Product name: T650MKI10KGB
Revision: 0 [Date prepared 4/18/2019]

SAFETY DATA SHEET

1. IDENTIFICATION

1.1 Product identifier

T650MKI10KGB

1.2 Recommended use of the mixture and restrictions on use

This mixture is a toner used in copiers/printers.

1.3 Supplier's details

Name: Future Graphics / Mitsubishi Chemical Imaging Corporation
Address: Glendale Plaza, 655 N. Central Avenue, Suite #1550
Glendale, California 91203, USA
Phone: (USA) 1-800-394-9900, (International) 1-818-837-8100
Email address: MKIC-SDS@m-chem.com

1.4 Emergency phone number

(USA) 1-800-394-9900, (International) 1-818-837-8100
Available 8AM-5PM (PST/PDT), Monday through Friday except the company holidays.

2. HAZARD IDENTIFICATION

Classification of the mixture

GHS: Not classified as hazardous.

OSHA Hazard Communication Standard 29 CFR 1910.1200:

Not classified as hazardous in accordance with Appendix A (Health Hazard Criteria) or B (Physical Hazard Criteria) to the Standard.

Label elements (Hazard, Signal words, Hazard statement and Precautionary statements)

GHS: None required.

OSHA Hazard Communication Standard 29 CFR 1910.1200 (Appendix C.4.30):

"Combustible Dust - Warning - May form combustible dust concentrations in air."
"Keep away from all ignition sources including heat, sparks and flame.
Keep container closed.
Prevent dust accumulations to minimize explosion hazard."

No Pictogram

These label elements are not required if this mixture (toner) is in cartridges or sealed bottle.
Refer to Section 16 for details.

Other hazards which do not result in classification

Physical hazards

This mixture, like most organic powders, can cause a dust explosion if particles form thick clouds.

Carcinogenicity

This mixture contains carbon black and titanium dioxide that are listed by IARC as Group 2B (possibly carcinogenic to humans); however, no significant exposure to either carbon black or titanium dioxide is thought to occur during the use of the product because they are mostly in a bound form in this mixture.

Other information

This mixture is subject to EPCRA 313. (Chromium compound N090)
This mixture complies with the requirements of the RoHS Directive 2011/65/EU and its amendment directives.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance [ ] Mixture [**X**]

Hazardous ingredients*	CAS Number	% in mixture	TSCA listed/exempted	Classification
Organochromium complex	Trade secret	0.5-2.0	Yes	Hazardous to the aquatic environment Category Acute 1, Chronic 1 Acute toxicity - Oral Category 4

* Ingredients hazardous within the meaning of GHS and present above the cut-off level.

Although this mixture contains the above classified substance, the mixture is not classified based on the test results shown in Section 12 in accordance with OSHA Hazard Communication Standard 29 CFR 1910.1200 or the GHS criteria.

Ingredient	CAS Number	% in mixture	TSCA listed/exempted
Polyester resin	Trade secret	80-95	Yes
Carbon black	1333-86-4	3-15	Yes
Amorphous silica	7631-86-9	< 5	Yes
Titanium dioxide	13463-67-7	< 1	Yes

Refer to Section 8 for the exposure limits and Section 11 for toxicological information.

All the substances in this mixture are listed or exempted in the inventory of TSCA (USA), AICS (Australia), DSL (Canada), IECSC (China), EINECS/ELINCS (EU), ENCS (Japan), KECI (Korea), PICCS (Philippines) and ECN (Taiwan).

4. FIRST-AID MEASURES

Immediate medical attention may be required in the unlikely event of extreme inhalation, eye contact or unusual reaction due to physical idiosyncrasy of the person.

Eye Contact:

Do not rub eyes. Immediately rinse with plenty of clean running water until particles are washed out.
If irritation persists, seek medical advice.

Skin Contact:

Wash out particles with plenty of water and soap.
If irritation develops, seek medical advice.

Inhalation:

Provide fresh air immediately.
If symptoms occur, seek medical advice.

Ingestion:

Clean mouth out with water.
Drink several glasses of water.
If sickness develops, seek medical advice.

Most important symptoms / effects, acute and delayed

Eye contact: Irritation may occur by mechanical abrasion.
Skin contact: Minimal skin irritation may occur.
Inhalation: Slight irritation of respiratory tract may occur with exposure to large amount of toner dust.
Ingestion: Ingestion is an unlikely route of entry under normal conditions of use.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water, foam, dry chemical
Extinguishing media which shall not be used: None known.
Specific hazards arising from the mixture itself, combustion products, or resulting gases:

Toner, like most organic powders, is capable of creating a dust explosion when particles form thick clouds in the presence of an ignition source.
Carbon monoxide and carbon dioxide are hazardous resulting gases.

