

# MATERIAL SAFETY DATA SHEET

**TORLON® 4435-E, 4435-LF, 4435-HF**  
MSDS No. 13040 USA/ENGLISH

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## SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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**MANUFACTURER/SUPPLIER:**

Solvay Advanced Polymers, L.L.C.  
4500 McGinnis Ferry Road  
Alpharetta, Georgia 30005  
USA

**EMERGENCY HEALTH INFORMATION:**

1 (800) 621-4590

**EMERGENCY SPILL INFORMATION:**

1 (800) 424-9300 CHEMTREC (USA)

**OTHER PRODUCT INFORMATION:**

1 (800) 621-4557 or 1 (770) 772-8880

**SUBSTANCE:** TORLON® 4435-E, 4435-LF, 4435-HF

**CREATION DATE:** February 5, 2002

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## SECTION 2 COMPOSITION, INFORMATION ON INGREDIENTS

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**COMPONENT:** POLY(AMIDE-IMIDE) POLYMER, NJ TRADE SECRET REG. #363-425-699-5007 P

**CAS NUMBER:** Not assigned.

**PERCENTAGE:** 60-100

**COMPONENT:** GRAPHITE

**CAS NUMBER:** 7782-42-5

**PERCENTAGE:** 10-30

**COMPONENT:** CARBON FIBER, PITCH BASED

**CAS NUMBER:** 7440-44-0

**PERCENTAGE:** 7-13

**COMPONENT:** MICA

**CAS NUMBER:** 12001-26-2

**PERCENTAGE:** 1-5

**COMPONENT:** POLYTETRAFLUOROETHYLENE

**CAS NUMBER:** 9002-84-0

**PERCENTAGE:** 1-5

(See Section 8, "Exposure Controls, Personal Protection", for exposure guidelines)

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### SECTION 3 HAZARDS IDENTIFICATION

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**NFPA RATINGS (SCALE 0-4):** HEALTH=1 FIRE=1 REACTIVITY=0

**EMERGENCY OVERVIEW:**

**COLOR:** black

**PHYSICAL FORM:** pellets

**ODOR:** odorless

**SIGNAL WORD:** CAUTION!

**MAJOR HEALTH HAZARDS:** Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

**PHYSICAL HAZARDS:** Dust/air mixtures may ignite or explode.

**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**

Dust: Causes respiratory irritation. When overheated, polytetrafluoroethylene produces vapors that cause respiratory irritation. See Toxicological Information section (Section 11).

**SKIN CONTACT:**

No significant health hazards identified. Particles or fibers may cause slight discomfort similar to rubbing sand against the skin. Heated material can cause thermal burns.

**EYE CONTACT:**

No significant health hazards identified. Particles or fibers may cause slight discomfort similar to getting dust in the eye.

**INGESTION:**

No significant health hazards identified.

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### SECTION 4 FIRST AID MEASURES

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**INHALATION:** If adverse effects occur, remove to uncontaminated area. Get medical attention.

**SKIN CONTACT:** Wash exposed skin with soap and water. For thermal burns, cool affected areas as quickly as possible by drenching or immersing in water until material solidifies. Do not remove material.

**EYE CONTACT:** Flush eyes with plenty of water.

**INGESTION:** If a large amount is swallowed, get medical attention.

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### SECTION 5 FIRE FIGHTING MEASURES

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**FIRE AND EXPLOSION HAZARDS:** Slight fire hazard. Dust/air mixtures may ignite or explode.

**EXTINGUISHING MEDIA:** regular dry chemical, carbon dioxide, water, regular foam

Large fires: Use regular foam or flood with fine water spray.

**FIRE FIGHTING:** Move container from fire area if it can be done without risk. Do not scatter spilled material with high-pressure water streams. Dike for later disposal. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

**FIRE FIGHTING PROTECTIVE EQUIPMENT:** Firefighters should wear full bunker gear, including a positive pressure self contained breathing apparatus.

**FLASH POINT:** >871 F (>466 C)

**FLAMMABILITY CLASSIFICATION:** Not Flammable.

**HAZARDOUS COMBUSTION PRODUCTS:**

Combustion products: carbonyl fluoride, hydrogen fluoride

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## SECTION 6 ACCIDENTAL RELEASE MEASURES

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Contain and remove by mechanical means. Vacuum or sweep out; avoid producing dust. Keep out of water supplies and sewers.

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## SECTION 7 HANDLING AND STORAGE

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**STORAGE:** No special requirements.

**HANDLING:** Minimize dust generation and accumulation. Take appropriate measures to prevent static discharges, which may include thorough electrical interconnecting, grounding of equipment, and/or conveyance under inert gas. Keep away from all ignition sources.

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## SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION

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**EXPOSURE LIMITS:**

**GRAPHITE:**

**GRAPHITE (<1% QUARTZ):**

15 mppcf OSHA TWA

2.5 mg/m<sup>3</sup> OSHA TWA (respirable particulate) (vacated by 58 FR 35338, June 30, 1993)

2 mg/m<sup>3</sup> ACGIH TWA (respirable particulate)

**CARBON FIBER, PITCH BASED:**

3 fibers/cc recommended TWA

**MICA (<1% QUARTZ):**

3 mg/m<sup>3</sup> OSHA TWA (respirable particulate)

3 mg/m<sup>3</sup> ACGIH TWA (respirable particulate)

**VENTILATION:** Control airborne concentrations below the exposure guidelines. If general ventilation is inadequate, local exhaust ventilation should be used to dispose of vapors from hot processing equipment, particularly during purging.

**EYE PROTECTION:** None required; however, use of eye protection is good industrial practice. Use dust goggles if high dust concentration is generated.

