



Material Safety Data Sheets

AR Series

Corporate Copiers

<b>Model Number</b>	<b>MSDS Number</b>	<b>Page Number</b>
AR-532T1	F00721	Page 1-2
AR-532NT1	F00721	Page 1-2
AR-330T	F00791	Page 3-4
AR-330ST	F00791	Page 3-4
AR-330NT	F00791	Page 3-4
AR-200TD	F00841	Page 5-6
AR-400ST1	F00871	Page 7-8
AR-400T	F00871	Page 7-8
AR-400NT1	F00871	Page 7-8
AR-400NT1	F00881	Page 9-10
AR-400ST1	F00881	Page 9-10
AR-400T	F00881	Page 9-10
AR-400MT	F00881	Page 9-10
AR-C15NT	F00921	Page 11-12
AR-C15NT1	F00921	Page 11-12
AR-C15ST1	F00921	Page 11-12
AR-CN15ST6	F00926	Page 13-14
AR-CN15T6	F00926	Page 13-14
AR-CN15NT6	F00926	Page 13-14
AR-CN15ST7	F00927	Page 15-16
AR-CN15T7	F00927	Page 15-16
AR-CN15NT7	F00927	Page 15-16
AR-CN15NT8	F00928	Page 17-18
AR-CN15T8	F00928	Page 17-18
AR-CN15ST8	F00928	Page 17-18
AR-500NT1	F00941	Page 19-20
AR-500ST1	F00941	Page 19-20
AR-500T	F00941	Page 19-20
AR-500T	F00951	Page 21-22
AR-500ST	F00951	Page 21-22
AR-500NT	F00951	Page 21-22
AR-540NT1	F0451	Page 23-24
AR-540NT	F0451	Page 23-24
AR-532DV1	F30721	Page 25-26
AR-532ND1	F30721	Page 25-26
AR-330ND	F30791	Page 27-28
AR-330SD	F30791	Page 27-28
AR-330DV	F30791	Page 27-28
AR-400SD	F30871	Page 29-30
AR-400MD	F30871	Page 29-30
AR-400ND	F30881	Page 31-32
AR-400S	F30881	Page 31-32
AR-400MD	F30881	Page 31-32
AR-C15ND1	F30921	Page 33-34

<b>Model Number</b>	<b>MSDS Number</b>	<b>Page Number</b>
AR-C15DV1 .....	F30921 .....	Page 33-34
AR-C15SD1 .....	F30921 .....	Page 33-34
AR-C15ND6 .....	F30921 .....	Page 33-34
AR-C15DV6 .....	F30921 .....	Page 33-34
AR-C15SD6 .....	F30921 .....	Page 33-34
AR-C15ND7 .....	F30921 .....	Page 33-34
AR-C15DV7 .....	F30921 .....	Page 33-34
AR-C15SD7 .....	F30921 .....	Page 33-34
AR-C15ND8 .....	F30921 .....	Page 33-34
AR-C15DV8 .....	F30921 .....	Page 33-34
AR-C15SD8 .....	F30921 .....	Page 33-34
AR-C15ND9 .....	F30927 .....	Page 35-36
AR-C15DV9 .....	F30927 .....	Page 35-36
AR-C15SD9 .....	F30927 .....	Page 35-36
AR-500ND .....	F30941 .....	Page 37-38
AR-500SD .....	F30941 .....	Page 37-38
AR-500MD .....	F30941 .....	Page 37-38
AR-500ND .....	F30951 .....	Page 39-40
AR-500SD .....	F30951 .....	Page 39-40
AR-500MD .....	F30951 .....	Page 39-40
AR-540ND .....	F3451 .....	Page 41-42
AR-540DV .....	F3451 .....	Page 41-42

# S H A R P

Date Revised: October 1, 1997

Date Issued :Feb. 1, 1997

## MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-00721

### Section 1. Product Identification

**Product :**

AR-532NT1/AR-532T1 (Black Toner)

### Section 2. Supplier's Name and Address

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

### Section 3. Ingredients

Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Carbon black	1333-86-4	< 9%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None
Silica	68909-20-6	< 1%	15mg/m <sup>3</sup>	10mg/m <sup>3</sup>	None
Polyester resin	NJ TSRN 80100252-5001P	< 90%	Not listed	Not listed	None
Pigment	31714-55-3	< 2%	Not listed	Not listed	None
Wax	9003-07-0	< 2%	Not listed	Not listed	None
Magnetite	1309-38-2	< 2%	Not listed	Not listed	None

### Section 4. Hazardous Identification (Emergency Overview)

Toner is a fine, black powder possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner. When used as intended according to instructions, studies do not indicate any symptoms of fibrosis will occur.

### Section 5. Health Hazard Data

**Route(s) of Entry :** Inhalation? Skin? Ingestion?  
Yes No Possible but very unusual.

**Health Hazards :** Acute Toxicity: LD50 > 5,000mg/kg. LC50 > 5.97 mg/L'4Hrs  
Mutagenicity (Ames Test): Negative. (S.typhimurium,Escherichia coli)  
(Note: data is from testing of similar materials.)

**Carcinogenicity :** In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any 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.

**Chronic Effect :** In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m<sup>3</sup>) exposure group, but no pulmonary change was reported in the lowest (1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

**Signs and Symptoms of Exposure :**  
Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None

## MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-00721

### Section 5. Health Hazard Data (Continued)

#### Emergency and First Aid Procedures :

Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

### Section 6. Physical Chemical Characteristics

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 1.2
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

### Section 7. Fire and Explosion Data

**Flash Point (Method Used)** : More than 150<sup>0</sup>C (C.O.C.)  
**Ignition Temperature** : No data available  
**Flammable Limits** : (LEL); 34.5g/m<sup>3</sup> (UEL); Not applicable  
**Extinguishing Media** : CO<sub>2</sub>, dry chemical, foam or water  
**Special Fire Fighting Procedure** : None  
**Unusual Fire and Explosion Hazard** : This material has no unusual fire or explosion hazards.  
**Sensitivity to Mechanical Impact** : None  
**Sensitivity to Static Charge** : None

### Section 8. Reactivity Data

**Stability** : Stable  
**Incompatibility (Material to Avoid)** : Strong acids and alkalines.  
**Hazardous Decomposition** : Phenol derivatives, Carbon monoxide when heated at high temperature. (> 300<sup>0</sup>C)  
**Hazardous Polymerization** : Will not occur.

### Section 9. Precautions for Safe Handling and Use

#### Personal Protection Information (Respiratory, Eye Protection and Protective Glove):

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

**Engineering Control / Ventilation** : Not required.  
**Work / Hygienic Practice** : Inhalation should be minimized as with any non-toxic dust.  
**Steps to be taken in case of Spill or Leak** : Sweep up or clean up with vacuum cleaner.  
**Waste Disposal Method** : Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

### Section 10. Regulatory Information

**NFPA Rating (U.S.A.)** : Health = 1 Flammability = 1 Reactivity = 0  
**WHMIS Legislation (Canada)** : This product is not a controlled product.  
**Transport Information** : This product is not a hazardous material.  
**UN No.** : None allocated.

### Section 11. 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

**MATERIAL SAFETY DATA SHEET (1/2)**

MSDS No. F-00791

**Section 1. Product Identification****Product :**

AR-330NT/AR-330ST/AR-330T (Black Toner)

**Section 2. Supplier's Name and Address**

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

**Section 3. Ingredients**

<u>Ingredients</u>	<u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits</u>
Carbon black	1333-86-4	< 4%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None
Silica	68909-20-6	< 1%	15mg/m <sup>3</sup>	10mg/m <sup>3</sup>	None
Styrene-acrylate polyester	149367-99-7	< 55%	Not listed	Not listed	None
Polyester resin 1	NJ TSRN 80100252-5009P	< 20%	Not listed	Not listed	None
Polyester resin 2	116736-81-3	< 20%	Not listed	Not listed	None
Pigment	31714-55-3	< 2%	Not listed	Not listed	None
Wax 1	9010-79-1	< 2%	Not listed	Not listed	None
Wax 2	9015-86-9	< 2%	Not listed	Not listed	None

**Section 4. Hazardous Identification (Emergency Overview)**

Toner is a fine, black powder possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner. When used as intended according to instructions, studies do not indicate any symptoms of fibrosis will occur.

**Section 5. Health Hazard Data**

**Route(s) of Entry :** Inhalation? Skin? Ingestion?  
 Yes No Possible but very unusual.

**Health Hazards :** Acute Toxicity: LD50 > 5,000mg/kg. LC50 > 6.42 mg/L'4Hrs  
 Mutagenicity (Ames Test): Negative. (S.typhimurium, Escherichia coli)  
 (Note: data is from testing of similar materials.)

**Carcinogenicity :** In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any 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.

**Chronic Effect :** In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m<sup>3</sup>) exposure group, but no pulmonary change was reported in the lowest (1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

**Signs and Symptoms of Exposure :**

Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None

## MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-00791

### Section 5. Health Hazard Data (Continued)

#### Emergency and First Aid Procedures :

Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

### Section 6. Physical Chemical Characteristics

<b>Boiling/Melting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 1.2
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

### Section 7. Fire and Explosion Data

**Flash Point (Method Used)** : More than 150<sup>0</sup>C (C.O.C.)  
**Ignition Temperature** : No data available  
**Flammable Limits** : (LEL); Not known (UEL); Not known  
**Extinguishing Media** : CO<sub>2</sub>, dry chemical, foam or water  
**Special Fire Fighting Procedure** : None  
**Unusual Fire and Explosion Hazard** : This material has no unusual fire or explosion hazards.  
**Sensitivity to Mechanical Impact** : None  
**Sensitivity to Static Charge** : None

### Section 8. Reactivity Data

**Stability** : Stable  
**Incompatibility (Material to Avoid)** : Strong acids and alkalines.  
**Hazardous Decomposition** : Phenol derivatives, Carbon monoxide when heated at high temperature. (> 300<sup>0</sup>C)  
**Hazardous Polymerization** : Will not occur.

### Section 9. Precautions for Safe Handling and Use

#### Personal Protection Information (Respiratory, Eye Protection and Protective Glove):

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

**Engineering Control / Ventilation** : Not required.  
**Work / Hygienic Practice** : Inhalation should be minimized as with any non-toxic dust.  
**Steps to be taken in case of Spill or Leak** : Sweep up or clean up with vacuum cleaner.  
**Waste Disposal Method** : Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

### Section 10. Regulatory Information

**NFPA Rating (U.S.A.)** : Health = 1 Flammability = 1 Reactivity = 0  
**WHMIS Legislation (Canada)** : This product is not a controlled product.  
**Transport Information** : This product is not a hazardous material.  
**UN No.** : None allocated.

### Section 11. 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

**MATERIAL SAFETY DATA SHEET (1/2)**

MSDS No. F-00841

**Section 1. Product Identification****Product :**

AR-200TD/AL-160TD (Black Toner)

**Section 2. Supplier's Name and Address**

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

**Section 3. Ingredients**

<u>Ingredients</u>	<u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits</u>
Styrene acrylate copolymer	29497-14-1	> 88.0%	Not listed	Not listed	None
Carbon black	1333-86-4	< 6.0%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None
Iron oxide	1317-61-9	< 4.5%	Not listed	Not listed	None
Metal complex dye	109125-51-1	< 1.5%	Not listed	Not listed	None
	109125-50-0	(total for all)			
	84179-66-8				

**Section 4. Hazardous Identification (Emergency Overview)**

Toner is a fine, black powder possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner. When used as intended according to instructions, studies do not indicate any symptoms of fibrosis will occur.

**Section 5. Health Hazard Data**

**Route(s) of Entry :** Inhalation? Skin? Ingestion?  
 Yes No Possible but very unusual.

**Health Hazards :** Acute oral toxicity --- LD50 of this toner is over 2,000mg/kg.  
 Mutagenicity --- The result of Ames test is negative.

**Carcinogenicity :** In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any 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.

**Chronic Effect :** In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m<sup>3</sup>) exposure group, but no pulmonary change was reported in the lowest (1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

**Signs and Symptoms of Exposure :**  
 Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None



**MATERIAL SAFETY DATA SHEET (2/2)**

MSDS No. F-00841

**Section 5. Health Hazard Data (Continued)****Emergency and First Aid Procedures :**

Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

**Section 6. Physical Chemical Characteristics**

<b>Boiling/Melting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 1.1
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

**Section 7. Fire and Explosion Data**

**Flash Point (Method Used)** : Not applicable  
**Ignition Temperature** : > 350°C  
**Flammable Limits** : (LEL); Not applicable (UEL); Not applicable  
**Extinguishing Media** : CO<sub>2</sub>, dry chemical, foam or water  
**Special Fire Fighting Procedure** : None  
**Unusual Fire and Explosion Hazard** : This material has no unusual fire or explosion hazards.  
**Sensitivity to Mechanical Impact** : None  
**Sensitivity to Static Charge** : None

**Section 8. Reactivity Data**

**Stability** : Stable  
**Incompatibility (Material to Avoid)** : None  
**Hazardous Decomposition** : CO and NO<sub>x</sub>  
**Hazardous Polymerization** : Will not occur.

**Section 9. Precautions for Safe Handling and Use****Personal Protection Information (Respiratory, Eye Protection and Protective Glove):**

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

**Engineering Control / Ventilation** : Not required.  
**Work / Hygienic Practice** : Inhalation should be minimized as with any non-toxic dust.  
**Steps to be taken in case of Spill or Leak** : Sweep up or clean up with vacuum cleaner.  
**Waste Disposal Method** : Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

**Section 10. Regulatory Information**

**NFPA Rating (U.S.A.)** : Health = 1 Flammability = 1 Reactivity = 0  
**WHMIS Legislation (Canada)** : This product is not a controlled product.  
**Transport Information** : This product is not a hazardous material.  
**UN No.** : None allocated.

**Section 11. 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



**MATERIAL SAFETY DATA SHEET (2/2)**

MSDS No. F-008711

**Section 5. Health Hazard Data (Continued)****Emergency and First Aid Procedures :**

Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

**Section 6. Physical Chemical Characteristics**

<b>Boiling/Melting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 1.1
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

**Section 7. Fire and Explosion Data**

**Flash Point (Method Used)** : Not applicable  
**Ignition Temperature** : > 350°C  
**Flammable Limits** : (LEL); Not applicable (UEL); Not applicable  
**Extinguishing Media** : CO<sub>2</sub>, dry chemical, foam or water  
**Special Fire Fighting Procedure** : None  
**Unusual Fire and Explosion Hazard** : This material has no unusual fire or explosion hazards.  
**Sensitivity to Mechanical Impact** : None  
**Sensitivity to Static Charge** : None

**Section 8. Reactivity Data**

**Stability** : Stable  
**Incompatibility (Material to Avoid)** : None  
**Hazardous Decomposition** : CO and NO<sub>x</sub>  
**Hazardous Polymerization** : Will not occur.

**Section 9. Precautions for Safe Handling and Use****Personal Protection Information (Respiratory, Eye Protection and Protective Glove):**

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

**Engineering Control / Ventilation** : Not required.  
**Work / Hygienic Practice** : Inhalation should be minimized as with any non-toxic dust.  
**Steps to be taken in case of Spill or Leak** : Sweep up or clean up with vacuum cleaner.  
**Waste Disposal Method** : Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

**Section 10. Regulatory Information**

**NFPA Rating (U.S.A.)** : Health = 1 Flammability = 1 Reactivity = 0  
**WHMIS Legislation (Canada)** : This product is not a controlled product.  
**Transport Information** : This product is not a hazardous material.  
**UN No.** : None allocated.

