



MATERIAL SAFETY DATA SHEET

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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NAME: Infoprint 4000 Enhanced Printing Toner
IBM Field Use Number: 1402833
IBM Material Reference Number: 940010130
TRADE NAMES/SYNONYMS: Toner K3
CHEMICAL FAMILY: Black Toner
CREATION DATE: 3/23/01 REVISION DATE: 4/30/01

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: Carbon Black
CAS NUMBER: 1333-86-4
EINECS NUMBER:
PERCENTAGE:

If this table is blank, then this product does not contain any regulated substances. See Section 8 for exposure guidelines.

SECTION 3 - HAZARDS IDENTIFICATION

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

EMERGENCY OVERVIEW: Avoid generation of airborne dust.

Low hazard for recommended handling. Black powder with a slight odor. Carbon black has been classified as an IARC 2B (possible human) carcinogen. May cause respiratory tract or skin irritation. May form flammable or explosive dust-air mixtures. Avoid chronic pulmonary exposures to dust. Avoid exposure to eyes, skin or clothing (will stain). Keep container closed. Use with adequate ventilation.

ROUTES OF ENTRY: Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation.

POTENTIAL HEALTH EFFECTS:

INHALATION: Inhalation of dusts of this product may result in shortness of breath, limitation of chest expansion, dry cough, and a lessened capacity for work.

LONG TERM EFFECTS: Potential risk of irreversible pulmonary effects.*

*Chronic exposure is not expected when this product is used as intended.

SKIN CONTACT: Dust or powder may irritate the skin.

EYE CONTACT: Dust or powder may irritate eye tissue.

INGESTION: Low toxicity.

CARCINOGEN STATUS:

OSHA: N

NTP: N

ACGIH: N

IARC: Y (Carbon Black)

In 1996 the International Agency for Research on Cancer (IARC) reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen), based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black. The effects were observed only in animals exposed to high concentrations of carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats have not demonstrated an association between carbon black and lung tumors. Moreover, a two-year cancer bioassay using a typical toner preparation containing carbon black demonstrated no association between toner exposure and tumor development in rats.



MATERIAL SAFETY DATA SHEET

Epidemiology studies of workers in the carbon black producing industries of North America and Western Europe do not demonstrate an association between carbon black and cancer, even in high exposure occupational settings. In addition, in its reevaluation of carbon black, IARC concluded that “there is *inadequate evidence* in humans for the carcinogenicity of carbon black”. Chronic overexposure to many dusts, including carbon black dust, may result in respiratory tract irritation and slight changes in pulmonary function. Collectively, the available animal data and human epidemiology studies suggest that carbon black, as contained in this product, does not present a cancer risk to the end user if the handling and personal protective measures contained within this MSDS are understood and followed.

SECTION 4 - FIRST AID MEASURES

INHALATION: If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen.

SKIN CONTACT: For skin contact, wash immediately with soap and water.

EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes.

INGESTION: If the material is swallowed, get immediate medical attention or advice.

NOTES TO PHYSICIAN: Provide general supportive measures and treat symptomatically.

SECTION 5 - FIRE FIGHTING MEASURES

CONDITIONS OF FLAMMABILITY: No known hazards.

MEANS OF EXTINCTION: Foam (preferred), dry chemical, water.

FLASH POINT (METHOD): Not applicable.

LOWER FLAMMABLE LIMIT: Not applicable.

UPPER FLAMMABLE LIMIT: Not applicable.

HAZARDOUS COMBUSTION PRODUCTS: Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

SMALL SPILL:

Containment Techniques - Contain by any means necessary.

Cleanup Procedures - Vacuum up the spilled material.

Equipment - Scoop dry solids into a DRY metal container, properly label, and cover. Take immediately to a waste handling area.

Other Emergency Advice - No other spill procedures necessary.

LARGE SPILL:

Containment Techniques - Contain by any means necessary.

Cleanup Procedures - Vacuum up the spilled material.

Equipment - No additional information on equipment.

