

## Safety Data Sheet (ISO form)

### 1. Product and Company Identification

Product Name :Print Cartridge Cyan SP C310HE (Cyan toner)  
General Use :The Image Formation of Printing Machine or Copier  
MSDS Number :406480  
Company Name :Ricoh Company,Ltd.  
Department :Environment Safety Center, Corporate Environment Division  
Address :146-1 Nishisawada, Numazu-shi, Shizuoka-ken, 410-0007 Japan  
Telephone Number :055-920-1470, Japan  
Telefax Number :055-920-1479, Japan  
E-mail :msdsinfo@nts.ricoh.co.jp

### 2. Composition/Information on Ingredients

Substance or Preparation

Preparation

Chemical Nature

Ingredients	Chemical Formula	CAS.No.	Contents(%)
Polyester Resin 1	Confidential	Confidential	40-60
Polyester Resin 2	Confidential	Confidential	30-50
Organic Pigment	C32H16CuN8	147-14-8	1-10
Wax	Confidential	Confidential	1-5
Silica	Confidential	Confidential	1-5
Organic Salt	Confidential	Confidential	1-5

This product does not contain any of the following substances as ingredients.  
Cadmium, Hexavalent Chromium, Mercury, Lead, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE), SVHC (substances of very high concern: published by ECHA).  
And if it contains any impurities, it does not exceed any of the thresholds of RoHS.

### 3. Hazards Identification

The Most Important Hazards

Adverse Human Health Effects

There are no significant hazards expected with intended use.

Environmental Effects

There are no significant hazards expected with intended use.

Physical and Chemical Hazards

There are no significant hazards expected with intended use.

Specific Hazards

Dust explosion (like most finely grained organic powders)

Main Symptoms

Acute Inhalation Toxicity

Exposure to excessive amount of dust may cause physical irritation to respiratory tract.

Acute Oral Toxicity

Low acute toxicity in animal experiment.

Acute Eye Irritation

May cause slight transient irritation.

Acute Skin Irritation

May be non-irritant.

Sensitization

From test no apparent significant hazards are expected . (Only few cases reported on incidental allergy-related conjunctivitis or dermatitis.)

Chronic Effect

Slight pulmonary fibrosis has been reported in rats upon chronic inhalation exposure to a toner at 4mg/m3 every day for 2 years. No pulmonary change was found at 1mg/m3. These findings show

that exposure to excessive amounts of powder may cause damage to lungs. However, normal use and handling of this product as intended, does not result in inhalation of excessive amounts of powder.

#### Carcinogenicity

This product does not contain the substances classified as carcinogenic by NTP, IARC or OSHA.  
The Classification of The Chemical Product

This preparation is not classified as dangerous according to Directive 1999/45/EC.

## 4. First-Aid Measures

### Inhalation

Remove from exposure into fresh air and rinse mouth with water. Seek medical advice.

### Skin Contact

Wash thoroughly with soapy water.

### Eye Contact

Flush with a large amount of water until particles are removed. Seek medical advice.

### Ingestion

Drink several glasses of water to dilute ingested toner. Seek medical advice.

### Notes to a physician

Not applicable

## 5. Fire-Fighting Measures

### Extinguishing Media

CO<sub>2</sub>, dry chemicals, foam or water.

### Extinguishing Media to Avoid

Not applicable.

### Specific Hazards

Can form explosive dust-air mixtures when finely dispersed in air.

### Specific Method

No special fire protecting method is required. Sprinkling or fire extinguishers can be used.

### Protection of Fire-fighters

Wear gloves, glasses, a mask if necessary.

## 6. Accidental Release Measures

### Personal Precautions

Do not breathe in dust.

### Environment Precautions

Do not flush into sewers or watercourses.

### Methods for Cleaning Up

Fine powder may form explosive dust-air mixture. Confirm there is no source of fire and if there is a source, remove it. Sweep up spilled powder slowly and clean remainder with wet cloth. If a vacuum cleaner is used, a dust explosion-proof type must be chosen.

## 7. Handling and Storage

### Handling

#### Technical Measures/Precautions

Not applicable

#### Safe Handling Advice

Do not handle in areas where there is wind or draught, this may cause dust to get into eyes.  
Avoid breathing in dust.