**Section 11. 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

# MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-00881

## Section 1. Product Identification

**Product :** AR-400NT1/ST1/T/MT (Black Toner)\*

**\*Note:** This product is supplied in two mixture variations. Please consult packaging for the MSDS reference number for your particular mixture.

Information for the alternative mixture can be found in MSDS number **F-00871**

## Section 2. Supplier's Name and Address

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

## Section 3. Ingredients

Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Carbon black	1333-86-4	< 4%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None
Silica	68909-20-6	< 1%	15mg/m <sup>3</sup>	10mg/m <sup>3</sup>	None
Styrene-acrylate polyester	149367-99-7	< 55%	Not listed	Not listed	None
Polyester resin 1	NJ TSRN 80100252-5009P	< 20%	Not listed	Not listed	None
Polyester resin 2	116736-81-3	< 20%	Not listed	Not listed	None
Wax 1	9010-79-1	< 2%	Not listed	Not listed	None
Wax 2	8015-86-9	< 2%	Not listed	Not listed	None
Pigment	31714-55-3	< 1%	Not listed	Not listed	None

## Section 4. Hazardous Identification (Emergency Overview)

Toner is a fine, black powder possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner. When used as intended according to instructions, studies do not indicate any symptoms of fibrosis will occur.

## Section 5. Health Hazard Data

**Route(s) of Entry :** Inhalation? Skin? Ingestion?  
 Yes No Possible but very unusual.

**Health Hazards :** Acute Toxicity: LD50 > 5,000mg/kg. LC50 > 6.42 mg/L'4Hrs  
 Mutagenicity (Ames Test): Negative. (S.typhimurium, Escherichia coli)  
 (Note: data is from testing of similar materials.)

**Carcinogenicity :** In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any 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.

**Chronic Effect :** In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m<sup>3</sup>) exposure group, but no pulmonary change was reported in the lowest (1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

**Signs and Symptoms of Exposure :**

Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None

**MATERIAL SAFETY DATA SHEET (2/2)**

MSDS No. F-00881

**Section 5. Health Hazard Data (Continued)****Emergency and First Aid Procedures :**

Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

**Section 6. Physical Chemical Characteristics**

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 1.2
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

**Section 7. Fire and Explosion Data**

**Flash Point (Method Used)** : More than 150<sup>0</sup>C (C.O.C.)  
**Ignition Temperature** : No data available  
**Flammable Limits** : (LEL); Not known (UEL); Not known  
**Extinguishing Media** : CO<sub>2</sub>, dry chemical, foam or water  
**Special Fire Fighting Procedure** : None  
**Unusual Fire and Explosion Hazard** : This material has no unusual fire or explosion hazards.  
**Sensitivity to Mechanical Impact** : None  
**Sensitivity to Static Charge** : None

**Section 8. Reactivity Data**

**Stability** : Stable  
**Incompatibility (Material to Avoid)** : Strong acids and alkalines.  
**Hazardous Decomposition** : Phenol derivatives, Carbon monoxide when heated at high temperature. (> 300<sup>0</sup>C)  
**Hazardous Polymerization** : Will not occur.

**Section 9. Precautions for Safe Handling and Use****Personal Protection Information (Respiratory, Eye Protection and Protective Glove):**

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

**Engineering Control / Ventilation** : Not required.  
**Work / Hygienic Practice** : Inhalation should be minimized as with any non-toxic dust.  
**Steps to be taken in case of Spill or Leak** : Sweep up or clean up with vacuum cleaner.  
**Waste Disposal Method** : Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

**Section 10. Regulatory Information**

**NFPA Rating (U.S.A.)** : Health = 1 Flammability = 1 Reactivity = 0  
**WHMIS Legislation (Canada)** : This product is not a controlled product.  
**Transport Information** : This product is not a hazardous material.  
**UN No.** : None allocated.

**Section 11. 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

**MATERIAL SAFETY DATA SHEET (1/2)**

MSDS No. F-00921

**Section 1. Product Identification****Product :**

AR-C15NT1/T1/ST1 (Black Toner)

**Section 2. Supplier's Name and Address**

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

**Section 3. Ingredients**

<u>Ingredients</u>	<u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits</u>
Carbon black	1333-86-4	< 8%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None
Polyester resin	75214-60-7	> 85%	Not listed	Not listed	None
Propylene	9003-07-0	< 2%	Not listed	Not listed	None

**Section 4. Hazardous Identification (Emergency Overview)**

Toner is a fine, black powder possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner. When used as intended according to instructions, studies do not indicate any symptoms of fibrosis will occur.

**Section 5. Health Hazard Data**

**Route(s) of Entry :** Inhalation? Skin? Ingestion?  
 Yes No Possible but very unusual.

**Health Hazards :** Acute oral toxicity --- LD50 of this toner is over 2,000mg/kg.  
 Mutagenicity --- The result of Ames test is negative.

**Carcinogenicity :** In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any 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.

**Chronic Effect :** In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m<sup>3</sup>) exposure group, but no pulmonary change was reported in the lowest (1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

**Signs and Symptoms of Exposure :**  
 Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None

## MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-00921

---

### Section 5. Health Hazard Data (Continued)

#### Emergency and First Aid Procedures :

Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

---

### Section 6. Physical Chemical Characteristics

<b>Boiling/Melting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 1.1
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

---

### Section 7. Fire and Explosion Data

<b>Flash Point (Method Used)</b>	: Not applicable
<b>Ignition Temperature</b>	: > 350°C
<b>Flammable Limits</b>	: (LEL); Not applicable (UEL); Not applicable
<b>Extinguishing Media</b>	: CO <sub>2</sub> , dry chemical, foam or water
<b>Special Fire Fighting Procedure</b>	: None
<b>Unusual Fire and Explosion Hazard</b>	: This material has no unusual fire or explosion hazards.
<b>Sensitivity to Mechanical Impact</b>	: None
<b>Sensitivity to Static Charge</b>	: None

---

### Section 8. Reactivity Data

<b>Stability</b>	: Stable
<b>Incompatibility (Material to Avoid)</b>	: None
<b>Hazardous Decomposition</b>	: CO and NO <sub>x</sub>
<b>Hazardous Polymerization</b>	: Will not occur.

---

### Section 9. Precautions for Safe Handling and Use

#### Personal Protection Information (Respiratory, Eye Protection and Protective Glove):

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

<b>Engineering Control / Ventilation</b>	: Not required.
<b>Work / Hygienic Practice</b>	: Inhalation should be minimized as with any non-toxic dust.
<b>Steps to be taken in case of Spill or Leak</b>	: Sweep up or clean up with vacuum cleaner.
<b>Waste Disposal Method</b>	: Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

---

### Section 10. Regulatory Information

<b>NFPA Rating (U.S.A.)</b>	: Health = 1      Flammability = 1      Reactivity = 0
<b>WHMIS Legislation (Canada)</b>	: This product is not a controlled product.
<b>Transport Information</b>	: This product is not a hazardous material.
<b>UN No.</b>	: None allocated.

---

### Section 11. 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

**MATERIAL SAFETY DATA SHEET (1/2)**

MSDS No. F-00926

**Section 1. Product Identification****Product :**

AR-CN15NT6/T6/ST6(Cyan Toner)

**Section 2. Supplier's Name and Address**

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

**Section 3. Ingredients**

<u>Ingredients</u>	<u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits</u>
Polyester resin	75214-60-7	> 85%	Not listed	Not listed	None
Organic pigment	147-14-8	< 6%	Not listed	Not listed	None
Boron compound	114803-11-1	< 3%	Not listed	Not listed	None
Polypropylene	9003-07-0	< 2%	Not listed	Not listed	None

**Section 4. Hazardous Identification (Emergency Overview)**

Toner is a fine, black powder possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner. When used as intended according to instructions, studies do not indicate any symptoms of fibrosis will occur.

**Section 5. Health Hazard Data**

Route(s) of Entry :	<u>Inhalation?</u>	<u>Skin?</u>	<u>Ingestion?</u>
	Yes	No	Possible but very unusual.
<b>Health Hazards :</b>	Acute oral toxicity --- LD50 of this toner is over 2,000mg/kg. Mutagenicity --- The result of Ames test is negative.		
<b>Carcinogenicity :</b>	<u>NTP?</u>	<u>IARC Monographs?</u>	<u>OSHA Regulated?</u>
	No	No	No

**Chronic Effect :** In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m<sup>3</sup>) exposure group, but no pulmonary change was reported in the lowest (1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

**Signs and Symptoms of Exposure :**

Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None

**Emergency and First Aid Procedures :**

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

Eye --- In case of contact, immediately flush eyes with water for 15 minutes.



# S H A R P

Date Revised: June 14, 1999

Date Issued : April 1, 1999

## MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-00926

---

### Section 6. Physical Chemical Characteristics

---

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 1.1
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Red
<b>Odor</b>	: Odorless		

---

### Section 7. Fire and Explosion Data

---

<b>Flash Point (Method Used)</b>	: Not applicable
<b>Ignition Temperature</b>	: > 350°C
<b>Flammable Limits</b>	: (LEL); Not applicable (UEL); Not applicable
<b>Extinguishing Media</b>	: CO <sub>2</sub> , dry chemical, foam or water
<b>Special Fire Fighting Procedure</b>	: None
<b>Unusual Fire and Explosion Hazard</b>	: This material has no unusual fire or explosion hazards.
<b>Sensitivity to Mechanical Impact</b>	: None
<b>Sensitivity to Static Charge</b>	: None

---

### Section 8. Reactivity Data

---

<b>Stability</b>	: Stable
<b>Incompatibility (Material to Avoid)</b>	: None
<b>Hazardous Decomposition</b>	: CO and NO <sub>x</sub>
<b>Hazardous Polymerization</b>	: Will not occur.

---

### Section 9. Precautions for Safe Handling and Use

---

#### Personal Protection Information (Respiratory, Eye Protection and Protective Glove):

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

<b>Engineering Control / Ventilation</b>	: Not required.
<b>Work / Hygienic Practice</b>	: Inhalation should be minimized as with any non-toxic dust.
<b>Steps to be taken in case of Spill or Leak</b>	: Sweep up or clean up with vacuum cleaner.
<b>Waste Disposal Method</b>	: Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

---

### Section 10. Regulatory Information

---

<b>NFPA Rating (U.S.A.)</b>	: Health = 1	Flammability = 1	Reactivity = 0
<b>WHMIS Legislation (Canada)</b>	: This product is not a controlled product.		
<b>Transport Information</b>	: This product is not a hazardous material.		
<b>UN No.</b>	: None allocated.		

---

### Section 11. Other Information

---

#### References :

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

---

# S H A R P

Date Revised: June 14, 1999

Date Issued : April 1, 1999

## MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-00927

### Section 1. Product Identification

**Product :**

AR-CN15NT7/T7/ST7(Magenta Toner)

### Section 2. Supplier's Name and Address

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

### Section 3. Ingredients

<u>Ingredients</u>	<u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits</u>
Polyester resin	75214-60-7	> 85%	Not listed	Not listed	None
Organic pigment	980-26-7	< 8%	Not listed	Not listed	None
Boron compound	114803-11-1	< 3%	Not listed	Not listed	None
Polypropylene	9003-07-0	< 2%	Not listed	Not listed	None

### Section 4. Hazardous Identification (Emergency Overview)

Toner is a fine, black powder possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner. When used as intended according to instructions, studies do not indicate any symptoms of fibrosis will occur.

### Section 5. Health Hazard Data

<b>Route(s) of Entry :</b>	<u>Inhalation?</u>	<u>Skin?</u>	<u>Ingestion?</u>
	Yes	No	Possible but very unusual.
<b>Health Hazards :</b>	Acute oral toxicity --- LD50 of this toner is over 2,000mg/kg.		
	Mutagenicity --- The result of Ames test is negative.		
<b>Carcinogenicity :</b>	<u>NTP?</u>	<u>IARC Monographs?</u>	<u>OSHA Regulated?</u>
	No	No	No

**Chronic Effect :** In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m<sup>3</sup>) exposure group, but no pulmonary change was reported in the lowest (1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

**Signs and Symptoms of Exposure :**

Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None

**Emergency and First Aid Procedures :**

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

Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

# S H A R P

Date Revised: June 14, 1999

Date Issued : April 1, 1999

## MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-00927

---

### Section 6. Physical Chemical Characteristics

---

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 1.1
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Red
<b>Odor</b>	: Odorless		

---

### Section 7. Fire and Explosion Data

---

<b>Flash Point (Method Used)</b>	: Not applicable
<b>Ignition Temperature</b>	: > 350°C
<b>Flammable Limits</b>	: (LEL); Not applicable (UEL); Not applicable
<b>Extinguishing Media</b>	: CO <sub>2</sub> , dry chemical, foam or water
<b>Special Fire Fighting Procedure</b>	: None
<b>Unusual Fire and Explosion Hazard</b>	: This material has no unusual fire or explosion hazards.
<b>Sensitivity to Mechanical Impact</b>	: None
<b>Sensitivity to Static Charge</b>	: None

---

### Section 8. Reactivity Data

---

<b>Stability</b>	: Stable
<b>Incompatibility (Material to Avoid)</b>	: None
<b>Hazardous Decomposition</b>	: CO and NO <sub>x</sub>
<b>Hazardous Polymerization</b>	: Will not occur.

---

### Section 9. Precautions for Safe Handling and Use

---

#### Personal Protection Information (Respiratory, Eye Protection and Protective Glove):

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

<b>Engineering Control / Ventilation</b>	: Not required.
<b>Work / Hygienic Practice</b>	: Inhalation should be minimized as with any non-toxic dust.
<b>Steps to be taken in case of Spill or Leak</b>	: Sweep up or clean up with vacuum cleaner.
<b>Waste Disposal Method</b>	: Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

---

### Section 10. Regulatory Information

---

<b>NFPA Rating (U.S.A.)</b>	: Health = 1	Flammability = 1	Reactivity = 0
<b>WHMIS Legislation (Canada)</b>	: This product is not a controlled product.		
<b>Transport Information</b>	: This product is not a hazardous material.		
<b>UN No.</b>	: None allocated.		

---

### Section 11. Other Information

---

#### References :

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

---

**MATERIAL SAFETY DATA SHEET (1/2)**

MSDS No. F-00928

**Section 1. Product Identification****Product :**

AR-CN15NT8/T8/ST8(Yellow Toner)

**Section 2. Supplier's Name and Address**

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

**Section 3. Ingredients**

<u>Ingredients</u>	<u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits</u>
Polyester resin	75214-60-7	> 85%	Not listed	Not listed	None
Organic pigment	5580-57-4	< 8%	Not listed	Not listed	None
Boron compound	114803-11-1	< 3%	Not listed	Not listed	None
Polypropylene	9003-07-0	< 2%	Not listed	Not listed	None

**Section 4. Hazardous Identification (Emergency Overview)**

Toner is a fine, black powder possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner. When used as intended according to instructions, studies do not indicate any symptoms of fibrosis will occur.

