

## Safety Data Sheet (ISO form)

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### 1. Product and Company Identification

Product Name :RICOH Cleaning Cartridge Cyan Type G1  
General Use :The Image Formation of Printing Machine  
SDS Number :342523  
Company Name : Ricoh Company,Ltd.  
Department :Product Safety Engineering Department, Safety and Environmental Engineering Center, Quality Management 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

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### 2. Composition/Information on Ingredients

Substance or Preparation

Preparation

Chemical Nature

Ingredients	Chemical Formula	CAS.No.	Contents(%)
Glycol	Confidential	Confidential	20-30
Glycerin	C <sub>3</sub> H <sub>8</sub> O <sub>3</sub>	56-81-5	<10
Surfactant	Confidential	Confidential	<3
Water	H <sub>2</sub> O	7732-18-5	55-75

This product does not contain any of the following substances as ingredients.

Cadmium, Hexavalent Chromium, Mercury, Lead, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE).

And if it contains any impurities, it does not exceed any of the thresholds of RoHS.

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### 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

There are no significant hazards expected with intended use.

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#### Main Symptoms

##### Acute Inhalation Toxicity

Under normal use conditions, there is no possibility to inhale the particle of ink.

##### Acute Oral Toxicity

Low acute toxicity in animal experiment.

##### Acute Eye Irritation

May be non-irritant.

##### Acute Skin Irritation

May be non-irritant.

##### Sensitization

From test no apparent significant hazards are expected.

##### Chronic Effect

Under normal use conditions, there is no possibility to inhale the particle of ink.

##### 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

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#### 4. First-Aid Measures

##### Inhalation

Remove from exposure into fresh air if symptoms are experienced. 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

Make him drink strong salt water, let him vomit. Seek medical advice.

##### Notes to a physician

Not applicable

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#### 5. Fire-Fighting Measures

##### Extinguishing Media

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

##### Extinguishing Media to Avoid

Not applicable.

##### Specific Hazards

Not applicable

##### 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.

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#### 6. Accidental Release Measures

##### Personal Precautions

Take off dirty clothes and wash them or have them dry-cleaned before wearing again.

##### Environment Precautions

Do not exposure to sewers and watercourses.

##### Methods for Cleaning Up

If spilled, wipe up with paper or cloth.

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## 7. Handling and Storage

### Handling

#### Technical Measures/Precautions

Not applicable

#### Safe Handling Advice

Keep away from heat, flame or spark. Do not dismantle cartridge.

### Storage

#### Technical Measures

Not applicable

#### Storage Conditions

Keep out of reach of children.

For the sake of quality, store in dry and well-ventilated area it should not exceed 32 degrees centigrade for a long time and avoid direct sunlight.

#### Packaging Material

Not applicable

### Specific Use(s)

The Image Formation of Printing Machine or Copier.

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## 8. Exposure Controls/Personal Protection

### Technical Measures

Use adequate ventilation. None required with intended use.

### Control Parameters

USA OSHA PEL (TWA) : Not applicable

ACGIH TLV (TWA) : Not applicable

DFG MAK : Not applicable

### Personal Protection

#### Respiratory Protections

None required in normal use.

#### 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.

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## 9. Physical and Chemical Properties

### Appearance

Physical State : Liquid

Form : Liquid

Colour : Colorless

Odour : No odour

### Information

pH : 9-10.5 Measuring Temp (degrees centigrade) : 25

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

Boiling Point (degrees centigrade) : Not available

Melting Point (degrees centigrade) : Not applicable

Decomposition Temperature (degrees centigrade) : Not applicable

Flash Point (degrees centigrade) : Not applicable  
Explosion Properties (degrees centigrade) : This product is considered a nonexplosive material under normal use.