#### Storage

##### Technical Measures

Not applicable

##### Storage Conditions

Keep out of reach of children.

Store in dry, well-ventilated area, to maintain quality the temperature should not exceed 35degrees centigrade for a long time. Avoid direct sunlight.

##### Packaging Material

Not applicable

##### Specific Use(s)

Image formation in printing machines or copiers.

## 8.Exposure Controls/Personal Protection

### Technical Measures

Use adequate ventilation. None required with intended use.

### Control Parameters

USA OSHA PEL (TWA) : 15mg/m<sup>3</sup> (Total dust) 5.0mg/m<sup>3</sup> (Respirable fraction)

ACGIH TLV (TWA) : 10mg/m<sup>3</sup> (Inhalable fraction) 3.0mg/m<sup>3</sup> (Respirable fraction)

DFG MAK : 4.0mg/m<sup>3</sup> (Total dust) 1.5mg/m<sup>3</sup> (Respirable fraction)

### Personal Protection

#### Respiratory Protections

None required in normal use. If the limit of exposure concentration is exceeded, use authorised respirator.

#### Hand Protection

Use vinyl or rubber gloves if necessary.

#### Eye Protection

Put on goggles if necessary.

#### Skin and Body Protection

Wear chemical-resistant apron or other impervious clothing if necessary.

#### Hygiene Measures

Wash hands after handling.

## 9.Physical and Chemical Properties

### Appearance

Physical State : Solid

Form : Powder

Colour : Cyan

Odour : Slightly plastic odour

### Information

pH : Not applicable

Specific Temperatures/Temperature Ranges at Which Changes in Physical State Occur

Boiling Point (degrees centigrade) : Not applicable

Melting Point (degrees centigrade) : (Softening point) Approx.110

Decomposition Temperature (degrees centigrade) : Not available

Flash Point (degrees centigrade) : Not applicable

Explosion Properties (degrees centigrade) : This product is considered a nonexplosive material under normal use.

Vapor Pressure (Pa) : Not applicable

Vapor Density(AIR=1) : Not applicable

Density (g/cm<sup>3</sup>) : Approx.1.2 Measuring Temp (degrees centigrade) : 25

### Solubility

Water Solubility (g/L) : Insoluble

Chloroform Solubility (g/L) : Slightly soluble  
Octanol/Water Partition Coefficient  
Not available  
Other Information

Flammability : Not flammable  
Viscosity (Pa·s) : Not applicable  
Volatile (%) : 0.2 or below

## 10. Stability and Reactivity

Stability  
Stable  
Hazardous Reaction  
Dust explosion, like most finely grained organic powders.

Conditions to Avoid  
Not applicable in normal use.  
Materials to Avoid  
Not applicable in normal use.  
Hazardous Decomposition Products  
Decomposition products will not occur.

## 11. Toxicological Information

Acute Toxicity  
Acute Oral Toxicity (LD50) :  
5000 or over [mg/kg] (Rat) (Based on other product test results of similar ingredients.)  
Acute Dermal Toxicity :  
Not available  
Acute Inhalation Toxicity :  
Not available  
Local effects  
Acute Skin Irritation(PII) :  
1.0 or below (Rabbit) (Based on other product test results of similar ingredients.)  
Acute Eye Irritation :  
Not available (Ingredients are not classified as dangerous according to Directive 67/548/EEC.)  
Sensitization  
Acute Allergenic Effects :  
0 % (Marmot) (Based on other product test results of similar ingredients.)  
Specific Effects  
Carcinogenicity :  
This product does not contain the carcinogenic substances which are listed on NTP, IARC and OSHA.

Mutagenicity : Negative (Ames test)  
Reproduction Toxicity : Does not contain substances listed as hazardous to reproductive health.

## 12. Ecological Information

Mobility : No data are available on any adverse effects on the environment.  
Persistence/Degradability : Not available  
Bioaccumulation : Not available

Ecotoxicity  
Acute Toxicity for Fish (LC50) : Not classified as toxic (EU Directive 1999/45/EC)  
Acute Toxicity for Daphnia (EC50) : Not classified as toxic (EU Directive 1999/45/EC)  
Algae Inhibition Test (IC50) : Not classified as toxic (EU Directive 1999/45/EC)

## 13. Disposal Consideration

General information:  
Dispose of waste and residues in accordance with local authority requirements.  
Disposal methods:

Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal. Confirm disposal procedures with local regulations.

