

# Material Safety Data Sheets AR Series Corporate Copiers

Model Number

MSDS Number

Page Number

AR-532T1	. F00721	Page 1-2
AR-532NT1	. F00721	Page 1-2
AR-330T	. F00791	Page 3-4
AR-330ST		
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		
AR-400ST1	. F00881	Page 9-10
AR-400T		
AR-400MT		
AR-C15NT		
AR-C15NT1	. F00921	. Page 11-12
AR-C15ST1		
AR-CN15ST6	. F00926	. Page 13-14
AR-CN15T6	. F00926	. Page 13-14
AR-CN15NT6		
AR-CN15ST7		
AR-CN15T7		
AR-CN15NT7		
AR-CN15NT8		
AR-CN15T8		•
AR-CN15ST8		
AR-500NT1		•
AR-500ST1		
AR-500T		
AR-500T		
AR-500ST		
AR-500NT	. F00951	. Page 21-22
AR-540NT1		
AR-540NT		
AR-532DV1		
AR-532ND1		
	. F30791	•
	. F30791	-
	. F30791	
	. F30871	
AR-400MD		
AR-400ND		
AR-400S		
AR-400MD		
AR-C15ND1	. F30921	. Page 33-34

AR-C15DV1 Page 33-3	64
AR-C15SD1 Page 33-3	54
AR-C15ND6 Page 33-3	54
AR-C15DV6 Page 33-3	4
AR-C15SD6 Page 33-3	4
AR-C15ND7 Page 33-3	4
AR-C15DV7 Page 33-3	4
AR-C15SD7 Page 33-3	
AR-C15ND8 Page 33-3	4
AR-C15DV8 Page 33-3	4
AR-C15SD8 Page 33-3	4
AR-C15ND9 Page 35-3	6
AR-C15DV9 Page 35-3	6
AR-C15SD9 Page 35-3	6
AR-500ND Page 37-3	8
AR-500SD Page 37-3	8
AR-500MD Page 37-3	8
AR-500ND Page 39-4	0
AR-500SD Page 39-4	0
AR-500MD Page 39-4	0
AR-540ND	2
AR-540DV Page 41-4	2

### **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 Sharp Electronics of Canada Ltd. Canada Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924 Sharp Electronics (U.K.) Ltd. United Telephone number for information: 01923-474013 Kingdom Section 3. Ingredients Ingredients CAS No. Proportion **OSHA PEL** ACGIH TLV Other Limits 3.5mg/m<sub>3</sub> 3.5mg/m្ Carbon black 1333-86-4 < 9% None < 1% Silica 68909-20-6 15mg/m 10mg/m None Polyester resin NJ TSRN 80100252-5001P < 90% Not listed Not listed None Pigment 31714-55-3 < 2% Not listed Not listed None Wax 2% Not listed None 9003-07-0 Not listed < 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

Date Revised: October 1, 1997 Date Issued : Feb. 1, 1997

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

MSDS No. F-00721

Section 5. Health Hazard	Data (Continued)		W3D3 NO. F-00721		
Emergency and First Aid Pr					
		ts occur, consult medical persor	nnel.		
		tely flush eyes with water for 15			
Section 6. Physical Chemic	cal Characteristics				
BoilingMelting Point	Not applicable	Specific Gravity	: 1.2		
	Not applicable	Solubility in Water	: Negligible		
	Not applicable	PH	: Not applicable		
Evaporation Rate :	Not applicable	Viscosity	: Not applicable		
Appearance :	Fine powder	Color	: Black		
Odor :	Odorless				
Section 7. Fire and Explos					
Flash Point (Method Used)	: More than 150	. ,			
Ignition Temperature	: No data availab				
Flammable Limits	: (LEL); 34.5g/m		licable		
Extinguishing Media		iical, foam or water			
Special Fire Fighting Procee					
Unusual Fire and Explosion		as no unusual fire or explosion h	azards.		
Sensitivity to Mechanical Im					
Sensitivity to Static Charge	: None				
Saction & Basstivity Data					
Section 8. Reactivity Data Stability	: Stable				
Incompatibility (Material to A		alkalinos			
Hazardous Decomposition					
hazardous Decomposition	temperature. (>		accuatingn		
Hazardous Polymerization	: Will not occur.				
·····					
Section 9. Precautions for	Safe Handling and Use				
		otection and Protective Glove	):		
		ing a large quantity of toner or d			
term exposure, as wi	th any non-toxic dust.				
Engineering Control / Ventil	ation : Not required.				
Work / Hygienic Practice	: Inhalation shoul	ld be minimized as with any non-	toxic dust.		
Steps to be taken in case of	f Spill or Leak : Sweep u	ip or clean up with vacuum clear	ner.		
Waste Disposal Method		ial may be disposed under conc			
	federal, state	e and local environmental regula	itions.		
Section 10. Regulatory Info					
NFPA Rating (U.S.A.)	: Health = 1	-	ctivity = 0		
WHMIS Legislation (Canada		not a controlled product.			
Transport Information		not a hazardous material.			
UN No.	: None allocated.				
Section 11 Other Informati					
Section 11. Other Informat		nhe on the Evolution of the Co	roinagania Dick of Chamicals to		
		phs on the Evaluation of the Car rhop Black and Somo Nitro Com			
-	TOUESS and FILLING INKS, Cal	rbon Black and Some Nitro Com	ipourius, Lyon,		
pp-149-261 H Muble B Bellmann O C	reutzenhera C Decenhred	k, H. Ernst, R. Kilpper, J. C. Ma	cKanzia		
	-	(1991) Pulmonary Response to			

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-33OT (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. (Name and Telephone Number) (Country) 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 Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013 Kingdom Section 3 Ingredients

<b>Ingredients</b>	<u>CAS No.</u>	<b>Proportion</b>	<u>OSHA PEL</u>	<u>ACGIH TĻV</u>	Other Limits
Carbon black	1333-86-4	< 4%	3.5mg/m្ថំ	3.5mg/m្ថំ	None
Silica	68909-20-6	< 1%	15mg/mໍ	10mg/mໍ	None
Styrene-acrylate poly	ester 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	ing symptoms of hore	
Route(s) of Entry : <u>Inhalation?</u>	<u>Skin?</u>	Ingestion?
Yes	No	Possible but very unusual.
Health Hazards : Acute Toxicity: LD50	) > 5,000mg/kg. LC5	50 > 6.42 mg/L'4Hrs
Mutagenicity (Ames	Test): Negative. (S.ty	/phimurium,Escherichia coli)
(Note: data is fro	om testing of similar i	materials.)
Carcinogenicity : In 1996 the IARC reev	valuated carbon black	k as a Group 2B carcinogen (possible
human carcinogen). This	s classification is give	en to chemicals for which there is
inadequate human evide	nce, but sufficient ani	mal evidence on which to base an opinion of
•		oon the development of lung tumors in rats
<b>o</b> ,		carbon black at levels that induce
3	•	ed in animal models other than rats did
•		ack and lung tumors. Moreover, a two-year
•		tion containing carbon black demonstrated no
association between ton		•
	•	•
•	•	sure to a typical toner, a mild to moderate
<b>a a</b>		of the rats in the high concentration (16mg/m <sup>3</sup> )
		e of fibrosis was noted in 22% of the animals
in the middle (4mg/m <sup>3</sup> ) e	xposure group, but no	o pulmonary change was reported in the
lowest (1mg/m <sup>3</sup> ) exposu	re group, the most re	levant level to potential human exposures.
Signs and Symptoms of Exposure	:	

#### 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

Date Revised: August 7, 1998 Date Issued : Feb. 1, 1998

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

MSDS No. F-00791

Section 5. Health Haza	rd Data (Cont	inued)		M6D6 N0. 1 -0073
Emergency and First Ai				
Inhalation			ts occur, consult medical pe	
Eye	In case of	contact, immedia	tely flush eyes with water fo	or 15 minutes.
Section 6. Physical Che			Specific Crevity	10
BoilingMelting Point	: Not applica		Specific Gravity Solubility in Wa	
Vapor Pressure Vapor Density	: Not applica : Not applica		PH	ter : Negligible : Not applicable
Evaporation Rate	: Not applica		Viscosity	: Not applicable
Appearance	: Fine powd		Color	: Black
Odor	: Odorless		00101	. Diack
0.001				
Section 7. Fire and Ex				
Flash Point (Method Use	ed)	: More than 150	<sup>0</sup> C (C.O.C.)	
Ignition Temperature		: No data availab	le	
Flammable Limits		: (LEL); Not know		known
Extinguishing Media			ical, foam or water	
Special Fire Fighting Pro		: None		
			as no unusual fire or explosi	on hazards.
Sensitivity to Mechanica	•	: None		
Sensitivity to Static Cha	rge	: None		
Section 8. Reactivity D	ata			
Stability		: Stable		
Incompatibility (Material		: Strong acids an	id alkalines.	
Hazardous Decompositi		•	ves, Carbon monoxide whei	n heated at high
-		temperature. (>		C C
Hazardous Polymerizati	on	: Will not occur.		
	( 0-(- 11			
Section 9. Precautions			testion and Protective Cl	ovo):
			tection and Protective GI ng a large quantity of toner	
term exposure, a			ng a large quantity of toner	
Engineering Control / Ve	•			
Work / Hygienic Practice			d be minimized as with any	non-toxic dust.
Steps to be taken in cas			p or clean up with vacuum	
Waste Disposal Method	-	•	ial may be disposed under	
•			and local environmental re	
Section 10. Regulatory				
NFPA Rating (U.S.A.)		: Health = 1	•	Reactivity = 0
WHMIS Legislation (Can	ada)	•	not a controlled product.	
Transport Information UN No.		: None allocated.	not a hazardous material.	
Section 11. Other Infor	mation			
References :		6) IARC Monoara	ohs on the Evaluation of the	Carcinogenic Risk of Chemicals to
			bon Black and Some Nitro	
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)

Product :						
AR-200TD/AL-160TD (B	lack Toner)					
Section 2. Supplier's N		ddress				
Sharp Corporation						
22-22 Nagaike-cho, Aben	o-ku. Osaka.	Japan				
Local suppliers are listed			e nearest supplie	r for additional in	formation.	
	(Country)			nd Telephone Nu		
	U.S.A.	Sharp E	Electronics Corpo		,	
				nformation: 1-800	-237-4277	
				umber : 1-800-2		
	Canada	-	Electronics of Ca			
				formation: 905-8	90-2100	
				umber : 1-800-2		
	United	-	Electronics (U.K.)			
	Kingdom	•	· · ·	formation: 01923	3-474013	
	ranguom	looping				
Section 3. Ingredients						
<b>Ingredients</b>		<u>CAS No.</u>	<b>Proportion</b>	<u>OSHA PEL</u>	ACGIH TLV	Other Limits
Styrene acrylate copolym	ner	29497-14-1	> 88.0%	Not listed	Not listed	None
Carbon black		1333-86-4	< 6.0%	3.5mg/m	3.5mg/m	None
Iron oxide		1317-61-9	< 4.5%	Not listed	Not listed	None
Metal complex dye	1	09125-51-1	< 1.5%	Not listed	Not listed	None
	1	09125-50-0				
		00120 00 0	(total for all)			
		84179-66-8	(total for all)			
			(total for all)			
Section 4. Hazardous 1	dentificatior	84179-66-8	cy Overview)			
Toner is a fine, black pow	dentificatior	84179-66-8 <b>(Emergen</b> ng no immed	<b>cy Overview)</b> iate hazard. The			
Toner is a fine, black pow effects from exposure bas	<b>dentificatio</b> r /der possessi sed on anima	84179-66-8 <b>(Emergen</b> ng no immed I tests perforr	cy Overview) iate hazard. The ned using toner.	When used as i		)
Toner is a fine, black pow effects from exposure bas to instructions, studies do	dentification der possessi sed on anima o not indicate	84179-66-8 <b>(Emergen</b> ng no immed I tests perforr	cy Overview) iate hazard. The ned using toner.	When used as i		)
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza	dentification der possessi sed on anima o not indicate rd Data	84179-66-8 <b>(Emergen</b> ng no immed I tests perforr any sympton	cy Overview) iate hazard. The ned using toner. ms of fibrosis wil	When used as i l occur.	ntended according	)
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza	dentificatior /der possessi sed on anima o not indicate rd Data alation?	84179-66-8 n (Emergene ng no immed I tests perforr any sympton SI	cy Overview) iate hazard. The ned using toner. ms of fibrosis wil kin?	When used as i l occur. Ingestion	ntended according	]
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh	dentification der possessi sed on anima o not indicate rd Data alation? Yes	84179-66-8 n (Emergeno ng no immed I tests perforr any sympton SI N	cy Overview) iate hazard. The med using toner. ms of fibrosis wil <u>kin?</u> lo Po	When used as i l occur. <u>Ingestion</u> ossible but very u	ntended according	)
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A	dentification der possessi sed on anima o not indicate rd Data alation? Yes Acute oral tox	84179-66-8 n (Emergeno ng no immed I tests perforr any sympton SI N icity LD50	cy Overview) iate hazard. The med using toner. ms of fibrosis wil din? lo Po of this toner is o	When used as i <u>I occur.</u> Ingestion pssible but very uver 2,000mg/kg.	ntended according	)
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A	dentification der possessi sed on anima o not indicate nd Data alation? Yes Acute oral tox Autagenicity -	84179-66-8 <b>(Emergen</b> ng no immed I tests perforr any sympton <b>SI</b> N icity LD50 The result	cy Overview) iate hazard. The med using toner. ms of fibrosis wil kin? lo Po of this toner is o of Ames test is n	When used as i <u>I occur.</u> Ingestion ossible but very uver 2,000mg/kg. negative.	ntended according	
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir	dentification der possessi sed on anima o not indicate rd Data alation? Yes Acute oral tox Autagenicity - n 1996 the IA	84179-66-8 <b>(Emergen</b> ng no immed I tests perforr any sympton SI N icity LD50 The result RC reevaluat	cy Overview) iate hazard. The med using toner. ms of fibrosis wil kin? lo Po of this toner is o of Ames test is n red carbon black	When used as i l occur. Ingestion ossible but very u ver 2,000mg/kg. negative. as a Group 2B c	ntended according 2 nusual. arcinogen (possib	
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir human ca	dentification der possessi sed on anima o not indicate rd Data alation? Yes Acute oral tox Autagenicity - n 1996 the IA arcinogen). T	84179-66-8 <b>(Emergeno</b> ng no immed I tests perforr any sympton SI SI N icity LD50 The result RC reevaluat his classificat	cy Overview) iate hazard. The med using toner. ms of fibrosis wil sin? lo Pro- of this toner is o of Ames test is n red carbon black ion is given to ch	When used as i <u>I occur.</u> Ingestion ossible but very uver 2,000mg/kg. negative. as a Group 2B commicals for which	ntended according ? nusual. arcinogen (possib n there is	le
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir human ca inadequat	dentification der possessi sed on anima o not indicate rd Data alation? Yes Acute oral tox Autagenicity - n 1996 the IA arcinogen). T te human evic	84179-66-8 <b>(Emergen</b> ng no immed I tests perforr any sympton <b>SI</b> N icity LD50 The result RC reevaluat his classificat dence, but su	cy Overview) iate hazard. The med using toner. ms of fibrosis wil <u>kin?</u> lo Pe of this toner is o of Ames test is n red carbon black ion is given to ch fficient animal evi	When used as i <u>I occur.</u> Ingestion ossible but very uver 2,000mg/kg. as a Group 2B c memicals for which idence on which t	ntended according ? nusual. arcinogen (possib n there is to base an opinion	le
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir human ca inadequat carcinoge	dentification der possessi sed on anima o not indicate rd Data alation? Yes Acute oral tox Autagenicity - n 1996 the IA arcinogen). T te human evic enicity. The c	84179-66-8 <b>(Emergen</b> ng no immed I tests perforr any sympton SI SI N icity LD50 The result RC reevaluat his classificat dence, but su lassification is	cy Overview) iate hazard. The med using toner. ms of fibrosis wil interview of this toner is o of Ames test is n red carbon black ion is given to ch fficient animal evis s based upon the	When used as in <u>I occur.</u> <u>Ingestion</u> possible but very unver 2,000mg/kg. as a Group 2B composition of the development of	ntended according ? nusual. arcinogen (possib n there is to base an opinion lung tumors in rate	le
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir human ca inadequat carcinoge receiving	dentification der possessi sed on anima o not indicate rd Data alation? Yes Acute oral tox Autagenicity - n 1996 the IA arcinogen). T te human evid enicity. The c chronic inhala	84179-66-8 <b>(Emergen</b> Ing no immed I tests perforr any sympton SI SI N icity LD50 The result RC reevaluat his classificat classification is ation exposur	cy Overview) iate hazard. The med using toner. ms of fibrosis wil cin? lo Pe of this toner is o of Ames test is n red carbon black ion is given to ch fficient animal evi s based upon the es to free carbor	When used as in <u>I occur.</u> <u>Ingestion</u> possible but very unver 2,000mg/kg. as a Group 2B contemporal for which idence on which the development of a black at levels the the development of the black at levels	ntended according <u>?</u> nusual. arcinogen (possib n there is to base an opinion lung tumors in rate nat induce	le
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir human ca inadequat carcinoge receiving particle ov	dentification der possessi- sed on anima o not indicate rd Data alation? Yes Acute oral tox Autagenicity - n 1996 the IA arcinogen). T te human evic enicity. The c chronic inhala- verload of the	84179-66-8 <b>(Emergeno</b> ng no immed I tests perforr any sympton Support Support N icity LD50 The result RC reevaluat his classificat dence, but sub classification is ation exposur lung. Studie	cy Overview) iate hazard. The med using toner. ms of fibrosis will in this toner is of of this toner is of of Ames test is n and carbon black ion is given to ch fficient animal evis is based upon the res to free carbor as performed in a	When used as in <u>I occur.</u> <u>Ingestion</u> possible but very unver 2,000mg/kg. as a Group 2B comparison providence on which the development of the black at levels the animal models other animal models other black at levels the animal models the animal models other animal models the animal models other animal mod	ntended according 2 nusual. arcinogen (possib 1 there is 10 base an opinion lung tumors in rate nat induce her than rats did	le of s
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir human ca inadequat carcinoge receiving particle ov not show	dentification der possessi- sed on anima o not indicate rd Data alation? Yes Acute oral tox Autagenicity - n 1996 the IA arcinogen). T te human evice chronic inhala- verload of the any associat	84179-66-8 <b>(Emergeno</b> ng no immed I tests perforr any sympton Support Support icity LD50 The result RC reevaluat his classificat dence, but sub lassification is ation exposur lung. Studie ion between of	cy Overview) iate hazard. The med using toner. ms of fibrosis will kin? lo Pro of this toner is o of Ames test is n ed carbon black ion is given to ch fficient animal evis s based upon the es to free carbor es performed in a carbon black and	When used as in <u>I occur.</u> <u>Ingestion</u> possible but very unver 2,000mg/kg. the as a Group 2B comparison the as a Group 2B comparison the development of the animal models off the animal models off the lung tumors. M	ntended according nusual. arcinogen (possib there is to base an opinion lung tumors in rate nat induce her than rats did oreover, a two-yea	le of s
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir human ca inadequat carcinoge receiving particle ov not show	dentification der possessi- sed on anima o not indicate rd Data alation? Yes Acute oral tox Autagenicity - n 1996 the IA arcinogen). T te human evice chronic inhala- verload of the any associat	84179-66-8 <b>(Emergeno</b> ng no immed I tests perforr any sympton Support Support icity LD50 The result RC reevaluat his classificat dence, but sub lassification is ation exposur lung. Studie ion between of	cy Overview) iate hazard. The med using toner. ms of fibrosis will kin? lo Pro of this toner is o of Ames test is n ed carbon black ion is given to ch fficient animal evis s based upon the es to free carbor es performed in a carbon black and	When used as in <u>I occur.</u> <u>Ingestion</u> possible but very unver 2,000mg/kg. the as a Group 2B comparison the as a Group 2B comparison the development of the animal models off the animal models off the lung tumors. M	ntended according 2 nusual. arcinogen (possib 1 there is 10 base an opinion lung tumors in rate nat induce her than rats did	le of s
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir human ca inadequat carcinoge receiving particle ov not show cancer bio	dentification der possessi sed on anima o not indicate rd Data alation? Yes Acute oral tox Autagenicity - n 1996 the IA arcinogen). T te human evid enicity. The c chronic inhala verload of the any associat oassay using	84179-66-8 <b>(Emergeno</b> ng no immed I tests perforr any sympton SI SI N icity LD50 The result RC reevaluat his classificat classification is ation exposur a lung. Studie ion between a typical tone	cy Overview) iate hazard. The med using toner. ms of fibrosis will kin? lo Pro of this toner is o of Ames test is n ed carbon black ion is given to ch fficient animal evis s based upon the es to free carbor es performed in a carbon black and	When used as in <u>I occur.</u> <u>Ingestion</u> possible but very unver 2,000mg/kg. the as a Group 2B comparison the advelopment of the advelopment of	ntended according nusual. arcinogen (possib there is to base an opinion lung tumors in rate nat induce her than rats did oreover, a two-yea	le of s
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir human ca inadequat carcinoge receiving particle ov not show cancer bio association	dentification der possessi sed on anima <u>o not indicate</u> rd Data <u>alation?</u> Yes Autagenicity - n 1996 the IA arcinogen). T te human evic enicity. The c chronic inhals verload of the any associat oassay using on between to n a study in ra	84179-66-8 <b>(Emergend</b> Ing no immed I tests perform any sympton Support Support I tests perform any sympton Support N icity LD50 The result RC reevaluat his classification is ation exposure ation exposure a typical tone oner exposure ats of chronic	cy Overview) iate hazard. The med using toner. ms of fibrosis will iate hazard. The med using toner. ms of fibrosis will is of fibrosis will is fibrosis will be wil	When used as in <u>I occur.</u> <u>Ingestion</u> possible but very unver 2,000mg/kg. negative. as a Group 2B comparison idence on which the advelopment of the black at levels the animal models other animal models other	ntended according nusual. arcinogen (possib there is to base an opinion lung tumors in rate nat induce her than rats did oreover, a two-yea black demonstrate	le of s
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir human ca inadequat carcinoge receiving particle ov not show cancer bio association Chronic Effect : Ir moderate	dentification der possessi sed on anima o not indicate rd Data alation? Yes Autagenicity - n 1996 the IA arcinogen). T te human evic enicity. The c chronic inhala verload of the any associat oassay using on between to n a study in ra	84179-66-8 <b>(Emergen</b> ng no immed I tests perforr any sympton SI SI N icity LD50 The result RC reevaluat his classificat dence, but sur lassification is ation exposur a typical tone oner exposure ats of chronic ng fibrosis wa	cy Overview) iate hazard. The med using toner. ms of fibrosis will cin? of this toner is of of Ames test is n ted carbon black ion is given to ch fficient animal evid s based upon the es to free carbor es performed in a carbon black and er preparation co e and tumor deve inhalation expos as observed in 92	When used as in <u>I occur.</u> <u>Ingestion</u> possible but very un ver 2,000mg/kg. as a Group 2B con- memicals for which idence on which the development of the black at levels the animal models other animal models o	ntended according nusual. arcinogen (possib n there is to base an opinion lung tumors in rate nat induce her than rats did oreover, a two-yes plack demonstrate oner, a mild to the high concent-	le of s ar d no
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir human ca inadequat carcinoge receiving particle ov not show cancer bio associatio Chronic Effect : Ir moderate ration (16	dentification der possessi sed on anima o not indicate rd Data alation? Yes Autagenicity - n 1996 the IA arcinogen). T te human evic enicity. The c chronic inhala verload of the any associat oassay using on between to n a study in ra degree of lui img/m <sup>3</sup> ) expo	84179-66-8 <b>(Emergen</b> ng no immed I tests perforr any sympton <b>SI</b> SI N icity LD50 The result RC reevaluat this classificat dence, but sur lassification is ation exposure a typical tone oner exposure ats of chronic ng fibrosis wa sure group, a	cy Overview) iate hazard. The med using toner. ms of fibrosis will kin? lo Pe of this toner is o of Ames test is n red carbon black ion is given to ch fficient animal evis s based upon the res to free carbor es performed in a carbon black and er preparation co e and tumor deve inhalation expos as observed in 92 and a minimal to	When used as in <u>I occur.</u> <u>Ingestion</u> possible but very unver 2,000mg/kg. as a Group 2B content of the development of the development of the black at levels the animal models other the development in rats. But an ing carbon be block at levels the difference on which the development of the black at levels the animal models other the difference of the task of the rats in the difference of the task of the rats in the difference of the task of the rats in the difference of the task of task of the task of	ntended according nusual. arcinogen (possible there is to base an opinion lung tumors in rate that induce her than rate did oreover, a two-yea black demonstrate oner, a mild to the high concent- rosis was noted ir	le of s ar d no
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir human ca inadequat carcinoge receiving particle ov not show cancer bio associatio Chronic Effect : Ir moderate ration (16	dentification der possessi sed on anima o not indicate rd Data alation? Yes Autagenicity - n 1996 the IA arcinogen). T te human evid enicity. The c chronic inhala verload of the any associat oassay using on between to n a study in ra degree of lui img/m <sup>3</sup> ) expo	84179-66-8 <b>(Emergen</b> ng no immed I tests perforr any sympton <b>SI</b> SI N icity LD50 The result RC reevaluat this classificat dence, but sur lassification is ation exposure a typical tone oner exposure ats of chronic ng fibrosis wa sure group, a	cy Overview) iate hazard. The med using toner. ms of fibrosis will kin? lo Pe of this toner is o of Ames test is n red carbon black ion is given to ch fficient animal evis s based upon the res to free carbor es performed in a carbon black and er preparation co e and tumor deve inhalation expos as observed in 92 and a minimal to	When used as in <u>I occur.</u> <u>Ingestion</u> possible but very unver 2,000mg/kg. as a Group 2B content of the development of the development of the black at levels the animal models other the development in rats. But an ing carbon be block at levels the difference on which the development of the black at levels the animal models other the difference of the task of the rats in the difference of the task of the rats in the difference of the task of the rats in the difference of the task of task of the task of	ntended according nusual. arcinogen (possible there is to base an opinion lung tumors in rate that induce her than rate did oreover, a two-yea black demonstrate oner, a mild to the high concent- rosis was noted ir	le of s ar d no
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir human ca inadequat carcinoge receiving particle ov not show cancer bia associatio Chronic Effect : Ir moderate ration (16 22% of th	dentification der possessi sed on anima o not indicate rd Data alation? Yes Acute oral tox Autagenicity - n 1996 the IA arcinogen). T te human evic enicity. The c chronic inhala verload of the any associat oassay using on between to n a study in ra degree of lui mg/m <sup>3</sup> ) expo ne animals in	84179-66-8 <b>(Emergen</b> Ing no immed I tests perform any sympton <b>SI</b> N icity LD50 The result RC reevaluat his classificat dence, but sur- lassification is ation exposure a typical tone oner exposure ats of chronic ng fibrosis was sure group, at the middle (4)	cy Overview) iate hazard. The med using toner. ms of fibrosis will cin? lo Pe of this toner is o of Ames test is m red carbon black ion is given to ch fficient animal evis is based upon the es to free carbor es performed in a carbon black and er preparation co e and tumor deve inhalation expos as observed in 92 and a minimal to m mg/m <sup>3</sup> ) exposure	When used as in <u>I occur.</u> <u>Ingestion</u> possible but very un ver 2,000mg/kg. as a Group 2B conserved as a Group 2B c	ntended according nusual. arcinogen (possible there is to base an opinion lung tumors in rate hat induce her than rats did oreover, a two-yea black demonstrate oner, a mild to the high concent- rosis was noted ir ilmonary change v	le of s ar d no
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir human ca inadequat carcinoge receiving particle or not show cancer bid associatio Chronic Effect : Ir moderate ration (16 22% of th reported i	dentification der possessi sed on anima o not indicate rd Data alation? Yes Acute oral tox Autagenicity - n 1996 the IA arcinogen). T te human evic enicity. The c chronic inhals verload of the any associat oassay using on between to n a study in ra degree of lui img/m <sup>3</sup> ) expo ne animals in in the lowest	84179-66-8 <b>(Emergen</b> Ing no immed I tests perform any sympton <b>SI</b> N icity LD50 The result RC reevaluat his classificat dence, but sur- lassification is ation exposure a typical tone oner exposure ats of chronic ng fibrosis was sure group, at the middle (4)	cy Overview) iate hazard. The med using toner. ms of fibrosis will cin? lo Pe of this toner is o of Ames test is m red carbon black ion is given to ch fficient animal evis is based upon the es to free carbor es performed in a carbon black and er preparation co e and tumor deve inhalation expos as observed in 92 and a minimal to m mg/m <sup>3</sup> ) exposure	When used as in <u>I occur.</u> <u>Ingestion</u> possible but very unver 2,000mg/kg. as a Group 2B content of the development of the development of the black at levels the animal models other the development in rats. But an ing carbon be block at levels the difference on which the development of the black at levels the animal models other the difference of the task of the rats in the difference of the task of the rats in the difference of the task of the rats in the difference of the task of task of the task of	ntended according nusual. arcinogen (possible there is to base an opinion lung tumors in rate hat induce her than rats did oreover, a two-yea black demonstrate oner, a mild to the high concent- rosis was noted ir ilmonary change v	le of s ar d no
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Haza Route(s) of Entry : Inh Health Hazards : A Carcinogenicity : Ir human ca inadequat carcinoge receiving particle ov not show cancer bia associatio Chronic Effect : Ir moderate ration (16 22% of th	dentification der possessi sed on anima o not indicate rd Data alation? Yes Acute oral tox Autagenicity - h 1996 the IA arcinogen). T te human evid enicity. The c chronic inhali- verload of the any associat oassay using on between to h a study in ra degree of lui- img/m <sup>3</sup> ) expo- ne animals in in the lowest cposures.	84179-66-8 <b>(Emergen</b> Ing no immed I tests perform any sympton <b>SI</b> N icity LD50 The result RC reevaluat his classificat dence, but sur- lassification is ation exposure a typical tone oner exposure ats of chronic ng fibrosis was sure group, at the middle (4)	cy Overview) iate hazard. The med using toner. ms of fibrosis will cin? lo Pe of this toner is o of Ames test is m red carbon black ion is given to ch fficient animal evis is based upon the es to free carbor es performed in a carbon black and er preparation co e and tumor deve inhalation expos as observed in 92 and a minimal to m mg/m <sup>3</sup> ) exposure	When used as in <u>I occur.</u> <u>Ingestion</u> possible but very un ver 2,000mg/kg. as a Group 2B conserved as a Group 2B c	ntended according nusual. arcinogen (possible there is to base an opinion lung tumors in rate hat induce her than rats did oreover, a two-yea black demonstrate oner, a mild to the high concent- rosis was noted ir ilmonary change v	le of s ar d no

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

Section 5. Health Hazard Data (Co	ntinued)		
<b>Emergency and First Aid Procedure</b>			
Inhalation Remove	to fresh air. If effects occur	consult medical persor	inel.
	of contact, immediately flush		
Section 6. Physical Chemical Cha	racteristics		
BoilingMelting Point : Not appl	cable	Specific Gravity	: 1.1
Vapor Pressure : Not appl	cable	Solubility in Water	: Negligible
Vapor Density : Not appl		PH	: Not applicable
Evaporation Rate : Not appl		Viscosity	: Not applicable
Appearance : Fine pov		Color	: Black
Odor : Odorless	5		
Section 7. Fire and Explosion Dat	а		
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	: > 350 <sup>°</sup> C		
Flammable Limits	: (LEL); Not applicable		icable
Extinguishing Media	: CO <sub>2</sub> , dry chemical, foa	m or water	
Special Fire Fighting Procedure	: None		
Unusual Fire and Explosion Hazard	: This material has no un	usual fire or explosion ha	azards.
Sensitivity to Mechanical Impact	: None		
Sensitivity to Static Charge	: None		
Section 8. Reactivity Data	0.01		
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 H	andling and Use		
Personal Protection Information (Re		and Protective Glove)	
Use of a dust mask is recomm			
term exposure, as with any no			
Engineering Control / Ventilation			
Work / Hygienic Practice	: Inhalation should be mir	imized as with any non-	toxic dust.
Steps to be taken in case of Spill or			
Waste Disposal Method	: Waste material may		
·		al environmental regula	
		-	
Section 10. Regulatory Information			
NFPA Rating (U.S.A.)		•	tivity = 0
WHMIS Legislation (Canada)	: This product is not a co		
Transport Information	: This product is not a ha	zardous material.	
UN No.	: None allocated.		
Oradian 44 Other 1.6 di			
Section 11. Other Information		- Evelveder (d. C	
			cinogenic Risk of Chemicals to
Humans, Vol. 65, Printing Process a	nd Printing inks, Carbon Blae	ck and Some Nitro Com	pounds, Lyon,
pp-149-261	0 D · · · · -		
H. Muhle, B. Bellmann, O. Creutzenl			
P. Morrow, U. Mohr, S. Takenaka, a			oner upon Chronic
Inhalation Exposure in Rats. Fundar	nental and Applied Toxicolog	gy 17, pp. 280-299	

MSDS No. F-00871

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

Section 1. Product Identification

#### Product : AR-400NT1/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-00881

#### 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	Sharp Electronics (U.K.) Ltd.
Kingdom	Telephone number for information: 01923-474013
•	

Ingredients*	CAS No.	<b>Proportion</b>	<u>OSHA PEL</u>	ACGIH TLV	Other Limits
Carbon black	1333-86-4	< 9%	3.5mg/m៓	3.5mg/m្ថ័	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 mi	xture variations. Please of	consult the packaging	for the MSDS refere	nce number for your p	articular 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		
Route(s) of Entry : Inhala	ation?	Skin?	Ingestion?
· · · · · · · · · · · · · · · · · · ·	Yes	No	Possible but very unusual.

**Health Hazards** : Acute Oral Toxicity: The LDL<sub>0</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

Date Revised: April 26, 1999 Date Issued : December 1, 1998

# MATERIAL SAFETY DATA SHEET (2/2)

	( <b>6</b> , ( <b>1</b> , 1)		MSDS No. F-008711
Section 5. Health Hazard Data			
Emergency and First Aid Proce			
	nove to fresh air. If effects occur		
Eye In o	case of contact, immediately flush	eyes with water for 15	minutes.
Section 6. Physical Chemical		Specific Crovity	: 1.1
	t applicable	Specific Gravity	
	t applicable	Solubility in Water	: Negligible
	t applicable	PH	: Not applicable
	t applicable	Viscosity	: Not applicable
	e powder orless	Color	: Black
	oness		
Section 7. Fire and Explosion			
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	$: > 350^{\circ}C$		
Flammable Limits	: (LEL); Not applicable	(UEL); Not appli	cable
Extinguishing Media	: CO <sub>2</sub> , dry chemical, foa		
Special Fire Fighting Procedure			
Unusual Fire and Explosion Ha		usual fire or explosion ha	zards
Sensitivity to Mechanical Impa			
Sensitivity to Static Charge	: None		
g-			
Section 8. Reactivity Data			
Stability	: Stable		
Incompatibility (Material to Avo	oid) : None		
Hazardous Decomposition	; CO and NOx		
Hazardous Polymerization	: Will not occur.		
Section 9. Precautions for Sa			
Personal Protection Informatio			
	commended when handling a larg	ge quantity of toner or du	iring long
term exposure, as with a			
Engineering Control / Ventilation	•		
Work / Hygienic Practice	: Inhalation should be mir		
Steps to be taken in case of Sp			
Waste Disposal Method		be disposed under condi	
	tederal, state and loc	al environmental regulat	ions.
Section 10. Regulatory Inform	ation		
NFPA Rating (U.S.A.)		ability = 1 React	tivity = 0
WHMIS Legislation (Canada)	: This product is not a co		avity – O
Transport Information	: This product is not a to		
UN No.	: None allocated.	zaruous material.	
	. None allocated.		
Section 11. Other Information			
	C (1996) IARC Monographs on th	e Evaluation of the Card	inogenic Risk of Chemicals to
	ess and Printing inks, Carbon Bla		
pp-149-261			
	utzenberg, C. Dasenbrock, H. Err	st. R. Kilpper, J. C. Mac	Kenzie.
	aka, and R. Mermelstein (1991) P		
	Fundamental and Applied Toxicol		
		- <del> </del>	

MSDS No. F-00881

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

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

Charp	Corno	rotion
Sharp	COIDO	nauon

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	Sharp Electronics (U.K.) Ltd.
Kingdom	Telephone number for information: 01923-474013
-	

### Section 3. Ingredients

Ingredients	<u>CAS No.</u>	<b>Proportion</b>	<u>OSHA PEL</u>	ACGIH TLV	Other Limits
Carbon black	1333-86-4	< 4%	3.5mg/m្វ័	3.5mg/m្ថ័	None
Silica	68909-20-6	< 1%	15mg/m <sup>°</sup>	10mg/m³	None
Styrene -acrylate polyes	ster 149367-99-7	< 55%	Not listed	Not listed	None
Polyester resin 1 N	IJ 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? 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 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

Date Revised: November 15, 1999 Date Issued : December 1, 1998

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

MSDS No. F-00881

Section 5. Health Hazard Data	(Continued)		10303 100.1 -00881
Emergency and First Aid Procee			
	ove to fresh air. If effects occ	cur, consult medical persor	nel
	ase of contact, immediately fl		
Section 6. Physical Chemical	Characteristics		
	applicable	Specific Gravity	: 1.2
	applicable	Solubility in Water	: Negligible
	applicable	PH	: Not applicable
• •	applicable	Viscosity	: Not applicable
-	e powder	Color	: Black
Odor : Odo	rless		
Section 7. Fire and Explosion	Data		
Flash Point (Method Used)	: More than 150 <sup>0</sup> C (C	C.O.C.)	
Ignition Temperature	: No data available		
Flammable Limits	: (LEL); Not known	(UEL); Not know	wn
Extinguishing Media	: CO <sub>2</sub> , dry chemical, f	oam or water	
Special Fire Fighting Procedure			
Unusual Fire and Explosion Haz		unusual fire or explosion ha	azards.
Sensitivity to Mechanical Impac			
Sensitivity to Static Charge	: None		
Section 8. Reactivity Data			
Stability	: Stable		
Incompatibility (Material to Avoi			
Hazardous Decomposition		Carbon monoxide when hea	ated at high
Herendeus Dehmenisetien	temperature. (> 300 <sup>0</sup>	-C)	
Hazardous Polymerization	: Will not occur.		
Section 9. Precautions for Saf	o Handling and Lleo		
Personal Protection Information		on and Protoctive Glove)	
	commended when handling a		
term exposure, as with ar		large quantity of toner of the	
Engineering Control / Ventilation			
Work / Hygienic Practice		minimized as with any non-	toxic dust
Steps to be taken in case of Spi			
Waste Disposal Method		ay be disposed under cond	
Hadio Diepocal memora		local environmental regula	
Section 10. Regulatory Informa	ation		
NFPA Rating (U.S.A.)		mmability = 1 Read	ctivity = 0
WHMIS Legislation (Canada)	: This product is not a		-
Transport Information	: This product is not a		
UN No.	: None allocated.		
Section 11. Other Information			
			cinogenic Risk of Chemicals to
Humans, Vol. 65, Printing Proce	ss and Printing inks, Carbon E	Black and Some Nitro Com	pounds, Lyon,
pp-149-261			
H. Muhle, B. Bellmann, O. Creu	-		
D Morrow II Mohr S Takonak	a and D. Marmalatain (1001)	) Dulmonon, Doononoo to "	Tanar unan Chrania

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)

AR-C15NT1/T1/ST1 (I	Black Toner)					
Section 2. Supplier's		ddress				
Sharp Corporation						
22-22 Nagaike-cho, Ab	eno-ku Osaka	Japan				
Local suppliers are liste			e nearest supplie	r for additional int	formation	
	(Country)			nd Telephone Nu		
	U.S.A.	Sharp E	Electronics Corpo	•	,	
		Telepho	one number for ir	nformation: 1-800-	-237-4277	
		Emerge	ncy telephone n	umber : 1-800-25	55-3924	
	Canada		Electronics of Ca			
				nformation: 905-8		
		-		umber : 1-800-25	55-3924	
	United		Electronics (U.K.)			
	Kingdom	Telepho	one number for ir	nformation: 01923	-474013	
Section 3. Ingredients	6					
Ingredients		CAS No.	<b>Proportion</b>	<u>OSHA PĘL</u>	<u>ACGIH TĻV</u>	Other Limits
Carbon black		1333-86-4	< 8%	3.5mg/m	3.5mg/m៓	None
Polyester resin		75214-60-7		Not listed	Not listed	None
Propylene		9003-07-0	< 2%	Not listed	Not listed	None
Toner is a fine, black po effects from exposure b to instructions, studies	owder possessi based on anima do not indicate	ng no immedi I tests perforn	iate hazard. The ned using toner.	When used as in		)
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz	owder possessi based on anima do not indicate zard Data	ng no immedi I tests perforn any symptor	iate hazard. The ned using toner. ms of fibrosis wil	When used as in Il occur.	ntended according	]
Section 4. Hazardous Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : I	owder possessi based on anima do not indicate zard Data	ng no immedi I tests perforn any symptor	iate hazard. The ned using toner. ns of fibrosis wil	When used as in Il occur. Ingestion?	ntended according	]
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz	owder possessi based on anima do not indicate zard Data halation? Yes	ng no immedi I tests perforn any symptor Sk No	iate hazard. The ned using toner. <u>ns of fibrosis wil</u> <u>sin?</u> o Po	When used as in Il occur.	ntended according	)
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : <u>Ir</u>	owder possessi based on anima <u>do not indicate</u> zard Data <u>nhalation?</u> Yes Acute oral tox Mutagenicity -	ng no immedi I tests perforn any symptor Sk Sk Sk No No No No No No No No No No No No No	iate hazard. The ned using toner. <u>ns of fibrosis wil</u> <u>sin?</u> o Po of this toner is o of Ames test is r	When used as in <u>Ingestion</u> ossible but very un over 2,000mg/kg. negative.	ntended according	
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : <u>I</u> Health Hazards : Carcinogenicity :	owder possessi based on anima <u>do not indicate</u> zard Data <u>halation?</u> Yes Acute oral tox Mutagenicity - In 1996 the IA	ng no immedi I tests perforn any symptor <u>Sk</u> No icity LD50 The result o RC reevaluate	iate hazard. The ned using toner. <u>ms of fibrosis wil</u> <u>sin?</u> o Pe of this toner is o of Ames test is r ed carbon black	When used as in <u>Ingestion?</u> ossible but very un over 2,000mg/kg. negative. as a Group 2B ca	ntended according	
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : <u>I</u> Health Hazards : Carcinogenicity : human	owder possessi based on anima <u>do not indicate</u> <u>zard Data</u> <u>halation?</u> Yes Acute oral tox Mutagenicity - In 1996 the IA carcinogen). T	ng no immedi I tests perforn any symptor <u>Sk</u> No icity LD50 The result o RC reevaluate his classificati	iate hazard. The ned using toner. ns of fibrosis will <u>sin?</u> o Pe of this toner is o of Ames test is r ed carbon black ion is given to ch	When used as in <u>Ingestion?</u> ossible but very un over 2,000mg/kg. negative. as a Group 2B ca nemicals for which	ntended according nusual. arcinogen (possible there is	le
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : <u>I</u> Health Hazards : Carcinogenicity : human inadequ	owder possessi based on anima <u>do not indicate</u> <u>zard Data</u> <u>halation?</u> Yes Acute oral tox Mutagenicity - In 1996 the IA carcinogen). T uate human evic	ng no immedi I tests perforn any symptor <u>Sk</u> No icity LD50 The result o RC reevaluate his classificati dence, but suf	iate hazard. The ned using toner. <u>ns of fibrosis wil</u> <u>din?</u> o Pro- of this toner is o of Ames test is n ed carbon black ion is given to ch ficient animal ev	When used as in <u>Ingestion?</u> ossible but very un over 2,000mg/kg. negative. as a Group 2B ca nemicals for which idence on which t	ntended according nusual. arcinogen (possible there is o base an opinion	le
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : <u>I</u> Health Hazards : Carcinogenicity : human inadequ carcino	owder possessi based on anima <u>do not indicate</u> <u>zard Data</u> <u>halation?</u> Yes Acute oral tox Mutagenicity - In 1996 the IA carcinogen). T uate human evic genicity. The c	ng no immedi I tests perforn any symptor Sk No icity LD50 The result of RC reevaluate his classificati dence, but suf lassification is	iate hazard. The ned using toner. <u>ms of fibrosis wil</u> <u>stin?</u> o Pro- of this toner is o of Ames test is r ed carbon black ion is given to ch ficient animal ev s based upon the	When used as in <u>Ingestion?</u> ossible but very un over 2,000mg/kg. negative. as a Group 2B ca nemicals for which idence on which to a development of	ntended according nusual. arcinogen (possible there is o base an opinion lung tumors in rate	le
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : <u>I</u> Health Hazards : Carcinogenicity : human inadequ carcino receivir	owder possessi based on anima <u>do not indicate</u> <u>zard Data</u> <u>halation?</u> Yes Acute oral tox Mutagenicity - In 1996 the IA carcinogen). T uate human evid genicity. The c ng chronic inhala	ng no immedi I tests perform any symptor Sk Na icity LD50 The result of RC reevaluate his classification classification is ation exposure	iate hazard. The ned using toner. <u>ms of fibrosis wil</u> <u>stin?</u> o Pro- of this toner is o of Ames test is n ed carbon black ion is given to ch ficient animal ev s based upon the es to free carbor	When used as in <u>Ingestion</u> ossible but very un over 2,000mg/kg. negative. as a Group 2B ca nemicals for which idence on which the development of n black at levels th	ntended according nusual. arcinogen (possible there is o base an opinion lung tumors in rate nat induce	le
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : <u>In</u> Health Hazards : Carcinogenicity : human inadequ carcino receivin particle	owder possessi based on anima do not indicate zard Data halation? Yes Acute oral tox Mutagenicity - In 1996 the IA carcinogen). T uate human evid genicity. The c ng chronic inhala overload of the	ng no immedi I tests perform any symptor Sk Na icity LD50 The result of RC reevaluate his classification classification is ation exposure lung. Studie	iate hazard. The ned using toner. <u>ms of fibrosis wil</u> <u>sin?</u> o Pro- of this toner is o of Ames test is n ed carbon black ion is given to ch ficient animal ev s based upon the es to free carbon es performed in a	When used as in <u>Ingestion</u> ossible but very un over 2,000mg/kg. negative. as a Group 2B ca hemicals for which idence on which t e development of h black at levels thanimal models oth	ntended according nusual. arcinogen (possible there is o base an opinion lung tumors in rate nat induce uer than rats did	le of S
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : <u>I</u> Health Hazards : Carcinogenicity : human inadequ carcino receivir particle not sho	bwder possessi based on anima do not indicate zard Data halation? Yes Acute oral tox Mutagenicity - In 1996 the IA carcinogen). T uate human evid genicity. The c og chronic inhala overload of the wany associat	ng no immedi I tests perform any symptom Sk Na icity LD50 The result of RC reevaluate his classification classification is ation exposure lang. Studie ion between of	iate hazard. The med using toner. ms of fibrosis will <u>kin?</u> o Pro- of this toner is o of Ames test is n ed carbon black ion is given to ch ficient animal ev is based upon the es to free carbon es performed in a carbon black and	When used as in <u>Ingestion</u> ossible but very un over 2,000mg/kg. negative. as a Group 2B ca nemicals for which idence on which t e development of n black at levels thanimal models oth d lung tumors. Mo	ntended according nusual. arcinogen (possible there is o base an opinion lung tumors in rats nat induce her than rats did preover, a two-yea	le of s
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : <u>I</u> Health Hazards : Carcinogenicity : human inadequ carcino receivir particle not sho cancer	bwder possessi based on anima do not indicate zard Data halation? Yes Acute oral tox Mutagenicity - In 1996 the IA carcinogen). T uate human evic genicity. The c ogenicity. The c overload of the wany associat bioassay using	ng no immedi I tests perform any symptom Sk Na icity LD50 The result of RC reevaluate his classification classification is ation exposure a lung. Studie ion between of a typical tone	iate hazard. The med using toner. ms of fibrosis will <u>sin?</u> o Pe of this toner is o of Ames test is r ed carbon black ion is given to ch ficient animal ev s based upon the es to free carbor es performed in a carbon black and er preparation co	When used as in <u>Ingestion</u> ossible but very un over 2,000mg/kg. negative. as a Group 2B ca nemicals for which idence on which t e development of n black at levels thanimal models oth d lung tumors. Mo	ntended according nusual. arcinogen (possible there is o base an opinion lung tumors in rate nat induce uer than rats did	le of s
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : <u>I</u> Health Hazards : Carcinogenicity : human inadequ carcino receivir particle not sho cancer associa Chronic Effect :	bwder possessi based on anima <u>do not indicate</u> <u>zard Data</u> <u>halation?</u> Yes Acute oral tox Mutagenicity - In 1996 the IA carcinogen). T uate human evic genicity. The c og chronic inhala overload of the w any associat bioassay using ation between to In a study in ra	ng no immedi I tests perform any symptor Sk Na icity LD50 The result of RC reevaluate his classification classification is ation exposure a typical tone oner exposure ats of chronic	iate hazard. The ned using toner. <u>ms of fibrosis wil</u> <u>din?</u> o Pro- of this toner is o of Ames test is n ed carbon black ion is given to ch ficient animal ev s based upon the es to free carbor es performed in a carbon black and er preparation co and tumor deve inhalation expos	When used as in <u>Ingestion</u> ossible but very un over 2,000mg/kg. negative. as a Group 2B ca nemicals for which idence on which t development of n black at levels the animal models othe d lung tumors. Mo- ontaining carbon b elopment in rats. sure to a typical to	ntended according nusual. arcinogen (possible o base an opinion lung tumors in rats nat induce her than rats did preover, a two-yea lack demonstrated oner, a mild to	le of s
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : <u>I</u> Health Hazards : Carcinogenicity : human inadequ carcino receivir particle not sho cancer associa Chronic Effect : modera	based on anima do not indicate zard Data halation? Yes Acute oral tox Mutagenicity - In 1996 the IA carcinogen). T uate human evic genicity. The c og chronic inhala overload of the wany associat bioassay using ation between to In a study in ra ate degree of lue	ng no immedi I tests perform any symptor Sk Na icity LD50 The result of RC reevaluate his classification classification is ation exposure a typical tone oner exposure ats of chronic ng fibrosis wa	iate hazard. The ned using toner. <u>ms of fibrosis wil</u> <u>din?</u> o Pro- of this toner is o of Ames test is r ed carbon black ion is given to ch ficient animal ev s based upon the es to free carbor es performed in a carbon black and er preparation co e and tumor deve inhalation expos us observed in 92	When used as in <u>Ingestion</u> ossible but very un over 2,000mg/kg. negative. as a Group 2B ca nemicals for which idence on which the development of n black at levels the animal models othe d lung tumors. Me ontaining carbon be elopment in rats. sure to a typical to 2% of the rats in the sure to a typical to 2% of the rats in the elocal sure to a typical to 2% of the rats in the elocal sure to a typical to 2% of the rats in the elocal sure to a typical to 2% of the rats in the elocal sure to a typical to 2% of the rats in the elocal sure to a typical to 2% of the rats in the elocal sure to a typical to a sure to a typica	ntended according nusual. arcinogen (possible o base an opinion lung tumors in rats nat induce her than rats did preover, a two-yea plack demonstrate oner, a mild to he high concent-	le of s ar d no
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : <u>I</u> Health Hazards : Carcinogenicity : human inadequ carcino receivir particle not sho cancer associa Chronic Effect : modera ration (	bwder possessi based on anima do not indicate zard Data halation? Yes Acute oral tox Mutagenicity - In 1996 the IA carcinogen). T uate human evic genicity. The c ng chronic inhala overload of the bioassay using ation between to In a study in ra ate degree of lui 16mg/m <sup>3</sup> ) expo	ng no immedi I tests perform any symptor Sk Na icity LD50 The result of RC reevaluate his classification classification is ation exposure a typical tone oner exposure ats of chronic ng fibrosis wa sure group, at	iate hazard. The ned using toner. <u>ms of fibrosis wil</u> <u>sin?</u> o Pe of this toner is o of Ames test is n ed carbon black ion is given to ch ficient animal ev s based upon the es to free carbor es performed in a carbon black and er preparation co e and tumor deve inhalation expos s observed in 92 nd a minimal to	When used as in <u>Ingestion</u> ossible but very un over 2,000mg/kg. negative. as a Group 2B ca nemicals for which idence on which the development of n black at levels the animal models othe dung tumors. Me ontaining carbon be elopment in rats. sure to a typical to 2% of the rats in the mild degree of fib	ntended according nusual. arcinogen (possible there is o base an opinion lung tumors in rats nat induce ter than rats did preover, a two-yea lack demonstrated oner, a mild to he high concent- rosis was noted ir	le of s ar d no
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : <u>I</u> Health Hazards : Carcinogenicity : human inadequ carcino receivir particle not sho cancer associa Chronic Effect : modera ration ( 22% of	bwder possessi based on anima do not indicate zard Data halation? Yes Acute oral tox Mutagenicity - In 1996 the IA carcinogen). T uate human evid genicity. The c ng chronic inhals overload of the wany associat bioassay using ation between to In a study in ra ate degree of lui 16mg/m <sup>3</sup> ) expo the animals in	ng no immedi I tests perform any symptom Sk Na icity LD50 The result of RC reevaluate his classification classification is ation exposure ation between of a typical tone oner exposure ats of chronic ng fibrosis wa sure group, at the middle (4r	iate hazard. The ned using toner. <u>ms of fibrosis wil</u> <u>sin?</u> o Pe of this toner is o of Ames test is n ed carbon black ion is given to ch ficient animal ev s based upon the es to free carbor es performed in a carbon black and er preparation co and tumor deve inhalation expos as observed in 92 nd a minimal to mg/m <sup>3</sup> ) exposure	When used as in Il occur. Ingestion? ossible but very un over 2,000mg/kg. negative. as a Group 2B ca nemicals for which idence on which the development of a black at levels the animal models other d lung tumors. More ontaining carbon be plopment in rats. sure to a typical to 2% of the rats in the mild degree of fib- g group, but no put	ntended according nusual. arcinogen (possible o base an opinion lung tumors in rats nat induce ter than rats did preover, a two-yea lack demonstrated oner, a mild to he high concent- rosis was noted in lmonary change v	le of s ar d no
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : II Health Hazards : Carcinogenicity : human inadequ carcino receivir particle not sho cancer associa Chronic Effect : modera ration ( 22% of reporte	bwder possessi based on anima do not indicate zard Data halation? Yes Acute oral tox Mutagenicity - In 1996 the IA carcinogen). T uate human evid genicity. The c ag chronic inhala overload of the wany associat bioassay using ation between to In a study in ra ate degree of lui 16mg/m <sup>3</sup> ) expo the animals in d in the lowest	ng no immedi I tests perform any symptom Sk Na icity LD50 The result of RC reevaluate his classification classification is ation exposure ation between of a typical tone oner exposure ats of chronic ng fibrosis wa sure group, at the middle (4r	iate hazard. The ned using toner. <u>ms of fibrosis wil</u> <u>sin?</u> o Pe of this toner is o of Ames test is n ed carbon black ion is given to ch ficient animal ev s based upon the es to free carbor es performed in a carbon black and er preparation co and tumor deve inhalation expos as observed in 92 nd a minimal to mg/m <sup>3</sup> ) exposure	When used as in <u>Ingestion</u> ossible but very un over 2,000mg/kg. negative. as a Group 2B ca nemicals for which idence on which the development of n black at levels the animal models othe dung tumors. Me ontaining carbon be elopment in rats. sure to a typical to 2% of the rats in the mild degree of fib	ntended according nusual. arcinogen (possible o base an opinion lung tumors in rats nat induce ter than rats did preover, a two-yea lack demonstrated oner, a mild to he high concent- rosis was noted in lmonary change v	le of s ar d no
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : In Health Hazards : Carcinogenicity : human inadequ carcino receivir particle not sho cancer associa Chronic Effect : modera ration ( 22% of reporte human	bwder possessi based on anima do not indicate zard Data halation? Yes Acute oral tox Mutagenicity - In 1996 the IA carcinogen). T uate human evid genicity. The c og chronic inhala overload of the wany associat bioassay using ation between to In a study in ra te degree of lui 16mg/m <sup>3</sup> ) expo the animals in d in the lowest exposures.	ng no immedi I tests perform any symptom Sk Na icity LD50 The result of RC reevaluate his classification classification is ation exposure ation exposure oner exposure ats of chronic ng fibrosis wa sure group, at the middle (4r	iate hazard. The ned using toner. <u>ms of fibrosis wil</u> <u>sin?</u> o Pe of this toner is o of Ames test is n ed carbon black ion is given to ch ficient animal ev s based upon the es to free carbor es performed in a carbon black and er preparation co and tumor deve inhalation expos as observed in 92 nd a minimal to mg/m <sup>3</sup> ) exposure	When used as in Il occur. Ingestion? ossible but very un over 2,000mg/kg. negative. as a Group 2B ca hemicals for which idence on which the e development of h black at levels the animal models other d lung tumors. More ontaining carbon be elopment in rats. sure to a typical to 2% of the rats in the mild degree of fib- e group, but no put	ntended according nusual. arcinogen (possible o base an opinion lung tumors in rats nat induce ter than rats did preover, a two-yea lack demonstrated oner, a mild to he high concent- rosis was noted in lmonary change v	le of s ar d no
Toner is a fine, black po effects from exposure b to instructions, studies Section 5. Health Haz Route(s) of Entry : <u>I</u> Health Hazards : Carcinogenicity : human inadequ carcino receivir particle not sho cancer associa Chronic Effect : modera ration ( 22% of reporte human Signs and Symptoms	bwder possessi based on anima do not indicate zard Data halation? Yes Acute oral tox Mutagenicity - In 1996 the IA carcinogen). T uate human evid genicity. The c og chronic inhala overload of the wany associat bioassay using ation between to In a study in ra te degree of lui 16mg/m <sup>3</sup> ) expo the animals in d in the lowest exposures. of Exposure	ng no immedi I tests perform any symptom <u>Sk</u> Na icity LD50 The result of RC reevaluate his classification classification is ation exposure ation exposure at typical tone oner exposure ats of chronic ng fibrosis wa sure group, at the middle (4r (1mg/m <sup>3</sup> ) exp	iate hazard. The med using toner. <u>ms of fibrosis wil</u> <u>sin?</u> o Pe of this toner is o of Ames test is n ed carbon black ion is given to ch ficient animal ev is based upon the es to free carbor es performed in a carbon black and er preparation co e and tumor deve inhalation exposi is observed in 92 nd a minimal to m mg/m <sup>3</sup> ) exposure	When used as in <u>Ingestion</u> ossible but very un over 2,000mg/kg. negative. as a Group 2B ca nemicals for which idence on which the development of a black at levels the animal models othe d lung tumors. May ontaining carbon be elopment in rats. sure to a typical to 2% of the rats in the mild degree of fible a group, but no put a most relevant le	ntended according nusual. arcinogen (possible o base an opinion lung tumors in rats nat induce ter than rats did preover, a two-yea lack demonstrated oner, a mild to he high concent- rosis was noted in lmonary change v	le of s ar d no

