SAFETY DATA SHEET

Toner Powder (Cartridge) for
C911/C931
ES9411/ES9431/ES9541
Pro9431/Pro9541

OKI DATA CORPORATION

NOTE:-A safety data sheet is not required for this product under Article 31 of REACH. This safety data sheet is provided on a voluntary basis

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: Yellow toner powder (cartridge) for
C911/C931
ES9411/ES9431/ES9541
Pro9431/Pro9541
(Toner powder name: OKT5Y)

Product description: Yellow Toner

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

Material uses: For electrophotographic printing systems

1.3 Details of the supplier of the safety data sheet

Manufacturer:
OKI Data Corporation
3-1 Futaba-cho, Takasaki-shi, Gunma. 370-8585 Japan
Tel: +81 27-328-6366 Fax: +81-27-328-6398

Supplier:
OKI Europe Limited
Blays House, Wick Road, Egham, Surrey, TW20 0HJ, UK
Tel: +44 (0) 208 219 2190 Fax: +44 (0) 208 219 2199
e-mail:SDSQuestions@okieurope.com

1.4 Emergency telephone number

OKI Europe Limited: +44 (0) 208 219 2190
(Supported 09:00 to 17:00 UK Time, Monday to Friday except Bank Holidays)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition: Mixture
Regulation (EC) No. 1272/2008: Not classified as hazardous.

2.2 Label elements

Symbol & Indication of Danger: Not Required
Risk Phrase: Not Required
Safety Advice: Not Required
Dangerous Component: Not Required

Applicable Label Elements in accordance with Part 2 of Annex II to Regulation (EC) No 1272/2008: Not Required

2.3 Other hazards

Information on whether the substance or mixture meets the criteria for PBT or vPvB in accordance with Annex XIII to Regulation (EC) No 1907/2006: No

Dust Explosion: This mixture, like most organic powders, can cause a dust explosion if particles form thick clouds.

Irritation of respiratory tract: Slight irritation of respiratory tract may occur with exposure to large amount of toner dust.

Skin Irritation: Minimal skin irritation may occur.

Eye Irritation: Irritation may occur by mechanical abrasion

SECTION 3: Composition/information on ingredients

Substance/mixture: Mixture

Substances in the Mixture referred to in Points 3.2.1 or 3.2.2 of Annex II to Regulation (EC) No 1272/2008:

Chemical Identity of the substance	EC No./CAS No.	Ranges of % by mass	Classification according to Regulation (EC) No. 1272/2008
			Hazard Class / Statement*
None			

*Full text of Hazard statements is listed in Section 16.

Substances in the Mixture not meeting the Criteria for Classification:

Chemical Identity of the substance	EC No./CAS No. or other unique identifier	Ranges of % by mass	Classification according to Regulation (EC) No. 1272/2008
Styrene arcylate copolymer	NJTSRN202775807-6000	80-90	Not Classified
Wax	NJTSRN202775807-6006	5-15	Not Classified
Pigment	NJTSRN202775807-6004	3-10	Not Classified
Amorphous silica	231-545-4/7631-86-9	1-3	Not Classified
Titanium dioxide	236-675-5/13463-67-7	0.1-0.9	Not Classified

NJTSRN: New JerseyTrade Secret Registry Number (United State)
Refer to Section 8 for the exposure limits and Section 11 for toxicological information.

Carcinogens:

This mixture contains titanium dioxide listed by IARC as Group 2B (possibly carcinogenic to humans); however, no significant exposure to titanium dioxide is thought to occur during the use of the product because titanium dioxide is mostly in a bound form in this mixture.

Substances in Annex XIV to Regulation (EC) No 1907/2006 (Authorisation) or the Candidate List of SVHC:

None.

Substances in Annex XVII to Regulation (EC) No 1907/2006 (Restriction):

None.

SECTION 4: First aid measures

4.1 Description of first aid measures

Inhalation: Provide fresh air immediately. If symptoms occur, seek medical advice.

Skin contact: Wash out particles with plenty of water and soap. If irritation develops, seek medical advice.

Eye contact: Do not rub eyes. Immediately rinse with plenty of clean running water until particles are washed out. If irritation persists seek medical advice.

Ingestion: Clean mouth out with water. Drink several glasses of water. If sickness develops, seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Acute: Exposure to excessive amounts of dust may cause physical irritation to respiratory tract.

Delayed: Prolonged inhalation of excessive amounts of dust may damage lungs.

4.3 Indication of any immediate medical attention and special treatment needed

Immediate medical attention may be required in an unlikely event of extreme inhalation, eye contact or unusual reaction due to physical idiosyncrasy of the person.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Carbon dioxide, Water, Foam, Dry chemical

Unsuitable extinguishing media: None known

5.2 Special hazards arising from the substance or mixture

Dust Explosion: This mixture, like most organic powders, is capable of creating an explosive dust when particles are dispersed in air.

Hazardous Combustion Products: Carbon Monoxide and carbon dioxide.

5.3 Advice for firefighters

Firefighters should wear protective equipment such as gloves, glasses, boots and respiratory mask as needed.

Do not breather fumes.

Keep containers cool with water spray if exposed to fire

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For Non-Emergency Personnel: Avoid Dust formation.
Remove Ignition sources.
Do not breathe dust.
Wear personal protective equipment as described in Section 8.

For Emergency Responders: Fabric for personal protective clothing should block particles of the product as small as 3um

6.2 Environmental precautions

Do not discharge into drains or the environment.

6.3 Methods and materials for containment and cleaning up

Eliminate sources of ignition and flammables.
Vacuum or sweep the materials into a sealed container.
If a vacuum cleaner or other tool is used, it must be dust explosion-proof.
Dispose of the materials in accordance with EU/national/regional/regional requirements.

6.4 Reference to other sections

See Section 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Keep out of reach of children
Avoid dust formation. Handle in adequately ventilated areas.
Do not breathe dust. Do not get in the eyes or on skin.
Wear personal protective equipment as recommended in Section 8.
Keep away from excessive heat and sources of ignition such as sparks and open flames.
Ensure all the equipment is electrically earthed / grounded before beginning operation.
Do not handle with strong oxidisers, which may vigorously oxidise organic materials in this mixture and cause a fire in an extreme case.
Avoid spills. Do not release to drains.
Do not eat, drink or smoke when handling this product.
Wash hands after handling this product.
Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities

Keep out of reach of children
Keep container closed and stored in a well ventilated dry place at room temperature.
Keep away from excessive heat and sources of ignition.
Do not store with strong oxidisers.
Avoid packaging materials with plasticiser, which may soften this product directly contacted.

7.3 Specific end use(s)

This product is a toner used in electrophotographic printers and copiers.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits:

Product	EU OEL	Germany DFG MAK (8hr TWA)	UK HSE WEL (8hr TWA)	Sweden SWEA OEL LLV	ACGIH TLV (TWA)	USA OSHA PEL (TWA)
General dust or particulate not otherwise classified	Not established	Inhalable fraction: 4mg/m3	Inhalable dust: 10mg/m3 Respirable dust: 4mg/m3	Dust and mist, organic total dust: 5mg/m3	Inhalable particulate: 10mg/m3 Respirable particulate: 3mg/m3	Total dust: 15mg/m3 Respirable fraction: 5mg/m3

Ingredient	EU OEL	Germany DFG MAK (8hr TWA)	UK HSE WEL (8hr TWA)	Sweden SWEA OEL LLV (TWA)	ACGIH TLV (TWA)	USA OSHA PEL (TWA)
Titanium dioxide	Not established	Inhalable fraction: 4mg/m3	Inhalable dust: 10mg/m3 Respirable dust: 4mg/m3	Total dust: 5mg/m3	10mg/m3	Total dust: 15mg/m3
Amorphous silica	Not established	Inhalable fraction: 4mg/m3	Inhalable dust: 6mg/m3 Respirable dust: 2.4mg/m3	Not established	Not established	20 mppcf* or 80/% SiO2 mg/m3 (* million particles per cubic foot)

EU: OEL (Occupational Exposure Limits at Community level under Directive 2004/37/EC Annex, 98/24/EC Annex, 91/322/EEC Annex, 2000/39/EC Annex, 2006/15/EC Annex and 2009/161/EU)
Germany: DFG (The Deutsche Forschungsgemeinschaft, German Research Institute)
MAK (Maximale Arbeitsplatz-Konzentration, Maximum Workplace Concentration)
UK: HSE (Health and Safety Executive) WEL (Workplace Exposure Limits)
Sweden: SWA (Swedish Work Environment Authority) OEL (Occupational Exposure Limits) LLV (Level Limit Values)
ACGIH (American Conference of Government Industrial Hygienists): TLV (Threshold Limit Value)
USA: OSHA (Occupational Safety and Health Administration) PEL (Permissible Exposure Limits)

Biological Limit Value: Not established
PNECs and DNELs: Not established

8.2 Exposure controls

Appropriate engineering controls: Good general ventilation should be sufficient under normal conditions of use.

Individual Protection Measures, such as Personal Protective Equipment:

Eye protection: Protective goggles or safety glasses are recommended.
Skin protection: Gloves are recommended.
Respiratory protection: Personal respiratory mask is not required under normal conditions of use, but a respirator is needed in case of dust formation.
Thermal Hazards: None anticipated.
Environmental exposure controls: Avoid release to the environment.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Fine yellow powder.
Odour:	None or slight plastic-like odour.
Odour Threshold:	No data available.
pH:	Not applicable.
Melting point / Freezing Point:	Not applicable.
Initial Boiling Point and Boiling Range:	Not applicable.
Flash Point:	Not applicable.
Evaporation Rate:	Not applicable.
Flammability:	No data available.
Upper / Lower Flammability or Explosive Limits:	No data available.
Vapour Pressure:	Not applicable.
Vapour Density:	Not applicable.
Relative Density:	about 1.2 (water = 1)
Solubility(ies):	Negligible in water. Partially soluble in some organic solvents such as toluene and tetrahydrofuran.
Partition Coefficient (n-Octanol/Water):	Not data available.
Auto-ignition Temperature:	Not data available.
Decomposition Temperature:	Not data available.
Viscosity:	Not applicable.
Explosive Properties:	Finely dispersed particles form explosive mixture with air.
Oxidising Properties:	No data available.

9.2 Other information

None.

SECTION 10: Stability and reactivity

10.1 Reactivity:	Stable under normal conditions.
10.2 Chemical stability:	Stable under normal ambient, anticipated storage and handling conditions of temperature and pressure.
10.3 Possibility of hazardous reactions:	None except dust explosion when finely dispersed. Keep away from sources of ignition such as sparks and open flames.
10.4 Conditions to avoid:	Excessive heat, Dust formation
10.5 Incompatible materials:	Strong oxidisers, which could vigorously oxidise organic materials in this mixture and cause a fire in an extreme case.
10.6 Hazardous decomposition products:	Carbon monoxide and carbon dioxide

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SECTION 11: Toxicological information

According to our test results of this or similar mixture and the information provided by the suppliers about the substances contained in this mixture, seriously damaging effect is not expected when this mixture is treated in accordance with standard industrial practices and legal requirements. Refer to Section 2 for potential health effects and Section 4 for first aid measures.

11.1 Information on toxicological effects

Acute toxicity:

Ingestion:	LD50 rat>5,000mg/kg (OECD 425)
Inhalation:	No test data available.
Skin Contact:	No test data available.

Irritation / Corrosivity:

Skin corrosion/irritation:	This mixture is classified as a non irritant to the dermal tissue of rabbit. (OECD 404)
Serious eye damage/irritation:	No test data available.

Sensitisation:

Skin Sensitisation:	Skin sensitising potential negative (guinea pigs, Magnusson & Klingsman's criteria) (OECD 406)
Respiratory Sensitisation:	No test data available.

Repeat Dose Toxicity:

No test data available.

Inhalation test of a toner for two years showed no significant carcinogenicity. (Reference 1)

In rats chronic exposure to toner concentrations 4mg/m3 and over lead to an accumulation of particles in the lung as well as to persistent inflammatory processes and slight to moderate fibrotic changes in the lungs of rats. In hamsters these effects were only observed at significantly higher concentrations (>20mg/m3). The particle accumulation in the lung tissue of the experimental animals is attributed to a damage and overload of the lung clearance mechanisms and is called "lung overloading". This is not an effect specific to toner dust but is generally observed when high concentrations of other, slightly soluble dusts are inhaled.

The lowest-observable-effect-level (LOEL) was 4mg/m3 and the no-observable-effect-level (NOEL) was 1mg/m3 in rats. The NOEL was greater 6mg/m3 in hamsters. (Reference 2)

Toner concentration under the normal use of this product is estimated less than 1mg/m3.

Carcinogenicity:

No test data available.

Titanium dioxide is listed by as a Group 2B (possibly carcinogenic to humans); however, inhalation tests of titanium dioxide by Muhle et al. (Reference 2) showed no significant carcinogenicity. Moreover, IARC monograph vol. 93 states that exposure levels are assumed to be lower in the user industries, with the possible exception of workers who handle large quantities of titanium dioxide. Titanium oxide in this mixture is within small quantity and most in a bound form. Therefore, no significant exposure to titanium dioxide is thought to occur during the use of the product.

Mutagenicity:

Ames test (Salmonella typhimurium, Escherichia coli) negative.

Toxicity for Reproduction:

No test data available.

STOT (Specific Target Organ Toxicity) - single exposure:

No test data available.

STOT - repeated exposure:

No test data available.

Inhalation test of a toner for two years showed no significant carcinogenicity. (1)

In rats chronic exposure to toner concentrations 4mg/m3 and over lead to an accumulation of particles in the lung as well as to persistent inflammatory processes and slight to moderate fibrotic changes in the lungs of rats. In hamsters these effects were only observed at significantly higher concentrations (>20mg/m3). The particle accumulation in the lung tissue of the experimental animals is attributed to a damage and overload of the lung clearance mechanisms and is called "lung overloading". This is not an effect specific to toner dust but is generally observed when high concentrations of other, slightly soluble dusts are inhaled.

The lowest-observable-effect-level (LOEL) was 4mg/m3 and the no-observable-effect-level (NOEL) was 1mg/m3 in rats. The NOEL was greater 6mg/m3 in hamsters. (2) Toner concentration under the normal use of this product is estimated less than 1mg/m3.

Toxicokinetcs, Metabolism and Distribution:

No information available.

Other Information:

None

SECTION 12: Ecological information

According to the information provided by suppliers about the substances contained in this mixture, this mixture is not expected to be harmful to ecology.

12.1 Toxicity:	Not data available.
12.2 Persistence and degradability:	Not data available.
12.3 Bioaccumulative potential:	Not data available.
12.4 Mobility in soil:	Not data available.
12.5 Results of PBT and vPvB assessment:	No result that indicates of his product meet(s) the PBT or vPvB criteria under Regulation (EC) No 1907/2006.
12.6 Other adverse effects:	Not data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste material may be landfilled or incinerated in compliance with all EU/national/regional/local provisions.

Do not dump this product into sewers, on the ground, or into any body of water.

SECTION 14: Transport information

14.1 UN number:	None assigned in accordance with UN Model Regulations.
14.2 UN proper shipping name:	None assigned in accordance with UN Model Regulations.
14.3 Transport hazard Class:	None assigned in accordance with UN Model Regulations.
14.4 Packing group:	None assigned in accordance with UN Model Regulations.
14.5 Environmental hazards:	Not classified as hazardous in accordance with UN Model Regulations. Not classified as marine pollutant in accordance with the IMDG Code.
14.6 Special precautions for user:	See Section 2.
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:	Not applicable.

UN Model Regulations: Recommendations on the TRANSPORT OF DANGEROUS GOODS issued by UN.

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SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Information

Directive 2011/65/EU (ROHS): This mixture complies with the RoHS Directive.
Regulation (EC) No 850/2004: Not subject to regulation.
Regulation (EC) No 689/2008: Not subject to regulation.
Regulation (EC) No 1005/2009: Not subject to regulation.

(EC) No 850/2004: Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC
(EC) No 689/2008: Regulation (EC) No 689/2008 of the European Parliament and of the Council of 17 June 2008 concerning the export and import of dangerous chemicals
(EC) No 1005/2009: Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer

US Information

TSCA: All the substances in this mixture are listed or exempted in accordance with TSCA.

CERCLA Reportable Quantity (40 CFR 117, 302): Not applicable.

SARA Title III (EPRCA)

Section 302 (40 CFR 355): Not applicable.
Section 311/312 (40 CFR 370): Immediate health hazard: No
(All the ingredients of this product are bound within the mixture.)
Chronic health hazard: No
(All the ingredients of this product are bound within the mixture.)
Sudden release of pressure hazard: No
Reactive hazard: No
Section 313 (40 CFR 372): Not applicable to this mixture.

California Proposition 65: This product is in compliance with the regulation as all ingredients are bound within the mixture.

15.2 Chemical Safety Assessment: No chemical safety assessment has been carried out for this mixture by the supplier.

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SECTION 16: Other information

Sections containing revisions and/or new statements:

Fully revised in accordance with Regulations (EC) No 1907/2006 (REACH), 1272/2008 (CLP) and (EU) No 453/2010 (amending REACH).

Annex to the extended Safety Data Sheet (eSDS): None

Legend to Abbreviations:

AND	Accord European relatif au transport international des marchandises Dangereuses par voies de Navigation interieures (European agreement concerning the international carriage of dangerous goods by inland waterways)
ADR	Accord European relatif au transport international des marchandises Dangereuses par Route (The European agreement on cross-border transportation of dangerous goods by road)
CAS	Chemical Abstracts Service
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
CLP	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 Directives 67/548/EEC and 1999/45/EC, and Regulation (EC) No 1907/2006.
DNEL	Derived No-Effect Level
DOT	Department of Transport
EC	European Community
EC50	Half maximal (50%) Effective Concentration
ErC50	EC50 in terms of reduction of growth rate
EEC	European Economic Community
EPCRA	Emergency Planning and Community Right-to-know Act
EU	European Union
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IC50	Half maximal (50%) Inhibitory Concentration
IMDG	International Medical Guide for Ships
LD50	Lethal Dose, 50% kill
OECD	Organisation for Economic Co-operation and Development
OSHA	Occupational Safety and Health Administration
PELs	Permissible Exposure Limits
PBT	Persistent, Bio accumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC
RID	Reglement International concernant le transport des marchandises Dangereuses par chemin de fer (The international regulations covering transportation of dangerous goods by rail)
RoHS	Directive 2011/65/EC of the European Parliament and of the Council of 8 June 2011 on the Restriction of the use of certain Hazardous Substances in electrical and electronic equipment
SARA	Superfund Amendments and Reauthorisation Act of 1986

SDS	Safety Data Sheet
SVHC	Substances of Very High Concern
TSCA	Toxic Substances Control Act
TLV	Threshold Limit Value
TWA	Time Weighted Average
UN	United Nations
vPvB	very Persistent and very Bio accumulative

Literature References:

(1)"Negative Effect of Long-term Inhalation of Toner on Formation of 8-Hydroxydeooxyguanosine in DNA in the Lungs of Rats in Vivo."
Yasuo Morimoto, et. Al., Inhalation Toxicology, Vol. 17 (13) 749-753 (2005)

(2)Studies by Muhle, Bellmann, Cruetzenberg et al.
"Lung clearance and retention of toner, utilising a tracer technique during chronic inhalation exposure in rats"
Fundam. Appl. Toxicol 17 (1991) p.300-313
"Lung clearance and retention of toner, TiO2, and crystalline silica, utilising a tracer technique during chronic inhalation exposure in Syrian golden hamsters."
Inhal. Toxicol 10 (1998) p.731-751
"Subchronic inhalation study of toner in rats"
Inhal. Toxicol 2 (1990) p.341-360
"Pulmonary response to toner upon chronic inhalation exposure in rats"
Fundam. Appl. Toxicol 17 (1991) p.280-299
"Pulmonary response to toner, utilising TiO2, and crystalline silica, upon chronic inhalation exposure in Syrian golden hamsters."
Inhal. Toxicol 10 (1998) p.699-729

Full text of Hazard Statements, Safety Phrases and/or Precautionary Statements in Section 3:

None

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: Magenta toner powder (cartridge) for
C911/C931
ES9411/ES9431/ES9541
Pro9431/Pro9541
(Toner powder name: OKT6M)

Product description: Magenta Toner

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

Material uses: For electrophotographic printing systems

1.3 Details of the supplier of the safety data sheet

Manufacturer: OKI Data Corporation
3-1 Futaba-cho, Takasaki-shi, Gunma. 370-8585 Japan
Tel: +81 27-328-6366 Fax: +81-27-328-6398

Supplier: OKI Europe Limited
Blays House, Wick Road, Egham, Surrey, TW20 0HJ, UK
Tel: +44 (0) 208 219 2190 Fax: +44 (0) 208 219 2199
e-mail:SDSQuestions@okieurope.com

1.4 Emergency telephone number

OKI Europe Limited: +44 (0) 208 219 2190
(Supported 09:00 to 17:00 UK Time, Monday to Friday except Bank Holidays)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition: Mixture

Regulation (EC) No. 1272/2008: Not classified as hazardous.

