Konica MATERIAL SAFETY DATA SHEET

MSDS: 1997802603EU
Date Prepared: 12, March, 1997
Date Revised :14, July, 1998

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: KONICA TONER 160/160RE/250/250RE/180Z/181Z/220Z/280Z/320Z/321Z 225Z/1112/1015/1120/1212/2223/1216/8010

Manufactured by:
Konica Corporation
2970 Ishikawa-cho, Hachioji-shi, Tokyo
192-8505, Japan
Tel: 0426-60-9490
Fax: 0426-60-9491

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENTS	CAS#	wt.%	Symbol	R Phrases
Polyester resin	Trade secret	85 - 95	-	-
Carbon black	1333-86-4	5 - 12	-	-
Wax-1	Trade secret	<3	-	-
Wax-3	Trade secret	<3	-	-
Silica(Amorphous)	7631-86-9	<1	-	-
Titanium dioxide	13463-67-7	<1	-	-

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

****
** Fine black powder. Slight mild odor. **
****

POTENTIAL HEALTH EFFECTS

Eye Effects : None currently known.
Skin Effects : None currently known.
Ingestion Effects : None currently known.
Inhalation Effects: None currently known. Minimal respiratory tract irritation may occur as with exposure to large amount of any non-toxic dust.
Chronic Effects/ Carcinogenicity:
Prolonged inhalation of excessive dusts may cause lung damage. The effect is attributed to "lung overloading", a generic response to excessive amounts of any dust retained in the lungs for a prolonged period. Use of this product, as intended, does not result in inhalation of excessive dust.

Carbon black is classified as a group 2B carcinogen (possible human carcinogen) by IARC. However, based on animal testing, it is presumed that there is no association between toner exposure and cancer.

(Continued on page 2)

4. FIRST AID MEASURES

Eye : Flush eyes with plenty of water. If symptoms occur, get medical attention.
Skin : Wash with water and mild soap.
Ingestion : Wash out mouth with water. Drink one or two glasses of water. If symptoms occur, get medical attention.
Inhalation: Remove victim to fresh air. If symptoms occur, get medical attention.

5. FIRE FIGHTING MEASURES

Flash Point : Not applicable
Method Used : Not applicable
Flammable Limits : LFL 20g/m3 in air
Autoignition Temperature : Not applicable
Unusual Fire and Explosion Hazard: Combustible powder. Dust at sufficient concentrations can form explosive mixtures with air.
Extinguishing Media: Water spray, dry chemical, foam.
Fire Fighting: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. If fire is in the machine treat as an electric fire, do not use water or foam.
Hazardous Combustion Products: Carbon monoxide, carbon dioxide and smoke.

6. ACCIDENTAL RELEASE MEASURES

Spill and Leakage Procedures:
Wear personal protective equipment(See Section 8). Minimize the release of particulates. Stop leak if you can do it without risks. Vacuum or sweep material and place in a bag and hold for waste disposal. Use vacuum equipped with High Efficiency Particulate Air(HEPA) filter. Vacuum should be electrically bonded and grounded to disipate static electricity. To avoid dust generation, do not sweep dry.

7. HANDLING AND STORAGE

Handling:
Keep out of reach of children. Avoid prolonged inhalation of excessive dust and contact with eyes.
Prevention of Fire and Explosion:
This material is capable of creating a dust explosion. Keep away from heat, sparks and flame.
Storage:
Keep container tightly closed. Store in a cool and dry place. Keep away from oxidizers.

(Continued on page 3)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Standards:

INGREDIENTS	ACGIH TLV(1995-96) TWA	STEL
Polyester resin	None established	
Carbon black	3.5mg/m3	
Wax-1	None established	
Wax-3	None established	
Silica(Amorphous)	10mg/m3	
Titanium dioxide	10mg/m3	

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Fine black powder
Odor : Slight mild odor
pH : Not applicable.
Vapor Pressure : Not applicable.
Vapor Density : Not applicable.
Evaporation Rate: Not applicable.
Boiling Point : Not applicable.
Melting Point : Around 135C(275F)(Softening point)
Solubility : Insoluble in water.
Specific Gravity: 1.2

10. STABILITY AND REACTIVITY

Stability: Stable except above 200C(392F).
Incompatibility: Oxidizers.
Hazardous Decomposition Products:
Carbon monoxide, carbon dioxide and smoke.
Hazardous Polymerization: Will not occur.

(Continued on page 4)

11. TOXICOLOGICAL INFORMATION:

Product

Acute oral toxicity : LD50:>5000mg/kg[rat]
Inhalation : LC50:>1083mg/m3/4hrs[rat](This value is highest-attainable with aerosol generation apparatus)
Eye irritation : Non-irritant[rabbit]
Skin irritation : Non-irritant[rabbit]
Skin sensitization : Non-sensitizing[guinea pig]
Chronic Effects/ Carcinogenicity :

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

Mutagenicity : Ames test:Negative

Ingredients

Carbon black

Carcinogenicity :

The IARC reevaluated carbon black as a group 2B carcinogen (possible human carcinogen) in Monograph Volume 65 in 1996. This category has been given to carbon black, based on IARC's evaluations that there is inadequate evidence in humans for the carcinogenicity of carbon black, but there is sufficient evidence in experimental animals. The latter evaluation was made due to the development of lung tumors in rats receiving chronic inhalation exposure to free carbon black at levels that induce "lung overloading". However, studies performed in mice have not demonstrated an association between carbon black and lung tumors. Moreover, a two-year cancer bioassay using a typical toner preparation containing carbon black demonstrated no association between toner exposure and tumor development in rats. (See chronic effects in this section.)

Silica(Amorphous)

Acute oral toxicity : LD50:3160mg/kg[rat]

12. ECOLOGICAL INFORMATION:

No data available.

(Continued on page 5)

13. DISPOSAL CONSIDERATIONS:

When disposing of the waste or recovered material, consult federal, state and/or local regulations for the proper disposal method. Do not throw away the toner cartridge into the fire.

14. TRANSPORT INFORMATION:

UN CLASS: Not regulated.

15. REGULATORY INFORMATION:

Labeling according EEC-Regulations: No labels required.

16. OTHER INFORMATION:

References

IARC (1996) IARC Monographs on the Evaluation of the Carcinogenic Risks of Chemicals to Humans, Vol. 65, Printing Processes and Printing Inks, Carbon Black and Some Nitro Compounds, Lyon, pp. 149-261

H. Muhle, B. Bellmann, O. Creutzenberg, C. Dasenbrock, H. Ernst, R. Kilpper, J. C. MacKenzie, P. Morrow, U. Mohr, S. Takenaka, and R. Mermelstein (1991) Pulmonary Response to Toner upon Chronic Inhalation Exposure in Rats, Fundamental and Applied Toxicology

Prepared by

Konica Corporation
No. 26-2 Nishishinjuku 1-chome
Shinjuku-ku, Tokyo 163-05, Japan

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