



InfoPrint Solutions Company

# MATERIAL SAFETY DATA SHEET

## 1 PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** InfoPrint 4100/4000/3900 Enhanced Printing Developer Version 3

**Product No.:** 57P1892

**Synonyms:** Company Chemical No.: 940108410

**Manufacturer Name:**

-

**Emergency Telephone:**

1-303-739-1111

**Supplier:**

InfoPrint Solutions Company, LLC

6300 Diagonal Highway

Boulder, Colorado 80301-9270

U.S.A.

www.infoprint.com

**Intended Use:** Developer for use in InfoPrint  
printers

**Contact Person:**

msdsinfo@us.ibm.com or

msdsinfo@infoprint.com

## 2 HAZARDS IDENTIFICATION

**Emergency Overview**

**Physical State:** Solid

**Color:** Gray-black

**Odor:** Faint

Low hazard for usual industrial or commercial handling by trained personnel.

**Potential Health Effects**

**Inhalation:** Short Term Effects: Respiratory tract irritation may occur with exposure to large amounts of dust. Long Term Effects: Chronic exposure may cause potential risk of irreversible pulmonary effects. Chronic exposure is highly unlikely when this product is used as intended.

**Eye Contact:** Mechanical irritation of eyes.

**Skin Contact:** Not known to InfoPrint Solutions Company as a dermal irritant or dermal sensitizer.

**Ingestion:** No harmful effects expected in amounts likely to be ingested by accident.

**Chronic Health Effects:** Carbon black has been classified by IARC in group 2B: Possibly carcinogenic to humans. Possible cancer hazard - may cause cancer based on animal data. For further information, please refer to section 11 of the MSDS.

**Target Organ(s):** | Respiratory system | Eye | Skin |

**Potential Physical / Chemical Effects:** This product is not flammable. Fine particles may form explosive mixtures with air.

**OSHA Regulatory Status:** This product is hazardous according to OSHA 29CFR 1910.1200.

**Environment:** No data available.

<b>3</b>	<b>COMPOSITION / INFORMATION ON INGREDIENTS</b>
----------	---

Chemical Name	CAS-No.	Concentration*
†Coating ferrite powder	68186-94-7	> 90%
Polyester resin	343246-77-5	3 - 6%
Polyester resin	343277-25-8	3 - 6%
Silicone resin	123127-08-2	< 2%
†Carbon black	1333-86-4	< 0.5%
†Quaternary ammonium compound	117342-25-3	0.05 - 0.13%

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

† This chemical is hazardous according to OSHA/WHMIS criteria.

However, Carbon black is not classified as hazardous when bound in toner polymers.

<b>4</b>	<b>FIRST AID MEASURES</b>
----------	---------------------------

**Inhalation:** If symptomatic, move to fresh air. Dust irritates the respiratory system, and may cause coughing and difficulties in breathing. Get medical attention if symptoms persist.

**Eye Contact:** Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Get medical attention promptly if symptoms occur after washing.

**Skin Contact:** Wash with soap and water. Not known to InfoPrint Solutions Company as a dermal irritant or dermal sensitizer. Should dermal irritation or dermal sensitization occur, seek medical attention.

**Ingestion:** If swallowed, rinse mouth with water (only if the person is conscious). Drink a few glasses of water or milk. Seek medical advice.

<b>5</b>	<b>FIRE-FIGHTING MEASURES</b>
----------	-------------------------------

**Extinguishing Media:** Extinguish with foam, carbon dioxide, dry powder or water fog.

**Unsuitable Extinguishing Media:** None.

**Special Fire Fighting Procedures:** Avoid dust formation.

**Unusual Fire & Explosion Hazards:** Dust may form explosive mixture with air.

**Hazardous Combustion Products:** Carbon Oxides, Silicone oxides, Unidentified organic compounds

**Protective Measures:** Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace.

**Flammability Class:** NFPA Rating Fire = 1. Materials that must be preheated before ignition can occur.

<b>6</b>	<b>ACCIDENTAL RELEASE MEASURES</b>
----------	------------------------------------

**Personal Precautions:** Wear appropriate personal protective equipment. See Section 8 of the MSDS for Personal Protective Equipment.