Date Revised: June 14, 1999 Date Issued: April 1, 1999

# MATERIAL SAFETY DATA SHEET (2/2)

Section 5. Health Hazard Data (Co		MSDS No. F-0092
Emergency and First Aid Procedure		
	o fresh air. If effects occur, consult medical	
Eye In case	f contact, immediately flush eyes with water	for 15 minutes.
Section 6. Physical Chemical Cha	acteristics	
BoilingMelting Point : Not appl		ity : 1.1
Vapor Pressure : Not appl		
Vapor Density : Not appl		: Not applicable
Evaporation Rate : Not appl		: Not applicable
Appearance : Fine pov		: Black
Odor : Odorles		
Section 7. Fire and Explosion Da	1	
Flash Point (Method Used)	: Not applicable	
Ignition Temperature	: > 350°C	
Flammable Limits	: (LEL); Not applicable (UEL); N	ot 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 explo	sion 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 H	ndling and lise	
	spiratory, Eye Protection and Protective (	Glove) <sup>.</sup>
	ended when handling a large quantity of tone	
term exposure, as with any ne	n-toxic dust.	
Engineering Control / Ventilation	: Not required.	
Work / Hygienic Practice	: Inhalation should be minimized as with an	ny non-toxic dust.
	Leak : Sweep up or clean up with vacuun	
Waste Disposal Method	: Waste material may be disposed under	
	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		
	96) IARC Monographs on the Evaluation of t	he Carcinogenic Risk of Chemicals
	d Printing inks, Carbon Black and Some Nitro	
pp-149-261	era, C. Dasenbrock, H. Ernst, R. Kilpper, J.	C. MacKenzie.
pp-149-261 H. Muhle, B. Bellmann, O. Creutzen	erg, C. Dasenbrock, H. Ernst, R. Kilpper, J. d R. Mermelstein (1991) Pulmonary Respon	

#### Date Revised: June 14, 1999 Date Issued : April 1, 1999

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

Section 1. Product I	dentification				111	505 NO. F-009
Product :	dentification					
AR-CN15NT6/T6/ST6	(Cvan Toner)					
Section 2. Supplier's		dress				
Sharp Corporation						
22-22 Nagaike-cho, At	peno-ku, Osaka, J	apan				
_ocal suppliers are list	ed below. Please	contact the	nearest supplie	r for additional inf	formation.	
	(Country)		(Name an	d Telephone Nu	ımber)	
	U.S.A.	Sharp E	lectronics Corpo	ration		
		Telepho	ne number for in	formation: 1-800	-237-4277	
		Emerger	ncy telephone nu	umber : 1-800-25	55-3924	
	Canada	Sharp E	lectronics of Car	nada Ltd.		
		Telepho	ne number for in	formation: 905-8	90-2100	
		•	• •	umber : 1-800-25	55-3924	
	United	•	lectronics (U.K.)			
	Kingdom	Telepho	ne number for in	formation: 01923	-474013	
ection 3. Ingredient	S					
Ingredients		CAS No.	<b>Proportion</b>	<u>OSHA PEL</u>	ACGIH TLV	Other Limits
Polyester resin	7	5214-60-7	> 85%	Not listed	Not listed	None
Organic pigment		147-14-8	< 6%	Not listed	Not listed	None
Boron compound	11	4803-11-1	< 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	: Inhalation?	Skin?	Ingestion?	
	Yes	No	Possible but very unusual.	
Health Hazards :	Acute oral tox	cicity LD50 of this tone	is over 2,000mg/kg.	
	Mutagenicity -	The result of Ames tes	t is negative.	
Carcinogenicity	: <u>NTP?</u>	IARC Monographs?	OSHA Regulated?	
	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 in22% 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.

Date Revised: June 14, 1999 Date Issued : April 1, 1999

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

MSDS No. F-00926

			MSDS NO. F-009
Section 6. Physical Chemical Char	acteristics		
BoilingMelting Point:Not appliVapor Pressure:Not appliVapor Density:Not appliEvaporation Rate:Not appliAppearance:Fine powOdor:Odorless	cable cable cable der	Specific Gravity Solubility in Water PH Viscosity Color	<ol> <li>1.1</li> <li>Negligible</li> <li>Not applicable</li> <li>Not applicable</li> <li>Red</li> </ol>
ection 7. Fire and Explosion Data	3		
Flash Point (Method Used) gnition Temperature Flammable Limits Extinguishing Media Special Fire Fighting Procedure Jnusual Fire and Explosion Hazard Sensitivity to Mechanical Impact Sensitivity to Static Charge	<ul> <li>Not applicable</li> <li>&gt; 350°C</li> <li>(LEL); Not applicable</li> <li>CO<sub>2</sub>, dry chemical, foam</li> <li>None</li> <li>This material has no unus</li> <li>None</li> <li>None</li> <li>None</li> </ul>		
ection 8. Reactivity Data			
Stability Incompatibility (Material to Avoid) Hazardous Decomposition Hazardous Polymerization Section 9. Precautions for Safe Ha	: Stable : None : CO and NOx : Will not occur.		
Personal Protection Information (Re Use of a dust mask is recomm term exposure, as with any no Engineering Control / Ventilation Nork / Hygienic Practice Steps to be taken in case of Spill or Naste Disposal Method	ended when handling a large n-toxic dust. : Not required. : Inhalation should be minir	e quantity of toner or du nized as with any non up with vacuum clean e disposed under cond	uring long toxic dust. er. itions which meet all
Section 10. Regulatory Information			
NFPA Rating (U.S.A.) WHMIS Legislation (Canada) Transport Information UN No.	: Health = 1 Flamma : This product is not a cont : This product is not a haza : None allocated.	trolled product.	tivity = 0
Section 11. Other Information References : H. Muhle, B. Bellmann, O. Creutzenb P. Morrow, U. Mohr, S. Takenaka, ar			

Inhalation Exposure in Rats. Fundamental and Applied Toxicology 17, pp. 280-299

#### Date Revised: June 14, 1999 Date Issued : April 1, 1999

MSDS No. F-00927

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

Section 1. Product Identification	
Product :	
AR-CN15NT7/T7/ST7(Magenta Toner)	
Section 2. Supplier's Name and Ad	dress
Sharp Corporation	
22-22 Nagaike-cho, Abeno-ku, Osaka, J	apan
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	Sharp Electronics (U.K.) Ltd.
Kingdom	Telephone number for information: 01923-474013
Section 3. Ingredients	

Ingredients Polyester resin	<u>CAS No.</u> 75214-60-7	Proportion > 85%	OSHA PEL Not listed	ACGIH TLV Not listed	<u>Other Limits</u> 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			
Route(s) of Entry	: Inhalation?	Skin?	Ingestion?	
	Yes	No	Possible but very unusual.	
Health Hazards :	Acute oral tox	icity LD50 of this toner	is over 2,000mg/kg.	
	Mutagenicity -	The result of Ames test	is negative.	
Carcinogenicity	<u>NTP?</u>	IARC Monographs?	OSHA Regulated?	
	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 in22% 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.

Date Revised: June 14, 1999 Date Issued : April 1, 1999

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

MSDS No. F-00927

			MSDS No. F-00927
Section 6. Physical Chemical Cha	racteristics		
BoilingMelting Point:Not appleVapor Pressure:Not appleVapor Density:Not appleEvaporation Rate:Not appleAppearance:Fine poweOdor:Odorless	icable icable icable vder	Specific Gravity Solubility in Water PH Viscosity Color	<ul> <li>1.1</li> <li>Negligible</li> <li>Not applicable</li> <li>Not applicable</li> <li>Red</li> </ul>
Section 7. Fire and Explosion Date	2		
Section 7. File and Explosion Da	a		
Flash Point (Method Used) Ignition Temperature Flammable Limits Extinguishing Media Special Fire Fighting Procedure Unusual Fire and Explosion Hazard Sensitivity to Mechanical Impact Sensitivity to Static Charge	<ul> <li>Not applicable</li> <li>&gt; 350°C</li> <li>(LEL); Not applicable</li> <li>CO<sub>2</sub>, dry chemical, foan</li> <li>None</li> <li>This material has no unu</li> <li>None</li> <li>None</li> <li>None</li> <li>None</li> </ul>		
Section 9 Beactivity Data			
Section 8. Reactivity Data			
Stability Incompatibility (Material to Avoid) Hazardous Decomposition Hazardous Polymerization	: Stable : None : CO and NOx : Will not occur.		
Section 9. Precautions for Safe H	andling and Use		
Personal Protection Information (Re Use of a dust mask is recomm term exposure, as with any no Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill or Waste Disposal Method	espiratory, Eye Protection a nended when handling a larg on-toxic dust. : Not required. : Inhalation should be mini <b>Leak</b> : Sweep up or clea : Waste material may b	e quantity of toner or du mized as with any non-te n up with vacuum cleane	ring long oxic dust. er. tions which meet all
Section 10. Regulatory Information	1		
NFPA Rating (U.S.A.) WHMIS Legislation (Canada) Transport Information UN No.		trolled product.	iivity = 0
Section 11. Other Information			
References : H. Muhle, B. Bellmann, O. Creutzen P. Morrow, U. Mohr, S. Takenaka, a			

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

MSDS No. F-00928

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

Ingredients	<u>CAS No.</u>	<b>Proportion</b>	<u>OSHA PEL</u>	ACGIH TLV	Other Limits
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	: Inhalation?	Skin?	Ingestion?	
	Yes	No	Possible but very unusual.	
Health Hazards :	Acute oral tox	icity LD50 of this toner	is over 2,000mg/kg.	
	Mutagenicity -	The result of Ames test	is negative.	
Carcinogenicity :	NTP?	IARC Monographs?	OSHA Regulated?	
	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 in22% 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.

