

Product Name : RICOH PRINT CARTRIDGE YELLOW MP C3502E (Yellow toner)
 MSDS Number : 841740
 Date Prepared : 01/07/2012 Date Modified : 01/08/2014 Date : 16/05/2017

Safety Data Sheet (ISO form)

1.Product and Company Identification

Product Name :RICOH PRINT CARTRIDGE YELLOW MP C3502E (Yellow toner)
 General Use :The Image Formation of Printing Machine or Copier
 MSDS Number :841740
 Company Name :Ricoh Company,Ltd.
 Department :Safety Engineering Department, Quality Management Division
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2.Compo regulation (EC) No 1272/2008 sition/Information on Ingredients

Substance or Preparation

Preparation

Chemical Nature

Ingredients	Chemical Formula	CAS.No.	Contents(%)
Polyester Resin	Confidential	Confidential	60-90
Wax	Confidential	Confidential	1-20
Organic Pigment	Confidential	Confidential	1-20
Titan Oxide	TiO ₂	13463-67-7	0.1-1
Silica	O ₂ Si	7631-86-9	< 10

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)	: 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 are 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 Regulation (EC) No 1272/2008.

4.First-Aid Measures

Inhalation

Remove from exposure to 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 particle is 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°C 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 ³ (Total dust)	5.0mg/m ³ (Respirable fraction)
ACGIH TLV (TWA)	: 10mg/m ³ (Inhalable fraction)	3.0mg/m ³ (Respirable fraction)
DFG MAK	: 4.0mg/m ³ (Total dust)	1.5mg/m ³ (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.90

: 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) : 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 condition.

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 applicable (Based on other Ricoh products test results of similar ingredients.)

Local effects

Acute Skin Irritation(PII) :

1.0 or below (Rabbit) (Based on other Ricoh products test results of similar ingredients.)

Acute Eye Irritation :

Non-irritant (Rabbit) (Based on other Ricoh products test results of similar ingredients.)

Sensitization

Acute Allergenic Effects :

Non-skinsensitive (Mouse) (Based on other Ricoh products test results of similar ingredients.)

Specific Effects

Carcinogenicity :

Titanium dioxide contained in this product are 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.

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 classified as toxic \(Regulation \(EC\) No 1272/2008\).mg/l/96hr](#)

Acute Toxicity for Daphnia (EC50) : [Not classified as toxic \(Regulation \(EC\) No 1272/2008\).mg/l/48hr](#)

Algae Inhibition Test (IC50) : [Not classified as toxic \(Regulation \(EC\) No 1272/2008\).mg/l/72hr](#)

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. The 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 (Regulation (EC) No 1272/2008)

Symbols & : [Not required](#)

Indications

R-Phrase : [Not required](#)

S-Phrase : [Not required](#)

Special Precautions under regulation (EC) No 1272/2008 Annex II : [Not required](#)

Regulation (EC) No 1907/2006 annex XVII

[This product complies with applicable rules and regulations under Regulation \(EC\) No 1907/2006 annex XVII.](#)

304/2003/EC

[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
 1272/2008 : Regulation (EC) No 1272/2008
 CLP (EC)No.1272/2008 : Regulation (EC)No.1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures,amending and repealing Directive Regulation (EC) No 1272/2008, and amending Regulation (EC)No. 1907/2006
 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

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