MINOLTA

MATERIAL SAFETY DATA SHEET

Product Name: TONER IN IMAGING CARTRIDGE MSDS No.:ICP-020Q

Date Prepared: 24-Jan-2000

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: TONER IN IMAGING CARTRIDGE
used for: PageWorks12

Supplier Identification:
Minolta Co., Ltd.
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Telephone: +81-6-6271-2251 Facsimile: +81-6-6266-1010

Contact Point:
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Facsimile: +81-6-6386-6254

2. COMPOSITION / INFORMATION ON INGREDIENTS

Substance [ ] Preparation [X]

Hazardous Ingredients:
Chemical Name: Carbon black (1- 5%)

CAS No.: 1333-86-4	EEC-No.: 215-609-9
OSHA Z-Tables(USA): 3.5mg/m3	ACGIH-TLV(USA): 3.5mg/m3
NTP(USA): Not listed	IARC Monographs: Group 2B
Symbol(EC): Not listed	R-Phrase(EC): Not listed
DFG-MAK(EC): Not listed	Worksafe-TWA(Austl): 3mg/m3

Major Ingredients:

[Generic Name]	[CAS No.]	[%]
Polyester resin	+++	>90
Carbon black	1333-86-4	1- 5
Polyolefin wax	+++	1- 5
Organic pigment	+++	1- 5
Amourphous silica	+++	< 1

+++: Supplier’s confidential information

3. HAZARDS IDENTIFICATION

Most Important Hazards and Effects of the Products

For Human Health: This toner is not classified as a human carcinogen.
No symptoms expected with intended use.

For the Environment: No data are available on the adverse effects of this product on the environment.

For Others: None

Specific Hazards: Dust explosion (like most finely divided organic powders)

4. FIRST-AID MEASURES

Symptoms of Overexposure: No symptoms expected with intended use.

Routes of Entry: Eye contact, inhalation, ingestion

Information

Inhalation: If symptoms are experienced, remove source of contamination or move victim to fresh air and obtain medical advice.

Skin Contact: Flush with gently flowing water (preferably lukewarm) and soap for 15 minutes or until particle is removed. If irritation does occur, obtain medical advice.

Eye Contact: Do not allow victim to rub eye(s). Flush with gently flowing water (preferably lukewarm) for 15 minutes or until particle is removed. Have victim look right and left, and, then up and down. If irritation does occur, obtain medical attention. DO NOT attempt to manually remove anything stuck to the eye(s).

Ingestion: If irritation or discomfort occurs, obtain medical attention immediately.

Note to Physician: None

Further Information: None

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: CO2, water spray, foam and dry chemical

Extinguishing Media to Avoid: Full water jet

Special Firefighting Procedures: None

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).

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: None
Environmental Precautions: None
Methods for Cleaning Up: Wipe off with paper or cloth.
DO NOT use vacuum cleaner when a large amount is released. It, like most finely divided organic powders, may create a dust explosion.
Further Information: None

7. HANDLING AND STORAGE

Handling
Technical Measures: None
Precautions: None
Safe Handling Advice: Try not to disperse the particles.
Storage
Technical Measures: None
Storage Conditions: Keep container closed.
Store in a cool and dry place.
Incompatible Products: None
Packing Materials : Bottles or Cartridge designated by Minolta.
Further Information: None

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures
Ventilation: None required with intended use.
Control Parameters(As total dust)
OSHA-PEL(USA): 15mg/m3 ACGIH-TLV(USA): 10mg/m3
DFG-MAK(EC): 6mg/m3 Worksafe-TWA(Austl.): 10mg/m3
Personal Protective Equipment
Respiratory protection: None required when used as intended in Minolta equipment.
Hand Protection: None required when used as intended in Minolta equipment.
Eye protection: None required when used as intended in Minolta equipment.
Skin Protection: None required when used as intended in Minolta equipment.
Other: For use other than normal customer-operating procedures (such as in bulk toner processing facilities), goggles and respirators may be required.
Hygiene Measures: Wash hands after handling.
Further Information: None

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical State: Solid Form: Powder Color: Black

