



MATERIAL SAFETY DATA SHEET

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

IBM CORPORATION
NEW ORCHARD ROAD
ARMONK, NEW YORK 10504
U.S.A.

FOR EMERGENCY SOURCE INFORMATION
24 HOURS CONTACT 1-800-426-4333
INTERNATIONAL EMERGENCY NUMBER 303-739-1111

In U.S.A., call: 1-800-IBM-4333 In CANADA, call: 1-800-IBM-4YOU

NAME: IBM Infoprint 70 Toner

IBM Field Use Number: 69G7372, 57P2287, 57P1975

IBM Material Reference Number: 940076800

TRADE NAMES/SYNONYMS: NH-289SG17 TONER

CHEMICAL FAMILY: Not applicable

PRODUCT USE: Toner for printers or copiers

CREATION DATE:

REVISION DATE: 4/17/01

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENTS	CAS NUMBER	EC NUMBER	PERCENTAGE
Styrene-acrylate Copolymer	25767-47-9	not required (polymer exempted)	>72.0
Carbon black	1333-86-4	215-609-9	<15.0
Paraffine wax	8002-74-2	232-315-6	< 6.0
Iron oxide	1317-61-9	215-277-5	< 4.0
Organic pigment	{ 84179-66-8 ¹⁾ 109125-50-0 ²⁾ 109125-51-1 ³⁾ }	400-110-2	< 2.0
Amorphous silica	7631-86-9	231-545-4	< 1.0

Note: 1) TSCA Accession No.53759, 2) TSCA Accession No.106797, 3) TSCA Accession No.79915

SECTION 3 - HAZARDS IDENTIFICATION

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

EUROPEAN CLASSIFICATION (CALCULATED): Not classified

EMERGENCY OVERVIEW:

Low hazard for recommended use and 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:

EYES: Contact may cause slight irritation or corneal injury.

SKIN CONTACT: Non-irritating to the skin.

INGESTION: (possible but very unusual), oral toxicity is believed to be low.

INHALATION: Minimal dust irritation to respiratory track may occur.

IRRITANCY OF PRODUCT: Minimal dust irritation to respiratory track may occur.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EFFECTS: Minimal dust irritation to respiratory track may occur.

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

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

SKIN CONTACT:

SHORT TERM EFFECTS: Non-irritating to skin.

LONG TERM EFFECTS: Not available.

EYE CONTACT:

SHORT TERM EFFECTS: Solid or dusts may cause irritation or corneal injury.

LONG TERM EFFECTS: Not available.

INGESTION:



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SHORT TERM EFFECTS: Oral toxicity is believed to be low.

LONG TERM EFFECTS: Not available.

CARCINOGEN STATUS:

OSHA: None

NTP: None

ACGIH: None

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.

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: Remove to fresh air. If effects occur, consult medical personnel.

SKIN CONTACT: Flush with plenty of water. Use soap.

EYE CONTACT: Flush eyes immediately with plenty of water for at least 15 minutes.

INGESTION: No adverse effects anticipated by this route of exposure incidental to proper handling.

SECTION 5 - FIRE FIGHTING MEASURES

CONDITIONS OF FLAMMABILITY: Will burn if exposed to flames.

MEANS OF EXTINCTION: Water fog, foam, CO₂ and dry chemical.

FIRE-FIGHTING EQUIPMENT: Wear full bunker gear including a positive pressure self-contained breathing apparatus in case of burning in large quantities.

FLASH POINT (METHOD): Not available

LOWER FLAMMABLE LIMIT: Not available

UPPER FLAMMABLE LIMIT: Not available

AUTOIGNITION TEMPERATURE: Not available

HAZARDOUS COMBUSTION PRODUCTS: CO or NO_x (by high heat and fire)

EXPLOSION DATA: May form flammable or explosive dust-air mixtures.

SENSITIVITY TO MECHANICAL IMPACT: Not available

SENSITIVITY TO STATIC DISCHARGE: Not available

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Minimize the release of particulates. Wear personal protective equipment. Do not use vacuum cleaner.

After by lightly spraying with water to prevent development of dust, spills should be swept up or wiped up.

Then residuals can be removed with soap and water.

Garments may be washed or dry cleaned, after removal of loose toner.

SECTION 7 - HANDLING AND STORAGE

Avoid creating dust. Clean up all spills promptly.

Inhalation and contact with skin or eyes should be avoided.



