

Material Safety Data Sheets AR Series Corporate Copiers

June 2001

Model Number

MSDS Number

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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/m₃ 3.5mg/m ្ ្ 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/m³) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m³) exposure group, but no pulmonary change was reported in the lowest (1mg/m³) 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

Ingredients	<u>CAS No.</u>	Proportion	<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
o ,		carbon black at levels that induce
5	•	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
3 3		of the rats in the high concentration (16mg/m ³)
		e of fibrosis was noted in 22% of the animals
in the middle (4mg/m ³) e	xposure group, but no	o pulmonary change was reported in the
lowest (1mg/m ³) 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	⁰ 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 ar	id alkalines.	
Hazardous Decompositi		•	ves, Carbon monoxide whe	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						
Ingredients		<u>CAS No.</u>	Proportion	<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 (Emergen ng no immed	cy Overview) iate hazard. The			
Toner is a fine, black pow effects from exposure bas	dentificatio r /der possessi sed on anima	84179-66-8 (Emergen 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 (Emergen 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 (Emergen 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 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 (Emergen ng no immed I tests perforr any sympton SI 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 (Emergen 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 <u>I occur.</u> 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 (Emergeno 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 (Emergen ng no immed I tests perforr any sympton SI 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 (Emergen 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 interfection of this toner is of 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. the as a Group 2B composition of the development	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 (Emergen 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 comparison providence on which the development of the black at levels the possible but very unversion the development of the black at levels the providence on the black at levels the black at levels the providence on 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 (Emergeno 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 (Emergeno ng no immed I tests perforr any sympton Support	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 (Emergeno ng no immed I tests perforr any sympton Support	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 (Emergeno 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
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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 (Emergend Ing no immed I tests perform any sympton SI SI 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 wa	cy Overview) iate hazard. The med using toner. ms of fibrosis will cin? Io Pro- of this toner is o of Ames test is n ted carbon black ion is given to ch fficient animal evid is 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	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 ³) expo	84179-66-8 (Emergen ng no immed I tests perforr any sympton SI 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 second s	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 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 ³) expo	84179-66-8 (Emergen ng no immed I tests perforr any sympton SI 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 second s	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 ³) expo ne animals in	84179-66-8 (Emergen Ing no immed I tests perform any sympton SI 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 ³) 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 llmonary 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 ³) expo ne animals in in the lowest	84179-66-8 (Emergen Ing no immed I tests perform any sympton SI 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 ³) 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 second s	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 llmonary 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 ³) expo- ne animals in in the lowest cposures.	84179-66-8 (Emergen Ing no immed I tests perform any sympton SI 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 ³) 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 llmonary change v	le of s ar d no

MATERIAL SAFETY DATA SHEET (2/2)

Section 5. Health Hazard Data (Co	ntinued)		
Emergency and First Aid Procedure			
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 [°] C		
Flammable Limits	: (LEL); Not applicable		icable
Extinguishing Media	: CO ₂ , 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 _X		
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.	Proportion	<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 ³	0.5mg/m ³	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 LDL₀ 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/m³) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m³) exposure group, but no pulmonary change was reported in the lowest (1mg/m³) 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)

	(6 , (1 , 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	Data		
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	$: > 350^{\circ}C$		
Flammable Limits	: (LEL); Not applicable	(UEL); Not appli	cable
Extinguishing Media	: CO ₂ , 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		
		- 	

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>	Proportion	<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 [°]	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/m³) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m³) exposure group, but no pulmonary change was reported in the lowest (1mg/m³) 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 ⁰ C (C	C.O.C.)	
Ignition Temperature	: No data available		
Flammable Limits	: (LEL); Not known	(UEL); Not know	wn
Extinguishing Media	: CO ₂ , 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 ⁰	-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.	Proportion	<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]
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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 ₂ , 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 _x	
Hazardous Polymerization	: Will not occur.	
Section 9. Precautions for Safe H	ndling and lise	
	spiratory, Eye Protection and Protective (Glove) [.]
	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.	Proportion	<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/m³) exposure group, and a minimal to mild degree of fibrosis was noted in22% of the animals in the middle (4mg/m³) exposure group, but no pulmonary change was reported in the lowest (1mg/m³) 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	 1.1 Negligible Not applicable Not applicable Red
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	 Not applicable > 350°C (LEL); Not applicable CO₂, dry chemical, foam None This material has no unus None None None 		
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/m³) exposure group, and a minimal to mild degree of fibrosis was noted in22% of the animals in the middle (4mg/m³) exposure group, but no pulmonary change was reported in the lowest (1mg/m³) 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	 1.1 Negligible Not applicable Not applicable Red
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	 Not applicable > 350°C (LEL); Not applicable CO₂, dry chemical, foan None This material has no unu None None None None 		
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 Leak : 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>	Proportion	<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/m³) exposure group, and a minimal to mild degree of fibrosis was noted in22% of the animals in the middle (4mg/m³) exposure group, but no pulmonary change was reported in the lowest (1mg/m³) 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	 1.1 Negligible Not applicable Not applicable Red
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 ⁰ C : (LEL); Not applicable : CO ₂ , 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.	Proportion	<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 ³	0.5mg/m ³	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 LDL₀ 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/m³) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m³) exposure group, but no pulmonary change was reported in the lowest (1mg/m³) 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			
Emergency and First Aid Procedures			
	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 ⁰ C		
Flammable Limits	: (LEL); Not applicable	(UEL); Not appl	icable
Extinguishing Media	: CO ₂ , 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 matchai.	
	. 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.	Proportion	<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 [°]	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 12 mg/l 1/Hrs

