



MATERIAL SAFETY  
DATA SHEET

THORNEL CARBON FIBER T-300  
PAN Based Continuous Filament

MSDS NO: 05004217

MANUFACTURER/SUPPLIER:  
Amoco Performance Products,  
Inc.  
200 East Randolph Drive  
Chicago, IL 60601

EMERGENCY HEALTH INFORMATION: (800) 447-8735  
EMERGENCY SPILL INFORMATION: (800) 424-9300  
CHEMTREC, U.S.A.  
OTHER PRODUCT SAFETY INFORMATION: (312) 856-3304

IMPORTANT COMPONENTS: Carbon fiber, polyacrylonitrile based (CAS 7440-44-0).  
OSHA PEL / ACGIH TLV: No exposure limit established.  
AMOCO RECOMMENDED EXPOSURE LIMIT: 3.0 fibers/cc.

WARNING STATEMENT: This product has been evaluated and does not require any hazard warning label under the OSHA Hazard Communication Standard. However, handling and/or processing of this material may generate airborne fibers and particles which can cause mechanical irritation of the eyes, skin, nose, and throat.

HMIS/NFPA CODES: (HEALTH;1)(FLAMMABILITY;0)(REACTIVITY;0)

APPEARANCE AND ODOR: Black fibers; odorless.

#### HEALTH HAZARD INFORMATION

##### EYE

EFFECT: Airborne fibers and particles cause mild eye irritation.  
FIRST AID: Flush eyes with plenty of water for at least 15 minutes, get medical attention if irritation persists.  
PROTECTION: Wear eye protection.

##### SKIN

EFFECT: No significant irritation expected other than possible mechanical irritation.  
FIRST AID: Wash exposed skin with soap and water.  
PROTECTION: Wear gloves. Keep clothing clean and dry. Protective skin cream or body talcum may be helpful against dust.

##### INHALATION

EFFECT: No significant health hazards identified. See Toxicology Section. See Supplemental Section.  
FIRST AID: If adverse effects occur, get medical attention.  
PROTECTION: If dust is generated and ventilation is inadequate, use NIOSH/MSHA certified respirator which will protect against dust.

HEALTH HAZARD INFORMATION - CONTINUED

INGESTION

EFFECT: / Expected to be relatively non-toxic.

FIRST AID: If a large amount is swallowed, get medical attention.

FIRE AND EXPLOSION INFORMATION

FLASHPOINT: Not applicable.

EXTINGUISHING MEDIA: Agents approved for Class A hazards (e.g., halogenated agents, foam, steam) or water fog.

PRECAUTIONS: Incineration may generate airborne fibers which may cause electrical malfunctions.

REACTIVITY INFORMATION

DANGEROUS REACTIONS: None identified.

HAZARDOUS DECOMPOSITION: None. Polymerization will not occur.

STABILITY: Stable.

CHEMICAL AND PHYSICAL PROPERTIES

MELTING POINT: 6512°F, (3600°C)

SOLUBILITY IN WATER: Negligible, below 0.1%.

DENSITY: 2000 kg/m<sup>3</sup>

STORAGE AND ENVIRONMENTAL PROTECTION

STORAGE REQUIREMENTS: No special requirements.

SPILLS AND LEAKS: Contain and remove by mechanical means. See Supplemental Section.

WASTE DISPOSAL: Disposal must be in accordance with applicable federal, state, or local regulations. Do not incinerate. Burial at a permitted landfill is recommended. See Supplemental Section.

TOXICOLOGICAL INFORMATION

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.

No adverse health effects were seen in a 16-week inhalation study on a similar material with rats.

No component of this product is identified as a carcinogen by NTP, IARC or OSHA.

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REGULATORY INFORMATION

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## CERCLA REPORTABLE QUANTITY:

This product is not reportable under 40 CFR Part 302.4.

DOT PROPER SHIPPING NAME: Not regulated.

OSHA HAZARD COMMUNICATION STANDARD: Not hazardous per 29 CFR 1910.1200(d).

## RCRA STATUS:

This product is not subject to the 40 CFR Part 268.30 land ban on the disposal of certain hazardous wastes.

## SARA STATUS:

This product is not regulated under SARA Title III, 42 USC 9601.

TSCA STATUS: All of the components of this product are listed on the TSCA Inventory.

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SUPPLEMENTAL INFORMATION

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Carbon fibers are electrically conductive and may cause short circuits which result in damage to or malfunctioning of electrical equipment. All forms of electrical equipment, enclosures and circuits in or near areas where fibers are used or handled should be properly protected against the infiltration of or contact with airborne particles or filaments.

Discarded materials are difficult to incinerate. They should be bagged or containerized and buried in a landfill where permitted under federal, state and local regulations.

THORNEL Carbon Fibers are non-crystalline (amorphous), man-made fibers. Studies conducted in Amoco's manufacturing facility indicate that airborne carbon fibers, in general, are not considered respirable.

A typical carbon fiber may be characterized as having a large diameter (5 to 7 microns) in addition to great length (>100 microns). Fibers with diameters > 3.5 microns are not considered respirable.

Currently no health standards exist for employee exposure to carbon fibers. In 1977, the National Institute for Occupational Safety and Health (NIOSH) proposed that their recommended standard for fibrous glass be applied to other man-made fibers. NIOSH recommended an exposure limit of 3.0 fibers/cc for fibers less than 3.5 microns in diameter and a length greater than 10 microns.

Amoco recommends an exposure guideline of 3.0 fibers/cc up to 10 hours/shift in a 40 hour workweek for carbon fibers. Amoco has taken a conservative approach and includes all fiber diameters in the fiber count. Concentrations of airborne fibers measured in our manufacturing operations have been low-- typically 0.01 - 0.02 fibers/cc in winding operations and 0.35 fibers/cc in chopping operations.

Temporary mechanical skin irritation may occur when handling or processing carbon fiber materials. Gloves, long sleeve garments with tight-fitting cuffs, and use of barrier creams or talcum provide additional protection to skin. If irritation occurs, wash skin with soap and water and change clothing. Processes which cause excessive filament breakage, such as chopping, increase the potential for skin irritation.

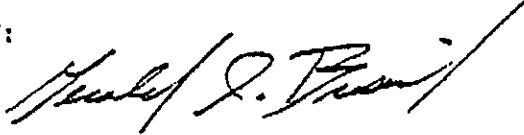
Adequate local exhaust ventilation and good industrial hygiene practices should

SUPPLEMENTAL INFORMATION - CONTINUED

be employed to prevent dusty conditions, as with any dust generating material. If dust is generated and ventilation is inadequate, use a NIOSH/MSHA certified respirator which will protect against dust.

ISSUE INFORMATION

BY:



Gerald I. Bresnick  
Director, Product Safety

ISSUED: December 28, 1988  
SUPERSEDES: August 31, 1988

This material safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe that information to be correct but cannot guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.