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Product Name: TONER (YELLOW)

Prepared date:19-Jul-2007

Revised Date: 1-Jun-2015

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## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Name: TONER (YELLOW)

used for: magicolor 4650series, 4690/4695series, bizhub C20/C20P

Supplier Identification:

Konica Minolta Business Solutions Europe GmbH

Europaallee 17, D-30855 Langenhagen, Germany e-mail address : env@konicaminolta.eu

Telephone: +49-(0)511-7404-361

Facsimile: +49-(0)511-7404-396

Emergency Telephone:

Information centre specialized on symptoms of poisoning

Telephone: +49-30-19240

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## 2. HAZARDS IDENTIFICATION

### Regulation (EC) No 1272/2008

Classification: Not classified as dangerous.

### Hazard Communication Standard (USA)

Classification: Not classified as dangerous.

### LABEL ELEMENTS

Precautionary pictograms: ---

Signal word: ---

Hazard Statement: ---

Precautionary Statements: ---

### Other Hazards

Dust explosion (like most finely divided organic powders).

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Product Name : TONER (YELLOW)

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**3. COMPOSITION / INFORMATION ON INGREDIENTS**

Substance [ ] Preparation [ X ]

## Major Ingredients:

[Generic Name]	[CAS No.]	[%]
Styrene acrylic resin	+++	75-85
Wax	+++	10-20
Organic pigment	+++	1-10
Amorphous silica	7631-86-9	1-10
Titanium dioxide	13463-67-7	< 1

+++ : Supplier's confidential information

## Hazardous Ingredients:

Chemical Name: Titanium dioxide

CAS No.: 13463-67-7

NTP(USA): Not listed

Symbol(EC): Not listed

EINECS-No.: 236-675-5

IARC Monographs: Group 2B

H code(EC): Not listed

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**4. FIRST-AID MEASURES**

Ingestion: Wash out mouth with water. Drink one or two glasses of water. If symptoms occur, get medical attention.

Inhalation: Move victim to fresh air immediately. If symptoms occur, get medical attention.

Eye Contact: Flush eyes with plenty of water for 15 minutes. If symptoms occur, get medical attention.

Skin Contact: Wash with water and mild soap.

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**5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media: CO<sub>2</sub>, water spray, foam and dry chemical

Extinguishing Media to Avoid: Full water jet

Fire and Explosion Hazards: If dispersed in air, like most finely divided organic powders, may form an explosive mixture.

Protection of Firefighters: Use self-contained breathing apparatus(SCBA).

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**6. ACCIDENTAL RELEASE MEASURES**

Personal Precautions: None

Environmental Precautions: None

Methods for Cleaning Up: Wear personal protective equipment(See Section 8). Vacuum or sweep material and place in a bag and hold for waste disposal. Use vacuum equipped with High Efficiency Particulate Air(HEPA) filter. Vacuum should be electrically bonded and grounded to dispel static electricity. To avoid dust generation, do not sweep dry.



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**7. HANDLING AND STORAGE**

## Handling

Technical Measures: None

Precautions: Do not breathe dust. Avoid contact with eyes.

Safe Handling Advice: Try not to disperse the particulates.

## Storage

Technical Measures: None

Storage Conditions: Keep container closed. Store in a cool and dry place. Keep out of reach of children.

Incompatible Products: None

Packaging Materials: Bottles or Cartridge designated by Konica Minolta.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

## Engineering Measures

Ventilation: None required with intended use.

## Control Parameters(As total dust)

ACGIH-TLV(USA) : 10mg/m<sup>3</sup> (Inhalable particles), 3.0 mg/m<sup>3</sup> (Respirable particles)OSHA-PEL(USA): 15mg/m<sup>3</sup> (Total dusts), 5.0 mg/m<sup>3</sup> (Respirable fraction)DFG-MAK(GER): 4mg/m<sup>3</sup> (Inhalable fraction), 1.5mg/m<sup>3</sup> (Respirable fraction)Worksafe-TWA(Austl.): 10mg/m<sup>3</sup>

## Control Parameters (As Ingredients: Titanium dioxide)

ACGIH-TLV(USA): 10mg/m<sup>3</sup> OSHA Z-Tables(USA): 15mg/m<sup>3</sup>Worksafe-TWA(Austl): 10mg/m<sup>3</sup>

## Personal Protective Equipment

Not required under normal conditions. For use other than in normal operating procedures (such as in the event of large spill), goggles and respirators may be required.

