

**RICOH MATERIAL SAFETY DATA SHEET**

Developer

**SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**Product Identification**

Product Name : Developer 4211  
 Product Number : 4211  
 Chemical Name : Mixture  
 CAS Number : 0-00-0

**Company Identification**

Company Name : Ricoh Corporation  
 Address : 5 Dedrick Place  
 West Caldwell, NJ USA 07006  
 Emergency telephone Number : 1-800-336-MSDS (6737)  
 Telephone Number for Information : 1-973-882-5218

Model use: 5020, 7020, 7334, 7430, 5015, 5015RE, 7015Z, 7025, 7035, 7500, 7045, 7055, 7065, 7640, 9710, 7220, ###

**SECTION 2 COMPOSITION, INFORMATION ON INGREDIENTS**

Ingredients	CAS #	Contents %	ACGIH (TLV)			OSHA (PEL)	
			TWA	STEL	C	TWA	C
Nickel Zinc Ferrite Powder	12645-50-0	97	N/A	N/A	N/A	N/A	N/A
Styrene Acrylic Polymer	26655-10-7	2	N/A	N/A	N/A	N/A	N/A
Styrene Acrylic Polymer	25213-39-2	<1	N/A	N/A	N/A	N/A	N/A
Carbon Black	1333-86-4	<1	3.5mg/m3	7mg/m3	N/A	3.5mg/m3	N/A
Dye	84179-66-8	<1	N/A	N/A	N/A	N/A	N/A
Dye	109125-50-0	<1	N/A	N/A	N/A	N/A	N/A
Dye	109125-51-1	<1	N/A	N/A	N/A	N/A	N/A

**SECTION 3 HAZARDS IDENTIFICATION**

Emergency Overview			
HMIS	Health = 1	Flammability = 1	Reactivity = 0
			PPE : See Section 8

**Potential Health Effects**

Primary Entry Routes  
 Inhalation : Yes  
 Skin : No  
 Ingestion : Yes

**Carcinogenicity :**

Carbon Black was reclassified as a Group 2B by IARC in 1996 based on the result of only the inhalation study in rats. However there was not observed the incidence of tumors on the test results on dermal or oral studies. Also 2-years inhalation study using a typical toner containing carbon black showed no association between toner exposure and animal tumors.

**WICOH MATERIAL SAFETY DATA SHEET**

Developer

**Medical Conditions Aggravated by Exposure :** Not applicable**Chronic Effects :**

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

**SECTION 4 FIRST AID MEASURES**

**Inhalation :** Gargle with water, move to place in fresh air. If unsuccessful, get medical attention.  
**Skin contact :** Wash thoroughly with soap and water.  
**Eye Contact :** Try to remove with eye drops or flush with water. If unsuccessful, get medical attention.  
**Ingestion :** Dilute stomach contents with several glasses of water. If unsuccessful, get medical attention.

**SECTION 5 FIRE-FIGHTING MEASURES**

**Flash Point** Not applicable  
**Burning Rate (mm/sec)** Not available  
**Autoignition Temperature (C)** Not available  
**Flammable Limits (%)** LEL Not applicable  
 UEL Not applicable

**Extinguishing Media :** Foam, water spray ( mist ), dry chemical or carbon dioxide may be suitable.  
**Fire-Fighting Instructions :** No special fire protecting method is required.

**SECTION 6 ACCIDENTAL RELEASE MEASURES**

**Personal Precautions :** Minimize inhalation of dust.  
**Environment Precautions :** Keep product out of sewers and watercourses.  
**Method for Cleaning up :** If spilled, sweep up or pick up by vacuum cleaner(rated for developer extraction).  
 Remove residue with soap and water.

**SECTION 7 HANDLING AND STORAGE**

**Handling (technical measures, precautions, safe handling material)**  
 Do not handle in areas where wind blows.  
 Flying powder may enter eyes.  
 Minimize breathing dust.

**Storage (technical measures, storage condition, packaging material)**  
 Avoid direct sunlight.  
 Do not keep this over 35C (95F)  
 Keep out of reach children.

**KICOH MATERIAL SAFETY DATA SHEET**

Developer

**SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION**

Ventilation	Local exhaust equipment is needed.
Respiratory Protections (Specify type)	None required under normal conditions of use.
Eye Protection :	None required under normal conditions of use.
Protective Gloves	None required under normal conditions of use.
Protective Clothing or Equipment	None required under normal conditions of use.

**SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES**

Form	Powder
Color	Black
Odor	Slightly plastic odor
pH	Not applicable
Boiling Point (C)	Not applicable
Vapor Pressure(Pa)	Not applicable
Vapor density(Air=1)	Not applicable
Density (g/cm <sup>3</sup> )	5.39 approximately
Formula Weight	Not applicable
Melting Point (C)	Not applicable
Viscosity (Pa)	Not applicable
Volatile (%)	-
Evaporation Rate(n-BuAc=1)	Not applicable
Water Solubility (g/L)	Insoluble
Other Solvent name	-
Other Solvent Solubility(g/L)	-

**SECTION 10 STABILITY AND REACTIVITY**

Stability	Stable
Condition to Avoid	Not applicable in normal use.
Material to Avoid	Not applicable in normal use.
Hazardous Polymerization	None
Hazardous Decomposition or Byproducts	Will not occur

**SECTION 11 TOXICOLOGICAL INFORMATION**

Acute Toxicity	
Acute Oral Toxicity :	Rat : >= 5000 mg/kg

**KICOH MATERIAL SAFETY DATA SHEET**

Developer

Product Number: 4211

Acute Dermal Toxicity : Not available

Acute Inhalation Toxicity : Not available

**Sensitization**

Acute Skin Irritation : Non-irritant

Acute Eye Irritation : Not applied

Acute Allergenic Effects : 0%

**Special Effects****Carcinogenicity**

In 1996 IARC reevaluated Carbon Black as a Group 2B carcinogen (possible human carcinogen). This evaluation is given to carbon black for which there is inadequate human evidence, but sufficient animal evidence. The latter is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats have not demonstrated an association between carbon black and lung tumors. Moreover, 2-years cancer bioassay using a typical toner preparation containing carbon black did not demonstrate an association between toner exposure and tumor development in rats.

This product contains Nickel as the ingredient of Nickel Zinc Ferrite and Nickel oxide is known as a human carcinogen. However Nickel Zinc ferrite does not contain Nickel oxide because Nickel is bound within it due to its solid solution structure.

**Mutagenicity**

Negative

**Effects on the reproductive system**

No data is available on this product.

**Teratogenic**

Not available

**SECTION 12 ECOLOGICAL INFORMATION****Persistence/Degradability**

Not known

**Bioaccumulation**

Not known in bioaccumulation.

**Ecotoxicity****Acute toxicity for Fish**

Not applicable

**Acute toxicity for daphnia**

Not applicable

**Algae inhibition test**

Not applicable

**SECTION 13 DISPOSAL CONSIDERATION****Recommended Methods for safe Environmentally Preferred Disposal**

Used developer should be disposed of in an environmentally appropriate manner and in accordance with governmental regulations. Do not incinerate.

**SECTION 14 TRANSPORT INFORMATION****International regulations**

RID/ADR

Not available

**IKCOH MATERIAL SAFETY DATA SHEET**

Developer

DOT 49 CFR	Not applicable
ADNR	Not available
IMDG Code	Not available
ICAO-TI/ATA-DGR	Not available
The UN Classification Number	Not applicable

**Specific Precautionary Transport Measures** Avoid direct sunlight. Do not keep this over 35C (95F)  
**Specific Materials to Avoid** None in normal use.

**SECTION 15 REGULATION INFORMATION**

**Regulation :** Not known

**SECTION 16 OTHER INFORMATION**

Explanation of Hazardous Materials Identification System (HMIS) & National Fire Protection Association (NFPA) hazard rating systems :

Both the HMIS and NFPA systems use number from "0" to "4" to show the degree of hazard in an uncontrolled situation:

0=Minimum hazard 1=Slight hazard 2=Moderate hazard 3=Serious hazard 4=Severe hazard.

Colors may also be used in both systems :

Blue= Health hazard Red= Fire hazard Yellow= Reactivity hazard White= Indicate a special hazard.

HMIS will specify any Personal Protective Equipment required (PPE).

NFPA will specify OX(oxidizer), Acid(acid), ALK(alkali), COR(corrosive), W(use no water), xx(radioactive).

**References:**

- 1) IARC(1996) "IARC Monograph on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol.65, Printing Process and Printing Inks, Carbon Black and some Nitro Compounds", Lyon, pp149-261
- 2) H.Muhle, B.Bellman, O.Creutzenberg, C.Dasenbrock, H.Emst, R.Kilpper, J.C.MacKenzie, P.Morrow, U.Mohr, S.Takenaka and R.Mermelstein(1991) "Pulmonary Response to Toner upon Chronic Inhalation Exposure in Rats" Fundamental and Applied Toxicology 17, pp280-299