

MATERIAL SAFETY DATA SHEET

[1.CHEMICAL PRODUCT AND COMPANY IDENTIFICATION]

PRODUCT NAME : ML-2150D8
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]

Ingredients	CAS No.	Proportion (% by wt.)	OSHA PEL	ACGIH TLV	Other Limits
Polyester*	186397-54-6	> 81.0	Not listed	Not listed	None
Carbon Black	1333-86-4	< 8.0	3.5mg/m	3.5mg/m	None
Iron oxide	1309-38-2	< 4.0	Not listed	Not listed	None
Polypropylene	9010-79-1	< 3.0	Not listed	Not listed	None
Amorphous silica	67762-90-7	< 2.0	20mppcf	10.0mg/m	None
Organic pigment	51121-85-8	< 2.0	Not listed	Not listed	None

*: ECL registry name: Saturated co-polyester resin ECL No.: 00-145

[3.HAZARDS IDENTIFICATION]

EMERGENCY OVERVIEW

Odorless black fine powder.

Not a highly flammable, but when suspended in air, is combustible as with most organic powders.

CARCINOGENICITY: Carbon black is reclassified as a group 2B by IARC, but inhalation test using a typical toner showed no association between toner and animal tumors.

POTENTIAL HEALTH EFFECTS

EYES: Solid or dusts may cause irritation or corneal injury.

SKIN CONTACT: Essentially nonirritating to skin.

SKIN ABSORPTION: Skin absorption is unlikely due to physical properties.

INGESTION: Oral toxicity is believed to be low.

INHALATION: Minimal irritation to respiratory track may occur.

FIRE AND EXPLOSION

SENSITIVITY TO MECHANICAL IMPACT: None

SENSITIVITY TO STATIC CHARGE: None

[4.FIRST-AID MEASURES]

EYES: Flush eyes immediately with plenty of water for at least 15 minutes

Get medical attention

SKIN: Flush with plenty of water. Use soap.

INGESTION: No adverse effects anticipated by this route of exposure incidental to proper handling.

INHALATION: Remove to fresh air. If effects occur, consult medical personnel.

[5.FIRE-FIGHTING MEASURES]

FLAMMABLE PROPERTIES:

FLASH POINT: No data available

FLAMMABLE LIMITS

LEL: No data available

UEL: No data available

EXTINGUISHING MEDIA: Water fog, foam, CO₂, dry chemical.

FIRE-FIGHTING EQUIPMENT: Wear full bunker gear including a positive pressure self-contained breathing apparatus in case of burning in large quantities.

[6.ACCIDENTAL RELEASE MEASURES]

Minimize the release of particulates. Wear personal protective equipment.

Do not use vacuum cleaner.

After by lightly spraying with water to prevent development of dust, spills should be swept up or wiped up. Then residuals can be removed with soap and water. Preferred to use the material in a place, covering up the floor and surrounding matters with suitable sheets such as paper, in a case of being not fit to scrub the floor with water. These used sheets should be wrapped up in spills and transfer into a suitable container for disposal.

Garments may be washed or dry cleaned, after removal of loose toner.

[7.HANDLING AND STORAGE]

Avoid creating dust. Clean up all spills promptly.

Inhalation and contact with skin or eyes should be avoided.

Provide general ventilation. Good general ventilation should be sufficient for most conditions.

Store in a cool, well ventilated place away from flames and spark-producing equipment.

May toners be preferred to use or to handle at the suitable place without concerning about smudges to which are given rise by releasing them.

[8.EXPOSURE CONTROLS / PERSONAL PROTECTION]

Control parameters

OSHA PEL:TWA $5.0\text{mg}/\text{m}^3$ (Inert of Nuisance Dust : Respirable fraction)

$15.0\text{mg}/\text{m}^3$ (Inert of Nuisance Dust : Total dust)

ACGIH TLV:TWA(2003)

$3.0\text{mg}/\text{m}^3$ (Particulates Not Otherwise Classified : Respirable Particle Mass)

$10.0\text{mg}/\text{m}^3$ (Particulates Not Otherwise Classified : Inhalable Particle Mass)

RESPIRATORY PROTECTION: In dusty atmospheres, use an approved dust respirator.

SKIN PROTECTION: No precautions should be needed under normal use.

EYE PROTECTION: No precautions should be needed under normal use

[9. PHYSICAL AND CHEMICAL PROPERTIES]

APPEARANCE: Black fine powder.
ODOR: Odorless
BOILING POINT: N.A.(not applicable)
VAP PRESS: N.A.
VAP DENSITY: N.A.
SOL IN WATER: Insoluble
SP. GRAVITY: ca. 1.20
MELTING POINT: No data
pH: N.A.
% VOLATILE: N.A

[10. REACTIVITY AND STABILITY]

STABILITY: This is a stable product.
INCOMPATIBILITY: (SPECIAL MATERIALS TO AVOID) Oxidizing materials.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon oxides, hydrocarbons (by high heat and fire)
HAZARDOUS POLYMERIZATION: Will not occur.

[11. TOXICOLOGICAL INFORMATION]

Mutagenicity: Negative in the Ames test

CARCINOGENICITY:

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 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 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.

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 (16 mg/m³) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4 mg/m³) exposure group. But no pulmonary changes were reported in the lowest (1 mg/m³) exposure group, the most relevant level to potential human exposures.

[12. ECOLOGICAL INFORMATION]

None

[13.DISPOSAL CONSIDERATIONS]

WASTE DISPOSAL METHOD: Waste must be disposed of in accordance with country and local environmental control regulations.

[14.TRANSPORTATION INFORMATION]

TRANSPORT INFORMATION: This is not a hazardous product.
UN No.: None allocated.

[15.REGULATORY INFORMATION]

TSCA: All chemical substances in this product comply with all applicable rules or orders under TSCA.

EU : None

[16.OTHER INFORMATION]

NFPA Rating: Health = 1 Flammability = 1 Reactivity = 0

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.

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. It dose not represent a guarantee for the properties of the product described in terms of the legal warranty.