Other Emergency Advice - No other spill procedures necessary.

EVACUATION PROCEDURE: Isolate area. Keep unnecessary personnel away.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Do not breathe fumes or dust from this material.

STORAGE: Store at ambient temperature and atmospheric pressure.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS: *No limits established for this product.*

CARBON BLACK:



MATERIAL SAFETY DATA SHEET

3.5 mg/M³ OSHA TWA PEL
 3.5 mg/M³ ACGIH TWA TLV - ACGIH A4 - Not classifiable as a human carcinogen (Proposed addition 1995-1996)
 3.5 mg/M³ NIOSH recommended 10 hour TWA
 0.1 mg/M³ NIOSH recommended 10 hour TWA (in the presence of polycyclic aromatic hydrocarbons)
 Measurement method: Particulate filter; gravimetric; (NIOSH III # 5000).

In Canada, consult local authorities for acceptable provincial values.

The following components are listed on the Canadian WHMIS Ingredient Disclosure List (IDL):

| Component | CAS # | Percent | Minimum Concentration |
|---|-----------|---------|-----------------------|
| No limits established for this product. | | | |
| Carbon black | 1333-86-4 | 9-10 | 1% item 309 (1271) |
| Silica, amorphous, fumed | 7631-86-9 | 0-2 | 1% item 1403 (1488) |

VENTILATION: Provide adequate ventilation (ASHRAE 62).

RESPIRATOR: No respirator is required under normal conditions of use. Under conditions of frequent or heavy exposure protection may be needed. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever there may be potential for airborne exposure.

EYE PROTECTION: If significant eye exposure is anticipated, the use of chemical splash goggles is recommended. Wear chemical goggles or a full face shield.

EYE WASH: Where there is a potential for eye exposure to this substance, an eye wash fountain should be provided within the immediate work area for emergency use.

CLOTHING: Protective clothing not required under normal conditions. Normal work clothing (long sleeved shirts and long pants) is recommended.

PROTECTIVE GLOVES: If significant skin exposure is anticipated, appropriate gloves should be worn to prevent skin contact with this substance. Use impervious gloves.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Solid (powder)

ODOR AND APPEARANCE: Mild odor, fine black powder

FREEZING POINT: 0 °C

VAPOR PRESSURE: No information available

SPECIFIC GRAVITY: 1.16

WATER SOLUBILITY: Insoluble

VOLATILES, % BY WEIGHT: Not evaluated

pH: Not applicable

SECTION 10 - STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under normal conditions.

CONDITIONS TO AVOID: Keep away from heat, sparks, or open flame.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

POLYMERIZATION: Will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

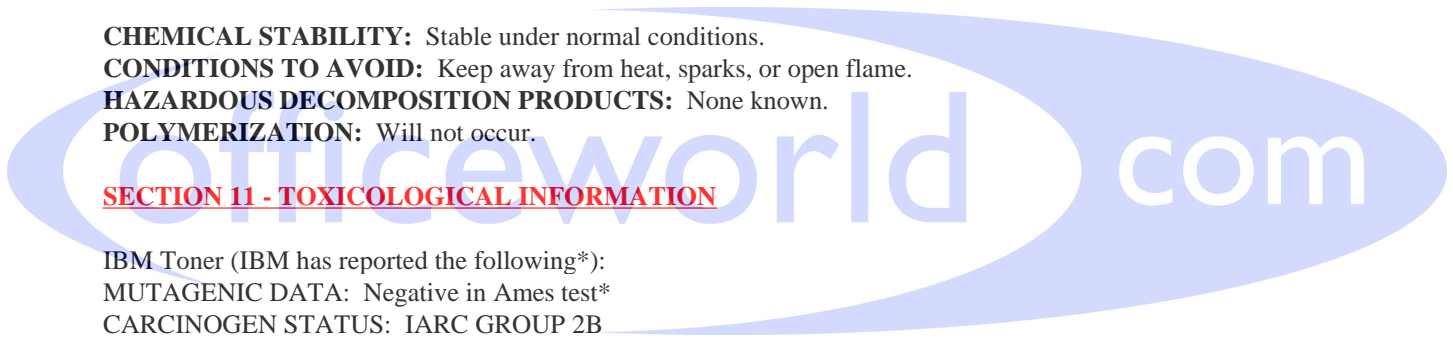
IBM Toner (IBM has reported the following*):

MUTAGENIC DATA: Negative in Ames test*

CARCINOGEN STATUS: IARC GROUP 2B

ACUTE TOXICITY LEVEL: No data available.

