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January 1, 2006
MSDS: MIRACLON (D)

MATERIAL SAFETY DATA SHEET

MIRACLON

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **MIRACLON**
CREATION DATE: July 2, 2003
REVISION DATE: January 1, 2006
MSDS PREPARED BY: Manufacturing Technology Division, Safety Control Section, TOK

JAPAN

SUPPLIER: TOKYO OHKA KOGYO CO., LTD.
SECTION: Manufacturing Technology Division, Safety Control Section
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USA

SUPPLIER: TOKYO OHKA KOGYO AMERICA, INC.
ADDRESS: 190 Topaz Street, Milpitas, California 95035, U.S.A.
TELEPHONE NUMBER: +1-408-956-9901
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EMERGENCY RESPONSE: +1-800-424-9300 (CHEMTREC for U.S.A.)
+1-703-527-3887 (CHEMTREC for international)

2. COMPOSITION / INFORMATION ON INGREDIENTS

SIMPLE/MIXTURE: Mixture
CHEMICAL NAME (GENERIC NAME): None
SYNONYM (S): None
INGREDIENT AND COMPOSITION:

INGREDIENTS (Photosensitive resin layer)	wt%	CHEMICAL FORMULA	CAS NO.
Polyvinyl alcohol	50~60	$H(CH_2CHOH)_nH$	9002-89-5
Derivative of acrylamide	40~50	Trade Secret	Trade Secret

3. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS:

SKIN CONTACT:

Skin contact causes irritation, and it may cause damages on skin, including dermatitis.

EYE CONTACT:



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Eye contact causes irritation.

4. FIRST AID MEASURES

SKIN CONTACT:

Wash the affected part with plenty of running water and mild soap.

If irritation continues, immediately take the patient to a physician for examination and treatment.

EYE CONTACT:

Immediately rinse the eyes with running water to wash off the chemical completely.

Immediately take the patient to a physician for examination and treatment.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

MATERIAL	FLASH POINT	IGNITION POINT	EXPLOSION LIMIT
Product concerned	Not Available	Not Available	Not Available
Polyvinyl alcohol	>70°C	440°C (Film)	Not Applicable
Derivative of acrylamide	Not Available	Not Available	Not Available

EXTINGUISHING MEDIA:

Proper extinguishing media should be used when fire breaks out in surroundings.

FIRE FIGHTING INSTRUCTIONS:

Quickly move all the movable containers from the fire area to safe area.

Fire fighters should wear proper protective clothings.

6. ACCIDENTAL RELEASE MEASURES

Collect spilled material in appropriate container for disposal.

7. HANDLING AND STORAGE

HANDLING:

Be careful in handling the container, and protect it from damages.

Wear proper protective clothings because printing materials are sharp.

Avoid contact with oxidizing agents or reductants.

Do not expose to UV light. Use under tungsten or yellow light.

Avoid putting something on products, or pressing hand when cut them.

Water facility should be installed at every place where the solution is used. It should facilitate measures in case of adhesion or contact with eyes.

Do not bring contaminated protective tools, such as gloves, to the lounges.

Be careful of personal health after handling.

STORAGE:

Keep it sealed.

Avoid the direct rays of the sun. Preserve in a cool and dark place.

Try to prevent high humidity.



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Keep away all sources of ignition.

Do not heat.

Separate from combustibles.

IN CASE OF KEEPING USED PRINTING MATERIALS:

Wipe out of the ink and washes.

Protect it from damages.

Keep it sealed.

Avoid the direct rays of the sun. Preserve in a cool and dark place.

Keep away all sources of ignition.

Do not heat.

Separate from combustibles.

OTHERS:

Follow all national and local regulations.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:

When handling, try to use closed apparatuses, equipment or partial ventilator.

PERSONAL PROTECTIVE EQUIPMENT:

EYE PROTECTOR: Chemical goggles.

HAND, SKIN AND BODY PROTECTOR: Gloves shoes and clothing to cover the whole body.