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Vapor Pressure (Pa)  
:  
Vapor : Not available  
Density(AIR=1) :  
Density (g/cm3) : Approx.1.05 Measuring Temp (degrees centigrade) : 23  
:  
Solubility  
Water Solubility (g/L) : Soluble  
Octanol/Water Partition Coefficient  
Not available  
Other Information  
Flammability : Not flammable  
Viscosity (Pa·s) : Approx.0.003 Measuring Temp (degrees centigrade) :25  
Volatile (%) : 60-80

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## 10.Stability and Reactivity

Stability  
Stable  
Hazardous Reaction  
There is no significant hazardous reaction expected with intended use.  
Conditions to Avoid  
Not applicable in normal use.  
Materials to Avoid  
Not applicable in normal use.  
Hazardous Decomposition Products  
Decomposition products will not occur.

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## 11.Toxicological Information

Acute Toxicity  
Acute Oral Toxicity (LD50) :  
5000 or over [mg/kg] (Rat)  
Acute Dermal Toxicity :  
Not available  
Acute Inhalation Toxicity :  
Not available  
Local effects  
Acute Skin Irritation(PII) :  
1.5 or below (Rabbit) (Slight irritation)  
Acute Eye Irritation :  
Not available (Ingredients are not classified as dangerous according to Regulation (EC) No 1272/2008.)  
Sensitization  
Acute Allergenic Effects :  
0 % (Mouse) (None skin sensitization.)  
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.

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## 12. Ecological Information

Mobility : No data are available on the adverse effect one environment.  
Persistence/Degradability : Not available  
Bioaccumulation : Not available  
Ecotoxicity  
Acute Toxicity for Fish (LC50) : Not available  
Acute Toxicity for Daphnia (EC50) : Not available  
Algae Inhibition Test (IC50) : Not available

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## 13. Disposal Consideration

General information:  
Used product should be disposed in an environmentally appropriate manner and accordance with governmental regulations.  
Disposal methods:  
Precautions:  
Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal. Confirm disposal procedures with local regulations.

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## 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.; Do not keep this over 32 degrees centigrade.

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## 15. Regulatory Information

Regulations  
EU Information  
Information on the label (Regulation (EC) No 1272/2008)  
Symbols & Indications : Not required  
R-Phrase : Not required  
S-Phrase : Not required  
(EC) No 1907/2006 Annex XVII  
This product complies with applicable rules and regulations under (EC) No 1907/2006 Annex XVII  
(EC) No. 689/2008  
Not regulated  
US Information  
Information on the label : Not required  
TSCA (Toxic Substances Control Act) :

This product 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) : Regulation (EC) No 1272/2008

91/155/ EEC : EU Directive 91/155/ EEC

(EC) No 1907/2006 : Regulation (EC) No 1907/2006 Annex XVII

Annex XVII

(EC) No. 689/2008 : Regulation (EC) No 689/2008

WHMIS Controlled : Canada Workplace Hazardous Information System

product

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 Chemicals

SVHC Substances of Very High Concern

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.



## Safety Data Sheet (ISO form)

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### 1. Product and Company Identification

Product Name :RICOH Cleaning Cartridge Magenta Type G1  
General Use :The Image Formation of Printing Machine  
SDS Number :342524  
Company Name : Ricoh Company,Ltd.  
Department :Product Safety Engineering Department, Safety and Environmental Engineering Center, Quality Management 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

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### 2. Composition/Information on Ingredients

Substance or Preparation

Preparation

Chemical Nature

Ingredients	Chemical Formula	CAS.No.	Contents(%)
Glycol	Confidential	Confidential	20-30
Glycerin	C <sub>3</sub> H <sub>8</sub> O <sub>3</sub>	56-81-5	<10
Surfactant	Confidential	Confidential	<3
Water	H <sub>2</sub> O	7732-18-5	55-75

This product does not contain any of the following substances as ingredients.

Cadmium, Hexavalent Chromium, Mercury, Lead, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE).

And if it contains any impurities, it does not exceed any of the thresholds of RoHS.

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### 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

There are no significant hazards expected with intended use.

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#### Main Symptoms

##### Acute Inhalation Toxicity

Under normal use conditions, there is no possibility to inhale the particle of ink.