**Section 5. Health Hazard Data**

Route(s) of Entry :	<u>Inhalation?</u>	<u>Skin?</u>	<u>Ingestion?</u>
	Yes	No	Possible but very unusual.
<b>Health Hazards :</b>	Acute oral toxicity --- LD50 of this toner is over 2,000mg/kg. Mutagenicity --- The result of Ames test is negative.		
<b>Carcinogenicity :</b>	<u>NTP?</u>	<u>IARC Monographs?</u>	<u>OSHA Regulated?</u>
	No	No	No

**Chronic Effect :** In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m<sup>3</sup>) exposure group, but no pulmonary change was reported in the lowest (1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

**Signs and Symptoms of Exposure :**

Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None

**Emergency and First Aid Procedures :**

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

Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

# S H A R P

Date Revised: June 14, 1999

Date Issued : April 1, 1999

## MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-00928

---

### Section 6. Physical Chemical Characteristics

---

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 1.1
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Red
<b>Odor</b>	: Odorless		

---

### Section 7. Fire and Explosion Data

---

<b>Flash Point (Method Used)</b>	: Not applicable
<b>Ignition Temperature</b>	: > 350°C
<b>Flammable Limits</b>	: (LEL); Not applicable (UEL); Not applicable
<b>Extinguishing Media</b>	: CO <sub>2</sub> , dry chemical, foam or water
<b>Special Fire Fighting Procedure</b>	: None
<b>Unusual Fire and Explosion Hazard</b>	: This material has no unusual fire or explosion hazards.
<b>Sensitivity to Mechanical Impact</b>	: None
<b>Sensitivity to Static Charge</b>	: None

---

### Section 8. Reactivity Data

---

<b>Stability</b>	: Stable
<b>Incompatibility (Material to Avoid)</b>	: None
<b>Hazardous Decomposition</b>	: CO and NO <sub>x</sub>
<b>Hazardous Polymerization</b>	: Will not occur.

---

### Section 9. Precautions for Safe Handling and Use

---

#### Personal Protection Information (Respiratory, Eye Protection and Protective Glove):

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

<b>Engineering Control / Ventilation</b>	: Not required.
<b>Work / Hygienic Practice</b>	: Inhalation should be minimized as with any non-toxic dust.
<b>Steps to be taken in case of Spill or Leak</b>	: Sweep up or clean up with vacuum cleaner.
<b>Waste Disposal Method</b>	: Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

---

### Section 10. Regulatory Information

---

<b>NFPA Rating (U.S.A.)</b>	: Health = 1	Flammability = 1	Reactivity = 0
<b>WHMIS Legislation (Canada)</b>	: This product is not a controlled product.		
<b>Transport Information</b>	: This product is not a hazardous material.		
<b>UN No.</b>	: None allocated.		

---

### Section 11. Other Information

---

#### References :

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

---

## MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-00941

### Section 1. Product Identification

**Product** : \_AR-500NT1/ST1/T (Black Toner)\*

**\*Note:** This product is supplied in two mixture variations. Please consult packaging for the MSDS reference number for your particular mixture.

Information for the alternative mixture can be found in MSDS number **F-00951**

### Section 2. Supplier's Name and Address

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

### Section 3. Ingredients

<u>Ingredients*</u>	<u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits</u>
Carbon black	1333-86-4	< 7%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None
Metal complex dye	109125-51-1	< 2%	0.5mg/m <sup>3</sup>	0.5mg/m <sup>3</sup>	None
	109125-50-0	(total for			
	84179-66-8	all three)			
Bisphenol A polyester resin	213077-22-6	> 85%	Not listed	Not listed	None
Iron oxide	1309-38-2	< 3%	Not listed	Not listed	None
Polypropylene	9003-07-0	< 2%	Not listed	Not listed	None

**\*Note:** This product is supplied in two mixture variations. Please consult the packaging for the MSDS reference number for your particular mixture

### Section 4. Hazardous Identification (Emergency Overview)

Toner is a fine, black powder possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner. When used as intended according to instructions, studies do not indicate any symptoms of fibrosis will occur.

### Section 5. Health Hazard Data

<u>Route(s) of Entry</u> :	<u>Inhalation?</u>	<u>Skin?</u>	<u>Ingestion?</u>
	Yes	No	Possible but very unusual.

**Health Hazards** : Acute Oral Toxicity: The LD<sub>50</sub> of this toner is over 2,000mg/kg.

Mutagenicity: The results of the Ames Test is negative.

**Carcinogenicity** : In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any 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.

**Chronic Effect** : In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m<sup>3</sup>) exposure group, but no pulmonary change was reported in the lowest (1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

**Signs and Symptoms of Exposure** :

Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure** : None

**MATERIAL SAFETY DATA SHEET (2/2)**

MSDS No. F-00941

**Section 5. Health Hazard Data (Continued)****Emergency and First Aid Procedures :**

Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

**Section 6. Physical Chemical Characteristics**

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 1.1
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

**Section 7. Fire and Explosion Data**

**Flash Point (Method Used)** : Not applicable  
**Ignition Temperature** : > 350°C  
**Flammable Limits** : (LEL); Not applicable (UEL); Not applicable  
**Extinguishing Media** : CO<sub>2</sub>, dry chemical, foam or water  
**Special Fire Fighting Procedure** : None  
**Unusual Fire and Explosion Hazard** : This material has no unusual fire or explosion hazards.  
**Sensitivity to Mechanical Impact** : None  
**Sensitivity to Static Charge** : None

**Section 8. Reactivity Data**

**Stability** : Stable  
**Incompatibility (Material to Avoid)** : None  
**Hazardous Decomposition** : CO and NO<sub>x</sub>  
**Hazardous Polymerization** : Will not occur.

**Section 9. Precautions for Safe Handling and Use****Personal Protection Information (Respiratory, Eye Protection and Protective Glove):**

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

**Engineering Control / Ventilation** : Not required.  
**Work / Hygienic Practice** : Inhalation should be minimized as with any non-toxic dust.  
**Steps to be taken in case of Spill or Leak** : Sweep up or clean up with vacuum cleaner.  
**Waste Disposal Method** : Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

**Section 10. Regulatory Information**

**NFPA Rating (U.S.A.)** : Health = 1      Flammability = 1      Reactivity = 0  
**WHMIS Legislation (Canada)** : This product is not a controlled product.  
**Transport Information** : This product is not a hazardous material.  
**UN No.** : None allocated.

**Section 11. 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

**MATERIAL SAFETY DATA SHEET (1/2)**

MSDS No. F-00951

**Section 1. Product Identification****Product** : \_AR-500NT/AR-500ST/ AR-500T (Black Toner)\***\*Note:** This product is supplied in two mixture variations. Please consult packaging for the MSDS reference number for your particular mixture.Information for the alternative mixture can be found in MSDS number **F-00941****Section 2. Supplier's Name and Address**

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

**Section 3. Ingredients**

Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Carbon black	1333-86-4	< 4%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None
Silica	68909-20-6	< 1%	15mg/m <sup>3</sup>	10mg/m <sup>3</sup>	None
Styrene -acrylate polyester	149367-99-7	< 55%	Not listed	Not listed	None
Polyester resin 1	NJ TSRN 80100252-5009P	< 20%	Not listed	Not listed	None
Polyester resin 2	116736-81-3	< 20%	Not listed	Not listed	None
Wax 1	9010-79-1	< 2%	Not listed	Not listed	None
Wax 2	8015-86-9	< 2%	Not listed	Not listed	None
Pigment	31714-55-3	< 1%	Not listed	Not listed	None

**Section 4. Hazardous Identification (Emergency Overview)**

Toner is a fine, black powder possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner. When used as intended according to instructions, studies do not indicate any symptoms of fibrosis will occur.

**Section 5. Health Hazard Data**

Route(s) of Entry	Inhalation?	Skin?	Ingestion?
	Yes	No	Possible but very unusual.
	Yes	No	Possible but very unusual.

**Health Hazards** : Acute Toxicity: LD50 > 5,000mg/kg. LC50 > 6.42 mg/L'4Hrs  
Mutagenicity (Ames Test): Negative. (S.typhimurium, Escherichia coli)  
(Note: data is from testing of similar materials.)

**Carcinogenicity** : In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any 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.

**Chronic Effect** : In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m<sup>3</sup>) exposure group, but no pulmonary change was reported in the lowest (1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

**Signs and Symptoms of Exposure**

Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure** : None



# S H A R P

Date Revised: November 15, 1999

Date Issued: July 1, 1999

## MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-00951

---

### Section 5. Health Hazard Data (Continued)

#### Emergency and First Aid Procedures :

Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

---

### Section 6. Physical Chemical Characteristics

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 1.2
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

---

### Section 7. Fire and Explosion Data

<b>Flash Point (Method Used)</b>	: Not applicable
<b>Ignition Temperature</b>	: Not applicable
<b>Flammable Limits</b>	: (LEL); Not applicable (UEL); Not applicable
<b>Extinguishing Media</b>	: CO <sub>2</sub> , dry chemical, foam or water
<b>Special Fire Fighting Procedure</b>	: None
<b>Unusual Fire and Explosion Hazard</b>	: This material has no unusual fire or explosion hazards.
<b>Sensitivity to Mechanical Impact</b>	: None
<b>Sensitivity to Static Charge</b>	: None

---

### Section 8. Reactivity Data

<b>Stability</b>	: Stable
<b>Incompatibility (Material to Avoid)</b>	: None
<b>Hazardous Decomposition</b>	: Phenol derivatives, Carbon monoxide when heated at high temperature. (> 300 <sup>0</sup> C)
<b>Hazardous Polymerization</b>	: Will not occur.

---

### Section 9. Precautions for Safe Handling and Use

**Personal Protection Information (Respiratory, Eye Protection and Protective Glove):** Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

**Engineering Control / Ventilation:** Not required.

**Work / Hygienic Practice:** Inhalation should be minimized as with any non-toxic dust.

**Steps to be taken in case of Spill or Leak :** Sweep up or clean up with vacuum cleaner.

**Waste Disposal Method:** Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

---

### Section 10. Regulatory Information

<b>NFPA Rating (U.S.A.)</b>	: Health = 1	Flammability = 1	Reactivity = 0
<b>WHMIS Legislation (Canada)</b>	: This product is not a controlled product.		
<b>Transport Information</b>	: This product is not a hazardous material.		
<b>UN No.</b>	: None allocated.		

---

### Section 11. 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

# MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-0451

## Section 1. Product Identification

### Product :

AR-540NT/AR-540NT1 (Black Toner)

## Section 2. Supplier's Name and Address

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

## Section 3. Ingredients

Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Carbon black	1333-86-4	< 10%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None
Silica	68909-20-6	< 1%	15mg/m <sup>3</sup>	10mg/m <sup>3</sup>	None
Polyester resin	NJ TSRN 80100252-5001P	< 90%	Not listed	Not listed	None
Pigment	31714-55-3	< 3%	Not listed	Not listed	None
Wax	9003-07-0	< 3%	Not listed	Not listed	None
Magnetite	1309-38-2	< 3%	Not listed	Not listed	None

## Section 4. Hazardous Identification (Emergency Overview)

Toner is a fine, black powder possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner. When used as intended according to instructions, studies do not indicate any symptoms of fibrosis will occur.

## Section 5. Health Hazard Data

### Route(s) of Entry : Inhalation?

Yes

### Skin?

No

### Ingestion?

Possible but very unusual.

**Health Hazards :** **Health Hazards :** Acute Toxicity: LD50 > 2,000mg/kg. LC50 > 5.97 mg/L'4Hrs  
Mutagenicity (Ames Test): Negative. (S.typhimurium, Escherichia coli)

(Note: data is from testing of similar materials.)

**Carcinogenicity :** In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any 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.

**Chronic Effect :** In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m<sup>3</sup>) exposure group, but no pulmonary change was reported in the lowest (1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

### Signs and Symptoms of Exposure :

Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None

**MATERIAL SAFETY DATA SHEET (2/2)**

MSDS No. F-0451

**Section 5. Health Hazard Data (Continued)****Emergency and First Aid Procedures :**

Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

**Section 6. Physical Chemical Characteristics**

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 1.2
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

**Section 7. Fire and Explosion Data**

**Flash Point (Method Used)** : More than 150<sup>0</sup>C (C.O.C.)  
**Ignition Temperature** : No data available  
**Flammable Limits** : (LEL); 34.5 g/m<sup>3</sup> (UEL); Not applicable  
**Extinguishing Media** : CO<sub>2</sub>, dry chemical, foam or water  
**Special Fire Fighting Procedure** : None  
**Unusual Fire and Explosion Hazard** : This material has no unusual fire or explosion hazards.  
**Sensitivity to Mechanical Impact** : None  
**Sensitivity to Static Charge** : None

**Section 8. Reactivity Data**

**Stability** : Stable  
**Incompatibility (Material to Avoid)** : Strong acids or alkalines.  
**Hazardous Decomposition** : Phenol derivatives, carbon monoxide when heated to high temperatures (> 300<sup>0</sup>C)  
**Hazardous Polymerization** : Will not occur.

**Section 9. Precautions for Safe Handling and Use****Personal Protection Information (Respiratory, Eye Protection and Protective Glove):**

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

**Engineering Control / Ventilation** : Not required.  
**Work / Hygienic Practice** : Inhalation should be minimized as with any non-toxic dust.  
**Steps to be taken in case of Spill or Leak** : Sweep up or clean up with vacuum cleaner.  
**Waste Disposal Method** : Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

**Section 10. Regulatory Information**

**NFPA Rating (U.S.A.)** : Health = 1 Flammability = 1 Reactivity = 0  
**WHMIS Legislation (Canada)** : This product is not a controlled product.  
**Transport Information** : This product is not a hazardous material.  
**UN No.** : None allocated.

**Section 11. 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

Date Revised : October 1, 1997

Date Issued : Feb. 1, 1997

**MATERIAL SAFETY DATA SHEET (1/2)**

MSDS No. F-30721

**Section 1. Product Identification****Product :**

AR-532ND1/AR-532DV1 (Black Developer)

**Section 2. Supplier's Name and Address**

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

**Section 3. Ingredients**

<u>Ingredients</u>	<u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits</u>
Ferrite		> 97%	Not listed	Not listed	None
Zinc oxide	1314-13-2				
Iron oxide	1309-37-1				
Copper oxide	1317-38-0				
Magnesium oxide	1309-48-4				
Polyester resin	NJ TSRN 80101252-5001P	< 4%	Not listed <sub>3</sub>	Not listed <sub>3</sub>	None
Carbon black	1333-86-4	< 0.4%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None

**Section 4. Hazardous Identification (Emergency Overview)**

Developer is a black powder containing small amounts of toner, and possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner.

**Section 5. Health Hazard Data**Route(s) of Entry : Inhalation?

Yes

Skin?

No

Ingestion?

Possible but very unusual.

**Health Hazards** : Acute Toxicity: LD50 > 5,000mg/kg. LC50 > 5.97 mg/L'4Hrs

Mutagenicity (Ames Test): Negative. (S.typhimurium, Escherichia coli)

(Note: data is from testing of the included toner.)

**Carcinogenicity** : In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any association between carbon black and lung tumors. While there have been no studies to date using developer, a two-year cancer bioassay using a typical toner preparation containing carbon black (a small amount of toner is included in the developer mixture) demonstrated no association between toner exposure and tumor development in rats.