EXPOSURE GUIDELINES:

INGREDIENTS	ACGIH TLV	OSHA PEL
Product	None established	None established
Polyvinyl alcohol	None established	None established
Derivative of acrylamide	None established	None established

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Solid

ODOR: Not available

SPECIFIC GRAVITY: Not available

BOILING POINT: Not available

SOLIDIFYING POINT: Not available

RELATIVE VAPOR DENSITY: Not available

SOLUBILITY IN WATER: Soluble

VAPOR PRESSURE: Not available

pH: Not available

10. STABILITY AND REACTIVITY

STABILITY: Reactive to UV light. Use under tungsten or yellow light.

CONDITION TO AVOID:

Avoid the direct rays of the sun. Preserve in a cool and dark place.

Try to prevent high humidity.



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Keep away all sources of ignition.

Do not heat.

MATERIALS TO AVOID: Oxidizing agents and reductants.

HAZARDOUS DECOMPOSITION PRODUCTS: Emit carbon monoxide when burned with insufficient oxygen.

HAZARDOUS POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION(Only data for each component is available.)

Polyvinyl alcohol

ACUTE TOXICITY:

Oral LD50 (rat): >20000mg/kg

Oral LD50 (mouse): 14700mg/kg

Intraperitoneal TDLo (rat): 10000mg/kg

SUBCHRONIC TOXICITY AND CHRONIC TOXICITY:

Chronically to rats (1ml 5% solution each day for 49days). Different PVA's tested with molecular weight from 35000 to 240000. All caused anemia and infiltrated various organs and tissues. Four caused hepatosplenomegaly, two resulted in striking histologic changes. All caused thymus involution.

MUTAGENIC EFFECT:

No significant effect were seen in chromosomal test of hamster and microcell nucleous test of mouse.

CARCINOGENIC EFFECT:

IARC Group 3 (not classifiable as to its carcinogenic to humans)

No carcinogenic effects were noted in OSHA, EPA, EU, NTP and ACGIH.

TERATOGENIC EFFECT:

No relevant information found.

Derivative of acrylamide

ACUTE TOXICITY:

No relevant information found.

SUBCHRONIC TOXICITY AND CHRONIC TOXICITY:

No relevant information found.

MUTAGENIC EFFECT:

No relevant information found.

CARCINOGENIC EFFECT:

No relevant information found.

TERATOGENIC EFFECT:

No relevant information found.

12. ECOLOGICAL INFORMATION(Only data for each component is available.)

Polyvinyl alcohol

BIODEGRADABILITY: Lower or not biodegradable.

FISH TOXICITY: No relevant information found.



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OTHER INFORMATION ON ECOTOXICITY

Octanol/Water Partition Coefficient: No relevant information found.

BOD: No relevant information found.

COD: No relevant information found.

Derivative of acrylamide

BIODEGRADABILITY: No relevant information found.

FISH TOXICITY: No relevant information found.

OTHER INFORMATION ON ECOTOXICITY

Octanol/Water Partition Coefficient: No relevant information found.

BOD: No relevant information found.

COD: No relevant information found.

13. DISPOSAL CONSIDERATIONS

All excess material must be collected and transferred to a professional waste disposal company.

Carefully review information in - **7.HANDLING & STORAGE**.

Comply with all national and local regulations.

14. TRANSPORT INFORMATION

U.S. Department of Transportation (DOT):

PROPER SHIPPING NAME: Not regulated

HAZARD CLASS: Not regulated

IDENTIFICATION NUMBER: Not regulated

PACKING GROUP: Not regulated

Keep away from incompatibilities and all sources of ignition.

Follow all national and local regulations.

15. REGULATORY INFORMATION

U.S. REGULATION:**TSCA (Toxic Substances Control Act):**

This product is "article" as defined in 29 CFR 1910.1200(c).

16. OTHER INFORMATION

MSDS STATUS:

Revised Section 1.

REFERENCE:

1. HSDB
2. RTECS
3. The Dictionary of Substance and Their Effects (The Royal Society of Chemistry)
4. Material Safety Data Sheet (of the raw material manufacturer)



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The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment.