

MATERIAL SAFETY DATA SHEET

[1.CHEMICAL PRODUCT AND COMPANY IDENTIFICATION]

PRODUCT NAME : TS4550
 COMPANY : Samsung Electronics Company
 416, Maetan-3Dong, Yeongtong-Gu, Suwon-City, Gyeonggi-Do, Korea 443-742
 TELEPHONE NO. : 82-31-200-8311
 EMERGENCY TELEPHONE NO. : 82-31-200-8311

[2.COMPOSITION / INFORMATION ON INGREDIENTS]

[Composition / Information]

Substance[] Preparation[X]

Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Polyester resin	Proprietary	85-95%	Not applicable	Not applicable	None
Ester wax	Proprietary	1-5%	Not applicable	Not applicable	None
Carbon black	1333-86-4	3-8%	3.5mg/m3	3.5mg/m3	None
Metal complex dye	Proprietary	0.5-3%	Not applicable	Not applicable	None
Magnetite	Proprietary	1-5%	Not applicable	Not applicable	None
Silica	68909-20-6	0.5-2%	20mppcf, 80(mg/m3)/%SiO2	10mg/m3	None

[Further Information]

No known

[3.HAZARDS IDENTIFICATION]

[Potential Health Effects]

Ingestion Effects: Ingestion is not applicable route of entry for intended use.
 Inhalation Effects: Minimal respiratory tract irritation may occur with exposure to large amount of toner dust.
 Eye Effects: Solid or dusts may cause irritation or scratch the surface of eye.
 Skin Effects: Unlikely to cause skin irritation.

[Environmental Hazards]

No particular hazards known.

[4.FIRST-AID MEASURES]

Ingestion: Dilute stomach contents with several glasses of water. Get medical attention if symptoms persist.
 Inhalation: Move person to fresh air immediately. If symptoms occur, consult a physician.
 Eye Contact: Immediately flush with large amount of clean water for at least 15 minutes. If irritation persists, consult a physician.
 Skin Contact: Wash affected areas thoroughly with soap and water. If irritation persists, consult a physician.

[5.FIRE-FIGHTING MEASURES]

Extinguishing Media:	Water, foam, dry chemical
Special Fire-fighting Procedure:	Keep personnel removed from and upwind of fire. Wear respiratory protection. Cool container with water spray.
Unusual Fire & Explosion Hazards:	Toner material, like most organic material in powder form, is capable of creating a dust explosion.

[6.ACCIDENTAL RELEASE MEASURES]

Spill and Leakage Procedure:	Wear personal protective equipment as described in Section 8. Avoid breathing dust. Minimize the release of particles. Vacuum or sweep the material into a bag or other sealed container. Dispose of waste toner in accordance with local requirements.
Environmental precautions:	Do not discharge into drains.

[7.HANDLING AND STORAGE]

Advise on safe handling and protection against fire:	Keep material out of reach of children. Avoid inhalation of dust and contact with eyes. Keep away from excessive heat, sparks, and open flames.
Requirements for storage rooms and advice on compatibility:	Keep out of the reach of children. Keep container closed and store at room temperature. Keep away from strong oxidizers.

[8.EXPOSURE CONTROLS / PERSONAL PROTECTION]

Occupational Exposure Limits:	
ACGIH TLV:	Particulates (Insoluble) Not Otherwise Specified 10mg/m ³ (Inhalable Particulate) 3mg/m ³ (Respirable Particulate)
OSHA PEL:	Inert or Nuisance Dust 15mg/m ³ (Total dust) 5mg/m ³ (Respirable fraction)
Respiratory Protection:	Dust respiratory mask
Ventilation:	Good general ventilation should be sufficient under intended use.
Protective Gloves:	Use leather gloves for hand protection.
Eye Protection:	Protecting glasses
Other Protective Equipment:	Not required under intended use.

