

MATERIAL SAFETY DATA SHEET (1/4)

SDS No. 208083

PRODUCT NAME: MA-45G345

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: MA-45G345

MANUFACTURE'S NAME

Tomogawa Paper Co., Ltd.

5-15, Kyobashi 1-chome, Chuo-ku, Tokyo 104-8335, Japan

Tel: +81-3-3272-4118

Fax: +81-3-3281-6820

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	3.5mg/m ³	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	68909-20-6	< 2.0	20mppcf	10.0mg/m ³	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. HAZARD 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.

DATE REVISED : Jan. 28, 2003

DATE PREPARED : Dec. 5, 2002

MATERIAL SAFETY DATA SHEET (2/4)

SDS No. 208083

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5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT: No data available

FLAMMABLE LIMITS

LEL: No data available

UEL: No data available

EXTINGUISHING MEDIA: 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 5.0mg/m³(Inert of Nuisance Dust : Respirable fraction)

15.0mg/m³(Inert of Nuisance Dust : Total dust)

ACGIH TLV:TWA(2002)

3.0mg/m³(Particulates Not Otherwise Classified : Respirable Particle Mass)

10.0mg/m³(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.

MATERIAL SAFETY DATA SHEET (3/4)

SDS No. 208083

PRODUCT NAME: MA-45G345

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. STABILITY AND REACTIVITY

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 (Estimated from the data of constituent components.)

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 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.

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 was reported in the lowest (1mg/m³) exposure group, the most relevant level to potential human exposures.

DATE REVISED : Jan. 28, 2003

DATE PREPARED : Dec. 5, 2002

MATERIAL SAFETY DATA SHEET (4/4)

SDS No. 208083

PRODUCT NAME: MA-45G345

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. TRANSPORT 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, pp280-299.

MSDS (Material Safety Data Sheet)

1. PRODUCT & COMPANY IDENTIFICATION

·PRODUCT NAME : Samsung OPC Drum ML-2150 Series
 ·INTENDED USE : OPC Drum for Laser Beam Printer Cartridge
 ·NAME OF MANUFACTURER : Daewon SCN Co., LTD.
 ·ADDRESS : 314, Maetan-3Dong, Paldal-Gu, Suwon,
 Kyungki-Do, Korea, 442-743
 Tel : 82-31-210-3130
 Fax : 82-31-210-6616

2. COMPOSITION / INFORMATION ON INGREDIENTS

·INGREDIENTS

SUBSTANCE	CAS No.	PERCENT(wt)	Symbol
Aluminum	7429-90-5	>99	-
Polycarbonate		<1	-
Hydrazone Derivative		<1	-
Pigments (Phthalocyanine Pigment)		<1	-

3. PHYSICAL & CHEMICAL PROPERTIES

·APPEARANCE, PHYSICAL SAFETY, FORM, COLOR, ODOR : Green, Odorless, Solid cylinder
 ·BOILING POINT : N/A
 ·MELTING POINT : N/A
 ·VAPOR PRESSURE : N/A
 ·VAPOR PRESSURE(AIR=1) : N/A
 ·SPECIFIC GRAVITY : 2.7
 ·EVAPORATION RATE : Not Applicable
 ·SOLUBILITY(H2O) : Insoluble

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4. HAZARDS IDENTIFICATION

·ADVERSE HUMAN HEALTH EFFECTS : None specified by manufacturer.

Skin contact : Not applicable route of entry for intended use.

Inhalation : Not applicable route of entry for intended use.

Ingestion : Not applicable route of entry for intended use.

·ENVIRONMENTAL HAZARDS : No particular hazards known.

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5. FIRST-AID MEASURES

·SKIN CONTACT

Flush with copious amounts of water. If symptoms occur, consult a physician.

·INHALATION

Move person to fresh air immediately. If symptoms occur, consult a physician.

·INGESTION

Consult a physician immediately.

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6. FIRE-FIGHTING MEASURES

·FLASH POINT : Not Applicable

·LOWER EXPLOSIVE LIMIT : N/A

·UPPER EXPLOSIVE LIMIT : N/A

·EXTINGUISHING MEDIA : Foam, Dry chemical powder, Carbon dioxide

·SPECIAL FIRE FIGHTING PROCESS : Use NIOSH/MSHA approved SCBA
& Full protective equipment (FP N)

·UNUSUAL FIRE AND EXPLOSION HAZARDS : None

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7. ACCIDENTAL RELEASE MEASURES

·SPILL AND LEAKAGE PROCEDURES : Not applicable.

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8. HANDLING AND STORAGE

·HANDLING

Keep material out of reach of children.

Keep away from excessive heat, sparks, and open flames.

·STORAGE

Keep material out of reach of children. Keep away from heat or sunlight.

Keep away from strong oxidizers. Store at room temperature.

9. EXPOSURE CONTROL / PERSONAL PROTECTION

·EXPOSURE GUIDELINES

·THRESHOLD LIMIT VALUE (TLV/TWA) : 10 mg/m³ (Aluminum)

·PERSONAL PROTECTIVE EQUIPMENT

·RESPIRATORY PROTECTION : Not required under intended use.

·VENTILATION : Not required under intended use.

·EYE PROTECTION : Not required under intended use.

·HAND, SKIN AND BODY PROTECTION : Not required under intended use.

10. PHYSICAL HAZARD(STABILITY AND REACTIVITY)

·STABILITY AND REACTIVITY : Stable under normal condition.

·INCOMPATIBILITY : Strong acids, caustics, strong oxidizing agents,
strong bases, combustible materials.

·HAZARDOUS DECOMPOSITION PRODUCTS : CO, CO₂ and NO_x,
Trace levels of phenol, alkylphenols & diacrylcarbonates.

·HAZARDOUS POLYMERIZATION : Will not occur.

11. TOXICOLOGICAL INFORMATION

·ACUTE TOXICITY

·LD₅₀-LC50 MIXTURE : None specified by manufacturer.

·ROUTE OF ENTRY(INHALATION, SKIN, INGESTION) : None indicated.

·CARCINOGENIC EFFECTS : Not applicable(NTP: NO, IARC: NO, Z LIST: NO, OSHA REG: NO).



12. ECOLOGICAL INFORMATION

·No data available for ecological and wastewater treatment (sewage) systems.
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13. DISPOSAL CONSIDERATION

·Follow all regulations, if there is any regulation on disposal in your country and region.
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14. TRANSPORT INFORMATION

- Keep away from source of ignition.
 - Do not handle roughly and avoid dropping.
 - Follow all regulations in your country and region.
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15. REGULATORY INFORMATION

·Regulatory information with regard to this material in your country and region should be examined
by your own responsibility.
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16. OTHER INFORMATION

- The information herein is given in good faith, but no warranty, express or implied, is made.
- Please consult the Daewon SCN Co., LTD. for further information.

INQUIRY OF THE INFORMATION CONTAINED HEREIN

Daewon SCN Co., LTD.
OPC Team Mr. Choon-Bok Lee
Tel : 82-31-210-3130