Special protective actions for fire-fighters:

Avoid generating dust.
Wear protective equipment such as respiratory apparatus as needed.
Keep away from downwind of the fire.
Keep containers cool with water spray.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Avoid dispersal of dust in the air. (Do not clear dust surfaces with compressed air.).
Do not breathe dust.
Wear personal protective equipment as described in Section 8.

Environmental precautions:

Do not discharge into drains, surface or ground water.

Methods and materials for containment and cleaning up:

Eliminate sources of ignition including sparks and flammables.
Nonsparking tools should be used.
Shelter the released material (powder) from wind to avoid dust formation and scattering.
Vacuum or sweep the material into a sealed container. If a vacuum cleaner is used, it must be dust explosion-proof.
Dispose of the material in accordance with Federal/state/local requirements.

7. HANDLING AND STORAGE

Precautions for safe handling

Minimize dust generation and accumulation.
Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.
Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.
Handle in an adequately ventilated area.
Do not breathe dust.
Do not get in eyes or on skin.
Keep away from excessive heat and sources of ignition such as sparks and open flames.
Keep away from strong oxidizers.

Conditions for safe storage, including any incompatibilities

Keep containers closed and store at room temperature.
Keep away from excessive heat and sources of ignition including sparks.
Do not store with strong oxidizers.
Do not use a plastic with a plasticizer (e.g. Polyvinyl chloride) for a container to maintain the integrity of the material.
Keep out of the reach of children.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters (Occupational exposure limit and biological limit values)

Mixture as particulate not otherwise classified
OSHA PELs (TWA): 15 mg/m3 (Total dust), 5 mg/m3 (Respirable fraction)
ACGIH TLV (TWA) : 10 mg/m3 (Inhalable particulate), 3 mg/m3 (Respirable particulate)

Ingredient	OSHA PELs (TWA)	ACGIH TLV (TWA)
Carbon black	3.5 mg/m3	Inhalable 3 mg/m3
Organochromium complex	0.5 mg/m3 as chromium (III)	0.5 mg/m3 as chromium (III)
Titanium dioxide	Total dust 15mg/m3	10mg/m3
Amorphous silica	20 mppcf* or 80/% SiO2 mg/m3 (* million particles per cubic foot)	Not established

Appropriate engineering controls

Handle in an adequately ventilated area.

It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion supression system or an oxygen-deficient environment.

Ensure that dust-handling systems such as an exhaust ducts, dust collectors, vessels, and processing equipment are designed in a manner to prevent the escape if dust into the work area (i.e. there is no leakage from the equipment).

Use only appropriately classified electrical equipment and powered industrial trucks.

Individual protection measures, such as personal protective equipment (PPE)

Gloves are recommended.

Protective goggles or safety glasses are recommended.

Personal respiratory mask is not required under normal conditions of the intended use, but a respirator is needed in case of dust formation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Fine black powder
Odor:	None or slight plastic odor
Odor threshold:	No data available
pH:	Not applicable
Melting point/freezing point:	Not applicable
Initial boiling point and boiling range:	Not applicable
Flash point:	Not applicable
Evaporation rate:	Not applicable
Flammability:	No data available.
Upper/lower flammability or explosive limits:	Not applicable
Vapor pressure:	Not applicable
Vapor density:	Not applicable
Relative density :	1.0-1.5
Solubility:	Negligible in water. Partially soluble in some organic solvents such as toluene and tetrahydrofuran.
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	Not applicable

10. STABILITY AND REACTIVITY

Reactivity

No significant reaction will occur with air or water at room temperature.

Chemical Stability

This mixture is stable under normal conditions of use and storage.

Possibility of hazardous reactions

No hazardous polymerization will occur.

Conditions to avoid

Excessive heat

Dust formation

Incompatible materials

Strong oxidizers, which could vigorously oxidize organic materials in this mixture and cause a fire in an extreme case.

Hazardous decomposition products

Carbon monoxide and carbon dioxide when combusted.

11. TOXICOLOGICAL INFORMATION

According to our test results of this or similar mixture and the information provided by the suppliers about the substances contained in this mixture, seriously damaging effect is not expected when this mixture is treated in accordance with standard industrial practices and Federal/state/local requirements. Refer to Section 2 for potential health effects and Section 4 for first aid measures.

Acute toxicity

Oral:

No test data available.

Inhalation:

No test data available.

Dermal:

No test data available.

Skin corrosion/irritation:

No test data available.

