

Material Safety Data Sheets AL / ZT Series SOHO Copiers

June 2001

Model Number

MSDS Number

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MATERIAL SAFETY DATA SHEET (1/2)

				M	SDS No. F-00621
Section 1. Product Identification	า				
Product :					
ZT-81TD1 (Black Toner, Blue La	oel)				
Section 2. Supplier's Name and	Address				
Sharp Corporation					
22-22 Nagaike-cho, Abeno-ku, Osa	ika, Japan				
Local suppliers are listed below. P	lease contact the	nearest supplie	r for additional in	formation.	
(Countr	/)	(Name an	d Telephone Nu	umber)	
U.S.A.	Sharp E	lectronics Corpo	oration		
	Telepho	ne number for in	formation: 1-800	-237-4277	
	Emerge	ncy telephone nu	umber : 1-800-2	55-3924	
Canad		lectronics of Car			
			formation: 905-8		
			umber : 1-800-2	55-3924	
United		lectronics (U.K.)			
Kingdo	m Telepho	ne number for in	formation: 01923	8-474013	
Section 3. Ingredients		Bronortion			Other Limite
Ingredients	<u>CAS No.</u> 25767-47-9	Proportion > 89%	OSHA PEL Not listed	ACGIH TLV	<u>Other Limits</u> None
Styrene acrylate copolymer Carbon black		> 09% < 5%	3	Not listed	None
Triphenylmethane dye	1333-86-4	< 5% < 2%	3.5mg/m [°] Not listed	3.5mg/m Not listed	None
Polyethylene	29243-26-3 9003-07-0	< 2% < 2%	Not listed	Not listed	None
Iron oxide	1317-61-9	< 2%	Not listed	Not listed	None
IION OXIDE	1317-01-9	< 270	NUL IISLEU	NUL IISLEU	none
Toner is a fine, black powder posse effects from exposure based on an to instructions, studies do not indic Section 5. Health Hazard Data	imal tests perform	ned using toner.	When used as i		
Route(s) of Entry : Inhalation?	Sk	in?	Ingestion	?	
Yes	No		ossible but very u	nusual.	
Health Hazards : Acute oral	toxicity LD50	of this toner is o	ver 2,000mg/kg.		
Mutagenic	ty The result of	of Ames test is n	egative.		
Carcinogenicity : In 1996 the	e IARC reevaluate	ed carbon black	as a Group 2B c	arcinogen (possib	le
human carcinogen)	. This classificati	on is given to ch	emicals for which	n there is	
inadequate human					
carcinogenicity. Th	e classification is	based upon the	development of	lung tumors in rate	S
receiving chronic ir	•				
particle overload of	-	•			
not show any asso					
cancer bioassay us				lack demonstrate	d no
association betwee					
	in rats of chronic				
moderate degree o					
ration (16mg/m ³) e	ration (16mg/m ³) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m ³) exposure group, but no pulmonary change was				
					vas
reported in the low	est (1mg/m°) exp	osure group, the	e most relevant le	vel to potential	
human exposures.					
Signs and Symptoms of Exposu			th avaasses to -		
Minimal irritation to				ny non-toxic dust.	
Medical Conditions Generally A	yyravaleu by EX	wooure . None	;		

Date Revised: December 30, 1997 Date Issued: November 1, 1997

MATERIAL SAFETY DATA SHEET (2/2)

Section 5. Health Hazard Data (Co	ntinued)		MSDS No. F-0062	
Emergency and First Aid Procedure				
	to fresh air. If effects occ	ur consult medical persor	nel	
	of contact, immediately flu	· · ·		
Lyc in date	or contact, immediately ne	ish eyes with water for to		
Section 6. Physical Chemical Cha	racteristics			
BoilingMelting Point : Not app		Specific Gravity	: 1.1	
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	ta			
Flash Point (Method Used)	: Not applicable			
Ignition Temperature	: No data available			
Flammable Limits	: (LEL); Not applicable		icable	
Extinguishing Media	: CO ₂ , dry chemical, fo	oam or water		
Special Fire Fighting Procedure	: None			
Unusual Fire and Explosion Hazard	: This material has no ι	inusual 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			
Hazardous Polymerization	: Will not occur.			
Section 9. Precautions for Safe H				
			•	
Personal Protection Information (R				
Use of a dust mask is recomm	mended when handling a la			
Use of a dust mask is recommendation term exposure, as with any n	nended when handling a la on-toxic dust.			
Use of a dust mask is recommendation term exposure, as with any n Engineering Control / Ventilation	nended when handling a la on-toxic dust. : Not required.	arge quantity of toner or di	uring long	
Use of a dust mask is recommendation term exposure, as with any n Engineering Control / Ventilation Work / Hygienic Practice	nended when handling a la on-toxic dust. : Not required. : Inhalation should be n	arge quantity of toner or di	uring long toxic dust.	
Use of a dust mask is recommended term exposure, as with any n Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill of	nended when handling a la on-toxic dust. : Not required. : Inhalation should be n r Leak : Sweep up or c	arge quantity of toner or di ninimized as with any non- ean up with vacuum clear	uring long toxic dust. er.	
Use of a dust mask is recommended term exposure, as with any n Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill of	nended when handling a la on-toxic dust. : Not required. : Inhalation should be n Leak : Sweep up or c : Waste material ma	arge quantity of toner or du ninimized as with any non- lean up with vacuum clear y be disposed under cond	uring long toxic dust. er. itions which meet all	
Use of a dust mask is recommended term exposure, as with any n Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill of	nended when handling a la on-toxic dust. : Not required. : Inhalation should be n Leak : Sweep up or c : Waste material ma	arge quantity of toner or di ninimized as with any non- ean up with vacuum clear	uring long toxic dust. er. itions which meet all	
Use of a dust mask is recommended term exposure, as with any mean form the exposure, as with any mean form of the exposure of the exposed of	nended when handling a la on-toxic dust. : Not required. : Inhalation should be n r Leak : Sweep up or c : Waste material ma federal, state and	arge quantity of toner or du ninimized as with any non- lean up with vacuum clear y be disposed under cond	uring long toxic dust. er. itions which meet all	
Use of a dust mask is recommended term exposure, as with any ne Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill of Waste Disposal Method	nended when handling a la on-toxic dust. : Not required. : Inhalation should be n r Leak : Sweep up or c : Waste material ma federal, state and	arge quantity of toner or di ninimized as with any non- ean up with vacuum clear y be disposed under cond local environmental regula	uring long toxic dust. er. itions which meet all tions.	
Use of a dust mask is recommended term exposure, as with any means the second of the second s	nended when handling a la on-toxic dust. : Not required. : Inhalation should be n r Leak : Sweep up or c : Waste material ma federal, state and <u>n</u> : Health = 1 Flan	arge quantity of toner or di ninimized as with any non- ean up with vacuum clear y be disposed under cond local environmental regula	uring long toxic dust. er. itions which meet all	
Use of a dust mask is recommended term exposure, as with any ne Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill of Waste Disposal Method Section 10. Regulatory Information NFPA Rating (U.S.A.) WHMIS Legislation (Canada)	nended when handling a la on-toxic dust. : Not required. : Inhalation should be n r Leak : Sweep up or c : Waste material ma federal, state and n : Health = 1 Flan : This product is not a	arge quantity of toner or di ninimized as with any non- ean up with vacuum clear y be disposed under cond local environmental regula mability = 1 Reac controlled product.	uring long toxic dust. er. itions which meet all tions.	
Use of a dust mask is recommendation term exposure, as with any n Engineering Control / Ventilation Work / Hygienic Practice	nended when handling a la on-toxic dust. : Not required. : Inhalation should be n r Leak : Sweep up or c : Waste material ma federal, state and <u>n</u> : Health = 1 Flan	arge quantity of toner or di ninimized as with any non- ean up with vacuum clear y be disposed under cond local environmental regula mability = 1 Reac controlled product.	uring long toxic dust. er. itions which meet all tions.	
Use of a dust mask is recommended term exposure, as with any ne Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill of Waste Disposal Method Section 10. Regulatory Information NFPA Rating (U.S.A.) WHMIS Legislation (Canada) Transport Information	nended when handling a la on-toxic dust. : Not required. : Inhalation should be n r Leak : Sweep up or c : Waste material ma federal, state and n : Health = 1 Flan : This product is not a : This product is not a	arge quantity of toner or di ninimized as with any non- ean up with vacuum clear y be disposed under cond local environmental regula mability = 1 Reac controlled product.	uring long toxic dust. er. itions which meet all tions.	
Use of a dust mask is recommended to the second state of the secon	 mended when handling a lason-toxic dust. Not required. Inhalation should be nor content of the second state of the second state and the second state a	arge quantity of toner or di ninimized as with any non- lean up with vacuum clear y be disposed under cond local environmental regula mability = 1 Reac controlled product. mazardous material.	uring long toxic dust. er. itions which meet all tions. tivity = 0	
Use of a dust mask is recommended to the second dust mask is recommended to the second dust mask is recommended to the second dust of the second dust dust dust dust dust dust dust dus	 mended when handling a lason-toxic dust. Not required. Inhalation should be nor content of the second state of the second state and the second state a	arge quantity of toner or di ninimized as with any non- lean up with vacuum clear y be disposed under cond local environmental regula mability = 1 Reac controlled product. mazardous material.	uring long toxic dust. er. itions which meet all tions. tivity = 0	
Use of a dust mask is recommended to the second state of the secon	 mended when handling a lagon-toxic dust. Not required. Inhalation should be nor teak: Sweep up or content in the state is the state and federal, state and the state is not a lagon teacher is product is not a lagon teacher is	arge quantity of toner or di ninimized as with any non- lean up with vacuum clear y be disposed under cond local environmental regula mability = 1 Reac controlled product. nazardous material.	uring long toxic dust. er. itions which meet all tions. tivity = 0 cinogenic Risk of Chemicals	
Use of a dust mask is recommended to the second descent of the second descent descent descent of the second descent de	 mended when handling a lagon-toxic dust. Not required. Inhalation should be nor teak: Sweep up or content Waste material material material, state and Health = 1 Flam This product is not a flam This product is not a flam None allocated. 	arge quantity of toner or di ninimized as with any non- lean up with vacuum clear y be disposed under cond local environmental regula mability = 1 Reac controlled product. nazardous material. the Evaluation of the Car lack and Some Nitro Com	uring long toxic dust. er. itions which meet all tions. tivity = 0 cinogenic Risk of Chemicals r pounds, Lyon,	
Use of a dust mask is recommended to the second design of the second des	 mended when handling a lason-toxic dust. Not required. Inhalation should be nor teak: Sweep up or conditional federal, state and federal, state and federal, state and federal, state and the state is product is not a federal. Health = 1 Flan is product is not a federal. This product is not a federal. None allocated. Description of the state is product is not a federal. None allocated. Description of the state is product. Description of the state is not a federal. Description of the state	arge quantity of toner or di ninimized as with any non- lean up with vacuum clear y be disposed under cond local environmental regula mability = 1 Reac controlled product. nazardous material. the Evaluation of the Car lack and Some Nitro Com Ernst, R. Kilpper, J. C. Mac	uring long toxic dust. er. itions which meet all tions. tivity = 0 cinogenic Risk of Chemicals t pounds, Lyon, :Kenzie,	

