



The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont
Material Safety Data Sheet

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"ZYTEL" POLYAMIDE RESINS ALL IN SYNONYM LIST ZYT018
ZYT018 Revised 26-MAY-2005

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"ZYTEL" is a registered trademark of DuPont.

Tradenames and Synonyms

"ZYTEL" 114HSL WT000,
"ZYTEL" 3189 BKB010, 3189 NC010,
"ZYTEL" 3189HSL BKB010, 3189HSL BKB072, 3189HSL NC010,
"ZYTEL" 4176HSL BK214,
"ZYTEL" 408 BK010, 408 BK010L, 408 NC010, 408 YLB100,
"ZYTEL" 408HS BK009, 408HS BK010, 408HS BKB297,
"ZYTEL" 408HS BLB398, 408HS BNB479,
"ZYTEL" 408HS GYB498, 408HS GYB564, 408HS NC010,
"ZYTEL" 408L BK009, 408L BKB504, 408L GYB696, 408L NC010,
"ZYTEL" 408L NC010FC, 408L YL202, 408L YLB202,
"ZYTEL" 408W BK195, 408W NC010,
"ZYTEL" 444AHS BK152
"ZYTEL" 450HSL BK152, 450HSL BKB152,
"ZYTEL" CFE4003 BK245, CFE4003HS BK245, CFE4003W BK195,
"ZYTEL" CFE4004 NC010, CFE4004HS NC010,
"ZYTEL" CFE4005 BK246, CFE4005HS BK246, CFE4005W BK195,
"ZYTEL" CFE4006 NC010, CFE4006HS NC010, CFE4006W NC010,
"ZYTEL" FE3802 BKB010, FE3835 NC010, FE3836 NC010,
"ZYTEL" FE4162HSL BK152,
"ZYTEL" FE4176 BKB214, FE4176 NC010,
"ZYTEL" FE4196 NC010,
"ZYTEL" FE4223HSL BK152, FE4224HSL BK152,
"ZYTEL" FE4230HP BK152, FE4230HSL BK152,
"ZYTEL" FE4232HSL BK152, FE4233HS BK010,
"ZYTEL" FE5362 BK248,
"ZYTEL" FE8165 BK086, FE8168 BK086,
"ZYTEL" MT407HS BK010, MT407HS NC010,
"ZYTEL" MT407W BK195,
"ZYTEL" MT409A NC010A, MT409AHS BK010, MT409AHS NC010,
"ZYTEL" MT409AW BK195, MT409AW NC010,
"ZYTEL" ST701AW BK195,
"ZYTEL" ST701HS BK010, ST701HS NC010,
"ZYTEL" ST701W BK195, ST701W NC010,
"ZYTEL" T50HS BK152, T50W BK195,
"ZYTEL" XA382 NC010

#

Company Identification

(CHEMICAL PRODUCT/COMPANY IDENTIFICATION - Continued)

MANUFACTURER/DISTRIBUTOR

DuPont Engineering Polymers
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-(800)-441-7515
Transport Emergency : 1-(800)-424-9300
Medical Emergency : 1-(800)-441-3637

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
POLYHEXAMETHYLENE ADIPAMIDE (Nylon 66)	32131-17-2	>70
NON-REGULATED TOUGHENER		<20
NON REGULATED COLORANTS LUBRICANTS & STABILIZERS		<10
CARBON BLACK	1333-86-4	0-3

Components (Remarks)

Additives in this product do not present a respiration hazard unless the product is ground to a powder of respirable size and the dust is inhaled. All dusts are potentially injurious to the respiratory tract if respirable particles are generated and inhaled in sufficiently high concentrations. Good industrial hygiene practices, as with all dusts, should include precautions to prevent inhalation of respirable particles.

Material is not known to contain Toxic Chemicals under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Potential Health Effects

ADDITIONAL HEALTH EFFECTS

Read "ZYTEL" Molding Guide before using this product.

POLYHEXAMETHYLENE ADIPAMIDE (Nylon 66)

In general, skin irritation has not been produced in human patch tests with Nylon 66. However, a small percentage of subjects may respond to prolonged contact with redness of skin. Significant skin permeation, and systemic toxicity, after contact appears unlikely. There are no reports of human sensitization.