**Signs and Symptoms of Exposure** :

Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure** : None

## MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-30721

### Section 5. Health Hazard Data (Continued)

#### Emergency and First Aid Procedures :

- Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

### Section 6. Physical Chemical Characteristics

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: about 5
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

### Section 7. Fire and Explosion Data

<b>Flash Point (Method Used)</b>	: Not applicable
<b>Ignition Temperature</b>	: No data available
<b>Flammable Limits</b>	: (LEL); Not applicable (UEL); Not applicable
<b>Extinguishing Media</b>	: CO <sub>2</sub> , dry chemical, foam or water
<b>Special Fire Fighting Procedure</b>	: None
<b>Unusual Fire and Explosion Hazard</b>	: This material has no unusual fire or explosion hazards.
<b>Sensitivity to Mechanical Impact</b>	: None
<b>Sensitivity to Static Charge</b>	: None

### Section 8. Reactivity Data

<b>Stability</b>	: Stable
<b>Incompatibility (Material to Avoid)</b>	: Strong acids or alkalines
<b>Hazardous Decomposition</b>	: Phenol derivatives, Carbon monoxide when heated at high temperature (> 300°C)
<b>Hazardous Polymerization</b>	: Will not occur.

### Section 9. Precautions for Safe Handling and Use

#### Personal Protection Information (Respiratory, Eye Protection and Protective Glove):

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

<b>Engineering Control / Ventilation</b>	: Not required.
<b>Work / Hygienic Practice</b>	: Inhalation should be minimized as with any non-toxic dust.
<b>Steps to be taken in case of Spill or Leak</b>	: Sweep up or clean up with vacuum cleaner.
<b>Waste Disposal Method</b>	: Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

### Section 10. Regulatory Information

<b>NFPA Rating (U.S.A.)</b>	: Health = 1      Flammability = 1      Reactivity = 0
<b>WHMIS Legislation (Canada)</b>	: This product is not a controlled product.
<b>Transport Information</b>	: This product is not a hazardous material.
<b>UN No.</b>	: None allocated.

### Section 11. 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

Date Revised : August 7, 1998

Date Issued : Feb. 1, 1998

**MATERIAL SAFETY DATA SHEET (1/2)**

MSDS No. F-30791

**Section 1. Product Identification****Product :**

AR-330ND/AR-330SD/AR-330DV (Black Developer)

**Section 2. Supplier's Name and Address**

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

**Section 3. Ingredients**

Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Ferrite powder		> 97%	Not listed	Not listed	None
Iron oxide	1309-37-1				
Iron oxide	1317-61-9				
Magnesium oxide	1309-48-4				
Carbon black	1333-86-4	< 0.4%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None
Polyester styrene-acrylate	149367-99-7	< 2%	Not listed	Not listed	None

**Section 4. Hazardous Identification (Emergency Overview)**

Developer is a black powder containing small amounts of toner, and possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner.

**Section 5. Health Hazard Data****Route(s) of Entry : Inhalation?**

Yes

**Skin?**

No

**Ingestion?**

Possible but very unusual.

**Health Hazards** : Acute Toxicity: LD50 > 5,000mg/kg. LC50 > 6.42 mg/L'4Hrs

Mutagenicity (Ames Test): Negative. (S.typhimurium, Escherichia coli)

(Note: data is from testing of the included toner.)

**Carcinogenicity** : In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any association between carbon black and lung tumors. While there have been no studies to date using developer, a two-year cancer bioassay using a typical toner preparation containing carbon black (a small amount of toner is included in the developer mixture) demonstrated no association between toner exposure and tumor development in rats.

**Signs and Symptoms of Exposure**

Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure** : None

## MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-30791

### Section 5. Health Hazard Data (Continued)

#### Emergency and First Aid Procedures :

Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

### Section 6. Physical Chemical Characteristics

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 5
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

### Section 7. Fire and Explosion Data

**Flash Point (Method Used)** : Not applicable  
**Ignition Temperature** : No data available  
**Flammable Limits** : (LEL); Not known (UEL); Not known  
**Extinguishing Media** : CO<sub>2</sub>, dry chemical, foam or water  
**Special Fire Fighting Procedure** : None  
**Unusual Fire and Explosion Hazard** : This material has no unusual fire or explosion hazards.  
**Sensitivity to Mechanical Impact** : None  
**Sensitivity to Static Charge** : None

### Section 8. Reactivity Data

**Stability** : Stable  
**Incompatibility (Material to Avoid)** : Strong acids or alkalines  
**Hazardous Decomposition** : Phenol derivatives, Carbon monoxide when heated at high temperature (> 300°C)  
**Hazardous Polymerization** : Will not occur.

### Section 9. Precautions for Safe Handling and Use

#### Personal Protection Information (Respiratory, Eye Protection and Protective Glove):

Use of a dust mask is recommended when handling a large quantity of developer or during long term exposure, as with any non-toxic dust.

**Engineering Control / Ventilation** : Not required.  
**Work / Hygienic Practice** : Inhalation should be minimized as with any non-toxic dust.  
**Steps to be taken in case of Spill or Leak** : Sweep up or clean up with vacuum cleaner.  
**Waste Disposal Method** : Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

### Section 10. Regulatory Information

**NFPA Rating (U.S.A.)** : Health = 1 Flammability = 1 Reactivity = 0  
**WHMIS Legislation (Canada)** : This product is not a controlled product.  
**Transport Information** : This product is not a hazardous material.  
**UN No.** : None allocated.

### Section 11. 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

Date Revised: August 7, 1999  
Date Issued: December 1, 1998

## MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-30871

### Section 1. Product Identification

**Product :** AR-400ND/AR-400SD/AR-400SD/AR-400MD (Black Developer )\*

**\*Note:** This product is supplied in two mixture variations. Please consult packaging for the MSDS reference number for your particular mixture.

Information for the alternative mixture can be found in MSDS number **F-30881**

### Section 2. Supplier's Name and Address

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

### Section 3. Ingredients

Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Ferrite carrier		> 95%	Not listed	Not listed	None
Iron oxide (Fe <sub>2</sub> O <sub>3</sub> )	1309-37-1				
Iron oxide (Fe <sub>3</sub> O <sub>4</sub> )	1317-61-9				
Magnesium oxide	1309-48-4				
Bisphenol A type polyester resin	213077-22-6	< 4%	Not listed <sub>3</sub>	Not listed <sub>3</sub>	None
Carbon black	1333-86-4	<0.4%	3.5mg/m <sub>3</sub>	3.5mg/m <sub>3</sub>	None

### Section 4. Hazardous Identification (Emergency Overview)

Developer is a black powder containing small amounts of toner, and possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner.

### Section 5. Health Hazard Data

Route(s) of Entry : <u>Inhalation?</u>	<u>Skin?</u>	<u>Ingestion?</u>
Yes	No	Possible but very unusual.

**Health Hazards :** Acute oral toxicity --- LD<sub>50</sub> of the toner which is included in this developer is over 2,000mg/kg.  
Mutagenicity --- The toner, which is included in this developer has been tested on the Ames test.  
The result is negative.

**Carcinogenicity:** In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any association between carbon black and lung tumors. While there have been no studies to date using developer, a two-year cancer bioassay using a typical toner preparation containing carbon black (a small amount of toner is included in the developer mixture) demonstrated no association between toner exposure and tumor development in rats.

**Signs and Symptoms of Exposure:** Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None



**MATERIAL SAFETY DATA SHEET (2/2)**

MSDS No. F-30871

**Section 5. Health Hazard Data (Continued)****Emergency and First Aid Procedures :**

Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

**Section 6. Physical Chemical Characteristics**

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: About 5
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

**Section 7. Fire and Explosion Data**

**Flash Point (Method Used)** : Not applicable  
**Ignition Temperature** : > 350°C  
**Flammable Limits** : (LEL); Not applicable (UEL); Not applicable  
**Extinguishing Media** : CO<sub>2</sub>, dry chemical, foam or water  
**Special Fire Fighting Procedure** : None  
**Unusual Fire and Explosion Hazard** : This material has no unusual fire or explosion hazards.  
**Sensitivity to Mechanical Impact** : None  
**Sensitivity to Static Charge** : None

**Section 8. Reactivity Data**

**Stability** : Stable  
**Incompatibility (Material to Avoid)** : None  
**Hazardous Decomposition** : CO and NO<sub>x</sub>  
**Hazardous Polymerization** : Will not occur.

**Section 9. Precautions for Safe Handling and Use****Personal Protection Information (Respiratory, Eye Protection and Protective Glove):**

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

**Engineering Control / Ventilation** : Not required.  
**Work / Hygienic Practice** : Inhalation should be minimized as with any non-toxic dust.  
**Steps to be taken in case of Spill or Leak** : Sweep up or clean up with vacuum cleaner.  
**Waste Disposal Method** : Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

**Section 10. Regulatory Information**

**NFPA Rating (U.S.A.)** : Health = 1 Flammability = 1 Reactivity = 0  
**WHMIS Legislation (Canada)** : This product is not a controlled product.  
**Transport Information** : This product is not a hazardous material.  
**UN No.** : None allocated.

**Section 11. 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

Date Revised: August 7, 1999  
Date Issued: December 1, 1998

## MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-30881

### Section 1. Product Identification

**Product :** AR-400ND/AR-400SD/AR-400SD/AR-400MD (Black Developer )\*

**\*Note:** This product is supplied in two mixture variations. Please consult packaging for the MSDS reference number for your particular mixture.

Information for the alternative mixture can be found in MSDS number **F-30871**

### Section 2. Supplier's Name and Address

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

### Section 3. Ingredients

Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Ferrite carrier		> 97%	Not listed	Not listed	None
Iron oxide (Fe <sub>2</sub> O <sub>3</sub> )	1309-37-1				
Iron oxide (Fe <sub>3</sub> O <sub>4</sub> )	1317-61-9				
Magnesium oxide	1309-48-4				
Graft polymer(Polyester styrene-copolymer)	14937-99-7	< 2%	Not listed <sub>3</sub>	Not listed <sub>3</sub>	None
Carbon black	1333-86-4	<0.2%	3.5mg/m <sub>3</sub>	3.5mg/m <sub>3</sub>	None

### Section 4. Hazardous Identification (Emergency Overview)

Developer is a black powder containing small amounts of toner, and possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner.

### Section 5. Health Hazard Data

**Route(s) of Entry :** Inhalation? Skin? Ingestion?  
Yes No Possible but very unusual.

**Health Hazards** Acute Toxicity: LD50 > 5,000mg/kg. LC50 > 6.42 mg/L/4Hrs  
Mutagenicity (Ames Test): Negative. (S.typhimurium, Escherichia coli)  
(Note: data is from testing of the toner contained in the developer.)

**Carcinogenicity:** In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any association between carbon black and lung tumors. While there have been no studies to date using developer, a two-year cancer bioassay using a typical toner preparation containing carbon black (a small amount of toner is included in the developer mixture) demonstrated no association between toner exposure and tumor development in rats.

**Signs and Symptoms of Exposure:** Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None

**MATERIAL SAFETY DATA SHEET (2/2)**

MSDS No. F-30881

**Section 5. Health Hazard Data (Continued)****Emergency and First Aid Procedures :**

Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

**Section 6. Physical Chemical Characteristics**

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 5
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

**Section 7. Fire and Explosion Data**

**Flash Point (Method Used)** : Not applicable  
**Ignition Temperature** : Not applicable  
**Flammable Limits** : (LEL); Not known (UEL); Not known  
**Extinguishing Media** : CO<sub>2</sub>, dry chemical, foam or water  
**Special Fire Fighting Procedure** : None  
**Unusual Fire and Explosion Hazard** : This material has no unusual fire or explosion hazards.  
**Sensitivity to Mechanical Impact** : None  
**Sensitivity to Static Charge** : None

**Section 8. Reactivity Data**

**Stability** : Stable  
**Incompatibility (Material to Avoid)** : Strong acids or alkalines  
**Hazardous Decomposition** : Phenol derivatives. Carbon monoxide when heated to high temperatures (> 300°C)  
**Hazardous Polymerization** : Will not occur.

**Section 9. Precautions for Safe Handling and Use****Personal Protection Information (Respiratory, Eye Protection and Protective Glove):**

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

**Engineering Control / Ventilation** : Not required.  
**Work / Hygienic Practice** : Inhalation should be minimized as with any non-toxic dust.  
**Steps to be taken in case of Spill or Leak** : Sweep up or clean up with vacuum cleaner.  
**Waste Disposal Method** : Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

**Section 10. Regulatory Information**

**NFPA Rating (U.S.A.)** : Health = 1 Flammability = 1 Reactivity = 0  
**WHMIS Legislation (Canada)** : This product is not a controlled product.  
**Transport Information** : This product is not a hazardous material.  
**UN No.** : None allocated.

**Section 11. 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

Date Revised: June 15, 1999

Date Issued : April 1, 1999

**MATERIAL SAFETY DATA SHEET (1/2)**

MSDS No. F-30921

**Section 1. Product Identification****Product :**

AR-C15ND1/DV1/SD1, ND6/DV6/SD6, ND7/DV7/SD7, ND8/DV8/SD8 (Black and Colored Developers)

**Section 2. Supplier's Name and Address**

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

**Section 3. Ingredients**

<u>Ingredients</u>	<u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits</u>
Carbon black	1333-86-4	< 0.6%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None
Ferrite Mixture:		> 95%	Not listed	Not listed	None
Manganese oxide	1344-43-0				
Magnesium oxide	1309-48-4				
Strontium oxide	1314-11-0				
Iron oxide	1309-37-1				
Polyester resin	75214-60-7	< 5%	Not listed	Not listed	None

**Section 4. Hazardous Identification (Emergency Overview)**

Developer is a black powder containing small amounts of toner, and possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner.

**Section 5. Health Hazard Data****Route(s) of Entry : Inhalation?**

Yes

**Skin?**

No

**Ingestion?**

Possible but very unusual.

**Health Hazards:** Acute oral toxicity ---  $LDL_0$  of the toner which is included in this developer is over 2,000mg/kg.

Mutagenicity --- The toner, which is included in this developer has been tested on the Ames test.

The result is negative.

**Carcinogenicity:** In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats didnot show any association between carbon black and lung tumors. While there have been no studies to date using developer, a two-year cancer bioassay using a typical toner preparation containing carbon black (a small amount of toner is included in the developer mixture) demonstrated no association between toner exposure and tumor development in rats.

**Signs and Symptoms of Exposure :**

Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None

**MATERIAL SAFETY DATA SHEET (2/2)**

MSDS No. F-30921

**Section 5. Health Hazard Data (Continued)****Emergency and First Aid Procedures :**

Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

**Section 6. Physical Chemical Characteristics**

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: about 5
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

**Section 7. Fire and Explosion Data**

**Flash Point (Method Used)** : Not applicable  
**Ignition Temperature** : > 350°C  
**Flammable Limits** : (LEL); Not applicable (UEL); Not applicable  
**Extinguishing Media** : CO<sub>2</sub>, dry chemical, foam or water  
**Special Fire Fighting Procedure** : None  
**Unusual Fire and Explosion Hazard** : This material has no unusual fire or explosion hazards.  
**Sensitivity to Mechanical Impact** : None  
**Sensitivity to Static Charge** : None

**Section 8. Reactivity Data**

**Stability** : Stable  
**Incompatibility (Material to Avoid)** : None  
**Hazardous Decomposition** : CO and NO<sub>x</sub>  
**Hazardous Polymerization** : Will not occur.