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Provide general ventilation. Good general ventilation should be sufficient for most conditions. Store in a cool, well ventilated place away from flames and spark-producing equipment.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

INGREDIENTS	CAS NUMBER	OSHA PEL	ACGIH TLV
Styrene-acrylate copolymer	25767-47-9	Not listed	Not listed
Paraffine wax	8002-74-2		
Iron oxide	1317-61-9	Not listed	Not listed
Organic pigment	{ 84179-66-8	Not listed	Not listed
	{ 109125-50-0		
	{ 109125-51-1		
Amorphous silica	7631-86-9	3.0mg/m ³	10mg/m ³

CARBON BLACK:

3.5 mg/M ³	OSHA TWA PEL
3.5 mg/M ³	ACGIH TWA TLV - ACGIH A4 - Not classifiable as a human carcinogen (Proposed addition 1995-1996)
3.5 mg/M ³	NIOSH recommended 10 hour TWA
0.1 mg/M ³	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.

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.

EYE PROTECTION: If significant eye exposure is anticipated, the use of chemical splash goggles is recommended.

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.

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

OTHER PROTECTIVE EQUIPMENT: None required under normal use.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Black fine powder

ODOR AND APPEARANCE: Black fine powder with slight odor.

BOILING POINT: Not applicable

FREEZING POINT: Not applicable

VAPOR PRESSURE: Not applicable

VAPOR DENSITY: Not applicable

SPECIFIC GRAVITY: 1.1

WATER SOLUBILITY: Negligible

VOLATILITY: Not applicable

pH: Not applicable

ODOR THRESHOLD: Not applicable

EVAPORATION RATE: Not applicable

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable

PRESSURIZED (Y/N): N

SECTION 10 - STABILITY AND REACTIVITY



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CONDITIONS OF REACTIVITY: None expected. This is a stable product.

CONDITIONS TO AVOID: No special precautions should be needed under normal use.

INCOMPATIBLE MATERIALS: None expected.

HAZARDOUS DECOMPOSITION PRODUCTS: CO or NO_x (by high heat and fire)

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.

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).

TOXICITY DATA:

LD₅₀ (rat,oral): 2000mg/kg

DL₅₀ (rbt,skin): 2000mg/kg

LC₅₀ (rat,ihl): 5.41mg/l/4hours

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.

SENSITIZATION TO PRODUCT: Non-sensitizing to the skin.



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TOXICOLOGICALLY SYNERGISTIC PRODUCTS: Not available

CARCINOGENICITY: See **SECTION 3 CARCINOGEN STATUS** for carbon black.

CHRONIC EFFECTS: In a study in rats (H.Muhle) by chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the concentration(16mg/m³) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m³) exposure group. But no pulmonary changes was reported in the lowest (1mg/m³) exposure group, the most relevant level to potential human exposures.

REPRODUCTIVE TOXICITY: Not available

TERATOGENICITY: Not available

MUTAGENICITY: Negative in the Ames test.

SECTION 12 - ECOLOGICAL INFORMATION

ENVIRONMENTAL IMPACT RATING (0-4): Not available

ACUTE AQUATIC TOXICITY: Anticipated to be low since the water solubility of this product is negligible.

DEGRADABILITY: None expected

LOG BIOCONCENTRATION FACTOR (BCF): Not available

LOG OCTANOL/WATER PARTITION COEFFICIENT: Not available

SECTION 13 - DISPOSAL CONSIDERATIONS

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 U.S. DOT or Canada TDG.

SECTION 15 - REGULATORY INFORMATION

UNITED STATES:

TSCA INVENTORY STATUS (Y/N): Y

TSCA SECTION 12(b) EXPORT NOTIFICATION: N

CANADA:

This product is a "manufactured article" and is exempt from the new substances provisions of the Canadian Environmental Protection Act.

WHMIS CLASSIFICATION: Manufactured article; therefore, product is exempt under WHMIS.

SECTION 16 - OTHER INFORMATION

REFERENCES:

IARC(1996) IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol.65, Printing Process and Printing Inks, Carbon Black and Some Nitro Compounds, Lyon, pp.149-261.

H. Muhle, B. Bellmann, O. Creutzenberg, C. Dasenbrock, H. Ernst, R. Kilpper, J.C. Mackenzie,

P. Morrow, U. Mohr, S.Takenaka, and R. Mermelstein (1991) Pulmonary Response to Toner upon Chronic Inhalation Exposure in Rats. Fundamental and Applied Toxicology 17, pp. 280-299.

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