MATERIAL SAFETY DATA SHEET (1/2)

				(- <i>)</i> M	SDS No. F-00631
Section 1. Product Identification					
Product :					
ZT-81TD1 (Black Toner, White Lab	el)				
Section 2. Supplier's Name and					
Sharp Corporation					
22-22 Nagaike-cho, Abeno-ku, Osaka	a. Japan				
Local suppliers are listed below. Ple		nearest supplie	r for additional in	formation.	
(Country)			d Telephone Nu		
U.S.A.	Sharp E	lectronics Corpo	•	,	
			formation: 1-800	-237-4277	
			umber : 1-800-25		
Canada	-	lectronics of Ca			
			formation: 905-8	90-2100	
			umber : 1-800-25		
United		lectronics (U.K.)			
Kingdom	•		formation: 01923	-474013	
rangaan	releptio				
Section 3. Ingredients					
Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Styrene-Acrylate copolymer	25767-47-9	> 87%	Not listed	Not listed	None
Carbon black	1333-86-4	< 6%	3.5mg/m ³	3.5mg/m ³	None
Triphenylmethane dye	29243-26-3	< 2%	Not listed	Not listed	None
Polypropylene	9003-07-0	< 3%	Not listed	Not listed	None
Ferrite		< 2%	Not listed	Not listed	None
Iron oxide	1317-61-9				
Manganese oxide	1344-43-0				
Zinc oxide	1314-13-2				
Section 4. Hazardous Identification		v Overview)			
Toner is a fine, black powder posses			ere are no anticipa	ated carcinogenic	
effects from exposure based on anim	al tests perform	ned using toner.	When used as in	ntended according	2
to instructions, studies do not indica					·
Section 5. Health Hazard Data					
Route(s) of Entry : <u>Inhalation?</u>	<u>Sk</u>	<u>in?</u>	Ingestion?	2	
Yes	No	o Po	ossible but very u	nusual.	
Health Hazards : Acute oral to	xicity LDL ₀ c	of this toner is ow	ver 2,000mg/kg.		
Mutagenicity	The result of	of Ames test is n	egative.		
Carcinogenicity : In 1996 the I	ARC reevaluate	ed carbon black	as a Group 2B c	arcinogen (possib	le
human carcinogen).	This classificati	on is given to ch	emicals for which	there is	
inadequate human ev	vidence, but suff	icient animal evi	dence on which t	o base an opinion	of
carcinogenicity. The	classification is	based upon the	e development of	lung tumors in rate	S
receiving chronic inha	alation exposure	es to free carbon	h black at levels th	nat induce	
particle overload of the	ne lung. Studie	s performed in a	animal models oth	er than rats did	
not show any associa	ation between c	arbon black and	I lung tumors. Me	oreover, a two-yea	ar
cancer bioassay usin	g a typical tone	r preparation co	ntaining carbon b	lack demonstrate	d no
association between	toner exposure	and tumor deve	elopment in rats.		
			sure to a typical to		
moderate degree of I	ung fibrosis wa	s observed in 92	2% of the rats in t	he high concent-	
ration (16mg/m ³) exp	osure group, ar	nd a minimal to r	mild degree of fib	rosis was noted ir	า
22% of the animals in	n the middle (4n	ng/m³) exposure	group, but no pu	Imonary change v	vas
reported in the lowes	t (1mg/m ³) exp	osure group, the	e most relevant le	vel to potential	
human exposures.					
Signs and Symptoms of Exposure	:				
Minimal irritation to re	espiratory tract	may occur as wi	ith exposure to a	ny non-toxic dust.	
Medical Conditions Generally Age	ravated by Ex	posure : None)		

Date Revised: December 30, 1997 Date Issued : July 1, 1996

MATERIAL SAFETY DATA SHEET (2/2)

			MSDS No. F-00631
Section 5. Health Hazard Data (
Emergency and First Aid Procedu			
	e to fresh air. If effects occur	· ·	
Eye In cas	e of contact, immediately flus	h eyes with water for 15	minutes.
Section 6. Physical Chemical C	haracteristics		
BoilingMelting Point : Not ap	oplicable	Specific Gravity	: 1.1
Vapor Pressure : Not ap	oplicable	Solubility in Water	: Negligible
Vapor Density : Not a	plicable	PH	: Not applicable
Evaporation Rate : Not a	plicable	Viscosity	: Not applicable
	owder	Color	: Black
Odor : Odor			
Section 7. Fire and Explosion	Data		
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	$: > 350^{\circ}C$		
Flammable Limits	: (LEL); Not applicable	(UEL); Not appl	licable
Extinguishing Media	: CO ₂ , dry chemical, foa		
Special Fire Fighting Procedure	: None		
Unusual Fire and Explosion Haza	rd : This material has no ur	usual fire or explosion h	azards
Sensitivity to Mechanical Impact	: None		
Sensitivity to Static Charge	: None		
conclusive change			
Section 8. Reactivity Data			
Stability	: Stable		
Incompatibility (Material to Avoid)			
Hazardous Decomposition	: CO and NOx		
Hazardous Polymerization	: Will not occur.		
nazaraodo r orymonization			
Section 9. Precautions for Safe	Handling and Use		
Personal Protection Information (and Protective Glove)	:
	mmended when handling a lar		
term exposure, as with any	5	5- 1	
Engineering Control / Ventilation			
Work / Hygienic Practice	: Inhalation should be mi	nimized as with any non-	toxic dust.
Steps to be taken in case of Spill			
Waste Disposal Method		be disposed under cond	
		cal environmental regula	
		dai onvironnionai rogala	
Section 10. Regulatory Informat	on		
NFPA Rating (U.S.A.)		nability = 1 Read	ctivity = 0
WHMIS Legislation (Canada)	: This product is not a co	J	· · · · · · · · · · · · · · · · · · ·
Transport Information	: This product is not a ha		
UN No.	: None allocated.		
	. None anotated.		
Section 11. Other Information			
	(1996) IARC Monographs on t	he Evaluation of the Car	cinogenic Risk of Chemicals to
Humans, Vol. 65, Printing Process			
pp-149-261			
H. Muhle, B. Bellmann, O. Creutze	anhera C. Dasenbrock H Er	nst R Kilnner I C Mar	Kenzie
P. Morrow, U. Mohr, S. Takenaka			
Inhalation Exposure in Rats. Fund			
initialation Exposure in Rats. Fund		yy 17, pp. 200-299	

Date Revised: Feb. 1, 1997 Date Issued : July 8, 1996

MATERIAL SAFETY DATA SHEET (1/2)

				M	<u>SDS No. F-00632</u>
Section 1. Product Identification	on				
Product :					
ZT-81TD2 (Red Toner)					
Section 2. Supplier's Name ar	nd Address				
Sharp Corporation					
22-22 Nagaike-cho, Abeno-ku, Os	saka, Japan				
Local suppliers are listed below.	Please contact the	nearest supplier	r for additional in	formation.	
(Coun			d Telephone Nu		
Ù.S./	A. Sharp E	lectronics Corpo	ration	,	
	Telepho	ne number for in	formation: 1-800	-237-4277	
	Emerge	ncy telephone nu	umber : 1-800-25	55-3924	
Cana	ada Sharp E	lectronics of Car	nada Ltd.		
	Telepho	ne number for in	formation: 905-8	90-2100	
	Emerge	ncy telephone nu	umber : 1-800-28	55-3924	
Unite		lectronics (U.K.)			
Kingo	dom Telepho	ne number for in	formation: 01923	-474013	
-					
Section 3. Ingredients					
Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Styrene-Acrylate copolymer	25767-47-9	> 85%	Not listed	Not listed	None
Titanium dioxide	13463-67-7	< 5%	10mg/m៓	10mg/m [°]	None
Organic pigment	6535-46-2	< 6%	Not listed	Not listed	None
Organic ammonium salt	102561-46-6	< 2%	Not listed	Not listed	None
Polypropylene	9003-07-0	< 2%	Not listed	Not listed	None
Section 4. Hazardous Identific	ation (Emergenc	y Overview)			

Section 5. Health Hazard Data

Route(s) of Entry :	Inhalation?	<u>Skin?</u>	Ingestion?	
	Yes	No	Possible but very unusual.	
Health Hazards :	This material has	been tested on "Acute	oral toxicity " and "Ames test".	
	It does not repres	ent a health hazard.		
Carcinogenicity :	<u>NTP?</u> <u>I</u>	ARC Monographs?	OSHA Regulated?	
	No	No	No	
Signs and Sympton	ns of Exposure	:		
Minir	nal irritation to respira	atory tract may occur as	with exposure to any non-toxic dust.	
Medical Conditions	Generally Aggravat	ted by Exposure : Nor	ne	
Emergency and Firs	st Aid Procedures			
Inhal	ation Remove to f	resh air. If effects occu	r, consult medical personnel.	
Eye	In case of c	contact, immediately flue	sh 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-00632

BoilingMelting Point	: Not applicable	Specific Gravity : 1.2	
Vapor Pressure	: Not applicable	Solubility in Water : Negligible	
Vapor Density	: Not applicable	PH : Not applicable	
Evaporation Rate	: Not applicable	Viscosity : Not applicable	
Appearance	: Fine powder	Color : Red	
Odor	: Odorless		
Ouoi	. Odoness		
Section 7. Fire and I	Explosion Data		
Flash Point (Method L	Jsed) : Not applicab	ble	
Ignition Temperature	: > 350°C		
Flammable Limits	: (LEL); Not a	applicable (UEL); Not applicable	
Extinguishing Media		nemical, foam or water	
Special Fire Fighting			
Unusual Fire and Exp		al has no unusual fire or explosion hazards.	
Sensitivity to Mechan		······································	
Sensitivity to Static C			
Section 8. Reactivity	Data		
Stability	: Stable		
Incompatibility (Mater	ial to Avoid) : None		
Hazardous Decompos		X	
Hazardous Polymeriza		ur.	
Section 9. Precaution	s for Safe Handling and U	Jse	
		Protection and Protective Glove):	
Use of a dust	mask is recommended when ha	andling a large quantity of toner or during long	
term exposure	, as with any non-toxic dust.		
Engineering Control /			
Work / Hygienic Pract	tice : Inhalation sh	hould be minimized as with any non-toxic dust.	
Steps to be taken in c	ase of Spill or Leak : Swee	ep up or clean up with vacuum cleaner.	
Waste Disposal Metho	od : Waste ma	aterial may be disposed under conditions which meet all	
	federal, s	state and local environmental regulations.	
Section 10. Regulator	ry Information		
NFPA Rating (U.S.A.)	: Health = 1	Flammability = 1 Reactivity = 0	
WHMIS Legislation (C	anada) : This product	t is not a controlled product.	
Transport Information		t is not a hazardous material.	
UN No.	: None allocat		

Section 6. Physical Chemical Characteristics

Date Revisedd : Feb. 1, 1997 Date Issued : July 8, 1996

MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-00633

Section 1. Product Identification

Product : ZT-81TD3 (Blue 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

Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Styrene-Acrylate copolymer	25767-47-9	> 80%	Not listed	Not listed	None
Titanium dioxide	13463-67-7	< 10%	10mg/mໍ	10mg/mໍ	None
Organic pigment	147-14-8	< 6%	Not listed	Not listed	None
Organic ammonium salt	102561-46-6	< 2%	Not listed	Not listed	None
Polypropylene	9003-07-0	< 2%	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 Ent	try : <u>In</u>	<u>halation?</u> Yes	<u>Skin?</u> No	Ingestion? Possible but very unusual.	
Health Hazards		This material has		oral toxicity " and "Ames test".	
Carcinogenicity	/ :	<u>NTP?</u> <u>I</u>	ARC Monographs?	OSHA Regulated?	
		No	No	No	
Signs and Sym	ptoms of	of Exposure	:		
	Minimal	irritation to respira	atory tract may occur as	with exposure to any non-toxic	dust.
Medical Condit	ions Ge	nerally Aggrava	ted by Exposure : Nor	ie ,	
		id Procedures			
	Inhalatio Eye			r, consult medical personnel. h eyes with water for 15 minute	s.