**Section 9. Precautions for Safe Handling and Use****Personal Protection Information (Respiratory, Eye Protection and Protective Glove):**

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

**Engineering Control / Ventilation** : Not required.  
**Work / Hygienic Practice** : Inhalation should be minimized as with any non-toxic dust.  
**Steps to be taken in case of Spill or Leak** : Sweep up or clean up with vacuum cleaner.  
**Waste Disposal Method** : Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

**Section 10. Regulatory Information**

**NFPA Rating (U.S.A.)** : Health = 1 Flammability = 1 Reactivity = 0  
**WHMIS Legislation (Canada)** : This product is not a controlled product.  
**Transport Information** : This product is not a hazardous material.  
**UN No.** : None allocated.

**Section 11. 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

Date Revised: June 15, 1999

Date Issued : April 1, 1999

**MATERIAL SAFETY DATA SHEET (1/2)**

MSDS No. F-30927

**Section 1. Product Identification****Product :**

AR-C15ND9/DV9/SD9 (Magenta Developer)

**Section 2. Supplier's Name and Address**

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

**Section 3. Ingredients**

<u>Ingredients</u>	<u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits</u>
Iron powder	7439-89-6	> 89%	Not listed	Not listed	None
Styrene-Acrylate copolymer	25767-47-9	< 10%	Not listed	Not listed	None

**Section 4. Hazardous Identification (Emergency Overview)**

Based on our tests, it does not present an acute health hazard.

**Section 5. Health Hazard Data****Route(s) of Entry :** Inhalation?

Yes

Skin?

No

Ingestion?

Possible but very unusual.

**Health Hazards :** The toner, which is included in this developer, has been tested on "Acute oral toxicity " and "Ames

test". It does not represent a health hazard.

**Carcinogenicity :** NTP?

No

IARC Monographs?

No

OSHA Regulated?

No

**Signs and Symptoms of Exposure :**

Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None**Emergency and First Aid Procedures :**

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

Eye--- In case of contact, immediately flush eyes with water for 15 minutes

# S H A R P

Date Revised: Feb. 1, 1997

Date Issued : July 8, 1996

## MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-30927

---

### Section 6. Physical Chemical Characteristics

---

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: about 7.5
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Dark red
<b>Odor</b>	: Odorless		

---

### Section 7. Fire and Explosion Data

---

<b>Flash Point (Method Used)</b>	: Not applicable
<b>Ignition Temperature</b>	: > 350 <sup>0</sup> C
<b>Flammable Limits</b>	: (LEL); Not applicable (UEL); Not applicable
<b>Extinguishing Media</b>	: CO <sub>2</sub> , dry chemical, foam or water
<b>Special Fire Fighting Procedure</b>	: None
<b>Unusual Fire and Explosion Hazard</b>	: This material has no unusual fire or explosion hazards.
<b>Sensitivity to Mechanical Impact</b>	: None
<b>Sensitivity to Static Charge</b>	: None

---

### Section 8. Reactivity Data

---

<b>Stability</b>	: Stable
<b>Incompatibility (Material to Avoid)</b>	: None
<b>Hazardous Decomposition</b>	: CO and NOx
<b>Hazardous Polymerization</b>	: Will not occur.

---

### Section 9. Precautions for Safe Handling and Use

---

#### Personal Protection Information (Respiratory, Eye Protection and Protective Glove):

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

**Engineering Control / Ventilation** : Not required.

**Work / Hygienic Practice** : Inhalation should be minimized as with any non-toxic dust.

**Steps to be taken in case of Spill or Leak** : Sweep up or clean up with vacuum cleaner.

**Waste Disposal Method** : Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

---

### Section 10. Regulatory Information

---

<b>NFPA Rating (U.S.A.)</b>	: Health = 1	Flammability = 1	Reactivity = 0
<b>WHMIS Legislation (Canada)</b>	: This product is not a controlled product.		
<b>Transport Information</b>	: This product is not a hazardous material.		
<b>UN No.</b>	: None allocated.		

---

Date Revised: November 15, 1999

Date Issued: July 1., 1999

**MATERIAL SAFETY DATA SHEET (1/2)**

MSDS No. F-30941

**Section 1. Product Identification****Product :** AR-500ND/AR-500SD/AR-500SD/AR-500MD (Black Developer )\***\*Note:** This product is supplied in two mixture variations. Please consult packaging for the MSDS reference number for your particular mixture.Information for the alternative mixture can be found in MSDS number **F-30951****Section 2. Supplier's Name and Address**

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

**Section 3. Ingredients**

<u>Ingredients</u>	<u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits</u>
Ferrite carrier		> 95%	Not listed	Not listed	None
Iron oxide (Fe <sub>2</sub> O <sub>3</sub> )	1309-37-1				
Iron oxide (Fe <sub>3</sub> O <sub>4</sub> )	1317-61-9				
Magnesium oxide	1309-48-4				
Bisphenol A type polyester resin	213077-22-6	< 4%	Not listed <sub>3</sub>	Not listed <sub>3</sub>	None
Carbon black	1333-86-4	<0.4%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None

**Section 4. Hazardous Identification (Emergency Overview)**

Developer is a black powder containing small amounts of toner, and possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner.

**Section 5. Health Hazard Data**

**Route(s) of Entry :** Inhalation? Yes      Skin? No      Ingestion? Possible but very unusual.

**Health Hazards :** Acute oral toxicity --- LD<sub>50</sub> of the toner which is included in this developer is over 2,000mg/kg.  
Mutagenicity --- The toner, which is included in this developer has been tested on the Ames test.  
The result is negative.

**Carcinogenicity:** In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any association between carbon black and lung tumors. While there have been no studies to date using developer, a two-year cancer bioassay using a typical toner preparation containing carbon black (a small amount of toner is included in the developer mixture) demonstrated no association between toner exposure and tumor development in rats.

**Signs and Symptoms of Exposure:** Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None



**MATERIAL SAFETY DATA SHEET (2/2)**

MSDS No. F-30941

**Section 5. Health Hazard Data (Continued)****Emergency and First Aid Procedures :**

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

Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

**Section 6. Physical Chemical Characteristics**

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: About 5
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

**Section 7. Fire and Explosion Data**

<b>Flash Point (Method Used)</b>	: Not applicable
<b>Ignition Temperature</b>	: > 350°C
<b>Flammable Limits</b>	: (LEL); Not applicable (UEL); Not applicable
<b>Extinguishing Media</b>	: CO <sub>2</sub> , dry chemical, foam or water
<b>Special Fire Fighting Procedure</b>	: None
<b>Unusual Fire and Explosion Hazard</b>	: This material has no unusual fire or explosion hazards.
<b>Sensitivity to Mechanical Impact</b>	: None
<b>Sensitivity to Static Charge</b>	: None

**Section 8. Reactivity Data**

<b>Stability</b>	: Stable
<b>Incompatibility (Material to Avoid)</b>	: None
<b>Hazardous Decomposition</b>	: CO and NO <sub>x</sub>
<b>Hazardous Polymerization</b>	: Will not occur.

**Section 9. Precautions for Safe Handling and Use****Personal Protection Information (Respiratory, Eye Protection and Protective Glove):**

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

<b>Engineering Control / Ventilation</b>	: Not required.
<b>Work / Hygienic Practice</b>	: Inhalation should be minimized as with any non-toxic dust.
<b>Steps to be taken in case of Spill or Leak</b>	: Sweep up or clean up with vacuum cleaner.
<b>Waste Disposal Method</b>	: Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

**Section 10. Regulatory Information**

<b>NFPA Rating (U.S.A.)</b>	: Health = 1      Flammability = 1      Reactivity = 0
<b>WHMIS Legislation (Canada)</b>	: This product is not a controlled product.
<b>Transport Information</b>	: This product is not a hazardous material.
<b>UN No.</b>	: None allocated.

**Section 11. 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

Date Revised: November 15, 1999

Date Issued: July 1, 1999

**MATERIAL SAFETY DATA SHEET (1/2)**

MSDS No. F-30951

**Section 1. Product Identification****Product :** AR-500ND/AR-500SD/AR-500SD (Black Developer )\***\*Note:** This product is supplied in two mixture variations. Please consult packaging for the MSDS reference number for your particular mixture.Information for the alternative mixture can be found in MSDS number **F-30941****Section 2. Supplier's Name and Address**

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

**Section 3. Ingredients**

<u>Ingredients</u>	<u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits</u>
Ferrite carrier		> 97%	Not listed	Not listed	None
Iron oxide (Fe <sub>2</sub> O <sub>3</sub> )	1309-37-1				
Iron oxide (Fe <sub>3</sub> O <sub>4</sub> )	1317-61-9				
Magnesium oxide	1309-48-4				
Graft polymer(Polyester styrene-copolymer)	14937-99-7	< 2%	Not listed <sub>3</sub>	Not listed <sub>3</sub>	None
Carbon black	1333-86-4	<0.2%	3.5mg/m <sub>3</sub>	3.5mg/m <sub>3</sub>	None

**Section 4. Hazardous Identification (Emergency Overview)**

Developer is a black powder containing small amounts of toner, and possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner.

**Section 5. Health Hazard Data**

**Route(s) of Entry :** Inhalation? Yes      Skin? No      Ingestion? Possible but very unusual.

**Health Hazards** Acute Toxicity: LD50 > 5,000mg/kg. LC50 > 6.42 mg/L/4Hrs

Mutagenicity (Ames Test): Negative. (S.typhimurium, Escherichia coli)

(Note: data is from testing of the toner contained in the developer.)

**Carcinogenicity:** In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any association between carbon black and lung tumors. While there have been no studies to date using developer, a two-year cancer bioassay using a typical toner preparation containing carbon black (a small amount of toner is included in the developer mixture) demonstrated no association between toner exposure and tumor development in rats.

**Signs and Symptoms of Exposure:** Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None

**MATERIAL SAFETY DATA SHEET (2/2)**

MSDS No. F-30951

**Section 5. Health Hazard Data (Continued)****Emergency and First Aid Procedures :**

Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

**Section 6. Physical Chemical Characteristics**

<b>Boiling/Melting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 5
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

**Section 7. Fire and Explosion Data**

**Flash Point (Method Used)** : Not applicable  
**Ignition Temperature** : Not applicable  
**Flammable Limits** : (LEL); Not known (UEL); Not known  
**Extinguishing Media** : CO<sub>2</sub>, dry chemical, foam or water  
**Special Fire Fighting Procedure** : None  
**Unusual Fire and Explosion Hazard** : This material has no unusual fire or explosion hazards.  
**Sensitivity to Mechanical Impact** : None  
**Sensitivity to Static Charge** : None

**Section 8. Reactivity Data**

**Stability** : Stable  
**Incompatibility (Material to Avoid)** : Strong acids or alkalines  
**Hazardous Decomposition** : Phenol derivatives. Carbon monoxide when heated to high temperatures (> 300°C)  
**Hazardous Polymerization** : Will not occur.

**Section 9. Precautions for Safe Handling and Use****Personal Protection Information (Respiratory, Eye Protection and Protective Glove):**

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

**Engineering Control / Ventilation** : Not required.  
**Work / Hygienic Practice** : Inhalation should be minimized as with any non-toxic dust.  
**Steps to be taken in case of Spill or Leak** : Sweep up or clean up with vacuum cleaner.  
**Waste Disposal Method** : Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

**Section 10. Regulatory Information**

**NFPA Rating (U.S.A.)** : Health = 1 Flammability = 1 Reactivity = 0  
**WHMIS Legislation (Canada)** : This product is not a controlled product.  
**Transport Information** : This product is not a hazardous material.  
**UN No.** : None allocated.

**Section 11. 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

Date Revised: October 1, 1997

Date Issued : May 16, 1994

**MATERIAL SAFETY DATA SHEET (1/2)**

MSDS No. F-3451

**Section 1. Product Identification****Product :**

AR-540ND/AR-540DV (Black Developer)

**Section 2. Supplier's Name and Address**

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

**Section 3. Ingredients**

<u>Ingredients</u>	<u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits</u>
Ferrite		> 97%	Not listed	Not listed	None
Zinc oxide	1314-13-2				
Iron oxide	1309-37-1				
Copper oxide	1317-38-0				
Magnesium oxide	1309-48-4				
Polyester Resin NJ TSRN 80100252-50001P		< 5%	Not listed <sub>3</sub>	Not listed <sub>3</sub>	None
Carbon black	1333-86-4	< 0.4%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None

**Section 4. Hazardous Identification (Emergency Overview)**

Developer is a black powder containing small amounts of toner, and possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner.

**Section 5. Health Hazard Data****Route(s) of Entry : Inhalation?**

Yes

**Skin?**

No

**Ingestion?**

Possible but very unusual.

**Health Hazards :** Acute Toxicity: LD50 > 2,000mg/kg. LC50 > 5.97 mg/L/4Hrs

Mutagenicity (Ames Test): Negative. (S.typhimurium, Escherichia coli)

(Note: data is from testing of the included toner.)

**Carcinogenicity :** In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any association between carbon black and lung tumors. While there have been no studies to date using developer, a two-year cancer bioassay using a typical toner preparation containing carbon black (a small amount of toner is included in the developer mixture) demonstrated no association between toner exposure and tumor development in rats.

**Signs and Symptoms of Exposure :**

Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure :** None

**MATERIAL SAFETY DATA SHEET (2/2)**

MSDS No. F-3451

**Section 5. Health Hazard Data (Continued)****Emergency and First Aid Procedures :**

Inhalation --- Remove to fresh air. If effects occur, consult medical personnel.  
 Eye --- In case of contact, immediately flush eyes with water for 15 minutes.

**Section 6. Physical Chemical Characteristics**

<b>BoilingMelting Point</b>	: Not applicable	<b>Specific Gravity</b>	: 5.0
<b>Vapor Pressure</b>	: Not applicable	<b>Solubility in Water</b>	: Negligible
<b>Vapor Density</b>	: Not applicable	<b>PH</b>	: Not applicable
<b>Evaporation Rate</b>	: Not applicable	<b>Viscosity</b>	: Not applicable
<b>Appearance</b>	: Fine powder	<b>Color</b>	: Black
<b>Odor</b>	: Odorless		

**Section 7. Fire and Explosion Data**

**Flash Point (Method Used)** : Not applicable  
**Ignition Temperature** : No data available  
**Flammable Limits** : (LEL); Not applicable (UEL); Not applicable  
**Extinguishing Media** : CO<sub>2</sub>, dry chemical, foam or water  
**Special Fire Fighting Procedure** : None  
**Unusual Fire and Explosion Hazard** : This material has no unusual fire or explosion hazards.  
**Sensitivity to Mechanical Impact** : None  
**Sensitivity to Static Charge** : None

**Section 8. Reactivity Data**

**Stability** : Stable  
**Incompatibility (Material to Avoid)** : Strong acids or alkalines  
**Hazardous Decomposition** : Phenol derivatives, Carbon monoxide when heated to high temperatures (>300 C)  
**Hazardous Polymerization** : Will not occur.

**Section 9. Precautions for Safe Handling and Use****Personal Protection Information (Respiratory, Eye Protection and Protective Glove):**

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

**Engineering Control / Ventilation** : Not required.  
**Work / Hygienic Practice** : Inhalation should be minimized as with any non-toxic dust.  
**Steps to be taken in case of Spill or Leak** : Sweep up or clean up with vacuum cleaner.  
**Waste Disposal Method** : Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

**Section 10. Regulatory Information**

**NFPA Rating (U.S.A.)** : Health = 1 Flammability = 1 Reactivity = 0  
**WHMIS Legislation (Canada)** : This product is not a controlled product.  
**Transport Information** : This product is not a hazardous material.  
**UN No.** : None allocated.