**CLOTHING:** None required; however, use of protective clothing is good industrial practice.

**GLOVES:** None required; however, use of protective gloves is good industrial practice.

**RESPIRATOR:** Use with adequate ventilation.

Avoid breathing vapor or dust.

If dust is generated and ventilation is inadequate, use a NIOSH certified N95 particulate respirator (42 CFR 84).

If heated and ventilation is inadequate, use a NIOSH certified respirator with an organic vapor cartridge and N95 particulate filter.

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**SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES**

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**PHYSICAL STATE:** solid

**APPEARANCE:** opaque

**COLOR:** black

**PHYSICAL FORM:** pellets

**ODOR:** odorless

**BOILING POINT:** Not applicable

**MELTING POINT:** 500 F (260 C)

**VAPOR PRESSURE:** Not applicable

**VAPOR DENSITY:** Not applicable

**SPECIFIC GRAVITY (water=1):** 1.6

**WATER SOLUBILITY:** <0.1%

**PH:** Not applicable

**VOLATILITY:** Not applicable

**ODOR THRESHOLD:** Not available

**EVAPORATION RATE:** Not applicable

**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not available

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**SECTION 10 STABILITY AND REACTIVITY**

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**REACTIVITY:** Stable at normal temperatures and pressure.

**CONDITIONS TO AVOID:** Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

**INCOMPATIBILITIES:** oxidizing materials

**HAZARDOUS DECOMPOSITION:**

Combustion products: carbonyl fluoride, hydrogen fluoride

Thermal decomposition products: oxides of carbon, oxides of fluorine

**POLYMERIZATION:** Will not polymerize.

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## SECTION 11 TOXICOLOGICAL INFORMATION

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**EYE IRRITATION:** Testing not conducted. See Other Toxicity Data.

**SKIN IRRITATION:** Testing not conducted. See Other Toxicity Data.

**DERMAL LD50:** Testing not conducted. See Other Toxicity Data.

**ORAL LD50:** Testing not conducted. See Other Toxicity Data.

**INHALATION LC50:** Testing not conducted. See Other Toxicity Data.

**OTHER TOXICITY DATA:**

Specific toxicity tests have not been conducted on this product. Our hazard evaluation is based on information from similar products, the ingredients, technical literature, and/or professional experience.

This polymer contains low levels of polytetrafluoroethylene (PTFE). Vapors which can cause flu-like symptoms are liberated from PTFE at temperatures above 800 F (427 C) or if cigarettes or other smoking materials are contaminated with polymer dust or machine waste. These flu-like symptoms are not known to occur with polymers containing low levels of PTFE.

Graphite dust can be liberated upon machining. Graphite dust can cause allergic skin reactions in susceptible individuals. Overexposure for 4 to 10 years to graphite dust can cause graphite pneumoconiosis (a disease of the lungs).

Studies involving chronic application of pitch based carbon fibers suspended in benzene to the skin of mice produced a weak local tumorigenic response. A benzene extract of pitch based carbon fiber caused in vitro (test tube) genetic effects.

The test conditions are not applicable to occupational exposure and, therefore, suggest an insignificant occupational risk of tumor development from chronic skin contact with pitch-based carbon fibers.

No component of this product present at levels greater than 0.1% is identified as a carcinogen by the U.S. National Toxicology Program, the U.S. Occupational Safety and Health Act, or the International Agency on Research on Cancer (IARC).

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## SECTION 12 ECOLOGICAL INFORMATION

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Ecological testing has not been conducted on this product .

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## SECTION 13 DISPOSAL CONSIDERATIONS

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Dispose in accordance with all applicable regulations.

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## SECTION 14 TRANSPORT INFORMATION

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**U.S. DEPARTMENT OF TRANSPORTATION:** Not regulated.

**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:** Not regulated.

**LAND TRANSPORT ADR/RID:** Not regulated.

**AIR TRANSPORT IATA/ICAO:** Not regulated.

**MARITIME TRANSPORT IMDG:** Not regulated.

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## SECTION 15 REGULATORY INFORMATION

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**CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR Part 302.4):** This product is not reportable under 40 CFR Part 302.4.

**SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR Part 355):** This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

**SARA TITLE III SECTION 311/312 HAZARDOUS CATEGORIZATION (40 CFR Part 370):**

**ACUTE:** N

**CHRONIC:** N

**FIRE:** N

**REACTIVE:** N

**SUDDEN RELEASE:** N

**SARA TITLE III SECTION 313 (40 CFR Part 372):** This product is not regulated under Section 313 of SARA and 40 CFR Part 372.

**STATE REGULATIONS:**  
**California Proposition 65:** N

**TSCA INVENTORY STATUS:** Listed on inventory.

**OSHA HAZARD COMMUNICATION STANDARD:** Contains a component listed by ACGIH.  
Contains a component listed by OSHA.

**EC INVENTORY (EINECS/ELINCS):** In compliance.

**JAPAN INVENTORY (MITI):** Listed on inventory.

**AUSTRALIA INVENTORY (AICS):** One or more components not listed on inventory - For research and development purposes only.

**KOREA INVENTORY (ECL):** Not determined.

**CANADA INVENTORY (DSL):** One or more of the components of this product is not listed on the DSL.

**PHILIPPINE INVENTORY (PICCS):** Not determined.

**CHINA INVENTORY (IECS):** Nominated.

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**[SECTION 16 OTHER INFORMATION](#)**

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**Prepared by:** Product Stewardship

*This Material Safety Data Sheet conforms to the requirements of ANSI Z400.1.*

To the best of our knowledge the information contained in this Material Safety Data Sheet is accurate. However, neither Solvay Advanced Polymers, L.L.C., nor any of its affiliates makes any warranty, expressed or implied, or accepts any liability in connection with this information or its use.

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