

1. PRODUCT AND COMPANY IDENTIFICATION

- A) Product : Toner Black
- B) Recommended use of the chemical and restrictions on use
- Recommended use :
 - Restrictions on use : None
- C) Manufacturer/Supplier/Distributor Information
- Name : Samsung Electronics Company
 - Address : 416, Maetan-3Dong, Yeongtong-Gu, Suwon-City, Gyeonggi-Do, Korea 443-742
 - E-MAIL : Printermsds@samsung.com
 - TELEPHONE NO. : 82-2-2255-0114

2. HAZARD IDENTIFICATION

- A) Physical and Chemical Hazard : There are no significant hazards associated with this product.
- B) Adverse Human Health Effects : There are no significant hazards associated with this product.
- C) Environmental Effects : There are no significant hazards associated with this product.

3. COMPOSITION / INFORMATION ON INGREDIENTS

General Name	Chemical Name	CAS number	Content (%)
Styrene acrylic resin		Confidential	75~85
Wax		Confidential	5~10
Carbon black		1333-86-4	1~6
Silica		Confidential	1~3

4. FIRST-AID MEASURES

- A) Eye contact
Flush with water immediately and see a doctor if irritating.
- B) Skin contact
Wash immediately with plenty of water. Get medical attention if irritation develops.
- C) Inhalation
Remove from exposure to fresh air and gargle with plenty of water. Remove source of contamination

and move individual to fresh air. If symptoms persist, seek medical attention.

D) Ingestion

Rinse out the mouth. Drink one or two glasses of water to dilute. Seek medical treatment if necessary. Do not induce vomiting to rest in a well ventilated area. Never give anything by mouth to an unconscious person.

5. FIRE-FIGHTING MEASURES

A) Suitable (and unsuitable) extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

B) Extinguishing media : Water (Sprinkle with water), Foam, Powder, CO2 or Dry chemical.

6. ACCIDENTAL RELEASE MEASURES

A) Personal precautions, protective equipment and emergency procedures

Avoid inhalation, ingestion, eye and skin contact in case of accidental toner release.

B) Environmental precautions and protective procedures

- o Atmosphere Not available
- o Land Not available
- o Underwater Prevent product from entering drains.

C) The methods of purification and removal

o Small spill

Remove source of ignition. Carefully wipe off with paper or wet cloth, avoiding inhalation of fine dust.

o Large spill

Remove source of ignition and keep unnecessary and unprotected personnel away from area. Wear protective gear: respirator, rubber gloves, goggles. Do not use vacuum cleaner when a large amount is released. It, like most finely divided organic powders, may create a dust explosion. Fine powders may require special vacuum filters; damp mopping or washing is preferred. Wipe up remainder with a wet cloth. Sweep, mop or wipe up and contain for salvage or disposal. Avoid dust formation.

7. HANDLING AND STORAGE

A) Precautions for safe handling

Never open the toner container. To avoid damage to cartridge and accidental contact with toner, keep out of reach of children. Try not to disperse the particles. Avoid inhalation of dust and contact with eyes. Keep away from excessive heat, sparks and open flames.

B) Conditions for safe storage

Keep the toner container tightly closed and store in a cool, dry and dark place keeping away from fire. Keep away from children and Keep out of reach of children.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

A) Control parameters (as total dust)

OSHA-PEL (USA) : 15mg/m³

ACGIH-TLV (USA) : 10mg/m³

DFG-MAK (EC) : 6mg/m³

Work safe-TWA(Austl.) : 10mg/m³

* Carbon black (CAS No. 1333-86-4)

NIOSH REL-TWA: 3.5 mg/m³

OSHA PEL-TWA: 3.5 mg/m³

ACGIH TLV-TWA: 3.5 mg/m³

B) Appropriate engineering controls

Use in a well ventilated area. Ventilator is not required when used in intended in printer,.

C) Personal protective equipment

○ Respiratory protection

Not normally required. For large spills, use dust respirator mask during cleanup.

○ Eye/Face protection

Not normally required. For large spills, use safety goggles during cleanup.

○ Skin protection

Not normally required. For large spills, use rubber gloves during cleanup.

○ Other: For use other than normal customer-operating procedures (such as in bulk toner processing facilities), goggles and respirators may be required.

D) Hygiene Measures: Wash hands after handling

9. PHYSICAL AND CHEMICAL PROPERTIES

A) Appearance	Black Powder
B) Odor	Slightly plastic odor
C) Odor threshold	Not available
D) pH	Not applicable
E) Melting point/Freezing point	Not available
F) Initial boiling point and boiling range	Not applicable
G) Flashing point	Not applicable
H) Evaporation rate	Not applicable
I) Flammability (solid, gas)	Not available
J) Upper/lower flammability or explosive limits	Not available
K) Vapor pressure	Not applicable
L) Solubility (water)	Negligible
M) Vapor density	Not applicable
N) Relative density	Not available
O) Partition coefficient(n-octanol/water)	Not available
P) Auto-ignition temperature	Not available
Q) Decomposition temperature	Not available

R) Viscosity	Not available
S) Formula mass	Not available

10. REACTIVITY AND STABILITY

A) Chemical stability

This product is stable under normal use.

B) Possibility of hazardous reactions

Hazardous polymerization does not occur.

C) Conditions to avoid (e.g. static discharge, shock or vibration, etc.)

Strong oxidizing agents

D) Incompatibility with various substances

Not available

E) Hazardous decomposition products

Carbon monoxide, Carbon dioxide, unidentified organics. During a fire, toxic gases may be generated by thermal decomposition or combustion.

11. TOXICOLOGICAL INFORMATION

A) Information on the likely routes of exposure : Eye and skin contact, inhalation, ingestion

B) Delayed, acute and chronic toxic effect for short and long term exposure

- Acute toxicity (Oral)
 - Rat ATEmix > 1130.5mg/kg
 - Rat LD50 > 5000mg/kg
 - Practically non-toxic
- Acute toxicity (Dermal)
 - Rat ATEmix > 1124.3mg/kg
 - Rabbit LC50 > 5000mg/kg
 - Practically non-toxic
- Acute toxicity (Inhalation: Gas)
 - Not applicable
- Acute toxicity (Inhalation: Vapor)
 - Not available
- Skin Corrosion/ Irritation
 - Not irritating-human
- Serious Eye Damage/ Irritation
 - Not available
- Skin Sensitization
 - Not a sensitizer
- Carcinogenicity
 - Carbon black is classified as a carcinogen by the IARC(possibly carcinogenic to humans, Group 2B). In their evaluations of carbon black, organizations indicate that exposure to carbon black, per se, does not occur when it remains bound within a product matrix.
 - Not classified
- Mutagenicity
 - Ames Assay : Negative
- Reproductive toxicity
 - Not classified
- Aspiration Hazard
 - Not available

12. ECOLOGICAL INFORMATION

- A) Aquatic and terrestrial ecotoxicity Not available
- B) Degradability
- Stability Stable
- C) Bioaccumulative potential A relevant bioaccumulation of this substance is not expected
- Biodegradable Not available
- D) Mobility in soil Not available
- E) Other adverse effects Not available

13. DISPOSAL CONSIDERATIONS

- A) Disposal method
Do not put toner or toner container into fire; heated toner may cause severe burns. Do not shred a toner container, unless dust-explosion preventing measures are taken. Finely dispersed particles form explosive mixtures in air. Disposal should be subject to federal, state and local laws.
- B) Disposal precaution
Do not incinerate toner and toner containers. Any disposal practice should be done under conditions which meet local, state and federal laws and regulations relating to waste (contact local or state environmental agency for specific rules).

14. TRANSPORTATION INFORMATION

This is not classified as dangerous goods according to international transport regulations.
Use precaution during transport in order to prevent accidental spill. Not dangerous cargo. Keep separated from foodstuffs.

15. REGULATORY INFORMATION

- A) US Federal Regulation
- OSHA Hazard Communication Standard, 29CFR 1910.1200
 - Not regulated.
 - Toxic Substance Control Act (TSCA)
 - All components of these toners have been manufactured in compliance with TSCA.
 - RCRA (40 CFR 261)
 - Product or components are not listed.
 - CERCLA/SARA Information
 - Not regulated.

- NTP Annual Report on Carcinogens
 - Not listed as an NTP carcinogen.
- California Proposition 65
 - Neither toner nor any of the components are listed as chemicals known to the State of California to cause cancer or reproductive system effects.

B) European Regulation

- Label information according to the Directive 67/548/EEC and 1999/45/ECC.
 - Symbol and indication: Not required
 - R-Phrase : Not required
 - S-Phrase : Not required

C) Canada

- Controlled Products Regulations
 - This product has been classified in accordance with the hazard criteria of CPR.
- Workplace Hazardous Materials Information System.
 - No toxicology information available.

16. OTHER INFORMATION

A) Information source and references

- Korea Occupational Health & Safety Agency: <http://www.kosha.net>
- National library of Medicine (NLM) Hazardous Substances Data Bank (HSDB): <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB.htm>
- ECOTOX Database, EPA (<http://cfpub.epa.gov/ecotox>)
- ECB-ESIS (European chemical Substances Information System) (<http://ecb.jrc.it/esis>)
- International Uniform Chemical Information Database (IUCLID) (<http://ecb.jrc.it/esis>)
- International Program on Chemical Safety (IPCS INCHEM) (<http://www.inchem.org/>)
- REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008
- American Conference of Governmental Industrial Hygienists TLVs and BEIs. Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. Cincinnati, OH, 2008, p. 35
- IARC. Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man. Geneva: World Health Organization, International Agency for Research on Cancer, 1972-PRESENT. (Multivolume work)., p. S7 216 (1987)
- Organization for Economic Co-operation and Development (OECD) Screening Information Data Set (SIDS) Initial Assessment Report, Synthetic Amorphous Silica, July 23, 2004
- National Institute of Technology and Evaluation <http://www.safe.nite.go.jp/index.html>
- <http://www.ilo.org/public/english/protection/safework/cis/products/icsc/dtasht/index.htm>
- Registry of Toxic Effects of Chemical Substances (RTECS) <http://www.cdc.gov/niosh/rtecs/>

B) Others

The information and recommendation were prepared on basis of the information we could obtain, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. The

Material Safety Data Sheet

information and recommendations are offered for the user's consideration and examination. Before use, please confirm not only the hazards and toxicity information but also the laws and regulations of organization, area and country where the products are to be used, which shall be given the first priority. Some information may be added afterwards. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. Except to the extent required by law, re-publication or retransmission of this document, in whole or in part, is not permitted. Safe usage conditions shall be set up on each user's own responsibility.

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