Hygiene Measures: Wash hands after handling.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

## Appearance

Physical State: Solid

Color: Yellow

Form: Powder (mean dia. is 5-10um by volume)

## Odor:

Almost odorless

## PH

Not applicable

## Boiling Point(°C):

Not applicable

## Melting Point(°C):

Around No data available /[] (Softening Point)

## Flash Point(°C):

Not applicable

## Auto-Ignition Temperature(°C):

No data available

## Upper/ lower flammability or explosive limits

No data available

## Explosion Properties:

No data available

## Evaporation rate:

No data available

## Vapor Pressure:

Not applicable

## Vapor density:

Not applicable

## Specific Gravity:

1.2

## Solubility:

Insoluble in water.

## Partition Coefficient, n-Octanol/Water:

Not applicable

## Decomposition temperature:

Not applicable



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Product Name : TONER (YELLOW)

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## 10. STABILITY AND REACTIVITY

Reactivity:	None.
Stability:	Stable except above 200C(392F).
Hazardous Reactions:	Dust explosion, like most finely divided organic powders.
Conditions to avoid:	Electric discharge, throwing into fire.
Materials to Avoid:	Oxidizing materials.
Hazardous Decomposition Products:	CO, CO <sub>2</sub> , NO <sub>x</sub> and smoke.
Hazardous Polymerization:	Will not occur.

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## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity:

Ingestion(oral), LD50(mg/kg):	>2500 (Rat)
Dermal, LD50(mg/kg):	No data available
Inhalation, LC50(mg/l):	>5.57 (Rat,4hour)(This was the highest attainable concentration.)
Eye irritation:	Minimal irritant (Rabbit)
Skin irritation:	Non irritant (Rabbit)

Skin sensitizer: Non sensitizer (Guinea pig)

Local Effects: see Chronic Toxicity or Long term Toxicity

### Chronic Toxicity or Long Term Toxicity:

Prolonged inhalation of excessive dust may cause lung damage. It is attributed to "lung overloading", a generic response to excessive amounts of any dust retained in the lungs for a prolonged interval. Use of this product, as intended, does not result in inhalation of excessive dust.

In a study in rats by chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of rats in the high concentration(16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle(4mg/m<sup>3</sup>) exposure group. But no pulmonary change was reported in the lowest(1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

### Carcinogenicity

The IARC reevaluated titanium dioxide as a Group 2B carcinogen (possible human carcinogen). In animal chronic inhalation studies, the tumor formulation observed in only rats with animal chronic inhalation study are attributed to "lung overloading", a generic response to excessive amounts of any dust retained in the lungs for a prolonged interval. 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 relation between exposure to titanium dioxide and diseases of the respiratory tract beyond general effects of dust.

Mutagenicity: Negative (AMES test)

Teratogenicity: No data available

(\* = Based on data for other Konica Minolta Products with similar ingredients)

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## 12. ECOLOGICAL INFORMATION

No data are available on the adverse effects of this material on the environment.

Ecotoxicity:	No data available
Mobility:	No data available
Persistence and degradability:	No data available
Bioaccumulative potential:	No data available

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Product Name : TONER (YELLOW)

Prepared date : 19-Jul-2007

Revised Date : 1-Jun-2015

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### 13. DISPOSAL CONSIDERATION

When disposing of the waste or recovered material, consult federal, state and/or local regulations for the proper disposal method.

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### 14. TRANSPORT INFORMATION

Information on Code and Classifications According to International Regulations

UN Classification: None

Further information: Not a dangerous good under IATA or IMDG.

Hazchem code (Austl.): None

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### 15. REGULATORY INFORMATION

#### US Information

TSCA (Toxic Substances Control Act):

All chemical substances in this product comply with all applicable rules or order under TSCA.

California Proposition 65:

This product contains no chemical substances subject to California Proposition 65.

CERCLA (Comprehensive Environmental Response Compensation and Liability Act) :

None.

SARA Title III (Superfund Amendments and Reauthorization Act) 302 Extreme Hazardous Substance :

None.

311/312 Hazard Categories :

None.

313 Reportable Ingredients :

None.