[9.PHYSICAL AND CHEMICAL PROPERTIES]

Appearance and odor:	Fine powder, black, slight plastic odor.
Density :	About 1.2g/ cm ³
Boiling Point:	Not applicable
Melting Point:	Not applicable
Solubility in Water:	Negligible
Solubility in Other Solvent:	Partially soluble in toluene and THF
Percent Volatile by Volume:	Not applicable
Flammable Limits:	Not applicable
Flash Point:	Not applicable
Log Po/w:	Not applicable
Explosibility:	No data available. Based on the EC labeling criteria, any components in this product are not classified as explosive. *2
Flammability:	No data available. Based on the EC labeling criteria, any components in this product are not classified as flammable. *2

[10.REACTIVITY AND STABILITY]

Stability & Reactivity:	Stable. Hazardous polymerization will not occur.
Materials to Avoid:	None
Hazardous Decomposition products:	Combustion will produce carbon dioxide and, possibly toxic chemicals such as carbon monoxide.

[11.TOXICOLOGICAL INFORMATION]

Acute Effects**Oral:**

No test data available. Based on the EC labeling criteria, any components in this product are not classified as the dangerous categories of "very toxic", "toxic" and "harmful" when swallowed. *2

Dermal:

No test data available. Based on the EC labeling criteria, any components in this product are not classified as the dangerous categories of "very toxic", "toxic" and "harmful" when absorbed via the skin. *2

Inhalation:

No test data available. Based on the EC labeling criteria, any components in this product are not classified as the dangerous categories of "very toxic", "toxic" and "harmful" when inhaled. *2

Eye Contact:

No test data available. Based on the EC labeling criteria, any components in this product are not classified as the dangerous categories of "irritant" when contacted with the ocular tissue. *2

Skin Contact

No test data available. Based on the EC labeling criteria, any components in this product are not classified as the dangerous categories of "irritant" when contacted with the skin. *2

Sensitization:

No test data available. Based on the EC labeling criteria, any components in this product are not classified as a sensitizer. *2

Chronic Toxicity:**Oral:**

No test data available. Based on the EC labeling criteria, any components in this product are not required a risk phrase R48 (danger for serious damage to health by prolonged exposure). *2

Dermal:

No test data available. Based on the EC labeling criteria, any components in this product are not required a risk phrase R48 (danger for serious damage to health by prolonged exposure). *2

Inhalation:

No test data available.

In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16mg/m³) exposure group. And a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/ m³) exposure group. But no pulmonary change was reported in the lowest (1mg/ m³) exposure group, the most relevant level to potential human exposures.

Based on the EC labeling criteria, any components in this product are not required a risk phrase R48 (danger for serious damage to health by prolonged exposure). *2

Mutagenicity:

This product has negative mutagenicity . *1
(Ames test: Salmonella typhimurium)

Carcinogenicity:

No data available. The composition materials of this product are not a known or suspected carcinogen according to any IARC Monograph, EU Directive, or OSHA Regulations (USA). *2

In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there are inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity.

The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any association between carbon black and lung tumors.

Moreover, a two-year cancer bioassay using a typical toner preparation containing carbon black demonstrated no association between toner exposure and tumor development in rats.

Reproductive Toxicity:

No test data available. Based on the EC labeling criteria, any components in this product are not classified as the dangerous category of "toxic for reproduction". *2

[12.ECOLOGICAL INFORMATION]

No data available for ecological and wastewater treatment (sewage) systems. Avoid spills and dispose of in accordance with applicable laws and regulations.

Aquatic Environment: No data available. According to Annex 1 to Directive 67/548/EEC, the composition materials of this product are not classified as dangerous for the environment. *2

[13.DISPOSAL CONSIDERATIONS]

[Waste From This Product]

Waste material may be dumped or incinerated on condition that meets all country, state and local environmental regulations.

Recommendation: consult with the disposal agency and the relevant authorities; cleansing agent is water.



[14.TRANSPORTATION INFORMATION]

[International Transport Information]

UN Number: None

Hazards Class: None

[15.REGULATORY INFORMATION]

Label Information According to the DIRECTIVE 1999/45/EC (EU): None

Please refer to any other national measures that may be relevant.

[16.OTHER INFORMATION]

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