1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PART NUMBER: HP5500KHEMK10KG

PRODUCT DESCRIPTION: TNR PFB MKI HP5500 KALEIDOCHROME 10KG BAG

SUPPLIER: Clover Technologies Group
4200 Columbus Street
Ottawa, IL 61350

EMERGENCY TELEPHONE: (815) 431-8100

2. HAZARDS IDENTIFICATION

Emergency overview:
This mixture is fine black 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 a 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 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.
MATERIAL SAFETY DATA SHEET

3. COMPOSITION/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>Trade secret</td>
<td>&lt;5</td>
<td>Yes</td>
</tr>
<tr>
<td>Titanium dioxide</td>
<td>13463-67-7</td>
<td>0.1-1.0</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Refer to Section 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.

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

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

**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.

**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:**
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**

**Handling precautions**
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.

**Store**
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**

**Exposure limit values:**
Mixture as particulate not otherwise classified

- OSHAPELs(TWA): 15mg/m³ (Total dust), 5mg/m³ (Respirable fraction)
- ACGIH TLV (TWA): 10mg/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): 80% SiO2 mg/m3 (*million particles per cubic foot)

Titanium dioxide
OSHA PELs (TWA): 15 mg/m3 (Total dust), 5mg/m3 (Respirable fraction)

Exposure Controls:

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.

Environmental exposure controls
Not applicable.

9. PHYSICAL AND CHEMICAL PROPERTIES

General information

Appearance: Fine black powder
Odor: None or slight plastic-like odor

Important health, safety and environmental information:

pH: Not applicable
Boiling point/boiling range: Not applicable
Flash point: Not applicable
Flammability: Not flammable
Explosive properties: Not 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

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.

**Condition to avoid**
- Excessive heat
- Dust formation

**Materials to avoid**
- Strong oxidizers, which could vigorously oxidize organic materials in this mixture and cause a fire in a 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 for potential health effects and Section 4 for first aid measures.

**Acute toxicity**

- **Oral:** LD50 rat > 5,000 mg/kg (OECD 425), not harmful.
- **Inhalation:** LC50 rat > 5.36 mg/L (OECD 403) (a similar product)
- **Dermal:** No test data available
  - None of the substances in this mixture is classified as irritant according to OSHA Hazard Communication Standard 29 CFR 1910.1200 or for acute dermal toxicity according to EU Directive 67/548/EEC.

- **Eye irritation:** No test data available.
  - None of the substances in this mixture is classified as eye irritant EU Directive 67/548/EEC.

- **Skin irritation:** No test data available.
  - None of the substances in this mixture is classified as a skin irritant according to OSHA Hazard Communication Standard 29 CFR 1910.1200 or EU Directive 67/548/EEC.
Sensitization: No test data available.
None of the substances in this mixture is classified as a sensitizer according to OSHA Hazard Communication Standard 29 CFR 1910.1200 or EU Directive 67/548/EEC.

Chronic Toxicity:
No test data available
None of the substances in this mixture is classified as very toxic or harmful for chronic effect according to EU Directive 67/548/EEC.

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.

* "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)

Titanium dioxide is listed by IARC as Group 2B (possibly Carcinogenic to humans); however, IARC monograph vol. 93 states that the 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 our test results or 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.

**Ecotoxicity:**
No data available

**Mobility**
No data available

**Persistence and degradability**
No data available

**Bioaccumulative potential**
No data available

**Results of PBT assessment**
Not applicable

**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. **TRANSPORTATION 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 is listed or exempted in accordance with TSCA.

**CERCLA Reportable Quantity (40 CFR 117,302):**
Not applicable to this mixture.

**SARA Title III**

**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: Yes
  - 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

This information is believed to be true and accurate. It represents the best information currently available to us. We make no warranty, Expressed or implied with regard to such information. We make no liability resulting from its use. Users make their own investigations to determine the suitability for their particular purposes.
This document was prepared to comply with requirements in the United States and may not meet regulatory requirements in other countries.

REVISION DATE: 09-16-2010
SAFETY DATA SHEET: 09-16-2010

Abbreviations
ACGIH American Conference of Governmental Industrial Hygienists
ADR Accord européen relatif au transport international des marchandises Dangereuses par Route (The European agreement on cross-border transportation of dangerous goods by road).
CAS Chemical Abstracts Service
CERCLA Comprehensive Environmental Response Compensation and Liability Act.
CFR Code of Federal Regulations
DOT Department of Transportation
EINCES European Inventory of Existing Commercial Substances
ELINCS European List of Notified Chemical Substances
EU European Union
IARC International Agency of Research on Cancer
IATA International Air Transport Association
ICAO International Civil Aviation Organization
IMDG International Medical Guide of Ships
LD50 Lethal Dose, 50% kill
NTP National Toxicology Program
OSHA Occupational Safety and Health Administration
PELs Permissible Exposure Limits
RID Réglement International concernant le transport des marchandises Dangereuses par chemin de fer (the International regulations covering transportation of dangerous
**MATERIAL SAFETY DATA SHEET**

*SARA*  Superfund Amendments and Reauthorization Act of 1986  
*TSCA*  Toxic Substances Control Act  
*TLV*  Threshold Limit Value  
*TWA*  Time Weighted Average