##### Acute Oral Toxicity

Low acute toxicity in animal experiment.

##### Acute Eye Irritation

May be non-irritant.

##### Acute Skin Irritation

May be non-irritant.

##### Sensitization

From test no apparent significant hazards are expected.

##### Chronic Effect

Under normal use conditions, there is no possibility to inhale the particle of ink.

##### 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

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#### 4. First-Aid Measures

##### Inhalation

Remove from exposure into fresh air if symptoms are experienced. 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

Make him drink strong salt water, let him vomit. Seek medical advice.

##### Notes to a physician

Not applicable

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#### 5. Fire-Fighting Measures

##### Extinguishing Media

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

##### Extinguishing Media to Avoid

Not applicable.

##### Specific Hazards

Not applicable

##### 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.

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#### 6. Accidental Release Measures

##### Personal Precautions

Take off dirty clothes and wash them or have them dry-cleaned before wearing again.

##### Environment Precautions

Do not exposure to sewers and watercourses.

##### Methods for Cleaning Up

If spilled, wipe up with paper or cloth.

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## 7. Handling and Storage

### Handling

#### Technical Measures/Precautions

Not applicable

#### Safe Handling Advice

Keep away from heat, flame or spark. Do not dismantle cartridge.

### Storage

#### Technical Measures

Not applicable

#### Storage Conditions

Keep out of reach of children.

For the sake of quality, store in dry and well-ventilated area it should not exceed 32 degrees centigrade for a long time and avoid direct sunlight.

#### Packaging Material

Not applicable

### Specific Use(s)

The Image Formation of Printing Machine or Copier.

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## 8. Exposure Controls/Personal Protection

### Technical Measures

Use adequate ventilation. None required with intended use.

### Control Parameters

USA OSHA PEL (TWA) : Not applicable

ACGIH TLV (TWA) : Not applicable

DFG MAK : Not applicable

### Personal Protection

#### Respiratory Protections

None required in normal use.

#### 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.

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## 9. Physical and Chemical Properties

### Appearance

Physical State : Liquid

Form : Liquid

Colour : Colorless

Odour : No odour

### Information

pH : 9-10.5 Measuring Temp (degrees centigrade) : 25

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

Boiling Point (degrees centigrade) : Not available

Melting Point (degrees centigrade) : Not applicable

Decomposition Temperature (degrees centigrade) : Not applicable

Flash Point (degrees centigrade) : Not applicable  
Explosion Properties (degrees centigrade) : This product is considered a nonexplosive material under normal use.

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Vapor Pressure (Pa)  
:  
Vapor : Not available  
Density(AIR=1) :  
Density (g/cm3) : Approx.1.05 Measuring Temp (degrees centigrade) : 23  
:  
Solubility  
Water Solubility (g/L) : Soluble  
Octanol/Water Partition Coefficient  
Not available  
Other Information  
Flammability : Not flammable  
Viscosity (Pa·s) : Approx.0.003 Measuring Temp (degrees centigrade) :25  
Volatile (%) : 60-80

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## 10.Stability and Reactivity

Stability  
Stable  
Hazardous Reaction  
There is no significant hazardous reaction expected with intended use.  
Conditions to Avoid  
Not applicable in normal use.  
Materials to Avoid  
Not applicable in normal use.  
Hazardous Decomposition Products  
Decomposition products will not occur.

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## 11.Toxicological Information

Acute Toxicity  
Acute Oral Toxicity (LD50) :  
5000 or over [mg/kg] (Rat)  
Acute Dermal Toxicity :  
Not available  
Acute Inhalation Toxicity :  
Not available  
Local effects  
Acute Skin Irritation(PII) :  
1.5 or below (Rabbit) (Slight irritation)  
Acute Eye Irritation :  
Not available (Ingredients are not classified as dangerous according to Regulation (EC) No 1272/2008.)  
Sensitization  
Acute Allergenic Effects :  
0 % (Mouse) (None skin sensitization.)  
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.

