MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION
1.1 Identification of the mixture
   HP5525KHEMK10KG Toner

1.2 Use of the mixture
   This mixture is a toner used in copiers/printers.

1.3 Company information
   Manufacturer
   Name: Clover Technologies Group
   Address: 4200 Columbus Street, Ottawa, IL 61350
   Phone: 815-431-8100

2. HAZARDS IDENTIFICATION

   Emergency overview
   This mixture is fine powder with no or slight plastic-like odor.
   This mixture may cause irritation of the respiratory system, eyes, and skin.
   This mixture, like most organic powders, can cause a dust explosion if particles form thick clouds.

   Acute health effects
   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.

   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 not classified as hazardous according to the latest adaptations of EU Directive 1999/45/EC.
   This mixture complies with the requirements of the RoHS Directive 2002/95/EC and its amendment directives.

3. COMPOSITION/THE INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS Number</th>
<th>% in mixture</th>
<th>TSCA listed/exempted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Styrene acrylate copolymer</td>
<td>Trade secret</td>
<td>70-90</td>
<td>Yes</td>
</tr>
<tr>
<td>Wax</td>
<td>Trade secret</td>
<td>5-15</td>
<td>Yes</td>
</tr>
<tr>
<td>Carbon black</td>
<td>1333-86-4</td>
<td>3-10</td>
<td>Yes</td>
</tr>
<tr>
<td>Amorphous silica</td>
<td>7631-86-9</td>
<td>&lt;5</td>
<td>Yes</td>
</tr>
<tr>
<td>Titanium dioxide</td>
<td>13463-67-7</td>
<td>&lt;1</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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

5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media:**  Carbon dioxide, Water, foam, dry chemical

**Extinguishing media which shall not be used:**  None known.

**Special exposure 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 are dispersed.
Carbon monoxide and carbon dioxide are hazardous resulting gases.

**Special protective equipment for fire-fighters:**  None known.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions:**
Avoid dust formation. Do not breathe dust.
Wear personal protective equipment as described in Section 8.

**Environmental precautions:**
Do not discharge into drains.

**Methods for cleaning up:**
Eliminate sources of ignition and flammables. 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

7.1 Handling
Keep out of reach of children.
Avoid dust formation. Handle in 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.
Ensure all the equipment is electrically earthed/grounded before beginning operation.

7.2 Storage
Keep out of the reach of children.
Keep container closed and store at room temperature.
Keep away from excessive heat and sources of ignition.
Do not store with strong oxidizers.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure 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)

Carbon black
- OSHA PELs (TWA): 3.5 mg/m³
- ACGIH TLV (TWA): 3.5 mg/m³

Amorphous silica
- OSHA PELs (TWA): 20 mppcf* or 80%/ SiO2 mg/m³ (* million particles per cubic foot)

Titanium dioxide
- OSHA PELs (TWA): 15 mg/m³ (Total dust)
- ACGIH TLV (TWA): 10 mg/m³

8.2 Exposure controls

8.2.1 Occupational exposure controls
Good general ventilation should be sufficient under normal conditions of use.
Gloves are recommended.
Protective goggles or safety glasses are recommended.
Personal respiratory mask is not required under normal conditions of use, but a respirator is needed in case of dust formation.

8.2.2 Environmental exposure controls
Not applicable.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 General information
- Appearance: Fine powder
- Odor: None or slight plastic-like odor

9.2 Important health, safety and environmental information
- pH: Not applicable.
- Boiling point/boiling range: Not applicable.
- Flash point: Not applicable.
- Flammability: Not flammable.
- Explosive properties: No data available.
- Oxidizing properties: No data available.
- Vapor pressure: Not applicable.
- Specific gravity: 1.0-1.5 (water = 1)
- Solubility: Partially soluble in toluene and tetrahydrofuran.
- Water solubility: Negligible.
- Partition coefficient (n-octanol/water): Not applicable.
- Viscosity: Not applicable.
- Vapor density: Not applicable.
- Evaporation rate: Not applicable.

9.3 Other information
None

10. STABILITY AND REACTIVITY
This material is stable under normal conditions of use and storage.
No hazardous polymerization will occur.
No significant reaction will occur with air or water at room temperature.
10.1 Condition to avoid
Excessive heat
Dust formation

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

10.3 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: LD50 rat > 5,000 mg/kg (OECD 425), not harmful. (a similar product)
Inhalation: LC50 rat > 5.36 mg/L (OECD 403) (a similar product)
Dermal: LD50 rat > 5,000 mg/kg (OECD 402) (a similar product)
Eye irritation: This mixture is classified as a nonirritant to the ocular tissue of rabbit. (OECD 405) (a similar product)
Skin irritation: This mixture is classified as a nonirritant to the dermal tissue of rabbit. (OECD 404) (a similar product)
Sensitization: Skin sensitizing potential negative (guinea pigs, Magnusson & Kligman’s criteria) (OECD 406) (a similar product)

Chronic Toxicity: No test data available.

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

Carcinogenicity: No test data available. None of the substances in this mixture is classified for carcinogenicity according to EU Directive 67/548/EEC.
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* 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, 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 according to EU Directive 67/548/EEC.
12. ECOLOGICAL INFORMATION
According to 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
No data available.

12.2 Mobility
No data available.

12.3 Persistence and degradability
No data available.

12.4 Bioaccumulative potential
No data available.

12.5 Results of PBT assessment
Not applicable.

12.6 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.

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):
Carbon black
Immediate health hazard: No
Chronic health hazard: No (Carbon black is bound within the mixture.)
Sudden release of pressure hazard: No
Reactive hazard: No
Section 313 (40 CFR 372):
Not applicable to this mixture.

This mixture complies with the requirements of the RoHS Directive 2002/95/EC 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 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 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.
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>ACGIH</td>
<td>American Conference of Governmental Industrial Hygienists</td>
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<td>ADR</td>
<td>Accord européen relatif au transport international des marchandises Dangereuses par Route (The European agreement on cross-border transportation of dangerous goods by road)</td>
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<tr>
<td>CAS</td>
<td>Chemical Abstracts Service</td>
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<tr>
<td>CERCLA</td>
<td>Comprehensive Environmental Response Compensation and Liability Act</td>
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<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
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<td>DOT</td>
<td>Department Of Transportation</td>
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<td>EINECS</td>
<td>European Inventory of Existing Commercial Substances</td>
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<td>ELINCS</td>
<td>European List of Notified Chemical Substances</td>
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<td>EPA</td>
<td>Environmental Protection Agency</td>
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<td>EPCRA</td>
<td>Emergency Planning and Community Right-to-know Act</td>
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<td>EU</td>
<td>European Union</td>
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<td>IARC</td>
<td>International Agency for Research on Cancer</td>
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<td>IATA</td>
<td>International Air Transport Association</td>
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<td>ICAO</td>
<td>International Civil Aviation Organization</td>
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<td>IMDG</td>
<td>International Medical Guide for Ships</td>
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<td>LD50</td>
<td>Lethal Dose, 50 % kill</td>
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<td>NTP</td>
<td>National Toxicology Program</td>
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<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
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<td>PELs</td>
<td>Permissible Exposure Limits</td>
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<td>RID</td>
<td>Règlement International concernant le transport des marchandises Dangereuses par chemin de fer (the international regulations covering transportation of dangerous goods by rail)</td>
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<td>SARA</td>
<td>Superfund Amendments and Reauthorization Act of 1986</td>
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<tr>
<td>TSCA</td>
<td>Toxic Substances Control Act</td>
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<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
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<td>TWA</td>
<td>Time Weighted Average</td>
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