Date Revised : Feb. 1, 1997 Date Issued : July 8, 1996

MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-00633

Section 6. Physical Chemical Characteristics

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

Section 7. Fire and Explosion Data

: Not applicable
$: > 350^{\circ}$ C
: (LEL); Not applicable (UEL); Not applicable
: CO ₂ , dry chemical, foam or water
: None
: This material has no unusual fire or explosion hazards.
: None
: 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 Handling and Use

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

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust. Engineering Control / Ventilation : Not required. Work / Hygienic Practice : Inhalation should be minimized as with any non-toxic dust. Steps to be taken in case of Spill or Leak : Sweep up or clean up with vacuum cleaner. Waste Disposal Method :: Waste material may be disposed under conditions which meet all federal, state and local environmental regulations.

Section 10. Regulatory Information

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

MATERIAL SAFETY DATA SHEET (1/2)

Product :						
AL-100TD (Black Toner)						
Section 2. Supplier's Nar	no and Addro					
	ne and Addres	33				
Sharp Corporation	lui Ossius Isra					
22-22 Nagaike-cho, Abeno-					(
Local suppliers are listed be		ntact the				
((Country)	~ -		d Telephone Nu	imper)	
			lectronics Corpo		007 4077	
		•		formation: 1-800-		
		•		umber : 1-800-25	05-3924	
			lectronics of Car		00.0400	
		-		formation: 905-89		
		-	• •	umber : 1-800-25	00-3924	
			lectronics (U.K.)		474040	
	Kingdom	reiepnoi	he number for in	formation: 01923	-474013	
Section 3. Ingredients						
Ingredients	CA	S No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Styrene-homopolymer		3-53-6	> 40%	Not listed	Not listed	None
Styrene acrylate copolymer		7-14-1	< 35%	Not listed	Not listed	None
Carbon black		3-86-4	< 7%	3.5mg/m ³	3.5mg/m ³	None
Propylene-homopolymer	900	3-07-0	< 5%	Not listed	Not listed	None
Wax	800	2-74-2	< 5%	Not listed	Not listed	None
Iron oxide	131	7-61-9	< 7%	Not listed	Not listed	None
			< 170		Not hoteu	110110
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MATERIAL SAFETY DATA SHEET (2/2)

Section 5. Health Hazard Data (Cor	ntinued)
Emergency and First Aid Procedures	
	o fresh air. If effects occur, consult medical personnel.
	f 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	
Odor : Odorless	
Section 7. Fire and Explosion Data	3
Flash Point (Method Used)	: Not applicable
Ignition Temperature	$: > 350^{\circ}$ C
Flammable Limits	: (LEL); Not applicable (UEL); Not 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 explosion hazards.
Sensitivity to Mechanical Impact	: None
Sensitivity to Static Charge	: None
Section 8. Reactivity Data	0:11
Stability	: Stable
Incompatibility (Material to Avoid)	: None
Hazardous Decomposition	: CO and NO _X
Hazardous Polymerization	: Will not occur.
Section 9. Precautions for Safe Ha	Indling and Use
	spiratory, Eye Protection and Protective Glove):
	ended when handling a large quantity of toner or during long
term exposure, as with any no	
Engineering Control / Ventilation	
Work / Hygienic Practice	: Inhalation should be minimized as with any non-toxic dust.
	Leak : Sweep up or clean up with vacuum cleaner.
Waste Disposal Method	: Waste material may be disposed under conditions which meet all
Maste Disposal Method	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.
UN No.	: None allocated.
UN No. Section 11. Other Information	
UN No. Section 11. Other Information References : IARC (19	96) IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to
UN No. Section 11. Other Information References : IARC (19) Humans, Vol. 65, Printing Process an	
UN No. Section 11. Other Information References : IARC (19) Humans, Vol. 65, Printing Process an pp-149-261	96) IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to d Printing inks, Carbon Black and Some Nitro Compounds, Lyon,
UN No. Section 11. Other Information References : IARC (19) Humans, Vol. 65, Printing Process an pp-149-261 H. Muhle, B. Bellmann, O. Creutzenb	96) IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to d Printing inks, Carbon Black and Some Nitro Compounds, Lyon, erg, C. Dasenbrock, H. Ernst, R. Kilpper, J. C. MacKenzie,
UN No. Section 11. Other Information References : IARC (199 Humans, Vol. 65, Printing Process an pp-149-261 H. Muhle, B. Bellmann, O. Creutzenb P. Morrow, U. Mohr, S. Takenaka, ar	96) IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to d Printing inks, Carbon Black and Some Nitro Compounds, Lyon,

MATERIAL SAFETY DATA SHEET (1/2)

Product :						
AR-200TD/AL-160TD (B		_				
Section 2. Supplier's N	ame and Ad	dress				
Sharp Corporation						
22-22 Nagaike-cho, Aben						
Local suppliers are listed		e contact the				
	(Country)			nd Telephone Nu	imber)	
	U.S.A.		Electronics Corpo			
				nformation: 1-800		
		-		umber : 1-800-25	5-3924	
	Canada		Electronics of Ca		00.0400	
		•		formation: 905-8		
	المناهما	-		umber : 1-800-25	00-3924	
	United		Electronics (U.K.)		474042	
	Kingdom	relepric		nformation: 01923	-474013	
Section 3. Ingredients						
Ingredients		CAS No.	Proportion	<u>OSHA PEL</u>	ACGIH TLV	Other Limits
Styrene acrylate copolym	ner 2	9497-14-1	> 88.0%	Not listed	Not listed	None
Carbon black		1333-86-4		3.5mg/m	3.5mg/m	None
Iron oxide		1317-61-9	< 4.5%	Not listed	Not listed	None
Metal complex dye		9125-51-1		Not listed	Not listed	None
		9125-50-0	(total for all)			
	~					
Toner is a fine, black pow	dentification	g no immed	iate hazard. The			1
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Hazar	dentification der possessing sed on animal o not indicate a rd Data	(Emergen g no immed tests perform any sympton	iate hazard. The med using toner. ms of fibrosis wil	When used as in Il occur.	ntended according)
Toner is a fine, black pow effects from exposure bas to instructions, studies do Section 5. Health Hazar	dentification der possessing sed on animal o not indicate a rd Data alation?	(Emergen g no immed tests perform any sympton SI	iate hazard. The med using toner. ms of fibrosis wil	When used as in Il occur. Ingestion?	ntended according)
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MATERIAL SAFETY DATA SHEET (2/2)

	ntinued)		
Emergency and First Aid Procedure			
	to fresh air. If effects occu		
Eye In case of	of contact, immediately flue	sh eyes with water for 15	minutes.
Section 6. Physical Chemical Char			
BoilingMelting Point : Not appli		Specific Gravity	: 1.1
Vapor Pressure : Not appli		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	5		
Section 7. Fire and Explosion Dat	а		
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	: > 350 [°] C		
Flammable Limits	. ,	(UEL); Not appl	cable
Extinguishing Media	: CO ₂ , dry chemical, for	am or water	
Special Fire Fighting Procedure	: None		
Unusual Fire and Explosion Hazard	: This material has no u	nusual 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 NO _X		
Hazardous Polymerization	: Will not occur.		
Section 9. Precautions for Safe Ha	andling and Use		
Personal Protection Information (Re			
lloo of a dust mask is received	nended when handling a la	rge quantity of toner or du	iring long
	-		
term exposure, as with any no	on-toxic dust.		
term exposure, as with any no Engineering Control / Ventilation	on-toxic dust. : Not required.		
term exposure, as with any no Engineering Control / Ventilation Work / Hygienic Practice	n-toxic dust. : Not required. : Inhalation should be m	inimized as with any non-	
term exposure, as with any no Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill or	n-toxic dust. : Not required. : Inhalation should be m Leak : Sweep up or cle	ean up with vacuum clean	er.
term exposure, as with any no Engineering Control / Ventilation Work / Hygienic Practice	 n-toxic dust. Not required. Inhalation should be m Leak : Sweep up or clean in the state is waste material may 	ean up with vacuum clean / be disposed under cond	er. itions which meet all
term exposure, as with any no Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill or	 n-toxic dust. Not required. Inhalation should be m Leak : Sweep up or clean in the state is waste material may 	ean up with vacuum clean	er. itions which meet all
term exposure, as with any no Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill or Waste Disposal Method	on-toxic dust. : Not required. : Inhalation should be m Leak : Sweep up or cle : Waste material may federal, state and lo	ean up with vacuum clean / be disposed under cond ocal environmental regula	er. itions which meet all ions.
term exposure, as with any no Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill or Waste Disposal Method Section 10. Regulatory Information NFPA Rating (U.S.A.)	n-toxic dust. : Not required. : Inhalation should be m Leak : Sweep up or cla : Waste material may federal, state and lo : Health = 1 Flam	ean up with vacuum clean y be disposed under cond ocal environmental regular mability = 1 Reac	er. itions which meet all
term exposure, as with any no Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill or Waste Disposal Method Section 10. Regulatory Information NFPA Rating (U.S.A.) WHMIS Legislation (Canada)	n-toxic dust. : Not required. : Inhalation should be m Leak : Sweep up or cla : Waste material may federal, state and lo : Health = 1 Flam : This product is not a c	ean up with vacuum clean y be disposed under cond ocal environmental regular mability = 1 Reac ontrolled product.	er. itions which meet all ions.
term exposure, as with any no Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill or Waste Disposal Method Section 10. Regulatory Information NFPA Rating (U.S.A.) WHMIS Legislation (Canada) Transport Information	 n-toxic dust. Not required. Inhalation should be m Leak : Sweep up or clean Waste material may federal, state and loan Health = 1 Flam This product is not a clean This product is not a h 	ean up with vacuum clean y be disposed under cond ocal environmental regular mability = 1 Reac ontrolled product.	er. itions which meet all ions.
term exposure, as with any no Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill or Waste Disposal Method Section 10. Regulatory Information NFPA Rating (U.S.A.) WHMIS Legislation (Canada)	n-toxic dust. : Not required. : Inhalation should be m Leak : Sweep up or cla : Waste material may federal, state and lo : Health = 1 Flam : This product is not a c	ean up with vacuum clean y be disposed under cond ocal environmental regular mability = 1 Reac ontrolled product.	er. itions which meet all ions.
term exposure, as with any no Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill or Waste Disposal Method Section 10. Regulatory Information NFPA Rating (U.S.A.) WHMIS Legislation (Canada) Transport Information	 n-toxic dust. Not required. Inhalation should be m Leak : Sweep up or clean Waste material may federal, state and loan Health = 1 Flam This product is not a clean This product is not a h 	ean up with vacuum clean y be disposed under cond ocal environmental regular mability = 1 Reac ontrolled product.	er. itions which meet all ions.
term exposure, as with any no Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill or Waste Disposal Method Section 10. Regulatory Information NFPA Rating (U.S.A.) WHMIS Legislation (Canada) Transport Information UN No. Section 11. Other Information References : IARC (19 Humans, Vol. 65, Printing Process ar	 n-toxic dust. Not required. Inhalation should be m Leak : Sweep up or clean Waste material may federal, state and located Health = 1 Flam This product is not a construct is not a herein the state and located. 	ean up with vacuum clean be disposed under cond cal environmental regular mability = 1 Reac controlled product. azardous material. the Evaluation of the Car	er. itions which meet all ions. tivity = 0 cinogenic Risk of Chemicals
term exposure, as with any no Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill or Waste Disposal Method Section 10. Regulatory Information NFPA Rating (U.S.A.) WHMIS Legislation (Canada) Transport Information UN No. Section 11. Other Information References : IARC (19 Humans, Vol. 65, Printing Process ar pp-149-261	 n-toxic dust. Not required. Inhalation should be m Leak : Sweep up or clean Waste material may federal, state and locate Health = 1 Flam This product is not a clean This product is not a h None allocated. 	ean up with vacuum clean y be disposed under cond ocal environmental regular mability = 1 Reac controlled product. azardous material. the Evaluation of the Card ack and Some Nitro Com	er. itions which meet all ions. tivity = 0 cinogenic Risk of Chemicals pounds, Lyon,
term exposure, as with any no Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill or Waste Disposal Method Section 10. Regulatory Information NFPA Rating (U.S.A.) WHMIS Legislation (Canada) Transport Information UN No. Section 11. Other Information References : IARC (19 Humans, Vol. 65, Printing Process ar	 n-toxic dust. Not required. Inhalation should be m Leak : Sweep up or clean Waste material may federal, state and locate Health = 1 Flam This product is not a chain the state is not a	ean up with vacuum clean y be disposed under cond ocal environmental regular mability = 1 Reac ontrolled product. azardous material. the Evaluation of the Card ack and Some Nitro Com rnst, R. Kilpper, J. C. Mac	er. itions which meet all ions. tivity = 0 cinogenic Risk of Chemicals counds, Lyon, Kenzie,