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## 12. Ecological Information

Mobility : No data are available on the adverse effect one environment.  
Persistence/Degradability : Not available  
Bioaccumulation : Not available  
Ecotoxicity  
Acute Toxicity for Fish (LC50) : Not available  
Acute Toxicity for Daphnia (EC50) : Not available  
Algae Inhibition Test (IC50) : Not available

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## 13. Disposal Consideration

General information:  
Used product should be disposed in an environmentally appropriate manner and accordance with governmental regulations.  
Disposal methods:  
Precautions:  
Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal. Confirm disposal procedures with local regulations.

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## 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.; Do not keep this over 32 degrees centigrade.

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## 15. Regulatory Information

Regulations  
EU Information  
Information on the label (Regulation (EC) No 1272/2008)  
Symbols & Indications : Not required  
R-Phrase : Not required  
S-Phrase : Not required  
(EC) No 1907/2006 Annex XVII  
This product complies with applicable rules and regulations under (EC) No 1907/2006 Annex XVII  
(EC) No. 689/2008  
Not regulated  
US Information  
Information on the label : Not required  
TSCA (Toxic Substances Control Act) :

This product 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

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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

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DFG-MAK : DFG List of MAK and BAT Value

Symbol (EC) : Regulation (EC) No 1272/2008

91/155/ EEC : EU Directive 91/155/ EEC

(EC) No 1907/2006 : Regulation (EC) No 1907/2006 Annex XVII

Annex XVII

(EC) No. 689/2008 : Regulation (EC) No 689/2008

WHMIS Controlled : Canada Workplace Hazardous Information System

product

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 Chemicals

SVHC Substances of Very High Concern

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

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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.



## Safety Data Sheet (ISO form)

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### 1. Product and Company Identification

Product Name : RICOH Cleaning Cartridge White 1 Type G1  
General Use : The Image Formation of Printing Machine  
SDS Number : 342526  
Company Name : Ricoh Company, Ltd.  
Department : Product Safety Engineering Department, Safety and Environmental Engineering Center, Quality Management 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

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### 2. Composition/Information on Ingredients

Substance or Preparation

Preparation

Chemical Nature

Ingredients	Chemical Formula	CAS.No.	Contents(%)
Glycol	Confidential	Confidential	20-30
Glycerin	C <sub>3</sub> H <sub>8</sub> O <sub>3</sub>	56-81-5	<10
Surfactant	Confidential	Confidential	<3
Water	H <sub>2</sub> O	7732-18-5	55-75

This product does not contain any of the following substances as ingredients.

Cadmium, Hexavalent Chromium, Mercury, Lead, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE).

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

There are no significant hazards expected with intended use.

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#### Main Symptoms

##### Acute Inhalation Toxicity

Under normal use conditions, there is no possibility to inhale the particle of ink.

##### Acute Oral Toxicity

Low acute toxicity in animal experiment.

##### Acute Eye Irritation

May be non-irritant.

##### Acute Skin Irritation

May be non-irritant.

##### Sensitization

From test no apparent significant hazards are expected.

##### Chronic Effect

Under normal use conditions, there is no possibility to inhale the particle of ink.

##### 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

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#### 4. First-Aid Measures

##### Inhalation

Remove from exposure into fresh air if symptoms are experienced. 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

Make him drink strong salt water, let him vomit. Seek medical advice.

##### Notes to a physician

Not applicable

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#### 5. Fire-Fighting Measures

##### Extinguishing Media

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

##### Extinguishing Media to Avoid

Not applicable.

##### Specific Hazards

Not applicable

##### 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.

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#### 6. Accidental Release Measures

##### Personal Precautions

Take off dirty clothes and wash them or have them dry-cleaned before wearing again.

##### Environment Precautions

Do not exposure to sewers and watercourses.

##### Methods for Cleaning Up

If spilled, wipe up with paper or cloth.

