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## MATERIAL SAFETY DATA SHEET

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### 1. PRODUCT AND COMPANY IDENTIFICATION

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Product Name: **ARTISTRI™ P5400 BLACK PIGMENT INK**

Product Use: Ink-Jet Printing Ink

#### Company Identification

##### MANUFACTURER/DISTRIBUTOR

DuPont Ink Jet and Specialty Colorants  
DuPont Performance Coatings  
Barley Mill Plaza  
Wilmington, DE (USA)

##### PHONE NUMBERS

Product, Safety, Health and  
Environmental Information : 1-302-695-9682 (8 a.m.-5 p.m. ET, M-F, U.S.A)  
Transport Emergency : CHEMTREC: 1-800-424-9300 (24 hours, U.S.A)  
Medical Emergency : 1-800-441-3637 (24 hours, U.S.A.)

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### 2. COMPOSITION/INFORMATION ON INGREDIENTS

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#### Components (% by weight)

| <u>Material</u>      | <u>CAS Number</u> | <u>%</u> |
|----------------------|-------------------|----------|
| Water                | 7732-18-5         | 55-95    |
| Aliphatic Alcohol    | **                | 1-10     |
| *Ethylene Glycol     | 107-21-1          | 1-10     |
| Polyglycol Ether     | **                | 1-10     |
| Polymers             | **                | 1-10     |
| Carbon Black Pigment | 1333-86-4         | 1-5      |

\*Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

#### Components (Remarks)

\*\*The specific identity for each component not identified by a CAS Registry Number is withheld as a trade secret.

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### 3. HAZARDS IDENTIFICATION

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#### Potential Health Effects

THIS PRODUCT CAN BE USED SAFELY WHEN USED AS DIRECTED AND WHEN APPLICABLE SAFETY PRECAUTIONS ARE FOLLOWED.

#### POTENTIAL HEALTH EFFECTS FROM PRODUCT

Potential routes of overexposure to this product are skin contact, eye contact and inhalation of vapor.

Ingestion is not expected to be a significant route of exposure for this product under normal use conditions.

There is no toxicity data available for this specific formulation. Any potential hazards are presumed to be due to exposure to the components.

#### ADDITIONAL HEALTH EFFECTS

Since this mixture has not been tested as a whole to determine the hazards by all routes of exposure, information is provided for each hazardous component of the mixture to meet requirements of OSHA's Hazard Communication Standard (29 CFR 1910.1200). The effects noted occur from exposure to the pure component unless otherwise noted.

#### INFORMATION FOR COMPONENTS

##### ALIPHATIC ALCOHOL

Eye Contact - May cause slight eye irritation.

Skin Contact - May cause slight skin irritation. Not expected to be absorbed through the skin.

Inhalation - Breathing of spray or mist may cause irritation of the upper respiratory tract.

Ingestion - This material has a low order of acute oral toxicity based on animal data.

##### ETHYLENE GLYCOL

Eye Contact - May cause slight transient (temporary) eye irritation. Corneal injury is unlikely. Vapors or mists may cause eye irritation.

Skin Contact - Essentially nonirritating to skin. Repeated skin exposure to large quantities may result in absorption of harmful amounts.

Inhalation - At room temperature, exposure to vapors are minimal due to physical properties; higher temperatures may generate vapor levels sufficient to cause adverse effects.

Ingestion - Single dose oral toxicity is considered to be moderate. Excessive exposure may cause central nervous system effects, cardiopulmonary effects (metabolic acidosis), and kidney failure. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing amounts larger than that may cause serious injury, even death.

Systemic (Other Target Organ) Effects - Excessive exposure may cause irritation to upper respiratory tract. Observations in animals include kidney and liver effects and deposition of calcium salts in various tissues after long-term dietary intake of ethylene glycol.

Cancer Information - Ethylene glycol did not cause cancer in long-term animal studies.

Teratology (Birth Defects) - Based on animal studies, ingestion of very large amounts of ethylene glycol appears to be the major and possibly only route of exposure to produce birth defects. Exposures by inhalation (tested nose-only in animals to prevent ingestion) or skin contact, the primary routes of occupational exposure, had minimal or essentially no effect on the fetus.