Date Revised: September 29, 1997 Date Issued :July 20, 1995

MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-0111

Section 1. Product Identification

Product :

ZT-60T1 (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

Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Carbon black	1333-86-4	5.0%	3.5mg/m [°]	3.5mg/m [°]	None
Styrene-Acrylate copolymer	27136-15-8	92.5%	Not listed	Not listed	None
Ammonium salt	56-37-1	2.0%	Not listed	Not listed	None
Color pigment	25869-98-1	0.5%	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 Haza	Ird Data		
Route(s) of Entry : Inhalati	on? Skin?	Ingestion?	
Ye	s No	Possible but very unusual.	
Health Hazards : Acute	oral toxicity LDL ₀ of this	toner is over 5,000mg/kg.	
Mutag	genicity The result of Ame	es test is negative.	
Carcinogenicity : In 199	36 the IARC reevaluated car	bon black as a Group 2B carcinogen (p	oossible
human carcin	ogen). This classification is o	given to chemicals for which there is	
inadequate hu	man evidence, but sufficient	animal evidence on which to base an c	pinion of
carcinogenicit	 The classification is based 	d upon the development of lung tumors	in rats
receiving chro	nic inhalation exposures to fr	ree carbon black at levels that induce	
particle overlo	ad of the lung. Studies perfo	ormed in animal models other than rats	; did
not show any	association between carbon	black and lung tumors. Moreover, a ty	wo-year
cancer bioass	ay using a typical toner prep	aration containing carbon black demor	istrated no
association be	etween toner exposure and to	umor development in rats.	
Chronic Effect : In a s	tudy in rats of chronic inhalat	tion exposure to a typical toner, a mild	to
		erved in 92% of the rats in the high con	
		ninimal to mild degree of fibrosis was n	
) exposure group, but no pulmonary cha	
reported in the	Howest (1mg/m ³) exposure	group, the most relevant level to poten	itial
human exposi	ires.		
Signs and Symptoms of Exp	osure :		

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

Date Revised: September 29, 1997 Date Issued :July 20, 1995

MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-0111

Section 5. Health Hazard Data (Continued)

Emergency and First Aid Procedures :

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

·	· · · ·		
Section 6. Physical Chemical	Characteristics		
BoilingMelting Point : Not applie		Specific Gravity	: 1.26
Vapor Pressure : Not applie	cable	Solubility in Water	: Negligible
Vapor Density : Not applic		PH	: Not applicable
Evaporation Rate : Not applie		Viscosity	: Not applicable
Appearance : Fine power		Color	: Black
Odor : Odorless			
Section 7. Fire and Explosion	n Data		
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	: > 350 [°] C		
Flammable Limits	: (LEL); Not applicable	(UEL); Not appl	icable
Extinguishing Media	: CO2, dry chemical, foam	n or water	
Special Fire Fighting Procedure	: None		
Unusual Fire and Explosion Hazard	: This material has no unu	sual fire or explosion ha	azards.
Sensitivity to Mechanical Impact	: None		
Sensitivity to Static Charge	: None		
Section 8. Reactivity Data			
Stability	: Stable		
Incompatibility (Material to Avoid)	: None		
Hazardous Decomposition	: CO, CO ₂ , and NOx		
Hazardous Polymerization	: Will not occur.		
Section 9. Precautions for Sa	afe Handling and Us	e	
Personal Protection Information (Res	spiratory, Eye Protection a	and Protective Glove)	
Use of a dust mask is recomm	ended when handling a large	e quantity of toner or du	uring long
term exposure, as with any no	n-toxic dust.		
Engineering Control / Ventilation	: Not required.		
Work / Hygienic Practice	: Inhalation should be mini	mized as with any non-t	toxic dust.
Steps to be taken in case of Spill or	Leak : Sweep up or clear	n up with vacuum clean	er.
Waste Disposal Method	: Waste material may b	e disposed under cond	itions which meet all
	federal, state and loca	al environmental regulat	tions.

Section 10. Regulatory InformationNFPA Rating (U.S.A.): Health = 1Flammability = 1Reactivity = 0WHMIS Legislation (Canada): This product is not a controlled product.Transport Information: This product is not a hazardous material.UN No.: None allocated.

Section 11. Other Information

References : IARC (1996) IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol. 65, Printing Process and Printing inks, Carbon Black and Some Nitro Compounds, Lyon, pp-149-261

H. Muhle, B. Bellmann, O. Creutzenberg, C. Dasenbrock, H. Ernst, R. Kilpper, J. C. MacKenzie,

P. Morrow, U. Mohr, S. Takenaka, and R. Mermelstein (1991) Pulmonary Response to Toner upon Chronic Inhalation Exposure in Rats. Fundamental and Applied Toxicology 17, pp. 280-299

MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-0112

Section 1. Product Identification Product : ZT-60T2 (Red 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

Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Titanium oxide	13463-67-7	15.5%	15mg/m	10mg/m	None
Styrene-Acrylate copolymer	27136-15-8	77.0%	Not listed	Not listed	None
Ammonium salt	56-37-1	2.5%	Not listed	Not listed	None
Organic pigment	5280-66-0	5.0%	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	v ∶ <u>Inhalation?</u> Yes	<u>Skin?</u> No	Ingestion? Possible but very unusual.	
Health Hazards	: Acute Oral To	xicity: LDL_0 of this toner is		
Carcinogenicity	: <u>NTP?</u> No	IARC Monographs? No	OSHA Regulated? No	
No No No Signs and Symptoms of Exposure : Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust. Medical Conditions Generally Aggravated by Exposure : Accumulation of dust in the respiratory system. 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: September 29, 1997 Date Issued : July 20, 1995

: 1.25

: Red

: Negligible

: Not applicable

: Not applicable

MATERIAL SAFETY DATA SHEET (2/2)

Specific Gravity

PH

Viscosity

Color

Solubility in Water

MSDS No. F-0112

Section 6. Physical Chemical Characteristics

BoilingMelting Point	: Not applicable
Vapor Pressure	: Not applicable
Vapor Density	: Not applicable
Evaporation Rate	: Not applicable
Appearance	: Fine powder
Odor	: Odorless

Section 7. Fire and Explosion Data

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

Section 8. Reactivity Data

Stability	: Stable
Incompatibility (Material to Avoid)	: None
Hazardous Decomposition	:CO, CO ₂ , and NOx
Hazardous Polymerization	: Will not occur.

Section 9. Precautions for Safe Handling and Use

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

Use of a dust mask is recommended when handling a large quantity of toner or during long

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

Section 10. Regulatory Information

NFPA Rating (U.S.A.)	: No data available
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

This MSDS replaces MSDS F-0052 (SF-80T2), F-0062 (SF-720T2), and MSDS F-0072 (SF-750T2) dated 7/20/95.

MATERIAL SAFETY DATA SHEET (1/2)

Section 1. Product Identification Product : ZT-60T3 (Blue 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

Ingredients	CAS No.	Proportion	<u>OSHA PĘL</u>	<u>ACGIH TĻV</u>	Other Limits
Titanium oxide	13463-67-7	10%	15mg/mັ	10mg/mັ	None
Styrene-Acrylate copolymer	27136-15-8	82%	Not listed	Not listed	None
Ammonium salt	56-37-1	4%	Not listed	Not listed	None
Organic pigment	147-14-8	4%	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 En	try : <u>Ir</u>	<u>nhalation?</u> Yes	<u>Skin?</u> No	Ingestion? Possible but very unusual.	
Health Hazards	S :	Acute Oral Tox	icity: LDL_0 of this toner is	5	
Carcinogenicit	y :	NTP?	IARC Monographs?	OSHA Regulated?	
-	-	No	No	No	
Signs and Sym	nptoms	of Exposure	:		
Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.					
Medical Conditions Generally Aggravated by Exposure : Accumulation of dust in the respiratory system.					
Emergency and	d 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.					