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## 7. Handling and Storage

### Handling

#### Technical Measures/Precautions

Not applicable

#### Safe Handling Advice

Keep away from heat, flame or spark. Do not dismantle cartridge.

### Storage

#### Technical Measures

Not applicable

#### Storage Conditions

Keep out of reach of children.

For the sake of quality, store in dry and well-ventilated area it should not exceed 32 degrees centigrade for a long time and avoid direct sunlight.

#### Packaging Material

Not applicable

### Specific Use(s)

The Image Formation of Printing Machine or Copier.

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## 8. Exposure Controls/Personal Protection

### Technical Measures

Use adequate ventilation. None required with intended use.

### Control Parameters

USA OSHA PEL (TWA) : Not applicable

ACGIH TLV (TWA) : Not applicable

DFG MAK : Not applicable

### Personal Protection

#### Respiratory Protections

None required in normal use.

#### 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 : Liquid

Form : Liquid

Colour : Colorless

Odour : No odour

### Information

pH : 9-10.5 Measuring Temp (degrees centigrade) : 25

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

Boiling Point (degrees centigrade) : Not available

Melting Point (degrees centigrade) : Not applicable

Decomposition Temperature (degrees centigrade) : Not applicable

Flash Point (degrees centigrade)  
Explosion Properties (degrees centigrade)

: Not applicable  
: This product is considered a nonexplosive material under normal use.

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Vapor Pressure (Pa)  
:  
Vapor : Not available  
Density(AIR=1) :  
Density (g/cm3) : Approx.1.05 Measuring Temp (degrees centigrade) : 23  
:  
Solubility  
Water Solubility (g/L) : Soluble  
Octanol/Water Partition Coefficient  
Not available  
Other Information  
Flammability : Not flammable  
Viscosity (Pa·s) : Approx.0.003 Measuring Temp (degrees centigrade) :25  
Volatile (%) : 60-80

---

## 10.Stability and Reactivity

Stability  
Stable  
Hazardous Reaction  
There is no significant hazardous reaction expected with intended use.  
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)  
Acute Dermal Toxicity :  
Not available  
Acute Inhalation Toxicity :  
Not available  
Local effects  
Acute Skin Irritation(PII) :  
1.5 or below (Rabbit) (Slight irritation)  
Acute Eye Irritation :  
Not available (Ingredients are not classified as dangerous according to Regulation (EC) No 1272/2008.)  
Sensitization  
Acute Allergenic Effects :  
0 % (Mouse) (None skin sensitization.)  
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 the adverse effect one environment.  
Persistence/Degradability : Not available  
Bioaccumulation : Not available  
Ecotoxicity  
Acute Toxicity for Fish (LC50) : Not available  
Acute Toxicity for Daphnia (EC50) : Not available  
Algae Inhibition Test (IC50) : Not available

---

## 13. Disposal Consideration

General information:  
Used product should be disposed in an environmentally appropriate manner and accordance with governmental regulations.  
Disposal methods:  
Precautions:  
Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal. Confirm disposal procedures with local regulations.

---

## 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.; Do not keep this over 32 degrees centigrade.

---

## 15. Regulatory Information

Regulations  
EU Information  
Information on the label (Regulation (EC) No 1272/2008)  
Symbols & Indications : Not required  
R-Phrase : Not required  
S-Phrase : Not required  
(EC) No 1907/2006 Annex XVII  
This product complies with applicable rules and regulations under (EC) No 1907/2006 Annex XVII  
(EC) No. 689/2008  
Not regulated  
US Information  
Information on the label : Not required  
TSCA (Toxic Substances Control Act) :

This product 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) : Regulation (EC) No 1272/2008

91/155/ EEC : EU Directive 91/155/ EEC

(EC) No 1907/2006 : Regulation (EC) No 1907/2006 Annex XVII

Annex XVII

(EC) No. 689/2008 : Regulation (EC) No 689/2008

WHMIS Controlled : Canada Workplace Hazardous Information System

product

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 Chemicals

SVHC : Substances of Very High Concern

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.



## Safety Data Sheet (ISO form)

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### 1. Product and Company Identification

Product Name : RICOH Cleaning Cartridge White 2 Type G1  
General Use : The Image Formation of Printing Machine  
SDS Number : 342527  
Company Name : Ricoh Company, Ltd.  
Department : Product Safety Engineering Department, Safety and Environmental Engineering Center, Quality Management 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(%)
Glycol	Confidential	Confidential	20-30
Glycerin	C <sub>3</sub> H <sub>8</sub> O <sub>3</sub>	56-81-5	<10
Surfactant	Confidential	Confidential	<3
Water	H <sub>2</sub> O	7732-18-5	55-75

This product does not contain any of the following substances as ingredients.

Cadmium, Hexavalent Chromium, Mercury, Lead, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE).

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

There are no significant hazards expected with intended use.

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#### Main Symptoms

##### Acute Inhalation Toxicity

Under normal use conditions, there is no possibility to inhale the particle of ink.

##### Acute Oral Toxicity

Low acute toxicity in animal experiment.

##### Acute Eye Irritation

May be non-irritant.

##### Acute Skin Irritation

May be non-irritant.

##### Sensitization

From test no apparent significant hazards are expected.

##### Chronic Effect

Under normal use conditions, there is no possibility to inhale the particle of ink.

##### 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 if symptoms are experienced. 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

Make him drink strong salt water, let him vomit. Seek medical advice.

##### Notes to a physician

Not applicable

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#### 5. Fire-Fighting Measures

##### Extinguishing Media

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

##### Extinguishing Media to Avoid

Not applicable.

##### Specific Hazards

Not applicable

##### 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

Take off dirty clothes and wash them or have them dry-cleaned before wearing again.

##### Environment Precautions

Do not exposure to sewers and watercourses.

##### Methods for Cleaning Up

If spilled, wipe up with paper or cloth.

---

## 7. Handling and Storage

### Handling

#### Technical Measures/Precautions

Not applicable

#### Safe Handling Advice

Keep away from heat, flame or spark. Do not dismantle cartridge.

### Storage

#### Technical Measures

Not applicable

#### Storage Conditions

Keep out of reach of children.

For the sake of quality, store in dry and well-ventilated area it should not exceed 32 degrees centigrade for a long time and avoid direct sunlight.

#### Packaging Material

Not applicable

### Specific Use(s)

The Image Formation of Printing Machine or Copier.

---

## 8. Exposure Controls/Personal Protection

### Technical Measures

Use adequate ventilation. None required with intended use.

### Control Parameters

USA OSHA PEL (TWA) : Not applicable

ACGIH TLV (TWA) : Not applicable

DFG MAK : Not applicable

### Personal Protection

#### Respiratory Protections

None required in normal use.

#### 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 : Liquid

Form : Liquid

Colour : Colorless

Odour : No odour

### Information

pH : 9-10.5 Measuring Temp (degrees centigrade) : 25

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

Boiling Point (degrees centigrade) : Not available

Melting Point (degrees centigrade) : Not applicable

Decomposition Temperature (degrees centigrade) : Not applicable

Flash Point (degrees centigrade)  
Explosion Properties (degrees centigrade)

: Not applicable  
: This product is considered a nonexplosive material under normal use.

---

Vapor Pressure (Pa)  
:  
Vapor : Not available  
Density(AIR=1) :  
Density (g/cm3) : Approx.1.05 Measuring Temp (degrees centigrade) : 23  
:  
Solubility  
Water Solubility (g/L) : Soluble  
Octanol/Water Partition Coefficient  
Not available  
Other Information  
Flammability : Not flammable  
Viscosity (Pa·s) : Approx.0.003 Measuring Temp (degrees centigrade) :25  
Volatile (%) : 60-80

---

## 10.Stability and Reactivity

Stability  
Stable  
Hazardous Reaction  
There is no significant hazardous reaction expected with intended use.  
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)  
Acute Dermal Toxicity :  
Not available  
Acute Inhalation Toxicity :  
Not available  
Local effects  
Acute Skin Irritation(PII) :  
1.5 or below (Rabbit) (Slight irritation)  
Acute Eye Irritation :  
Not available (Ingredients are not classified as dangerous according to Regulation (EC) No 1272/2008.)  
Sensitization  
Acute Allergenic Effects :  
0 % (Mouse) (None skin sensitization.)  
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 the adverse effect one environment.  
Persistence/Degradability : Not available  
Bioaccumulation : Not available  
Ecotoxicity  
Acute Toxicity for Fish (LC50) : Not available  
Acute Toxicity for Daphnia (EC50) : Not available  
Algae Inhibition Test (IC50) : Not available

---

## 13. Disposal Consideration

General information:  
Used product should be disposed in an environmentally appropriate manner and accordance with governmental regulations.  
Disposal methods:  
  
Precautions:  
Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal. Confirm disposal procedures with local regulations.

---

## 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.; Do not keep this over 32 degrees centigrade.

---

## 15. Regulatory Information

Regulations  
EU Information  
Information on the label (Regulation (EC) No 1272/2008)  
Symbols & Indications : Not required  
R-Phrase : Not required  
S-Phrase : Not required  
(EC) No 1907/2006 Annex XVII  
This product complies with applicable rules and regulations under (EC) No 1907/2006 Annex XVII  
(EC) No. 689/2008  
Not regulated  
US Information  
Information on the label : Not required  
TSCA (Toxic Substances Control Act) :

This product 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) : Regulation (EC) No 1272/2008

91/155/ EEC : EU Directive 91/155/ EEC

(EC) No 1907/2006 : Regulation (EC) No 1907/2006 Annex XVII

Annex XVII

(EC) No. 689/2008 : Regulation (EC) No 689/2008

WHMIS Controlled : Canada Workplace Hazardous Information System

product

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 Chemicals

SVHC Substances of Very High Concern

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.



## Safety Data Sheet (ISO form)

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### 1. Product and Company Identification

Product Name :RICOH Cleaning Cartridge Yellow Type G1  
General Use :The Image Formation of Printing Machine  
SDS Number :342525  
Company Name : Ricoh Company,Ltd.  
Department :Product Safety Engineering Department, Safety and Environmental Engineering Center, Quality Management 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(%)
Glycol	Confidential	Confidential	20-30
Glycerin	C <sub>3</sub> H <sub>8</sub> O <sub>3</sub>	56-81-5	<10
Surfactant	Confidential	Confidential	<3
Water	H <sub>2</sub> O	7732-18-5	55-75

This product does not contain any of the following substances as ingredients.

Cadmium, Hexavalent Chromium, Mercury, Lead, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE).

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

There are no significant hazards expected with intended use.

---

---

#### Main Symptoms

##### Acute Inhalation Toxicity

Under normal use conditions, there is no possibility to inhale the particle of ink.

##### Acute Oral Toxicity

Low acute toxicity in animal experiment.

##### Acute Eye Irritation

May be non-irritant.

##### Acute Skin Irritation

May be non-irritant.

##### Sensitization

From test no apparent significant hazards are expected.

##### Chronic Effect

Under normal use conditions, there is no possibility to inhale the particle of ink.

##### 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 if symptoms are experienced. 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

Make him drink strong salt water, let him vomit. Seek medical advice.

##### Notes to a physician

Not applicable

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#### 5. Fire-Fighting Measures

##### Extinguishing Media

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

##### Extinguishing Media to Avoid

Not applicable.

##### Specific Hazards

Not applicable

##### 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

Take off dirty clothes and wash them or have them dry-cleaned before wearing again.

##### Environment Precautions

Do not exposure to sewers and watercourses.

##### Methods for Cleaning Up

If spilled, wipe up with paper or cloth.

