

1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier : Toner mixture for printer cartridge, CLT-K659S

1.2 Relevant identified uses of the substance or mixture and uses advised against:

Relevant identified uses: This product is a toner mixture that is used in printing systems.

Uses advised against: Do not use with non compatible printer

1.3 Details of the supplier of the safety data sheet:

Producer: SAMSUNG ELECTRONICS Co. Ltd.

416, maetan-3Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, 443-742, Korea

E-mail: PrinterMSDS@samsung.com

1.4 Emergency telephone number: 1-800-SAMSUNG(726-7864)_USA, <http://www.samsung.com>

2 HAZARDS IDENTIFICATION

2.1 Classification of the mixture:

2.1.1 Classification in accordance with Directive 1999/45/EEC:

Mixture is not classified as dangerous according to Directive 1999/45/EC.

2.1.2 Classification in accordance with Regulation (EC) No 1272/2008:

Mixture is not classified as dangerous according to Regulation (EC) No 1272/2008.

2.2 Label elements:

Labeling in accordance with Regulation (EC) No 1272/2008:

Pictograms: Not applicable

Signal word: Not applicable

Hazard statements: Not applicable

Precautionary statements: Not applicable

2.3 Other hazards

Acute health effects:No data available.

Skin contact: Unlikely to cause skin irritation.

Eye contact: May cause transient slight irritation or corneal injury.

Inhalation: Minimal respiratory tract irritation may occur with exposure to large amounts of toner dust. Use of this product as intended does not result in inhalation of excessive amounts of dust.

Ingestion: Low acute toxicity. Ingestion is a minor route of entry for intended use of this product.

Potential health effects:No data available.

Routes of exposure: Potential routes of exposure under normal use conditions are skin, eye contact and inhalation. Ingestion is not expected to be a primary exposure of exposure for this product under normal use conditions.

Chronic health effects: Prolonged inhalation of excessive amounts of any dust may cause lung damage. Use of this product as intended does not result in inhalation of excessive amounts of dust.

Carcinogenicity: Carbon black is classified by the International Agency for Research on Cancer (IARC) as a Group 2B carcinogen (possibly carcinogenic to humans), however due to its bound nature scientific results support a conclusion that carbon black in printer toners is not subject to consumer warning

Other information: This preparation contains no component classified as persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) as defined under Regulation (EC) 1907/2006.

3 COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances: No data available.

3.2 Mixtures:

Substance name	EC No.	CAS No.	Classification	Conc. (%)	Note
Styrene-acrylic resin	Trade Secret	Trade Secret		68 ~ 74%	
Carbon black	215-609-9	1333-86-4		1 ~ 6%	
Paraffin wax	Trade Secret	Trade Secret		5 ~ 8%	
Silica	Trade Secret	Trade Secret		1 ~ 2%	
Ceramic materials	266-340-9	66402-68-4		15 ~ 19%	
Coating materials	Trade Secret	Trade Secret		< 1%	

*See all the hazard statements in chapter 16.

4 FIRST AID MEASURES

4.1 Description of first aid measures:

In case of respiratory exposure: Move to fresh air. Seek medical attention for any breathing difficulty.

In case of skin contamination: Remove contaminated clothing and wash with soap and **cold** water. If irritation persists, seek medical attention.

In case of intrusion into eye: Do not rub eyes. Immediately flush eyes with water for 15 minutes, lifting the upper and lower eyelids. If irritation persists, seek medical attention.

In case of oral intake: Immediately rinse mouth and drink water. If irritation or discomfort occurs, seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed: Increased difficulty in breathing, Sneezing, Coughing

4.3 Indication of any immediate medical attention and special treatment needed: No data available.

5 FIREFIGHTING MEASURES

5.1 Extinguishing media:

Suitable extinguishing media: Use most appropriate extinguishing media for the surrounding fire. Use water spray, dry chemical, appropriate foam or carbon dioxide.

Unsuitable extinguishing media: No data available.

5.2 Special hazards arising from the substance or mixture: Can form explosive dust-air mixtures when dispersed in air. Hazardous combustion products: carbon monoxide, carbon dioxide.