Serious eye damage/irritation:

No test data available.

Respiratory Sensitization

No test data available.

None of the substances in this mixture is classified as a respiratory sensitizer.

Skin sensitization:

No test data available.

Germ cell mutagenicity:

Ames test (Salmonella typhimurium, Escherichia coli) negative. (a similar product)

Carcinogenicity:

No test data available.

Carbon black is listed by IARC as a group 2B (possibly carcinogenic to humans), but IARC monographs vol. 65 and 93 state that there is inadequate evidence in humans for carcinogenicity of carbon black. Inhalation test of a toner for two years (Reference 1) and studies by Muhle et al. (Reference 2) showed no significant carcinogenicity. In addition IARC monograph vol. 93 states that no significant exposure to carbon black is thought to occur during the use of products in which carbon black is bound to other materials, such as rubber, printing ink or paint. Carbon black in this mixture is in a bound form.

Titanium dioxide is listed by IARC as Group 2B (possibly carcinogenic to humans); however, inhalation tests of titanium dioxide by Muhle et al. (Reference 2) showed no significant carcinogenicity. Moreover, IARC monograph vol. 93 states that exposure levels are assumed to be lower in the user industries, with the possible exception of workers who handle large quantities of titanium dioxide. Titanium oxide in this mixture is within small quantity and mostly in a bound form. Therefore, no significant exposure to titanium dioxide is thought to occur during the use of the product.

Reproductive toxicity:

No test data available.

None of the substances in this mixture is classified for reproductive toxicity.

STOT (Specific Target Organ Toxicity) -single exposure:

No test data available.

STOT – repeated exposure:

No test data available.

Inhalation test of a toner for two years showed no significant carcinogenicity. (Reference 1)

In rats chronic exposure to toner concentrations 4 mg/m^3 and over lead to an accumulation of particles in the lung as well as to persistent inflammatory processes and slight to moderate fibrotic changes in the lungs of rats. In hamsters these effects were only observed at significantly higher concentrations (> 20 mg/m^3). The particle accumulation in the lung tissue of the experimental animals is attributed to a damage and overload of the lung clearance mechanisms and is called “lung overloading”. This is not an effect specific to toner dust but is generally observed when high concentrations of other, slightly soluble dusts are inhaled.

The lowest-observable-effect-level (LOEL) was 4 mg/m^3 and the no-observable-effect-level (NOEL) was 1 mg/m3 in rats. The NOEL was greater than 6 mg/m^3 in hamsters. (Reference 2) Toner concentration under the normal use of this product is estimated less than 1 mg/m^3.

Aspiration hazard:

No test data available.

12. ECOLOGICAL INFORMATION

According to our test results of this or similar mixture and the information provided by the suppliers about the substances contained in this mixture, this mixture is not expected to be harmful to ecology.

12.1 Ecotoxicity

Acute toxicity to aquatic organisms (a similar product)

72-hour ErC50 (for algae, Pseudokirchneriella subcapitata, OECD 201) > 1,000mg/L, NOEC 125mg/L
48-hour EC50 (for Daphnia magna, OECD 202) > 1,000 mg/L, NOEC 1,000 mg/L
96-hour LC50 (for fish, Zebrafish Danio rerio, OECD 203) > 1,000 mg/L, NOEC 1,000 mg/L

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 Other adverse effects

None known.

13. DISPOSAL CONSIDERATIONS

This mixture may be landfilled or incinerated in compliance with all Federal/state/local provisions.
Do not dump this product into sewers, on the ground, or into any body of water.

14. TRANSPORT INFORMATION

International Transport Information

Not a regulated material under the United State DOT, IMDG, ADR, RID, or ICAO/IATA.

UN number: None
UN proper shipping name: None
Transport hazard class: None
Packing group: Not applicable
Environmental hazard:

Not a marine pollutant according to the IMDG Code.
Not environmentally hazardous according to the UN Model Regulations, ADR, RID or ADN.

Transport in bulk: Not applicable
Special precautions for user in connection with transport:

Do not open or break a container during transportation unless absolutely needed.

15. REGULATORY INFORMATION

TSCA: All the substances in this mixture are listed or exempted in accordance with TSCA.
CERCLA Reportable Quantity (40 CFR 117, 302**):** Not applicable to this mixture.
SARA Title III (EPCRA)

Section 302 (40 CFR 355**):**

Not applicable to this mixture.

Section 311/312 (40 CFR 370**):**

Immediate health hazard: No
(All the ingredients of this product are bound within the mixture.)
Chronic health hazard: No
(All the ingredients of this product are bound within the mixture.)
Sudden release of pressure hazard: No
Reactive hazard: No

Section 313 (40 CFR 372**):**

Organochromium complex as a chromium compound (N090).