**Section 11. 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

Date Issued : Oct. 1, 2004  
MSDS No. F-31331

### 1.PRODUCT AND COMPANY IDENTIFICATION

**Product Name** : AR-455ND / AR-455DV / AR-455SD (Black Developer)

**Supplier Identification** : Sharp Corporation  
22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

Area	(Country)	(Name and Telephone Number)
North America	U.S.A.	Sharp Electronics Corporation Sharp Plaza, Mahwah, NJ Telephone number for information : 1-800-237-4277 Emergency telephone number : 1-800-255-3924
	Canada	Sharp Electronics of Canada Ltd. Telephone number for information : 905-890-2100 Emergency telephone number : 1-800-255-3924
Oceania	Australia	Sharp Corporation of Australia PTY. Ltd. No1 Huntingwood Drive Huntingwood Blacktown N.S.W. Telephone number for information : 1300-13-50-22
Europe	Germany	Sharp Electronics (Europe) GMBH Sonninstrasse 3, 20097 Hamburg Telephone number to access MSDS : 040-2376-2185 For more information : 040-2376-2613
	United Kingdom	Sharp Electronics (U. K.) Ltd. Telephone number for information : 08705-274-277
	France	Sharp Electronics France S.A. Telephone number for information : 01-49-90-34-00
	Austria	Sharp Electronics GMBH Telephone number for information : 01-727-19-0
	Italy	Sharp Electronics (Italy) S.P.A. Telephone number for information : 02895951
	Spain	Sharp Electronics (Espana) S.A. Telephone number for information : 93-581-97-00
	Netherlands	Sharp Electronics Benelux B.V. Telephone number for information : 30-6359500
	Sweden	Sharp Electronics Nordic AB Telephone number for information : 08-634-36-00
	Switzerland	Sharp Electronics(Schweiz)AG Telephone number for information : 01-846-6111
Middle East	U.A.E.	Sharp Middle East FZE P.O.Box 17115 Jebel Ali, Dubai Telephone number for information : 04-815311

### 2.COMPOSITION / INFORMATION ON INGREDIENTS

Substance[ ]	Preparation[X]					
<u>Ingredient</u>	<u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>MAK-TWA</u>	<u>NOHSC-TWA</u>
Ferrite	68186-94-7	> 90%	Not listed	Not listed	Not listed	Not listed
Silicone resin	123127-08-2	< 3%				
Polyester resin1	Confidential	1-5 %	Not listed	Not listed	Not listed	Not listed
Polyester resin2	Confidential	1-5 %	Not listed	Not listed	Not listed	Not listed
Carbon black	1333-86-4	< 1%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	Not listed	3mg/m <sup>3</sup>

Date Issued : Oct. 1, 2004  
MSDS No. F-31331

---

**3.HAZARDS IDENTIFICATION**

---

**Most Important Hazards and Effects of the Products**

Human Health Effects : There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner. When used as intended according to instructions, studies do not indicate any symptoms of fibrosis will occur.

Environmental Effects : No data are available.

**Specific Hazards** : Dust explosion (like most finely divided organic powders)

**Directive 1999/45/EC(Europe)** : Not classified as dangerous

---

**4.FIRST-AID MEASURES**

---

Route(s) of Entry : <u>Inhalation?</u>	<u>Skin?</u>	<u>Ingestion?</u>
No	No	Possible but very unusual.

**Inhalation** : Remove to fresh air. If symptoms occur, consult medical personnel.

**Skin Contact** : Wash with soap and water for 15 minutes or until particle is removed.  
If irritation does occur, consult medical personnel.

**Eye Contact** : Flush eyes immediately with water for 15 minutes. If irritation does occur, consult medical personnel.

**Ingestion** : Rinse with water and drink several glasses of water. If irritation or discomfort does occur, consult medical personnel.

---

**5.FIRE-FIGHTING MEASURES**

---

**Extinguishing Media** : Water, CO<sub>2</sub>, foam and dry chemicals

**Special Fire Fighting Procedures** : None

**Fire and Explosion Hazards** : Toner material, like most finely divided organic powders, may form an explosive mixture.

---

**6.ACCIDENTAL RELEASE MEASURES**

---

**Personal Precautions** : None

**Environmental Precautions** : None

**Methods for Cleaning Up** : Wipe off with paper or cloth. Do not use vacuum cleaner when a large amount is released. It, like most finely divided organic powders, is capable of creating a dust explosion.

---

**7.HANDLING AND STORAGE**

---

**Handling**

Technical Measures : None

Precautions : None

Safe Handling Advice : Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust. Try not to disperse the particles.

**Storage**

Technical Measures : None

Storage Conditions : Keep container closed and Store in a cool and dry place.  
Keep out of the reach of children.

Incompatible Products : None

---

**8.EXPOSURE CONTROLS / PERSONAL PROTECTION**

---

**Engineering Measures**

Ventilation : Not required under intended use.

---

Date Issued : Oct. 1, 2004  
MSDS No. F-31331**Exposure Limit Values**OSHA-PEL(USA) : 15mg/m<sup>3</sup> (Total Dust) , 5mg/m<sup>3</sup> (Respirable Dust)  
ACGIH-TLV(USA) : 10mg/m<sup>3</sup> (Total Dust) , 3mg/m<sup>3</sup> (Respirable Dust)**Personal Protective Equipment**Respiratory Protection : Not required under intended use.  
Hand Protection : Not required under intended use.  
Eye Protection : Not required under intended use.  
Skin Protection : Not required under intended use.  
Other Protective Equipment : Use of a dust mask and goggles are recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.**9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance**

Physical State : Solid                      Form : Powder                      Color : Black                      Odor : odorless

**Ph** : Not applicable**Boiling / Melting Point** : Not applicable**Flash Point(°C)** : Not applicable**Ignition Point(°C )** : No data**Explosion Properties** : No data**Density(g/cm<sup>3</sup>)** : 6 (bulk density : 2.35)**Solubility in Water** : Negligible**10. STABILITY AND REACTIVITY****Stability** : Stable**Hazardous Reactions** : Dust explosion, like most finely divided organic powders.**Conditions to Avoid** : Electric discharge, throwing into fire.**Materials to Avoid** : Oxidizing Materials**Hazardous Decomposition Products** : CO, CO<sub>2</sub> and NO<sub>x</sub>**Further Information** : None**11. TOXICOLOGICAL INFORMATION****Acute Toxicity**Ingestion(oral) : LD<sub>50</sub> > 2000mg/kg (Rats) (Estimated from the constituent components)

Inhalation : No data

Eye irritation : Not an irritant (Rabbits)

Skin irritation : Not an irritant (Rabbits)

Skin sensitizer : No sensitization

**Mutagenicity** : Negative (Ames Test)**Carcinogenicity** : In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any association between carbon black and lung tumors. Moreover, a two-year cancer bioassay using a typical toner preparation , where carbon black is bound in a resin matrix, containing carbon black demonstrated no association between toner exposure and tumor development in rats.



Date Issued : Oct. 1, 2004  
MSDS No. F-31331

**Chronic Effect** : In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m<sup>3</sup>) exposure group, but no pulmonary change was reported in the lowest (1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

---

**12.ECOLOGICAL INFORMATION**

---

No data are available.

---

**13.DISPOSAL CONSIDERATIONS**

---

**Waste from Residues** : Waste material may be dumped or incinerated under conditions which meet all federal, state and local environmental regulations.

**Contaminated Packaging** : Waste may be disposed or incinerated under conditions which meet all federal, state and local environmental regulations.

---

**14.TRANSPORT INFORMATION**

---

UN Classification : None

Not classified as hazardous for transport.

---

**15.REGULATORY INFORMATION**

---

## US Information

TSCA(Toxic Substances Control Act) :

All chemical substances in this product comply with all applicable rules or order under TSCA.

SARA(Superfund Amendments and Reauthorization Act) Title III

302 Extreme Hazardous Substance : None

311/312 Hazard Classification : None

## EU Information

1999/45/EC and 67/548/EEC

Symbol &amp; Indication : Not required

R-Phrase : Not required

76/769/EEC : All chemical substances in this product comply with all applicable rules or order under 76/769/EEC.

---

**16.OTHER INFORMATION**

---

NFPA Rating (USA) : Health=1 Flammability=1 Reactivity=0

WHMIS Legislation (Canada) : This product is not a controlled product.

## 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.

The information on this data sheet represents our current data and best opinion as to the proper use in handling of this product under normal conditions. However, all materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we do not guarantee that these are the only hazards which exist.

---

Date Revised: Oct. 13, 2004

Date Issued: Dec. 01, 2003

MSDS No. F-31221

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** AR-620ND/AR-620SD/AR-620SD/AR-620SD-C (Black Developer)

**Supplier Identification:** Sharp Corporation  
22-22 Nagalke-cho, Abeno-ku Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

Area	(Country)	(Name and Telephone Number)
North America	U.S.A.	Sharp Electronics Corporation Sharp Plaza, Mahwah, NJ Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
	Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Substance [ ]	Preparation [X]					
Ingredient	CAS No.	Proportion	OSHA PEL	ACGIH TLV	MAK-TWA	NOHSC-TWA
Ferrite Iron oxide (Fe <sup>2</sup> O <sup>3</sup> ) Iron oxide (Fe <sup>3</sup> O <sup>4</sup> ) Magnesium oxide	1309-37-1 1317-61-9 1309-48-4	90%	Not listed	Not listed	Not listed	Not listed
Polyester resin1	Confidential	1-5%	Not listed	Not listed	Not listed	Not listed
Polyester resin2	Confidential	1-5%	Not listed	Not listed	Not listed	Not listed
Carbon black	1333-86-4	<1%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	Not listed	3mg/m <sup>3</sup>

### 3. HAZARDS IDENTIFICATION

#### Most Important Hazards and Effects of the Products

**Human Health Effects:** There are no anticipated carcinogenic effects from exposure to toner based on animal tests. When used as intended and according to instructions, studies do not indicate any symptoms of fibrosis will occur.

**Environmental Effects:** No data are available.

**Specific Hazards:** Dust explosion (typical of most finely divided organic powders)

### 4. FIRST-AID MEASURES

**Route(s) of Entry:** Inhalation? Yes      Skin? No      Ingestion? Possible but highly unlikely.

**Inhalation:** Relocate to a well ventilated, fresh air area. If symptoms occur, consult medical personnel.

**Skin Contact:** Wash with soap and water for 15 minutes or until particle dust is removed. If irritation occurs, consult medical personnel.

**Eye Contact:** Immediately flush eyes with water for 15 minutes. If irritation occurs, consult medical personnel.

**Ingestion:** Immediately drink several glasses of water. If irritation occurs, consult medical personnel.

Date Revised: Oct. 13, 2004

Date Issued: Dec. 01, 2003

MSDS No. F-31221

### 5. FIRE-FIGHTING MEASURES

**Extinguishing Media:** Water, CO<sub>2</sub> foam, and dry chemicals  
**Special Fire Fighting Procedures:** None  
**Fire and Explosion Hazards:** Toner material, typical of most finely divided organic powders, may form an explosive mixture.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** None  
**Environmental Precautions:** None  
**Methods for Cleaning Up:** Wipe with paper or cloth towel. Do not use a vacuum cleaner to clean up a large amount of released toner. Toner, typical of most finely divided organic powders, is capable of creating a dust explosion.

### 7. HANDLING AND STORAGE

**Handling:** Technical Measures: None  
 Precautions: None  
 Safe Handling Advice: Wear a dust mask and goggles when handling a large quantity of toner or during long-term exposure. As with any non-toxic powder, try not to disperse the particles.  
**Storage:** Technical Measures: None  
 Storage Conditions: Keep container closed and store in a cool and dry place.  
 Incompatible Products: None

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Measures:** Ventilation. Not required under intended use.  
**Exposure Limit Values**  
 OSHA-PEL (USA): 15 mg/m<sup>3</sup> (Total Dust), 5mg/m<sup>3</sup> (Respirable Dust)  
 ACGIH-TLV (USA): 10 mg/m<sup>3</sup> (Total Dust), 3mg/m<sup>3</sup> (Respirable Dust)  
**Personal Protective Equipment**  
 Respiratory Protection: Not required under intended use.  
 Hand Protection: Not required under intended use.  
 Eye Protection: Not required under intended use.  
 Skin Protection: Not required under intended use.  
 Other Protective Equipment: Use of a dust mask and goggles are recommended when handling a large quantity of toner or during long-term exposure, as with any non-toxic dust.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**  
 Physical state: Solid      Form: Powder      Color: Black      Odor: Odorless  
**Ph:** Not applicable  
**Boiling/Melting Point:** Not applicable  
**Softening Point (°C):** Not applicable  
**Flash Point (°C):** Not applicable  
**Ignition Point (°C):** No data  
**Explosion Properties:** No data  
**Density (g/cm<sup>3</sup>):** 6 (bulk density: 2.35)  
**Solubility in Water:** Negligible

### 10. STABILITY AND REACTIVITY

**Stability:** Stable  
**Hazardous Reactions:** Dust explosion, typical of most finely divided organic powders.  
**Conditions to Avoid:** Electric discharge; throwing into fire.  
**Materials to Avoid:** Oxidizing materials.  
**Ignition Point (°C):** No data  
**Hazardous Decomposition Products:** CO, CO<sub>2</sub>, and NO<sub>x</sub>  
**Further Information:** None

Date Revised: Oct. 13, 2004

Date Issued: Dec. 01, 2003

**MSDS No. F-31221**

---

**11. TOXICOLOGICAL INFORMATION**

---

<b>Acute Toxicity:</b>	Ingestion (oral):	LD <sub>50</sub> > 2000mg/kg (Rats) (Estimated)
	Inhalation:	No data
	Dermal:	No data
	Eye irritation:	Not an irritant (Rabbits)
	Skin irritation:	Not an irritant (Rabbits)
	Skin sensitizer:	No sensitization
<b>Mutagenicity:</b>	Negative (Ames Test)	
<b>Carcinogenicity:</b>	In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. This classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any 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.	
<b>Chronic Effect:</b>	In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16 mg/m <sup>3</sup> ) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m <sup>3</sup> ) exposure group, but no pulmonary change was reported in the lowest (1mg/m <sup>3</sup> ) exposure group, the most relevant level to potential human exposures.	

---

**12. ECOLOGICAL INFORMATION:** No data are available.

---

---

**13. DISPOSAL CONSIDERATIONS**

---

<b>Waste from Residues:</b>	Waste material may be disposed of under conditions which meet all federal, state and local environmental regulations.
<b>Contaminated Packaging:</b>	Waste material may be disposed of under conditions which meet all federal, state and local environmental regulations.

---

**14. TRANSPORT INFORMATION:** UN Classification: None. Not classified as hazardous for transport.

---

---

**15. REGULATORY INFORMATION**

---

US Information: TSCA (Toxic Substances Control Act): All chemical substances in this product comply with all applicable rules or orders under TSCA.

SARA (Superfund Amendments and Reauthorization Act) Title III

302 Extreme Hazardous Substance: None

311/312 Hazard Classification: None

---

**16. OTHER INFORMATION**

---

NFPA Rating (USA): Health=1 Flammability=1 Reactivity=0

WHMIS Legislation (Canada): This product is not a controlled product.

