SAFETY DATA SHEET

1. Identification

Product identifier: CH648Series
Other means of identification: Not available.
Recommended use: Inkjet printing
Recommended restrictions: None known.
Company identification: HP
1501 Page Mill Road
Palo Alto, CA 94304-1112
United States
Telephone 650-857-5020

HP health effects line
(Toll-free within the US) 1-800-457-4209
(Direct) 1-760-710-0048
HP Customer Care Line
(Toll-free within the US) 1-800-474-6836
(Direct) 1-208-323-2551
Email: hpcustomer.inquiries@hp.com

2. Hazard(s) identification

Physical hazards: Not classified.
Health hazards: Not classified.
Environmental hazards: Not classified.
OSHA defined hazards: Not classified.

Label elements

Hazard symbol: None.
Signal word: None.
Hazard statement: Not available.

Precautionary statement

Prevention: Not available.
Response: Not available.
Storage: Not available.
Disposal: Not available.

Hazard(s) not otherwise classified (HNOC): Potential routes of overexposure to this product are skin and eye contact. Inhalation of vapor and ingestion are not expected to be significant routes of exposure for this product under normal use conditions. Complete toxicity data are not available for this specific formulation. Carbon black is classified by the IARC as a Group 2B carcinogen (the substance is possibly carcinogenic to humans). Carbon black in this preparation, due to its bound form, does not present this carcinogenic risk. None of the other ingredients in this preparation are classified as carcinogens according to ACGIH, EU, IARC, MAK, NTP or OSHA.

Supplemental information: This product is not classified as hazardous according to OSHA CFR 1910.1200 (HazCom 2012).

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td></td>
<td>7732-18-5</td>
<td>70-80</td>
</tr>
<tr>
<td>2-pyrrolidone</td>
<td></td>
<td>616-45-5</td>
<td>&lt;15</td>
</tr>
<tr>
<td>Modified carbon black 11</td>
<td></td>
<td>Proprietary</td>
<td>&lt;5</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td>56-81-5</td>
<td>&lt;2.5</td>
</tr>
</tbody>
</table>

Material name: CH648Series
Version #: 03   Revision date: 16-Sep-2015   Issue date: 09-Apr-2015
This ink supply contains an aqueous ink formulation. This product has been evaluated using criteria specified in 29 CFR 1910.1200 (Hazard Communication Standard).

4. First-aid measures

**Inhalation**
Move to fresh air. If symptoms persist, get medical attention.

**Skin contact**
Wash affected areas thoroughly with mild soap and water. If irritation persists get medical attention.

**Eye contact**
Do not rub eyes. Immediately flush with large amounts of clean, warm water (low pressure) for at least 15 minutes or until particles are removed. If irritation persists get medical attention.

**Ingestion**
If ingestion of a large amount does occur, seek medical attention.

**Most important symptoms/effects, acute and delayed**
Not available.

5. Fire-fighting measures

**Suitable extinguishing media**
CO2, water, dry chemical, or foam

**Unsuitable extinguishing media**
None known.

**Specific hazards arising from the chemical**
Not applicable.

**Special protective equipment and precautions for firefighters**
Not available.

**Specific methods**
None established.

6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Wear appropriate personal protective equipment.

**Methods and materials for containment and cleaning up**
Dike the spilled material, where this is possible. Absorb with inert absorbent such as dry clay, sand or diatomaceous earth, commercial sorbents, or recover using pumps.

**Environmental precautions**
Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

7. Handling and storage

**Precautions for safe handling**
Avoid contact with skin, eyes and clothing.

**Conditions for safe storage, including any incompatibilities**
Keep out of the reach of children. Keep away from excessive heat or cold.