MSDS No. F-0113

Date Revised: September 29, 1997 Date Issued : July 20, 1995

: 1.25

: Red

: Negligible

: Not applicable

: Not applicable

MATERIAL SAFETY DATA SHEET (2/2)

Specific Gravity

PH

Viscosity

Color

Solubility in Water

MSDS No. F-0113

Section 6. Physical Chemical Characteristics

BoilingMelting Point	: Not applicable
Vapor Pressure	: Not applicable
Vapor Density	: Not applicable
Evaporation Rate	: Not applicable
Appearance	: Fine powder
Odor	: Odorless

Section 7. Fire and Explosion Data

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

Section 8. Reactivity Data

Stability	: Stable
Incompatibility (Material to Avoid)	: None
Hazardous Decomposition	: CO, CO ₂ , and NOx
Hazardous Polymerization	: Will not occur.

Section 9. Precautions for Safe Handling and Use

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

Use of a dust mask is recommended when handling a large quantity of toner or during long

 term exposure, as with any non-toxic dust.

 Engineering Control / Ventilation
 : Not required.

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

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

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

Section 10. Regulatory Information

NFPA Rating (U.S.A.)	: No data available
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

This MSDS replaces MSDS F-0052 (SF-80T2), F-0062 (SF-720T2), and MSDS F-0072 (SF-750T2) dated 7/20/95.

MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-0114

Section 1. Product Identification

Product :

ZT-60T4 (Sepia 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

Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Titanium oxide	13463-67-7	13.5%	15mg/mຼັ	10mg/m៓	None
Carbon black	1333-86-4	1.0%	3.5mg/m ³	3.5mg/m ³	None
Styrene-Acrylate copolymer	27136-15-8	80.0%	Not listed	Not listed	None
Organic pigment	58872-62-1	3.0%	Not listed	Not listed	None
Ammonium salt	56-37-1	2.5%	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.

Route(s) of Ent	ry : Inhalation?	Skin?	Ingestion?
	Yes	No	Possible but very unusual.
Health Hazards	: Acute oral tox	cicity LDL ₀ of this tone	er is over 5,000mg/kg.
	Mutagenicity ·	The result of Ames te	st is negative.
Carcinogenicity	: In 1996 the IA	ARC reevaluated carbon	black as a Group 2B carcinogen (possible
I	human carcinogen). 1	This classification is giver	n to chemicals for which there is
i	nadequate human evi	dence, but sufficient anin	nal evidence on which to base an opinion of
(carcinogenicity. The c	classification is based up	on the development of lung tumors in rats
1	receiving chronic inhal	lation exposures to free	carbon black at levels that induce
1	particle overload of the	e lung. Studies performe	ed in animal models other than rats did
I	not show any associat	tion between carbon blac	ck and lung tumors. Moreover, a two-year
(cancer bioassay using	a typical toner preparat	ion containing carbon black demonstrated no
á	association between to	oner exposure and tumo	r development in rats.
Chronic Effect	: In a study in r	ats of chronic inhalation	exposure to a typical toner, a mild to
1	moderate degree of lu	ing fibrosis was observe	d in 92% of the rats in the high concent-
I	ration (16mg/m ³) expo	sure group, and a minim	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
			up, the most relevant level to potential
I	numan exposures.		
	ptoms of Exposure	:	
-	Minimal irritation to rea	spiratory tract may occur	as with exposure to any non-toxic dust.
Madia al Oscalia			News

Medical Conditions Generally Aggravated by Exposure : None

MSDS No. F-0114

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	I Chemical Characteristics	5	
BoilingMelting Point	: Not applicable	Specific Gravity	: 1.25
Vapor Pressure	: Not applicable	Solubility in Water	: Negligible
Vapor Density	: Not applicable	PH	: Not applicable
Evaporation Rate	: Not applicable	Viscosity	: Not applicable
Appearance	: Fine powder	Color	: Sepia
Odor	: Odorless		
Section 7. Fire and	d Explosion Data		
Flash Point (Method Us	sed) : Not applicable		
Ignition Temperature	$: > 350^{\circ}C$		
Flammable Limits	: (LEL); Not applica	able (UEL); Not appli	icable
Extinguishing Media	hing Media : CO ₂ , dry chemical, foam or water		
Special Fire Fighting P	ecial Fire Fighting Procedure : None		
Unusual Fire and Explo	ual Fire and Explosion Hazard : This material has no unusual fire or explosion hazards.		

Unusual Fire and Explosion Hazard	: This material has no unusual fire or explosion hazard
Sensitivity to Mechanical Impact	: None
Sensitivity to Static Charge	: None

Section 8. Reactivity Data	
Stability	: Stable
Incompatibility (Material to Avoid)	: None
Hazardous Decomposition	: CO, CO ₂ , and NOx
Hazardous Polymerization	: Will not occur.

Section 9. Precautions for Safe Handling and Use

Personal Protection Information (R	espiratory, Eye Protection and Protective Glove):		
Use of a dust mask is recom	mended when handling a large quantity of toner or during long		
term exposure, as with any n	on-toxic dust.		
Engineering Control / Ventilation	: Not required.		
Work / Hygienic Practice	brk / Hygienic Practice : Inhalation should be minimized as with any non-toxic dust.		
Steps to be taken in case of Spill of	r Leak : Sweep up or clean up with vacuum cleaner.		
Waste Disposal Method	 Waste material may be disposed under conditions which meet all federal, state and local environmental regulations. 		

Section 10. Regulatory Information

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

Section 11. Other Information

References : IARC (1996) IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol. 65, Printing Process and Printing inks, Carbon Black and Some Nitro Compounds, Lyon, pp-149-261

H. Muhle, B. Bellmann, O. Creutzenberg, C. Dasenbrock, H. Ernst, R. Kilpper, J. C. MacKenzie,

P. Morrow, U. Mohr, S. Takenaka, and R. Mermelstein (1991) Pulmonary Response to Toner upon Chronic Inhalation Exposure in Rats. Fundamental and Applied Toxicology 17, pp. 280-299

This MSDS replaces MSDS F-0054 (SF-80T4), F-0064 (SF-720T4) and MSDS F-0074(SF-750T4) issued 7/1/96.

MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-0121 Section 1. Product Identification Product : ZT-50TD1/ZT-50DC1 (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 CAS No. Proportion OSHA PEL ACGIH TLV Other Limits Carbon black 1333-86-4 < 6% 3.5mg/m 3.5mg/m None Styrene-Acrylate copolymer 25767-47-9 > 90% Not listed Not listed None Nigrosine dye 8005-02-5 < 2% Not listed Not listed None

< 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.

9003-07-0

Section 5. Health Hazard Dat	a		
Route(s) of Entry : Inhalation		Ingestion?	
Yes	No	Possible but very unusual.	
Health Hazards : Acute o	ral toxicity LDL ₀ of this to	ner is over 2,000mg/kg.	
Mutagei	nicity The result of Ames	test is negative.	
Carcinogenicity : In 1996	the IARC reevaluated carbo	on black as a Group 2B carcinogen (possib	le
human carcinog	en). This classification is giv	en to chemicals for which there is	
inadequate huma	an evidence, but sufficient ar	nimal evidence on which to base an opinion	ı of
carcinogenicity.	The classification is based u	upon the development of lung tumors in rat	S
receiving chronic	c inhalation exposures to free	e carbon black at levels that induce	
•	e .	med in animal models other than rats did	
•		lack and lung tumors. Moreover, a two-ye	
		ation containing carbon black demonstrate	d no
	een toner exposure and tur	•	
	•	n exposure to a typical toner, a mild to	
		red in 92% of the rats in the high concent-	
		imal to mild degree of fibrosis was noted ir	
		exposure group, but no pulmonary change v	Nas
•		roup, the most relevant level to potential	
human exposure			
Signs and Symptoms of Expo		itation to respiratory tract may occur as wit	th
exposure to any	non-toxic dust.		

Medical Conditions Generally Aggravated by Exposure : None

Polyolefin wax

MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-0121

Emergency and First Aid Procedu Inhalation Remov		cur, consult medical person	nel.
Eye In cas	e of contact, immediately fl	ush eyes with water for 15	minutes.
Section 6. Physical Chemical Ch	aracteristics		
	plicable	Specific Gravity	: 1.1
Vapor Pressure : Not ap	plicable	Solubility in Water	: Negligible
Vapor Density : Not ap	plicable	PH	: Not applicable
Evaporation Rate : Not ap		Viscosity	: Not applicable
Appearance : Fine p	owder	Color	: Black
Odor : Odorle	ess		
Section 7. Fire and Explosion D	ata		
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	$: > 350^{\circ}C$		
Flammable Limits	: (LEL); Not applicable	e (UEL); Not appli	cable
Extinguishing Media	: CO ₂ , dry chemical, f		
Special Fire Fighting Procedure	: None		
Unusual Fire and Explosion Hazar	d : This material has no	unusual fire or explosion ha	zards.
Sensitivity to Mechanical Impact	: None		
Sensitivity to Static Charge	: None		
Section 9 Reactivity Data			
Section 8. Reactivity Data Stability	: Stable		
Incompatibility (Material to Avoid)			
Hazardous Decomposition	: CO and NOx		
Hazardous Polymerization	: Will not occur.		
Section 9. Precautions for Safe		on and Protective Clave)	
Personal Protection Information (Use of a dust mask is recor			
term exposure, as with any		large quantity of toner of de	
Engineering Control / Ventilation	: Not required.		
Work / Hygienic Practice		minimized as with any non-t	oxic dust
Steps to be taken in case of Spill		5	
Waste Disposal Method		ay be disposed under cond	
		local environmental regulat	
Section 40 Demulatory Informati			
Section 10. Regulatory Informati NFPA Rating (U.S.A.)		mmability = 1 Reac	tivity = 0
WHMIS Legislation (Canada)	: This product is not a	-	avity = 0
Transport Information	: This product is not a		
UN No.	: None allocated.		
Section 11. Other Information			
References : IARC (1996) IARC N	•	-	
Humans Vol 65 Printing Process	and Printing inks. Carbon I	Black and Some Nitro Comp	bounds, Lyon,
pp-149-261	J .,	1	•

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

Date Revised: August 1, 1996 Date Issued : October 3, 1994

MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-0411-1

Section 1. Product Identification

Product :

ZT-20TD1 (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

Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Styrene-Acrylate copolymer	25767-47-9	89.5%	Not listed	Not listed	None
Carbon black	1333-86-4	5%	3.5mg/m [°]	3.5mg/m [°]	None
Polyethylene	9002-88-4	2.0%	Not listed	Not listed	None
Iron oxide	1317-61-9	1.5%	Not listed	Not listed	None
Organic pigment	29243-26-3	1.0%	Not listed	Not listed	None
Polypropylene	25085-53-4	1.0%	Not listed	Not listed	None

Section 4. (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 :			er is over 2,000mg/kg.	
	Mutagenicity T	he result of Ames te	est is negative.	
Carcinogenicity :	In 1996 the IARC	reevaluated carbon	black as a Group 2B carcinogen (possible	
humar	n carcinogen). This	classification is give	n to chemicals for which there is	
inadeq	juate human evidend	ce, but sufficient anir	mal evidence on which to base an opinion of	
	e .	•	oon the development of lung tumors in rats	
	•	•	carbon black at levels that induce	
•		U	ed in animal models other than rats did	
			ck and lung tumors. Moreover, a two-year	
			tion containing carbon black demonstrated no	
		-	or development in rats.	
Chronic Effect :	•		exposure to a typical toner, a mild to	
			d in 92% of the rats in the high concent-	
			nal to mild degree of fibrosis was noted in	
			posure group, but no pulmonary change was	
		ng/m [°]) exposure gro	up, the most relevant level to potential	
	n exposures.			
Signs and Symptoms	s 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 1, 1996 Date Issued : October 3, 1994

MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-0411-1

Section 5. Health Hazard Data (Continued)

Emergency and First Aid Procedures :

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

Section 6. Physica	I Chemical Characteristi	CS	
BoilingMelting Point	: Not applicable	Specific Gravity	: 1.1
Vapor Pressure	: Not applicable	Solubility in Water	: Negligible
Vapor Density	: Not applicable	PH	: Not applicable
Evaporation Rate	: Not applicable	Viscosity	: Not applicable
Appearance	: Fine powder	Color	: Black
Odor	: Odorless		

Section	1.	Fire	and	Explosion	Data
Elect. Del				-1)	Not south a

Flash Point (Method Used)	: Not applicable
Ignition Temperature	$: > 350^{\circ}$ C
Flammable Limits	: (LEL); Not applicable (UEL); Not 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 explosion hazards.
Sensitivity to Mechanical Impact	: None
Sensitivity to Static Charge	: None
· · · · ·	

Section 8. Reactivity Data

ble
ne
and NOx
not occur.

Section 9. Precautions for Safe Handling and Use

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

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

Section 10. Regulatory Information NFPA Rating (U.S.A.) Health = 1Flammability = 1WHMIS Legi Transport In

ng (U.S.A.)	:	Health = 1	Flammability = 1	Reactivity = 0
gislation (Canada)	:	This product is r	ot a controlled product.	
Information	:	This product is n	ot a hazardous material.	
	:	None allocated.		

Section 11. Other Information

UN No.

IARC (1996) IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to **References** : Humans, Vol. 65, Printing Process and Printing inks, Carbon Black and Some Nitro Compounds, Lyon, pp-149-261

H. Muhle, B. Bellmann, O. Creutzenberg, C. Dasenbrock, H. Ernst, R. Kilpper, J. C. MacKenzie,

P. Morrow, U. Mohr, S. Takenaka, and R. Mermelstein (1991) Pulmonary Response to Toner upon Chronic Inhalation Exposure in Rats. Fundamental and Applied Toxicology 17, pp. 280-299

Date Revised: December 30, 1997 Date Issued : November 1, 1997

MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-30621

Section 1. Product Identification	
Product :	
ZT-81TD1 (Black Developer, Blue Labe	91)
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	<u>CAS No.</u>	Proportion	<u>OSHA PEL</u>	ACGIH TLV	Other Limits
Iron powder	7439-89-6	> 90%	Not listed	Not listed	None
Styrene-Acrylate copolymer	25767-47-9	< 9%	Not listed	Not listed	None
Carbon black	1333-86-4	< 0.5%	3.5mg/m	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 H	lazard Data			
Route(s) of Entry :	Inhalation?	Skin?	Ingestion?	
	Yes	No	Possible but very unusual.	
Health Hazards :	Acute oral toxicit	y LDL ₀ of the tone	er which is included in this developer is	over 2,000mg/kg.
	Mutagenicity		ncluded in this developer has been test	ed on the Ames test.
Carcinogenicity :	In 1996 the IARC	C reevaluated carbon	black as a Group 2B carcinogen (pos	sible
huma	an carcinogen). This	classification is give	n to chemicals for which there is	
inade	quate human evider	nce, but sufficient ani	mal evidence on which to base an opin	ion of
carcir	nogenicity. The clas	sification is based up	oon the development of lung tumors in	rats
receiv	ving chronic inhalatio	on exposures to free	carbon black at levels that induce	
partic	le overload of the lu	ng. Studies perform	ed in animal models other than rats did	t
not sl	how any association	between carbon bla	ck and lung tumors. While there have	been no studies to
			ssay using a typical toner preparation of	
			he developer mixture) demonstrated no	
toner	exposure and tumo	r development in rate	5.	
Signs and Symptom	•	:		

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

Date Revised: December 30, 1997 Date Issued : November 1, 1997

MATERIAL SAFETY DATA SHEET (2/2)

Section 5. Health Hazard Data (Con	ntinued)		10000110.1-00021			
Emergency and First Aid Procedures						
Inhalation Remove t	o fresh air. If effects occur,	consult medical person	nel.			
Eye In case of	of contact, immediately flush	eyes with water for 15	minutes.			
Section 6. Physical Chemical Char		On a sifin One site				
BoilingMelting Point : Not appli		Specific Gravity	: 4.7			
Vapor Pressure : Not appli		Solubility in Water	: Negligible			
Vapor Density: Not appliEvaporation Rate: Not appli		PH Viscosity	: Not applicable : Not applicable			
• •		Color	: Black			
Odor : Odorless						
Section 7. Fire and Explosion Data	a					
Flash Point (Method Used)	: Not applicable					
Ignition Temperature	: No data available.					
Flammable Limits	: (LEL); Not applicable	(UEL); Not appli	icable			
Extinguishing Media	: CO ₂ , dry chemical, foar	n or water				
Special Fire Fighting Procedure	: None					
Unusual Fire and Explosion Hazard		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)	: None					
Hazardous Decomposition	: CO and NOx					
Hazardous Polymerization	: Will not occur.					
Section 9. Precautions for Safe Ha						
Personal Protection Information (Re						
Use of a dust mask is recomm		e quantity of toner or du	iring long			
term exposure, as with any no Engineering Control / Ventilation						
Work / Hygienic Practice	: Inhalation should be min	mized as with any non-t	ovic dust			
Steps to be taken in case of Spill or		n up with vacuum clean				
Waste Disposal Method	: Waste material may b					
Hade Diepedal Method		al environmental regulat				
Section 10. Regulatory Information						
NFPA Rating (U.S.A.)		-	tivity = 0			
WHMIS Legislation (Canada)	: This product is not a cor					
Transport Information	: This product is not a haz	ardous material.				
UN No.	: None allocated.					
Section 11. Other Information						
	96) IARC Monographs on th	e Evaluation of the Card	cinogenic Risk of Chemicals to			
Humans, Vol. 65, Printing Process an pp-149-261	, .		-			
H. Muhle, B. Bellmann, O. Creutzenb	erg, C. Dasenbrock, H. Ern	st, R. Kilpper, J. C. Mac	Kenzie,			
P. Morrow, U. Mohr, S. Takenaka, ar Inhalation Exposure in Rats. Fundar	nd R. Mermelstein (1991) Pu	Imonary Response to T				

Date Revised: December 30, 1997 Date Issued : July 1, 1996

MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-30631

Section 1. Product Identification	
Product :	
ZT-81TD1 (Black Developer, White Lab	el)
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	<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
Carbon black	1333-86-4	< 0.6%	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?	<u>Skin?</u>	Ingestion?	
	Yes	No	Possible but very unusual.	
Health Hazards :	Acute oral toxicity	/ LDL ₀ of the tone	er which is included in this developer is over 2,000mg/	kg.
	Mutagenicity 1	The toner, which is ir	ncluded in this developer has been tested on the Ames	s test.
	The result is nega	ative.		
Carcinogenicity :	In 1996 the IARC	reevaluated carbor	n black as a Group 2B carcinogen (possible	
hum	an carcinogen). This	classification is give	en to chemicals for which there is	
inade	equate human eviden	ce, but sufficient ani	mal evidence on which to base an opinion of	
carci	nogenicity. The class	sification is based up	pon the development of lung tumors in rats	
recei	iving chronic inhalatio	n exposures to free	carbon black at levels that induce	
parti	cle overload of the lui	ng. Studies perform	ned in animal models other than rats did	
not s	show any association	between carbon bla	ick and lung tumors. While there have been no studies	s to
date	using developer, a ty	wo-year cancer bioa	ssay using a typical toner preparation containing carbo	on
black	k (a small amount of t	oner is included in t	he developer mixture) demonstrated no association be	etween
tone	r exposure and tumor	development in rate	S.	
Signs and Sympton	ns 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: December 30, 1997 Date Issued : July 1, 1996

MATERIAL SAFETY DATA SHEET (2/2)

Section 5. Health Hazard Data (Co	ntinued)		MSDS No. F-30631
Emergency and First Aid Procedure			
	 . .	consult modical porson	nol
	of contact, immediately flush		
		cyco with watch for to	
Section 6. Physical Chemical Cha	racteristics		
BoilingMelting Point : Not appl		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 : Odorless			
Section 7. Fire and Explosion Dat	a		
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	: > 350 [°] C		
Flammable Limits	: (LEL); Not applicable		cable
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)	: None		
Hazardous Decomposition	: CO and NOx		
Hazardous Polymerization	: Will not occur.		
Section 9. Precautions for Safe H		and Brotactive Clave)	
Personal Protection Information (Re Use of a dust mask is recomm			
term exposure, as with any no			
Engineering Control / Ventilation	: Not required.		
Work / Hygienic Practice	: Inhalation should be min	imized as with any non-t	ovic dust
Steps to be taken in case of Spill or		•	
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 co		
Transport Information	: This product is not a haz	zardous material.	
UN No.	: 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 a			
pp-149-261			
H. Muhle, B. Bellmann, O. Creutzent	erg, C. Dasenbrock, H. Erns	st, R. Kilpper, J. C. Mac	Kenzie,
P. Morrow, U. Mohr, S. Takenaka, a			
Inhalation Exposure in Rats. Fundar			-
-			

Date Revised: Feb. 1, 1997 Date Issued : July 8, 1996

MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-30632

				IV	3D3 NU. F-30032
Section 1. Product Identification					
Product :					
ZT-81TD2 (Red Developer)					
Section 2. Supplier's Name and A	ddress				
Sharp Corporation					
22-22 Nagaike-cho, Abeno-ku, Osaka,	Japan				
Local suppliers are listed below. Pleas	•	nearest supplie	r for additional in	formation.	
(Country)			nd Telephone Nu		
U.S.A.	Sharp F	lectronics Corpo	•		
0.0.7 \	•	•	nformation: 1-800	-237-4277	
	•		umber : 1-800-2		
Canada	•	electronics of Ca		00-0924	
Callaua	•			00.2100	
	•		formation: 905-8		
	•	• •	umber : 1-800-2	55-3924	
United	•	lectronics (U.K.)			
Kingdom	Telepho	ne number for in	formation: 01923	3-474013	
Section 3. Ingredients					
Ingredients	CAS No.	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 :	Inhalation? Yes	<u>Skin?</u> No	Ingestion? Possible but very unusual.	
Health Hazards : "Ames	The toner, whic	h is included in this deve	eloper, has been tested on "Acute oral toxicity " ar	nd
	test". It does r	not represent a health ha	azard.	
Carcinogenicity :	NTP?	IARC Monographs?	OSHA Regulated?	
	No	No	No	
Signs and Symptom	s of Exposure	:		
Minim	al irritation to resp	piratory tract may occur a	as with exposure to any non-toxic dust.	
Medical Conditions (Generally Aggrav	vated by Exposure : No	one	