References: 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.

---

*The information on this data sheet represents current data and best practices in the proper use and handling of this product under normal conditions. However, all materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, no guarantee is expressed or implied that these are the only possible hazards that exist.*

---

Date Revised: Oct. 13, 2004

Date Issued: Nov. 30, 2000

MSDS No. F-31011

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** AR-450ND/AR-450DV/AR-450SD/AR-450SD/AR-450SD-C (Black Developer)  
DM-350DV/DM-350SK/DM-350SK1 (Black Developer)

**Supplier Identification:** Sharp Corporation  
22-22 Nagalke-cho, Abeno-ku Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

Area	(Country)	(Name and Telephone Number)
North America	U.S.A.	Sharp Electronics Corporation Sharp Plaza, Mahwah, NJ Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
	Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Substance [ ]	Preparation [X]					
Ingredient	CAS No.	Proportion	OSHA PEL	ACGIH TLV	MAK-TWA	NOHSC-TWA
Ferrite	68186-94-7	> 90%	Not listed	Not listed	Not listed	Not listed
Polyester resin	213077-22-6	< 5%	Not listed	Not listed	Not listed	Not listed
Silicone resin	123127-08-2	< 3%	Not listed	Not listed	Not listed	Not listed
Carbon black	1333-86-4	< 1%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	Not listed	3mg/m <sup>3</sup>

### 3. HAZARDS IDENTIFICATION

#### Most Important Hazards and Effects of the Products

**Human Health Effects:** There are no anticipated carcinogenic effects from exposure to toner based on animal tests. When used as intended and according to instructions, studies do not indicate any symptoms of fibrosis will occur.

**Environmental Effects:** No data are available.

**Specific Hazards:** Dust explosion (typical of most finely divided organic powders)

### 4. FIRST-AID MEASURES

**Route(s) of Entry:** Inhalation? Yes      Skin? No      Ingestion? Possible but highly unlikely.

**Inhalation:** Relocate to a well ventilated, fresh air area. If symptoms occur, consult medical personnel.

**Skin Contact:** Wash with soap and water for 15 minutes or until particle dust is removed. If irritation occurs, consult medical personnel.

**Eye Contact:** Immediately flush eyes with water for 15 minutes. If irritation occurs, consult medical personnel.

**Ingestion:** Immediately drink several glasses of water. If irritation occurs, consult medical personnel.

Date Revised: Oct. 13, 2004

Date Issued: Nov. 30, 2000

MSDS No. F-31011

### 5. FIRE-FIGHTING MEASURES

**Extinguishing Media:** Water, CO<sub>2</sub> foam, and dry chemicals  
**Special Fire Fighting Procedures:** None  
**Fire and Explosion Hazards:** Toner material, typical of most finely divided organic powders, may form an explosive mixture.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** None  
**Environmental Precautions:** None  
**Methods for Cleaning Up:** Wipe with paper or cloth towel. Do not use a vacuum cleaner to clean up a large amount of released toner. Toner, typical of most finely divided organic powders, is capable of creating a dust explosion.

### 7. HANDLING AND STORAGE

**Handling:** Technical Measures: None  
 Precautions: None  
 Safe Handling Advice: Wear a dust mask and goggles when handling a large quantity of toner or during long-term exposure. As with any non-toxic powder, try not to disperse the particles.  
**Storage:** Technical Measures: None  
 Storage Conditions: Keep container closed and store in a cool and dry place.  
 Incompatible Products: None

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Measures:** Ventilation. Not required under intended use.  
**Exposure Limit Values**  
 OSHA-PEL (USA): 15 mg/m<sup>3</sup> (Total Dust), 5mg/m<sup>3</sup> (Respirable Dust)  
 ACGIH-TLV (USA): 10 mg/m<sup>3</sup> (Total Dust), 3mg/m<sup>3</sup> (Respirable Dust)  
**Personal Protective Equipment**  
 Respiratory Protection: Not required under intended use.  
 Hand Protection: Not required under intended use.  
 Eye Protection: Not required under intended use.  
 Skin Protection: Not required under intended use.  
 Other Protective Equipment: Use of a dust mask and goggles are recommended when handling a large quantity of toner or during long-term exposure, as with any non-toxic dust.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**  
 Physical state: Solid      Form: Powder      Color: Black      Odor: Odorless  
**Ph:** Not applicable  
**Boiling/Melting Point:** Not applicable  
**Softening Point (°C):** Not applicable  
**Flash Point (°C):** Not applicable  
**Ignition Point (°C):** No data  
**Explosion Properties:** No data  
**Density (g/cm<sup>3</sup>):** 6 (bulk density: 2.35)  
**Solubility in Water:** Negligible

### 10. STABILITY AND REACTIVITY

**Stability:** Stable  
**Hazardous Reactions:** Dust explosion, typical of most finely divided organic powders.  
**Conditions to Avoid:** Electric discharge; throwing into fire.  
**Materials to Avoid:** Oxidizing materials.  
**Ignition Point (°C):** No data  
**Hazardous Decomposition Products:** CO, CO<sub>2</sub>, and NO<sub>x</sub>  
**Further Information:** None

Date Revised: Oct. 13, 2004

Date Issued: Nov. 30, 2000

**MSDS No. F-31011**

---

**11. TOXICOLOGICAL INFORMATION**

---

<b>Acute Toxicity:</b>	Ingestion (oral):	LD <sub>50</sub> > 2000mg/kg (Rats)
	Inhalation:	No data
	Dermal:	No data
	Eye irritation:	Not an irritant (Rabbits)
	Skin irritation:	Not an irritant (Rabbits)
	Skin sensitizer:	No sensitization
<b>Mutagenicity:</b>	Negative (Ames Test)	
<b>Carcinogenicity:</b>	In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. This classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any 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.	
<b>Chronic Effect:</b>	In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16 mg/m <sup>3</sup> ) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m <sup>3</sup> ) exposure group, but no pulmonary change was reported in the lowest (1mg/m <sup>3</sup> ) exposure group, the most relevant level to potential human exposures.	

---

**12. ECOLOGICAL INFORMATION:** No data are available.

---

---

**13. DISPOSAL CONSIDERATIONS**

---

<b>Waste from Residues:</b>	Waste material may be disposed of under conditions which meet all federal, state and local environmental regulations.
<b>Contaminated Packaging:</b>	Waste material may be disposed of under conditions which meet all federal, state and local environmental regulations.

---

**14. TRANSPORT INFORMATION:** UN Classification: None. Not classified as hazardous for transport.

---

---

**15. REGULATORY INFORMATION**

---

US Information: TSCA (Toxic Substances Control Act): All chemical substances in this product comply with all applicable rules or orders under TSCA.

SARA (Superfund Amendments and Reauthorization Act) Title III

302 Extreme Hazardous Substance: None

311/312 Hazard Classification: None

---

**16. OTHER INFORMATION**

---

NFPA Rating (USA): Health=1 Flammability=1 Reactivity=0

WHMIS Legislation (Canada): This product is not a controlled product.

References: 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.

---

*The information on this data sheet represents current data and best practices in the proper use and handling of this product under normal conditions. However, all materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, no guarantee is expressed or implied that these are the only possible hazards that exist.*

---

Date Issued : Oct. 1, 2004  
MSDS No. F-01331

### 1.PRODUCT AND COMPANY IDENTIFICATION

**Product Name** : AR-455NT / AR-455T / AR-455FT ( Black Toner )

**Supplier Identification** : Sharp Corporation  
22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

Area	(Country)	(Name and Telephone Number)
North America	U.S.A.	Sharp Electronics Corporation Sharp Plaza, Mahwah, NJ Telephone number for information : 1-800-237-4277 Emergency telephone number : 1-800-255-3924
	Canada	Sharp Electronics of Canada Ltd. Telephone number for information : 905-890-2100 Emergency telephone number : 1-800-255-3924
Oceania	Australia	Sharp Corporation of Australia PTY. Ltd. No1 Huntingwood Drive Huntingwood Blacktown N.S.W. Telephone number for information : 1300-13-50-22
Europe	Germany	Sharp Electronics (Europe) GMBH Sonninstrasse 3, 20097 Hamburg Telephone number to access MSDS : 040-2376-2185 For more information : 040-2376-2613
	United Kingdom	Sharp Electronics (U. K.) Ltd. Telephone number for information : 08705-274-277
	France	Sharp Electronics France S.A. Telephone number for information : 01-49-90-34-00
	Austria	Sharp Electronics GMBH Telephone number for information : 01-727-19-0
	Italy	Sharp Electronics (Italy) S.P.A. Telephone number for information : 02895951
	Spain	Sharp Electronics (Espana) S.A. Telephone number for information : 93-581-97-00
	Netherlands	Sharp Electronics Benelux B.V. Telephone number for information : 30-6359500
	Sweden	Sharp Electronics Nordic AB Telephone number for information : 08-634-36-00
	Switzerland	Sharp Electronics(Schweiz)AG Telephone number for information : 01-846-6111
Middle East	U.A.E.	Sharp Middle East FZE P.O.Box 17115 Jebel Ali, Dubai Telephone number for information : 04-815311

### 2.COMPOSITION / INFORMATION ON INGREDIENTS

Substance[ ] <u>Ingredient</u>	Preparation[X] <u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>MAK-TWA</u>	<u>NOHSC-TWA</u>
Polyester resin1	Confidential	45-55%	Not listed	Not listed	Not listed	Not listed
Polyester resin2	Confidential	30-35%	Not listed	Not listed	Not listed	Not listed
Carbon black	1333-86-4	5-10%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	Not listed	3mg/m <sup>3</sup>
Iron oxide	1309-38-2	1-5%	Not listed	Not listed	Not listed	Not listed
Metal Complex dye*	109125-51-1 84179-66-8	} < 2%	0.5mg/m <sup>3</sup>	0.5mg/m <sup>3</sup>	Not listed	Not listed
Polypropylene	Confidential	1-5%	Not listed	Not listed	Not listed	Not listed

\* EC NO. : 400-110-2, Symbol letter : F, R Phrase : R11



Date Issued : Oct. 1, 2004  
MSDS No. F-01331

---

**3.HAZARDS IDENTIFICATION**

---

**Most Important Hazards and Effects of the Products**

Human Health Effects : There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner. When used as intended according to instructions, studies do not indicate any symptoms of fibrosis will occur.

Environmental Effects : No data are available.

**Specific Hazards** : Dust explosion (like most finely divided organic powders)

**Directive 1999/45/EC(Europe)** : Not classified as dangerous

---

**4.FIRST-AID MEASURES**

---

Route(s) of Entry : <u>Inhalation?</u>	<u>Skin?</u>	<u>Ingestion?</u>
Yes	No	Possible but very unusual.

**Inhalation** : Remove to fresh air. If symptoms occur, consult medical personnel.

**Skin Contact** : Wash with soap and water for 15 minutes or until particle is removed.  
If irritation does occur, consult medical personnel.

**Eye Contact** : Flush eyes immediately with water for 15 minutes. If irritation does occur, consult medical personnel.

**Ingestion** : Rinse with water and drink several glasses of water. If irritation or discomfort does occur, consult medical personnel.

---

**5.FIRE-FIGHTING MEASURES**

---

**Extinguishing Media** : Water, CO<sub>2</sub>, foam and dry chemicals

**Special Fire Fighting Procedures** : None

**Fire and Explosion Hazards** : Toner material, like most finely divided organic powders, may form an explosive mixture.

---

**6.ACCIDENTAL RELEASE MEASURES**

---

**Personal Precautions** : None

**Environmental Precautions** : None

**Methods for Cleaning Up** : Wipe off with paper or cloth. Do not use vacuum cleaner when a large amount is released. It, like most finely divided organic powders, is capable of creating a dust explosion.

---

**7.HANDLING AND STORAGE**

---

**Handling**

Technical Measures : None

Precautions : None

Safe Handling Advice : Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust. Try not to disperse the particles.

**Storage**

Technical Measures : None

Storage Conditions : Keep container closed and Store in a cool and dry place.  
Keep out of the reach of children.

Incompatible Products : None

---

**8.EXPOSURE CONTROLS / PERSONAL PROTECTION**

---

**Engineering Measures**

Ventilation : Not required under intended use.

---

Date Issued : Oct. 1, 2004  
MSDS No. F-01331**Exposure Limit Values**OSHA-PEL(USA) : 15mg/m<sup>3</sup> (Total Dust), 5mg/m<sup>3</sup> (Respirable Dust)  
ACGIH-TLV(USA) : 10mg/m<sup>3</sup> (Total Dust), 3mg/m<sup>3</sup> (Respirable Dust)**Personal Protective Equipment**Respiratory Protection : Not required under intended use.  
Hand Protection : Not required under intended use.  
Eye Protection : Not required under intended use.  
Skin Protection : Not required under intended use.  
Other Protective Equipment : Use of a dust mask and goggles are recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.**9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance**

Physical State : Solid                      Form : Powder                      Color : Black                      Odor : odorless

**Ph** : Not applicable**Boiling / Melting Point** : Not applicable**Softening Point(°C)** : 100 - 130**Flash Point(°C)** : Not applicable**Ignition Point(°C)** : > 350**Explosion Properties** : No data**Density(g/cm<sup>3</sup>)** : 1.1 (bulk density : 0.4)**Solubility in Water** : Negligible**10. STABILITY AND REACTIVITY****Stability** : Stable**Hazardous Reactions** : Dust explosion, like most finely divided organic powders.**Conditions to Avoid** : Electric discharge, throwing into fire.**Materials to Avoid** : Oxidizing Materials**Hazardous Decomposition Products** : CO, CO<sub>2</sub> and NO<sub>x</sub>**Further Information** : None**11. TOXICOLOGICAL INFORMATION****Acute Toxicity**Ingestion(oral) : LD<sub>50</sub> > 2000mg/kg (Rats)Inhalation : LC<sub>50</sub> > 5.0mg/L

Eye irritation : Not an irritant (Rabbits)

Skin irritation : Not an irritant (Rabbits)

Skin sensitizer : No sensitization

**Mutagenicity** : Negative (Ames Test)**Carcinogenicity** : In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any association between carbon black and lung tumors. Moreover, a two-year cancer bioassay using a typical toner preparation, where carbon black is bound in a resin matrix, demonstrated no association between toner exposure and tumor development in rats.

Date Issued : Oct. 1, 2004  
MSDS No. F-01331

**Chronic Effect** : In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m<sup>3</sup>) exposure group, but no pulmonary change was reported in the lowest (1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

---

**12.ECOLOGICAL INFORMATION**

---

No data are available.

---

**13.DISPOSAL CONSIDERATIONS**

---

**Waste from Residues** : Waste material may be dumped or incinerated under conditions which meet all federal, state and local environmental regulations.

**Contaminated Packaging** : Waste may be disposed or incinerated under conditions which meet all federal, state and local environmental regulations.

---

**14.TRANSPORT INFORMATION**

---

UN Classification : None

Not classified as hazardous for transport.

---

**15.REGULATORY INFORMATION**

---

## US Information

TSCA(Toxic Substances Control Act) :

All chemical substances in this product comply with all applicable rules or order under TSCA.