#### EU Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

• Regulation (EC) No 2037/2000 of the European Parliament and of the Council on Substances That Deplete the Ozone Layer: Not applicable

• Regulation (EC) No 850/2004 of the European Parliament and of the Council on Persistent Organic Pollutants and Amending Directive 79/117/EEC (POPs): Not applicable

• Regulation (EU) No 649/2012 of the European Parliament and of the Council on Concerning the Export and Import of Dangerous Chemicals (PIC): Not applicable

• Directive 2012/18/EU of the European Parliament and of the Council on the Control of Major-Accident Hazards Involving Dangerous Substances, Amending and Subsequently Repealing Council Directive 96/82/EC, (Seveso III): Not applicable

• Regulation (EC) No 1907/2006 of the European Parliament and of the Council:

- Annex XIV- List of Substances Subject To Authorization: Not applicable
- Annex XVII- Restrictions on the Manufacture, Placing on the Market and Use of Certain Dangerous Substances, Preparations and Articles: Not applicable

For this product a chemical safety assessment was not carried out.

#### Canada Information

WHMIS (Canada): This product is NOT subject to the controlled products regulations.

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Product Name : TONER (YELLOW)

Prepared date : 19-Jul-2007

Revised Date : 1-Jun-2015

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## 16. OTHER INFORMATION

HMIS Rating: The National Paint and Coating Association (USA): Health: 1 Flammability: 1 Reactivity: 0

Explanation of term: IARC 2B means "possible human carcinogen".

Abbreviations:

ACGIH-TWA: Threshold Limit Value of American Conference of Government Industrial Hygienists

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act

DFG-MAK: Maximale Arbeitsplatz-Konzentration by Deutsche Forschungsgemeinschaft

DGR: Dangerous Goods Regulations

EINECS: European Inventory of Existing Commercial Chemical Substances

H-Code: Hazard Code

HMIS: Hazardous Materials Identification System

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association

IMDG: International Maritime Dangerous Goods Code

NTP: National Toxicology Program

OEL: Occupational exposure limit

OSHA: Occupational Safety and Health Administration

PBT: Persistent, Bioaccumulative and Toxic

SARA: Superfund Amendments and Reauthorization Act

TSCA: Toxic Substances Control Act

vPvB: very Persistent and very Bioaccumulative

WHMIS: Workplace Hazardous Materials Information System

Revision Information: Regular revision on revised date.

Literature References:

ANSI Z400.1-1993

ISO 11014-1

Commission Directive 91/155/EEC

IARC(2010): IARC monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol. 93,  
Carbon Black, Titanium Dioxide, and Talc, Lyon, pp. 43-191

H.Muhle, B.Bellmann, 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.

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

Restrictions:

The above information is believed to be accurate and represents the best information currently available to  
Our Corporation. However, Our Corporation makes no warranty with respect to such information, and Our  
Corporation assumes no liability resulting from its use. Users should make their own investigation to  
determine the suitability of the information for their particular purposes.

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Product Name: TONER (MAGENTA)

Prepared date:19-Jul-2007

Revised Date: 1-Jun-2015

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## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Name: TONER (MAGENTA)

used for: magicolor 4650series, 4690/4695series, bizhub C20/C20P

Supplier Identification:

Konica Minolta Business Solutions Europe GmbH

Europaallee 17, D-30855 Langenhagen, Germany e-mail address : env@konicaminolta.eu

Telephone: +49-(0)511-7404-361

Facsimile: +49-(0)511-7404-396

Emergency Telephone:

Information centre specialized on symptoms of poisoning

Telephone: +49-30-19240

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## 2. HAZARDS IDENTIFICATION

### Regulation (EC) No 1272/2008

Classification: Not classified as dangerous.

### Hazard Communication Standard (USA)

Classification: Not classified as dangerous.

### LABEL ELEMENTS

Precautionary pictograms: ---

Signal word: ---

Hazard Statement: ---

Precautionary Statements: ---

### Other Hazards

Dust explosion (like most finely divided organic powders).

