



Product Name: TONER TN321K

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1. Product identifier**

Product Name: TONER TN321K

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommend use: Toner or Developer for electrophotographic printers
used for: bizhub C364/C284/C224, C364e/C284e/C224e

1.3. Details of the supplier of the safety data sheet

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

Konica Minolta Business Solutions (UK) Ltd.

Miles Gray Road, Basildon, Essex, SS14 3AR, UK

e-mail address : MSDS@Konicaminolta.co.uk

Telephone: 01268 534444

1.4. Emergency telephone number

Information centre specialized on symptoms of poisoning

Telephone: +49-30-19240

In England and Wales: NHS 111 - dial 111 In Scotland: NHS 24 - dial 111

2. HAZARDS IDENTIFICATION**2.1. Classification of the substance or mixture****Regulation (EC) No 1272/2008**

Classification: Not classified as dangerous.

Hazard Communication Standard (USA)

Classification: Not classified as dangerous.

2.2. Label elements

Precautionary pictograms: ---

Signal word: ---

Hazard Statement: ---

Precautionary Statements: ---

2.3. Other hazards

Dust explosion (like most finely divided organic powders).



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3. COMPOSITION / INFORMATION ON INGREDIENTS**3.2. Mixtures**

Major Ingredients:

[Generic Name]	[CAS No.]	[%]
Styrene acrylic resin	+++	65-75
Ferrite Iron oxide	1309-37-1	1-10
. Manganese oxide	1344-43-0	1-10
Wax	+++	1-10
Carbon black	1333-86-4	1-10
Wax-2	+++	1-10
Titanium dioxide	13463-67-7	<1
Amorphous silica (except HMDS treated silica (CAS. 68909-20-6))		7631-86-9 <1
silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica		68909-20-6 <1

+++ : Supplier's confidential information

Hazardous Ingredients:

Chemical Name: Carbon black

CAS No.: 1333-86-4

EINECS-No.: 215-609-9

NTP(USA): Not listed

California Proposition 65(USA): Listed

H code(EC): Not applicable

REACH Registration number(EU): 01-2119384822-32-XXXX

IARC Monographs: Group 2B

DFG-MAK(GER): III 3B

Chemical Name: Titanium dioxide [particles with aerodynamic diameter $\leq 10 \mu\text{m}$:less than 1%]

CAS No.: 13463-67-7

EINECS-No.: 236-675-5

NTP(USA): Not listed

IARC Monographs: Group 2B

H code(EC): Not applicable

Chemical Name: Manganese oxide

CAS No.: 1344-43-0

EINECS-No.: 215-695-8

H code(EC): Not applicable

Chemical Name: silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

CAS No.: 68909-20-6

EINECS-No.: 272-697-1

H code(EC): STOT RE 2, H373



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4. FIRST-AID MEASURES**4.1. Description of 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: Immediately flush eyes with plenty of water for 15 minutes. If symptoms occur, get medical attention.
- Skin Contact: Wash with water and mild soap.

4.2. Most important symptoms and effects, both acute and delayed

Not available.

4.3. Indication of any immediate medical attention and special treatment needed

Not available.

5. FIRE-FIGHTING MEASURES**5.1. Extinguishing media**

- Suitable Extinguishing Media: CO₂, water spray, foam and dry chemical
- Extinguishing Media to Avoid: Full water jet

5.2. Special hazards arising from the substance or mixture

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

5.3. Advice for firefighters

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

6. ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures**

- Wear personal protective equipment (See Section 8).

6.2. Environmental precautions

- Handle so that the contents are not released to the environment.

6.3. Methods and material for containment and cleaning up

- 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.

6.4. Reference to other sections

- None
-



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7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Technical Measures: None

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

Safe Handling Advice: Try not to disperse the particulates.

Handle so that the contents are not released to the environment.

Do not rinse toner bottles, cartridges, containers, or packaging.

Properly dispose of toner bottles, cartridges, containers, and packages after use.

7.2. Conditions for safe storage, including any incompatibilities

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 KonicaMinolta.

7.3. Specific end use(s)

Not available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Control Parameters (As total dust)

ACGIH-TLV (USA): 10mg/m³ (Inhalable particles), 3.0 mg/m³ (Respirable particles)

OSHA-PEL (USA): 15mg/m³ (Total dusts), 5.0 mg/m³ (Respirable fraction)

DFG-MAK (GER): 4mg/m³ (Inhalable fraction), 1.5mg/m³ (Respirable fraction)

Safe Work Australia-TWA: 10mg/m³

Control Parameters (As Ingredients: Carbon black)

ACGIH-TLV (USA): 3mg/m³

OSHA Z-Table (USA): 3.5mg/m³

Safe Work Australia-TWA: 3mg/m³

UK-OEL(UK):TWA: 3.5 mg/m³

STEL: 7 mg/m³

Control Parameters (As Ingredients: Titanium dioxide)

ACGIH-TLV(USA): 10mg/m³

OSHA Z-Tables(USA): 15mg/m³

Safe Work Australia-TWA: 10mg/m³

UK-OEL(UK):TWA: 4 mg/m³(respirable)

10 mg/m³(total inhalable)

Control Parameters (As Ingredients: Manganese oxide)

ACGIH-TLV(USA): 0.1mg/m³(Mn;Inhalable Fraction)

0.02mg/m³(Mn;Respirable Fraction)

OSHA Z-Tables(USA):ceiling 5mg/m³

EU-OEL(EU): 0.2mg/m³(Mn; Inhalable fraction)

0.05mg/m³(Mn;Respirable Fraction)

Safe Work Australia-TWA: 1mg/m³(Mn)

Control Parameters

(As Ingredients: silicon dioxide including crystalline and amorphous silica)

ACGIH-TLV(USA): 10mg/m³(As Inhalable Fraction)

3mg/m³(As Respirable Fraction)



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OSHA Z-Tables(USA): 5mg/m³(As Respirable Fraction)UK-OEL(UK):TWA: 2.4 mg/m³(respirable dust)6 mg/m³(inhalable dust)**8.2. Exposure controls**

Engineering Measures

Ventilation: None required with intended use.