---

## 7. Handling and Storage

### Handling

#### Technical Measures/Precautions

Not applicable

#### Safe Handling Advice

Keep away from heat, flame or spark. Do not dismantle cartridge.

### Storage

#### Technical Measures

Not applicable

#### Storage Conditions

Keep out of reach of children.

For the sake of quality, store in dry and well-ventilated area it should not exceed 32 degrees centigrade for a long time and avoid direct sunlight.

#### Packaging Material

Not applicable

### Specific Use(s)

The Image Formation of Printing Machine or Copier.

---

## 8. Exposure Controls/Personal Protection

### Technical Measures

Use adequate ventilation. None required with intended use.

### Control Parameters

USA OSHA PEL (TWA) : Not applicable

ACGIH TLV (TWA) : Not applicable

DFG MAK : Not applicable

### Personal Protection

#### Respiratory Protections

None required in normal use.

#### 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 : Liquid

Form : Liquid

Colour : Colorless

Odour : No odour

### Information

pH : 9-10.5 Measuring Temp (degrees centigrade) : 25

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

Boiling Point (degrees centigrade) : Not available

Melting Point (degrees centigrade) : Not applicable

Decomposition Temperature (degrees centigrade) : Not applicable

Flash Point (degrees centigrade)  
Explosion Properties (degrees centigrade)

: Not applicable  
: This product is considered a nonexplosive material under normal use.

---

Vapor Pressure (Pa)  
:  
Vapor : Not available  
Density(AIR=1) :  
Density (g/cm3) : Approx.1.05 Measuring Temp (degrees centigrade) : 23  
:  
Solubility  
Water Solubility (g/L) : Soluble  
Octanol/Water Partition Coefficient  
Not available  
Other Information  
Flammability : Not flammable  
Viscosity (Pa·s) : Approx.0.003 Measuring Temp (degrees centigrade) :25  
Volatile (%) : 60-80

---

## 10.Stability and Reactivity

Stability  
Stable  
Hazardous Reaction  
There is no significant hazardous reaction expected with intended use.  
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)  
Acute Dermal Toxicity :  
Not available  
Acute Inhalation Toxicity :  
Not available  
Local effects  
Acute Skin Irritation(PII) :  
1.5 or below (Rabbit) (Slight irritation)  
Acute Eye Irritation :  
Not available (Ingredients are not classified as dangerous according to Regulation (EC) No 1272/2008.)  
Sensitization  
Acute Allergenic Effects :  
0 % (Mouse) (None skin sensitization.)  
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 the adverse effect one environment.  
Persistence/Degradability : Not available  
Bioaccumulation : Not available  
Ecotoxicity  
Acute Toxicity for Fish (LC50) : Not available  
Acute Toxicity for Daphnia (EC50) : Not available  
Algae Inhibition Test (IC50) : Not available

---

## 13. Disposal Consideration

General information:  
Used product should be disposed in an environmentally appropriate manner and accordance with governmental regulations.  
Disposal methods:  
Precautions:  
Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal. Confirm disposal procedures with local regulations.

---

## 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.; Do not keep this over 32 degrees centigrade.

---

## 15. Regulatory Information

Regulations  
EU Information  
Information on the label (Regulation (EC) No 1272/2008)  
Symbols & Indications : Not required  
R-Phrase : Not required  
S-Phrase : Not required  
(EC) No 1907/2006 Annex XVII  
This product complies with applicable rules and regulations under (EC) No 1907/2006 Annex XVII  
(EC) No. 689/2008  
Not regulated  
US Information  
Information on the label : Not required  
TSCA (Toxic Substances Control Act) :

This product 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) : Regulation (EC) No 1272/2008

91/155/ EEC : EU Directive 91/155/ EEC

(EC) No 1907/2006 : Regulation (EC) No 1907/2006 Annex XVII

Annex XVII

(EC) No. 689/2008 : Regulation (EC) No 689/2008

WHMIS Controlled : Canada Workplace Hazardous Information System

product

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 Chemicals

SVHC Substances of Very High Concern

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

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