

2303M1A3

MEMORANDUM FOR PRS (In-House Publication)

FROM: PROI (TI) (STINFO)

22 Dec 2000

SUBJECT: Authorization for Release of Technical Information, Control Number: **AFRL-PR-ED-AB-2000-237**
Blanski, Rusty L; Phillips, Shawn; Lee, Andre, "Preparation and Properties of Polyhedral
Oligosilsesquioxanes/Polymer Blends" (Abstract)

American Chemical Society Meeting
(San Diego, CA, 01 Apr 2001) (Deadline: 31 Jan 2001)

(Statement A)

1. This request has been reviewed by the Foreign Disclosure Office for: a.) appropriateness of distribution statement, b.) military/national critical technology, c.) export controls or distribution restrictions, d.) appropriateness for release to a foreign nation, and e.) technical sensitivity and/or economic sensitivity.

Comments: _____

Signature _____ Date _____

2. This request has been reviewed by the Public Affairs Office for: a.) appropriateness for public release and/or b) possible higher headquarters review.

Comments: _____

Signature _____ Date _____

3. This request has been reviewed by the STINFO for: a.) changes if approved as amended, b) appropriateness of references, if applicable; and c.) format and completion of meeting clearance form if required

Comments: _____

Signature _____ Date _____

4. This request has been reviewed by PR for: a.) technical accuracy, b.) appropriateness for audience, c.) appropriateness of distribution statement, d.) technical sensitivity and economic sensitivity, e.) military/national critical technology, and f.) data rights and patentability

Comments: _____

APPROVED/APPROVED AS AMENDED/DISAPPROVED

PHILIP A. KESSEL Date
Technical Advisor
Propulsion Science and Advanced Concepts Division

The synthesis of silsesquioxane/polymer blends and copolymers has expanded greatly in recent years. These materials have the advantage of combining a well defined ceramic type molecule with an organic polymer which can result in a material that may bridge the performance gap between the two systems. Earlier, we reported that the organic side groups of polyhedral oligosilsesquioxanes (POSS) have an enormous influence on the solubility of POSS in polystyrene with the phenethyl POSS being the most soluble. We now report that phenethyl POSS is dispersible in a wide range of aromatic ring-containing polymers (polycarbonate, SB rubber, etc.) resulting in a clear blend. We also report that aliphatic POSS compounds are also dispersible in high density polyethylene. The synthesis of POSS/polymer blends as well as some physical properties will be discussed.

DISTRIBUTION STATEMENT A
Approved for Public Release
Distribution Unlimited