Reproductive Effects - Ingestion of large amounts of ethylene glycol has been shown to interfere with reproduction in animals. Specifically, growth retardation and decreased litter size in rats and mice and mating frequency in mice were observed.

#### POLYGLYCOL ETHER

Eye Contact - May cause slight transient (temporary) eye irritation. Corneal injury is unlikely.

Skin Contact - Prolonged or repeated exposure not likely to cause significant skin irritation. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. Prolonged or repeated exposure to very large amounts of component(s) in this product may cause narcosis (drowsiness).

Ingestion - single dose oral toxicity is considered to be low. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury.

Inhalation - Single exposure to vapors is not likely to be hazardous.

Systemic (Other Target Organ) Effects - Signs and symptoms of excessive exposure may be anesthetic or narcotic effects.

Teratology (Birth Defects) - Birth defects are unlikely. Even exposure have an adverse effect on the mother should have no effect on the fetus.

#### Carcinogenicity Information

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

Material  
CARBON BLACK

IARC NTP OSHA ACGIH  
2B

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## 4. FIRST AID MEASURES

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### First Aid

#### INHALATION

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

#### SKIN CONTACT

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing. Consult a physician. Wash contaminated clothing before reuse.

#### EYE CONTACT

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

#### INGESTION

Ingestion is not an expected route of exposure during normal use of the product. If ingested, consult a physician.

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## 5. FIRE FIGHTING MEASURES

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### Flammable Properties

|                                                  |                      |
|--------------------------------------------------|----------------------|
| Flash Point                                      | : >93.3 °C (>200 °F) |
| Method                                           | : Closed Cup         |
| Approximate Flammable Limits in Air, % by Volume |                      |
| LEL                                              | : Not Available      |
| UEL                                              | : Not Available      |
| Autoignition Temperature                         | : Not Available      |

Product is a nonflammable water-based solution.

Hazardous combustion products (gases/vapors) produced in fire can include carbon monoxide, carbon dioxide, nitrogen oxides and smoke.

### Extinguishing Media

Use media appropriate for surrounding material.

### Fire Fighting Instructions

This product is not flammable. Use normal firefighting procedures for the area.

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## 6. ACCIDENTAL RELEASE MEASURES

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### Safeguards (Personnel)

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

### Initial Containment

Dike spill.

### Spill Clean Up

Soak up with absorbent material.

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## 7. HANDLING AND STORAGE

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### Handling (Personnel)

Avoid contact with eyes, skin, or clothing.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Personal Protective Equipment

#### EYE/FACE PROTECTION

Wear safety glasses. Wear coverall chemical splash goggles and face shield when the possibility exists for eye and face contact due to splashing or spraying of the material.

#### RESPIRATORS

Respirators are not needed for normal use.

#### PROTECTIVE CLOTHING

If there is potential for significant dermal contact wear appropriate impervious clothing and gloves.

### Applicable Exposure Limits and Exposure Data

#### WATER

|                                          |                     |
|------------------------------------------|---------------------|
| PEL (OSHA)                               | : None Established  |
| TLV (ACGIH)                              | : None Established  |
| AEL * (DuPont)                           | : None Established  |
| LD <sub>50</sub> (rat, oral)             | : >90 mL/kg (RTECS) |
| LC <sub>50</sub> (rat, inhalation/4 hr.) | : No data available |

ALIPHATIC ALCOHOL

|                                          |                           |
|------------------------------------------|---------------------------|
| PEL (OSHA)                               | : None Established        |
| TLV (ACGIH)                              | : None Established        |
| AEL * (DuPont)                           | : None Established        |
| LD <sub>50</sub> (rat, oral)             | : >5,000 mg/kg (supplier) |
| LC <sub>50</sub> (rat, inhalation/4 hr.) | : No data available       |

ETHYLENE GLYCOL

|                                          |                                                                              |
|------------------------------------------|------------------------------------------------------------------------------|
| PEL (OSHA)                               | : None Established                                                           |
| TLV (ACGIH)                              | : Ceiling: 100 mg/m <sup>3</sup> , aerosol                                   |
| AEL * (DuPont)                           | : 50 ppm, 8 Hr. TWA, vapor                                                   |
| IEL (2000/39/EC)                         | : 52 mg/m <sup>3</sup> , 20 ppm, skin<br>STEL 104 mg/m <sup>3</sup> , 40 ppm |
| LD <sub>50</sub> (rat, oral)             | : 4,700 mg/kg (RTECS)                                                        |
| LD <sub>50</sub> (rabbit, dermal)        | : 9,530 uL/kg (RTECS)                                                        |
| LC <sub>50</sub> (rat, inhalation/4 hr.) | : >200 mg/m <sup>3</sup> (RTECS)                                             |

POLYGLYCOL ETHER

|                                          |                           |
|------------------------------------------|---------------------------|
| PEL (OSHA)                               | : None Established        |
| TLV (ACGIH)                              | : None Established        |
| AEL * (DuPont)                           | : None Established        |
| LD <sub>50</sub> (rat, oral)             | : >3,200 mg/kg (supplier) |
| LD <sub>50</sub> (rabbit, dermal)        | : >20 mL/kg (supplier)    |
| LC <sub>50</sub> (rat, inhalation/4 hr.) | : No data available       |

POLYMERS

|                                          |                     |
|------------------------------------------|---------------------|
| PEL (OSHA)                               | : None Established  |
| TLV (ACGIH)                              | : None Established  |
| AEL * (DuPont)                           | : None Established  |
| LD <sub>50</sub> (rat, oral)             | : No data available |
| LC <sub>50</sub> (rat, inhalation/4 hr.) | : No data available |

CARBON BLACK PIGMENT

|                                          |                                                                                               |
|------------------------------------------|-----------------------------------------------------------------------------------------------|
| PEL (OSHA)                               | : 3.5 mg/m <sup>3</sup> , 8 Hr. TWA                                                           |
| TLV (ACGIH)                              | : 3.5 mg/m <sup>3</sup> , 8 Hr. TWA, A4 ("Not Classifiable<br>As a Human Carcinogen")         |
| AEL * (DuPont)                           | : 0.5 mg/m <sup>3</sup> , 8 & 12 Hr. TWA, (Polynuclear<br>Aromatic Hydrocarbon Content <0.1%) |
| LD <sub>50</sub> (rat, oral)             | : >8,000 mg/kg (supplier)                                                                     |
| LC <sub>50</sub> (rat, inhalation/4 hr.) | : No data available                                                                           |

\* 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.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Physical Data

|                     |            |
|---------------------|------------|
| Form                | : Liquid   |
| Color               | : Black    |
| Odor                | : Slight   |
| Solubility in Water | : Miscible |
| pH                  | : About 8  |
| Specific Gravity    | : About 1  |

### Other Information

|                                                  |                      |
|--------------------------------------------------|----------------------|
| Flash Point                                      | : >93.3 °C (>200 °F) |
| Method                                           | : Closed Cup         |
| Approximate Flammable Limits in Air, % by Volume |                      |
| LEL                                              | : Not Available      |
| UEL                                              | : Not Available      |
| Autoignition Temperature                         | : Not Available      |

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## 10. STABILITY AND REACTIVITY

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### Chemical Stability

Stable at normal temperatures and storage conditions.

### Incompatibility with Other Materials

None reasonably foreseeable.

### Decomposition

Decomposition does not occur during normal use.

### Polymerization

Polymerization will not occur.

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## 11. TOXICOLOGICAL INFORMATION

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### Animal Data

No data available for product.

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## 12. ECOLOGICAL INFORMATION

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### Ecotoxicological Information

No data available for product.

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## 13. DISPOSAL CONSIDERATIONS

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### Waste Disposal

DO NOT DISCARD INTO ANY SEWERS, INTO ANY BODY OF WATER, OR ON THE GROUND. Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local laws and regulations.