5.3 Advice for firefighters: In the event of a fire, wear self-contained breathing apparatus and protective clothing. Wear appropriate protective eyeglasses or chemical safety goggles. Use dust respirator mask. Fight fire from upwind position, if possible. If fire occurs in the printer, treat as an electrical fire.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

Avoid inhalation of dust. Wash thoroughly after handling. Wear appropriate personal protective equipment as specified in Section 8. Ensure adequate ventilation.

6.2 Environmental precautions: Avoid dispersal of spilled material and contact with soil, ground and surface water, drains and sewers.

6.3 Methods and material for containment and cleaning up: Small spill: Remove source of ignition. Carefully wipe off with paper or wet cloth, avoiding inhalation of fine dust. Large spill: Wear protective gear: respirator, rubber gloves, goggles. Do not use vacuum cleaner when a large amount is released. This mixture like most finely divided organic powders, may create a dust explosion. Wipe up remainder with a wet cloth.

6.4 Reference to other sections: See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling: Avoid breathing dust and contact with skin, eyes and clothing. Handle in well ventilated work space. Wash thoroughly after handling. Treat from upwind position. Keep away from excessive heat, spark, and open flame.

7.2 Conditions for safe storage, including any incompatibilities: Store in cool, dry and well-ventilated place. Avoid direct sunlight. Keep away from oxidizing materials. Keep out of reach of children. Pay enough attention to tearing sack, water-proofing, carrying with strong acid, and keeping cargo stable

7.3 Specific end use(s): No data available.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters:

Substance	CAS number	Workplace exposure limit (Threshold Limit value)			
		US OSHA (TWA/PEL)	ACGIH (TWA/TLV)	TRGS 900	UK WEL
Total Dust		15 mg/m ³			
Inhalable dust/fraction/particulate			10 mg/m ³	10 mg/m ³	5 mg/m ³
Respirable dust/fraction/particulate		5 mg/m ³	3 mg/m ³		10mg/m ³
Alveolar dust/fraction/particulate				3 mg/m ³	
Carbon black	1333-86-4	3.5 mg/m ³	3.5 mg/m ³		3.5mg/m ³ (8hr) 7mg/m ³ (15min)

8.2 Exposure controls: Keep away from food, beverages and feed. Wash hands before breaks and at the end of work.

8.2.1 Appropriate engineering controls: Use adequate ventilation.

8.2.2 Individual protection measures, such as personal protective equipment:

8.2.2.1 Eye/face protection: Goggle, safety glasses with side shield.

8.2.2.2 Skin protection:

Hand protection: Rubber gloves. Wash hands after handling.

Other: Full body suit.

8.2.2.3 Respiratory protection: Not required in normal condition of use.

8.2.2.4 Thermal hazards: No data available.

8.2.3 Environmental exposure controls: Do not allow to enter sewers and surface or ground water.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance:	Fine powder
Physical state	Solid
Colour	Black
Odour:	Odourless
Odour threshold:	No data available
pH:	Not applicable
Melting point/freezing point:	No data available / No data available
Initial boiling point and boiling range:	Not applicable
Flash point:	No data applicable
Evaporation rate:	Not applicable
Flammability (solid, gas):	No data available
Upper/lower flammability or explosive limits:	No data available / not flammable / Not available
Vapour pressure:	Not applicable
Vapour density:	Not available
Density(Specific gravity):	1.2 g/ml (20 °C, 68 °F)
Solubility(ies):	Partially soluble in toluene, chloroform and tetrahydrofurane, insoluble in water
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	Not applicable
Decomposition temperature:	> 200 °C
Viscosity:	Not applicable
Explosive properties:	No data available
Oxidising properties:	No data available

9.2 Other information: No data available.

10 STABILITY AND REACTIVITY

10.1 Reactivity: No data available.

10.2 Chemical stability: Stable in general.

10.3 Possibility of hazardous reactions: Stable.

10.4 Conditions to avoid: Heat, flame, spark, direct sunlight, ignition sources and incompatibles.

10.5 Incompatible materials: Strong oxidizers and strong acids.

10.6 Hazardous decomposition products: Carbon monoxide, Carbon dioxide, Hydrogen.

11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

11.1.1 Acute toxicity

Rat, LD50 :> 5,000 mg/kg (Information on product)

