FILMTRONICS

coating

ADVANCED SEMICONDUCTOR PROCESS MATERIALS

Filmtronics, Inc.	Material Safety Data Sheet (MSDS) – 200F, 400F, 550F		
Box 1521	Doc. No: PS3066	Rev. No: 003	Updated Format
Butler, PA. 16003	Date Prepared: 8/29/01	Date Printed: 08/29/01	Page: 1 of 6

1. PRODUCT IDENTIFICATION

PRODUCT NAME: 200F, 400F, 550F

CHEMICAL DESCRIPTION: Methyl Silsesquioxane Spin-On Glass

PRODUCT USE: SOG used by planarization, topography smoothing, and dielectrics for the fabrication of integrated circuits.

2. COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS NUMBER	WEIGHT %
1. n-Butanol	71-36-3	75-99
2. Methyl silsesquioxane polymer	Proprietary	1-25

Trace impurities and additional material names not listed above may also appear in Section 15 towards the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

3. HAZARDS IDENTIFICATION

⇒ EMERGENCY OVERVIEW: Clear flammable liquid! Poison! Do not get on skin, eyes, or clothing and do not breathe in vapors. Target organs: kidneys, central nervous system, liver. Medical considerations: skin disorders and allergies.

POTENTIAL HEALTH HAZARDS

SKIN: Prolonged or repeated exposure may cause skin irritation and cause defatting of the skin and dermatitis. Toxic if absorbed through the skin (percutaneous).

EYES: Contact with eyes may cause severe irritation, and possible eye burns.

INHALATION: Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. May cause respiratory tract irritation. Prolonged exposure may result in dizziness and general weakness.

INGESTION: Swallowing concentrated chemical may cause severe internal injury. May cause central nervous system depression, kidney damage, and liver damage. Symptoms may include: headache, dizziness, fatigue, nausea, vomiting, stupor, and coma.

4. FIRST AID MEASURES

SKIN: Promptly wash with plenty of soap and water; then flush with water until all chemical is removed. Remove contaminated clothing and wash before reuse.

EYES: Immediately flush eyes with plenty of water, continuing for at least 15 minutes. Seek immediate medical attention and evaluation.

INHALATION: Get medical aid immediately. Remove promptly to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth.

INGESTION: Try to induce vomiting by having the affected person touch back of the throat with finger or by giving Syrup of Ipecac as directed on the package. Never give anything by mouth to an unconscious person. Get medical aid.

ADVICE TO PHYSICIAN: Treat symptomatically.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT: 84°F
FLASH POINT METHOD: Closed cup
AUTOIGNITION TEMPERATURE: 689°F (based on major component)
UPPER FLAME LIMIT (volume % in air): 11.2 vol% (based on major component)
LOWER FLAME LIMIT (volume % in air): 1.4 vol% (based on major component)
FLAME PROPAGATION RATE (solids): Not determined
OSHA FLAMMABILITY CLASS: 1C Flammable Liquid

EXTINGUISHING MEDIA: Use water spray, foam, carbon dioxide or dry chemical.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Vapors can form flammable mixtures at ordinary temperatures. Static electricity may accumulate and create a fire ignition hazard. Move container from fire area if possible. Vapors are heavier than air and may travel a considerable distance where they may linger and/or find an ignition source and flash back. May develop highly toxic or corrosive fumes if heated.

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS: Firefighters should wear self-contained, NIOSH-approved breathing apparatus and full protective clothing. Use water spray to keep fire-exposed containers cool and to reduce vapor concentrations. If possible, contain fire run-off water. After fire, flush area with water to prevent reignition.

6. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE: Isolate hazard area and deny unnecessary entry. Remove all ignition sources. Provide personal protection and ventilation. Soak up spill with inert material, such as vermiculite or sand, and collect in a chemical waste container. Close container tightly and dispose of properly.

Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting requirements.

7. HANDLING AND STORAGE

NORMAL HANDLING: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid skin or eye contact; do not get on clothing. Do not ingest. Do not breathe product vapor or mist. Keep away from sparks or open flame.

STORAGE RECOMMENDATIONS: Store in well-ventilated area, out of sun and away from heat and ignition sources. Keep upright and protect from damage. Refrigerate to prolong material shelf-life.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Use in well exhausted areas. Handling should be preferably carried out in a closed system (e.g., exhaust hood). Electrical equipment should meet requirements for Class 1 Group D (National Electrical Code NFPA 70).