2.2 Label elements

Hazard pictogram: Not Required
Signal word: Not Required
Hazard statement: Not Required
Precautionary statement: Not Required

Applicable Label Elements in accordance with Part2 of Annex II to Regulation (EC) No 1272/2008: Not Required

2.3 Other hazards

Information on whether the substance or mixture meets the criteria for PBT or vPvB in accordance with Annex XIII to Regulation (EC) No 1907/2006: No

Dust Explosion: This mixture, like most organic powders, can cause a dust explosion if particles form thick clouds.

Irritation of respiratory tract: Slight irritation of respiratory tract may occur with exposure to large amount of toner dust.

Skin Irritation: Minimal skin irritation may occur.

Eye Irritation: Irritation may occur by mechanical abrasion

SECTION 3: Composition/information on ingredients

Substance/mixture: Mixture

Substances in the Mixture referred to in Points 3.2.2 of Annex II to Regulation (EC) No 1907/2006 or referred to Part2 of Annex II to Regulation (EC) No 1272/2008

Chemical Identity of the substance	EC No./CAS No.	Ranges of % by mass	Classification according to Regulation (EC) No. 1272/2008
			Hazard Class / Statement*
None			

*Full texts of Risk phrases and Hazard statements as listed in Section 16.

Substances in the Mixture not meeting the Criteria for Classifiication:

Chemical Identity of the substance	EC No./CAS No. or other unique identifier	Ranges of % by mass	Classification according to Regulation (EC) No. 1272/2008
Styrene arcylate copolymer	NJTSRN202775807-6000	80-90	Not Classified
Wax	NJTSRN202775807-6006	5-15	Not Classified
Pigment	NJTSRN202775807-6003	3-10	Not Classified
Amorphous silica	231-545-4/7631-86-9	1-3	Not Classified
Titanium dioxide	236-675-5/13463-67-7	0.1-0.9	Not Classified

NJTSRN: New JerseyTrade Secret Registry Number (United State)
Refer to Section 8 for the exposure limits and Section 11 for toxicological information.
These substance are indicated solely to help the recipients understand this mixture better, and not subject to Points 3.2.3 or 3.2.4 of Annex II to Regulation (EC)No 1907/2006.

Carcinogens:

This mixture contains titanium dioxide listed by IARC as Group 2B (possibly carcinogenic to humans); however, no significant exposure to titanium dioxide is thought to occur during the use of the product because titanium dioxide is mostly in a bound form in this mixture.

Substances in Annex XIV to Regulation (EC) No 1907/2006 (Authorisation) or the Candidate List of SVHC:

None.

Substances in Annex XVII to Regulation (EC) No 1907/2006 (Restriction):

None.

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SECTION 4: First aid measures

4.1 Description of first aid measures

Inhalation: Provide fresh air immediately. If symptoms occur, seek medical advice.

Skin contact: Wash out particles with plenty of water and soap. If irritation develops, seek medical advice.

Eye contact: Do not rub eyes. Immediately rinse with plenty of clean running water until particles are washed out. If irritation persists seek medical advice.

Ingestion: Clean mouth out with water. Drink several glasses of water. If sickness develops, seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Acute: Exposure to excessive amounts of dust may cause physical irritation to respiratory tract.

Delayed: Prolonged inhalation of excessive amounts of dust may damage lungs.

4.3 Indication of any immediate medical attention and special treatment needed

Immediate medical attention may be required in an unlikely event of extreme inhalation, eye contact or unusual reaction due to physical idiosyncrasy of the person.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Carbon dioxide, Water, Foam, Dry chemical

Unsuitable extinguishing media: High pressure media which could cause the formation of potentially explosible dust-air mixture

5.2 Special hazards arising from the substance or mixture

Dust Explosion: This mixture, like most organic powders, is capable of creating an explosive dust when particles are dispersed in air.

Hazardous Combustion Products: Carbon Monoxide and carbon dioxide.

5.3 Advice for firefighters

Firefighters should wear protective equipment such as gloves, glasses, boots and respiratory mask as needed.

Avoid generating dust which could form explosible mixture with air.

Do not breather fumes.

Keep containers cool with water spray if exposed to fire

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For Non-Emergency Personnel: Avoid Dust formation.
Remove Ignition sources.
Do not breathe dust.
Wear personal protective equipment as described in Section 8.

For Emergency Responders: Fabric for personal protective clothing should block particles of the product as small as 3um

6.2 Environmental precautions

Do not discharge into drains or the environment.

6.3 Methods and materials for containment and cleaning up

Eliminate sources of ignition and flammables.
Nonsparking tools should be used
Shelter the released material (powder) from wind to avoid dust formation and scattering.
Vacuum or sweep the materials into a sealed container.
If a vacuum cleaner or other tool is used, it must be dust explosion-proof.
Dispose of the materials in accordance with EU/national/regional/regional requirements.

6.4 Reference to other sections

See Section 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Minimize dust generation and accumulation.
Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.
Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations.
Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.
Keep away from excessive heat and sources of ignition such as sparks and open flames.
Handle in an adequately ventilated area.
Do not handle with strong oxidisers, which may vigorously oxidise organic materials in this mixture and cause a fire in an extreme case.
Do not breathe dust. Do not get in the eyes or on skin.
Wear personal protective equipment as recommended in Section 8.
Avoid spills. Do not release to drains.
Do not eat, drink or smoke when handling this product.
Wash hands after handling this product.
Remove contaminated clothing and protective equipment before entering eating areas.
Keep out of reach of children

7.2 Conditions for safe storage, including any incompatibilities

Keep container closed and stored in a well ventilated dry place at room temperature.
Keep away from excessive heat and sources of ignition.
Do not store with strong oxidisers.
Avoid packaging materials with plasticiser, which may soften this product directly contacted.
Keep out of reach of children

7.3 Specific end use(s)

This product is a toner used in electrophotographic printers and copiers.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits:

Product	EU OEL	Germany DFG MAK (8hr TWA)	UK HSE WEL (8hr TWA)	Sweden SWEA OEL LLV	ACGIH TLV (TWA)	USA OSHA PEL (TWA)
General dust or particulate not otherwise classified	Not established	Inhalable fraction: 4mg/m3	Inhalable dust: 10mg/m3 Respirable dust: 4mg/m3	Dust and mist, organic total dust: 5mg/m3	Inhalable particulate: 10mg/m3 Respirable particulate: 3mg/m3	Total dust: 15mg/m3 Respirable fraction: 5mg/m3

Ingredient	EU OEL	Germany DFG MAK (8hr TWA)	UK HSE WEL (8hr TWA)	Sweden SWEA OEL LLV (TWA)	ACGIH TLV (TWA)	USA OSHA PEL (TWA)
Titanium dioxide	Not established	Inhalable fraction: 4mg/m3	Inhalable dust: 10mg/m3 Respirable dust: 4mg/m3	Total dust: 5mg/m3	10mg/m3	Total dust: 15mg/m3
Amorphous silica	Not established	Inhalable fraction: 4mg/m3	Inhalable dust: 6mg/m3 Respirable dust: 2.4mg/m3	Not established	Not established	20 mppcf* or 80/% SiO2 mg/m3 (* million particles per cubic foot)

EU: OEL (Occupational Exposure Limits at Community level under Directive 2004/37/EC Annex, 98/24/EC Annex, 91/322/EEC Annex, 2000/39/EC Annex, 2006/15/EC Annex and 2009/161/EU)
Germany: DFG (The Deutsche Forschungsgemeinschaft, German Research Institute)
MAK (Maximale Arbeitsplatz-Konzentration, Maximum Workplace Concentration)
UK: HSE (Health and Safety Executive) WEL (Workplace Exposure Limits)
Sweden: SWA (Swedish Work Environment Authority) OEL (Occupational Exposure Limits) LLV (Level Limit Values)
ACGIH (American Conference of Government Industrial Hygienists): TLV (Threshold Limit Value)
USA: OSHA (Occupational Safety and Health Administration) PEL (Permissible Exposure Limits)

Biological Limit Value: Not established
PNECs and DNELs: Not established

8.2 Exposure controls

Appropriate engineering controls:

Handle in an adequately ventilated area.

It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment.

Ensure that dust-handling systems such as an exhaust dust collectors, vessels, and processing equipment are designed in a manner to prevent the escape if dust into the work area (i.e. there is no leakage from the equipment).

Use only appropriately classified electrical equipment and powered industrial trucks.

Individual Protection Measures, such as Personal Protective Equipment:

Eye protection:	Protective goggles or safety glasses are recommended.
Skin protection:	Gloves are recommended.
Respiratory protection:	Personal respiratory mask is not required under normal conditions of use, but a respirator is needed in case of dust formation.
Thermal Hazards:	None anticipated.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Fine magenta powder. (Mainly 5 to 15 micrometers)
Odour:	None or slight plastic-like odour.
Odour Threshold:	No data available.
pH:	Not applicable.
Melting point / Freezing Point:	Not applicable.
Initial Boiling Point and Boiling Range:	Not applicable.
Flash Point:	Not applicable.
Evaporation Rate:	Not applicable.
Flammability:	No data available.
Upper / Lower Flammability or Explosive Limits:	No data available.
Vapour Pressure:	Not applicable.
Vapour Density:	Not applicable.
Relative Density:	about 1.2 (water = 1)
Solubility(ies):	Negligible in water. Partially soluble in some organic solvents such as toluene and tetrahydrofuran.
Partition Coefficient (n-Octanol/Water):	Not data available.
Auto-ignition Temperature:	Not data available.
Decomposition Temperature:	Not data available.
Viscosity:	Not applicable.
Explosive Properties:	Finely dispersed particles form explosive mixture with air.
Oxidising Properties:	No data available.