8. Exposure controls/personal protection

**Occupational exposure limits**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol (CAS 56-81-5)</td>
<td>PEL</td>
<td>5 mg/m3</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m3</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

**Biological limit values**
No biological exposure limits noted for the ingredient(s).

**Exposure guidelines**
Exposure limits have not been established for this product.

**Appropriate engineering controls**
Use in a well ventilated area.

**Individual protection measures, such as personal protective equipment**

<table>
<thead>
<tr>
<th>Protection</th>
<th>Measure</th>
<th>Available/Not Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye/face</td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td>Skin protection</td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td>Hand protection</td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td>Respiratory protection</td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td>Thermal hazards</td>
<td>Not available.</td>
<td></td>
</tr>
</tbody>
</table>
9. Physical and chemical properties

Appearance
- Physical state: Not available.
- Color: Black.
- Odor: Not available.
- Odor threshold: Not available.
- pH: 9.2
- Melting point/freezing point: Not available.
- Initial boiling point and boiling range: Not determined
- Flash point: > 200.0 °F (> 93.3 °C) Pensky-Martens Closed Cup
- Evaporation rate: Not determined
- Flammability (solid, gas): Not available.

Upper/lower flammability or explosive limits
- Flammability limit - lower (%): Not determined
- Flammability limit - upper (%): Not available.
- Explosive limit - lower (%): Not available.
- Explosive limit - upper (%): Not available.

Vapor pressure: Not determined

Solubility(ies)
- Solubility (water): Soluble in water
- Partition coefficient (n-octanol/water): Not available.

Auto-ignition temperature: Not determined

Decomposition temperature: Not available.

Viscosity: Not available.

Other information
- Specific gravity: 1 - 1.1
- Other information: For other VOC regulatory data/information see Section 15.
- VOC (Weight %): < 240 g/l

10. Stability and reactivity

Reactivity: Not available.

Chemical stability: Stable under recommended storage conditions.

Possibility of hazardous reactions: Will not occur.

Conditions to avoid: Not available.

Incompatible materials: Incompatible with strong bases and oxidizing agents.

Hazardous decomposition products: Upon decomposition, this product may yield gaseous nitrogen oxides, carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons. hydrogen fluoride, fluorinated hydrocarbons

11. Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics: Not available.

Information on toxicological effects

Acute toxicity: Based on available data, the classification criteria are not met.
Skin corrosion/irritation
Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation
Based on available data, the classification criteria are not met.

Respiratory or skin sensitization
Respiratory sensitization
Based on available data, the classification criteria are not met.

Skin sensitization
Based on available data, the classification criteria are not met.

Germ cell mutagenicity
Based on available data, the classification criteria are not met.

Carcinogenicity
Carbon black is classified as a carcinogen by the IARC (possibly carcinogenic to humans, Group 2B) and by the State of California under Proposition 65. In their evaluations of carbon black, both organizations indicate that exposure to carbon black, per se, does not occur when it remains bound within a product matrix, specifically, rubber, ink, or paint. Carbon black is present only in a bound form in this preparation.

Reproductive toxicity
Based on available data, the classification criteria are not met.

Specific target organ toxicity
- single exposure
Based on available data, the classification criteria are not met.

Specific target organ toxicity
- repeated exposure
Based on available data, the classification criteria are not met.

Aspiration hazard
Based on available data, the classification criteria are not met.

Further information
Complete toxicity data are not available for this specific formulation. Refer to Section 2 for potential health effects and Section 4 for first aid measures.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-pyrrolidone (CAS 616-45-5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td>Guinea pig</td>
<td>6500 mg/kg</td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>6500 mg/kg</td>
</tr>
</tbody>
</table>

12. Ecological information

Aquatic toxicity
Not expected to be harmful to aquatic organisms.