Odor:	Faint odor
Particle Size(μm):	5 - 15
Boiling Point:	Not applicable
Melting Point(°C):	No data available
Softening Point(°C):	120 - 130 *
Flash Point:	Not applicable
pH:	Not applicable
Explosion Properties:	No data available
Density(g/cm³):	1.2 (bulk density: 0.5)
Solubility in water:	Negligible
Flammability:	No data available
Oxidizing Properties:	No data available
Ignition Temperature(°C):	450 *
Vapor Pressure:	Not applicable

Partition Coefficient, n-Octanol/Water: Not applicable

10. STABILITY AND REACTIVITY

Stability: Stable [X] Unstable [ ]

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, CO2

Further Information: None

11. TOXICOLOGICAL INFORMATION

Health Effects from Exposure: No symptoms expected with intended use.

Toxicological Data

Acute Toxicity:

Inhalation, LC50(mg/l):	>0.74 (Rats,4hour) * (This was the highest attainable concentration.)
Ingestion(oral), LD50(mg/kg):	>5000 (Rats) *
Dermal, LD50(mg/kg):	>2000 (Rats) *
Eye irritation:	Not an irritant (Rabbits) *
Skin irritation:	Not an irritant (Rabbits) *
Skin sensitizer:	No data available
Mutagenicity:	Negative * (AMES test)

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

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^3) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle(4mg/m^3) exposure group. But no pulmonary change was reported in the lowest(1mg/m^3) exposure group, the most relevant level to potential human exposures.

Carcinogenicity

IARC Monographs: Not listed
NTP(USA): Not listed
OSHA Regulated(USA): Not listed

In 1996 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.

12. ECOLOGICAL INFORMATION

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

Persistence/Degradability: No data are available on the adverse effects of this material on the environment.

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

Ecotoxicity

Behavior in Sewage Works: No data are available on the adverse effects of this material on the environment.

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

Ecological Data(EC)

Csb Value(EC): No data are available on the adverse effects of this material on the environment.

AOX-Remark(EC): No data are available on the adverse effects of this material on the environment.

BsB5 Value(EC): No data are available on the adverse effects of this material on the environment.

Significant Components(EC): Not applicable

13. DISPOSAL CONSIDERATION

Appropriate Methods of Disposal

Preparation(community provisions):

Waste may be disposed or incinerated under conditions which meet all federal, state and local environmental regulations.

Contaminated Packaging:

Waste may be disposed or incinerated under conditions which meet all federal, state and local environmental regulations.

14. TRANSPORT INFORMATION

Special Precautions: None

Information on Code and Classifications According to International Regulations

UN Classification: None

Land

RID(EC): None

ADR(EC): None

DOT(USA): None

Inland Waterways

ADNR(Rhine R.): None

Sea

IMDG: None

Air

ICAO-TI: None

IATA-DGR: None

15. REGULATORY INFORMATION

US Information

Information on the label: Not required

TSCA(Toxic Substances Control Act):

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

SARA(Superfund Amendments and Reauthorization Act) Title III

302 Extreme Hazardous Substance: None

311/312 Hazard Categories: None

313 Reportable Ingredients: None

California Proposition 65:

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

EU Information

Information on the label (88/379/EEC and 67/548/EEC):

Symbol & Indication: Not required

R-Phrase: Not required

S-Phrase: Not required

76/769/EEC:

All chemical substances in this product comply with all applicable rules or order under 76/769/EEC.

16. OTHER INFORMATION

NFPA Hazard Rating: The 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

Recommended Uses:

Toner for Electrophotographic Equipment

Restrictions:

Information on this data sheet represents our current data and the best opinion as to the proper use in handling of this product under normal conditions specified in our User‘s Manual. However, neither Minolta Co.,Ltd. nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we do not guarantee that these are the only hazards which exist.

Literature References:

ANSI Z400.1-1993

TRGS 220: Sicherheitsdatenblatt für gefährliche Stoffe und Zubereitungen

ISO 11014-1

Commission Directive 91/155/EEC

The Material Safety Data sheet: A Practical Guide to First Aid: Canadian Centre for Occupational Health and Safety's publication

HMIS IMPLEMENTATION MANUAL: National Paint & Coatings association

IARC(1996): IARC monographs 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, pp.149-261

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.