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Product Name : TONER (MAGENTA)

Prepared date : 19-Jul-2007

Revised Date : 1-Jun-2015

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**3. COMPOSITION / INFORMATION ON INGREDIENTS**

Substance [ ] Preparation [ X ]

## Major Ingredients:

[Generic Name]	[CAS No.]	[%]
Styrene acrylic resin	+++	70-80
Wax	+++	10-20
Organic pigment 1	+++	1-10
Organic pigment 2	+++	1-10
Amorphous silica	7631-86-9	1-10
Titanium dioxide	13463-67-7	< 1

+++ : Supplier's confidential information

## Hazardous Ingredients:

Chemical Name: Titanium dioxide

CAS No.: 13463-67-7

NTP(USA): Not listed

Symbol(EC): Not listed

EINECS-No.: 236-675-5

IARC Monographs: Group 2B

H code(EC): Not listed

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**4. FIRST-AID MEASURES**

Ingestion: Wash out mouth with water. Drink one or two glasses of water. If symptoms occur, get medical attention.

Inhalation: Move victim to fresh air immediately. If symptoms occur, get medical attention.

Eye Contact: Flush eyes with plenty of water for 15 minutes. If symptoms occur, get medical attention.

Skin Contact: Wash with water and mild soap.

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**5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media: CO<sub>2</sub>, water spray, foam and dry chemical

Extinguishing Media to Avoid: Full water jet

Fire and Explosion Hazards: If dispersed in air, like most finely divided organic powders, may form an explosive mixture.

Protection of Firefighters: Use self-contained breathing apparatus(SCBA).

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**6. ACCIDENTAL RELEASE MEASURES**

Personal Precautions: None

Environmental Precautions: None

Methods for Cleaning Up: Wear personal protective equipment(See Section 8). Vacuum or sweep material and place in a bag and hold for waste disposal. Use vacuum equipped with High Efficiency Particulate Air(HEPA) filter. Vacuum should be electrically bonded and grounded to dispel static electricity. To avoid dust generation, do not sweep dry.





Product Name : TONER (MAGENTA)

Prepared date : 19-Jul-2007

Revised Date : 1-Jun-2015

**7. HANDLING AND STORAGE**

## Handling

Technical Measures: None

Precautions: Do not breathe dust. Avoid contact with eyes.

Safe Handling Advice: Try not to disperse the particulates.

## Storage

Technical Measures: None

Storage Conditions: Keep container closed. Store in a cool and dry place. Keep out of reach of children.

Incompatible Products: None

Packaging Materials: Bottles or Cartridge designated by Konica Minolta.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

## Engineering Measures

Ventilation: None required with intended use.

## Control Parameters(As total dust)

ACGIH-TLV(USA) : 10mg/m<sup>3</sup> (Inhalable particles), 3.0 mg/m<sup>3</sup> (Respirable particles)OSHA-PEL(USA): 15mg/m<sup>3</sup> (Total dusts), 5.0 mg/m<sup>3</sup> (Respirable fraction)DFG-MAK(GER): 4mg/m<sup>3</sup> (Inhalable fraction), 1.5mg/m<sup>3</sup> (Respirable fraction)Worksafe-TWA(Austl.): 10mg/m<sup>3</sup>

## Control Parameters (As Ingredients: Titanium dioxide)

ACGIH-TLV(USA): 10mg/m<sup>3</sup> OSHA Z-Tables(USA): 15mg/m<sup>3</sup>Worksafe-TWA(Austl): 10mg/m<sup>3</sup>

## Personal Protective Equipment

Not required under normal conditions. For use other than in normal operating procedures (such as in the event of large spill), goggles and respirators may be required.

Hygiene Measures: Wash hands after handling.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

## Appearance

Physical State: Solid

Color: Red

Form: Powder (mean dia. is 5-10um by volume)

Odor:

Almost odorless

PH

Not applicable

Boiling Point(°C):

Not applicable

Melting Point(°C):

Around No data available /[] (Softening Point)

Flash Point(°C):

Not applicable

Auto-Ignition Temperature(°C):

No data available

Upper/ lower flammability or explosive limits

No data available

Explosion Properties:

No data available

Evaporation rate:

No data available

Vapor Pressure:

Not applicable

Vapor density:

Not applicable

Specific Gravity:

1.2

Solubility:

Insoluble in water.

Partition Coefficient, n-Octanol/Water:

Not applicable

Decomposition temperature:

Not applicable



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Product Name : TONER (MAGENTA)

Prepared date : 19-Jul-2007

Revised Date : 1-Jun-2015

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## 10. STABILITY AND REACTIVITY

Reactivity:	None.
Stability:	Stable except above 200C(392F).
Hazardous Reactions:	Dust explosion, like most finely divided organic powders.
Conditions to avoid:	Electric discharge, throwing into fire.
Materials to Avoid:	Oxidizing materials.
Hazardous Decomposition Products:	CO, CO <sub>2</sub> , NO <sub>x</sub> and smoke.
Hazardous Polymerization:	Will not occur.

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## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity:

Ingestion(oral), LD50(mg/kg):	>2500 (Rat)
Dermal, LD50(mg/kg):	No data available
Inhalation, LC50(mg/l):	>4.77 (Rat,4hour)(This was the highest attainable concentration.)
Eye irritation:	Minimal irritant (Rabbit)
Skin irritation:	Non irritant (Rabbit)

Skin sensitizer: Non sensitizer (Guinea pig)

Local Effects: see Chronic Toxicity or Long term Toxicity

### Chronic Toxicity or Long Term Toxicity:

Prolonged inhalation of excessive dust may cause lung damage. It is attributed to "lung overloading", a generic response to excessive amounts of any dust retained in the lungs for a prolonged interval. Use of this product, as intended, does not result in inhalation of excessive dust.

In a study in rats by chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of rats in the high concentration(16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle(4mg/m<sup>3</sup>) exposure group. But no pulmonary change was reported in the lowest(1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

### Carcinogenicity

The IARC reevaluated titanium dioxide as a Group 2B carcinogen (possible human carcinogen). In animal chronic inhalation studies, the tumor formulation observed in only rats with animal chronic inhalation study are attributed to "lung overloading", a generic response to excessive amounts of any dust retained in the lungs for a prolonged interval. 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 relation between exposure to titanium dioxide and diseases of the respiratory tract beyond general effects of dust.

Mutagenicity: Negative (AMES test)

Teratogenicity: No data available

(\* = Based on data for other Konica Minolta Products with similar ingredients)

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## 12. ECOLOGICAL INFORMATION

No data are available on the adverse effects of this material on the environment.

Ecotoxicity:	No data available
Mobility:	No data available
Persistence and degradability:	No data available
Bioaccumulative potential:	No data available

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Product Name : TONER (MAGENTA)

Prepared date : 19-Jul-2007

Revised Date : 1-Jun-2015

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### 13. DISPOSAL CONSIDERATION

When disposing of the waste or recovered material, consult federal, state and/or local regulations for the proper disposal method.

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### 14. TRANSPORT INFORMATION

Information on Code and Classifications According to International Regulations

UN Classification: None

Further information: Not a dangerous good under IATA or IMDG.

Hazchem code (Austl.): None

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### 15. REGULATORY INFORMATION

#### US Information

TSCA (Toxic Substances Control Act):

All chemical substances in this product comply with all applicable rules or order under TSCA.

California Proposition 65:

This product contains no chemical substances subject to California Proposition 65.

CERCLA (Comprehensive Environmental Response Compensation and Liability Act) :

None.

SARA Title III (Superfund Amendments and Reauthorization Act) 302 Extreme Hazardous Substance :

None.

311/312 Hazard Categories :

None.

313 Reportable Ingredients :

None.

#### EU Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

• Regulation (EC) No 2037/2000 of the European Parliament and of the Council on Substances That Deplete the Ozone Layer: Not applicable

• Regulation (EC) No 850/2004 of the European Parliament and of the Council on Persistent Organic Pollutants and Amending Directive 79/117/EEC (POPs): Not applicable

• Regulation (EU) No 649/2012 of the European Parliament and of the Council on Concerning the Export and Import of Dangerous Chemicals (PIC): Not applicable

• Directive 2012/18/EU of the European Parliament and of the Council on the Control of Major-Accident Hazards Involving Dangerous Substances, Amending and Subsequently Repealing Council Directive 96/82/EC, (Seveso III): Not applicable

• Regulation (EC) No 1907/2006 of the European Parliament and of the Council:

- Annex XIV- List of Substances Subject To Authorization: Not applicable

- Annex XVII- Restrictions on the Manufacture, Placing on the Market and Use of Certain Dangerous Substances, Preparations and Articles: Not applicable

For this product a chemical safety assessment was not carried out.

#### Canada Information

WHMIS (Canada): This product is NOT subject to the controlled products regulations.