9.2 Other information

None.

SECTION 10: Stability and reactivity

10.1 Reactivity:	Stable under normal conditions.
10.2 Chemical stability:	Stable under normal ambient, anticipated storage and handling conditions of temperature and pressure.
10.3 Possibility of hazardous reactions:	None except dust explosion when finely dispersed. Keep away from sources of ignition such as sparks and open flames.
10.4 Conditions to avoid:	Excessive heat, Dust formation
10.5 Incompatible materials:	Strong oxidisers, which could vigorously oxidise organic materials in this mixture and cause a fire in an extreme case.
10.6 Hazardous decomposition products:	Carbon monoxide and carbon dioxide

SECTION 11: Toxicological information

According to our test results of this or similar mixture and the information provided by the suppliers about the substances contained in this mixture, seriously damaging effect is not expected when this mixture is treated in accordance with standard industrial practices and legal requirements. Refer to Section 2 for potential health effects and Section 4 for first aid measures.

11.1 Information on toxicological effects

Acute toxicity:

Ingestion:	LD50 rat>5,000mg/kg (OECD 425) (a similar product)
Inhalation:	No test data available.
Skin Contact:	No test data available.

Irritation / Corrosivity:

Skin corrosion/irritation:	This mixture is classified as a non-irritant to the dermal tissue of rabbit. (OECD 404) (a similar product)
Serious eye damage/irritation:	No test data available.

Sensitisation:

Skin Sensitisation:	Skin sensitising potential negative (Local Lymph Node Assay) (OECD 429) (a similar product)
Respiratory Sensitisation:	No test data available.

Carcinogenicity:

No test data available.

Titanium dioxide is listed by as a Group 2B (possibly carcinogenic to humans); however, inhalation tests of titanium dioxide by Muhle et al. (Reference 2) showed no significant carcinogenicity. Moreover, IARC monograph vol. 93 states that exposure levels are assumed to be lower in the user industries, with the possible exception of workers who handle large quantities of titanium dioxide. Titanium oxide in this mixture is within small quantity and most in a bound form. Therefore, no significant exposure to titanium dioxide is thought to occur during the use of the product.

Mutagenicity:

Ames test (Salmonella typhimurium, Escherichia coli) negative.

Toxicity for Reproduction:

No test data available.

STOT (Specific Target Organ Toxicity) - single exposure:

No test data available.

STOT - repeated exposure:

No test data available.

Inhalation test of a toner for two years showed no significant carcinogenicity. (1)

In rats chronic exposure to toner concentrations 4mg/m3 and over lead to an accumulation of particles in the lung as well as to persistent inflammatory processes and slight to moderate fibrotic changes in the lungs of rats. In hamsters these effects were only observed at significantly higher concentrations (>20mg/m3). The particle accumulation in the lung tissue of the experimental animals is attributed to a damage and overload of the lung clearance mechanisms and is called "lung overloading". This is not an effect specific to toner dust but is generally observed when high concentrations of other, slightly soluble dusts are inhaled.

The lowest-observable-effect-level (LOEL) was 4mg/m3 and the no-observable-effect-level (NOEL) was 1mg/m3 in rats. The NOEL was greater 6mg/m3 in hamsters. (2) Toner concentration under the normal use of this product is estimated less than 1mg/m3.

Aspiration hazard:

No information available.

Other Information:

None

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SECTION 12: Ecological information

According to the information provided by suppliers about the substances contained in this mixture, this mixture is not expected to be harmful to ecology.

12.1 Toxicity:	Not data available.
12.2 Persistence and degradability:	Not data available.
12.3 Bioaccumulative potential:	Not data available.
12.4 Mobility in soil:	Not data available.
12.5 Results of PBT and vPvB assessment:	This mixture does not contain any substances that are assessed to be a PBT or vPvB under Regulation (EC) No 1907/2006.
12.6 Other adverse effects:	Not data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste material may be landfilled or incinerated in compliance with all EU/national/regional/local provisions.

Do not dump this product into sewers, on the ground, or into any body of water.

SECTION 14: Transport information

This mixture is not a regulated material under ADR, RID, ADN, IMDG Code, ICAO/IATA (IATA Dangerous Goods Regulations) or the United States DOT.

14.1 UN number:	None assigned in accordance with UN Model Regulations.
14.2 UN proper shipping name:	None assigned in accordance with UN Model Regulations.
14.3 Transport hazard Class:	None assigned in accordance with UN Model Regulations.
14.4 Packing group:	None assigned in accordance with UN Model Regulations.
14.5 Environmental hazards:	Not classified as hazardous in accordance with UN Model Regulations. Not classified as marine pollutant in accordance with the IMDG Code.
14.6 Special precautions for user:	See Section 2 and 7.
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:	Not applicable.

UN Model Regulations: Recommendations on the TRANSPORT OF DANGEROUS GOODS issued by UN.
MARPOL: The International Convention for the Prevention of Pollution from ships, 1973, as modified by the Protocol of 1978 relating thereto.
IBC code: The International Code for the Construction and Equipment of ships carrying Dangerous Chemicals in Bulk (International Bulk Chemical Code).

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SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Information

Directive 2011/65/EU (ROHS): This mixture complies with the RoHS Directive.
Regulation (EC) No 850/2004: Not subject to regulation.
Regulation (EC) No 649/2012: Not subject to regulation.
Regulation (EC) No 1005/2009: Not subject to regulation.

(EC) No 850/2004: Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC
(EC) No 649/2012: Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals
(EC) No 1005/2009: Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer

US Information

TSCA: All the substances in this mixture are listed or exempted in accordance with TSCA.

CERCLA Reportable Quantity (40 CFR 117, 302): Not applicable.

SARA Title III (EPRCA)

Section 302 (40 CFR 355): Not applicable.
Section 311/312 (40 CFR 370): Immediate health hazard: No
(All the ingredients of this product are bound within the mixture.)
Chronic health hazard: No
(All the ingredients of this product are bound within the mixture.)
Sudden release of pressure hazard: No
Reactive hazard: No
Section 313 (40 CFR 372): Not applicable to this mixture.

California Proposition 65: This product is in compliance with the regulation as all ingredients are bound within the mixture.

People's Republic of China Information

National Standard GB 13690-2009 (China GHS): No label element is required.

People's Republic of China Information

Industrial Safety and Health Act, Standard for Classification and Labelling of Chemical Substances and Material Safety Data Sheets (MoL Public Notice 2013-37), Toxic Chemicals Control Act and Regulation for Classification and Labelling of Toxic Chemicals (NIER Public Notice 2008-26): No label element is required

15.2 Chemical Safety Assessment: No chemical safety assessment has been carried out for this mixture by the supplier.

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SECTION 16: Other information

Sections containing revisions and/or new statements:

Fully revised in accordance with Regulations (EC) No 1907/2006 (REACH), 1272/2008 (CLP) and (EU) No 2015/830 (amending REACH).

Annex to the extended Safety Data Sheet (eSDS): None

Legend to Abbreviations:

ADN	Accord European relatif au transport international des marchandises Dangereuses par voies de Navigation interieures (European agreement concerning the international carriage of dangerous goods by inland waterways)
ADR	Accord European relatif au transport international des marchandises Dangereuses par Route (The European agreement on cross-border transportation of dangerous goods by road)
CAS	Chemical Abstracts Service
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
CLP	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 Directives 67/548/EEC and 1999/45/EC, and Regulation (EC) No 1907/2006.
DNEL	Derived No-Effect Level
DOT	Department of Transport
EC	European Community
EC50	Half maximal (50%) Effective Concentration
ErC50	EC50 in terms of reduction of growth rate
EEC	European Economic Community
EPCRA	Emergency Planning and Community Right-to-know Act
EU	European Union
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IC50	Half maximal (50%) Inhibitory Concentration
IMDG	International Medical Guide for Ships
LD50	Lethal Dose, 50% kill
OECD	Organisation for Economic Co-operation and Development
OSHA	Occupational Safety and Health Administration
PELs	Permissible Exposure Limits
PBT	Persistent, Bio accumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC
RID	Reglement International concernant le transport des marchandises Dangereuses par chemin de fer (The international regulations covering transportation of dangerous goods by rail)
RoHS	Directive 2011/65/EC of the European Parliament and of the Council of 8 June 2011 on the Restriction of the use of certain Hazardous Substances in electrical and electronic equipment
SARA	Superfund Amendments and Reauthorisation Act of 1986

SDS	Safety Data Sheet
SVHC	Substances of Very High Concern
TSCA	Toxic Substances Control Act
TLV	Threshold Limit Value
TWA	Time Weighted Average
UN	United Nations
vPvB	very Persistent and very Bio accumulative

Literature References:

(1)"Negative Effect of Long-term Inhalation of Toner on Formation of 8-Hydroxydeooxyguanosine in DNA in the Lungs of Rats in Vivo."
Yasuo Morimoto, et. Al., Inhalation Toxicology, Vol. 17 (13) 749-753 (2005)

(2)Studies by Muhle, Bellmann, Cruetzenberg et al.
"Lung clearance and retention of toner, utilising a tracer technique during chronic inhalation exposure in rats"
Fundam. Appl. Toxicol 17 (1991) p.300-313
"Lung clearance and retention of toner, TiO2, and crystalline silica, utilising a tracer technique during chronic inhalation exposure in Syrian golden hamsters."
Inhal. Toxicol 10 (1998) p.731-751
"Subchronic inhalation study of toner in rats"
Inhal. Toxicol 2 (1990) p.341-360
"Pulmonary response to toner upon chronic inhalation exposure in rats"
Fundam. Appl. Toxicol 17 (1991) p.280-299
"Pulmonary response to toner, utilising TiO2, and crystalline silica, upon chronic inhalation exposure in Syrian golden hamsters."
Inhal. Toxicol 10 (1998) p.699-729

Full texts of Risk Phrases, Hazard Statements, Safety Phrases and/or Precautionary Statements in Section 3:

None

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: Cyan toner powder (cartridge) for
C911/C931
ES9411/ES9431/ES9541
Pro9431/Pro9541
(Toner powder name: OKT5C)

Product description: Cyan Toner

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

Material uses: For electrophotographic printing systems

1.3 Details of the supplier of the safety data sheet

Manufacturer:
OKI Data Corporation
3-1 Futaba-cho, Takasaki-shi, Gunma. 370-8585 Japan
Tel: +81 27-328-6366 Fax: +81-27-328-6398

Supplier:
OKI Europe Limited
Blays House, Wick Road, Egham, Surrey, TW20 0HJ, UK
Tel: +44 (0) 208 219 2190 Fax: +44 (0) 208 219 2199
e-mail:SDSQuestions@okieurope.com

1.4 Emergency telephone number

OKI Europe Limited:
+44 (0) 208 219 2190
(Supported 09:00 to 17:00 UK Time, Monday to Friday except Bank Holidays)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition: Mixture

Regulation (EC) No. 1272/2008: Not classified as hazardous.

2.2 Label elements

Symbol & Indication of Danger: Not Required
Risk Phrase: Not Required
Safety Advice: Not Required
Dangerous Component: Not Required

Applicable Label Elements in accordance with Part2 of Annex II to Regulation (EC) No 1272/2008: Not Required

2.3 Other hazards

Information on whether the substance or mixture meets the criteria for PBT or vPvB in accordance with Annex XIII to Regulation (EC) No 1907/2006:

No

Dust Explosion:	This mixture, like most organic powders, can cause a dust explosion if particles form thick clouds.
Irritation of respiratory tract:	Slight irritation of respiratory tract may occur with exposure to large amount of toner dust.
Skin Irritation:	Minimal skin irritation may occur.
Eye Irritation:	Irritation may occur by mechanical abrasion

SECTION 3: Composition/information on ingredients

Substance/mixture: Mixture

Substances in the Mixture referred to in Points 3.2.1 or 3.2.2 of Annex II to Regulation (EC) No 1272/2008:

Chemical Identity of the substance	EC No./CAS No.	Ranges of % by mass	Classification according to Regulation (EC) No. 1272/2008 Hazard Class / Statement*
None			

*Full text of Hazard statements is listed in Section 16.

Substances in the Mixture not meeting the Criteria for Classification:

Chemical Identity of the substance	EC No./CAS No. or other unique identifier	Ranges of % by mass	Classification according to Regulation (EC) No. 1272/2008
Styrene arcylate copolymer	NJTSRN202775807-6000	80-90	Not Classified
Wax	NJTSRN202775807-6006	5-15	Not Classified
Pigment	NJTSRN202775807-6002	3-10	Not Classified
Amorphous silica	231-545-4/7631-86-9	1-3	Not Classified
Titanium dioxide	236-675-5/13463-67-7	0.1-0.9	Not Classified

NJTSRN: New JerseyTrade Secret Registry Number (United State)
Refer to Section 8 for the exposure limits and Section 11 for toxicological information.

Carcinogens:

This mixture contains titanium dioxide listed by IARC as Group 2B (possibly carcinogenic to humans); however, no significant exposure to titanium dioxide is thought to occur during the use of the product because titanium dioxide is mostly in a bound form in this mixture.

Substances in Annex XIV to Regulation (EC) No 1907/2006 (Authorisation) or the Candidate List of SVHC:

None.

Substances in Annex XVII to Regulation (EC) No 1907/2006 (Restriction):

None.

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SECTION 4: First aid measures

4.1 Description of first aid measures

Inhalation: Provide fresh air immediately. If symptoms occur, seek medical advice.

Skin contact: Wash out particles with plenty of water and soap. If irritation develops, seek medical advice.

Eye contact: Do not rub eyes. Immediately rinse with plenty of clean running water until particles are washed out. If irritation persists seek medical advice.

Ingestion: Clean mouth out with water. Drink several glasses of water. If sickness develops, seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Acute: Exposure to excessive amounts of dust may cause physical irritation to respiratory tract.

Delayed: Prolonged inhalation of excessive amounts of dust may damage lungs.

4.3 Indication of any immediate medical attention and special treatment needed

Immediate medical attention may be required in an unlikely event of extreme inhalation, eye contact or unusual reaction due to physical idiosyncrasy of the person.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Carbon dioxide, Water, Foam, Dry chemical

Unsuitable extinguishing media: None known

5.2 Special hazards arising from the substance or mixture

Dust Explosion: This mixture, like most organic powders, is capable of creating an explosive dust when particles are dispersed in air.

Hazardous Combustion Products: Carbon Monoxide and carbon dioxide.

5.3 Advice for firefighters

Firefighters should wear protective equipment such as gloves, glasses, boots and respiratory mask as needed.

Do not breather fumes.

Keep containers cool with water spray if exposed to fire

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For Non-Emergency Personnel: Avoid Dust formation.
Remove Ignition sources.
Do not breathe dust.
Wear personal protective equipment as described in Section 8.

For Emergency Responders: Fabric for personal protective clothing should block particles of the product as small as 3um

6.2 Environmental precautions

Do not discharge into drains or the environment.

6.3 Methods and materials for containment and cleaning up

Eliminate sources of ignition and flammables.
Vacuum or sweep the materials into a sealed container.
If a vacuum cleaner or other tool is used, it must be dust explosion-proof.
Dispose of the materials in accordance with EU/national/regional/regional requirements.

6.4 Reference to other sections

See Section 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Keep out of reach of children
Avoid dust formation. Handle in adequately ventilated areas.
Do not breathe dust. Do not get in the eyes or on skin.
Wear personal protective equipment as recommended in Section 8.
Keep away from excessive heat and sources of ignition such as sparks and open flames.
Ensure all the equipment is electrically earthed / grounded before beginning operation.
Do not handle with strong oxidisers, which may vigorously oxidise organic materials in this mixture and cause a fire in an extreme case.
Avoid spills. Do not release to drains.
Do not eat, drink or smoke when handling this product.
Wash hands after handling this product.
Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities

Keep out of reach of children
Keep container closed and stored in a well ventilated dry place at room temperature.
Keep away from excessive heat and sources of ignition.
Do not store with strong oxidisers.
Avoid packaging materials with plasticiser, which may soften this product directly contacted.

7.3 Specific end use(s)

This product is a toner used in electrophotographic printers and copiers.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits:

Product	EU OEL	Germany DFG MAK (8hr TWA)	UK HSE WEL (8hr TWA)	Sweden SWEA OEL LLV	ACGIH TLV (TWA)	USA OSHA PEL (TWA)
General dust or particulate not otherwise classified	Not established	Inhalable fraction: 4mg/m3	Inhalable dust: 10mg/m3 Respirable dust: 4mg/m3	Dust and mist, organic total dust: 5mg/m3	Inhalable particulate: 10mg/m3 Respirable particulate: 3mg/m3	Total dust: 15mg/m3 Respirable fraction: 5mg/m3

Ingredient	EU OEL	Germany DFG MAK (8hr TWA)	UK HSE WEL (8hr TWA)	Sweden SWEA OEL LLV (TWA)	ACGIH TLV (TWA)	USA OSHA PEL (TWA)
Titanium dioxide	Not established	Inhalable fraction: 4mg/m3	Inhalable dust: 10mg/m3 Respirable dust: 4mg/m3	Total dust: 5mg/m3	10mg/m3	Total dust: 15mg/m3
Amorphous silica	Not established	Inhalable fraction: 4mg/m3	Inhalable dust: 6mg/m3 Respirable dust: 2.4mg/m3	Not established	Not established	20 mppcf* or 80/% SiO2 mg/m3 (* million particles per cubic foot)

EU: OEL (Occupational Exposure Limits at Community level under Directive 2004/37/EC Annex, 98/24/EC Annex, 91/322/EEC Annex, 2000/39/EC Annex, 2006/15/EC Annex and 2009/161/EU)
Germany: DFG (The Deutsche Forschungsgemeinschaft, German Research Institute) MAK (Maximale Arbeitsplatz-Konzentration, Maximum Workplace Concentration)
UK: HSE (Health and Safety Executive) WEL (Workplace Exposure Limits)
Sweden: SWA (Swedish Work Environment Authority) OEL (Occupational Exposure Limits) LLV (Level Limit Values)
ACGIH (American Conference of Government Industrial Hygienists): TLV (Threshold Limit Value)
USA: OSHA (Occupational Safety and Health Administration) PEL (Permissible Exposure Limits)

Biological Limit Value: Not established
PNECs and DNELs: Not established

8.2 Exposure controls

Appropriate engineering controls: Good general ventilation should be sufficient under normal conditions of use.

Individual Protection Measures, such as Personal Protective Equipment:

Eye protection: Protective goggles or safety glasses are recommended.
Skin protection: Gloves are recommended.
Respiratory protection: Personal respiratory mask is not required under normal conditions of use, but a respirator is needed in case of dust formation.
Thermal Hazards: None anticipated.
Environmental exposure controls: Avoid release to the environment.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Fine cyan powder.
Odour:	None or slight plastic-like odour.
Odour Threshold:	No data available.
pH:	Not applicable.
Melting point / Freezing Point:	Not applicable.
Initial Boiling Point and Boiling Range:	Not applicable.
Flash Point:	Not applicable.
Evaporation Rate:	Not applicable.
Flammability:	No data available.
Upper / Lower Flammability or Explosive Limits:	No data available.
Vapour Pressure:	Not applicable.
Vapour Density:	Not applicable.
Relative Density:	about 1.2 (water = 1)
Solubility(ies):	Negligible in water. Partially soluble in some organic solvents such as toluene and tetrahydrofuran.
Partition Coefficient (n-Octanol/Water):	Not data available.
Auto-ignition Temperature:	Not data available.
Decomposition Temperature:	Not data available.
Viscosity:	Not applicable.
Explosive Properties:	Finely dispersed particles form explosive mixture with air.
Oxidising Properties:	No data available.

9.2 Other information

None.

SECTION 10: Stability and reactivity

10.1 Reactivity:	Stable under normal conditions.
10.2 Chemical stability:	Stable under normal ambient, anticipated storage and handling conditions of temperature and pressure.
10.3 Possibility of hazardous reactions:	None except dust explosion when finely dispersed. Keep away from sources of ignition such as sparks and open flames.
10.4 Conditions to avoid:	Excessive heat, Dust formation
10.5 Incompatible materials:	Strong oxidisers, which could vigorously oxidise organic materials in this mixture and cause a fire in an extreme case.
10.6 Hazardous decomposition products:	Carbon monoxide and carbon dioxide

SAFETY DATA SHEET

SECTION 11: Toxicological information

According to our test results of this or similar mixture and the information provided by the suppliers about the substances contained in this mixture, seriously damaging effect is not expected when this mixture is treated in accordance with standard industrial practices and legal requirements. Refer to Section 2 for potential health effects and Section 4 for first aid measures.

11.1 Information on toxicological effects

Acute toxicity:

Ingestion:	LD50 rat>5,000mg/kg (OECD 425)
Inhalation:	No test data available.
Skin Contact:	No test data available.

Irritation / Corrosivity:

Skin corrosion/irritation:	This mixture is classified as a non irritant to the dermal tissue of rabbit. (OECD 404)
Serious eye damage/irritation:	No test data available.

Sensitisation:

Skin Sensitisation:	Skin sensitising potential negative (guinea pigs, Magnusson & Klingsman's criteria) (OECD 406)
Respiratory Sensitisation:	No test data available.

Repeat Dose Toxicity:

No test data available.

Inhalation test of a toner for two years showed no significant carcinogenicity. (Reference 1)

In rats chronic exposure to toner concentrations 4mg/m3 and over lead to an accumulation of particles in the lung as well as to persistent inflammatory processes and slight to moderate fibrotic changes in the lungs of rats. In hamsters these effects were only observed at significantly higher concentrations (>20mg/m3). The particle accumulation in the lung tissue of the experimental animals is attributed to a damage and overload of the lung clearance mechanisms and is called "lung overloading". This is not an effect specific to toner dust but is generally observed when high concentrations of other, slightly soluble dusts are inhaled.

The lowest-observable-effect-level (LOEL) was 4mg/m3 and the no-observable-effect-level (NOEL) was 1mg/m3 in rats. The NOEL was greater 6mg/m3 in hamsters. (Reference 2)

Toner concentration under the normal use of this product is estimated less than 1mg/m3.

Carcinogenicity:

No test data available.

Titanium dioxide is listed by as a Group 2B (possibly carcinogenic to humans); however, inhalation tests of titanium dioxide by Muhle et al. (Reference 2) showed no significant carcinogenicity. Moreover, IARC monograph vol. 93 states that exposure levels are assumed to be lower in the user industries, with the possible exception of workers who handle large quantities of titanium dioxide. Titanium oxide in this mixture is within small quantity and most in a bound form. Therefore, no significant exposure to titanium dioxide is thought to occur during the use of the product.

Mutagenicity:

Ames test (Salmonella typhimurium, Escherichia coli) negative.

Toxicity for Reproduction:

No test data available.

STOT (Specific Target Organ Toxicity) - single exposure:

No test data available.

STOT - repeated exposure:

No test data available.

Inhalation test of a toner for two years showed no significant carcinogenicity. (1)

In rats chronic exposure to toner concentrations 4mg/m3 and over lead to an accumulation of particles in the lung as well as to persistent inflammatory processes and slight to moderate fibrotic changes in the lungs of rats. In hamsters these effects were only observed at significantly higher concentrations (>20mg/m3). The particle accumulation in the lung tissue of the experimental animals is attributed to a damage and overload of the lung clearance mechanisms and is called "lung overloading". This is not an effect specific to toner dust but is generally observed when high concentrations of other, slightly soluble dusts are inhaled.

The lowest-observable-effect-level (LOEL) was 4mg/m3 and the no-observable-effect-level (NOEL) was 1mg/m3 in rats. The NOEL was greater 6mg/m3 in hamsters. (2) Toner concentration under the normal use of this product is estimated less than 1mg/m3.

Toxicokinetcs, Metabolism and Distribution:

No information available.

Other Information:

None

SECTION 12: Ecological information

According to the information provided by suppliers about the substances contained in this mixture, this mixture is not expected to be harmful to ecology.

12.1 Toxicity:	Not data available.
12.2 Persistence and degradability:	Not data available.
12.3 Bioaccumulative potential:	Not data available.
12.4 Mobility in soil:	Not data available.
12.5 Results of PBT and vPvB assessment:	No result that indicates of his product meet(s) the PBT or vPvB criteria under Regulation (EC) No 1907/2006.
12.6 Other adverse effects:	Not data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste material may be landfilled or incinerated in compliance with all EU/national/regional/local provisions.

Do not dump this product into sewers, on the ground, or into any body of water.

SECTION 14: Transport information

14.1 UN number:	None assigned in accordance with UN Model Regulations.
14.2 UN proper shipping name:	None assigned in accordance with UN Model Regulations.
14.3 Transport hazard Class:	None assigned in accordance with UN Model Regulations.
14.4 Packing group:	None assigned in accordance with UN Model Regulations.
14.5 Environmental hazards:	Not classified as hazardous in accordance with UN Model Regulations. Not classified as marine pollutant in accordance with the IMDG Code.
14.6 Special precautions for user:	See Section 2.
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:	Not applicable.

UN Model Regulations: Recommendations on the TRANSPORT OF DANGEROUS GOODS issued by UN.

SAFETY DATA SHEET

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Information

Directive 2011/65/EU (ROHS): This mixture complies with the RoHS Directive.
Regulation (EC) No 850/2004: Not subject to regulation.
Regulation (EC) No 689/2008: Not subject to regulation.
Regulation (EC) No 1005/2009: Not subject to regulation.

(EC) No 850/2004: Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC
(EC) No 689/2008: Regulation (EC) No 689/2008 of the European Parliament and of the Council of 17 June 2008 concerning the export and import of dangerous chemicals
(EC) No 1005/2009: Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer

US Information

TSCA: All the substances in this mixture are listed or exempted in accordance with TSCA.

CERCLA Reportable Quantity (40 CFR 117, 302): Not applicable.

SARA Title III (EPRCA)

Section 302 (40 CFR 355): Not applicable.
Section 311/312 (40 CFR 370): Immediate health hazard: No
(All the ingredients of this product are bound within the mixture.)
Chronic health hazard: No
(All the ingredients of this product are bound within the mixture.)
Sudden release of pressure hazard: No
Reactive hazard: No
Section 313 (40 CFR 372): Not applicable to this mixture.

California Proposition 65: This product is in compliance with the regulation as all ingredients are bound within the mixture.

15.2 Chemical Safety Assessment: No chemical safety assessments has been carried out for this mixture by the supplier.

SAFETY DATA SHEET

SECTION 16: Other information

Sections containing revisions and/or new statements:

Fully revised in accordance with Regulations (EC) No 1907/2006 (REACH), 1272/2008 (CLP) and (EU) No 453/2010 (amending REACH).

Annex to the extended Safety Data Sheet (eSDS): None

Legend to Abbreviations:

AND	Accord European relatif au transport international des marchandises Dangereuses par voies de Navigation interieures (European agreement concerning the international carriage of dangerous goods by inland waterways)
ADR	Accord European relatif au transport international des marchandises Dangereuses par Route (The European agreement on cross-border transportation of dangerous goods by road)
CAS	Chemical Abstracts Service
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
CLP	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 Directives 67/548/EEC and 1999/45/EC, and Regulation (EC) No 1907/2006.
DNEL	Derived No-Effect Level
DOT	Department of Transport
EC	European Community
EC50	Half maximal (50%) Effective Concentration
ErC50	EC50 in terms of reduction of growth rate
EEC	European Economic Community
EPCRA	Emergency Planning and Community Right-to-know Act
EU	European Union
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IC50	Half maximal (50%) Inhibitory Concentration
IMDG	International Medical Guide for Ships
LD50	Lethal Dose, 50% kill
OECD	Organisation for Economic Co-operation and Development
OSHA	Occupational Safety and Health Administration
PELs	Permissible Exposure Limits
PBT	Persistent, Bio accumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC
RID	Reglement International concernant le transport des marchandises Dangereuses par chemin de fer (The international regulations covering transportation of dangerous goods by rail)
RoHS	Directive 2011/65/EC of the European Parliament and of the Council of 8 June 2011 on the Restriction of the use of certain Hazardous Substances in electrical and electronic equipment
SARA	Superfund Amendments and Reauthorisation Act of 1986

SAFETY DATA SHEET

SDS	Safety Data Sheet
SVHC	Substances of Very High Concern
TSCA	Toxic Substances Control Act
TLV	Threshold Limit Value
TWA	Time Weighted Average
UN	United Nations
vPvB	very Persistent and very Bio accumulative

Literature References:

(1)"Negative Effect of Long-term Inhalation of Toner on Formation of 8-Hydroxydeooxyguanosine in DNA in the Lungs of Rats in Vivo."
Yasuo Morimoto, et. Al., Inhalation Toxicology, Vol. 17 (13) 749-753 (2005)

(2)Studies by Muhle, Bellmann, Cruetzenberg et al.
"Lung clearance and retention of toner, utilising a tracer technique during chronic inhalation exposure in rats"
Fundam. Appl. Toxicol 17 (1991) p.300-313
"Lung clearance and retention of toner, TiO2, and crystalline silica, utilising a tracer technique during chronic inhalation exposure in Syrian golden hamsters."
Inhal. Toxicol 10 (1998) p.731-751
"Subchronic inhalation study of toner in rats"
Inhal. Toxicol 2 (1990) p.341-360
"Pulmonary response to toner upon chronic inhalation exposure in rats"
Fundam. Appl. Toxicol 17 (1991) p.280-299
"Pulmonary response to toner, utilising TiO2, and crystalline silica, upon chronic inhalation exposure in Syrian golden hamsters."
Inhal. Toxicol 10 (1998) p.699-729

Full text of Hazard Statements, Safety Phrases and/or Precautionary Statements in Section 3:

None

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: Black toner powder (cartridge) for
C911/C931
ES9411/ES9431/ES9541
Pro9431/Pro9541
(Toner powder name: OKT5K)

Product description: Black Toner

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

Material uses: For electrophotographic printing systems

1.3 Details of the supplier of the safety data sheet

Manufacturer: OKI Data Corporation
3-1 Futaba-cho, Takasaki-shi, Gunma. 370-8585 Japan
Tel: +81 27-328-6366 Fax: +81-27-328-6398

Supplier: OKI Europe Limited
Blays House, Wick Road, Egham, Surrey, TW20 0HJ, UK
Tel: +44 (0) 208 219 2190 Fax: +44 (0) 208 219 2199
e-mail:SDSQuestions@okieurope.com

1.4 Emergency telephone number

OKI Europe Limited: +44 (0) 208 219 2190
(Supported 09:00 to 17:00 UK Time, Monday to Friday except Bank Holidays)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition: Mixture

Regulation (EC) No. 1272/2008: Not classified as hazardous.