Precautions:

Do not throw the toner cartridge or toner into an open flame. Hot toner may scatter and cause burns or other damage.

## 14. Transport Information

International Regulations

Land Transport

RID/ADR : Not applicable

DOT 49 CFR : Not applicable

ADNR : Not applicable

Sea Transport

IMDG Code : Not applicable

Air Transport

ICAO-TI/IATA-DGR : Not applicable

The UN Classification Number : Not applicable

Class : Not applicable

Specific Precautionary Transport Measures and conditions

Avoid direct sunlight in quality.

## 15. Regulatory Information

Regulations

EU Information

Information on the label (1999/45/EC and 67/548/EEC)

Symbols & : Not required

Indications

R-Phrase : Not required

S-Phrase : Not required

Special Precautions under 1999/45/EC Annex V : Not required

76/769/EEC

This product complies with applicable rules and regulations under 76/769/EEC

304/2003/EC

Not regulated

US Information

Information on the label : Not required

TSCA (Toxic Substances Control Act) :

This toner complies with all applicable rules and regulations under TSCA.

SARA Title III

313 Reportable Ingredients : Not regulated

California Proposition 65 : Not regulated

Canada Information

WHMIS Controlled product : Not a controlled product

## 16. Other Information

NFPA Hazard Rating: National Fire Protection Agency (USA)

Health ; 1, Flammability ; 1, Reactivity ; 0

HMIS Rating : The National Paint and Coating Association (USA)

Health ; 1, Flammability ; 1, Reactivity ; 0

Literature References :

ANSI Z400.1-1993

ISO 11014-1

IARC (1996) "IARC Monograph 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, pp149-261

H. Muhle, B. Bellman, O. Creutzenberg, C. Dasenbrock, H. Emst, 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, pp 280-299

IARC (2008) "IARC Monograph on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol.93"

NIOSH CURRENT INTELLIGENCE BULLETIN "Evaluation of Health Hazard and Recommendation for Occupational Exposure to Titanium Dioxide DRAFT"

ACGIH-TLV : Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices  
OSHA Z-Tables : US Department of Labor, 29CFR Part 1910 , Tables Z-1, Z-2, and Z-3  
NTP (USA) : US Department of Health and Human Services National Toxicology Program Annual Report on Carcinogens  
DFG-MAK : DFG List of MAK and BAT Value  
Symbol (EC) : EU Directive 67/548/EEC  
91/155/ EEC : EU Directive 91/155/ EEC  
1999/45/EC Annex V : EU Directive 1999/45/EC  
76/769/ EEC : EU Directive 76/769/ EEC  
EC 304/2003 : Regulation (EC) No 304/2003 of the European Parliament and of the Council of 28 January 2003 concerning the export and import of dangerous chemicals  
WHMIS Controlled product : Canada Workplace Hazardous Information System  
OELs-TWA (Australia) : Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC: 3008 (1995)]

**Abbreviations :**

OSHA PEL PEL (Permissible Exposure Limit) under Occupational Safety and Health Act  
ACGIH-TLV TLV (Threshold Limit Values) under American Conference of Governmental Industrial Hygienists  
REACH (EC)No.1907/2006:Council Regulation concerning the Registration, Evaluation, Authorization and Restriction of Chemical Substances of Very High Concern  
SVHC The European Chemicals Agency  
ECHA The European Chemicals Agency  
DFG-MAK MAK (Maximale Arbeitsplatz Konzentrationen) by Deutsche Forschungs Gemeinschaft  
RoHS Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment  
TWA Time Weighted Average  
IARC International Agency for Research on Cancer  
NTP National Toxicology Program  
WHMIS Workplace Hazardous Information System  
NOHSC National Occupational Health and Safety Commission Act 1985

**Disclaimer :**

This information is furnished without warranty, express or implied, except that it is accurate to the best knowledge of RICOH COMPANY, LTD.

It relates only to the specific material designated herein, and does not relate to use in combination with any other material or process.

RICOH COMPANY, LTD assumes no legal responsibility for use or reliance upon this information.