**Spill Cleanup Methods:** Sweep or scoop up and remove. Avoid dust formation. Avoid sparks and prevent accumulation of electrostatic charges. Collect and dispose of spillage as indicated in section 13 of the MSDS.

**Environmental Precautions:** Avoid discharge into drains, water courses or onto the ground.

**Notification Procedures:** Inform authorities if large amounts are involved.

<b>7</b>	<b>HANDLING AND STORAGE</b>
----------	-----------------------------

**Handling:** Avoid inhalation of dust. Avoid exposure to eyes, skin or clothing (will stain). Use with adequate ventilation. Wear appropriate personal protective equipment. See Section 8 of the MSDS for Personal Protective Equipment.

**Storage:** Store in a cool and well-ventilated place. Keep container closed when not in use. Store away from incompatible materials.

<b>8</b>	<b>EXPOSURE CONTROLS / PERSONAL PROTECTION</b>
----------	--

**Exposure Limits:**

Chemical Name	Source	Type	Exposure Limits	Notes
Carbon black	CA. Alberta OELs	TWA	3.5 mg/m <sup>3</sup>	
Carbon black	CA. British Columbia OELs	TWA	3.5 mg/m <sup>3</sup>	
Carbon black	CA. Ontario OELs	TWA	3.5 mg/m <sup>3</sup>	
Carbon black	CA. Quebec OELs	TWA	3.5 mg/m <sup>3</sup>	
Carbon black	MEX. OELs	STEL	7 mg/m <sup>3</sup>	
Carbon black	MEX. OELs	TWA	3.5 mg/m <sup>3</sup>	
Carbon black	US. ACGIH TLV	TWA	3.5 mg/m <sup>3</sup>	
Carbon black	US. NIOSH Guide	IDLH	1750 mg/m <sup>3</sup>	
Carbon black	US. OSHA Z-1 PEL	TWA	3.5 mg/m <sup>3</sup>	
Coating ferrite powder	CA. Alberta OELs	TWA	1 mg/m <sup>3</sup>	as Mn
Coating ferrite powder	CA. British Columbia OELs	TWA	0.2 mg/m <sup>3</sup>	as Mn
Coating ferrite powder	CA. Ontario OELs	TWA	0.2 mg/m <sup>3</sup>	as Mn
Coating ferrite powder (Dust.)	CA. Ontario OELs	TWA	5 mg/m <sup>3</sup>	as Mn

Coating ferrite powder (Dust.)	CA. Quebec OELs	TWA	5 mg/m <sup>3</sup>	as Mn
Coating ferrite powder	MEX. OELs	TWA	0.2 mg/m <sup>3</sup>	as Mn
Coating ferrite powder	US. ACGIH TLV	TWA	0.2 mg/m <sup>3</sup>	as Mn
Coating ferrite powder	US. NIOSH Guide	IDLH	500 mg/m <sup>3</sup>	
Coating ferrite powder	US. OSHA Z-1 PEL	Ceiling	5 mg/m <sup>3</sup>	as Mn
Quaternary ammonium compound	CA. Alberta OELs	TWA	5 mg/m <sup>3</sup>	as Mo
Quaternary ammonium compound	CA. Alberta OELs	TWA	10 mg/m <sup>3</sup>	as Mo
Quaternary ammonium compound (Respirable.)	CA. British Columbia OELs	TWA	3 mg/m <sup>3</sup>	
Quaternary ammonium compound (Respirable.)	CA. British Columbia OELs	TWA	0.5 mg/m <sup>3</sup>	as Mo
Quaternary ammonium compound (Inhalable)	CA. British Columbia OELs	TWA	10 mg/m <sup>3</sup>	
Quaternary ammonium compound (Respirable.)	CA. Ontario OELs	TWA	0.5 mg/m <sup>3</sup>	as Mo
Quaternary ammonium compound (Inhalable)	CA. Ontario OELs	TWA	10 mg/m <sup>3</sup>	as Mo
Quaternary ammonium compound (Respirable.)	CA. Ontario OELs	TWA	3 mg/m <sup>3</sup>	as Mo
Quaternary ammonium compound	CA. Quebec OELs	TWA	10 mg/m <sup>3</sup>	as Mo
Quaternary ammonium compound	CA. Quebec OELs	TWA	5 mg/m <sup>3</sup>	as Mo
Quaternary ammonium compound	MEX. OELs	TWA	10 mg/m <sup>3</sup>	as Mo
Quaternary ammonium compound	MEX. OELs	STEL	20 mg/m <sup>3</sup>	as Mo
Quaternary ammonium compound	MEX. OELs	TWA	5 mg/m <sup>3</sup>	as Mo
Quaternary ammonium compound	MEX. OELs	STEL	10 mg/m <sup>3</sup>	as Mo
Quaternary ammonium compound (Respirable fraction.)	US. ACGIH TLV	TWA	0.5 mg/m <sup>3</sup>	as Mo
Quaternary ammonium compound (Respirable fraction.)	US. ACGIH TLV	TWA	3 mg/m <sup>3</sup>	as Mo
Quaternary ammonium compound	US. NIOSH Guide	IDLH	1000 mg/m <sup>3</sup>	
Quaternary ammonium compound	US. NIOSH Guide	Concentration	5000 mg/m <sup>3</sup>	
Quaternary ammonium compound	US. OSHA Z-1 PEL	TWA	5 mg/m <sup>3</sup>	as Mo

**Engineering Controls:** Provide adequate ventilation. 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.

**Respiratory Protection:** No protection is ordinarily required under normal conditions of use and with adequate ventilation. During dust-raising work: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Dust mask/respirator.

**Eye Protection:** If significant eye exposure is anticipated, the use of chemical safety goggles is recommended.

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

**Skin Protection:** Protective clothing is not required under normal conditions.

**Hygiene Measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

**Environmental Exposure Controls:** Environmental manager must be informed of all major spillages.

<b>9</b>	<b>PHYSICAL AND CHEMICAL PROPERTIES</b>
----------	---

**Color:** Gray-black

**Odor:** Faint

**Odor Threshold:** No data available.

**Physical State:** Solid

**pH:** Not applicable

**Melting Point:** >1400°C (2552°F)

**Freezing Point:** Not applicable.

**Boiling Point:** Not applicable.

**Flash Point:** Not applicable.

**Evaporation Rate:** Not applicable.

**Flammability (Solid):** No data available.

**Flammability Limit - Upper (%):** No data available.

**Flammability Limit - Lower (%):** No data available.

**Vapor Pressure:** Not applicable.

**Vapor Density (Air=1):** Not applicable.

**Specific Gravity:** 6

**Solubility in Water:** Negligible

**Solubility (Other):** No data available.

**Partition Coefficient (n-Octanol/water):** Not applicable.

**Autoignition Temperature:** Not applicable.

**Decomposition Temperature:** No data available.

**Viscosity:** Not applicable.

**Explosive Properties:** No data available

<b>10</b>	<b>STABILITY AND REACTIVITY</b>
-----------	---------------------------------

**Stability:** Stable under normal temperature conditions.

**Conditions to Avoid:** Heat, sparks, flames.

**Incompatible Materials:** Strong oxidizing agents.

**Hazardous Decomposition Products:**

At Elevated Temperatures:	Unidentified organic compounds
---------------------------	--------------------------------

**Possibility of Hazardous Reactions:** Will not occur.

## 11 TOXICOLOGICAL INFORMATION

### Specified Substance(s)

#### **Acute Toxicity:**

Chemical Name	Test Results
Carbon black	Dermal LC50 (Rabbit): >3000 mg/kg
Carbon black	Oral LD50 (Rat): >15400 mg/kg

**Other Acute:** Low acute inhalation toxicity. As with exposure to high concentrations of any dust, irritation of the respiratory tract may occur. Pure carbon black, a minor component of this product, has been listed by IARC as a group 2B (possible carcinogen). This classification is based on rat "lung particulate overload" studies performed with airborne particulate carbon black. Toner is not listed by IARC, NTP, or OSHA. Carbon black: Predicted to be mildly irritating to the upper respiratory tract. Not known to be a dermal irritant or sensitizer. Toxic overexposure may affect the respiratory system, skin, and mucous membranes. Persons with certain pre-existing upper respiratory disorders, such as bronchitis or asthma have an increased risk of irritation.

**Chronic Toxicity:** Industry tests on similar toner formulations showed no signs of overt toxicity. Microscopic examination of the lungs of rats exposed to high levels of toner showed a chronic inflammatory response and a mild to moderate degree of lung fibrosis. At airborne concentrations more relevant to potential human exposure, no evidence of toxicity to the respiratory tract were found. Carbon black: In 1996 the International Agency for Research on Cancer (IARC) reevaluated carbon black as a Group 2B carcinogen based upon the development of lung tumors in rats receiving chronic inhalation exposures of free carbon black. The effects were observed only in rats exposed to high concentrations of carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats (i.e., mice, hamsters) 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.

In contrast to the IARC assessment, neither the Occupational Safety and Health Administration (OSHA) nor the American Conference of Governmental Industrial Hygienists (ACGIH) nor the National Toxicology Program (NTP) has listed carbon black as a carcinogen.

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 data from animal 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.

**Listed Carcinogens:**

<b>Chemical Name</b>	<b>IARC</b>	<b>NTP</b>	<b>OSHA</b>	<b>ACGIH</b>
Quaternary ammonium compound	Not Listed	Not Listed	Not Listed	A3
Carbon black	2B	Not Listed	Not Listed	A4

IARC: 1 = Carcinogenic to Humans; 2A = Probably Carcinogenic to Humans; 2B = Possibly Carcinogenic to Humans; 3 = Not classifiable as to carcinogenicity to humans; 4 = Probably not carcinogenic to humans; Not listed = Not evaluated by IARC.

ACGIH: A1 = Confirmed Human Carcinogen; A2 = Suspected Human Carcinogen; A3 = Confirmed Animal Carcinogen; A4 = Not classifiable as a human carcinogen; A5 = Not suspected to be a human carcinogen; Not listed = Not evaluated by ACGIH.

**Product Information**

**Acute Toxicity:**

**Test Results**

No test data available for the product.

**Other Acute:** Low acute inhalation toxicity. As with exposure to high concentrations of any dust, irritation of the respiratory tract may occur. Pure carbon black, a minor component of this product, has been listed by IARC as a group 2B (possible carcinogen). This classification is based on rat "lung particulate overload" studies performed with airborne particulate carbon black. Toner is not listed by IARC, NTP, or OSHA.

**Chronic Toxicity:** Industry tests on similar toner formulations showed no signs of overt toxicity. Microscopic examination of the lungs of rats exposed to high levels of toner showed a chronic inflammatory response and a mild to moderate degree of lung fibrosis. At airborne concentrations more relevant to potential human exposure, no evidence of toxicity to the respiratory tract were found. Similar toner formulations were not mutagenic in a battery of in vitro genotoxicity assays including the Ames Salmonella/mammalian microsome mutation assay.

<b>12</b>	<b>ECOLOGICAL INFORMATION</b>
-----------	-------------------------------

**Ecotoxicity:** No data available.

**Mobility:** The product is insoluble in water.

**Persistence and Degradability:** No data available.

**Bioaccumulation Potential:** No data available.

<b>13</b>	<b>DISPOSAL CONSIDERATIONS</b>
-----------	--------------------------------

**General Information:** Dispose in accordance with applicable federal, state, and local regulations.

**Disposal Methods:** No specific disposal method required.

**Container:** Since emptied containers retain product residue, follow label warnings even after container is emptied.

<b>14</b>	<b>TRANSPORT INFORMATION</b>
-----------	------------------------------

**DOT** Not regulated.

**TDG** Not regulated.

**IATA** Not regulated.

**IMDG** Not regulated.

<b>15 REGULATORY INFORMATION</b>
----------------------------------

**Canadian Controlled Products Regulations:** This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations, Section 33, and the MSDS contains all required information.

**WHMIS Classification:** Not classified.

**Mexican Dangerous Statement:** This product is dangerous according to Mexican regulations.

**Inventory Status**

**This product or all components are listed or exempt from listing on the following inventory:** DSL, TSCA

**US Regulations**

**CERCLA Hazardous Substance List (40 CFR 302.4):** Not regulated.

**SARA Title III**

**Section 302 Extremely Hazardous Substances (40 CFR 355, Appendix A):** Not regulated.

**Section 311/312 (40 CFR 370):**

Acute (Immediate)     Chronic (Delayed)     Fire     Reactive     Pressure Generating

**Section 313 Toxic Release Inventory (40 CFR 372):**

Chemical Name	CAS-No.	Reporting threshold for other users	Reporting threshold for manufacturing and processing
Coating ferrite powder	68186-94-7	10000 lbs	25000 lbs

For reporting purposes: the De Minimis Concentration for a toxic chemical in a mixture is 0.1% for carcinogens as defined in 29 CFR 1910.1200(d)(4) or 1% for others.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):**

Not regulated.

**Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):** Not regulated.

**Drug Enforcement Act:** Not regulated.

**TSCA**

**TSCA Section 4(a) Final Test Rules & Testing Consent Orders:** Not regulated.

**TSCA Section 5(a)(2) Final Significant New Use Rules (SNURs) (40CFR 721, Subpt. E):** Not



regulated.

**TSCA Section 5(e) PMN-Substance Consent Orders:** Not regulated.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D):** Not regulated.

**State Regulations**

**California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):** Carbon black: This product contains no known material requiring warning under California Proposition 65. Pure carbon black is on the State of California's list of chemicals known to cause cancer or reproductive toxicity, but the California Office of Environmental Health Hazard Assessment (OEHHA) exempted carbon black bound in product formulations such as toner from the Proposition 65 warning requirements.

**Massachusetts Right-To-Know List:** Not regulated.

**Michigan Critical Materials List (Michigan Natural Resources and Environmental Protection Act (Act. 451 of 1994)):** Not regulated.

**Minnesota Hazardous Substances List:** Carbon black; Coating ferrite powder

**New Jersey Right-To-Know List:** Coating ferrite powder

**Pennsylvania Right-To-Know List:** Not regulated.

**Rhode Island Right-To-Know List:** Coating ferrite powder

<b>16</b>	<b>OTHER INFORMATION</b>
-----------	--------------------------

**HAZARD RATINGS**

	<b>Health Hazard</b>	<b>Fire Hazard</b>	<b>Instability</b>	<b>Special Hazard</b>
<b>NFPA</b>	1	1	0	0

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

NFPA Label colored diamond code: Blue - Health; Red - Flammability; Yellow - Instability; White - Special Hazards

	<b>Health Hazard</b>	<b>Flammability</b>	<b>Physical Hazard</b>	<b>Personal Protection</b>
<b>HMIS</b>	1*	1	0	E

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe \* - Chronic Health Effect

Personal Protection codes: E - Safety Glasses, Gloves, Dust Respirator

HMIS Label colored bar code: Blue - Health; Red - Flammability; Orange - Physical Hazards; White - Special

**Issue Date:** 08-Apr-2008

**Supersedes Date:**

**SDS No.:** 1011434

**Disclaimer:** The information provided on this MSDS is correct to the best of InfoPrint Solutions Company's knowledge, information, and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty, either express or implied, regarding the accuracy of the data or information contained herein. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless

specified in the text.

Ricoh and the RICOH logo are registered trademarks of Ricoh Co., Ltd. in Japan, other countries or both. IBM and the IBM logo are registered trademarks of International Business Machines Corporation in the United States, other countries, or both. The Ricoh and IBM trademarks are used under license from their respective trademark owners.

InfoPrint Solutions Company is a tradename of InfoPrint Solutions Company, LLC, in the United States, other countries, or both. InfoPrint is a registered trademark of Ricoh Co., Ltd., in the United States, other countries, or both. InfoPrint is used under license from the trademark owner.