Date Revised: June 14, 1999 Date Issued : April 1, 1999

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

MSDS No. F-00928

			MSDS No. F-00928
Section 6. Physical Chemical Ch	aracteristics		
Vapor Pressure: Not apVapor Density: Not ap		Specific Gravity Solubility in Water PH Viscosity Color	<ul> <li>1.1</li> <li>Negligible</li> <li>Not applicable</li> <li>Not applicable</li> <li>Red</li> </ul>
Section 7. Fire and Explosion D	ata		
Flash Point (Method Used) Ignition Temperature Flammable Limits Extinguishing Media Special Fire Fighting Procedure Unusual Fire and Explosion Hazar Sensitivity to Mechanical Impact Sensitivity to Static Charge	: Not applicable : > 350 <sup>0</sup> C : (LEL); Not applicable : CO <sub>2</sub> , dry chemical, foar : None		
Section 8. Reactivity Data			
Stability Incompatibility (Material to Avoid) Hazardous Decomposition Hazardous Polymerization	: Stable : None : CO and NOx : Will not occur.		
Section 9. Precautions for Safe	Handling and Use		
Personal Protection Information (I Use of a dust mask is recon term exposure, as with any Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill of Waste Disposal Method	nmended when handling a larg non-toxic dust. : Not required. : Inhalation should be min or Leak : Sweep up or cleat : Waste material may b	e quantity of toner or di imized as with any non- n up with vacuum clean	uring long toxic dust. her. litions which meet all
Section 10. Regulatory Information	on		
NFPA Rating (U.S.A.) WHMIS Legislation (Canada) Transport Information UN No.		ntrolled product.	ctivity = 0
Section 11. Other Information			
References :			
H. Muhle, B. Bellmann, O. Creutze P. Morrow, U. Mohr, S. Takenaka.			

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	on z.	Suppliers	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	Sharp Electronics (U.K.) Ltd.
Kingdom	Telephone number for information: 01923-474013
-	

Ingredients*	CAS No.	<b>Proportion</b>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	Other Limits
Carbon black	1333-86-4	< 7%	3.5mg/m៓	3.5mg/m្ថ័	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 mi	xture variations. Please of	consult the packaging	for the MSDS refere	nce number for your pa	articular 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		
Route(s) of Entry	: Inhalation?	Skin?	Ingestion?
	Yes	No	Possible but very unusual.

**Health Hazards** : Acute Oral Toxicity: The LDL<sub>0</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

:

Date Revised: November 15, 1999 Date Issued : July 1, 1999

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

			MSDS No. F-00941
Section 5. Health Hazard Data (Co			
<b>Emergency and First Aid Procedures</b>			
	o fresh air. If effects occur,	•	
Eye In case of	of contact, immediately flush	eyes with water for 15	minutes.
Section 6. Physical Chemical Char	acteristics		
BoilingMelting Point : Not appli	cable	Specific Gravity	: 1.1
Vapor Pressure : Not appli	cable	Solubility in Water	: Negligible
Vapor Density : Not appli	cable	PH	: Not applicable
Evaporation Rate : Not appli	cable	Viscosity	: Not applicable
Appearance : Fine pow	der	Color	: Black
Odor : Odorless			
Section 7. Fire and Explosion Dat	a		
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	: > 350 <sup>0</sup> C		
Flammable Limits	: (LEL); Not applicable	(UEL); Not appl	icable
Extinguishing Media	: CO <sub>2</sub> , dry chemical, foar		
Special Fire Fighting Procedure	: None		
Unusual Fire and Explosion Hazard	: This material has no unu	sual fire or explosion ha	azards.
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 NOx		
Hazardous Polymerization	: Will not occur.		
Section 9. Precautions for Safe Ha	andling and Use		
Personal Protection Information (Re		and Protective Glove)	
Use of a dust mask is recomm			
term exposure, as with any no		e quantity of terior of a	
Engineering Control / Ventilation			
Work / Hygienic Practice	: Inhalation should be min	mized as with any non-	toxic dust
Steps to be taken in case of Spill or			
Waste Disposal Method	: Waste material may b		
Hadio Diopodal Motiloa		al environmental regula	
		ai chivironnichtai regula	
Section 10. Regulatory Information			
NFPA Rating (U.S.A.)		ability = 1 Read	tivity = 0
WHMIS Legislation (Canada)	: This product is not a co		aivity = 0
Transport Information	: This product is not a haz		
UN No.	: None allocated.	aruous material.	
	. None allocated.		
Section 11. Other Information			
	96) IARC Monographs on th	e Evaluation of the Car	cinogenic Risk of Chemicals to
Humans, Vol. 65, Printing Process ar			
pp-149-261			אסטוועס, ביטוו,
H. Muhle, B. Bellmann, O. Creutzent	era C Desenbrock H Ern	st R Kilpper I C Mar	Kenzie
P. Morrow, U. Mohr, S. Takenaka, ar			
Inhalation Exposure in Rats. Funda	nemai anu Applieu Toxicol	<u>yy 17, pp. 200-299</u>	

Date Revised: November15, 1999 Date Issued :July 1, 1999

### **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 Add	ress	
Sharp Corporation		
22-22 Nagaike-cho, Abeno-ku, Osaka, Ja	pan	
Local suppliers are listed below. Please of	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	Sharp Electronics (U.K.) Ltd.	
Kingdom	Telephone number for information: 01923-474013	

Ingredients	CAS No.	<b>Proportion</b>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	Other Limits
Carbon black	1333-86-4	< 4%	3.5mg/m្ថ	3.5mg/m្ថ	None
Silica	68909-20-6	< 1%	15mg/m 3	10mg/m <sup>°</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?	<u>Skin?</u>	Ingestion?
	Yes	No	Possible but very unusual.
	Yes	No	Possible but very unusual.
Hoalth Hazarde	Acuto Toxicity:	1050 > 5000 ma/kg + 0.00 ma/k	$6.42 \text{ mg/l} / 4 \text{Hrs}^{-1}$

lealth 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 in22% 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-00951

			MSDS No. F-0095	
Section 5. Health Hazard Data (Contin				
Emergency and First Aid Procedures				
	resh air. If effects occur, con			
Eye In case of c	ontact, immediately flush eye	es with water for 15	minutes.	
Section 6. Physical Chemical Charac				
BoilingMelting Point : Not applicat		pecific Gravity	: 1.2	
Vapor Pressure : Not applicat		olubility in Water	: Negligible	
Vapor Density : Not applical			: Not applicable	
Evaporation Rate : Not applical		iscosity	: Not applicable	
Appearance : Fine powde	ć C	olor	: Black	
Odor : Odorless				
Section 7. Fire and Explosion Data				
Flash Point (Method Used) :	Not applicable			
Ignition Temperature	Not applicable			
Flammable Limits	(LEL); Not applicable	(UEL); Not appli	cable	
Extinguishing Media	CO <sub>2</sub> , dry chemical, foam or	water		
	None			
Unusual Fire and Explosion Hazard	This material has no unusua	al fire or explosion ha	zards.	
Sensitivity to Mechanical Impact	None	·		
Sensitivity to Static Charge	None			
Section 8 Posstivity Data				
Section 8. Reactivity Data Stability	Stable			
5	None			
	Phenol derivatives, Carbon	monovide when hea	ted at high	
nazardous Decomposition	temperature. (> $300^{\circ}$ C)	monoxide when hea		
Hazardous Polymerization	: Will not occur.			
	wiii not occur.			
Section 9. Precautions for Safe Hand				
Personal Protection Information (Resp	ratory, Eye Protection and	Protective Glove):	Use of a dust mask is	
recommended when handling a large qua	ntity of toner or during long te	erm exposure, as with	n any non-toxic dust.	
Engineering Control / Ventilation: Not re				
Work / Hygienic Practice: Inhalation sho	uld be minimized as with any	non-toxic dust.		
Steps to be taken in case of Spill or Le	ak : Sweep up or clean up	o with vacuum cleane	er.	
Waste Disposal Method: Waste material			all federal, state and local	
environmental	regulations.			
Section 10. Regulatory Information				
	Health = 1 Flammabili	ity – 1 React	ivity = 0	
• • •	This product is not a control	•		
	This product is not a hazard			
	None allocated.	ious material.		
	ויוטווס מווטטמוכע.			
Section 11. Other Information				
	IARC Monographs on the Ev			
Humans, Vol. 65, Printing Process and	rinting inks, Carbon Black ar	nd Some Nitro Comp	oounds, Lyon,	
pp-149-261				
H Muhlo B Bollmann O Croutzonbor	1 C Decembrack H Ernet E	Kilppor I C Moo	Konzio	

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 Sharp Electronics (U.K.) Ltd.	
Kingdom Telephone number for information: 01923-474013	
Section 3. Ingredients	

ocouon o. mgr	Guicinto				
<b>Ingredients</b>	<u>CAS No.</u>	<b>Proportion</b>	<u>OSHA PĘL</u>	<u>ACGIH TLV</u>	Other Limits
Carbon black	1333-86-4	< 10%	3.5mg/m្វ័	3.5mg/m្វ័	None
Silica	68909-20-6	< 1%	15mg/mັ	10mg/mັ	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. Hea	Ith Hazard Data			
Route(s) of En	try : Inhalation?	Skin?	Ingestion?	
	Yes	No	Possible but very unusual.	
Health Hazards	s : Health Hazards : A	cute Toxicity: LD50	> 2,000mg/kg. LC50 > 5.97 mg/L'4Hrs	
	Mutagenicity (Ames 7	[est): Negative. (S.ty	phimurium,Escherichia coli)	
	(Note: data is fro	m testing of similar n	naterials.)	
Carcinogenicity	In 1996 the IARC	reevaluated carbon	black as a Group 2B carcinogen (possible	
	human carcinogen). This	classification is give	n to chemicals for which there is	
	inadequate human evider	ice, but sufficient anir	mal evidence on which to base an opinion of	
	carcinogenicity. The clas	sification is based up	oon the development of lung tumors in rats	
	receiving chronic inhalatio	n exposures to free of	carbon black at levels that induce	
	particle overload of the lu	ng. Studies performe	ed in animal models other than rats did	
	not show any association	between carbon bla	ck and lung tumors. Moreover, a two-year	
	cancer bioassay using a f	typical toner preparat	tion containing carbon black demonstrated no	
	association between tone	r exposure and tumo	or 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 observe	d in 92% of the rats in the high concent-	
	ration (16mg/m <sup>3</sup> ) exposur	e group, and a minin	nal to mild degree of fibrosis was noted in	
	22% of the animals in the	middle (4mg/m <sup>3</sup> ) exp	posure group, but no pulmonary change was	
	reported in the lowest (1r	ng/m <sup>3</sup> ) exposure gro	up, the most relevant level to potential	
	human exposures.	· · ·		
Signs and Syn	nptoms of Exposure	:		
-	Minimal irritation to respir	atory tract may occu	r as with exposure to any non-toxic dust.	
			· · ·	

Medical Conditions Generally Aggravated by Exposure : None

Date Revised: October 1, 1997 Date Issued :May 16, 1994

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

MSDS No. F-0451

Emergency and First Aid Proced			
		ccur, consult medical persor	
Eye In ca	se of contact, immediately	flush eyes with water for 15	minutes.
ection 6. Physical Chemical C	haraatariatiaa		
	pplicable	Specific Gravity	: 1.2
	pplicable	Solubility in Water	: Negligible
•	pplicable	PH	: Not applicable
	pplicable	Viscosity	: Not applicable
Appearance : Fine		Color	: Black
Ddor : Odor			· Didok
	000		
ection 7. Fire and Explosion	Data		
Flash Point (Method Used)	: More than 150 <sup>0</sup> C (	C.O.C.)	
gnition Temperature	: No data available		
Flammable Limits		(UEL); Not applicable	
Extinguishing Media	: CO <sub>2</sub> , dry chemical	, foam or water	
Special Fire Fighting Procedure	: None		
Unusual Fire and Explosion Haza		o unusual fire or explosion h	azards.
Sensitivity to Mechanical Impact			
Sensitivity to Static Charge	: None		
ection 8. Reactivity Data			
Stability	: Stable		
Incompatibility (Material to Avoid		alines.	
Hazardous Decomposition		carbon monoxide when hea	ted to high temperatures
·	$(> 300^{\circ}C)$		0
Hazardous Polymerization	: Will not occur.		
Section 9. Precautions for Safe Personal Protection Information		tion and Protoctive Clave	
		a large quantity of toner or d	
term exposure, as with any	•	a large quantity of toner of a	
Engineering Control / Ventilation			
Nork / Hygienic Practice		e minimized as with any non-	toxic dust
Steps to be taken in case of Spill			
Waste Disposal Method			
		d local environmental regula	
Section 10. Regulatory Informat		ommobility - 1 - Door	ctivity = 0
WHMIS Legislation (Canada)		ammability = 1 Read a controlled product.	divity = 0
Fransport Information	•	a hazardous material.	
JN No.	: None allocated.	a hazardous material.	
Section 11. Other Information			
	(1996) IARC Monographs	on the Evaluation of the Car	cinogenic Risk of Chemicals
			5
References : IARC		Black and Some Nitro Com	pounds, Lyon,
		Black and Some Nitro Com	pounds, Lyon,
References : IARC Humans, Vol. 65, Printing Proces	s and Printing inks, Carbor enberg, C. Dasenbrock, H	. Ernst, R. Kilpper, J. C. Ma	cKenzie,

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	Sharp Electronics (U.K.) Ltd.
Kingdom	Telephone number for information: 01923-474013

Section 3. Ingre	edients				
<b>Ingredients</b>	CAS No.	<b>Proportion</b>	<u>OSHA PEL</u>	ACGIH TLV	Other Limits
Ferrite		> 97%	Not listed	Not listed	None
Zinc oxide	1314-13-2				
Iron oxide	1309-37-1				
Copper oxide	1317-38-0				
Magnesium oxic	le 1309-48-4				
Polyester resin	NJ TSRN 80101252-5001P	< 4%	Not listed	Not listed	None
Carbon black	1333-86-4	< 0.4%	3.5mg/m <sup>°</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?	Skin?	Ingestion?	
Yes	No	Possible but very unusual.	
Health Hazards : Acute Toxicity: LD50 >	5,000mg/kg. LC5	50 > 5.97 mg/L'4Hrs	
Mutagenicity (Ames Te	st): Negative. (S.t	yphimurium, Escherichia coli)	
(Note: data is from	testing of the incl	luded toner.)	
Carcinogenicity : In 1996 the IARC r	eevaluated carbo	n black as a Group 2B carcinogen (possible	
human carcinogen). This cl	lassification is give	en to chemicals for which there is	
inadequate human evidence	e, but sufficient an	imal evidence on which to base an opinion of	
carcinogenicity. The classif	ication is based u	pon the development of lung tumors in rats	
receiving chronic inhalation	exposures to free	e carbon black at levels that induce	
particle overload of the lung	J. Studies perform	ned in animal models other than rats did	
not show any association be	etween carbon bla	ack and lung tumors. While there have been no studies	to
date using developer, a two	o-year cancer bioa	assay using a typical toner preparation containing carbor	1
black (a small amount of tor	ner is included in t	the developer mixture) demonstrated no association betw	ween
toner exposure and tumor c	development in rat	ts.	
Signs and Symptoms of Exposure	:		
	ony tract may occ	ur as with exposure to any non-toxic dust	

Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust. **Medical Conditions Generally Aggravated by Exposure** : None

Date Revised: October 1, 1997 Date Issued : Feb. 1, 1997

### 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 Chemica	I Characteristics			
BoilingMelting Point : Not appl		Specific Gravity	: about 5	
Vapor Pressure : Not appl	icable	Solubility in Water	: Negligible	
Vapor Density : Not appl		PH	: Not applicable	
Evaporation Rate : Not appl		Viscosity	: Not applicable	
Appearance : Fine pov		Color	: Black	
Odor : Odorles	S			
	-			
Section 7. Fire and Explosic				
Flash Point (Method Used)	: Not applicable			
Ignition Temperature	: No data available			
Flammable Limits	: (LEL); Not applicable	(UEL); Not appl	icable	
Extinguishing Media	: CO <sub>2</sub> , dry chemical, foa	m or water		
Special Fire Fighting Procedure	: None			
Unusual Fire and Explosion Hazard	: This material has no un	usual fire or explosion ha	azards.	
Sensitivity to Mechanical Impact	: None			
Sensitivity to Static Charge	: None			
Section 8. Reactivity Data				
Stability	: Stable			
Incompatibility (Material to Avoid)	: Strong acids or alkaline			
Hazardous Decomposition	: Phenol derivatives, Ca		ated at high	
	temperature (> 300 <sup>0</sup> C)			
Hazardous Polymerization	: Will not occur.			
Castian O. Pressutians for O	of the set of the second of the			
Section 9. Precautions for S				
Personal Protection Information (Re				
Use of a dust mask is recomm	•	ge quantity of toner or di	uring long	
term exposure, as with any ne				
Engineering Control / Ventilation	: Not required.			
Work / Hygienic Practice	: Inhalation should be mi			
Steps to be taken in case of Spill or		an up with vacuum clean		
Waste Disposal Method		may be disposed under conditions which meet all		
	federal, state and lo	cal environmental regula	tions.	
Section 10. Regulatory Infor	mation			
NFPA Rating (U.S.A.)		nability = 1 Read	tivity = 0	
WHMIS Legislation (Canada)	: This product is not a co		aivity = 0	
Transport Information	: This product is not a ha	-		
UN No.	: None allocated.			
ON NO.	. None anocated.			
Section 11. Other Informatio	n			
		he Evaluation of the Car	cinogenic Risk of Chemicals to	
Humans, Vol. 65, Printing Process a				
pp-149-261			····, -, -, -, ···,	
H. Muhle, B. Bellmann, O. Creutzen	berg, C. Dasenbrock H Fr	nst. R. Kilpper J. C. Mac	Kenzie.	
P. Morrow, U. Mohr, S. Takenaka, a				
F. Mollow, C. Molli, S. Takenaka, a				

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 Addr	ess
Sharp Corporation	
22-22 Nagaike-cho, Abeno-ku, Osaka, Jap	Dan
Local suppliers are listed below. Please c	ontact 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	Sharp Electronics (U.K.) Ltd.
Kingdom	Telephone number for information: 01923-474013
Ū.	

Section 3. Ingredients	040 N	Description			
<u>Ingredients</u>	<u>CAS No.</u>	Proportion	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	Other Limits
Ferritepowder		> 97%	Not listed	Not listed	None
Iron oxide	1309-37-1				
Iron oxide	1317-61-9				
Magnesium oxide	1309-48-4		2	2	
Carbon black	1333-86-4	< 0.4%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None
Polyester styrenee-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?	Skin?	Ingestion?	
	Yes	No	Possible but very unusual.	
Health Hazards :	Acute Toxicity: LD50	> 5,000mg/kg. LC50	) > 6.42 mg/L'4Hrs	
	Mutagenicity (Ames To	est): Negative. (S.typ	phimurium, Escherichia coli)	
	(Note: data is fron	n testing of the inclu	ded toner.)	
		-		
Carainananiaitu	In 1000 the LADC	reavely stad early an	hladi an a Craup OD carainagan (nasaihla	

**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

	o fresh air. If effects occur, c contact, immediately flush e				
Section 6. Physical Chemical Char	acteristics				
BoilingMelting Point       :       Not applie         Vapor Pressure       :       Not applie         Vapor Density       :       Not applie	able able	Specific Gravity Solubility in Water PH	: 5 : Negligible : Not applicable		
Evaporation Rate: Not applieAppearance: Fine powerOdor: Odorless	plicable Viscosity : Not applicable owder Color : Black				
Section 7. Fire and Explosion Data					
Flash Point (Method Used) Ignition Temperature Flammable Limits Extinguishing Media	<ul> <li>Not applicable</li> <li>No data available</li> <li>(LEL); Not known</li> <li>CO<sub>2</sub>, dry chemical, foam</li> </ul>	(UEL); Not know or water	'n		
Special Fire Fighting Procedure Unusual Fire and Explosion Hazard Sensitivity to Mechanical Impact Sensitivity to Static Charge					
Section 8. Reactivity Data	0				
Stability Incompatibility (Material to Avoid) Hazardous Decomposition					
Hazardous Polymerization	: Will not occur.				
Section 9. Precautions for Safe Ha Personal Protection Information (Res Use of a dust mask is recomm	piratory, Eye Protection ar				
term exposure, as with any no		qualitity of developer of			
Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill or Waste Disposal Method	: Waste material may be	up with vacuum clean disposed under condi	er. tions which meet all		
	federal, state and local	environmental regulat	ions.		
Section 10. Regulatory Information	: Health = 1 Flammat		ivity 0		
NFPA Rating (U.S.A.) WHMIS Legislation (Canada) Transport Information UN No.	<ul> <li>Health = 1 Flammat</li> <li>This product is not a contract</li> <li>This product is not a haza</li> <li>None allocated.</li> </ul>	olled product.	ivity = 0		
Section 11. Other Information					

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

Section 5. Health Hazard Data (Continued)

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

Section 2. Supplier's Name and Add	dress	
Sharp Corporation		
22-22 Nagaike-cho, Abeno-ku, Osaka, Ja	apan	
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	Sharp Electronics (U.K.) Ltd.	
Kingdom	Telephone number for information: 01923-474013	

Section 3. Ingredients					
Ingredients	CAS No.	<b>Proportion</b>	<u>OSHA PEL</u>	ACGIH TLV	Other Limits
Ferrite carrier		> 95%	Not listed	Not listed	None
Iron oxide ( $Fe_2O_3$ )	1309-37-1				
Iron oxide ( $Fe_3O_4$ )	1317-61-9				
Magnesium oxide	1309-48-4				
Bisphenol A type polyester resin	213077-22-6	< 4%	Not listed	Not listed	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?	Skin?	Ingestion?	
Yes	No	Possible but very unusual.	

- **Health Hazards** : Acute oral toxicity --- LDL<sub>0</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

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

# MATERIAL SAFETY DATA SHEET (2/2)

Section 5 Health Hazard Data (Ca	entinued)		MSDS No. F-30871
Section 5. Health Hazard Data (Co			
Emergency and First Aid Procedure			and the second se
	to fresh air. If effects occur, of contact, immediately flush		
Eye In case	or contact, infinediately husi	reyes with water for 15	minutes.
Section 6. Physical Chemical Cha	ractoristics		
BoilingMelting Point : Not app		Specific Gravity	: About 5
Vapor Pressure : Not appl		Solubility in Water	: Negligible
Vapor Density : Not appl		PH	: Not applicable
Evaporation Rate : Not appl		Viscosity	: Not applicable
Appearance : Fine pov		Color	: Black
Odor : Odorles			
	-		
Section 7. Fire and Explosion Date	ta		
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	: > 350 <sup>0</sup> C		
Flammable Limits	: (LEL); Not applicable	(UEL); Not appl	icable
Extinguishing Media	: CO <sub>2</sub> , dry chemical, foai		
Special Fire Fighting Procedure	: None		
Unusual Fire and Explosion Hazard	: This material has no uni	usual fire or explosion ha	azards.
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 NOx		
Hazardous Polymerization	: Will not occur.		
Section 9. Precautions for Safe H		and Drotootive Clave)	
Personal Protection Information (Re			
Use of a dust mask is recommended		le quantity of toner or di	
term exposure, as with any ne Engineering Control / Ventilation	: Not required.		
Work / Hygienic Practice	: Inhalation should be min	imized as with any non-	toxic dust
Steps to be taken in case of Spill or		an up with vacuum clear	
Waste Disposal Method	: Waste material may I		
		al environmental regula	
		ai onvironnon norgana	
Section 10. Regulatory Information	า		
NFPA Rating (U.S.A.)		ability = 1 Read	tivity = 0
WHMIS Legislation (Canada)	: This product is not a co		2
Transport Information	: This product is not a ha	zardous material.	
UN No.	: None allocated.		
Section 11. Other Information			
			cinogenic Risk of Chemicals to
Humans, Vol. 65, Printing Process a	nd Printing inks, Carbon Blac	k and Some Nitro Com	pounds, Lyon,
pp-149-261			
H. Muhle, B. Bellmann, O. Creutzen			
P. Morrow, U. Mohr, S. Takenaka, a			Foner upon Chronic
Inhalation Exposure in Rats. Fundar	mental and Applied Toxicolog	gy 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

ress	
ipan	
contact the nearest supplier for additional information.	
(Name and Telephone Number)	
Sharp Electronics Corporation	
Telephone number for information: 1-800-237-4277	
Emergency telephone number : 1-800-255-3924	
Sharp Electronics of Canada Ltd.	
Telephone number for information: 905-890-2100	
Emergency telephone number : 1-800-255-3924	
Sharp Electronics (U.K.) Ltd.	
Telephone number for information: 01923-474013	
	pan contact the nearest supplier for additional information. (Name and Telephone Number) Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number : 1-800-255-3924 Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number : 1-800-255-3924 Sharp Electronics (U.K.) Ltd.

Section 3. Ingredients					
Ingredients	CAS No.	<b>Proportion</b>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	Other Limits
Ferrite carrier		> 97%	Not listed	Not listed	None
Iron oxide ( $Fe_2O_3$ )	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-c	copolymer)14937-99-7	< 2%	Not listed	Not listed	None
Carbon black	1333-86-4	<0.2%	3.5mg/m <sup>³</sup>	3.5mg/m <sup>°</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?	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

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

# MATERIAL SAFETY DATA SHEET (2/2)

			MSDS No. F-30881			
Section 5. Health Hazard Data (Con	ntinued)					
<b>Emergency and First Aid Procedures</b>	5 :					
Inhalation Remove t	o fresh air. If effects occur, co	onsult medical person	nel.			
Eye In case of	f contact, immediately flush e	yes with water for 15	minutes.			
Section 6. Physical Chemical Char						
BoilingMelting Point : Not appli		Specific Gravity	: 5			
	: Not applicable Solubility in Water : Negligible					
Vapor Density : Not appli		PH	: Not applicable			
Evaporation Rate : Not appli		Viscosity	: Not applicable			
Appearance : Fine pow	der	Color	: Black			
Odor : Odorless						
Section 7 Fire and Explosion Date						
Section 7. Fire and Explosion Data Flash Point (Method Used)	: Not applicable					
Ignition Temperature	: Not applicable					
Flammable Limits	: (LEL); Not known	(UEL); Not knov	10			
Extinguishing Media	: CO <sub>2</sub> , dry chemical, foam					
Special Fire Fighting Procedure	: None					
Unusual Fire and Explosion Hazard	: This material has no unusu	ual fire or explosion ha	izards.			
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. Carbo	n monoxide when hea	ated to high temperatures			
	(> 300 <sup>°</sup> C)					
Hazardous Polymerization	: Will not occur.					
Section 9. Precautions for Safe Ha						
Personal Protection Information (Re						
Use of a dust mask is recomm		quantity of toner or du	iring long			
term exposure, as with any no						
Engineering Control / Ventilation		ined as with any non t				
Work / Hygienic Practice Steps to be taken in case of Spill or						
• •		•				
Waste Disposal Method	: Waste material may be federal, state and local					
		environmentar regulat	10113.			
Section 10. Regulatory Information						
NFPA Rating (U.S.A.)	: Health = 1 Flammab	ility = 1 Reac	tivity = 0			
WHMIS Legislation (Canada)	: This product is not a contr					
Transport Information						
UN No.	: None allocated.					
Section 11. Other Information						
			cinogenic Risk of Chemicals to			
Humans, Vol. 65, Printing Process an	d Printing inks, Carbon Black	and Some Nitro Comp	bounds, Lyon,			
pp-149-261						
H. Muhle, B. Bellmann, O. Creutzenb						
P. Morrow, U. Mohr, S. Takenaka, ar	· · ·		oner upon Chronic			
Inhalation Exposure in Rats. Funda	mental and Applied Toxicolog	y 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, NI	D7/DV7/SD7, ND8/DV8/SD8 (Black and Colored Developers)
Section 2. Supplier's Name and Addr	ess
Sharp Corporation	
22-22 Nagaike-cho, Abeno-ku, Osaka, Jap	Dan
Local suppliers are listed below. Please c	ontact 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	Sharp Electronics (U.K.) Ltd.
Kingdom	Telephone number for information: 01923-474013
Ū.	

Ingredients	CAS No.	<b>Proportion</b>	<u>OSHA PEL</u>	ACGIH TLV	Other Limits
Carbon black	1333-86-4	< 0.6%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>°</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?	Skin?	Ingestion?	
Yes	No	Possible but very unusual.	
Health Hazarda: Aguta anal taxiaity	DI of the topor which	is included in this developer is over 2 000mg/kg	

Health Hazards: Acute oral toxicity --- LDL<sub>0</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 didnot show any association between carbon black k 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

Date Revised: June 15, 1999 Date Issued : April 1, 1999

# MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-30921

Section 5. Health Hazard Data (Col	tinued)		MSDS No. F-30921
<b>Emergency and First Aid Procedures</b>			
	o fresh air. If effects occur,	consult medical person	nel.
	f contact, immediately flush		
Section 6. Physical Chemical Char	acteristics		
BoilingMelting Point : Not appli		Specific Gravity	: about 5
Vapor Pressure : Not appli	able	Solubility in Water	: Negligible
Vapor Density : Not appli	able	PH	: Not applicable
Evaporation Rate : Not appli	able	Viscosity	: Not applicable
Appearance : Fine pow	der	Color	: Black
Odor : Odorless			
Section 7. Fire and Explosion Data	1		
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	: > 350 <sup>°</sup> C		
Flammable Limits	: (LEL); Not applicable	(UEL); Not appl	cable
Extinguishing Media	: CO2, dry chemical, foam	n or water	
Special Fire Fighting Procedure	: None		
Unusual Fire and Explosion Hazard	: This material has no unus	sual fire or explosion ha	zards.
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 NOx		
Hazardous Polymerization	: Will not occur.		
-			
Section 9. Precautions for Safe Ha Personal Protection Information (Re		and Protective Glove)	
Use of a dust mask is recomm			
term exposure, as with any no	<b>č</b>	e quantity of toner of ut	
Engineering Control / Ventilation	: Not required.		
Work / Hygienic Practice	: Inhalation should be minir	mized as with any non-t	ovic dust
Steps to be taken in case of Spill or			
Waste Disposal Method	: Waste material may be		
		I environmental regulat	
	,		
Section 10. Regulatory Information			
NFPA Rating (U.S.A.)			tivity = $0$
WHMIS Legislation (Canada)	: This product is not a con	-	
Transport Information	: This product is not a haza	ardous material.	
UN No.	: None allocated.		
Section 11. Other Information			
	6) IABC Managraphs on the	e Evaluation of the Car	cinogenic Risk of Chemicals to
References : IARC (19 Humans, Vol. 65, Printing Process an		< and Some Nitro Com	bounds, Lyon,
References : IARC (19 Humans, Vol. 65, Printing Process ar pp-149-261	d Printing inks, Carbon Black		-
References : IARC (19 Humans, Vol. 65, Printing Process ar pp-149-261 H. Muhle, B. Bellmann, O. Creutzenb	d Printing inks, Carbon Black erg, C. Dasenbrock, H. Erns	t, R. Kilpper, J. C. Mac	Kenzie,
References : IARC (19 Humans, Vol. 65, Printing Process ar pp-149-261	d Printing inks, Carbon Black erg, C. Dasenbrock, H. Erns d R. Mermelstein (1991) Pul	t, R. Kilpper, J. C. Mac Imonary Response to T	Kenzie,

### 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 Devel	oper)
Section 2. Supplier's Name and Ad	dress
Sharp Corporation	
22-22 Nagaike-cho, Abeno-ku, Osaka,	lapan
Local suppliers are listed below. Please	e 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.

Canada	Sharp Electronics of Canada Ltd.
	Telephone number for information: 905-890-2100
	Emergency telephone number : 1-800-255-3924
United	Sharp Electronics (U.K.) Ltd.
Kingdom	Telephone number for information: 01923-474013

### Section 3. Ingredients

Ingredients	<u>CAS No.</u>	Proportion	<u>OSHA PEL</u>	ACGIH TLV	Other Limits
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	: <u>Inhalation?</u> Yes	<u>Skin?</u> No	Ingestion? Possible but very unusual.		
Health Hazards : "Ames			oper, has been tested on "Acute oral t	oxicity " and	
	test". It does	not represent a health haz	ard.		
Carcinogenicity :	NTP?	IARC Monographs?	OSHA Regulated?		
	No	No	No		
Signs and Sympton	ms of Exposure	:			
Mini	mal irritation to res	spiratory tract may occur as	with exposure to any non-toxic dust.		
Medical Conditions Generally Aggravated by Exposure : None					
	Generally Aggra	wated by Exposure . Non	e		

#### 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

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

BoilingMelting Point:Not appleVapor Pressure:Not appleVapor Density:Not appleEvaporation Rate:Not appleAppearance:Fine poweOdor:Odorles	licable licable licable wder	Specific Gravity Solubility in Water PH Viscosity Color	<ul> <li>about 7.5</li> <li>Negligible</li> <li>Not applicable</li> <li>Not applicable</li> <li>Dark red</li> </ul>
Section 7. Fire and Explosion Date	ta		
Flash Point (Method Used) Ignition Temperature Flammable Limits Extinguishing Media Special Fire Fighting Procedure Unusual Fire and Explosion Hazard Sensitivity to Mechanical Impact Sensitivity to Static Charge	<ul> <li>Not applicable</li> <li>&gt; 350°C</li> <li>(LEL); Not applicable</li> <li>CO<sub>2</sub>, dry chemical, foan</li> <li>None</li> <li>This material has no unu</li> <li>None</li> <li>None</li> <li>None</li> <li>None</li> </ul>		
Section 8. Reactivity Data			
Stability Incompatibility (Material to Avoid) Hazardous Decomposition Hazardous Polymerization	: Stable : None : CO and NOx : Will not occur.		
Section 9. Precautions for Safe H	andling and Use		
Personal Protection Information (Re Use of a dust mask is recomm term exposure, as with any ne Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill or Waste Disposal Method	espiratory, Eye Protection a nended when handling a larg on-toxic dust. : Not required. : Inhalation should be mini r Leak : Sweep up or clea : Waste material may b federal, state and loca	e quantity of toner or du mized as with any non-t n up with vacuum clean	uring long toxic dust. er. itions which meet all
Section 10. Regulatory Information	n		
NFPA Rating (U.S.A.) WHMIS Legislation (Canada) Transport Information UN No.	: Health = 1 Flamma : This product is not a cor : This product is not a haz : None allocated.	trolled product.	tivity = 0

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

#### Information for the alternative mixture can be found in MSDS humber F-3

Section 2. Supplier's Name and Add	ress	
Sharp Corporation		
22-22 Nagaike-cho, Abeno-ku, Osaka, Ja	pan	
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	Sharp Electronics (U.K.) Ltd.	
Kingdom	Telephone number for information: 01923-474013	

Section 3. Ingredients					
Ingredients	CAS No.	<b>Proportion</b>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	Other Limits
Ferrite carrier		> 95%	Not listed	Not listed	None
Iron oxide ( $Fe_2O_3$ )	1309-37-1				
Iron oxide ( $Fe_3O_4$ )	1317-61-9				
Magnesium oxide	1309-48-4				
Bisphenol A type polyester resin	213077-22-6	< 4%	Not listed	Not listed	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?	<u>Skin?</u>	Ingestion?	
Yes	No	Possible but very unusual.	

- **Health Hazards** : Acute oral toxicity --- LDL<sub>0</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

Date Revised: November 15, 1999 Date Issued : July 1, 1999

# MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-30941

Section 5. Health Hazard Data (C	ontinued)		MSDS No. F-30941
<b>Emergency and First Aid Procedu</b>	es :		
	e to fresh air. If effects occu		
Eye In case	e of contact, immediately flus	n eyes with water for 15	minutes.
Section 6. Physical Chemical Ch	aracteristics		
	plicable	Specific Gravity	: About 5
	plicable	Solubility in Water	: Negligible
• •	plicable	PH	: Not applicable
	plicable	Viscosity	: Not applicable
Appearance : Fine po		Color	: Black
Odor : Odorle			
Section 7. Fire and Explosion D			
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	$: > 350^{\circ}$ C	(UEL): Net and	in a h la
Flammable Limits		(UEL); Not appl	cable
Extinguishing Media Special Fire Fighting Procedure	: CO <sub>2</sub> , dry chemical, foa : None	III UI Walei	
Unusual Fire and Explosion Hazard		usual fire or explosion by	vzarde
Sensitivity to Mechanical Impact	: None		124103.
Sensitivity to Static Charge	: None		
centrality to claim charge			
Section 8. Reactivity Data			
Stability	: Stable		
Incompatibility (Material to Avoid)			
Hazardous Decomposition	: CO and NOx		
Hazardous Polymerization	: Will not occur.		
Section 9. Precautions for Safe	Handling and Use		
Personal Protection Information (F	Respiratory, Eye Protection		
Use of a dust mask is recon	nmended when handling a lar	ge quantity of toner or du	Iring long
term exposure, as with any	non-toxic dust.		
5 5	: Not required.		
Work / Hygienic Practice			
Steps to be taken in case of Spill of			
Waste Disposal Method	-	be disposed under cond	
	federal, state and loo	cal environmental regulat	ions.
Section 10. Regulatory Information	on		
NFPA Rating (U.S.A.)		nability = 1 Reac	tivity = 0
WHMIS Legislation (Canada)	: This product is not a co		
Transport Information	: This product is not a ha	zardous material.	
UN No.	: None allocated.		
Section 11. Other Information			
	1996) IARC Monographs on t	he Evaluation of the Car	cinogenic Risk of Chemicals f
Humans, Vol. 65, Printing Process			
pp-149-261			
H. Muhle, B. Bellmann, O. Creutze	nberg, C. Dasenbrock, H. Frr	nst. R. Kilpper, J. C. Mac	Kenzie.
P. Morrow, U. Mohr, S. Takenaka,			
Inhalation Exposure in Rats. Funda			
,			

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

Section 2. Supplier's Name and Add	11622
Sharp Corporation	
22-22 Nagaike-cho, Abeno-ku, Osaka, Ja	apan
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	Sharp Electronics (U.K.) Ltd.
Kingdom	Telephone number for information: 01923-474013

Section 3. Ingredients					
Ingredients	<u>CAS No.</u>	<b>Proportion</b>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	Other Limits
Ferrite carrier		> 97%	Not listed	Not listed	None
Iron oxide ( $Fe_2O_3$ )	1309-37-1				
Iron oxide ( $Fe_3O_4$ )	1317-61-9				
Magnesium oxide	1309-48-4				
Graft polymer(Polyester styrene-o	copolymer)14937-99-7	< 2%	Not listed	Not listed	None
Carbon black	1333-86-4	<0.2%	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?	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

Date Revised: November 15 1999 Date Issued : July 1, 1999

# MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-30951

Section 5. Health Hazard Data (Con	tinued)		MSDS NO. F-30951
Emergency and First Aid Procedures			
	fresh air. If effects occur,	consult medical person	nel.
	f contact, immediately flush		
-	•	•	
Section 6. Physical Chemical Chara			
BoilingMelting Point : Not applic		Specific Gravity	: 5
Vapor Pressure : Not applic		Solubility in Water	: Negligible
Vapor Density : Not applic		PH	: Not applicable
Evaporation Rate : Not applic		Viscosity	: Not applicable
Appearance:Fine poweOdor:Odorless	ber	Color	: Black
Cuol . Cuolless			
Section 7. Fire and Explosion Data			
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	: Not applicable		
Flammable Limits	: (LEL); Not known	(UEL); Not know	'n
Extinguishing Media	: CO2, dry chemical, foam	or water	
Special Fire Fighting Procedure	: None		
Unusual Fire and Explosion Hazard	: This material has no unus	sual fire or explosion ha	zards.
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. Carb	on monoxide when hea	ted to high temperatures
·····	(> 300 <sup>°</sup> C)		
Hazardous Polymerization	: Will not occur.		
Section 9. Precautions for Safe Ha			
Personal Protection Information (Res			
Use of a dust mask is recomme term exposure, as with any nor		e quantity of toner of du	ing long
Engineering Control / Ventilation			
Work / Hygienic Practice	: Inhalation should be mini	nized as with any non-t	oxic dust
Steps to be taken in case of Spill or I			
Waste Disposal Method	: Waste material may be	-	
		al environmental regulat	
		_	
Section 10. Regulatory Information			
NFPA Rating (U.S.A.)			tivity = 0
WHMIS Legislation (Canada)	: This product is not a con	•	
Transport Information	: This product is not a haze : None allocated.	ardous material.	
UN No.	. None allocated.		
Section 11. Other Information			
	6) IARC Monographs on the	e Evaluation of the Card	inogenic Risk of Chemicals to
Humans, Vol. 65, Printing Process and			
pp-149-261			
H. Muhle, B. Bellmann, O. Creutzenbe			
P. Morrow, U. Mohr, S. Takenaka, an	. ,		oner upon Chronic
Inhalation Exposure in Rats. Fundar	nental and Applied Toxicolo	gy 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	Sharp Electronics (U.K.) Ltd.
Kingdom	Telephone number for information: 01923-474013

Section 3. Ingredients					
Ingredients	CAS No.	<b>Proportion</b>	<u>OSHA PEL</u>	ACGIH TLV	Other Limits
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 8010	0252-50001P	< 5%	Not listed	Not listed	None
Carbon black	1333-86-4	< 0.4%	3.5mg/m៓	3.5mg/m៓	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>	Ingestion?
Yes	No	Possible but very unusual.
Health Hazards : Acute Toxicity: LD50 >	→ 2,000mg/kg. LC	50 > 5.97 mg/L'4Hrs
Mutagenicity (Ames Tes	st): Negative. (S.ty	yphimurium,Escherichia coli)
(Note: data is from	testing of the inclu	uded toner.)
		n black as a Group 2B carcinogen (possible
		en to chemicals for which there is
inadequate human evidence	<ol> <li>but sufficient ani</li> </ol>	imal evidence on which to base an opinion of
carcinogenicity. The classif	ication is based up	pon 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 perform	ned in animal models other than rats did
not show any association be	etween carbon bla	ack and lung tumors. While there have been no studies to
date using developer, a two	year cancer bioa	assay using a typical toner preparation containing carbon
black (a small amount of tor	her is included in t	the developer mixture) demonstrated no association betwee
toner exposure and tumor d	evelopment in rate	S.
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

Date Revised: October 1, 1997 Date Issued : May 16, 1994

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

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 Chemica	I Characteristics		
BoilingMelting Point : Not appl	icable	Specific Gravity	: 5.0
Vapor Pressure : Not appl	icable	Solubility in Water	: Negligible
Vapor Density : Not appl		PH	: Not applicable
Evaporation Rate : Not appl		Viscosity	: Not applicable
Appearance : Fine pov		Color	: Black
Odor : Odorless			
Section 7. Fire and Explosio			
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	: No data available		
Flammable Limits	: (LEL); Not applicable	(UEL); Not appl	icable
Extinguishing Media	: CO <sub>2</sub> , dry chemical, foar	n or water	
Special Fire Fighting Procedure	: None		
Unusual Fire and Explosion Hazard	: This material has no unu	sual fire or explosion ha	azards.
Sensitivity to Mechanical Impact	: None		
Sensitivity to Static Charge	: None		
Section 8. Reactivity Data			
Stability	: Stable		
Incompatibility (Material to Avoid)	: Strong acids or alkalines	5	
lazardous Decomposition : Phenol deriviatives, Carbon monoxide when heated to high temperatures			ated to high temperatures
	( >300 <sup>°</sup> C)		
Hazardous Polymerization	: Will not occur.		
Section 9. Precautions for S			
Personal Protection Information (Re			
Use of a dust mask is recomn		e quantity of toner or de	uring long
term exposure, as with any no			
Engineering Control / Ventilation	•		
Work / Hygienic Practice	: Inhalation should be min	•	
Steps to be taken in case of Spill or		n up with vacuum clear	
Waste Disposal Method	: Waste material may b		
	federal, state and loca	al environmental regula	tions.
Section 10 Begulatory Inform	motion		
Section 10. Regulatory Inform			ti it. 0
NFPA Rating (U.S.A.)			tivity = 0
WHMIS Legislation (Canada)	: This product is not a cor		
Transport Information	: This product is not a haz	ardous material.	
UN No.	: None allocated.		
Section 11 Other Information	n		

### 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

MSDS No. F-3451



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	
	U.S.A.	Sharp Electronics Corporation	
		Sharp Plaza, Mahwah, NJ	
North		Telephone number for information	: 1-800-237-4277
America		Emergency telephone number	: 1-800-255-3924
America	Canada	Sharp Electronics of Canada Ltd.	
		Telephone number for information	: 905-890-2100
		Emergency telephone number	: 1-800-255-3924
	Australia	Sharp Corporation of Australia PTY. Ltd.	
Oceania		No1 Huntingwood Drive Huntingwood	Blacktown N.S.W.
		Telephone number for information	: 1300-13-50-22
	Germany	Sharp Electronics (Europe) GMBH	
		Sonninstrasse 3, 20097 Hamburg	
		Telephone number to access MSDS	: 040-2376-2185
		For more information	: 040-2376-2613
	United	Sharp Electronics (U. K.) Ltd.	
	Kingdom	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	
Europe		Telephone number for information	: 01-727-19-0
Luiope	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	U.A.E.	Sharp Middle East FZE	
East		P.O.Box 17115 Jebel Ali, Dubai	
Laor		Telephone number for information	: 04-815311

# 2.COMPOSITION / INFORMATION ON INGREDIENTS Substance[] Preparation[X]

Ingredient	CAS No.	<u>Proportion</u>	OSHA PEL	ACGIH TLV	MAK-TWA	NOHSC-TWA
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

			MSDS No. F-31331	, 200 .
3.HAZARDS IDENTIFICA	TION			
Most Important Hazards	and Effe	cts of the Products		
Human Health Effects	: There ar	e no anticipated carci	nogenic effects from exposure based on animal tes	ts
	performe	ed using toner. When u	used as intended according to instructions, studies	do not
	indicate	any symptoms of fibro	sis will occur.	
Environmental Effects		• • •		
Specific Hazards	: D	ust explosion (like mo	st finely divided organic powders)	
Directive 1999/45/EC(Eu		• •		
	/			
4.FIRST-AID MEASURES	\$			
Route(s) of Entry : Inha	lation?	Skin?	Ingestion?	
	No	No	Possible but very unusual.	
			consult medical personnel.	
Skin Contact : Wash wit	h soap and	d water for 15 minutes	or until particle is removed.	
If irritation	ו does occ	ur, consult medical pe	rsonnel.	
Eye Contact : Flush eye	es immedia	ately with water for 15	minutes. If irritation does occur, consult medical pe	rsonne
Ingestion : Rinse wit	h water an	d drink several glasse	s of water. If irritation or discomfort does occur, cor	nsult
medical p	personnel.			
5.FIRE-FIGHTING MEAS	URES			
Extinguishing Media		: Water, CO <sub>2</sub> , foam a	nd dry chemicals	
Special Fire Fighting Pr				
Fire and Explosion Haz			most finely divided organic powders, may form an e	xplosiv
6.ACCIDENTAL RELEAS	E MEASL	JRES		
Personal Precautions		: None		
<b>Environmental Precauti</b>	ons	: None		
Methods for Cleaning U			or cloth. Do not use vacuum cleaner when a large ar	mount i
J	r		st finely divided organic powders, is capable of cro	
7.HANDLING AND STOR	AGE			
Handling				
•	None			
Precautions	None			
		lust mask is recomme	nded when handling a large quantity of toner or dur	ina lon
			h-toxic dust. Try not to disperse the particles.	ing ion
Storage	tonn oxpe	bouro, do with any non		
	None			
		tainar alagad and Star	in a goal and dry place	
Storage Conditions			e in a cool and dry place.	
Incompatible Products	•	of the reach of childre	91.	
•				
8.EXPOSURE CONTROL	S/PERS	UNAL PRUTECTION	<u> </u>	
Engineering Measures		<b></b>		
Ventilation		: Not required under i	ntended 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.

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		

0.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, $CO_2$ and $NO_X$
Further Information	: None

# **11.TOXICOLOGICAL INFORMATION**

	•
Acute Toxicity	
Ingestion(oral)	: $LD_{50}$ > 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 A	ct) :
All chemical substances in this p	roduct comply with all applicable rules or order under TSCA.
SARA(Superfund Amendments and	d Reauthorization Act) Title III
302 Extreme Hazardous Substa	nce : None
311/312 Hazard Classification	: None
EU Information	
1999/45/EC and 67/548/EEC	
Symbol & 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 produc	t is not a controlled	product.
References			
IARC(1996) : IARC monog	graphs on the	Evaluation of the C	Carcinogenic Risk of Chemicals to Humans, Vol. 65,
Printing Proc	cess And Prin	ting Inks, Carbon B	ack and Some Nitro Compounds, Lyon, pp.149-261
H.Muhle, B.Bellmann, O.C	Creutzenberg,	C.Dasenbrock, H.E	rnst, 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.



Page: 1 of 3

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	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
America	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 [ ]	Preparati	on [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 En	try: <u>Inhalation</u> ? Yes	<u>Skin</u> ? No	Ingestion? Possible but highly unlikely.
Inhalation:			a. If symptoms occur, consult medical personnel.
Skin Contact:	Wash with soap and wate consult medical personnel		s or until particle dust is removed. If irritation occurs,
Eye Contact:	Immediately flush eyes personnel.	with water for	15 minutes. If irritation occurs, consult medical
Ingestion:	İmmediately drink several	glasses of wate	er. If irritation occurs, consult medical personnel.

# MATERIAL SAFETY DATA SHEET

# Page: 2 of 3

Date Revised: Oct. 13, 2004 Date Issued: Dec. 01, 2003 MSDS No. F-31221

5. FIRE-FIGHTIN	IG MEASURES				
	ing Media: e Fighting Procedures: plosion Hazards:	Water, CO <sub>2</sub> foam, and dry chemicals None Toner material, typical of most finely divided organic powders, may form an explosive mixture.			
. ACCIDENTAL	RELEASE MEASURES				
Personal Precautions: Environmental Precautions: Methods for Cleaning Up:		None None 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.			
. HANDLING A	ND STORAGE				
Handling:	Technical Measures: Precautions: Safe Handling Advice:	None None Wear a dust mark 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: Storage Conditions: Incompatible Products:	None Keep container closed and store in a cool and dry place. None			
EXPOSURE C	ONTROLS/PERSONAL	PROTECTION			
Engineering Measures: Exposure Limit Values OSHA-PEL (USA): ACGIH-TLV (USA): Personal Protective Equipment Respiratory Protection: Hand Protection: Eye Protection: Skin Protection: Other Protective Equipment:		Ventilation. Not required under intended use. 15 mg/m <sup>3</sup> (Total Dust), 5mg/m <sup>3</sup> (Respirable Dust) 10 mg/m <sup>3</sup> (Total Dust), 3mg/m <sup>3</sup> (Respirable Dust) Not required under intended use. Not required under intended use. Not required under intended use. Not required under intended use. 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.			
. PHYSICAL AN	ND CHEMICAL PROPER	TIES			
Appearanc Physic Ph: Boiling/Mel Softening F Flash Point Ignition Po Explosion I Density (g/ Solubility in	al state: Solid Forr Point (°C): t (°C): int (°C): Properties: cm³):	m: Powder Color: Black Odor: Odorless Not applicable Not applicable Not applicable Not applicable No data No data 6 (bulk density: 2.35) Negligible			
0. STABILITY A	AND REACTIVITY				
Conditions Materials to Ignition Po	o Avoid:	Stable Dust explosion, typical of most finely divided organic powders. Electric discharge; throwing into fire. Oxidizing materials. No data <b>ts:</b> CO, CO <sub>2</sub> , and NO <sub>x</sub>			

Hazardous Decomposition Products: CO, CO<sub>2</sub>, and NO<sub>x</sub> Further Information: None

SHARP

### Page: 3 of 3

Date Revised: Oct. 13, 2004 Date Issued: Dec. 01, 2003 MSDS No. F-31221

Acute Toxicity:	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
Mutagenicity:	Negative (Ames Test	)
Carcinogenicity: Chronic Effect:	carcinogen). This classification is given evidence, but sufficient animal evidence of classification is based upon the develo inhalation exposures to free carbon black Studies performed in animal models othe carbon black and lung tumors. Moreover preparation containing carbon black dem and tumor development in rats. In a study in rats of chronic inhalation exp	lack as a Group 2B carcinogen (possible human to chemicals for which there is inadequate human on which to base an opinion of carcinogenicity. This opment of lung tumors in rats receiving chronic at levels that induce particle overload of the lung. For than rats did not show any association between r, a two-year cancer bioassay using a typical toner ionstrated no association between toner exposure posure to a typical toner, a mild to moderate degree of the rate in the birth concentration (16 ma(m <sup>3</sup> )
	exposure group, and a minimal to mild de	of the rats in the high concentration (16 mg/m <sup>3</sup> ) gree of fibrosis was noted in 22% of the animals in t no pulmonary change was reported in the lowest ant level to potential human exposures.

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

#### 13. DISPOSAL CONSIDERATIONS

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



Page: 1 of 3

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	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				
America	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 [ ]	Preparati	on [X]				
<u>Ingredient</u>	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 En	try: <u>Inhalation</u> ? Yes	<u>Skin</u> ? No	Ingestion? Possible but highly unlikely.
Inhalation: Skin Contact:		er for 15 minutes	a. If symptoms occur, consult medical personnel. s or until particle dust is removed. If irritation occurs,
Eye Contact: Ingestion:	personnel.		15 minutes. If irritation occurs, consult medical r. If irritation occurs, consult medical personnel.

# MATERIAL SAFETY DATA SHEET

# Page: 2 of 3

Date Revised: Oct. 13, 2004 Date Issued: Nov. 30, 2000 MSDS No. F-31011

5. FIRE-FIGHTING MEASURES			
Extinguishing Media: Special Fire Fighting Procedures Fire and Explosion Hazards:	Water, CO <sub>2</sub> , foam, and dry chemicals None Toner material, typical of most finely divided organic powders, may form an explosive mixture.		
6. ACCIDENTAL RELEASE MEASURE	ES		
Personal Precautions: Environmental Precautions: Methods for Cleaning Up:	None None 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: Precautions: Safe Handling Advice:	None None : Wear a dust mark 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: Storage Conditions: Incompatible Products	None Keep container closed and store in a cool and dry place.		
3. EXPOSURE CONTROLS/PERSONA	AL PROTECTION		
Engineering Measures: Exposure Limit Values OSHA-PEL (USA): ACGIH-TLV (USA): Personal Protective Equipment Respiratory Protection:	Ventilation. Not required under intended use. 15 mg/m <sup>3</sup> (Total Dust), 5mg/m <sup>3</sup> (Respirable Dust) 10 mg/m <sup>3</sup> (Total Dust), 3mg/m <sup>3</sup> (Respirable Dust) Not required under intended use.		
Hand Protection: Eye Protection: Skin Protection: Other Protective Equipment:	Not required under intended use. Not required under intended use. Not required under intended use. 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.		
). PHYSICAL AND CHEMICAL PROPE	ERTIES		
Appearance Physical state: Solid Fr Ph: Boiling/Melting Point: Softening Point (°C): Flash Point (°C): Ignition Point (°C): Explosion Properties: Density (g/cm <sup>3</sup> ): Solubility in Water:	orm: Powder Color: Black Odor: Odorless Not applicable Not applicable Not applicable Not applicable No data No data 6 (bulk density: 2.35) Negligible		
10. STABILITY AND REACTIVITY			
Stability: Hazardous Reactions: Conditions to Avoid: Materials to Avoid: Ignition Point (°C): Hazardous Decomposition Produ Further Information:	Stable Dust explosion, typical of most finely divided organic powders. Electric discharge; throwing into fire. Oxidizing materials. No data ucts: CO, CO <sub>2</sub> , and NO <sub>x</sub> None		

SHARP

Page: 3 of 3

Date Revised: Oct. 13, 2004 Date Issued: Nov. 30, 2000 MSDS No. F-31011

Acute Toxicity:	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
lutagenicity:	Negative (Ames Test	)
Carcinogenicity:	carcinogen). This classification is given evidence, but sufficient animal evidence of classification is based upon the develo inhalation exposures to free carbon black Studies performed in animal models othe carbon black and lung tumors. Moreover preparation containing carbon black dem and tumor development in rats.	lack as a Group 2B carcinogen (possible human to chemicals for which there is inadequate human on which to base an opinion of carcinogenicity. This opment of lung tumors in rats receiving chronic a tlevels that induce particle overload of the lung. er than rats did not show any association between r, a two-year cancer bioassay using a typical toner nonstrated no association between toner exposure bosure to a typical toner, a mild to moderate degree

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

#### 13. DISPOSAL CONSIDERATIONS

Waste from Residues:	Waste material may be disposed of under conditions which meet all federal, state and local environmental regulations.
Contaminated Packaging:	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)		
	U.S.A.	Sharp Electronics Corporation		
		Sharp Plaza, Mahwah, NJ		
North		Telephone number for information	: 1-800-237-4277	
America		Emergency telephone number	: 1-800-255-3924	
America	Canada	Sharp Electronics of Canada Ltd.		
		Telephone number for information	: 905-890-2100	
		Emergency telephone number	: 1-800-255-3924	
	Australia	Sharp Corporation of Australia PTY. Ltd.		
Oceania		No1 Huntingwood Drive Huntingwood	Blacktown N.S.W.	
		Telephone number for information	: 1300-13-50-22	
	Germany	Sharp Electronics (Europe) GMBH		
		Sonninstrasse 3, 20097 Hamburg		
		Telephone number to access MSDS	: 040-2376-2185	
		For more information	: 040-2376-2613	
	United	Sharp Electronics (U. K.) Ltd.		
	Kingdom	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		
Europe		Telephone number for information	: 01-727-19-0	
Europe	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	U.A.E.	Sharp Middle East FZE		
East		P.O.Box 17115 Jebel Ali, Dubai		
Last		Telephone number for information	: 04-815311	

# 2.COMPOSITION / INFORMATION ON INGREDIENTS

Substance[ ] Ingredient	Preparation[X] CAS No.	Proportion	OSHA PEL	ACGIH TLV	MAK-TWA	NOHSC-TWA
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 N0. : 400-	110-2, Symbol	letter : F, R Phr	ase : R11		



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

			MSDS No. F-01331	
3.HAZARDS IDENTIFIC	ATION			
Most Important Hazard	is and Effec	ts of the Products		
Human Health Effects	performe	-	nogenic effects from exposure based on animal tests used as intended according to instructions, studies do no osis will occur.	
Environmental Effects				
Specific Hazards	: Du	ust explosion (like mo	ost finely divided organic powders)	
Directive 1999/45/EC(E				
4.FIRST-AID MEASURE	S			
Route(s) of Entry : Int	alation?	<u>Skin?</u>	Ingestion?	
	Yes	No	Possible but very unusual.	
Inhelation Domov	to frach air	If aumptama again	annult madical paragenal	
		• •	consult medical personnel.	
	•	ir, consult medical pe	s or until particle is removed.	
		•	minutes. If irritation does occur, consult medical personn	
-		•	es of water. If irritation or discomfort does occur, consult	
-	personnel.	a unink several glasse		
medical	personnei.			
5.FIRE-FIGHTING MEA				
		mixture.		
6.ACCIDENTAL RELEA				
Personal Precautions		None		
Environmental Precau		None		
Methods for Cleaning Up		: Wipe off with paper or cloth. Do not use vacuum cleaner when a large amount released. It, like most finely divided organic powders, is capable of creating dust explosion.		
7.HANDLING AND STO	RAGE			
Handling				
<b>Technical Measures</b>	: 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	•		re in a cool and dry place.	
	•	of the reach of childre	∍n.	
Incompatible Products	: None			
8.EXPOSURE CONTRO	LS / PERSC	ONAL PROTECTIO	N	
Engineering Measures		Not required under i	intended use.	



# MATERIAL SAFETY DATA SHEET

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.

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/cm³)	<b>:</b> 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 Ac	xt) :
All chemical substances in this pr	oduct comply with all applicable rules or order under TSCA.
SARA(Superfund Amendments and	I Reauthorization Act) Title III
302 Extreme Hazardous Substan	ice : None
311/312 Hazard Classification	: None
EU Information	
1999/45/EC and 67/548/EEC	
Symbol & 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 produc	ct is not a controlled	l product.
List of R phrases	: R11 : Highl	y flammable	
References			
IARC(1996) : IARC monog	graphs on the	Evaluation of the C	Carcinogenic Risk of Chemicals to Humans, Vol. 65,
Printing Proc	ess And Prin	iting Inks, Carbon B	lack and Some Nitro Compounds, Lyon, pp.149-261
H.Muhle, B.Bellmann, O.C	reutzenberg,	C.Dasenbrock, H.E	Ernst, R.Kilpper, J.C.MacKenzie, P.Morrow, U.Mohr,
S.Takenaka, and R.Merme	Istein(1991) P	ulmonary Response	e to Toner upon Chronic Inhalation Exposure in Rats.
Fundamental and Applied 1	Foxicology 17.	, pp.280-299.	
The information on this data sh	eet represent	s our current data ar	nd 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.



Page: 1 of 3

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	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
America	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 [ ]	Preparati	on [X]				
<u>Ingredient</u>	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 Ent	ry: <u>Inhalation</u> ? Yes	<u>Skin</u> ? No	Ingestion? Possible but highly unlikely.
Inhalation: Skin Contact:		r for 15 minutes	a. If symptoms occur, consult medical personnel. s or until particle dust is removed. If irritation occurs,
Eye Contact: Ingestion:	Immediately flush eyes personnel.	with water for	15 minutes. If irritation occurs, consult medical r. If irritation occurs, consult medical personnel.

SHARP

# Page: 2 of 3

Date Revised: Oct. 12, 2004 Date Issued: Dec. 01, 2003 MSDS No. F-01221

. FIRE-FIGHTI	NG MEASURES				
Special Fire Fighting Procedures: Fire and Explosion Hazards:		Water, CO <sub>2</sub> foam, and dry chemicals None Toner material, typical of most finely divided organic powders, may form an explosive mixture.			
. ACCIDENTA	L RELEASE MEASURES				
Environme	Precautions: ental Precautions: or Cleaning Up:	None None 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 divider organic powders, is capable of creating a dust explosion.			
. HANDLING A	ND STORAGE				
Handling:	Precautions: Safe Handling Advice:	None None Wear a dust mark 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: Storage Conditions: Incompatible Products:	None Keep container closed and store in a cool and dry place. None			
. EXPOSURE	CONTROLS/PERSONAL	PROTECTION			
Exposure OSHA ACGII Personal F	ng Measures: Limit Values A-PEL (USA): H-TLV (USA): Protective Equipment ratory Protection:	Ventilation. Not required under intended use. 15 mg/m <sup>3</sup> (Total Dust), 5mg/m <sup>3</sup> (Respirable Dust) 10 mg/m <sup>3</sup> (Total Dust), 3mg/m <sup>3</sup> (Respirable Dust) Not required under intended use.			
Hand Eye P Skin F	Protection: Protection: Protection: Protective Equipment:	Not required under intended use. Not required under intended use. Not required under intended use. 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.			
. PHYSICAL A	ND CHEMICAL PROPER	TIES			
Ph: Boiling/Me Softening Flash Poin Ignition Po	cal state: Solid For elting Point: Point (°C): ht (°C): bint (°C): Properties: /cm³):	m: Powder Color: Black Odor: Odorless Not applicable Not applicable 100-130 Not applicable >350 No data 1.1 (bulk density: 0.4) Negligible			
0. STABILITY	AND REACTIVITY				
Conditions Materials t Ignition Po	oint (°C): s Decomposition Produc	Stable Dust explosion, typical of most finely divided organic powders. Electric discharge; throwing into fire. Oxidizing materials. >350 ts: CO, CO <sub>2</sub> , and NO <sub>x</sub> None			

SHARP

Page: 3 of 3

Date Revised: Oct. 12, 2004 Date Issued: Dec. 01, 2003 MSDS No. F-01221

#### 11. TOXILOGICAL INFORMATION Acute Toxicity: Ingestion (oral): LD<sub>50</sub> > 2000mg/kg (Rats) $LC_{50} > 5.0 mg/L$ Inhalation: Dermal: 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. 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. 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 (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**

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

SHARP

Page: 1 of 3

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	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
America	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 [ ]	Preparati	on [X]			1	
<u>Ingredient</u>	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 Ent	ry: <u>Inhalation</u> ? Yes	<u>Skin</u> ? No	Ingestion? Possible bu	t highly unlikely.
Inhalation: Skin Contact:		r for 15 minutes		r, consult medical personnel. t is removed. If irritation occurs,
Eye Contact:	Immediately flush eyes personnel.	with water for	15 minutes. If in	ritation occurs, consult medical
Ingestion:	Immediately drink several	glasses of wate	r. If irritation occurs,	consult medical personnel.

SHARP

## Page: 2 of 3

Date Revised: Oct. 12, 2004 Date Issued: Nov. 30, 2000 MSDS No. F-01011

. FIRE-FIGHTI	NG MEASURES				
Special Fir	ning Media: re Fighting Procedures: xplosion Hazards:	Water, CO <sub>2</sub> , foam, and dry chemicals None Toner material, typical of most finely divided organic powders, may form an explosive mixture.			
ACCIDENTAL	L RELEASE MEASURES				
Environme	Precautions: ental Precautions: or Cleaning Up:	None None Wipe with paper or cloth towel. Do not use a vacuum cleaner to clean up large amount of released toner. Toner, typical of most finely divide organic powders, is capable of creating a dust explosion.			
HANDLING A	ND STORAGE				
Handling:	Technical Measures: Precautions: Safe Handling Advice:	None None Wear a dust mark 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: Storage Conditions: Incompatible Products:	None Keep container closed and store in a cool and dry place. None			
EXPOSURE	CONTROLS/PERSONAL	PROTECTION			
Exposure I OSHA ACGII Personal P Respir Hand Eye P Skin P	ng Measures: Limit Values A-PEL (USA): H-TLV (USA): Protective Equipment ratory Protection: Protection: Protection: Protection: Protection: Protective Equipment:	Ventilation. Not required under intended use. 15 mg/m <sup>3</sup> (Total Dust), 5mg/m <sup>3</sup> (Respirable Dust) 10 mg/m <sup>3</sup> (Total Dust), 3mg/m <sup>3</sup> (Respirable Dust) Not required under intended use. Not required under intended use. Not required under intended use. Not required under intended use. 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.			
PHYSICAL A	ND CHEMICAL PROPER	TIES			
Ph: Boiling/Me Softening Flash Poin Ignition Po	cal state: Solid Forn Point (°C): ht (°C): bint (°C): Properties: /cm <sup>3</sup> ):	m: Powder Color: Black Odor: Odorless Not applicable Not applicable 100-130 Not applicable >350 No data 1.1 (bulk density: 0.4) Negligible			
0. STABILITY	AND REACTIVITY				
Conditions Materials t Ignition Po	oint (°C): Decomposition Produc	Stable Dust explosion, typical of most finely divided organic powders. Electric discharge; throwing into fire. Oxidizing materials. >350 ts: CO, CO <sub>2</sub> , and NO <sub>x</sub> None			

SHARP

Page: 3 of 3

Date Revised: Oct. 12, 2004 Date Issued: Nov. 30, 2000 MSDS No. F-01011

#### **11. TOXILOGICAL INFORMATION** Acute Toxicity: Ingestion (oral): $LD_{50} > 2000 mg/kg$ (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 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. 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. In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree Chronic Effect: 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

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