SARA(Superfund Amendments and Reauthorization Act) Title III

302 Extreme Hazardous Substance : None

311/312 Hazard Classification : None

## EU Information

1999/45/EC and 67/548/EEC

Symbol &amp; Indication : Not required

R-Phrase : Not required

76/769/EEC : All chemical substances in this product comply with all applicable rules or order under 76/769/EEC.

---

**16.OTHER INFORMATION**

---

NFPA Rating (USA) : Health=1 Flammability=1 Reactivity=0

WHMIS Legislation (Canada) : This product is not a controlled product.

List of R phrases : R11 : Highly flammable

## 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.

The information on this data sheet represents our current data and best opinion as to the proper use in handling of this product under normal conditions. However, all materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we do not guarantee that these are the only hazards which exist.

---

Date Revised: Oct. 12, 2004

Date Issued: Dec. 01, 2003

MSDS No. F-01221

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** AR-620NT/AR-620T/AR-620ST/AR-620ST-C/AR-260FT  
AR-621NT/AR-621T/AR-621ST-C/AR-621ST-C/AR-621FT (Black Toner)

**Supplier Identification:** Sharp Corporation  
22-22 Nagalke-cho, Abeno-ku Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

Area	(Country)	(Name and Telephone Number)
North America	U.S.A.	Sharp Electronics Corporation Sharp Plaza, Mahwah, NJ Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
	Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Substance [ ]	Preparation [X]					
Ingredient	CAS No.	Proportion	OSHA PEL	ACGIH TLV	MAK-TWA	NOHSC-TWA
Polyester resin 1	Confidential	45-55%	Not listed	Not listed	Not listed	Not listed
Polyester resin 2	Confidential	30-35%	Not listed	Not listed	Not listed	Not listed
Carbon black	1333-86-4	5-10%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	Not listed	3mg/m <sup>3</sup>
Iron oxide	1309-8-2	1-5%	Not listed	Not listed	Not listed	Not listed
Metal Complex dye*	109125-51-1 } 84179-66-8 }	<2%	0.5mg/m <sup>3</sup>	0.5mg/m <sup>3</sup>	Not listed	Not listed
Polypropylene	Confidential	1-5%	Not listed	Not listed	Not listed	Not listed

\*EC No.: 400-110-2, Symbol letter: F, R Phrase: R11

### 3. HAZARDS IDENTIFICATION

**Most Important Hazards and Effects of the Products**

**Human Health Effects:** There are no anticipated carcinogenic effects from exposure to toner based on animal tests. When used as intended and according to instructions, studies do not indicate any symptoms of fibrosis will occur.

**Environmental Effects:** No data are available.

**Specific Hazards:** Dust explosion (typical of most finely divided organic powders)

### 4. FIRST-AID MEASURES

**Route(s) of Entry:** Inhalation? Yes      Skin? No      Ingestion? Possible but highly unlikely.

**Inhalation:** Relocate to a well ventilated, fresh air area. If symptoms occur, consult medical personnel.

**Skin Contact:** Wash with soap and water for 15 minutes or until particle dust is removed. If irritation occurs, consult medical personnel.

**Eye Contact:** Immediately flush eyes with water for 15 minutes. If irritation occurs, consult medical personnel.

**Ingestion:** Immediately drink several glasses of water. If irritation occurs, consult medical personnel.

Date Revised: Oct. 12, 2004

Date Issued: Dec. 01, 2003

MSDS No. F-01221

### 5. FIRE-FIGHTING MEASURES

**Extinguishing Media:** Water, CO<sub>2</sub> foam, and dry chemicals  
**Special Fire Fighting Procedures:** None  
**Fire and Explosion Hazards:** Toner material, typical of most finely divided organic powders, may form an explosive mixture.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** None  
**Environmental Precautions:** None  
**Methods for Cleaning Up:** Wipe with paper or cloth towel. Do not use a vacuum cleaner to clean up a large amount of released toner. Toner, typical of most finely divided organic powders, is capable of creating a dust explosion.

### 7. HANDLING AND STORAGE

**Handling:** Technical Measures: None  
 Precautions: None  
 Safe Handling Advice: Wear a dust mask and goggles when handling a large quantity of toner or during long-term exposure. As with any non-toxic powder, try not to disperse the particles.  
**Storage:** Technical Measures: None  
 Storage Conditions: Keep container closed and store in a cool and dry place.  
 Incompatible Products: None

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Measures:** Ventilation. Not required under intended use.  
**Exposure Limit Values**  
 OSHA-PEL (USA): 15 mg/m<sup>3</sup> (Total Dust), 5mg/m<sup>3</sup> (Respirable Dust)  
 ACGIH-TLV (USA): 10 mg/m<sup>3</sup> (Total Dust), 3mg/m<sup>3</sup> (Respirable Dust)  
**Personal Protective Equipment**  
 Respiratory Protection: Not required under intended use.  
 Hand Protection: Not required under intended use.  
 Eye Protection: Not required under intended use.  
 Skin Protection: Not required under intended use.  
 Other Protective Equipment: Use of a dust mask and goggles are recommended when handling a large quantity of toner or during long-term exposure, as with any non-toxic dust.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**  
 Physical state: Solid      Form: Powder      Color: Black      Odor: Odorless  
**Ph:** Not applicable  
**Boiling/Melting Point:** Not applicable  
**Softening Point (°C):** 100-130  
**Flash Point (°C):** Not applicable  
**Ignition Point (°C):** >350  
**Explosion Properties:** No data  
**Density (g/cm<sup>3</sup>):** 1.1 (bulk density: 0.4)  
**Solubility in Water:** Negligible

### 10. STABILITY AND REACTIVITY

**Stability:** Stable  
**Hazardous Reactions:** Dust explosion, typical of most finely divided organic powders.  
**Conditions to Avoid:** Electric discharge; throwing into fire.  
**Materials to Avoid:** Oxidizing materials.  
**Ignition Point (°C):** >350  
**Hazardous Decomposition Products:** CO, CO<sub>2</sub>, and NO<sub>x</sub>  
**Further Information:** None

Date Revised: Oct. 12, 2004

Date Issued: Dec. 01, 2003

**MSDS No. F-01221**

---

**11. TOXICOLOGICAL INFORMATION**

---

<b>Acute Toxicity:</b>	Ingestion (oral):	LD <sub>50</sub> > 2000mg/kg (Rats)
	Inhalation:	LC <sub>50</sub> > 5.0mg/L
	Dermal:	No data
	Eye irritation:	Not an irritant (Rabbits)
	Skin irritation:	Not an irritant (Rabbits)
	Skin sensitizer:	No sensitization
<b>Mutagenicity:</b>	Negative (Ames Test)	
<b>Carcinogenicity:</b>	In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. This classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any 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.	
<b>Chronic Effect:</b>	In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16 mg/m <sup>3</sup> ) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m <sup>3</sup> ) exposure group, but no pulmonary change was reported in the lowest (1mg/m <sup>3</sup> ) exposure group, the most relevant level to potential human exposures.	

---

**12. ECOLOGICAL INFORMATION:** No data are available.

---

---

**13. DISPOSAL CONSIDERATIONS**

---

<b>Waste from Residues:</b>	Waste material may be disposed of under conditions which meet all federal, state and local environmental regulations.
<b>Contaminated Packaging:</b>	Waste material may be disposed of under conditions which meet all federal, state and local environmental regulations.

---

**14. TRANSPORT INFORMATION:** UN Classification: None. Not classified as hazardous for transport.

---

---

**15. REGULATORY INFORMATION**

---

US Information:	TSCA (Toxic Substances Control Act): All chemical substances in this product comply with all applicable rules or orders under TSCA.
	SARA (Superfund Amendments and Reauthorization Act) Title III
	302 Extreme Hazardous Substance: None
	311/312 Hazard Classification: None

---

**16. OTHER INFORMATION**

---

NFPA Rating (USA): Health=1 Flammability=1 Reactivity=0  
WHMIS Legislation (Canada): This product is not a controlled product.  
List of R phrases: R11: Highly flammable.  
References: 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.

---

*The information on this data sheet represents current data and best practices in the proper use and handling of this product under normal conditions. However, all materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, no guarantee is expressed or implied that these are the only possible hazards that exist.*

---

Date Revised: Oct. 12, 2004

Date Issued: Nov. 30, 2000

MSDS No. F-01011

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** AR-450NT/AR-450ST/AR-450T/AR-450FT/AR-450FT-T/AR-450ST-C  
AR-451ST-C/AR-450NT-J (Black Toner)  
DM-350DT/DM-350SK/DM-350SK1 (Black Toner)

**Supplier Identification:** Sharp Corporation  
22-22 Nagalke-cho, Abeno-ku Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

Area	(Country)	(Name and Telephone Number)
North America	U.S.A.	Sharp Electronics Corporation Sharp Plaza, Mahwah, NJ Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924
	Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Substance [ ]	Preparation [X]					
Ingredient	CAS No.	Proportion	OSHA PEL	ACGIH TLV	MAK-TWA	NOHSC-TWA
Polyester resin	213077-22-6	85-95%	Not listed	Not listed	Not listed	Not listed
Carbon black	1333-86-4	1-5%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	Not listed	3mg/m <sup>3</sup>
Iron oxide	1309-38-2	1-3%	Not listed	Not listed	Not listed	Not listed
Metal Complex dye*	109125-51-1} 84179-66-8 }	< 2%	0.5mg/ m <sup>3</sup>	0.5mg/ m <sup>3</sup>	Not listed	Not listed
Polypropylene	9003-07-0	<2%	Not listed	Not listed	Not listed	Not listed

\*EC No.: 400-110-2, Symbol letter: F, R Phrase: R11

### 3. HAZARDS IDENTIFICATION

#### Most Important Hazards and Effects of the Products

**Human Health Effects:** There are no anticipated carcinogenic effects from exposure to toner based on animal tests. When used as intended and according to instructions, studies do not indicate any symptoms of fibrosis will occur.

**Environmental Effects:** No data are available.

**Specific Hazards:** Dust explosion (typical of most finely divided organic powders)

### 4. FIRST-AID MEASURES

**Route(s) of Entry:** Inhalation? Yes      Skin? No      Ingestion? Possible but highly unlikely.

**Inhalation:** Relocate to a well ventilated, fresh air area. If symptoms occur, consult medical personnel.

**Skin Contact:** Wash with soap and water for 15 minutes or until particle dust is removed. If irritation occurs, consult medical personnel.

**Eye Contact:** Immediately flush eyes with water for 15 minutes. If irritation occurs, consult medical personnel.

**Ingestion:** Immediately drink several glasses of water. If irritation occurs, consult medical personnel.

Date Revised: Oct. 12, 2004

Date Issued: Nov. 30, 2000

MSDS No. F-01011

### 5. FIRE-FIGHTING MEASURES

**Extinguishing Media:** Water, CO<sub>2</sub>, foam, and dry chemicals  
**Special Fire Fighting Procedures:** None  
**Fire and Explosion Hazards:** Toner material, typical of most finely divided organic powders, may form an explosive mixture.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** None  
**Environmental Precautions:** None  
**Methods for Cleaning Up:** Wipe with paper or cloth towel. Do not use a vacuum cleaner to clean up a large amount of released toner. Toner, typical of most finely divided organic powders, is capable of creating a dust explosion.

### 7. HANDLING AND STORAGE

**Handling:** Technical Measures: None  
 Precautions: None  
 Safe Handling Advice: Wear a dust mask and goggles when handling a large quantity of toner or during long-term exposure. As with any non-toxic powder, try not to disperse the particles.  
**Storage:** Technical Measures: None  
 Storage Conditions: Keep container closed and store in a cool and dry place.  
 Incompatible Products: None

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Measures:** Ventilation. Not required under intended use.  
**Exposure Limit Values**  
 OSHA-PEL (USA): 15 mg/m<sup>3</sup> (Total Dust), 5mg/m<sup>3</sup> (Respirable Dust)  
 ACGIH-TLV (USA): 10 mg/m<sup>3</sup> (Total Dust), 3mg/m<sup>3</sup> (Respirable Dust)  
**Personal Protective Equipment**  
 Respiratory Protection: Not required under intended use.  
 Hand Protection: Not required under intended use.  
 Eye Protection: Not required under intended use.  
 Skin Protection: Not required under intended use.  
 Other Protective Equipment: Use of a dust mask and goggles are recommended when handling a large quantity of toner or during long-term exposure, as with any non-toxic dust.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**  
 Physical state: Solid      Form: Powder      Color: Black      Odor: Odorless  
**Ph:** Not applicable  
**Boiling/Melting Point:** Not applicable  
**Softening Point (°C):** 100-130  
**Flash Point (°C):** Not applicable  
**Ignition Point (°C):** >350  
**Explosion Properties:** No data  
**Density (g/cm<sup>3</sup>):** 1.1 (bulk density: 0.4)  
**Solubility in Water:** Negligible

### 10. STABILITY AND REACTIVITY

**Stability:** Stable  
**Hazardous Reactions:** Dust explosion, typical of most finely divided organic powders.  
**Conditions to Avoid:** Electric discharge; throwing into fire.  
**Materials to Avoid:** Oxidizing materials.  
**Ignition Point (°C):** >350  
**Hazardous Decomposition Products:** CO, CO<sub>2</sub>, and NO<sub>x</sub>  
**Further Information:** None



Date Revised: Oct. 12, 2004

Date Issued: Nov. 30, 2000

**MSDS No. F-01011**

---

**11. TOXICOLOGICAL INFORMATION**

---

<b>Acute Toxicity:</b>	Ingestion (oral):	LD <sub>50</sub> > 2000mg/kg (Rats)
	Inhalation:	LC <sub>50</sub> > 5.71mg/L
	Dermal:	No data
	Eye irritation:	Not an irritant (Rabbits)
	Skin irritation:	Not an irritant (Rabbits)
	Skin sensitizer:	No sensitization
<b>Mutagenicity:</b>	Negative (Ames Test)	
<b>Carcinogenicity:</b>	In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. This classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any 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.	
<b>Chronic Effect:</b>	In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16 mg/m <sup>3</sup> ) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m <sup>3</sup> ) exposure group, but no pulmonary change was reported in the lowest (1mg/m <sup>3</sup> ) exposure group, the most relevant level to potential human exposures.	

---

**12. ECOLOGICAL INFORMATION:** No data are available.

---

---

**13. DISPOSAL CONSIDERATIONS**

---

<b>Waste from Residues:</b>	Waste material may be disposed of under conditions which meet all federal, state and local environmental regulations.
<b>Contaminated Packaging:</b>	Waste material may be disposed of under conditions which meet all federal, state and local environmental regulations.

---

**14. TRANSPORT INFORMATION:** UN Classification: None. Not classified as hazardous for transport.

---

---

**15. REGULATORY INFORMATION**

---

US Information: TSCA (Toxic Substances Control Act): All chemical substances in this product comply with all applicable rules or orders under TSCA.  
SARA (Superfund Amendments and Reauthorization Act) Title III  
302 Extreme Hazardous Substance: None  
311/312 Hazard Classification: None

---

**16. OTHER INFORMATION**

---

NFPA Rating (USA): Health=1 Flammability=1 Reactivity=0  
WHMIS Legislation (Canada): This product is not a controlled product.  
List of R phrases: R11: Highly flammable.  
References: 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.

---

*The information on this data sheet represents current data and best practices in the proper use and handling of this product under normal conditions. However, all materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, no guarantee is expressed or implied that these are the only possible hazards that exist.*

---