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)
This product is in compliance with the regulation as all ingredients are bound within the mixture.

This mixture complies with the requirements of the RoHS Directive 2011/65/EU and its amendment directives.
Please refer to any other Federal/state/local measures that may be relevant.

16. OTHER INFORMATION

The information is furnished without warranty, express or implied, except that it is accurate to the best knowledge of Mitsubishi Chemical Imaging Corporation at the time of preparation of this document. It relates only to the specific material designated herein, and does not relate to use in combination with any other material or process. Mitsubishi Chemical Imaging Corporation assumes no legal responsibility for use of or reliance upon this information.

This document was prepared to comply with the requirements in the United States and may not meet regulatory requirements in other countries.

Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.

As stated in Section 2, this mixture is subject to the label element requirement for combustible dust in accordance with OSHA Hazard Communication Standard 29 CFR 1910.1200 (Appendix C.4.30); however, it is not applied if the mixture is in cartridges or sealed bottles which are articles and not expected to release the mixture in powder form under intended use. In "Frequently Asked Questions: Hazard Communication (HAZCOM)" OSHA says, "OSHA has previously stated that intermittent or occasional use of a copying machine does not result in coverage under the rule."

Date of preparation of this revision 4/18/2019

Information on the revision

This document was newly issued in accordance with OSHA Hazard Communication Standard 29 CFR 1910.1200 and Globally Harmonized System of Classification and Labelling of Chemicals (GHS), the fourth revised edition published by United Nations in 2011.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
ADN	Accord Europeen Relatif Au Transport Internation Des Marchandises Dangereuses Par Voies De Navigation Interieures (European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises Dangereuses par Route (The European agreement on cross-border transportation of dangerous goods by road)
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstracts Service
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
DOT	Department Of Transportation
DSL	(Canada) Domestic Substance List
EC	European Community
EC50	half maximal (50%) Effective Concentration
ECN	(Taiwan) Existing Chemical substance Nomination
EINECS	European INventory of Existing Commercial chemical Substances
ELINCS	European List of Notified Chemical Substances
ENCS	(Japan) Existing and New Chemical Substances
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-know Act
ErC50	EC50 in terms of reduction of growth rate
EU	European Union
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association

ICAO	International Civil Aviation Organization
IC50	half maximal (50%) Inhibitory Concentration
IECSC	Inventory of Existing Chemical Substances produced or imported in China
IMDG	International Maritime Dangerous Goods
KECI	Korea Existing Chemicals Inventory
LD50	Lethal Dose, 50 % kill
MoL	(Korea) Ministry of Labor
NIER	(Korea) National Institute of Environmental Research
NFPA	National Fire Protection Association
NTP	National Toxicology Program
NOEC	Non Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OSHA	Occupational Safety and Health Administration
PELs	Permissible Exposure Limits
PICCS	Philippines Inventory of Chemicals and Chemical Substances
RID	Règlement International concernant le transport des marchandises Dangereuses par chemin de fer (the international regulations covering transportation of dangerous goods by rail)
RoHS	Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment
SARA	Superfund Amendments and Reauthorization Act of 1986
SDS	Safety Data Sheet
TSCA	Toxic Substances Control Act
TLV	Threshold Limit Value
TWA	Time Weighted Average
UN	United Nations

References

(1) "Negative Effect of Long-term Inhalation of Toner on Formation of 8-Hydroxydeoxyguanosine in DNA in the Lungs of Rats in Vivo", Yasuo Morimoto, et. Al., Inhalation Toxicology, Vol. 17 (13) 749-753 (2005)

(2) Studies by Muhle, Bellmann, Creutzenberg et al.

"Lung clearance and retention of toner, utilizing a tracer technique during chronic inhalation exposure in rats." Fundam. Appl. Toxicol 17 (1991) p.300-313.

"Lung clearance and retention of toner, TiO2, and crystalline silica, utilizing a tracer technique during chronic inhalation exposure in Syrian golden hamsters." Inhal. Toxicol. 10 (1998) p.731-751.

"Subchronic inhalation study of toner in rats." Inhal. Toxicol. 2 (1990) p.341-360.

"Pulmonary response to toner upon chronic inhalation exposure in rats." Fundam. Appl. Toxicol. 17 (1991) p.280-299

"Pulmonary response to toner, TiO2 and crystalline silica upon chronic inhalation exposure in Syrian golden hamsters." Inhal. Toxicol. 10 (1998) p.699-729.