2.2 Label elements

Symbol & Indication of Danger: Not Required
Risk Phrase: Not Required
Safety Advice: Not Required
Dangerous Component: Not Required

Applicable Label Elements in accordance with Part2 of Annex II to Regulation (EC) No 1272/2008: Not Required

2.3 Other hazards

Information on whether the substance or mixture meets the criteria for PBT or vPvB in accordance with Annex XIII to Regulation (EC) No 1907/2006:

No

Dust Explosion:	This mixture, like most organic powders, can cause a dust explosion if particles form thick clouds.
Irritation of respiratory tract:	Slight irritation of respiratory tract may occur with exposure to large amount of toner dust.
Skin Irritation:	Minimal skin irritation may occur.
Eye Irritation:	Irritation may occur by mechanical abrasion

SECTION 3: Composition/information on ingredients

Substance/mixture: Mixture

Substances in the Mixture referred to in Points 3.2.1 or 3.2.2 of Annex II to Regulation (EC) No 1272/2008:

Chemical Identity of the substance	EC No./CAS No.	Ranges of % by mass	Classification according to Regulation (EC) No. 1272/2008
			Hazard Class / Statement*
None			

*Full text of Hazard statements is listed in Section 16.

Substances in the Mixture not meeting the Criteria for Classification:

Chemical Identity of the substance	EC No./CAS No. or other unique identifier	Ranges of % by mass	Classification according to Regulation (EC) No. 1272/2008
Styrene arcylate copolymer	NJTSRN202775807-6000	80-90	Not Classified
Wax	NJTSRN202775807-6006	5-15	Not Classified
Carbon black	215-609-9/1333-86-4	3-10	Not Classified
Amorphous silica	231-545-4/7631-86-9	1-3	Not Classified
Titanium dioxide	236-675-5/13463-67-7	0.1-0.9	Not Classified

NJTSRN: New JerseyTrade Secret Registry Number (United State)
Refer to Section 8 for the exposure limits and Section 11 for toxicological information.

Carcinogens:

This mixture contains carbon black and titanium dioxide that are listed by IARC as Group 2B (possibly carcinogenic to humans); however, no significant exposure to either carbon black or titanium dioxide is thought to occur during the use of the product because they are mostly in a bound form in this mixture.

Substances in Annex XIV to Regulation (EC) No 1907/2006 (Authorisation) or the Candidate List of SVHC:

None.

Substances in Annex XVII to Regulation (EC) No 1907/2006 (Restriction):

None.

SAFETY DATA SHEET

SECTION 4: First aid measures

4.1 Description of first aid measures

Inhalation: Provide fresh air immediately. If symptoms occur, seek medical advice.

Skin contact: Wash out particles with plenty of water and soap. If irritation develops, seek medical advice.

Eye contact: Do not rub eyes. Immediately rinse with plenty of clean running water until particles are washed out. If irritation persists seek medical advice.

Ingestion: Clean mouth out with water. Drink several glasses of water. If sickness develops, seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Acute: Exposure to excessive amounts of dust may cause physical irritation to respiratory tract.

Delayed: Prolonged inhalation of excessive amounts of dust may damage lungs.

4.3 Indication of any immediate medical attention and special treatment needed

Immediate medical attention may be required in an unlikely event of extreme inhalation, eye contact or unusual reaction due to physical idiosyncrasy of the person.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Carbon dioxide, Water, Foam, Dry chemical

Unsuitable extinguishing media: None known

5.2 Special hazards arising from the substance or mixture

Dust Explosion: This mixture, like most organic powders, is capable of creating an explosive dust when particles are dispersed in air.

Hazardous Combustion Products: Carbon Monoxide and carbon dioxide.

5.3 Advice for firefighters

Firefighters should wear protective equipment such as gloves, glasses, boots and respiratory mask as needed.

Do not breather fumes.

Keep containers cool with water spray if exposed to fire

SAFETY DATA SHEET

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For Non-Emergency Personnel: Avoid Dust formation.
Remove Ignition sources.
Do not breathe dust.
Wear personal protective equipment as described in Section 8.

For Emergency Responders: Fabric for personal protective clothing should block particles of the product as small as 3um

6.2 Environmental precautions

Do not discharge into drains or the environment.

6.3 Methods and materials for containment and cleaning up

Eliminate sources of ignition and flammables.
Vacuum or sweep the materials into a sealed container.
If a vacuum cleaner or other tool is used, it must be dust explosion-proof.
Dispose of the materials in accordance with EU/national/regional/regional requirements.

6.4 Reference to other sections

See Section 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Keep out of reach of children
Avoid dust formation. Handle in adequately ventilated areas.
Do not breathe dust. Do not get in the eyes or on skin.
Wear personal protective equipment as recommended in Section 8.
Keep away from excessive heat and sources of ignition such as sparks and open flames.
Ensure all the equipment is electrically earthed / grounded before beginning operation.
Do not handle with strong oxidisers, which may vigorously oxidise organic materials in this mixture and cause a fire in an extreme case.
Avoid spills. Do not release to drains.
Do not eat, drink or smoke when handling this product.
Wash hands after handling this product.
Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities

Keep out of reach of children
Keep container closed and stored in a well ventilated dry place at room temperature.
Keep away from excessive heat and sources of ignition.
Do not store with strong oxidisers.
Avoid packaging materials with plasticiser, which may soften this product directly contacted.

7.3 Specific end use(s)

This product is a toner used in electrophotographic printers and copiers.

SAFETY DATA SHEET

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits:

Product	EU OEL	Germany DFG MAK (8hr TWA)	UK HSE WEL (8hr TWA)	Sweden SWEA OEL LLV	ACGIH TLV (TWA)	USA OSHA PEL (TWA)
General dust or particulate not otherwise classified	Not established	Inhalable fraction: 4mg/m3	Inhalable dust: 10mg/m3 Respirable dust: 4mg/m3	Dust and mist, organic total dust: 5mg/m3	Inhalable particulate: 10mg/m3 Respirable particulate: 3mg/m3	Total dust: 15mg/m3 Respirable fraction: 5mg/m3

Ingredient	EU OEL	Germany DFG MAK (8hr TWA)	UK HSE WEL (8hr TWA)	Sweden SWEA OEL LLV (TWA)	ACGIH TLV (TWA)	USA OSHA PEL (TWA)
Carbon Black	Not established	Not established (Carcinogen Cat 3B)	3.5 mg/m3	Not established	3.5 mg/m3	3.5 mg/m3
Titanium dioxide	Not established	Inhalable fraction: 4mg/m3	Inhalable dust: 10mg/m3 Respirable dust: 4mg/m3	Total dust: 5mg/m3	10mg/m3	Total dust: 15mg/m3
Amorphous silica	Not established	Inhalable fraction: 4mg/m3	Inhalable dust: 6mg/m3 Respirable dust: 2.4mg/m3	Not established	Not established	20 mppcf* or 80/% SiO2 mg/m3 (* million particles per cubic foot)

EU: OEL (Occupational Exposure Limits at Community level under Directive 2004/37/EC Annex, 98/24/EC Annex, 91/322/EEC Annex, 2000/39/EC Annex, 2006/15/EC Annex and 2009/161/EU)
Germany: DFG (The Deutsche Forschungsgemeinschaft, German Research Institute) MAK (Maximale Arbeitsplatz-Konzentration, Maximum Workplace Concentration)
UK: HSE (Health and Safety Executive) WEL (Workplace Exposure Limits)
Sweden: SWA (Swedish Work Environment Authority) OEL (Occupational Exposure Limits) LLV (Level Limit Values)
ACGIH (American Conference of Government Industrial Hygienists): TLV (Threshold Limit Value)
USA: OSHA (Occupational Safety and Health Administration) PEL (Permissible Exposure Limits)

Biological Limit Value: Not established
PNECs and DNELs: Not established

8.2 Exposure controls

Appropriate engineering controls: Good general ventilation should be sufficient under normal conditions of use.

Individual Protection Measures, such as Personal Protective Equipment:

Eye protection: Protective goggles or safety glasses are recommended.
Skin protection: Gloves are recommended.
Respiratory protection: Personal respiratory mask is not required under normal conditions of use, but a respirator is needed in case of dust formation.
Thermal Hazards: None anticipated.
Environmental exposure controls: Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Fine black powder.
Odour:	None or slight plastic-like odour.
Odour Threshold:	No data available.
pH:	Not applicable.
Melting point / Freezing Point:	Not applicable.
Initial Boiling Point and Boiling Range:	Not applicable.
Flash Point:	Not applicable.
Evaporation Rate:	Not applicable.
Flammability:	No data available.
Upper / Lower Flammability or Explosive Limits:	No data available.
Vapour Pressure:	Not applicable.
Vapour Density:	Not applicable.
Relative Density:	about 1.2 (water = 1)
Solubility(ies):	Negligible in water. Partially soluble in some organic solvents such as toluene and tetrahydrofuran.
Partition Coefficient (n-Octanol/Water):	Not data available.
Auto-ignition Temperature:	Not data available.
Decomposition Temperature:	Not data available.
Viscosity:	Not applicable.
Explosive Properties:	Finely dispersed particles form explosive mixture with air.
Oxidising Properties:	No data available.

9.2 Other information

None.

SECTION 10: Stability and reactivity

10.1 Reactivity:	Stable under normal conditions.
10.2 Chemical stability:	Stable under normal ambient, anticipated storage and handling conditions of temperature and pressure.
10.3 Possibility of hazardous reactions:	None except dust explosion when finely dispersed. Keep away from sources of ignition such as sparks and open flames.
10.4 Conditions to avoid:	Excessive heat, Dust formation
10.5 Incompatible materials:	Strong oxidisers, which could vigorously oxidise organic materials in this mixture and cause a fire in an extreme case.
10.6 Hazardous decomposition products:	Carbon monoxide and carbon dioxide

SECTION 11: Toxicological information

According to our test results of this or similar mixture and the information provided by the suppliers about the substances contained in this mixture, seriously damaging effect is not expected when this mixture is treated in accordance with standard industrial practices and legal requirements. Refer to Section 2 for potential health effects and Section 4 for first aid measures.