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION: For handling in closed ventilation system recommended above, wear protective gloves and apron (preferred material: butyl rubber). For leak or spills or other emergency situations, use full protective clothing, including boots. Remove immediately any wet clothing because of flammability hazard.

EYE PROTECTION: For handling in closed ventilation system recommended above, wear safety glasses with non-perforated side shields. For leak or spills or other emergency situations, use chemical safety goggles and face shield.

RESPIRATORY PROTECTION: None if handled in closed ventilation system recommended above. For leak or spills or other emergency situations where mist or vapor are concentrated, use self-contained breathing apparatus or air-supplied respirator, NIOSH approved. For lower concentrations, use a NIOSH approved cartridge respirator.

ADDITIONAL RECOMMENDATIONS: Provide eyewash stations and quick-drench shower facilities.

EXPOSURE GUIDELINES: **(Guidelines exist for the following ingredients)**

INGREDIENT NAME	ACGIH TLV	OSHA PEL
1. n-Butanol	50ppm	50ppm

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear colorless
PHYSICAL STATE: Liquid
ODOR: Mild or faint
SPECIFIC GRAVITY (water = 1.0): 0.81 @ 68°F
SOLUBILITY IN WATER (weight %): Slightly
pH: Not determined
BOILING POINT: 244°F @ 760mmHg
MELTING POINT: -128°F
VAPOR PRESSURE: 4.2mmHg @ 68°F
VAPOR DENSITY (air = 1.0): 2.55kg/m^3 (based on major component)
EVAPORATION RATE: 0.46 (based on major component)
VOLATILES: 75-99%
FLASH POINT: 84°F

10. STABILITY AND REACTIVITY

STABILITY (CONDITIONS TO AVOID): Stable under ordinary conditions of use and storage.

INCOMPATIBILITIES: Aluminum, aluminum powder, Chromium trioxide, and strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Combustion products would include carbon monoxide, carbon dioxide and water. Toxic gases, vapors and fumes may be formed during combustion.

HAZARDOUS POLYMERIZATION: Not determined.

11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS: Acute eczematous dermatitis, erythema, edema, papules, vesicles, bullae, crusts, and desquamation.

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS: Keratosis and chronic eye irritation.

OTHER DATA: Toxic through skin absorption (percutaneous).

12. ECOLOGICAL INFORMATION

None available..

13. DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? Yes
If yes, the RCRA ID number is: F003

OTHER DISPOSAL CONSIDERATIONS: Disposal of these materials may be subject to federal, state and local regulations. Users should review their operations in terms of applicable federal, state and local laws and regulations, then consult with appropriate regulatory agencies before discharging or disposing of waste material. Incineration of waste material in an EPA-approved facility is recommended, allowing a solid, inert residue to form.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. TRANSPORT INFORMATION

US DOT HAZARD CLASS: Butanol (Class 3)

US DOT ID NUMBER: UN1120 / III

15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS: All ingredients contained in this product are on the TSCA inventory.

OTHER TSCA ISSUES: None.

SARA TITLE III / CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

INGREDIENT NAME	SARA/CERCLA "RQ" (lb.)	SARA EHS "TPQ" (lb.)
1. n-Butanol	None	None

Spills or releases resulting in the loss of any ingredient at or above its "RQ" requires immediate notification to the National Response Center [(800) 424-8802)] and to your Local Planning Committee.

SECTION 311 HAZARD CLASS: Flammable.

The following ingredients are SARA 313 "Toxic Chemicals". CAS numbers and weight percents are found in Section 2.

INGREDIENT NAME	COMMENT
1. n-Butanol	None

STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

INGREDIENT NAME	WEIGHT %	COMMENT
1. n-Butanol	75-99	None

ADDITIONAL REGULATORY INFORMATION: None.

WHMIS CLASSIFICATION: Unknown.

FOREIGN INVENTORY STATUS: Unknown.

16. OTHER INFORMATION

DISCLAIMER

The information and recommendations contained in this Material Safety Data Sheet have been compiled from sources believed to be reliable and to represent the most reasonable current opinion on the subject when the MSDS was prepared. No warranty, guaranty or representation is made as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine its environmental regulatory compliance obligations under any applicable federal and state laws.