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH648Series (CAS Mixture)</td>
<td>Fathead minnow (Pimephales promelas)</td>
<td>&gt; 750 mg/l, 96 hours</td>
</tr>
<tr>
<td>Aquatic Acute Fish</td>
<td>LC50</td>
<td></td>
</tr>
<tr>
<td>Components</td>
<td>Species</td>
<td>Test Results</td>
</tr>
<tr>
<td>2-pyrrolidone (CAS 616-45-5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic Crustacea</td>
<td>EC50</td>
<td>Water flea (Daphnia pulex)</td>
</tr>
<tr>
<td>Glycerol (CAS 56-81-5)</td>
<td>Aquatic Fish</td>
<td>LC50</td>
</tr>
</tbody>
</table>

Persistence and degradability
Not available.

Bioaccumulative potential
Not available.

Partition coefficient n-octanol / water (log Kow)
2-pyrrolidone -0.85
Glycerol -1.76

Mobility in soil
Not available.

Other adverse effects
Not available.
13. Disposal considerations

Disposal instructions

Do not allow this material to drain into sewers/water supplies. Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

HP's Planet Partners (trademark) supplies recycling program enables simple, convenient recycling of HP original inkjet and LaserJet supplies. For more information and to determine if this service is available in your location, please visit http://www.hp.com/recycle.

14. Transport information

DOT
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

ADR
Not regulated as dangerous goods.

Further information
Not a dangerous good under DOT, IATA, ADR, IMDG, or RID.

15. Regulatory information

US federal regulations

US TSCA 12(b): Does not contain listed chemicals.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)
Not listed.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312
Hazardous chemical
No

Other federal regulations
Safe Drinking Water Act (SDWA)
Not regulated.

US state regulations

US. Massachusetts RTK - Substance List
2-pyrrolidone (CAS 616-45-5)
Glycerol (CAS 56-81-5)

US. New Jersey Worker and Community Right-to-Know Act
Glycerol (CAS 56-81-5)

US. Pennsylvania Worker and Community Right-to-Know Law
2-pyrrolidone (CAS 616-45-5)
Glycerol (CAS 56-81-5)

US. Rhode Island RTK
Not regulated.

US. California Proposition 65
Not Listed.
VOC content (less water, less exempt compounds) = < 958 g/L (U.S. requirement, not for emissions)
VOC data based on formulation (Organic compounds minus solids)

All chemical substances in this HP product have been notified or are exempt from notification under chemical substances notification laws in the following countries: US (TSCA), EU (EINECS/ELINCS), Switzerland, Canada (DSL/NDSL), Australia, Japan, Philippines, South Korea, New Zealand, and China.

16. Other information, including date of preparation or last revision

Issue date 09-Apr-2015
Revision date 16-Sep-2015
Version # 03

Disclaimer
This Safety Data Sheet document is provided without charge to customers of HP. Data is the most current known to HP at the time of preparation of this document and is believed to be accurate. It should not be construed as guaranteeing specific properties of the products as described or suitability for a particular application. This document was prepared to the requirements of the jurisdiction specified in Section 1 above and may not meet regulatory requirements in other countries.

Manufacturer information
HP
1501 Page Mill Road
Palo Alto, CA 94304-1112 US
Direct 1-650-857-5020

Explanation of abbreviations

ACGIH American Conference of Governmental Industrial Hygienists
CAS Chemical Abstracts Service
CERCLA Comprehensive Environmental Response Compensation and Liability Act
CFR Code of Federal Regulations
COC Cleveland Open Cup
DOT Department of Transportation
EPCRA Emergency Planning and Community Right-to-Know Act (aka SARA)
IARC International Agency for Research on Cancer
NIOSH National Institute for Occupational Safety and Health
NTP National Toxicology Program
OSHA Occupational Safety and Health Administration
PEL Permissible Exposure Limit
RCRA Resource Conservation and Recovery Act
REC Recommended
REL Recommended Exposure Limit
SARA Superfund Amendments and Reauthorization Act of 1986
STEL Short-Term Exposure Limit
TCLP Toxicity Characteristics Leaching Procedure
TLV Threshold Limit Value
TSCA Toxic Substances Control Act
VOC Volatile Organic Compounds