11.1 Information on toxicological effects

Acute toxicity:

Ingestion:	LD50 rat>5,000mg/kg (OECD 425)
Inhalation:	LD50 rat>5.36mg/L (OECD 403)
Skin Contact:	LD50 rat>5,000mg/kg (OECD 402)

Irritation / Corrosivity:

Skin corrosion/irritation:	This mixture is classified as a non irritant to the dermal tissue of rabbit. (OECD 404)
Serious eye damage/irritation:	This mixture is classified as a non irritant to the ocular tissue of rabbit. (OECD 405)

Sensitisation:

Skin Sensitisation:	Skin sensitising potential negative (guinea pigs, Magnusson & Klingsman's criteria) (OECD 406)
Respiratory Sensitisation:	No test data available.

Repeat Dose Toxicity:

No test data available.

Inhalation test of a toner for two years showed no significant carcinogenicity. (Reference 1)

In rats chronic exposure to toner concentrations 4mg/m3 and over lead to an accumulation of particles in the lung as well as to persistent inflammatory processes and slight to moderate fibrotic changes in the lungs of rats. In hamsters these effects were only observed at significantly higher concentrations (>20mg/m3). The particle accumulation in the lung tissue of the experimental animals is attributed to a damage and overload of the lung clearance mechanisms and is called "lung overloading". This is not an effect specific to toner dust but is generally observed when high concentrations of other, slightly soluble dusts are inhaled.

The lowest-observable-effect-level (LOEL) was 4mg/m3 and the no-observable-effect-level (NOEL) was 1mg/m3 in rats. The NOEL was greater 6mg/m3 in hamsters. (Reference 2)

Toner concentration under the normal use of this product is estimated less than 1mg/m3.

Carcinogenicity:

No test data available.

Carbon Black is listed by IARC as a group 2B (possibly carcinogenic to humans), but IARC monographs vol. 65 and 93 state that there is inadequate evidence in humans for carcinogenicity of carbon black. Inhalation test of a toner for two years (Reference 1) and studies by Muhle et al. (Reference 2) showed no significant carcinogenicity. In addition IARC monograph vol. 93 states that no significant exposure to carbon black is thought to occur during the use of products in which carbon black is bound to other materials, such as rubber, printing ink or paint. Carbon black in this mixture is in a bound form.

Titanium dioxide is listed by as a Group 2B (possibly carcinogenic to humans); however, inhalation tests of titanium dioxide by Muhle et al. (Reference 2) showed no significant carcinogenicity. Moreover, IARC monograph vol. 93 states that exposure levels are assumed to be lower in the user industries, with the possible exception of workers who handle large quantities of titanium dioxide. Titanium oxide in this mixture is within small quantity and most in a bound form. Therefore, no significant exposure to titanium dioxide is thought to occur during the use of the product.

Mutagenicity:

Ames test (Salmonella typhimurium, Escherichia coli) negative.

Toxicity for Reproduction:

No test data available.

STOT (Specific Target Organ Toxicity) - single exposure:

No test data available.

STOT - repeated exposure:

No test data available.

Inhalation test of a toner for two years showed no significant carcinogenicity. (1)

In rats chronic exposure to toner concentrations 4mg/m3 and over lead to an accumulation of particles in the lung as well as to persistent inflammatory processes and slight to moderate fibrotic changes in the lungs of rats. In hamsters these effects were only observed at significantly higher concentrations (>20mg/m3). The particle accumulation in the lung tissue of the experimental animals is attributed to a damage and overload of the lung clearance mechanisms and is called "lung overloading". This is not an effect specific to toner dust but is generally observed when high concentrations of other, slightly soluble dusts are inhaled.

The lowest-observable-effect-level (LOEL) was 4mg/m3 and the no-observable-effect-level (NOEL) was 1mg/m3 in rats. The NOEL was greater 6mg/m3 in hamsters. (2) Toner concentration under the normal use of this product is estimated less than 1mg/m3.

Toxicokinetcs, Metabolism and Distribution:

No information available.

Other Information:

None

SECTION 12: Ecological information

According to the information provided by suppliers about the substances contained in this mixture, this mixture is not expected to be harmful to ecology.

12.1 Toxicity:	Not data available.
12.2 Persistence and degradability:	Not data available.
12.3 Bioaccumulative potential:	Not data available.
12.4 Mobility in soil:	Not data available.
12.5 Results of PBT and vPvB assessment:	No result that indicates of his product meet(s) the PBT or vPvB criteria under Regulation (EC) No 1907/2006.
12.6 Other adverse effects:	Not data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste material may be landfilled or incinerated in compliance with all EU/national/regional/local provisions.

Do not dump this product into sewers, on the ground, or into any body of water.

SECTION 14: Transport information

14.1 UN number:	None assigned in accordance with UN Model Regulations.
14.2 UN proper shipping name:	None assigned in accordance with UN Model Regulations.
14.3 Transport hazard Class:	None assigned in accordance with UN Model Regulations.
14.4 Packing group:	None assigned in accordance with UN Model Regulations.
14.5 Environmental hazards:	Not classified as hazardous in accordance with UN Model Regulations. Not classified as marine pollutant in accordance with the IMDG Code.
14.6 Special precautions for user:	See Section 2.
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:	Not applicable.

UN Model Regulations: Recommendations on the TRANSPORT OF DANGEROUS GOODS issued by UN.

SAFETY DATA SHEET

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Information

Directive 2011/65/EU (ROHS): This mixture complies with the RoHS Directive.
Regulation (EC) No 850/2004: Not subject to regulation.
Regulation (EC) No 689/2008: Not subject to regulation.
Regulation (EC) No 1005/2009: Not subject to regulation.

(EC) No 850/2004: Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC
(EC) No 689/2008: Regulation (EC) No 689/2008 of the European Parliament and of the Council of 17 June 2008 concerning the export and import of dangerous chemicals
(EC) No 1005/2009: Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer

US Information

TSCA: All the substances in this mixture are listed or exempted in accordance with TSCA.
CERCLA Reportable Quantity (40 CFR 117, 302): Not applicable.
SARA Title III (EPRCA)
Section 302 (40 CFR 355): Not applicable.
Section 311/312 (40 CFR 370): Carbon Black
Immediate health hazard: No
Chronic health hazard: No (Carbon Black is bound within the mixture.)
Sudden realease of pressure hazard: No
Reactive hazard: No

Section 313 (40 CFR 372): Not applicable to this mixture.

California Proposition 65: This product is in compliance with the regulation as all ingredients are bound within the mixture.

15.2 Chemical Safety Assessment: No chemical safety assessments has been carried out for this mixture by the supplier.

SAFETY DATA SHEET

SECTION 16: Other information

Sections containing revisions and/or new statements:

Fully revised in accordance with Regulations (EC) No 1907/2006 (REACH), 1272/2008 (CLP) and (EU) No 453/2010 (amending REACH).

Annex to the extended Safety Data Sheet (eSDS): None

Legend to Abbreviations:

AND	Accord European relatif au transport international des marchandises Dangereuses par voies de Navigation interieures (European agreement concerning the international carriage of dangerous goods by inland waterways)
ADR	Accord European relatif au transport international des marchandises Dangereuses par Route (The European agreement on cross-border transportation of dangerous goods by road)
CAS	Chemical Abstracts Service
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
CLP	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 Directives 67/548/EEC and 1999/45/EC, and Regulation (EC) No 1907/2006.
DNEL	Derived No-Effect Level
DOT	Department of Transport
EC	European Community
EC50	Half maximal (50%) Effective Concentration
ErC50	EC50 in terms of reduction of growth rate
EEC	European Economic Community
EPCRA	Emergency Planning and Community Right-to-know Act
EU	European Union
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IC50	Half maximal (50%) Inhibitory Concentration
IMDG	International Medical Guide for Ships
LD50	Lethal Dose, 50% kill
OECD	Organisation for Economic Co-operation and Development
OSHA	Occupational Safety and Health Administration
PELs	Permissible Exposure Limits
PBT	Persistent, Bio accumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC
RID	Reglement International concernant le transport des marchandises Dangereuses par chemin de fer (The international regulations covering transportation of dangerous goods by rail)
RoHS	Directive 2011/65/EC of the European Parliament and of the Council of 8 June 2011 on the Restriction of the use of certain Hazardous Substances in electrical and electronic equipment
SARA	Superfund Amendments and Reauthorisation Act of 1986

SAFETY DATA SHEET

SDS	Safety Data Sheet
SVHC	Substances of Very High Concern
TSCA	Toxic Substances Control Act
TLV	Threshold Limit Value
TWA	Time Weighted Average
UN	United Nations
vPvB	very Persistent and very Bio accumulative

Literature References:

(1)"Negative Effect of Long-term Inhalation of Toner on Formation of 8-Hydroxydeooxyguanosine in DNA in the Lungs of Rats in Vivo."
Yasuo Morimoto, et. Al., Inhalation Toxicology, Vol. 17 (13) 749-753 (2005)

(2)Studies by Muhle, Bellmann, Cruetzenberg et al.
"Lung clearance and retention of toner, utilising a tracer technique during chronic inhalation exposure in rats"
Fundam. Appl. Toxicol 17 (1991) p.300-313
"Lung clearance and retention of toner, TiO2, and crystalline silica, utilising a tracer technique during chronic inhalation exposure in Syrian golden hamsters."
Inhal. Toxicol 10 (1998) p.731-751
"Subchronic inhalation study of toner in rats"
Inhal. Toxicol 2 (1990) p.341-360
"Pulmonary response to toner upon chronic inhalation exposure in rats"
Fundam. Appl. Toxicol 17 (1991) p.280-299
"Pulmonary response to toner, utilising TiO2, and crystalline silica, upon chronic inhalation exposure in Syrian golden hamsters."
Inhal. Toxicol 10 (1998) p.699-729

Full text of Hazard Statements, Safety Phrases and/or Precautionary Statements in Section 3:

None

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product