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/m³) exposure group, and a minimal to mild degree of fibrosis was noted in22% of the animals in the middle (4mg/m³)exposure group, but no pulmonary change was reported in the lowest (1mg/m³) 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 ₂ , 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	
	temperature. (> 300° 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				
Ingredients	<u>CAS No.</u>	Proportion	<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 ³) exposur	e group, and a minin	nal to mild degree of fibrosis was noted in	
	22% of the animals in the	middle (4mg/m ³) exp	posure group, but no pulmonary change was	
	reported in the lowest (1r	ng/m ³) 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 ⁰ C (C.O.C.)	
gnition Temperature	: No data available		
Flammable Limits		(UEL); Not applicable	
Extinguishing Media	: CO ₂ , 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				
Ingredients	CAS No.	Proportion	<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 [°]	3.5mg/m ^³	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 ₂ , 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 ⁰ 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 ³	3.5mg/m ³	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 Te	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	 Not applicable No data available (LEL); Not known CO₂, dry chemical, foam 	(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.	 Health = 1 Flammat This product is not a contrast This product is not a haza None allocated. 	olled product.	ivity = 0		
Section 11. Other Information					

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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.	Proportion	<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 ³	3.5mg/m ³	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 --- LDL₀ 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 ⁰ C		
Flammable Limits	: (LEL); Not applicable	(UEL); Not appl	icable
Extinguishing Media	: CO ₂ , 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 onvironnionai rogala	
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

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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.	Proportion	<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 ₃ O ₄)	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 ^³	3.5mg/m [°]	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)					
Emergency and First Aid Procedures	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	(0			
Extinguishing Media	: CO ₂ , 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 [°] 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
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Ingredients	CAS No.	Proportion	<u>OSHA PEL</u>	ACGIH TLV	Other Limits
Carbon black	1333-86-4	< 0.6%	3.5mg/m ³	3.5mg/m [°]	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 --- LDL₀ 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)

Section 5. Health Hazard Data (Col	tinued)		MSDS No. F-30921
Emergency and First Aid Procedures			
	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 [°] 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	č	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 Agars	avated by Exposure : Non	0	
	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 appliVapor Pressure:Not appliVapor Density:Not appliEvaporation Rate:Not appliAppearance:Fine powOdor:OdorlessSection 7. Fire and Explosion Date	icable icable vder S	Specific Gravity Solubility in Water PH Viscosity Color	 about 7.5 Negligible Not applicable Not applicable Dark red
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	 Not applicable > 350°C (LEL); Not applicable CO₂, dry chemical, foan None This material has no unu None None None 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 Har 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 Leak : Sweep up or clear : Waste material may b	e quantity of toner or du mized as with any non-t n up with vacuum clean	rring long roxic dust. er. tions 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 con 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	Iress	
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.	Proportion	<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 ³	3.5mg/m ³	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 --- LDL₀ 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)

Section 5. Health Hazard Data (Co	ntinued)		
Emergency and First Aid Procedure	S :		
	to fresh air. If effects occur, c		
Eye In case	of contact, immediately flush e	yes with water for 15	minutes.
Section 6. Physical Chemical Cha	racteristics		
BoilingMelting Point : Not app		Specific Gravity	: About 5
Vapor Pressure : Not app		Solubility in Water	: Negligible
Vapor Density : Not app		PH	: Not applicable
Evaporation Rate : Not app		Viscosity	: Not applicable
Appearance : Fine pov		Color	: Black
Odor : Odorles			
Section 7. Fire and Explosion Da			
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	$: > 350^{\circ}C$		
Flammable Limits		(UEL); Not appli	Cable
Extinguishing Media	: CO ₂ , dry chemical, foam	or water	
Special Fire Fighting Procedure	: None	ol fire or evelopies be	vzarda
Unusual Fire and Explosion Hazard		al fire or explosion na	izards.
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	andling and Use		
Personal Protection Information (Re		d Protective Glove):	
Use of a dust mask is recom	nended when handling a large	quantity of toner or du	Iring long
term exposure, as with any ne	on-toxic dust.		
Engineering Control / Ventilation	•		
Work / Hygienic Practice			
Steps to be taken in case of Spill or			
Waste Disposal Method	: Waste material may be	-	
	federal, state and local	environmental regulat	ions.
Section 10. Regulatory Information	1		
NFPA Rating (U.S.A.)	: Health = 1 Flammab	ility = 1 Reac	tivity = 0
WHMIS Legislation (Canada)	: This product is not a contr	•	, -
Transport Information	: This product is not a haza		
UN No.	: None allocated.		
Section 11. Other Information References : IARC (19	ING) INDC Monographs on the	Evolution of the Corr	pinagania Dick of Chamicals
	96) IARC Monographs on the		
Humans, Vol. 65, Printing Process a	iu Finung inks, Carbon Black	and Some Nitro Com	Jounds, Lyon,
pp-149-261	ora C Dasonbrook U Ernst	P Kilppor I C Moo	Konzio
H. Muhle, B. Bellmann, O. Creutzen P. Morrow, U. Mohr, S. Takenaka, a			
F. MUTUW, U. MUTI, S. Takenaka, a	na n. menneistein (1991) Pull	ionally response to 1	
Inhalation Exposure in Rats. Fundar		17 nn 280 200	

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	
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.	Proportion	<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 ₃ O 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 [°]	3.5mg/m [°]	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)

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, foar	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)	: Strong acids or alkalines		
Hazardous Decomposition	: Phenol derivatives. Carb		ted to high temperatures
·····	(> 300 [°] 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 or du	ing long
Engineering Control / Ventilation			
Work / Hygienic Practice	: Inhalation should be mini	mized as with any non-t	oxic dust
Steps to be taken in case of Spill or I			
Waste Disposal Method	: Waste material may b	-	
		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 haz : 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	ogy 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.	Proportion	OSHA PEL	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 Dat	ta		
Route(s) of Entry : <u>Inhalation?</u>	<u>Skin?</u>	Ingestion?	
Yes	No	Possible but very unusual.	
Health Hazards : Acute Toxicity: LD	50 > 2,000mg/kg. LC5	50 > 5.97 mg/L'4Hrs	
Mutagenicity (Ame	s Test): Negative. (S.ty	phimurium,Escherichia coli)	
(Note: data is	from testing of the inclu	ided toner.)	
U J		black as a Group 2B carcinogen (pn to chemicals for which there is	oossible
G ,	•	mal evidence on which to base an o	pinion of
•		oon the development of lung tumors	•
3		carbon black at levels that induce	
5	•	ed in animal models other than rats	did
•	•	ck and lung tumors. While there ha	
date using developer, a	a two-year cancer bioas	ssay using a typical toner preparation	on containing carbon
		ne developer mixture) demonstrated	
toner exposure and tun	nor 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: October 1, 1997 Date Issued : May 16, 1994

MSDS No. F-3451

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	L Characteristics				
BoilingMelting Point : Not appl		Specific Gravity	: 5.0		
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 : Odorless	5				
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 ₂ , dry chemical, foar	n or water			
Special Fire Fighting Procedure	: None				
Unusual Fire and Explosion Hazard	: This material has no unu	isual 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)	compatibility (Material to Avoid) : Strong acids or alkalines				
Hazardous Decomposition	: Phenol deriviatives, Carbon monoxide when heated to high temperatures				
·	(>300°C)				
Hazardous Polymerization					
·					
Section 9. Precautions for S	afe Handling and Us	se			
Personal Protection Information (Re	espiratory, Eye Protection	and Protective Glove)	:		
Use of a dust mask is recomn	nended when handling a larg	e quantity of toner or du	uring long		
term exposure, as with any no	on-toxic dust.				
Engineering Control / Ventilation	: Not required.				
Work / Hygienic Practice					
Steps to be taken in case of Spill or		n up with vacuum clear			
Waste Disposal Method	: Waste material may b				
•		al environmental regula			
		.			
Section 10. Regulatory Inform	mation				
NFPA Rating (U.S.A.)		ability = 1 Read	tivity = 0		
WHMIS Legislation (Canada)	: This product is not a co				
Transport Information	: This product is not a haz				
UN No.	: None allocated.				
Section 11 Other Informatio	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