



Safety Data Sheet (ISO form)

1. Product and Company Identification

Product Name : RICOH Print Cartridge Yellow MP C2551HE (Yellow toner)
 General Use : The Image Formation of Printing Machine or Copier
 MSDS Number : 841507
 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	Confidential	Confidential	50-90
Wax	Confidential	Confidential	<10
Organic Pigment	Confidential	Confidential	<10
Silica	O ₂ Si	7631-86-9	<10
Titan Oxide	TiO ₂	13463-67-7	0.1-1

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.

Hazardous Ingredients Information

Chemical Name : Titan Oxide

CAS Number	: 13463-67-7	EEC Number	: 236-675-5
OSHA Z-Tables (USA)	: 15mg/m ³	ACGIH-TLV	: 10mg/m ³
NTP (USA)	: Not listed	IARC Monographs	: Group 2B
Symbol (EU)	: Not listed	R-Phrase (EU)	: Not listed
DFG-MAK (GER)	: Not listed	OELs-TWA (Australia)	: 10mg/m ³
California Proposition 65 (USA)	: Not listed		

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

Titanium dioxide contained in this product is classified to Group 2B of IARC as the result of inhalation test in use of rat.

But oral/skin test does not show carcinogenicity.

In the animal experiment with very high concentration of titanium dioxide (excessive burden of rat's lungs clearance mechanism (overload phenomenon)), the rat alone showed lung tumor. Under a normal use practice, the concentration should be far lower than the above; and it is assumed that there is no such use.

Also, relation between respiratory disease and work exposure of titanium dioxide is not observed with epidemiological survey.

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

CO₂,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 35 degrees 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/m³ (Total dust) 5.0mg/m³ (Respirable fraction)

ACGIH TLV (TWA) : 10mg/m³ (Inhalable fraction) 3.0mg/m³ (Respirable fraction)

DFG MAK : 4.0mg/m³ (Total dust) 1.5mg/m³ (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 : Yellow

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

: Not available

Decomposition Temperature (degrees centigrade)
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/cm³) : Approx.1.2 Measuring Temp (degrees centigrade) : 25

Solubility

Water Solubility (g/L) : Slightly soluble
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 :

Non-irritant (Based on other product test results of similar ingredients.)

Sensitization

Acute Allergenic Effects :

Non-skinsensitive (Marmot) (Based on other product test results of similar ingredients.)

Specific Effects

Carcinogenicity :

In 2008 IARC the re-evaluated Titanium dioxide as a Group 2B carcinogen for which there is inadequate human evidence, but sufficient animal evidence.

The latter is based upon the development of lung tumors in rats receiving chronic inhalation exposures to Titanium dioxide at levels that induce particle overload of the lung.

Use of this product, as intended, dose not result in inhalation of excessive dust.

Epidemiological study to date have not revealed any evidence of the relationbetween exposure to titanium dioxide and diseases of the respiratory tract beyond general effects of dust.

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. Ernst, 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 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.