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Product Name : TONER (MAGENTA)

Prepared date : 19-Jul-2007

Revised Date : 1-Jun-2015

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## 16. OTHER INFORMATION

HMIS Rating: The National Paint and Coating Association (USA): Health: 1 Flammability: 1 Reactivity: 0

Explanation of term: IARC 2B means "possible human carcinogen".

Abbreviations:

ACGIH-TWA: Threshold Limit Value of American Conference of Government Industrial Hygienists

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act

DFG-MAK: Maximale Arbeitsplatz-Konzentration by Deutsche Forschungsgemeinschaft

DGR: Dangerous Goods Regulations

EINECS: European Inventory of Existing Commercial Chemical Substances

H-Code: Hazard Code

HMIS: Hazardous Materials Identification System

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association

IMDG: International Maritime Dangerous Goods Code

NTP: National Toxicology Program

OEL: Occupational exposure limit

OSHA: Occupational Safety and Health Administration

PBT: Persistent, Bioaccumulative and Toxic

SARA: Superfund Amendments and Reauthorization Act

TSCA: Toxic Substances Control Act

vPvB: very Persistent and very Bioaccumulative

WHMIS: Workplace Hazardous Materials Information System

Revision Information: Regular revision on revised date.

Literature References:

ANSI Z400.1-1993

ISO 11014-1

Commission Directive 91/155/EEC

IARC(2010): IARC monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol. 93,  
Carbon Black, Titanium Dioxide, and Talc, Lyon, pp. 43-191

H.Muhle, B.Bellmann, 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.

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

Restrictions:

The above information is believed to be accurate and represents the best information currently available to  
Our Corporation. However, Our Corporation makes no warranty with respect to such information, and Our  
Corporation assumes no liability resulting from its use. Users should make their own investigation to  
determine the suitability of the information for their particular purposes.

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Product Name: TONER (CYAN)

Prepared date:19-Jul-2007

Revised Date: 1-Jun-2015

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## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Name: TONER (CYAN)

used for: magicolor 4650series, 4690/4695series, bizhub C20/C20P

Supplier Identification:

Konica Minolta Business Solutions Europe GmbH

Europaallee 17, D-30855 Langenhagen, Germany e-mail address : env@konicaminolta.eu

Telephone: +49-(0)511-7404-361

Facsimile: +49-(0)511-7404-396

Emergency Telephone:

Information centre specialized on symptoms of poisoning

Telephone: +49-30-19240

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## 2. HAZARDS IDENTIFICATION

### Regulation (EC) No 1272/2008

Classification: Not classified as dangerous.

### Hazard Communication Standard (USA)

Classification: Not classified as dangerous.

### LABEL ELEMENTS

Precautionary pictograms: ---

Signal word: ---

Hazard Statement: ---

Precautionary Statements: ---

### Other Hazards

Dust explosion (like most finely divided organic powders).

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Product Name : TONER (CYAN)

Prepared date : 19-Jul-2007

Revised Date : 1-Jun-2015

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**3. COMPOSITION / INFORMATION ON INGREDIENTS**

Substance [ ] Preparation [ X ]

## Major Ingredients:

[Generic Name]	[CAS No.]	[%]
Styrene acrylic resin	+++	75-85
Wax	+++	10-20
Organic pigment	147-14-8	1-10
Amorphous silica	7631-86-9	1-10
Titanium dioxide	13463-67-7	< 1

+++ : Supplier's confidential information

## Hazardous Ingredients:

Chemical Name: Titanium dioxide

CAS No.: 13463-67-7

NTP(USA): Not listed

Symbol(EC): Not listed

EINECS-No.: 236-675-5

IARC Monographs: Group 2B

H code(EC): Not listed

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**4. FIRST-AID MEASURES**

Ingestion: Wash out mouth with water. Drink one or two glasses of water. If symptoms occur, get medical attention.

Inhalation: Move victim to fresh air immediately. If symptoms occur, get medical attention.

Eye Contact: Flush eyes with plenty of water for 15 minutes. If symptoms occur, get medical attention.

Skin Contact: Wash with water and mild soap.

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**5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media: CO<sub>2</sub>, water spray, foam and dry chemical

Extinguishing Media to Avoid: Full water jet

Fire and Explosion Hazards: If dispersed in air, like most finely divided organic powders, may form an explosive mixture.

Protection of Firefighters: Use self-contained breathing apparatus(SCBA).