(HAZARDS IDENTIFICATION - Continued)

If particles of Nylon 66 contact the eye, mechanical irritation with tearing, pain or blurred vision may result.

CARBON BLACK

Immediate effects of overexposure to Carbon Black by inhalation may include irritation of the nose, throat, and lungs with cough, difficulty breathing or shortness of breath.

If particles from Carbon Black contact the eye, mechanical irritation with tearing, pain or blurred vision may result.

Significant skin permeation, and systemic toxicity, after contact with Carbon Black appears unlikely. There are no reports of human sensitization.

Epidemiologic studies demonstrate no significant risk of human cancer from exposure to Carbon Black. While some reports cite an increased incidence of pulmonary abnormalities, such as decreased pulmonary function and radiological changes among Carbon Black workers, other reports show no correlation between exposure and effects on pulmonary function or disease.

Increased susceptibility to the effects of Carbon Black may be observed in persons with pre-existing disease of the lungs.

Carcinogenicity Information

The following components are listed by IARC, NTP, OSHA or ACGIH as carcinogens.

Material	IARC	NTP	OSHA	ACGIH
CARBON BLACK			2B	

FIRST AID MEASURES

First Aid

INHALATION

No specific intervention is indicated as the compound is not likely to be hazardous by inhalation. Consult a physician if necessary. If exposed to fumes from overheating or combustion, move to fresh air. Consult a physician if symptoms persist.

SKIN CONTACT

The compound is not likely to be hazardous by skin contact, but cleansing the skin after use is advisable. If molten polymer gets on skin, cool rapidly with cold water. Do not attempt to peel polymer from skin. Obtain medical treatment for thermal burn.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

(FIRST AID MEASURES - Continued)

INGESTION

No specific intervention is indicated as compound is not likely to be hazardous by ingestion.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point : Not Applicable

Fire and Explosion Hazards:

Like most organic materials in powder form, dust generated from this product may form a flammable dust-air mixture. Potential for a dust explosion may exist. Minimize the generation and accumulation of dust. Keep away from sources of ignition.

Large molten masses may ignite spontaneously in air. Water quenching of such masses is good practice.

Hazardous gases/vapors produced in fire are ammonia, carbon monoxide, small amounts of, hydrogen cyanide, and, aldehydes.

Extinguishing Media

Water, Foam, Dry Chemical, CO2.

Fire Fighting Instructions

Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Spill Clean Up

Spilled material is a slipping hazard.

Sweep up to avoid slipping hazard.

HANDLING AND STORAGE

Handling (Personnel)

See FIRST AID and PERSONAL PROTECTIVE EQUIPMENT SECTIONS.

Handling (Physical Aspects)

Minimize the generation and accumulation of dust.

Storage

Store in a cool, dry place. Keep containers tightly closed to prevent moisture absorption and contamination.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

VENTILATION When hot processing this material, use local and/or general exhaust ventilation to control the concentration of vapors and fumes below exposure limits.

In cutting or grinding operations with this material, use local exhaust to control the concentration of dust below exposure limits.

Personal Protective Equipment

Eye/Face Protection

Wear safety glasses. Wear coverall chemical splash goggles and face shield when possibility exists for eye or face contact due to splashing or spraying of molten material. A full face mask positive-pressure air-supplied respirator provides protection from eye irritation.

Respirators

A NIOSH/MSHA approved air-purifying respirator with an organic vapor cartridge with a dust/mist filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

During grinding, sawing, routing, drilling or sanding operations use a NIOSH/MSHA approved air-purifying respirator with dust/mist cartridge or canister if airborne particulate concentrations are expected to exceed permissible exposure levels.

Protective Clothing

(EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

If there is potential contact with hot/molten material, wear heat resistant clothing and footwear.

Wear leather or cotton gloves when grinding, sawing, routing, drilling or sanding.

Exposure Guidelines

Applicable Exposure Limits

POLYHEXAMETHYLENE ADIPAMIDE (Nylon 66)

PEL (OSHA) : None Established
TLV (ACGIH) : None Established
AEL * (DuPont) : 10 mg/m³, 8 Hr. TWA, total dust
5 mg/m³, 8 Hr. TWA, respirable dust

CARBON BLACK

PEL (OSHA) : 3.5 mg/m³, 8 Hr. TWA
TLV (ACGIH) : 3.5 mg/m³, 8 Hr. TWA, A4
AEL * (DuPont) : 0.5 mg/m³, 8 & 12 Hr. TWA, (Polynuclear
Aromatic Hydrocarbon Content <0.1%)
Includes Channel, Lamp, and Thermal
Black

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Melting Point : >200 C (>392 F)
Solubility in Water : Insoluble
Odor : None
Form : Pellets.
Specific Gravity : >1
Color : Black, Brown, Gray, Natural Color.