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## 14. TRANSPORTATION INFORMATION

(Not meant to be all inclusive)

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DOT (Domestic Surface, U.S.A.) : Not regulated

ICAO/IATA (Air) : Not regulated

IMO/IMDG (Ocean) : Not regulated

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## 15. REGULATORY INFORMATION

(Not meant to be all inclusive - selected regulations represented)

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### U.S. Regulations

#### Federal Regulations

TSCA Inventory Status - All components of this product are listed, or exempt from listing, on the TSCA 8(b) chemical inventory.

TSCA Section 12(b) Export Notification - This product can contain: None



## State Regulations

### State Right-To-Know

WARNING - SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM (California Proposition 65)

None

## European Union Regulations

EU Inventory Status - All components of this product are listed, or are exempt from listing, on the EINECS chemical inventory.

Transport Information - This product is not classified as dangerous within the meaning of transport regulations.

Labeling - This product does not need to be labeled in accordance with EC-Directive 1999/45/EC.

## Switzerland

Switzerland VOC Regulations (Ordinance 814.018, *Verordnung über die Lenkungsabgabe auf flüchtigen organischen Verbindungen*, as of 28 December 2000)

This product is exempt from Swiss VOC regulations.

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## 16. OTHER INFORMATION

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### HMIS® Rating

|              |     |
|--------------|-----|
| Health       | : 1 |
| Flammability | : 1 |
| Reactivity   | : 0 |

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.

### MSDS Contact Information

Global Product Stewardship and Regulatory Affairs  
DuPont Ink Jet and Specialty Colorants  
DuPont Performance Coatings  
Barley Mill Plaza  
Wilmington, DE (U.S.A.)  
1-302-695-9682 (U.S.A.)

### Revision History

|              |          |
|--------------|----------|
| 16 June 2005 | New MSDS |
|--------------|----------|

Key

|            |                                                                                 |
|------------|---------------------------------------------------------------------------------|
| ACGIH      | American Conference of Governmental Industrial Hygienists                       |
| AEL        | Acceptable Exposure Limit (DuPont)                                              |
| Cmpds      | Compounds                                                                       |
| DOT        | Department of Transportation (U.S.A.)                                           |
| ET         | Eastern Time (U.S.A.)                                                           |
| EU         | European Union                                                                  |
| HMIS®      | Hazardous Material Information System (National Paint and Coatings Association) |
| IARC       | International Agency for Research on Cancer                                     |
| IATA       | International Air Transport Association                                         |
| ICAO       | International Civil Aviation Organization                                       |
| IEL        | Indicative Exposure Limit (EU Directive 2000/39/EC)                             |
| IMDG       | International Maritime Dangerous Goods                                          |
| IMO        | International Maritime Organization                                             |
| LEL or LFL | Lower Explosive Limit or Lower Flammable Limit                                  |
| M-F        | Monday through Friday                                                           |
| NA         | North America                                                                   |
| NIOSH      | National Institute of Occupational Safety and Health (U.S.A.)                   |
| NOHSC      | National Occupational Health and Safety Commission (Worksafe Australia)         |
| NOS        | Not Otherwise Specified                                                         |
| NTP        | National Toxicology Program (U.S.A.)                                            |
| OEL        | Occupational Exposure Limit                                                     |
| OSHA       | Occupational Safety and Health Administration (U.S.A.)                          |
| PEL        | Permissible Exposure Limit                                                      |
| RTECS      | Registry of Toxic Effects of Chemical Substances (NIOSH)                        |
| STEL       | Short Term Exposure Limit                                                       |
| TLV        | Threshold Limit Value                                                           |
| TSCA       | Toxic Substances Control Act (U.S.A)                                            |
| TWA        | Time-weighted Average                                                           |
| UEL or UFL | Upper Explosive Limit or Upper Flammable Limit                                  |
| U.S.A.     | United States of America                                                        |
| VOC        | Volatile Organic Compound(s)                                                    |
| WEEL       | Workplace Environmental Exposure Level                                          |

End of MSDS