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**6. ACCIDENTAL RELEASE MEASURES**

Personal Precautions: None

Environmental Precautions: None

Methods for Cleaning Up: Wear personal protective equipment(See Section 8). Vacuum or sweep material and place in a bag and hold for waste disposal. Use vacuum equipped with High Efficiency Particulate Air(HEPA) filter. Vacuum should be electrically bonded and grounded to dispel static electricity. To avoid dust generation, do not sweep dry.



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**7. HANDLING AND STORAGE**

## Handling

Technical Measures: None

Precautions: Do not breathe dust. Avoid contact with eyes.

Safe Handling Advice: Try not to disperse the particulates.

## Storage

Technical Measures: None

Storage Conditions: Keep container closed. Store in a cool and dry place. Keep out of reach of children.

Incompatible Products: None

Packaging Materials: Bottles or Cartridge designated by Konica Minolta.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

## Engineering Measures

Ventilation: None required with intended use.

## Control Parameters(As total dust)

ACGIH-TLV(USA) : 10mg/m<sup>3</sup> (Inhalable particles), 3.0 mg/m<sup>3</sup> (Respirable particles)OSHA-PEL(USA): 15mg/m<sup>3</sup> (Total dusts), 5.0 mg/m<sup>3</sup> (Respirable fraction)DFG-MAK(GER): 4mg/m<sup>3</sup> (Inhalable fraction), 1.5mg/m<sup>3</sup> (Respirable fraction)Worksafe-TWA(Austl.): 10mg/m<sup>3</sup>

## Control Parameters (As Ingredients: Titanium dioxide)

ACGIH-TLV(USA): 10mg/m<sup>3</sup> OSHA Z-Tables(USA): 15mg/m<sup>3</sup>Worksafe-TWA(Austl): 10mg/m<sup>3</sup>

## Personal Protective Equipment

Not required under normal conditions. For use other than in normal operating procedures (such as in the event of large spill), goggles and respirators may be required.

Hygiene Measures: Wash hands after handling.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

## Appearance

Physical State: Solid

Color: Cyan

Form: Powder (mean dia. is 5-10um by volume)

Odor:

Almost odorless

PH

Not applicable

Boiling Point(°C):

Not applicable

Melting Point(°C):

Around No data available /[] (Softening Point)

Flash Point(°C):

Not applicable

Auto-Ignition Temperature(°C):

No data available

Upper/ lower flammability or explosive limits

No data available

Explosion Properties:

No data available

Evaporation rate:

No data available

Vapor Pressure:

Not applicable

Vapor density:

Not applicable

Specific Gravity:

1.2

Solubility:

Insoluble in water.

Partition Coefficient, n-Octanol/Water:

Not applicable

Decomposition temperature:

Not applicable





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## 10. STABILITY AND REACTIVITY

Reactivity:	None.
Stability:	Stable except above 200C(392F).
Hazardous Reactions:	Dust explosion, like most finely divided organic powders.
Conditions to avoid:	Electric discharge, throwing into fire.
Materials to Avoid:	Oxidizing materials.
Hazardous Decomposition Products:	CO, CO <sub>2</sub> , NO <sub>x</sub> and smoke.
Hazardous Polymerization:	Will not occur.

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## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity:

Ingestion(oral), LD50(mg/kg):	>2500 (Rat)
Dermal, LD50(mg/kg):	No data available
Inhalation, LC50(mg/l):	>5.08 (Rat,4hour)(This was the highest attainable concentration.)
Eye irritation:	Minimal irritant (Rabbit)
Skin irritation:	Non irritant (Rabbit)

Skin sensitizer: Non sensitizer (Guinea pig)

Local Effects: see Chronic Toxicity or Long term Toxicity

### Chronic Toxicity or Long Term Toxicity:

Prolonged inhalation of excessive dust may cause lung damage. It is attributed to "lung overloading", a generic response to excessive amounts of any dust retained in the lungs for a prolonged interval. Use of this product, as intended, does not result in inhalation of excessive dust.

In a study in rats by chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of rats in the high concentration(16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle(4mg/m<sup>3</sup>) exposure group. But no pulmonary change was reported in the lowest(1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

### Carcinogenicity

The IARC reevaluated titanium dioxide as a Group 2B carcinogen (possible human carcinogen). In animal chronic inhalation studies, the tumor formulation observed in only rats with animal chronic inhalation study are attributed to "lung overloading", a generic response to excessive amounts of any dust retained in the lungs for a prolonged interval. 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 relation between exposure to titanium dioxide and diseases of the respiratory tract beyond general effects of dust.