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-30632

Section 6. Physical Chemical Characteristics

BoilingMelting Point: Not appVapor Pressure: Not appVapor Density: Not appEvaporation Rate: Not appAppearance: Fine pointOdor: Odorlest	licable licable licable wder	Specific Gravity Solubility in Water PH Viscosity Color	 about 7.5 Negligible Not applicable Not applicable Dark red
Section 7. Fire and Explosion Da	ta		
Flash Point (Method Used) Ignition Temperature Flammable Limits Extinguishing Media Special Fire Fighting Procedure Unusual Fire and Explosion Hazard Sensitivity to Mechanical Impact Sensitivity to Static Charge	 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 H	landling and Use		
term exposure, as with any n Engineering Control / Ventilation Work / Hygienic Practice Steps to be taken in case of Spill o Waste Disposal Method	mended when handling a larg on-toxic dust. : Not required. : Inhalation should be mini r Leak : Sweep up or clea : Waste material may b federal, state and loca	e quantity of toner or du mized as with any non- n up with vacuum clean	uring long toxic dust. er. itions which meet all
Section 10. Regulatory Informatio	n		
NFPA Rating (U.S.A.) WHMIS Legislation (Canada) Transport Information UN No.	: Health = 1 Flamma : This product is not a cor : This product is not a haz : None allocated.	trolled product.	tivity = 0

Date Revised: Feb. 1, 1997 Date Issued : July 8, 1996

MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-30633

Section 1. Product Identification Product : ZT-81TD3 (Blue 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
Iron powder	7439-89-6	> 89%	Not listed	Not listed	None
Styrene-Acrylate copolymer	25767-47-9	< 10%	Not listed	Not listed	None

Section 4. Hazardous Identification (Emergency Overview)

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

Section 5. Health Hazard Data

Route(s) of Entry :	Inhalation? Yes	<u>Skin?</u> No	Ingestion? Possible but very unusual.	
Health Hazards : "Ames	The toner, whic	h is included in this devel	oper, has been tested on "Acute or	al toxicity " and
	test". It does r	not represent a health ha	zard.	
Carcinogenicity :	NTP?	IARC Monographs?	OSHA Regulated?	
• •	No	No	No	
Signs and Symptom	s of Exposure	:		
Minin	nal irritation to resp	piratory tract may occur a	s with exposure to any non-toxic du	st.
Medical Conditions	Generally Aggrav	vated by Exposure : No	ne	

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

MSDS No. F-30633

MATERIAL SAFETY DATA SHEET (2/2)

Section 6. Physical Chemical Characteristics

BoilingMelting Point	:	Not applicable
Vapor Pressure	:	Not applicable
Vapor Density	:	Not applicable
Evaporation Rate	:	Not applicable
Appearance	:	Fine powder
Odor	:	Odorless

Specific Gravity Solubility in Water PH Viscosity Color about 7.5NegligibleNot applicable

- : Not applicable
- : Dark blue

Section 7. Fire and Explosion Data

Flash Point (Method Used) Ignition Temperature	: Not applicable : > 350ºC	
Flammable Limits	: (LEL); Not applicable (UEL); Not	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 explosi	on 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 NOx
Hazardous Polymerization	: Will not occur.

Section 9. Precautions for Safe Handling and Use

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

Use of a dust mask is recom	mended when handling a large quantity of toner or during long
term exposure, as with any n	on-toxic dust.
Engineering Control / Ventilation	: Not required.
Work / Hygienic Practice	: Inhalation should be minimized as with any non-toxic dust.
Steps to be taken in case of Spill of	r Leak : Sweep up or clean up with vacuum cleaner.
Waste Disposal Method	: Waste material may be disposed under conditions which meet all
	federal, state and local environmental regulations.

Section 10. Regulatory Information

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

Date Revised: February 25, 1999 Date Issued : June 1, 1998

MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-30831

Section 1. Product Identification	
Product :	
AL-100TD (Black Developer)	
Section 2. Supplier's Name and Addr	ess
Sharp Corporation	
22-22 Nagaike-cho, Abeno-ku, Osaka, Jap	pan
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

Section 3. Ingredients					
Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Iron powder	7439-89-6	> 90%	Not listed	Not listed	None
Styrene homopolymer	9003-53-6	< 4%	Not listed	Not listed	None
Styrene-Acrylate copolymer	29497-14-1	< 4%	Not listed	Not listed	None
Carbon black	1333-86-4	< 0.7%	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. Heal	th H	azard Data			
Route(s) of Ent	ry:	Inhalation?	<u>Skin?</u>	Ingestion?	
		Yes	No	Possible but very unusual.	
Health Hazards	:	Acute oral toxici	ty LDL ₀ of the tone	er which is included in this developer is over	er 2,000mg/kg.
		Mutagenicity	The toner, which is in	cluded in this developer has been tested of	on the Ames test.
		The result is neg	gative.		
Carcinogenicity	1 :	In 1996 the IAR	C reevaluated carbon	black as a Group 2B carcinogen (possible	9
	huma	n carcinogen). Thi	s classification is give	n to chemicals for which there is	
i	inade	quate human evide	nce, but sufficient anii	mal evidence on which to base an opinion	of
	carcir	nogenicity. The cla	ssification is based up	oon the development of lung tumors in rats	
	receiv	ing chronic inhalat	on exposures to free	carbon black at levels that induce	
	partic	le overload of the l	ung. Studies perform	ed in animal models other than rats did	
	not sl	now any association	n between carbon bla	ck and lung tumors. While there have bee	n no studies to
	date	using developer, a	two-year cancer bioas	ssay using a typical toner preparation cont	aining carbon
	black	(a small amount of	toner is included in t	he developer mixture) demonstrated no as	sociation between
1	toner	exposure and tume	or development in rate	а. С.	
Signs and Sym	ptom	s of Exposure			
	A				

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

Medical Conditions Generally Aggravated by Exposure : None

Date Revised: February 25, 1999 Date Issued : June 1, 1998

MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-30831				
ccur, consult medical personnel.				
flush eyes with water for 15 minutes.				
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
Specific Gravity : 5.4				
Solubility in Water : Negligible				
PH : Not applicable				
Viscosity : Not applicable				
Color : Black				
ble (UEL); Not applicable				
, foam or water				
o unusual fire or explosion hazards.				
ncompatibility (Material to Avoid) : None Iazardous Decomposition : CO and NOx				
tion and Protective Glove):				
a large quantity of toner or during long				
a minimized op with any new toxic dust				
e minimized as with any non-toxic dust. r clean up with vacuum cleaner.				
may be disposed under conditions which meet all				
Id local environmental regulations.				
lammability = 1 Reactivity = 0				
a controlled product.				
a hazardous material.				
and the Eveloption of the Openia in 1 Did. (Ob. 1) is				
on the Evaluation of the Carcinogenic Risk of Chemicals t				
Black and Some Nitro Compounds, Lyon,				
I. Ernst, R. Kilpper, J. C. MacKenzie,				
91) Pulmonary Response to Toner upon Chronic				

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

MATERIAL SAFETY DATA SHEET (1/2)

MSDS No. F-30841

Section 1. Product Identification	
Product :	
AL-200TD/AL-160TD (Black Developer)	
Section 2. Supplier's Name and Add	Iress
Sharp Corporation	
22-22 Nagaike-cho, Abeno-ku, Osaka, Ja	ipan
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
Iron powder	7439-89-6	> 92.5%	Not listed	Not listed	None
Styrene-Acrylate copolymer	29497-14-1	< 7.0%	Not listed	Not listed	None
Carbon black	1333-86-4	< 0.5%	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 H	lazard Data			
Route(s) of Entry :	Inhalation?	Skin?	Ingestion?	
	Yes	No	Possible but very unusual.	
Health Hazards :	Acute oral toxicit	y LDL ₀ of the tone	r which is included in this develop	er is over 2,000mg/kg.
	Mutagenicity	The toner, which is in	cluded in this developer has been	tested on the Ames test.
	The result is neg	ative.		
Carcinogenicity :	In 1996 the IARC	C reevaluated carbon	black as a Group 2B carcinogen	(possible
huma	an carcinogen). This	s classification is give	n to chemicals for which there is	
inade	equate human evider	nce, but sufficient anir	nal evidence on which to base an	opinion of
carci	nogenicity. The clas	sification is based up	on the development of lung tumor	s in rats
recei	ving chronic inhalatio	on exposures to free	carbon black at levels that induce	
partic	cle overload of the lu	ing. Studies perform	ed in animal models other than rat	s did
not s	how any association	between carbon blac	ck and lung tumors. While there h	ave been no studies to
date	using developer, a t	wo-year cancer bioas	ssay using a typical toner preparat	ion containing carbon
black	(a small amount of	toner is included in th	ne developer mixture) demonstrate	ed no association between
toner	exposure and tumo	or development in rats	i.	
Signs and Sympton	ns 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 : June 1, 1998

MATERIAL SAFETY DATA SHEET (2/2)

Section 5. Health Hazard Data (Co	ntinued)		MSDS No. F-30841
Emergency and First Aid Procedure			
	to fresh air. If effects occur,	consult medical persor	nel
	of contact, immediately flush		
Lyc	or contact, immediately husi	cycs with water for 10	minutes.
Section 6. Physical Chemical Cha	racteristics		
BoilingMelting Point : Not appl		Specific Gravity	: About 7.3
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	6		
Section 7. Fire and Explosion Dat			
Flash Point (Method Used)	: Not applicable		
Ignition Temperature	: > 350 [°] C		
Flammable Limits	: (LEL); Not applicable		icable
Extinguishing Media	: CO ₂ , dry chemical, foar	n or water	
Special Fire Fighting Procedure	: None	and fine on surfactor 1	
Unusual Fire and Explosion Hazard		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)	: None		
Hazardous Decomposition	: CO and NOx		
Hazardous Polymerization	: Will not occur.		
-			
Section 9. Precautions for Safe H			
Personal Protection Information (Re			
Use of a dust mask is recomm		e quantity of toner or du	uring long
term exposure, as with any no			
Engineering Control / Ventilation	: Not required.		
Work / Hygienic Practice	: Inhalation should be min		
Steps to be taken in case of Spill or			
Waste Disposal Method	: Waste material may b	-	
	federal, state and loc	al environmental regula	tions.
Section 10. Regulatory Information	1		
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 ha	•	
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. Creutzenl			
P. Morrow, U. Mohr, S. Takenaka, a			Foner upon Chronic
Inhalation Exposure in Rats. Fundar	nental and Applied Toxicolog	y 17, pp. 280-299	

MSDS No. F-3121

MATERIAL SAFETY DATA SHEET (1/2)

Section 1. Product Identification

Product :

ZT-50TD1/ZT-50DC1 (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
Iron Powder	7439-89-6	> 93%	Not listed	Not listed	None
Styrene-Acrylate copolymer	25767-47-9	< 6%	Not listed	Not listed	None
Carbon black	1333-86-4	< 0.3%	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 D	ata			
Route(s) of Entry :	Inhalation?	Skin?	Ingestion?		
	Yes	No	Possible but very unusual.		
Health Hazards :	Acute oral to	pxicity LDL ₀ of the tone	er included in this developer is over 2	,000mg/kg.	
	Mutagenicity	The toner, which is ir	ncluded in this eveloper has been tes	ted on the Ames test.	
		The result is negativ	e.		
Carcinogenicity :	In 1996 the l	ARC reevaluated carbor	h black as a Group 2B carcinogen (po	ossible	
humar	n carcinogen).	This classification is give	en to chemicals for which there is		
inadeo	quate human ev	vidence, but sufficient ani	mal evidence on which to base an op	inion of	
carcin	ogenicity. The	classification is based up	oon the development of lung tumors in	n rats	
receiv	ing chronic inha	alation exposures to free	carbon black at levels that induce		
particl	e overload of th	ne lung. Studies perform	ed in animal models other than rats of	bid	
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					
			he developer mixture) demonstrated		
toner exposure and tumor development in rats.					
Signs and Symptom	•	•			

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 1, 1996 Date Issued September 1, 1992

MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-3121

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.