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Conditions to Avoid

Temperatures above 340 C (644 F) .

Incompatibility with Other Materials

Incompatible or can react with strong acids, strong oxidizers.

(STABILITY AND REACTIVITY - Continued)

Decomposition

HAZARDOUS DECOMPOSITION PRODUCTS - aldehydes, ammonia, cyclopentanone, carbon monoxide.

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

Nylon 66

Oral LD50, rat: > 10,000 mg/kg

Nylon 66 is not a skin irritant in tests with animals.

Single exposure by ingestion to high doses caused decreased body weight. Long-term exposure caused no significant toxicological effects.

Repeated inhalation exposure caused histopathological changes of the lungs, and kidneys.

In animal testing Nylon 66 has not caused carcinogenicity. No animal data are available to define developmental, reproductive or mutagenic hazards.

CARBON BLACK

Oral ALD, rat: > 25,100 mg/kg

Repeated inhalation exposure of animals to Carbon Black caused inflammation of the respiratory tract, lungs and emphysema.

Repeated exposure to high doses of Carbon Black by ingestion or skin contact caused no significant toxicological effects.

No adequate studies have been conducted in animals to define the carcinogenicity of Carbon Black by ingestion. In several skin painting studies using various Carbon Blacks no carcinogenicity was observed. Tests by inhalation for carcinogenicity in rats show significant increases in lung tumors in female rats but not male rats. In another study using female mice exposed by inhalation to Carbon Black there was no increase in the incidence of respiratory tract tumors. Researchers conducting the rat inhalation studies believe that these effects probably result from the massive accumulation of small dust particles in the lung which overwhelm the normal lung clearance mechanisms. This represents "lung overload" phenomenon, rather than a specific chemical effect of the dust particle in the lung.

(TOXICOLOGICAL INFORMATION - Continued)

Tests have shown that this material does not cause genetic damage in bacterial or mammalian cell cultures. Tests in animals for genetic toxicity have produced mostly negative results. No animal data are available to define developmental or reproductive toxicity.

ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:

No information is available. Toxicity is expected to be low based on insolubility in water. Do not discharge to streams, ponds, lakes or sewers.

DISPOSAL CONSIDERATIONS

Waste Disposal

Preferred options for disposal are (1) recycling, (2) incineration with energy recovery, and (3) landfill. The high fuel value of this product makes option 2 very desirable for material that cannot be recycled, but incinerator must be capable of scrubbing out acidic combustion products. Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial, and local regulations.

TRANSPORTATION INFORMATION

Shipping Information

Not regulated in transportation by DOT/IMO/IATA.

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status : In compliance with TSCA Inventory requirements for commercial purposes.

State Regulations (U.S.)

STATE RIGHT-TO-KNOW

No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet, with the exceptions indicated.

(REGULATORY INFORMATION - Continued)

SUBSTANCES ON THE PENNSYLVANIA HAZARDOUS SUBSTANCES LIST PRESENT AT A CONCENTRATION OF 1 % OR MORE (0.01% FOR SPECIAL HAZARDOUS SUBSTANCES)- Carbon black.

WARNING - SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM- None.

The State of California, under Proposition 65, regulates Carbon Black - airborne, unbound particles of respirable size as a carcinogen. In this product, carbon black is not supplied in the form regulated in California.

SUBSTANCES ON THE NEW JERSEY WORKPLACE HAZARDOUS SUBSTANCE LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.1% FOR SUBSTANCES IDENTIFIED AS CARCINOGENS, MUTAGENS OR TERATOGENS)- Carbon black.

OTHER INFORMATION

Additional Information

MEDICAL USE: CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications see DuPont CAUTION Bulletin No. H-50102.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : REGULATORY AFFAIRS
DUPONT ENGINEERING POLYMERS
Address : CHESTNUT RUN PLAZA 713
WILMINGTON, DE 19880-0713
Telephone : 302-999-4257

Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS