



InfoPrint Solutions Company

MATERIAL SAFETY DATA SHEET

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: InfoPrint 4000/3900 Enhanced Printing Developer

Product No.: 69G7379

Synonyms: Company Chemical No.: 940095740

Manufacturer Name:

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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: Black

Odor: Odorless

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.

3	COMPOSITION / INFORMATION ON INGREDIENTS
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Chemical Name	CAS-No.	Concentration*
†Iron oxide (Fe ₃ O ₄)	1317-61-9	65 - 85%
†Iron oxide (Fe ₂ O ₃)	1309-37-1	10 - 30%
†Magnesium oxide	1309-48-4	3 - 7%
†Carbon black	1333-86-4	0.1 - 0.2%

* 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.

4	FIRST AID MEASURES
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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.

5	FIRE-FIGHTING MEASURES
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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

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.

6	ACCIDENTAL RELEASE MEASURES
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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.

7	HANDLING AND STORAGE
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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.

8	EXPOSURE CONTROLS / PERSONAL PROTECTION
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Exposure Limits:

Chemical Name	Source	Type	Exposure Limits	Notes
Carbon black	CA. Alberta OELs	TWA	3.5 mg/m ³	
Carbon black	CA. British Columbia OELs	TWA	3.5 mg/m ³	
Carbon black	CA. Ontario OELs	TWA	3.5 mg/m ³	
Carbon black	CA. Quebec OELs	TWA	3.5 mg/m ³	
Carbon black	MEX. OELs	TWA	3.5 mg/m ³	
Carbon black	MEX. OELs	STEL	7 mg/m ³	
Carbon black	US. ACGIH TLV	TWA	3.5 mg/m ³	
Carbon black	US. NIOSH Guide	IDLH	1750 mg/m ³	
Carbon black	US. OSHA Z-1 PEL	TWA	3.5 mg/m ³	
Iron oxide (Fe ₂ O ₃) (Dust and fume.)	CA. Alberta OELs	TWA	5 mg/m ³	as Fe
Iron oxide (Fe ₂ O ₃)	CA. Alberta OELs	TWA	10 mg/m ³	
Iron oxide (Fe ₂ O ₃) (Fume.)	CA. British Columbia OELs	TWA	5 mg/m ³	as Fe
Iron oxide (Fe ₂ O ₃) (Total dust.)	CA. British Columbia OELs	TWA	10 mg/m ³	
Iron oxide (Fe ₂ O ₃) (Respirable fraction.)	CA. British Columbia OELs	TWA	3 mg/m ³	
Iron oxide (Fe ₂ O ₃) (Dust.)	CA. British Columbia	TWA	5 mg/m ³	as Fe

	OELs			
Iron oxide (Fe ₂ O ₃) (Fume.)	CA. British Columbia OELs	STEL	10 mg/m ³	as Fe
Iron oxide (Fe ₂ O ₃) (Respirable.)	CA. Ontario OELs	TWA	5 mg/m ³	
Iron oxide (Fe ₂ O ₃) (Total dust.)	CA. Quebec OELs	TWA	10 mg/m ³	
Iron oxide (Fe ₂ O ₃) (Dust and fume.)	CA. Quebec OELs	TWA	5 mg/m ³	as Fe
Iron oxide (Fe ₂ O ₃)	MEX. OELs	TWA	5 mg/m ³	as Fe
Iron oxide (Fe ₂ O ₃)	MEX. OELs	STEL	10 mg/m ³	as Fe
Iron oxide (Fe ₂ O ₃) (Respirable fraction.)	US. ACGIH TLV	TWA	5 mg/m ³	
Iron oxide (Fe ₂ O ₃)	US. NIOSH Guide	IDLH	2500 mg/m ³	
Iron oxide (Fe ₂ O ₃)	US. NIOSH Guide	IDLH	0 No UOM specified or needed.	
Iron oxide (Fe ₂ O ₃) (Fume.)	US. OSHA Z-1 PEL	TWA	10 mg/m ³	
Magnesium oxide (Fume.)	CA. Alberta OELs	TWA	10 mg/m ³	
Magnesium oxide (Respirable dust and/or fume.)	CA. British Columbia OELs	STEL	10 mg/m ³	as Mg
Magnesium oxide (Respirable dust and/or fume.)	CA. British Columbia OELs	TWA	3 mg/m ³	as Mg
Magnesium oxide (Inhalable fume)	CA. British Columbia OELs	TWA	10 mg/m ³	
Magnesium oxide (Inhalable)	CA. Ontario OELs	TWA	10 mg/m ³	
Magnesium oxide (Fume.)	CA. Quebec OELs	TWA	10 mg/m ³	
Magnesium oxide (Fume.)	MEX. OELs	TWA	10 mg/m ³	as Mg
Magnesium oxide (Inhalable fraction.)	US. ACGIH TLV	TWA	10 mg/m ³	
Magnesium oxide	US. NIOSH Guide	IDLH	750 mg/m ³	
Magnesium oxide (Total particulate.)	US. OSHA Z-1 PEL	TWA	15 mg/m ³	

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.

9	PHYSICAL AND CHEMICAL PROPERTIES
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Color: Black
Odor: Odorless
Odor Threshold: No data available.
Physical State: Solid
pH: Not applicable
Melting Point: Not applicable.
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: 5 - 6 (@ 20°C (68°F))
Solubility in Water: Not soluble in water.
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

10	STABILITY AND REACTIVITY
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Stability: Stable under normal temperature conditions.

Conditions to Avoid: Heat, sparks, flames.

Incompatible Materials: Strong oxidizing agents.

Hazardous Decomposition Products: No data available.

Possibility of Hazardous Reactions: Will not occur.

11	TOXICOLOGICAL INFORMATION
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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:

Chemical Name	IARC	NTP	OSHA	ACGIH
Carbon black	2B	Not Listed	Not Listed	A4
Iron oxide (Fe2O3)	3	Not Listed	Not Listed	A4
Magnesium oxide	Not Listed	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.

12	ECOLOGICAL INFORMATION
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Ecotoxicity: No data available.

Mobility: The product is insoluble in water.

Persistence and Degradability: No data available.

Bioaccumulation Potential: No data available.

13	DISPOSAL CONSIDERATIONS
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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.

14	TRANSPORT INFORMATION
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DOT Not regulated.

TDG Not regulated.

IATA Not regulated.

IMDG Not regulated.

15	REGULATORY INFORMATION
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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: TSCA, DSL

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): Not regulated.

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: Iron oxide (Fe₂O₃); Magnesium oxide

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

Minnesota Hazardous Substances List: Carbon black; Iron oxide (Fe₂O₃); Magnesium oxide

New Jersey Right-To-Know List: Iron oxide (Fe₂O₃); Magnesium oxide

Pennsylvania Right-To-Know List: Iron oxide (Fe₂O₃); Magnesium oxide

Rhode Island Right-To-Know List: Iron oxide (Fe₂O₃); Magnesium oxide

16	OTHER INFORMATION
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HAZARD RATINGS

	Health Hazard	Fire Hazard	Instability	Special Hazard
NFPA	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

	Health Hazard	Flammability	Physical Hazard	Personal Protection
HMIS	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

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