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

Flash Point (Method Used) : Not applicable
Ignition Temperature : > 350°C
Flammable Limits : (LEL); Not applicable (UEL); Not 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 explosion hazards.
Sensitivity to Mechanical Impact : None
Sensitivity to Static Charge : None

Section 8. Reactivity Data

Stability	: Stable
Incompatibility (Material to Avoid)	: None
Hazardous Decomposition	: CO and NOx
Hazardous Polymerization	: Will not occur

Section 9. Precautions for Safe Handling and Use

Personal Protection Information (R	espiratory, Eye Protection and Protective Glove):				
Use of a dust mask is recom	mended when handling a large quantity of toner or during long				
term exposure, as with any n	on-toxic dust.				
Engineering Control / Ventilation	Engineering Control / Ventilation : Not required.				
Work / Hygienic Practice	Work / Hygienic Practice : Inhalation should be minimized as with any non-toxic dust.				
Steps to be taken in case of Spill or Leak : Sweep up or clean up with vacuum cleaner.					
Waste Disposal Method : Waste material may be disposed under conditions which meet all					
	federal, state and local environmental regulations.				

Section 10. Regulatory Information NFPA Rating (U.S.A.) : Health = 1 Flammability = 1 Reactivity = 0 WHMIS Legislation (Canada) : This product is not a controlled product. Transport Information : This product is not a hazardous material. UN No. : None allocated.

Section 11. Other Information

References : IARC (1996) IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol. 65, Printing Process and Printing inks, Carbon Black and Some Nitro Compounds, Lyon, pp-149-261

H. Muhle, B. Bellmann, O. Creutzenberg, C. Dasenbrock, H. Ernst, R. Kilpper, J. C. MacKenzie, P. Morrow, U. Mohr, S. Takenaka, and R. Mermelstein (1991) Pulmonary Response to Toner upon Chronic Inhalation Exposure in Rats. Fundamental and Applied Toxicology 17, pp. 280-299

MATERIAL SAFETY DATA SHEET (1/2)

Section 1. Product Identification

MSDS No. F-3181

Product :

ZT-30TD1/ZT-30DC1 (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	<u>OSHA PEL</u>	ACGIH TLV	Other Limits
Carbon black	1333-86-4	0.3%	3.5mg/m [°]	3.5mg/m [°]	None
Iron powder	7439-89-6	93.5%	Not listed	Not listed	None
Difluorethylene polymer	24937-79-9	0.5%	Not listed	Not listed	None
Styrene-Acrylate copolymer	25767-47-9	5.5%	Not listed	Not listed	None
Nigrosine dye	8005-02-5	0.2%	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 oral toxicity	/ LDL ₀ of the ton	er which is included in this developer is over 4,100mg/k	g.
	Mutagenicity 7	he toner, which is i	ncluded in this developer has been tested on the Ames	test.
	The result is nega	ative.		
Carcinogenicity	: In 1996 the IARC	reevaluated carbo	n black as a Group 2B carcinogen (possible	
hui	man carcinogen). This	classification is give	en to chemicals for which there is	
ina	dequate human eviden	ce, but sufficient an	imal evidence on which to base an opinion of	
car	cinogenicity. The class	sification is based u	pon the development of lung tumors in rats	
rec	eiving chronic inhalatio	n exposures to free	carbon black at levels that induce	
pai	ticle overload of the lu	ng. Studies perform	ned in animal models other than rats did	
not	show any association	between carbon bla	ack and lung tumors. While there have been no studies	to
			assay using a typical toner preparation containing carbo	
bla	ck (a small amount of t	oner is included in t	the developer mixture) demonstrated no association bet	ween
ton	er exposure and tumo	development in rat	S.	
Signs and Sympton		: '		
• • •	•	atory tract may occu	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:March 25, 1997 Date Issued :July 20, 1995

MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-3181

Section 5. Health Hazard Data (Continued)

Emergency and First Aid Procedures :

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

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

Section 6. Physical	Chemical Characteristics		
BoilingMelting Point	: Not applicable	Specific Gravity	: about 5
Vapor Pressure	: Not applicable	Solubility in Water	: Negligible
Vapor Density	: Not applicable	PH	: Not applicable
Evaporation Rate	: Not applicable	Viscosity	: Not applicable
Appearance	: Fine powder	Color	: Black
Odor	: Odorless		

	Section	7.	Fire	and	Explosion	Data
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Flash Point (Method Used)	: Not applicable		
Ignition Temperature	$: > 350^{\circ}$ C		
Flammable Limits	: (LEL); Not applicable (UEL); Not 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 explosion hazards.		
Sensitivity to Mechanical Impact	: None		
Sensitivity to Static Charge	: None		

Section 8. Reactivity Data

Stability	: Stable
Incompatibility (Material to Avoid)	: None
Hazardous Decomposition	: CO, CO ₂ , and NOx
Hazardous Polymerization	: Will not occur.

Section 9. Precautions for Safe Handling and Use

Personal Protection Information (Respiratory, Eye Protection and Protective Glove):						
Use of a dust mask is recommended when handling a large quantity of toner or during long						
term exposure, as with any non-toxic dust.						
Engineering Control / Ventilation	•					
Work / Hygienic Practice	: Inhalation should be minimized as with any non-toxic dust.					
Steps to be taken in case of Spill or Leak : Sweep up or clean up with vacuum cleaner.						
Waste Disposal Method	: Waste material may be disposed under conditions which meet all					
	federal, state and local environmental regulations.					
Section 10. Regulatory Information						
NFPA Rating (U.S.A.)	: Health = 1 Flammability = 1 Reactivity = 0					
WHMIS Legislation (Canada)	: This product is not a controlled product.					
Transport Information	: This product is not a hazardous material.					
UN No.	: None allocated.					

Section 11. Other Information

References : IARC (1996) IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol. 65, Printing Process and Printing inks, Carbon Black and Some Nitro Compounds, Lyon, pp-149-261

H. Muhle, B. Bellmann, O. Creutzenberg, C. Dasenbrock, H. Ernst, R. Kilpper, J. C. MacKenzie,

P. Morrow, U. Mohr, S. Takenaka, and R. Mermelstein (1991) Pulmonary Response to Toner upon Chronic

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

Date Revised: August 1, 1996 Date Issued : October 3, 1994

MSDS No. F-3411-1

MATERIAL SAFETY DATA SHEET (1/2)

Section 1. Product Identification

Product :

ZT-20TD1 (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	<u>OSHA PEL</u>	ACGIH TLV	Other Limits
Iron powder	7439-89-6	> 90%	Not listed	Not listed	None
Styrene-Acrylate copolymer	25767-47-9	< 10%	Not listed	Not listed	None
Carbon black	1333-86-4	< 0.5%	3.5mg/m ³	3.5mg/m ³	None

Section 4. (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				
Route(s) of Entry :	Inhalation?	Skin?	Ingestion?	
	Yes	No	Possible but very unusual.	
Health Hazards :	Acute oral toxic	ity LDL ₀ of the tone	r which is included in this developer is over 2,000	/mg/kg.
	Mutagenicity	- The toner, which is in	cluded in this developer, has been tested on the	Ames test
		Theresult is negative	•	
Carcinogenicity : In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible				
huma	n carcinogen). Th	is classification is give	n 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				
receiv	ring chronic inhalat	tion exposures to free	carbon black at levels that induce	
partic	le overload of the	lung. Studies perform	ed 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 betwee				
toner exposure and tumor development in rats.				
	- of European	•		

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

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Date Revised: August 1, 1996 Date Issued : October 3, 1994

MATERIAL SAFETY DATA SHEET (2/2)

MSDS No. F-3411-1

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.

BoilingMelting Point	: Not applicable	Specific Gravity	: about 4.7
Vapor Pressure	: Not applicable	Solubility in Water	: Negligible
Vapor Density	: Not applicable	PH	: Not applicable
Evaporation Rate	: Not applicable	Viscosity	: Not applicable
Appearance	: Fine powder	Color	: Black
Odor	: Odorless		

Section 7. The and Explosion	
Flash Point (Method Used)	: Not applicable
Ignition Temperature	$: > 350^{\circ}$ C
Flammable Limits	: (LEL); Not applicable (UEL); Not 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 explosion hazards.
Sensitivity to Mechanical Impact	: None
Sensitivity to Static Charge	: None

Section 8. Reactivity Data

Stability	: Stable
Incompatibility (Material to Avoid)	: None
Hazardous Decomposition	: CO and NOx
Hazardous Polymerization	: Will not occur

Section 9. Precautions for Safe Handling and Use

Section 3. Trecautions for S	are nanuning and 03e		
Personal Protection Information (Re	espiratory, Eye Protection and Protective Glove):		
Use of a dust mask is recomr	nended when handling a large quantity of toner or during long		
term exposure, as with any no	on-toxic dust.		
Engineering Control / Ventilation : Not required.			
Work / Hygienic Practice : Inhalation should be minimized as with any non-toxic dust.			
Steps to be taken in case of Spill or Leak : Sweep up or clean up with vacuum cleaner.			
Waste Disposal Method	: Waste material may be disposed under conditions which meet all		

federal, state and local environmental regulations.

Section 10. Regulatory	Information
NFPA Rating (U.S.A.)	: Health = 1 Flammability = 1 Reactivity = 0
WHMIS Legislation (Canada)	: This product is not a controlled product.
Transport Information	: This product is not a hazardous material.
UN No.	: None allocated.

Section 11. Other Information

References : IARC (1996) IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol. 65, Printing Process and Printing inks, Carbon Black and Some Nitro Compounds, Lyon, pp-149-261

H. Muhle, B. Bellmann, O. Creutzenberg, C. Dasenbrock, H. Ernst, R. Kilpper, J. C. MacKenzie,

P. Morrow, U. Mohr, S. Takenaka, and R. Mermelstein (1991) Pulmonary Response to Toner upon Chronic Inhalation Exposure in Rats. Fundamental and Applied Toxicology 17, pp. 280-299