean tray with 1000-ml ultrapure deionized water, from which a method blank had been taken. Then 500-ml of ultrapure deionized water was poured over entire surface. The sample was allowed to remain for 1 minute, while being sloshed ten times, then the sample was removed and then flipped over and sloshed ten more times in one minute. The sample was removed and three 20-ml aliquots were taken using a PMS CLS-200 liquid particle counter. The results are reported in counts/cm^2 and counts/in^2. A single count represents a single particle at the various size distributions.

DISCUSSION

Silicone (dimethicone) was not present in the two samples and the major peaks identified represent polypropylene residue from extraction. There was very little residue from the sample and a large scaling had to be used to obtain most of the peaks. The results of the LPC analysis are listed in the table below.

Table 1. Particle Generation Results of ARPRO EPP Sample.

Trial 1	Counts/ml	Method Blank Counts/ml	Counts/cm^2	Counts/in^2
≥0.3 *um*	943.1	59.1	4087.5	26371.4
≥0.5 *um*	498.3	14.6	2236.6	14429.7
≥1.0 *um*	222.1	6.0	999.2	6446.7
≥2.0 *um*	79.1	3.2	351.0	2264.2
≥3.0 *um*	43.8	2.4	191.4	1235.0
≥5.0 *um*	18.1	1.2	78.1	504.2
≥10.0 *um*	5.2	0.3	22.7	146.2
≥15.0 *um*	2.5	0.1	11.1	71.6

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EQUIPMENT USED FOR TESTING

Thermo Mattson Satellite FTIR
Thermo Spectra Tech Foundation Series HATR
Hiac-Royco 8103 LPC

SPECTRUM APPENDIX

Spectrum 1

ARPRO EPP material
Peaks: 2953.00, 2922.99, 2852.99, 1539.50, 1463.90, ethyl group; 1742.18, 1163.25 R2-C=CH_2; 1539.50, 1377.31 methyl group; 1742.18 ester.

The results provided in this report are accurate within the limits appropriate to each test standard. The results of this report are statistically significant only to the samples submitted for testing. MicroStat Laboratories has no controls, and assumes no responsibility for the tested product's functionality or use.

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