TARGET EFFECTS: No data available.





MATERIAL SAFETY DATA SHEET

CARBON BLACK:

TOXICITY DATA: >10 gm/kg oral-rat LD₅₀ (EM Science MSDS); 120 mg/kg intravenous-rat LD₅₀ (THIDD6).

CARCINOGEN STATUS:

Human Data: Epidemiological studies of workers in carbon black producing industries of North America and Western Europe show no evidence of clinically significant adverse health effects due to occupational exposure to carbon black. Early studies performed in the former USSR and Eastern Europe report respiratory disease among workers exposed to carbon black, including: bronchitis, pneumoconiosis, emphysema, and rhinitis. These studies are of questionable validity due to inadequate study design and methodology, lack of appropriate controls for smoking tobacco, and other confounding variables such as exposures to carbon monoxide, coal oil, and petroleum vapors. Furthermore, review of these studies indicates that work environment concentrations of carbon black were considerably greater than current occupational exposure standards. In its Monograph Volume 65, issued April 1996, IARC reevaluated carbon black and concluded that "there is *inadequate evidence* in humans for the carcinogenicity of carbon black".

Animal Data: Chronic inflammation, lung fibrosis, and lung tumors have been observed in some rats exposed experimentally, for long periods of time, to excessive concentrations of carbon black and several other fine dust particles. Tumors have not been observed in other animal species (i.e. mice, hamsters) under similar circumstances and study conditions. Many researchers conducting rat inhalation toxicity studies believe that these effects most likely result from the massive accumulation of fine dust particles in the lung, which overwhelm the lung clearance mechanisms, resulting in "lung overload" phenomenon, rather than from a specific chemical effect associated with the dust particles in the lung.

Many inhalation toxicologists believe that the tumor response observed in the referenced rat studies is species-specific and does not correlate to human exposure. However, the IARC reevaluation in Volume 65 concluded that "there is *sufficient evidence* in experimental animals for the carcinogenicity of carbon black". Based upon this reevaluation, IARC's overall evaluation is that "carbon black is *possibly carcinogenic to humans (IARC Group-2B)*".

Carbon black has not been listed as a carcinogen by the National Toxicology Program (NTP), nor the Occupational Safety and Health Administration (OSHA).

LOCAL EFFECTS: Irritant - inhalation, skin.

ACUTE TOXICITY LEVEL: Slightly toxic by ingestion.

TARGET EFFECTS: Toxic overexposure may affect the respiratory system, the heart, skin and mucous membranes.

AT INCREASED RISK FROM EXPOSURE: Persons with certain pre-existing upper respiratory disorders, such as bronchitis or asthma.

REPRODUCTIVE TOXICITY: No information available.

TERATOGENICITY: No data available for this product.

MUTAGENICITY: No data available for this product.

SECTION 12 - ECOLOGICAL INFORMATION

No data available for this product.

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DESCRIPTION: No components are identified as hazardous wastes.

Observe all federal, regional and local regulations when disposing of this substance. Contact local waste vendors for proper disposal.

SECTION 14 - TRANSPORT INFORMATION

This product is not regulated as a hazardous material under current U.S. DOT or Canada TDG.



MATERIAL SAFETY DATA SHEET

SECTION 15 - REGULATORY INFORMATION

UNITED STATES:

TSCA INVENTORY STATUS (Y/N): Y

CANADA:

WHMIS CLASSIFICATION: Class D2A

SECTION 16 - OTHER INFORMATION

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