11.1.2 Irritation

Skin: Rabbit, Not irritant (OECD404) (Information on product)

Eye: Rabbit, Not irritant (OECD405) (Information on product)

11.1.3 Corrosivity: No data available.

11.1.4 Sensitization: No data available.

11.1.5 Repeat does toxicity: No data available.

11.1.6 Carcinogenicity: Carbon black is classified by the International Agency for Research on Cancer (IARC) as a Group 2B carcinogen (possibly carcinogenic to humans), however due to its bound nature scientific results support a conclusion that carbon black in printer toners is not subject to consumer warning

11.1.7 Mutagenicity : Ames test: Negative(TA98, TA100, TA1535, TA1537, TA1538, WP2uvrA) (Information on product)

11.1.8 Reproductivity: Not classified as toxic according to EU Directive 67/548/EEC and as amended, California Prop. 65, and DFG(Germany)

11.1.9 Symptoms and effects with information on routes of exposure: No data available.

11.1.10 Other information:

11.1.10.1 Carcinogenic effects: In 1996, the IARC reevaluated carbon black as a GROUP 2B carcinogen (possible human carcinogen). This evaluation is given to carbon black for which there is inadequate human evidence, but sufficient animal evidence. The latter is based upon the developer of lung tumors in rat receiving chronic inhalation exposures to free carbon black at level that induce particle overload of the lung. Studies performed in animal models other than rats have not demonstrated an 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.

11.1.10.2 Chronic effects: In a study in rats (H.Muhle) by chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the 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 changes were reported in the lowest (1mg/m³) exposure group, the most relevant level to potential human exposures.

12 ECOLOGICAL INFORMATION

12.1 Toxicity: No data available.

12.2 Persistence and degradability: No data available.

12.3 Bioaccumulative potential: No data available.

12.4 Mobility in soil: No data available.

12.5 Results of PBT and vPvB assessment: No data available.

12.6 Other adverse effects: No data available.

13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods: Dispose off in accordance with local and national regulations. Do not put toner or toner container into fire; heated toner may cause severe burns. Do not incinerate and release to soil, ground, surface water, drains and sewers.

14 TRANSPORT INFORMATION

14.1 UN number: Not applicable

14.2 UN proper shipping name: Not applicable

14.3 Transport hazard class(es): Not applicable

14.4 Packing group: Not applicable

14.5 Environmental hazards

ADR/RID/ADN: The mixture is not subject to international regulations on transport of dangerous goods.

IMDG: The mixture is not subject to international regulations on transport of dangerous goods.

ICAO/IATA: The mixture is not subject to international regulations on transport of dangerous goods.

14.6 Special precautions for user: Review "ACCIDENTAL RELEASE MEASURES (Section 6)". Review "HANDLING AND STORAGE (Section 7)". Ensure containers without breakage or leakage. Ensure containers tightly fixed. Follow all regulations in your country or region. Avoid heating.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

15 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC;

Regulation (EC) No 1272/2008 of the European parliament and of the Council of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006;

COMMISSION REGULATION (EC) No 790/2009 of 10 August 2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labeling and packaging of substances and mixtures;

COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH);

COMMISSION REGULATION (EU) No 286/2011 of 10 March 2011 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures;

DIRECTIVE 1999/45/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations;

COUNCIL DIRECTIVE of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (67/548/EEC).

15.2 Chemical safety assessment: Chemical safety assessment is not available.

16 OTHER INFORMATION

List of relevant risk phrases and hazard statements: -

Instructions for the training: Product handling instruction shall be included into the educational system about the safety work (initial training, training at the workplace, repeated training) according to specific conditions at the workplace.

Recommended restrictions on use (i.e. non-statutory recommendations by supplier):

Mixture should not be used for any other purpose than for which it is meant to (point 1.2). Because of the fact that specific conditions of use of mixture are out of supplier's control, it is the responsibility of the user to adjust the prescribed warnings to local laws and regulations. Safety information describes the product in terms of safety and it cannot be considered as technical information about product.

Sources of key data used to compile the Safety Data Sheet: The SDS was prepared using data from the producer.

Purpose of SDS: The purpose of this SDS is to provide relevant information to ensure proper handling and control of risks/hazards.

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