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**9.1. Information on basic physical and chemical properties**

Appearance

Physical State: Solid

Color: Black

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

Odor:

Almost odorless

Odor threshold:

No data available

PH

Not applicable

Boiling Point(°C):

Not applicable

Melting Point(°C)/[F]:

Around No data available /[] (Softening Point)

Flammability (solid, gas):

No data available

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

Density:

1.2

Viscosity:

Not applicable

Kinematic viscosity:

Not applicable

Solubility:

Insoluble in water.

Partition Coefficient, n-Octanol/Water:

Not applicable

Decomposition temperature:

Not applicable

Particle characteristics:

No data available

9.2. Other informationNo data available



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10. STABILITY AND REACTIVITY**10.1. Reactivity**

Hazardous Polymerization: Will not occur.

10.2. Chemical stability

Stable except above 200C(392F).

10.3. Possibility of hazardous reactions

Dust explosion, like most finely divided organic powders.

10.4. Conditions to avoid

Conditions to avoid: Electric discharge, throwing into fire.

Materials to Avoid: Oxidizing materials.

10.5. Incompatible materials

No Information.

10.6. Hazardous decomposition products

CO, CO₂, NO_x and smoke.

11. TOXICOLOGICAL INFORMATION**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

Acute Toxicity:

Ingestion(oral), LD50(mg/kg): >2000(Rat) *

Dermal, LD50(mg/kg): No data available

Inhalation, LC50(mg/l): >5.13(Rat,4hour) *

(This was the highest attainable concentration.)

Eye irritation: Practically None irritant(Rabbit) *

Skin irritation: None irritant(Rabbit) *

Skin sensitizer: Non sensitizer (Mouse) *

Local Effects: see Chronic Toxicity or Long term Toxicity

Chronic Toxicity or Long Term Toxicity:

In a two-year inhalation study of chronic toxicity and carcinogenicity using a typical toner in rats, there were no lung changes at all in the lowest exposure level (1mg/m³), the most relevant level to potential human exposures. A minimal to mild degree of fibrosis was noted in 22% of the animals at the middle exposure level (4mg/m³), and a mild to moderate degree of fibrosis was observed in 92% of the rats at the highest exposure level(16mg/m³). The lung changes observed in the higher exposure groups are interpreted in terms of "lung overloading", a series of generic responses to the presence of large quantities of respirable, insoluble and relatively benign dusts retained for extended time periods in the lungs. Lung tumor frequency was unchanged among rats exposed to toner at the three exposure levels, and for air-only control rats.

Carcinogenicity

The IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This evaluation is given to Carbon Black 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 free carbon black at levels that induce particle overload of the lung.

Studies performed in animal models other than rats have not demonstrated an association between carbon black and lung tumors. Moreover, a two-year cancer bioassay using a typical toner preparation containing carbon black demonstrated no association between toner exposure and tumor development in rats.



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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, does 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.

As a result of measuring the aerodynamic diameter of titanium dioxide by EN15051-2 (rotary drum method), particles of 10 µm or less are <1% and do not fall under the carcinogenic classification under the Regulation (EC) No 1272/2008.

Mutagenicity: Negative(AMES test)

Teratogenicity: No data available

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

11.2. Information on other hazards

No data available.

12. ECOLOGICAL INFORMATION

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

12.1. Toxicity

No data available

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

No data available

12.6. Endocrine disrupting properties

No data available

12.7. Other adverse effects

No data available

13. DISPOSAL CONSIDERATION

13.1. Waste treatment methods

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**14.1. UN number or ID number**

None (Not a dangerous good under IATA or IMDG.)

14.2. UN proper shipping name

None

14.3. Transport hazard class(es)

None

14.4. Packing group

None

14.5. Environmental hazards

None

14.6. Special precautions for user

None

14.7. Maritime transport in bulk according to IMO instrumentsNone

15. REGULATORY INFORMATION**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

EU/UK Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006 and Commission Regulation (EU) 2020/878.

- Regulation (EU) 2024/590 of the European Parliament and of the Council on Substances That Deplete the Ozone Layer: Not applicable
 - Regulation (EU) 2019/1021 of the European Parliament and of the Council on Persistent Organic Pollutants (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:
 - Entry78 Synthetic polymer microparticles
 - 5(b) : synthetic polymer microparticles the physical properties of which are permanently modified during intended end use in such a way that the polymer no longer falls within the scope of this entry
-



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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:

Ingredient carbon black and titanium dioxide subject to California Proposition 65 is bound in polymer-matrices so that warnings are not required.

CERCLA (Comprehensive Environmental Response Compensation and Liability Act) :

None of the chemicals in this product have an RQ.

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

None.

311/312 Hazard Categories :

None.

313 Reportable Ingredients :

None.

CN Information

This product is not a hazardous chemical under Regulation on Safe Management of Hazardous Chemicals in China (Decree 591).

15.2. Chemical safety assessment

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

16. OTHER INFORMATION

Prepared Date: 04-Nov-2010

Revised Date: 19-Aug-2025

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

Full text of H phrases:

STOT RE: Specific target organ toxicity -repeated exposure

H373: May cause damage to organs (lungs) through prolonged or repeated exposure

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



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TSCA: Toxic Substances Control Act

vPvB: very Persistent and very Bioaccumulative

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:

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