Mutagenicity: Negative (AMES test)

Teratogenicity: No data available

(\* = Based on data for other Konica Minolta Products with similar ingredients)

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## 12. ECOLOGICAL INFORMATION

No data are available on the adverse effects of this material on the environment.

Ecotoxicity:	No data available
Mobility:	No data available
Persistence and degradability:	No data available
Bioaccumulative potential:	No data available

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### 13. DISPOSAL CONSIDERATION

When disposing of the waste or recovered material, consult federal, state and/or local regulations for the proper disposal method.

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### 14. TRANSPORT INFORMATION

Information on Code and Classifications According to International Regulations

UN Classification: None

Further information: Not a dangerous good under IATA or IMDG.

Hazchem code (Austl.): None

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### 15. REGULATORY INFORMATION

#### US Information

TSCA (Toxic Substances Control Act):

All chemical substances in this product comply with all applicable rules or order under TSCA.

California Proposition 65:

This product contains no chemical substances subject to California Proposition 65.

CERCLA (Comprehensive Environmental Response Compensation and Liability Act) :

None.

SARA Title III (Superfund Amendments and Reauthorization Act) 302 Extreme Hazardous Substance :

None.

311/312 Hazard Categories :

None.

313 Reportable Ingredients :

None.

#### EU Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

• Regulation (EC) No 2037/2000 of the European Parliament and of the Council on Substances That Deplete the Ozone Layer: Not applicable

• Regulation (EC) No 850/2004 of the European Parliament and of the Council on Persistent Organic Pollutants and Amending Directive 79/117/EEC (POPs): Not applicable

• Regulation (EU) No 649/2012 of the European Parliament and of the Council on Concerning the Export and Import of Dangerous Chemicals (PIC): Not applicable

• Directive 2012/18/EU of the European Parliament and of the Council on the Control of Major-Accident Hazards Involving Dangerous Substances, Amending and Subsequently Repealing Council Directive 96/82/EC, (Seveso III): Not applicable

• Regulation (EC) No 1907/2006 of the European Parliament and of the Council:

- Annex XIV- List of Substances Subject To Authorization: Not applicable

- Annex XVII- Restrictions on the Manufacture, Placing on the Market and Use of Certain Dangerous Substances, Preparations and Articles: Not applicable

For this product a chemical safety assessment was not carried out.

#### Canada Information

WHMIS (Canada): This product is NOT subject to the controlled products regulations.

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## 16. OTHER INFORMATION

HMIS Rating: The National Paint and Coating Association (USA): Health: 1 Flammability: 1 Reactivity: 0

Explanation of term: IARC 2B means "possible human carcinogen".

Abbreviations:

ACGIH-TWA: Threshold Limit Value of American Conference of Government Industrial Hygienists

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act

DFG-MAK: Maximale Arbeitsplatz-Konzentration by Deutsche Forschungsgemeinschaft

DGR: Dangerous Goods Regulations

EINECS: European Inventory of Existing Commercial Chemical Substances

H-Code: Hazard Code

HMIS: Hazardous Materials Identification System

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association

IMDG: International Maritime Dangerous Goods Code

NTP: National Toxicology Program

OEL: Occupational exposure limit

OSHA: Occupational Safety and Health Administration

PBT: Persistent, Bioaccumulative and Toxic

SARA: Superfund Amendments and Reauthorization Act

TSCA: Toxic Substances Control Act

vPvB: very Persistent and very Bioaccumulative

WHMIS: Workplace Hazardous Materials Information System

Revision Information: Regular revision on revised date.

Literature References:

ANSI Z400.1-1993

ISO 11014-1

Commission Directive 91/155/EEC

IARC(2010): IARC monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol. 93, Carbon Black, Titanium Dioxide, and Talc, Lyon, pp. 43-191

H.Muhle, B.Bellmann, 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.

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

Restrictions:

The above information is believed to be accurate and represents the best information currently available to Our Corporation. However, Our Corporation makes no warranty with respect to such information, and Our Corporation assumes no liability resulting from its use. Users should make their own investigation to determine the suitability of the information for their particular purposes.

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